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date of writing report 24.2.1959.

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On vessel

FIRST ENTRY REPORT ON INTERNAL COMBUSTION MACHINERY

No. in R.B. 90887 Name Tween Screw Motorship "PAMIR" Gross tons 1500
Owners U.S.S.R. Managers - Port of Registry Leningrad
Hull built at Gävle, Sweden By AB Gävle Varv Yard No. 99 Year Month 1958 12
Main Engines made at Hamburg By Maschinenfabrik Augsburg-Nürnberg Eng. No. 405211-212 When 1958 3
Donkey boilers made at Sävstjör, Sweden By AB Vatten och Ånga Blr. Nos. 25305 When 1957
Machinery installed at Gävle By AB Gävle Varv When 1958-12

Particulars of restricted service of ship, if limited for classification

Particulars of loggable or similar cargo, if required

Is ship to be classed for navigation in ice? Yes ☒ Is ship intended to carry petroleum in bulk? No

Is refrigerating machinery fitted? Domestic only ☒ Is refrigerating machinery intended to be classed?

Is the refrigerating machinery compartment isolated from the propelling machinery space?

Is the refrigerating machinery compartment intended to be classed?

The following particulars should be given as fully and as clearly as possible. Where the answer is "No" or "None", say so! Ticks and other signs of doubtful meaning are not to be used. Where the wording is not applicable to the installation, a black line may be inserted. If the main engines have been constructed at another port and are covered by a separate report, the particulars given in that report need not be repeated below, but the port and report number should be stated.

No. of main engines 2 No. of propellers 2 Brief description of propulsion system 2 engines direct coupled to 2 screw shafts.

MAIN RECIPROCATING ENGINES. Licence Name and Type No. MAN type GIOV 40/60 (with supercharging).

No. of cylinders per engine Dia. of cylinders stroke(s) 2 or 4 stroke cycle Single or double acting

Maximum approved BHP per engine 2100 at No. 6441 RPM of engine and RPM of propeller.

Corresponding MIP (For DA engines give MIP top & bottom) Maximum cylinder pressure Machinery numeral

Are the cylinders arranged in Vee or other special formation? If so, number of crankshafts per engine

TWO STROKE ENGINES. Is the engine of opposed piston type? If so, how are the pistons connected to the crankshaft?

Is the exhaust discharged through ports in the cylinder covers? No and type of mechanically driven scavenge pumps and blowers

Is the exhaust gas driven scavenge blowers per region?

Where exhaust gas driven blowers only are fitted, can the engine operate with one blower out of action?

If a scavenge pump or blower is fitted, state how driven. No. of scavenge air coolers Scavenge air pressure

Are the undersides of the pistons arranged as supercharge pumps?

No. of exhaust gas driven blowers per engine

FOUR STROKE ENGINES. Is the engine supercharged? No. of supercharge air coolers per engine Supercharge air pressure Can engine operate without supercharger?

TWO & FOUR STROKE ENGINES-GENERAL. No. of valves per cylinder: Fuel Inlet No. 6441 Exhaust Starting Safety

Material of cylinder covers Material of piston crowns Is the engine equipped to operate on heavy fuel oil?

Cooling medium for : Cylinders Pistons Fuel valves Overall diameter of piston rod for double acting engines

Is the rod fitted with a sleeve? Is welded construction employed for: Bedplate? Frames? Entablature? Is the crankcase separated from the

underside of pistons? Is the engine of crosshead or trunk piston type? Total internal volume of crankcase No. and total area of explosion relief

devices. Are flame guards or traps fitted to relief devices? Is the crankcase readily accessible? If not, must the engine be removed for

overhaul of bearings, etc? Is the engine secured directly to the tank top or to a built-up seating? Tank top How is the engine started? Compressed air

Can the engine be directly reversed? If not, how is reversing obtained?

Has the engine been tested working in the shop? How long at full power?

CRANK & FLYWHEEL SHAFTING. Date of approval of torsional vibration characteristics of the propelling machinery system State barred speed range(s), if imposed

for working propeller For spare propeller Is a governor fitted? Is a torsional vibration damper or detuner fitted to the shafting?

Where positioned? Type No. of main bearings Are main bearings of ball or roller

type? Distance between inner edges of bearings in way of crank(s) Distance between centre lines of side cranks or eccentrics of opposed piston engines

Crankshaft type: Built, semi-built, solid. (State which)

Diameter of journals Diameter of crankpins Breadth of webs at mid-throw Axial thickness of webs

If shrunk, radial thickness around eyeholes Are dowel pins fitted? Crankshaft material Journals Approved Tensile strength

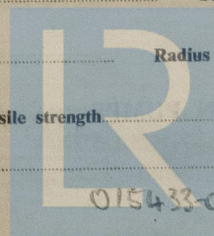
Diameter of flywheel Weight Are balance weights fitted? Total weight Radius of gyration

Diameter of flywheel shaft Material Minimum approved tensile strength

Flywheel shaft: separate, integral with crankshaft, integral with thrustshaft. (State which)

No. of Visits 88

6,9,13,17,2



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MAIN GAS TURBINES (Name and Type)

Name of set of turbines _____ Design of cycle _____ BHP per set _____ RPM _____ HP gas inlet temperature _____ pressure _____

How is drive transmitted to propeller shaft? _____

ARRANGEMENT OF TURBINES (A small diagram should be attached showing gas cycle.)

IP drive _____ RPM _____ HP gas inlet temperature _____ pressure _____

DP drive _____ RPM _____ HP gas inlet temperature _____ pressure _____

No. of air compressors per set _____ Centrifugal or other flow type? _____ Material of turbine blades _____

Compressor blades _____ No. of air coolers per set _____ No. of heat exchangers per set _____ How are turbines started? _____

How is reversing effected? _____ Are the turbines operated in conjunction with free piston gas generators? _____

Total No. of free piston gas generators _____ Diameter of working pistons _____ Diameter of compressor pistons _____ No. of double strokes _____

Maximum shaft power _____ Gas delivery pressure _____ Gas delivery temperature _____ Have the turbines and attached equipment been tested over _____

Is there any _____ How long are full powers? _____

ELECTRIC PROPULSION (Reciprocating engines or gas turbines. Electrical particulars to be reported on Form 4d.)

No. of generators _____ KW per generator _____ RPM _____ AC or DC _____ Position _____

No. of propulsion motors _____ SHP per motor _____ RPM _____ Position _____

How is power obtained for excitation of generators? _____ Motor _____

REDUCTION GEARING (Reciprocating engines or gas turbines. A small line sketch should be attached showing arrangement of gearing.)

Location of shafts in hull _____ How is position of gear thrust bearing? _____ Is gear thrust bearing of type? _____

Is gear thrust bearing of type? _____ Second reduction _____ R.P.R. of shafts in reduction _____ Main _____

Material of shafts _____ Shaft strength _____ Material of shafts _____ Shaft strength _____

Are gear teeth of type? _____ How are teeth of shafts? _____ Diameter of pinion gears _____ Whole gear _____

Mounting _____ Are the shafts of welded construction? _____ Is gear case of welded construction? _____ Has the gear case been tested for leakage? _____

Oil supply _____ Where is the propeller thrust bearing located? _____ Are gear thrust bearings of type? _____

CLUTCHES, FLEXIBLE COUPLINGS, ETC. (If clutch or other flexible connection is fitted between engine/turbine and gearings or between engine and the shafting give a description and how clutches are operated.)

Can the main engine be used for purposes other than propulsion when disconnected? _____ If yes, what? _____

STRAIGHT SHAFTING. Diameter of thrust shaft 280 mm ✓ Material S.M.-steel Minimum approved tensile strength 50-60 kg/mm²

Shaft separate or integral with crank or wheel shaft? Separate Diameter of intermediate shaft 210 mm ✓ Material S.M.-steel

Minimum approved tensile strength 44-50 kg/mm² Diameter of screw shaft 200 mm ✓ Central hole ✓ Is screw shaft fitted with a continuous liner? No

Diameter of prop shaft 175 mm ✓ Is the shaft fitted with a continuous liner in way of stern tube? _____ Diameter of prop shaft 175 mm ✓

Bearing _____ Material of screw shaft S.M.-steel Minimum approved tensile strength 44-60

Is an approved oil gland fitted? Yes ✓ If so, state type Gedervall ✓ Length of bearing next to and supporting propeller 1000 mm

Material of bearing White metal ✓ In multiple screw vessels is the liner between stern tube and A bracket continuous? Yes If not, is the exposed length of shafting between

liners readily visible in dry dock? -

PROPELLER. Diameter of propellers 2500 mm ✓ Pitch Variable Built up or solid - Total developed surface -

No. of blades 3 Blade thickness at top of root fillet - Blade material Stainless steel Moment of inertia of dry propeller 2720 kgm²

If propeller is of special design, state type KAMEWA ✓ Is propeller of reversible pitch type? Yes If so, is it of approved design? Yes

State method of control Hydraulic Material of spare propeller blades steel Moment of inertia -

AIR COMPRESSORS & RECEIVERS. No. of main engine driven compressors per engine None Can they be disconnected? -

No. of independently driven air compressors. (State capacity, prime mover, position in ship, and Port and No. of certificate) 2 main:- 56 m³/h; electric motor, port

starboard in E.R. fwd.; Kiel cert. 2204 and 2205. - 1 aux.:- 11.4 m³/h; diesel motor; starb. side fwd.; Cpn cert. dated 2.7.57.

No. of starting air receivers. (Main and Aux. State capacity of each, position in ship and Port and No. of Certificate) 3 main:- 1000 litres each; port, centre and

starboard side fwd.; Hamburg cert. No. 58/744. - 1 aux.:- 125 litres in aux. E.R.; Augsburg cert. No. 8673 - 1 aux. 55 litres in E.R., port aft.; Augsburg cert. No. 58/314.

How are receivers first charged? By one diesel driven emergency compressor Maximum working pressure of starting air system 30 kg/cm² Are the safety devices in

accordance with the Rules? Yes Has the starting of the main engines been tested and found satisfactory? Yes

COOLERS. No. of main engine fresh water coolers 2 No. of main engine lubricating oil coolers 2

OIL FUEL TANKS. No. and position of oil fuel settling or service tanks not forming part of hull structure None

MAIN ENGINE DRIVEN PUMPS (No. and Purpose) On each engine: two lubricating and one oil fuel pump.

Service for which each pump is connected to be marked thus X

INDEPENDENT PUMPS Name below essential pumps, state position and how driven. Give capacity of bilge pumps.	SUCTION										DELIVERY						
	Bilge Main	Bilge Direct	Ballast Main	Oil Fuel	Fresh Water Cooling	Sea	Feed Tanks	Lub. Oil	Prop. Hydr. Syst.	Boiler Feed	Salt Water Cooling	Fresh Water Cooling	Oil Fuel Tanks	Fire Main	Lub. Oil	Piston Cooling	Prop. Hydr. Syst.
All electrically driven.																	
Bilge pump, s.s., 80 t/h	X	X	X			X											
Ballast pump, s.s., 100 t/h	X	X	X	X		X							X				
San. & fire pump, s.s.						X								X			
Emerg. fire pump, steer. room						X								X			
Transfer pump, p.s.				X									X				
" " " (for aux. eng)				X									X				
2 lub. oil stand by pumps, p.s.								X							X		
3 cool. w. pumps (s.f. w.), p.c.s.					X	X					X	X					
1 stand by c.w. pump (s.w.) for 3 aux. eng. p.s.						X					X						
2 stand by c.w. pumps (s.f. w.) for 2 aux. eng. p.s.					X	X					X	X					
2 stand by oil pumps for prop system, p & s.									X								X
Boiler feed pump, s.s. (steam driven)							X			X							
Stand by feed pump, s.s.							X			X							

BILGE SUCTIONS. No. and size in each hold, deep tank or pump room No. 1 hold:- 2 x 2". - Provision store:- 1 x 2 1/2" & 1 x 2". -

Compressor room:- 2 x 3". - Pump store:- 2 x 2". - No. 2 hold:- 2 x 2 1/2".

No. and size connected to main bilge line in main engine room 3 x 3" & 2 x 2". Cofferdams:- 1 x 3" & 1 x 3". In tunnel 2 x 2" & 1 x 2 1/2".

In aux. engine room 2 x 3" Size and position of direct bilge suction in machinery spaces Fwd. 1 x 4".

Aft: 1 x 5". - Aux. eng. room:- 1 x 4". Size and position of emergency bilge suction in machinery spaces See dir. suet.

Compressor room:- 1 x 4". Is the bilge or ballast system fitted with means for separating oily water on the overboard discharge side? None Do the piping arrangements comply with the Rules including

special requirements for ships carrying petroleum in bulk, cargo oil or classed for navigation in ice? (strike out words not applicable). Yes

STEAM & OIL ENGINE AUXILIARIES

Position of each	Type	Made by	Port and No. of Rpt. of C.A.	Driven Machinery (For electric generators, state output)
Port side in E.R.	4 SCSC Diesel	MAN. AG	Augsburg No. 1062 ✓	One 100 KVA 3-phase alternator
Starb. side in E.R.	4 SCSC Diesel	MAN. AG	Augsburg No. 1062 ✓	One 100 KVA 3-phase alternator
Port side in Aux. eng. room	4 SCSC Diesel	MAN. AG	Augsburg No. 1068 ✓	One 200 KVA 3-phase alternator
Centre in Aux. E.R.	4 SCSC Diesel	MAN. AG	Augsburg No. 1068 ✓	One 200 KVA 3-phase alternator
Starb. side in Aux. E.R.	4 SCSC Diesel	MAN. AG	Augsburg No. 1068 ✓	One 200 KVA 3-phase alternator

Is electric current used for essential services at sea? Yes If so, state the minimum No. and capacity of generators required in order that the ship may operate

at sea One Generator, 200 KVA. Is an electric generator driven by Main Engine? No.

STEAM INSTALLATION. No. of donkey boilers burning oil fuel 1 W.P. 85 lbs/sq. in. Type Single ended multitubular "UNIVEX".

Position In a separate compartment on starboard side in auxiliary engine room.

Is a superheater fitted? No Are these boilers also heated by exhaust gas? No No. of donkey boilers heated by exhaust gas only? No W.P. -

Type - Position - Can the exhaust heated boilers deliver steam directly to

the steam range or do they operate only as economisers in conjunction with oil fired boilers? - Port and No. of report on donkey

boilers Gothenburg No. 24096 Is steam essential for operation of the ship at sea? No Are any steam pipes over 3 ins. bore? No If so, what is their

material? - For oil fired boilers is the arrangement of pipes, valves, controls, etc., in accordance with the Rules? Yes No. of oil burning pressure

units 2 No. of steam condensers None No. of Evaporators 1

STEERING GEAR. (State No. and Type of Steam Engines, Electric Motors, Hydraulic Pumps and other particulars). Maker:- A/S Svendborg Skibsværkt; 1 hydraulic

pump type 13 driven by one 15 HP el. motor (Thrige) with double pipes to steering engine. Spare gear:- 1 hand operated pump on bridge.

Have the Rule Requirements for fire extinguishing arrangements been complied with? Yes Brief description of arrangements As per Rules and U.S.S.R. requirements.

Has the spare gear required by the Rules been supplied? Yes Has all the machinery been tried under full working conditions and found satisfactory? Yes Date and duration of full-

power sea trials of main engines 13.11.58., 5 hours. Does this machinery installation contain any features of a novel or experimental nature? (Give particulars)

No.

The foregoing description of the main engine and installation is correct and the particulars are as approved for torsional vibration characteristics (strike out words not applicable).

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Aktiebolaget Gåvle Vard's Register

Konstruktionstjänst

Builder

GENERAL REMARKS

State if the machinery has been constructed and/or installed under special survey in accordance with the Rules, approved plans and Secretary's letters. State quality of materials and workmanship and recommendations for classification, including any special notation to be assigned. Where existing machinery is submitted for classification the circumstances should be explained as fully as possible.

The machinery of this vessel has been installed under Special Survey in accordance with the Rules approved plans and Secretary's letters, and tested under working conditions on trial trip and found satisfactory.

The workmanship and materials are good.

The machinery of this vessel is eligible, in our opinion, to be classed in the Register Book with the record of +LMC 12.58 and OG, and with the notation "Strengthened for Navigation in ice", the engines not to be operated continuously between 80 and 100 r.p.m.

J. M. Jager
Engineer Surveyor to Lloyd's Register of Shipping

PARTICULARS OF IDENTIFICATION MARKS (Including Port of origin) of important Forgings and Castings. (Copies of certificates should be forwarded with report.)

RODS

CRANKSHAFT OR ROTOR SHAFT Hamburg report No. 6441.

FLYWHEEL SHAFT Hamburg report No. 6441.

THRUST SHAFT { Port LLOYDS DSF JL. 761 5.8.57. HAM 3.10.57. Hka.
Starb. LLOYDS DSF JL. 761 A 12.8.57. HAM 3.10.57. Hka.

GEARING { Port { LLOYDS SKM No. 874 KE 28.2.58. DTM J.L. 14.9.57.
LLOYDS GOT No. 808 BJG 7.3.58.
Starb. { LLOYDS SKM No. 873 KE 28.2.58 DTM J.L. 11.9.57.
LLOYDS GOT. No. 824 BJG 7.3.58.

INTERMEDIATE SHAFTS { Port LLOYDS DTM No. 835 BJG 7.3.58. Got. cert. No. 23892
SCREW AND TUBE SHAFTS { Starb. LLOYDS DTM No. 833 BJG 7.3.58. Got. cert. No. 23891

PROPELLERS Please see Got. cert. No. 24254 attached hereto.

OTHER IMPORTANT ITEMS OK-couplings between screw- and intermediate shafts:-

Port. LLOYDS SKM No. 8752 S.W. 23.9.57.

Starb. LLOYDS SKM No. 8751 S.W. 23.9.57.

Is the installation a duplicate of a previous case? No H.C.S. state name of vessel

Date of approval of plans for crankshaft Nos. 7547/48 See Eng. certs. Straight shafting 18.4.1957. Gearing

Oil fuel tanks 20.1. & 1.3.1958 Pumping arrangements 19.10.57. Oil fuel arrangements 19.10.57.

Air receivers No. 58/744 Donkey boilers See Got.rpt.No.24

Dates of examination of principal parts:- port 8.8.58. port 16.4.58. stbd. 10.4.58. Fitting of propeller stb. 9.8.58. Completion of sea connections 16.4.58. Alignment of crankshaft in main bearings 2.7.58.

Engine checks & bolts 1.7.58. Alignment of straight shafting 2.7.58. Testing of pumping arrangements 2.10.58.

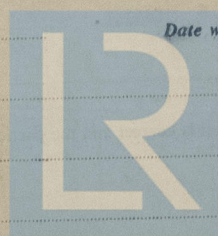
Oil fuel lines 5.11.58. Donkey boiler supports 16.4.58. Steering machinery 13.11.58. Windlass 5.11.58.

Date of Committee Special Survey Fee Kr.2.790:--

Decision See Rpt. 1.

Expenses Kr.1.966:--

Date when A/c rendered 24.2.1959.



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