

Rpt. 4b

25 MAY 1957  
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Date of writing report 13th April, 1957. Received London Port of ROTTERDAM. No. 43253B  
Survey held at Slikkerveen No. of visits 5 In shops 2-10-1956 29-1-1957  
On vessel 6 First date 18-1-1957 Last date 25-3-1957

FIRST ENTRY REPORT ON INTERNAL COMBUSTION MACHINERY

No. in R.B. 9/92652 Name "BERN" Gross tons 499.99  
Owners F. Feestra & T. de Groot Managers Port of Registry Dordrecht Year Month  
Hull built at Slikkerveen By N.V. De Groot & van Vliet Yard No. 317 When 1956  
Main Engines made at Alphen a.d. Rijn By N.V. Machinefabriek "De Industrie" Eng. No. 4149 When 1957  
Gearing made at By  
Donkey boilers made at By Blr. Nos. When  
Machinery installed at Slikkerveen By N.V. De Groot & van Vliet When 1957  
Particulars of restricted service of ship, if limited for classification unrestricted service  
Particulars of vegetable or similar cargo oil notation, if required not required

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? 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 1 No. of propellers 1 Brief description of propulsion system Direct reversible heavy oil engine

MAIN RECIPROCATING ENGINES. Licence Name and Type No. "De Industrie" 8 D 70 See Ams. Rpt. 21306

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)

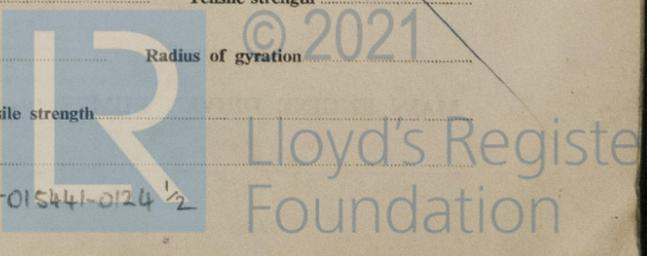
Diameter of journals Diameter of crankpins Centre Breadth of webs at mid-throw Axial thickness of webs

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

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 \_\_\_\_\_ 190 mm. Material \_\_\_\_\_ S.M. steel Minimum approved tensile strength \_\_\_\_\_ 47.5 Kg/mm<sup>2</sup>

Shaft separate or integral with crank or wheel shaft? \_\_\_\_\_ separate Diameter of intermediate shaft \_\_\_\_\_ Material \_\_\_\_\_

Minimum approved tensile strength \_\_\_\_\_ Diameter of screwshaft cone at large end \_\_\_\_\_ 195 mm. 190 att. 02. 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/tube shaft \_\_\_\_\_ S.M. steel Minimum approved tensile strength \_\_\_\_\_ 46 Kg/mm<sup>2</sup>

Is an approved oil gland fitted? \_\_\_\_\_ yes If so, state type \_\_\_\_\_ Hollow Rubber ring Length of bearing next to and supporting propeller \_\_\_\_\_ 720 mm.

Material of bearing \_\_\_\_\_ cast iron 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 \_\_\_\_\_ 1870 mm. Pitch \_\_\_\_\_ 1270 mm. Built up or solid \_\_\_\_\_ solid Total developed surface \_\_\_\_\_ 47.5%

No. of blades \_\_\_\_\_ 4 Blade thickness at top of root fillet \_\_\_\_\_ Blade material \_\_\_\_\_ bronze Moment of inertia of dry propeller \_\_\_\_\_ 292 Kg/m<sup>2</sup>

If propeller is of special design, state type \_\_\_\_\_ Is propeller of reversible pitch type? \_\_\_\_\_ If so, is it of approved design? \_\_\_\_\_

State method of control \_\_\_\_\_ Material of spare propeller \_\_\_\_\_ cast iron Moment of inertia \_\_\_\_\_ 292 Kg/m<sup>2</sup>

**AIR COMPRESSORS & RECEIVERS.** No. of main engine driven compressors per engine \_\_\_\_\_ one Can they be declutched? \_\_\_\_\_ yes

No. of independently driven air compressors. (State capacity, prime mover, position in ship, and Port and No. of certificate) \_\_\_\_\_ One 37 M<sup>3</sup>/hour at 30 Atm. driven by Star aux. motor through clutch. Cert. No. Rotterdam No. 24637

No. of starting air receivers. (Main and Aux. State capacity of each, position in ship and Port and No. of Certificate) \_\_\_\_\_ Two main air receivers 500 l. each

Stbd. forward Cert. No. Kln. C.56/1440 and Kln. C.56/1441

How are receivers first charged? \_\_\_\_\_ by means of hand started Ruston aux. Maximum working pressure of starting air system \_\_\_\_\_ 30 Kg/cm<sup>2</sup> 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 \_\_\_\_\_ One daily service tank, in top of E.R.

**MAIN ENGINE DRIVEN PUMPS** (No. and Purpose) \_\_\_\_\_ One bilge pump, one coolingwaterpump, one lubricating oil 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	Overboard
Bilge-Ballast port forw. Cap.: 45 M <sup>3</sup> /h.	X	X	X			X				X			X			X
Bilge-Ballast 5B aft Cap.: 45 M <sup>3</sup> /h.	X	X	X			X				X			X			X
Fresh coolingwaterpump Cap.: 20 M <sup>3</sup> /h.					X						X					
Fuel transferpump				X								X				
Spare lub. oil pump								X						X		

**BILGE SUCTIONS.** No. and size in each hold, deep tank or pump room \_\_\_\_\_ 4 à 64 mm. in one hold

No. and size connected to main bilge line in main engine room \_\_\_\_\_ 1 à 64 mm. In tunnel \_\_\_\_\_

In aux. engine room \_\_\_\_\_ Size and position of direct bilge suction in machinery spaces \_\_\_\_\_ 1 forw. à 100 mm.

Size and position of emergency bilge suction in machinery spaces \_\_\_\_\_ 1 aft à 100 mm.

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 of Class A or B? \_\_\_\_\_ yes (not applicable).

**STEAM & OIL ENGINE AUXILIARIES**

Position of each	Type	Made by	Port and No. of Rpt. or Cert.	Driven Machinery (For electric generators, state output)
Portside	3 V.S.H.Z.	Ruston Hornsby	Nottingham C.21501	Ballast-Bilge pump aux. lub. oil pump Generator 10 K.W.
S.B. side	3 V.S.H.Z.	Ruston Hornsby	Nottingham C.21500	Ballast-Bilge Compressor
Emergency generator Foeship	A.V.A.	Petter Ltd.	London D.50679	Generator 4.4 K.W.

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 \_\_\_\_\_ 1 Is an electric generator driven by Main Engine? \_\_\_\_\_ yes

**STEAM INSTALLATION.** No. of donkey boilers burning oil fuel \_\_\_\_\_ 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) \_\_\_\_\_ Hand steering gear

Have the Rule Requirements for fire extinguishing arrangements been complied with? \_\_\_\_\_ yes Brief description of arrangements \_\_\_\_\_ One 2 Kg. CO2 extinguisher near switchboard, 1 Waterhose connection with spray nozzle, 3 foam extinguishers à 2 gallon Should be 2-2 gal. 1-10 gal.

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 \_\_\_\_\_ 25-3-57 for 6 hours Does this machinery installation contain any features of a novel or experimental nature? (Give particulars) \_\_\_\_\_ none

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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 N.V. SCHEEPSBOUW WERF  
 v.d. DE CROON EN VAN VLIET  
 Builder  
 DIRECTEUR  
 0124 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 has been made and fitted under Special Survey in accordance with approved plans, Society's Rules and Secretarial letters and the workmanship found good. The materials used have been tested as required. Full power and manoeuvring trials have been carried out during seatrials and found satisfactory.

The installation merits in our opinion the approval of the Committee to be classed in the Register Book with record + L.M.C. 3-57 and notation "Oil Eng." and "O.G."

*[Signature]*  
 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 See Amsterdam Report 21306

CRANKSHAFT OR ROTOR SHAFT See Amsterdam Report 21306

FLYWHEEL SHAFT --

THRUST SHAFT & thrustblock Rotterdam Cert. No. 29659

GEARING not fitted

INTERMEDIATE SHAFTS not fitted

SCREW AND TUBE SHAFTS Rotterdam Cert. No. 31701

PROPELLERS Rotterdam Cert. No. 25188 (working) and Rotterdam Cert. No. 26487 (Spare)

**OTHER IMPORTANT ITEMS**

Stern tube Rotterdam Cert. No. 31703

Is the installation a duplicate of a previous case? yes If so, state name of vessel m.s. "LUBOX"

Date of approval of plans for crankshaft 6-6-56 Straight shafting 11-4-56 Gearing -- Clutch --

Separate oil fuel tanks 12-9-56 (Rott) Pumping arrangements 29-10-56 Oil fuel arrangements --

Cargo oil pumping arrangements -- Air receivers -- Donkey boilers --

Dates of examination of principal parts:—

Fitting of stern tube 18-1-57 Fitting of propeller 15-1-57 Completion of sea connections 15-1-57 Alignment of crank shaft in main bearings 20-2-57

Engine chocks & bolts 20-2-57 Alignment of gearing -- Alignment of straight shafting 20-2-57 Testing of pumping arrangements 25-3-

Oil fuel lines 25-3-57 Donkey boiler supports -- Steering machinery 25-3-57 Windlass 25-3-57

Date of Committee FRIDAY 12 JUL 1957 Special Survey Fee Fl. 264,-

Decision + LMC

ES  
TS OG } 3.57

Expenses Fl. 44.-

Date when A/c rendered



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