-6. FEB. 1961

Report on Steam Turbine Machinery. No. 1093

Received at London Office

writing Report 10.12. 1960 When handed in at Local Office 12.12. 1960 Port of Rijeka

Survey held at Rijeka Date, First Survey 9.4.60 Last Survey 1.10. 1960
(Number of Visits 49)

ook

4 on the Single / Twin / Triple / Quadruple Screw Vessel "TRUD" Tons Gross 17.597 Net 10.445

at Rijeka By whom built Brodogradiliste "3 Maj" Yard No. 460 When built 1960

es made at Stockholm By whom made A/B de Laval Angturbin Engine No. 45053 When made 1959

's made at Rijeka By whom made Djuro Djakovic Boiler No. 9940 & 9941 When made 1960

Horse Power Maximum 13750 Service 12500 Owners Black Sea State Steamship Co. Port belonging to Odessa

us per Rule 2750 Is Refrigerating Machinery fitted for cargo purposes No Is Electric Light fitted Yes

for which Vessel is intended Open sea service

AM TURBINE ENGINES, &c.—Description of Engines HP & LP Impulse turbines for main propelling machinery

f Turbines Ahead HP & LP Astern LP Direct coupled, ~~single reduction geared~~ double reduction geared to One propelling shafts. No. of primary pinions to each set of reduction gearing 2

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

pplying power for driving – Propelling Motors, Type

Kilowatts – Volts at revolutions per minute. Direct coupled, single or double reduction geared to propelling shafts.

BINE DING.	H.P.	I.P.	L.P.	ASTERN.
No. of rows	9	–	8	3
No. of stages	–	–	–	–
No. of rows in each stage				

Horse Power at each turbine H.P. 6875 I.P. – L.P. 6875

Revolutions per minute, at full power, of each Turbine Shaft H.P. 4664 I.P. – L.P. 3575 1st reduction wheel 718.3 main shaft 112

r Shaft diameter at journals H.P. 149,75 mm I.P. – L.P. 149.75mm

Pitch Circle Diameter 1st pinion HP. 279.56mm LP 350.443 mm 2nd pinion 522.638 1st reduction wheel HP. 1815.215mm LP 1744.338mm main wheel 3351.854 mm

Width of Face 1st reduction wheel 560 mm main wheel 1045 mm

nce between centres of pinion and wheel faces and the centre of the adjacent bearings 1st pinion 382,5 mm 2nd pinion 712,5 mm 1st reduction wheel 405 mm main wheel 792,5mm

ermediate HP & LP

ble Pinion 1st 220mm I/O 120mm 2nd 295 mm s, diameter

Pinion Shafts, diameter at bearings External 1st 199,6mm – Internal 2nd 449,4mm 300 mm diameter at bottom of pinion teeth HP 1st 269,767mm LP 2nd 340,643mm

el Shafts, diameter at bearings 1st 274,6mm main 574,6mm diameter at wheel shroud, 530 at coupling

Generator Shaft, diameter at bearings 1st 325mm main 680mm

Propelling Motor Shaft, diameter at bearings –

rmediate Shafts, diameter as per rule – as fitted 483 mm

Thrust Shaft, diameter at collars as per rule – as fitted 560 mm

e Shaft, diameter as per rule – as fitted –

Screw Shaft, diameter as per rule – as fitted 562 mm

Is the tube / screw shaft fitted with a continuous liner Yes

nze Liners, thickness in way of bushes as per rule – as fitted 28 mm Thickness between bushes as per rule – as fitted 20 mm Is the after end of the liner made watertight in the

peller 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

e 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

wo 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

t No If so, state type – Length of Bearing in Stern Bush next to and supporting propeller 2250 mm

peller, diameter 6250 mm Pitch 5,557 mm No. of Blades 4 State whether Moveable No Total Developed Surface 14.83 square ~~feet~~ M.

ingle 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 H.P. Turbine, can be arranged to exhaust direct to condenser

denser No X No. of Turbines fitted with astern wheels One (LP) Feed Pumps No. and size 2x133 cu.m/H & 1-37 cu.m/H How driven Steam turbo Electric motor

aps connected to the Main Bilge Line No. and size Ballast & Bilge pumps each 100 cu.M/H; G.S.Pump 75 cu.M/H; Aux. bilge 25cu.M/H How driven Electric motor Steam driven

last Pumps, No. and size One 100 cu.m/h in En.Rm One 75cu.m/h in Ford.Pump Rm. Lubricating Oil Pumps, including Spare Pump, No. and size 2@ 90 cu.M/H

two independent means arranged for circulating water through the Oil Cooler Yes Branch Bilge Suctions, No. and size:—In Engine Boiler Rooms 5@ 3½" In Pump Room Main 3½" p&s For'd 3½ (5½) p&s

Holds, &c. Forward Hold 2@2" p.s. and 2@2" s.s.

in Water Circulating Pump Direct Bilge Suctions, No. and size Port One 12" dia Direct Bilge Suctions to the Engine and/or Boiler Room

yes, No. and size 5" port & 5" stbd. 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 Yes

all Sea Connections fitted direct on the skin of the ship Yes Are they fitted with Valves or Cocks Yes

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

below 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~~ steel

ering plate Yes What pipes pass through the bunkers – How are they protected –

at pipes pass through the deep tanks – Have they been tested as per rule –

e 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

aces, or from one compartment to another Yes Is the Shaft Tunnel watertight – Is it fitted with a watertight door – worked from –

OILERS, &c.—Total Heating Surface of Boilers 1364 sq.m. 18025 ☐

Forced Draught fitted Yes No. and Description of Boilers Babcock & Wilcox type W.T. Working Pressure 51 Kg/sq.cm

a Report on Main Boilers now forwarded? Yes- Rijeka Report No. 965

Is { a Donkey / an Auxiliary } Boiler fitted? No. Steam heated steam generator fitted *If so, is a report now forwarded?* Yes. Genoa Cert. No. M442

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

Plans. *Are approved plans forwarded herewith for Shafting* Yes *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* Yes *Date of approval* 19.6.1958 (Stockholm

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. BRODOGRADILIŠTE 3. MAJ RIJEKA Ing. ..... *Manufac*

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* 29.9.60 *Tube shaft* – *Screw shaft* 20.4.60

Propeller 22.4.60 *Stern tube* 18.4.60 *Engine and boiler seatings* 11.6.60 *Engine holding down bolts* 11.10.60

Completion of fitting sea connections 21.4.60 *Completion of pumping arrangements* ..... *Boilers fixed* 28.10.60 *Engines tried under steam* 28.1

Main boiler safety valves adjusted 28.10.60 *Thickness of adjusting washers* Measurement top adjusting to top locking nuts (Port F.22,2mm A 22,6mm Spht (Stbd F.21,4mm A 19,5mm Spht

Rotor shaft, Material and tensile strength Intermediate shafts (*Identification Mark* LR.Spt 1567 31.5.60 AB LR.Spt.1542

Flexible Pinion Shaft, Material and tensile strength See Stockholm Report No.12356 *Identification Mark* 31.5.60 AB

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* Forged steel *Identification Mark* LR.No.47 SKM.WA

Intermediate shafts, Material SM. steel *Identification Marks* See above *Tube shaft, Material* – *Identification Marks* –

Screw shaft, Material SM. steel *Identification Marks* Lloyds RKA 6357 SPT.1561 9.11.59 GM 20.4.60.DP *Steam Pipes, Material* Cr.Mo.steel *Test pressure* 1450 lb

Date of test 7.7.60 and subsequently *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* Ye

Full description of Fire Extinguishing Apparatus fitted in machinery spaces Steam smothering in E.R.& B.R. Hoses & Nozzles Portable exting.15x9 lt; 1x45 lt; 1x136 lt foam 2x1,2

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 No

Is this machinery a duplicate of a previous case Yes *If so, state name of vessel* Petar Zoranic

General Remarks. *(State quality of workmanship, opinions as to class, &c.)* The machinery of the ship has been constructed and installed under Special Survey in accordance with the Society's Rules approved plans and Secretary's letters.

The materials and workmanship are good.

On completion the Main and Auxiliary machinery, Boilers, Steering Gear and Windlass were examined under working condition alongside the quay and under full power conditions at sea with satisfactory results and the vessel is considered eligible in our opinion for Classification with the Society, having the following notation:

✝ LMC 10.60; T.S.C.L. 2 WTB 725 lb/sq.in. (Spt. 710 lb/sq.in.) Steam heated steam Generator 150lb/sq.in

(The Surveyors are requested not to write on or below the space for Committee's Minute.) **Certificate (if required) to be sent to**

The amount of Entry Fee ...	£ 214-16-00	+ 180,432.-din	When applied for
Special attend....	£ 3.528.-din.		19
Donkey Boiler Fee ...	£ :		When received
Travelling Expenses (if any)	£ 14.700.-din		19

Committee's Minute FRIDAY 14 APR 1961

Assigned + LMC ES WTB SG SPS CL 10.60

Fred G.Burn for self, A.Butler & D.S.Pike. Reelly

Engineer Surveyor to Lloyd's Register of Shipping.

A.Butler, D.S.Pike, J.Racki, F.G.Burn, M.Furlani

+ RMS 13.2.61