Continuation of Rpt. 4 b Kiel No. 1482 dd 7-2-56

Rpt. 4b

21298

Date of writing report ..... Received London 11 MAR 1957 Port Amsterdam No. ~~21290~~

Survey held at Zaandam No. of visits In shops 8 First date 10-8-1956 Last date 10-1-1957
On vessel .....

FIRST ENTRY REPORT ON INTERNAL COMBUSTION MACHINERY

No. in R.B. ..... Name m.v. "CAPELLA" Gross tons 499,39

Owners Mr. Rusthoven - Haren Managers Same Port of Registry Groningen

Hull built at Zaandam By Scheepswerf "KRAAIER" Yard No. 1168 When Year 1957 Month 1

Main Engines made at Kiel-Friedrichsort By MAK Maschinenbau Kiel Akt.Ges. Eng. No. 15.659 When 1956-2

Gearing made at - By -

Donkey boilers made at - By - Blr. Nos. When

Machinery installed at Zaandam By Scheepswerf "Kraaier" When

Particulars of restricted service of ship, if limited for classification ocean-going

Particulars of vegetable or similar cargo oil notation, if required no

Is ship to be classed for navigation in ice? no Is ship intended to carry petroleum in bulk? no

Is refrigerating machinery fitted? no 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? --

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 one No. of propellers one Brief description of propulsion system Main-engine, Diesel-engine direct on propeller

MAIN RECIPROCATING ENGINES. Licence Name and Type No. MAK type Man 423

No. of cylinders per engine ✓8 Dia. of cylinders ✓290 mm stroke(s) ✓420 mm 2 or 4 stroke cycle ✓4 Single or double acting ✓single

Maximum approved BHP per engine ✓520 at ✓375 RPM of engine and ✓375 RPM of propeller.

Corresponding MIP ✓6,8kg/cm² *(For DA engines give MIP top & bottom)* Maximum cylinder pressure ✓48 kg/cm² Machinery numeral 104

Are the cylinders arranged in Vee or other special formation? no 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? no Are the undersides of the pistons arranged as supercharge pumps? no No. of exhaust gas driven blowers per engine none No. of supercharge air coolers per engine none Supercharge air pressure -- Can engine operate without supercharger? --

TWO & FOUR STROKE ENGINES--GENERAL. No. of valves per cylinder: Fuel 1 Inlet 1 Exhaust 1 Starting 1 Safety ✓1

Material of cylinder covers cast-iron Material of piston crowns cast-iron Is the engine equipped to operate on heavy fuel oil? no

Cooling medium for :—Cylinders water Pistons no cooling Fuel valves none Overall diameter of piston rod for double acting engines -

Is the rod fitted with a sleeve? - Is welded construction employed for: Bedplate? cast iron Frames? cast iron Entablature? cast iron Is the crankcase separated from the underside of pistons? no Is the engine of crosshead or trunk piston type? trunk Total internal volume of crankcase 3040ltrs. No. and total area of explosion relief devices ✓4-212 cm² = 848 Are flame guards or traps fitted to relief devices? yes Is the crankcase readily accessible? yes If not, must the engine be removed for overhaul of bearings, etc? no Is the engine secured directly to the tank top or to a built-up seating? Built-up seating How is the engine started? By air

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

Has the engine been tested working in the shop? yes How long at full power? 60 hours

CRANK & FLYWHEEL SHAFTING. Date of approval of torsional vibration characteristics of the propelling machinery system Secr.letters Eng. dd14-2-57 State barred speed range(s), if imposed for working propeller ✓318 RPM For spare propeller same Is a governor fitted? ✓yes Is a torsional vibration damper or detuner fitted to the shafting? yes

Where positioned? foreside ccankshaft Type friction No. of main bearings 9 Are main bearings of ball or roller type? no Distance between inner edges of bearings in way of crank(s) ✓332mm Distance between centre lines of side cranks or eccentrics of opposed piston engines -

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

Diameter of journals ✓180 mm Diameter of crankpins ~~casex~~ ✓180 mm ~~sidex~~ Breadth of webs at mid-throw -- Axial thickness of webs --

If shrunk, radial thickness around eyeholes -- Are dowel pins fitted? -- Crankshaft material Pins) Journals) SM-Steel Webs) Minimum) Approved) 60 kg/mm² Tensile strength)

Diameter of flywheel ✓1200 mm Weight ✓2200 kg Are balance weights fitted? no 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)* Flywheel bolted against crankshaft after end

17.4.57

of Visits 43

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. (*A small diagram should be attached showing gas cycle.*) HP drives ..... at ..... RPM HP gas inlet temperature ..... pressure .....

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.*) No 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 none

Can the main engine be used for purposes other than propulsion when declutched? no If so, what? –

STRAIGHT SHAFTING. Diameter of thrustshaft 70 mm Material SM-Steel Minimum approved tensile strength 44 kg/mm²

Shaft separate or integral with crank or wheel shaft? separate Diameter of intermediate shaft none Material –

Minimum approved tensile strength – Diameter of screwshaft cone at large end 155 mm Is screwshaft fitted with a continuous liner? no

Diameter of tube shaft. (*If these are separate shafts*) – Is tube shaft fitted with a continuous liner in way of stern tube – Thickness of screw/tube shaft liner at bearings – Thickness between bearings – Material of screw/~~propeller~~ shaft SM-Steel Minimum approved tensile strength 49,4 kg/

Is an approved oil gland fitted? yes If so, state type Newark-type Length of bearing next to and supporting propeller 645 mm

Material of bearing cast-iron lined with white metal In multiple screw vessels is the liner between stern tube and A bracket continuous? – If not, is the exposed length of shafting between liners readily visible in dry dock? –

PROPELLER. Diameter of propeller 1650 mm Pitch 1110 mm Built up or solid solid Total developed surface Fa/F= 0.587

No. of blades 4 Blade thickness at top of root fillet at 0,2R=70mm at 0,6R=34 mm Blade material bronze Moment of inertia of dry propeller 200 kgm²

If propeller is of special design, state type no Is propeller of reversible pitch type? no If so, is it of approved design? –

State method of control – Material of spare propeller cast iron Moment of inertia 200 kg/m²

AIR COMPRESSORS & RECEIVERS. No. of main engine driven compressors per engine 1 Can they be declutched? yes

No. of independently driven air compressors. (*State capacity, prime mover, position in ship, and Port and No. of certificate*) 1-2 stage Hatlapa compr.type WH 25-cap. 28 m³/h driven by s.s. aux. 3 cul. Lister eng.(cert. Hamburg Nr. 19663)- ss in eng. room.

No. of starting air receivers. (*Main and Aux. State capacity of each, position in ship and Port and No. of Certificate*) 3 - cap. each 300 ltrs. - ss in eng. room cert. Groningen Nr. AR 55 added.

How are receivers first charged? aux. ebgs. can be started by hand 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 one No. of main engine lubricating oil coolers one

OIL FUEL TANKS. No. and position of oil fuel ~~service~~ service tanks not forming part of hull structure one in skylight of eng. room

MAIN ENGINE DRIVEN PUMPS (*No. and Purpose*) two lub-oil pumps - one working F.W. cooling pump - one working SW cooling pump.

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														
	SUCTION								DELIVERY						
	Bilge Main	Bilge Direct	Ballast Main	Oil Fuel	Fresh Water Cooling	Sea	Feed Tanks	Lub. Oil	Boiler Feed	Salt Water Cooling	Fresh Water Cooling	Oil Fuel Tanks	Fire Main	Lub. Oil	Piston Cooling
See added plan 1168 - 201	x	x	x			x				x			x		
1 Bilge/ballast/aux.S.W. coolingpump,cap.50 ton/h p.s.in eng.room,driven by p.s.aux.3 cyl.Lister eng.															
1 Bilge/ballast/aux. S.W. coolingw.pump,cap.50t./h SS in eng.room driven by SS aux. 3 cyl.Lister eng.	x	x	x			x				x			x		
1 aux.lub-oil pump,SS in eng. room driven by SS aux.engine								x						x	
1 oil trimpump SSafter in eng. room,electr. driven				x								x			

See added cert. Groningen S 1265 -S 1267 -S 1178;Amsterdam 17.406

BILGE SUCTIONS. No. and size in each hold, ~~xxxxxxxxxxxxxx~~ 4 of 70 mm

No. and size connected to main bilge line in main engine room 1 of 70 mm In tunnel no tunnel

In aux. engine room no aux. eng.room Size and position of direct bilge suctions in machinery spaces 1 fore of 76 mm+ 1 after of 76 mm Size and position of emergency bilge suctions in machinery spaces .....

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 in bulk, cargo oil or classed for navigation in ice? (*strike out words not applicable*). no

STEAM & OIL ENGINE AUXILIARIES

Position of each	Type	Made by	Port and No. of Rpt. or Cert.	Driven Machinery (For electric generators, state output)
See added plan 1168-201				
P.S. in eng. room	3 cyl.Lister typeFR3	Lister	Cert. Bristol SC4570	1-compound DC gen.6 KW 110V-54,5amp.+ 1 rotary bilge/ballast/aux.SWcoolingpump
SS in eng. room	3cyl.Lister type FR3	Lister	Cert. BristolSC4575	1 rotary bilge/ballast/aux.SW coolingpump&1 aux.lub-oil pump &1-2 stage air compressor
See added cert. Bristol SC 4570&SC 4575				

Is electric current used for essential services at sea? no If so, state the minimum No. and capacity of generators required in order that the ship may operate at sea ..... Is an electric generator driven by Main Engine? yes

STEAM INSTALLATION. No. of donkey boilers burning oil fuel none W.P. ..... Type ..... Position .....

Is a superheater fitted? ..... Are these boilers also heated by exhaust gas? ..... No. of donkey boilers heated by exhaust gas only? ..... 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 ..... Is steam essential for operation of the ship at sea? ..... Are any steam pipes over 3 ins. bore? ..... If so, what is their material? ..... For oil fired boilers is the arrangement of pipes, valves, controls, etc., in accordance with the Rules? ..... No. of oil burning pressure units ..... No. of steam condensers ..... No. of Evaporators .....

STEERING GEAR. (*State No. and Type of Steam Engines, Electric Motors, Hydraulic Pumps and other particulars*) 1 hand hydraulic steering gear made by Svendborg Skibsvaerft A.S.type 16 H.J. No. 598+hand steering gear,see added cert. Copenhagen AG dd 12 July 1956

Have the Rule Requirements for fire extinguishing arrangements been complied with? yes Brief description of arrangements fire-extinguishing valve of 50 mm in eng. room&5 valves of 50 mm above & upper deck with 5x15 metres hose;4 fire foam in eng. room of 9 ltrs.,3 fire foam of 9 ltrs.above upper deck&1 tetra of 1 ltr.

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 ..... 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*).

..... Builder

0058 2/2

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 fitted under special in accordance with approved plans, Secretary's letters a
Society Rules. Materials tested as required and workmanship found good.
The machinery has been tried out under full working conditions (ME 520 BHP at 375 RPM) along the measured mile
of the island Texel and found functioning satisfactorily.
In my opinion the machinery of this vessel is eligible for the notation ✠ LMC(CS) 1-57 and O.G. (The Owner
requests that a continuous survey will be granted) Main-engine not be continuously operated at 318 RPM.

C van der Linden , *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 ROTORSHAFT –

FLYWHEEL SHAFT –

THRUSTSHAFT Lloyds DSF 146 J.L. 25-11-55. See added cert. Düsseldorf DfF No. 56/185

GEARING –

INTERMEDIATE SHAFTS –

SCREW ~~AND CODE~~ SHAFTS Lloyds KIN 687 HD 9-6-56 CL 22-9-56 See added cert. Amsterdam 19.130 (Lloyds Rott. 7036 (AvH 1-8-56 See added cert. Rotterdam 29217

PROPELLERS Nr 679 Lloyds test 3 kg DvC 19-9-56

OTHER IMPORTANT ITEMS Sterntube

Is the installation a duplicate of a previous case? no **If so, state name of vessel** –

Date of approval of plans for crankshaft – **Straight shafting** 27-3-56 **Gearing** – **Clutch** –

Separate oil fuel tanks 24-2-56 **Pumping arrangements** 3-2-56 & 9-3-56 **Oil fuel arrangements** 9-3-56

Cargo oil pumping arrangements – **Air receivers** – **Donkey boilers** –

Dates of examination of principal parts:—

Fitting of stern tube 22-9-56 **Fitting of propeller** 25-9-56 **Completion of sea connections** 27-9-56 **Alignment of crankshaft in main bearings** –

Engine chocks & bolts 26-11-56 **Alignment of gearing** – **Alignment of straight shafting** 26-11-56 **Testing of pumping arrangements** 7-1-57

Oil fuel lines 14-12-56 **Donkey boiler supports** – **Steering machinery** 14-12-56 **Windlass** 14-12-56

Date of Committee TUESDAY 18 JUN 1957

Decision +LMC (With Tous! End.) ES TS OG } 1.57

Installation Special Survey Fee £ 264.-

Expenses £ 85.50 ~~51.50~~

Date when A/c rendered