

Rpt. 4b

-2. No. 1961

Date of writing report 29-9-61 Received London Port of ROTTERDAM No. 52553
Survey held at CORINCHEM In shops No. of visits On vessel 21 First date 17-3-61 Last date 7-9-61

FIRST ENTRY REPORT ON INTERNAL COMBUSTION MACHINERY

No. in R.B. Name "BRITA DAN" Gross tons 3000
Owners Messrs. Lauritzen Managers Port of Registry Esbjerg
Hull built at Gorinchem By Messrs. Bijker Yard No. 163 Year Month When 1961
Main Engines made at Copenhagen By Messrs. Burmeister & Wain Eng. No. 7109 When 1960-11
Gearing made at By
Donkey boilers made at By Blr. Nos. When
Machinery installed at Gorinchem By Messrs. Werkspoor When 1961

Particulars of restricted service of ship, if limited for classification
Particulars of vegetable or similar cargo oil notation, if required
Is ship to be classed for navigation in ice? yes Is ship intended to carry petroleum in bulk?
Is refrigerating machinery fitted? yes If so, is it for cargo purposes? no Type of refrigerant F12
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 one No. of propellers one Brief description of propulsion system direct propulsion

MAIN RECIPROCATING ENGINES. Licence Name and Type No. B & W - D M 550 VTBF 110 turbo charged crosshead type
Please see Copenhagen report No. 18712

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? How is the engine started?

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)

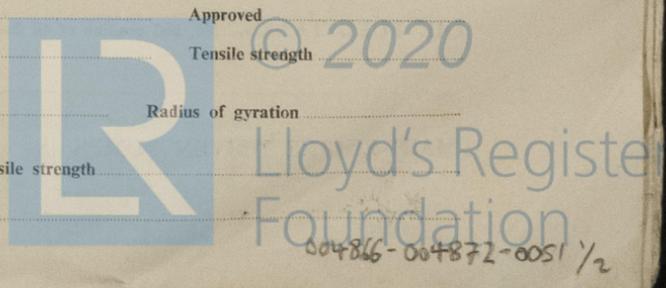
Diameter of journals Diameter of crankpins Centre Breadth of webs at mid-throw Axial thickness of webs

If shrunk, radial thickness around eyeholes Are dowel pins fitted? Crankshaft material Journals Approved Pins Minimum 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)



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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 380 mm. Material S.M. steel Minimum approved tensile strength 44 kg./mm<sup>2</sup>  
 100 mm. centre hole

Shaft separate or integral with crank or wheel shaft? integral Diameter of intermediate shaft 305 mm. Material S.M. steel

Minimum approved tensile strength 44 kg./mm<sup>2</sup> Diameter of screwshaft cone at large end 339 mm. Is screwshaft fitted with a continuous liner? yes

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 23 mm. Thickness between bearings 21,5 mm. Material of screwshaft S.M. steel Minimum approved tensile strength 44 kg./mm<sup>2</sup>

Is an approved oil gland fitted? no If so, state type ..... Length of bearing next to and supporting propeller 1623 mm.

Material of bearing Lignum Vitae 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 3660 mm. Pitch 2720 mm. Built up or solid Solid Total developed surface 50%

No. of blades 4 Blade thickness at top of root fillet 0,3 R. 148 mm. Blade material Bronze Moment of inertia of dry propeller 10915 kgm<sup>2</sup>

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 Bronze Moment of inertia 10915 kgm<sup>2</sup>

AIR COMPRESSORS & RECEIVERS. No. of main engine driven compressors per engine none Can they be declutched? .....

No. of independently driven air compressors. (State capacity, prime mover, position in ship, and Port and No. of certificate) 2 à 120 M<sup>3</sup>/h. 25 ATM Copenh. Cert. attached

Emergency 1 à 11,4 M<sup>3</sup>/h. Copenh. Cert. attached

No. of starting air receivers. (Main and Aux. State capacity of each, position in ship and Port and No. of Certificate) 1 à 5500 Ltr. Cert. ROT. 61/0519 Port E.R.

1 à 300 Ltr. Copenh. Cert. 1842 Port E.R. aft

How are receivers first charged? Emergency diesel hand started Maximum working pressure of starting air system 25 ATO 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 1 No. of main engine lubricating oil coolers 1

OIL FUEL TANKS. No. and position of oil fuel settling or service tanks not forming part of hull structure .....

MAIN ENGINE DRIVEN PUMPS (No. and Purpose) One booster pump (fuel oil)

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											OVER board			
	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
All pumps electric driven															
Ballast pump 150 M <sup>3</sup> /h		X	X			X									X
Two Gen. service pumps 40 M <sup>3</sup> /h	X	X	X			X							X		X
Salt coolingwater pump		X				X				X					
Fresh coolingwater pump					X					X					
Spare coolingwater pump					X	X				X	X				
2 Lub. oil pumps								X						X	
Fire pump						X							X		
2 Fuel oil transfer pumps				X								X			
Fuel valve cooling pump				X											
Aux. F.W. cooling pump					X						X				
Aux. S.W. cooling pump						X				X					

BILGE SUCTIONS. No. and size in each hold, deep tank or pump room 4 à 3.4/4" in hold No. 2 2 à 3.1/4" in other holds

No. and size connected to main bilge line in main engine room 2 à 3.1/4" P. + S. forw. E.R., 2 à 3.1/4" centre E.R. aft. In tunnel -

In aux. engine room - Size and position of direct bilge suction in machinery spaces 1 à 5" forw. 1 à 3.1/2" centre

Size and position of emergency bilge suction in machinery spaces 1 à 5" forw.

Is the bilge or ballast system fitted with means for separating oily water on the overboard discharge side? yes 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. or Cert.	Driven Machinery (For electric generators, state output)
Stb. forw. No. 7115	25 MTPH-40	B & W	Copenhagen Rpt. 18672	Generator 175 KW
Centre forw. No. 7116	do	do	do	do
Port forw. No. 7117	do	do	do	do
Port aft No. 12991	E.H. 100	Bulck	Copenhagen Cert. 10-10-60	Emergency compressor

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 à 175 KW

Is an electric generator driven by Main Engine? no

STEAM INSTALLATION. No. of donkey boilers burning oil fuel W.P. Type

Position ..... No. of donkey boilers heated by exhaust gas only? W.P. ....

Is a superheater fitted? ..... Are these boilers also heated by exhaust gas? ..... 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 1 Atlas F.W. generator (Vacuum type)

STEERING GEAR. (State No. and Type of Steam Engines, Electric Motors, Hydraulic Pumps and other particulars) 1 Electric hydraulic Svendborg

Eng. No. 1430 cert. Copenhagen d.d. 11-11-60, with 2 pumps and 2 motors

Have the Rule Requirements for fire extinguishing arrangements been complied with? yes Brief description of arrangements Total flooding CO2, foam installation

on fire and deckwash line, 7 foam extinguishers 2 gall., 2 CO2 (6kg.) near switchboard, 2 hoses with spray nozzles

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 6-7-September, 1961 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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 Bijker's Aankoopbedrijf N.V.  
 0051 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 made and fitted in accordance with the approved plans, Secretary's letters and Society's Rules.

Materials tested as required and workmanship found satisfactory.

Upon completion the machinery has been tried under full working conditions on a trial trip to the North Sea when all was found to be in a good working and manoeuvring condition and in my opinion this installation merits the approval of the Committee for the record of + L.M.C. 9-61 "Oil engine" CL.

A notice board "Engine not to be operated continuously between 105 and 124 r.p.m." has been fitted and the tachometer has been marked accordingly.

*A. van Hasselt*

Engineer Surveyor to Lloyd's Register of Shipping.

A. van Hasselt.

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 Copenhagen Report 18712

FLYWHEEL SHAFT

THRUSTSHAFT

GEARING

INTERMEDIATE SHAFTS LLOYD'S AMS.No.6996 AB.20-3-61 Cert AMS. 61/595  
working

SCREW AND ~~TUBE~~ SHAFTS LLOYD'S AMS.No.6840 AB.2-3-61.Spare LLOYD'S AMS.No.7360 HA.16-3-61 Cert AMS.61/477-61/578

PROPELLERS Working LLOYD'S ROT. No.8740 A.v.H.16-12-60 Spare LLOYD'S ROT. No.8742 A.v.H. 20-12-60 Cert Rot.60/411

OTHER IMPORTANT ITEMS

Is the installation a duplicate of a previous case? yes If so, state name of vessel m.v. "RITVA DAN"

Date of approval of plans for crankshaft Straight shafting 15-7-60 Gearing - Clutch -

Separate oil fuel tanks - Pumping arrangements 3-10-1960 Oil fuel arrangements 3-10-1960

Cargo oil pumping arrangements - Air receivers 12-4-1960 Donkey boilers -

Dates of examination of principal parts:—

Fitting of stern tube 17-3-61 Fitting of propeller 23-3-61 Completion of sea connections 23-3-61 Alignment of crankshaft in main bearings 25-7-61

Engine checks & bolts 10-6 7-7-61 Alignment of gearing - Alignment of straight shafting 10-5-61 Testing of pumping arrangements 23-8-61

Oil fuel lines 29-6-61 Donkey boiler supports - Steering machinery - Windlass -

Date of Committee FRIDAY 1-DEC 1961 Special Survey Fee f. 990.--

Decision + L.M.C.E.S } 9.61  
Ts(c.u)  
Expenses f. 137.50

