

Rpt. 4b

15 JUN 1959

Date of writing report 11/6 1959 Received London Port of Stockholm No. 12047
Survey held at Gävle No. of visits 8 In shops 9.6.58 Last date 18.2.59
On vessel 23 First date 13.8.58

FIRST ENTRY REPORT ON INTERNAL COMBUSTION MACHINERY

No. in R.B. 92246 Name Twin Screw Motorship "ALDAN" Gross tons 1500
Owners U.S.S.R. Managers - Port of Registry Leningrad
Hull built at Gävle By A/B Gävle Varv Yard No. 100 Year Month When 1959 4
Main Engines made at Hamburg By Maschinenfabrik Augsburg-Nürnberg Eng. No. s. 405252-53 When 1958 9
Steering gear Sävsjö, Sweden By A/B Vatten och Ånga
Donkey boilers made at Sävsjö, Sweden By A/B Vatten och Ånga Blr. Nos. 25306 When 1958
Machinery installed at Gävle By A/B Gävle Varv When 1959 4

Particulars of restricted service of ship, if limited by classification
Particulars of vegetable or similar cargo installation, 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 If so, is it for cargo purposes? No Type of refrigerant
Is the refrigerating machinery compartment isolated from the propelling machinery space? Is the refrigerated cargo installation intended to be classed? No

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 - 2 screw shafts - 2 alternating pitch propeller units

MAIN RECIPROCATING ENGINES. Licence Name and Type No. MAN type G40V 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 at 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 upper pistons connected to crankshaft?

Is the exhaust discharged through ports in the cylinders or through valve(s) in the cylinder covers? No. and type of mechanically driven scavenge pumps or blowers per engine and how driven

No. of exhaust gas driven scavenge blowers per engine Where exhaust gas driven blowers only are fitted, can the engine operate with one blower out of action?

If a stand-by or emergency pump or blower is fitted, state how driven No. of scavenge air coolers Scavenge air pressure at full power

Are scavenge manifold explosion relief valves fitted?

FOUR STROKE ENGINES. Is the engine supercharged? Are the undersides of the pistons arranged as supercharge pumps? No. of exhaust gas driven blowers per engine

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 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 Centre Breadth of webs at mid-throw Axial thickness of webs

Pins Minimum

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

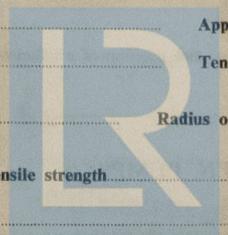
Webbs Tensile strength

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)

HAMBURG REPORT No. 6876



Lloyd's Register Foundation 011 725 - 011 736 - 0250 1/2

MAIN GAS TURBINES. Name and Type No.

No. of sets of turbines Open or closed cycle BHP per set at RPM of output shaft
 How is drive transmitted to propeller shaft?
 ARRANGEMENT OF TURBINES. HP drives at RPM HP gas inlet temperature pressure
 (A small diagram should be attached showing gas cycle.)
 IP drives at RPM IP gas inlet temperature pressure
 LP drives at RPM LP gas inlet temperature pressure
 No. of air compressors per set Centrifugal or axial flow type? Material of turbine blades Material of 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 per minute at full power Gas delivery pressure Gas delivery temperature Have the turbines and attached equipment been tested working in the shop? How long at full power?

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

No. of generators kW per generator at RPM AC or DC? Position
 No. of propulsion motors SHP per motor at RPM Position
 How is power obtained for excitation of generators? Motors?

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

Is gearing of single or double helical type? If single, position of gear thrust bearing Is gearing of epicyclic type?
 PCD of pinions: First reduction Second reduction PCD of wheels: First reduction Main
 Material of pinions Tensile strength Material of wheel rims Tensile strength
 Are gear teeth surface hardened? How are teeth finished? Diameter of pinion journals Wheel shaft journals
 Are the wheels of welded construction? Is gearcase of welded construction? Has the wheel/gearcase been heat treated on completion of welding? Where is the propeller thrust bearing located? Are gear bearings of ball or roller type?

CLUTCHES, FLEXIBLE COUPLINGS, ETC. If a clutch or other flexible connection is fitted between engine/turbine and gearing or between engine and line shafting give brief description and, for clutches, state how operated.

Can the main engine be used for purposes other than propulsion when declutched? If so, what?

STRAIGHT SHAFTING. Diameter of thrustshaft 280 mm Material SM-steel Minimum approved tensile strength 50 kg/mm²

Shaft separate or integral with crank or wheel shaft? Separate Diameter of intermediate shaft 210 mm Material SM-Steel
 Minimum approved tensile strength 44 kg/mm² Diameter of screwshaft 240 mm with 80 mm central hole Is screwshaft fitted with a continuous liner? No

BEARINGS. Thickness between bearings Material of screwshaft SM-Steel Minimum approved tensile strength 44 kg/mm²

Is an approved oil gland fitted? Yes If so, state type Cedervall 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 propeller 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, stainless steel Moment of inertia -

AIR COMPRESSORS & RECEIVERS. No. of main engine driven compressors per engine None Are they de-aerated?

No. of independently driven air compressors. (State capacity, prime mover, position in ship, and Port and No. of certificate) 2 off 56 m³/h; electric motors; -
 port forward & starboard forward in main E.R. Kiel cert. Nos. 2527 & 2528. 1 off emergency air compressor, 11.4 m³/h; diesel motor; starboard side forward; Copenhagen cert. dated 24.4.58 & 16.7.58.
 No. of starting air receivers. (Main and Aux. State capacity of each, position in ship and Port and No. of Certificate) 3 off main; 1000 litres each; port, centre and starboard side forward in main E.R. Hamburg cert. No. 10453 - 1 off aux.; 55 litres in main E.R. port side aft, Augsburg cert. No. 59120 - 1 off aux; 125 litres in aux. engine room; Augsburg cert. No. 591195.
 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) See Hamburg report No. 6876.

INDEPENDENT PUMPS Name below essential pumps, state position and how driven. Give capacity of bilge pumps.	Service for which each pump is connected to be marked thus X														Sea		
	SUCTION							DELIVERY									
	Bilge Main	Bilge Direct	Ballast Main	Oil Fuel	Fresh Water Cooling	Sea	Feed Tanks	Lub. Oil	Alt. pitch prop. units	Boiler Feed	Salt Water Cooling	Fresh Water Cooling	Oil Fuel Tanks	Fire Main	Lub. Oil	Piston Cooling	Alt. pitch prop. units
Electr. driven Bilge pump, s.s., 80 m ³ /h.	X	X	X			X											X
Electr. driven Ballast pump, s.s., 100 m ³ /h.	X	X	X	X		X							X				X
Electr. driven Fire pump s.s.						X								X			
Diesel driven Emerg. fire pump; steer.gear compartm.						X								X			
Electr. driven O.F. transfer pump, p.s.				X									X				
Electr. driven 2 lub.oil standby pumps, p.s.								X							X		
El.driv.port,centre & stbd fwd. 3 main cool.w.pumps(SW & fr.w)					X	X					X	X					X
El.dr.2 standby cool.w.pumps(SW&fr.w) for aux.eng in ME room, p.s.aft.					X	X					X	X					
El.dr. 1 standby cool.w.pump for aux.eng.in aux. E.R.						X					X						X
El.dr.2 standby lub.oil pumps for altern. pitch prop. units, p&s									X								X
Steam driven Donkey Boiler feed pump, s.s.							X			X							
El. driven D.B. feed pump, s.s.							X			X							

BILGE SUCTIONS. No. and size in each hold, deep tank or pump room No. 1 hold: 2 off 2". - Provision store: 1 off 2 1/2" + 1 off 2".
 Compressor room: 2 off 3". - Salv. pump room: 2 off 2". - No. 2 hold: 2 off 2 1/2".
 No. and size connected to main bilge line in main engine room 3 off 3" + 2 off 2". Coff.dams: 1 off 3" in each In tunnel 2 off 2" + 1 off 2 1/2"
 In aux. engine room 2 off 3" Size and position of direct bilge suction in machinery spaces ME room: 1 off 4" at fwd. end. -
 1 off 5" at aft end. - 1 off 4" in aux. ER. Size and position of emergency bilge suction in machinery spaces See direct suction above.
 Is the bilge or ballast system fitted with means for separating oily water on the overboard discharge side? No Do the piping arrangements comply with the Rules including special requirements for ships carrying petroleum oils, cargo oil or gas, as defined in the Rules? yes

STEAM & OIL ENGINE AUXILIARIES

Position of each	Type	Made by	Port and No. of Rpt.	Driven Machinery (For electric generators, state output)
Port side aft in ME room	4 SCSA Diesel	MAN - AG	Augsburg No. 1125	One 94 KVA-3 phase alternator
Starb. " " " "	"	"	"	94 " "
Port side, in Aux. eng. room	"	"	1122	" 200 " "
Centre in Aux. eng. room	"	"	"	" " "
Starb side " " "	"	"	"	" " "

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 aux. eng. room.

Is a superheater fitted? No Are these boilers also heated by exhaust gas? No No. of donkey boilers heated by exhaust gas only? None w.p.
 Type Position

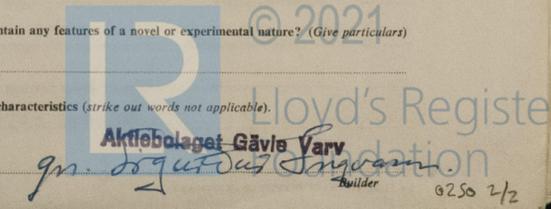
Port and No. of report on donkey boiler Gothenburg No. 24200 Is steam essential for operation of the ship at sea? No Are any steam pipes over 3 ins. bore? No

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 Skibsvaerft; Type 140/13 BGR4; 1 hydr. pump electr. driven with double pipes to steering gear; 1 hand operated hydr. pump in the steering pedestal on bridge.
 Have the Rule Requirements for fire extinguishing arrangements been complied with? Yes Brief description of arrangements To Lloyd's 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 16.4.1959. - 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).



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 give 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 4.59 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.

For J. Lager and self. J. Teichmann

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 Hamburg report No. 6876

CRANKSHAFT OR ROTORSHAFT Hamburg report No. 6876.

FLYWHEEL SHAFT Port:- LLOYD'S Dtm. J.L. 746 31.7.57. HAM. 8.11.57. H.Ka.
Starb:- LLOYD'S Dtm. J.L. 746A 31.7.57 HAM. 8.11.57. H.Ka.

THRUSTSHAFT

GEARING Port:- LLOYD'S SKM No. 915 KE 9.6.58 DTM J.L. 14.9.57.
LLOYD'S Got. No. 905 BJ 30.7.58.

INTERMEDIATE SHAFTS Starb:- LLOYD'S Got. No. 905 BJ 30.7.58.

SCREW AND TUBE SHAFTS Port:- LLOYD'S Got. No. 872 BJ 30.7.58.
Starb:- LLOYD'S Got. No. 874 BJ 30.7.58.

PROPELLERS Please see Got. cert. No. 24895 attached hereto.

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

Port side:- LLOYD'S SKM No. 8750 S.W. 23.9.57.

Starb. side:- LLOYD'S SKM No. 8745 S.W. 23.9.57.

Is the installation a duplicate of a previous case? Yes If so, state name of vessel "PAMIR"

Date of approval of plans for crankshaft See HAM.certs Nos. 58/708 & 709 Straight shafting 18.4.1957 Gearing Clutch

Separate oil fuel tanks 20.1.58 & 1.3.58. Pumping arrangements 19.10.57. Oil fuel arrangements 19.10.57.

Cargo oil pumping arrangements Air receivers See HAM cert. No. 58/453 & AUG. certs. Nos. 58/920 & 58/1195 Donkey boilers See Got. rpt.No. 242

Dates of examination of principal parts:-

Fitting of stern tube 13-14.8.58 Fitting of propeller 20.8.58 Completion of sea connections 28.8.58 Alignment of crankshaft in main bearings 16.9.58

Engine checks & bolts 10.9.58 Alignment of gearing Alignment of straight shafting 16.9.58 Testing of pumping arrangements 22.4.59

Oil fuel lines 23.4.59 Donkey boiler supports 13.8.58 Steering machinery and Windlass working 16.4.59.

Date of Committee FRIDAY 24 JUL 1959 Special Survey Fee Kr. 2.790:--

Decision See Rpt. 1. Special Att. Fee Kr. 85:--

Expenses Kr. 1.186:--

Date when A/c rendered 11/6 1959.



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