

Rpt. 4b

Date of writing report 28th October 1959 Received London _____ Port Groningen No. 20256
Survey held at Waterhuizen No. of visits _____ In shops _____ On vessel 14 First date 18-5-1959 Last date 23-10-1959

FIRST ENTRY REPORT ON INTERNAL COMBUSTION MACHINERY

No. in R.B. 42107 Name ms "SOLVANTI" Gross tons 491.04
Owners N. V. Indigoon Managers _____ Port of Registry Antwerp
Hull built at Waterhuizen By Scheepsmerven Gebr. v. Diepen N.V. Yard No. 954 Year Month 1959-10
Main Engines made at Köln By Klockner-Humboldt-Deutz Eng. No. 2515 322/329 When 1959
Gearing made at _____ By _____
Donkey boilers made at _____ By _____
Machinery installed at Waterhuizen By Messrs D. E. Gorter Blr. Nos. _____ When 1959
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? 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 drive - reversible engine
MAIN RECIPROCATING ENGINES. Licence Name and Type No. RV 8 M 545
No. of cylinders per engine 8 Dia. of cylinders 320 mm stroke(s) 450 mm 2 or 4 stroke cycle 4 Single or double acting single
Maximum approved BHP per engine 660 at 380 RPM of engine and 380 RPM of propeller.
Corresponding MIP 5.54 kg/cm² (For DA engines give MIP top & bottom) Maximum cylinder pressure 56 kg/cm² Machinery numeral 132
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? _____ 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 1 Inlet 1 Exhaust 1 Starting 1 Safety 1
Material of cylinder covers _____ Material of piston crowns _____ Is the engine equipped to operate on heavy fuel oil? no
Cooling medium for: Cylinders fresh water 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? no Frames? no Entablature? no Is the crankcase separated from the underside of pistons? no Is the engine of crosshead or trunk piston type? crank Total internal volume of crankcase _____
No. and total area of explosion relief devices 4 x 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? _____
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? _____ How long at full power? _____

CRANK & FLYWHEEL SHAFTING. Date of approval of torsional vibration characteristics of the propelling machinery system 27-7-59 State barred speed range(s), if imposed _____
for working propeller _____ For spare propeller _____ Is a governor fitted? yes Is a torsional vibration damper or detuner fitted to the shafting? yes
Where positioned? forward end crankshaft Type friction type 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) _____ 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 _____
Side _____ Pins _____ Minimum _____
If shrunk, radial thickness around eyeholes _____ Are dowel pins fitted? _____ Crankshaft material Journals _____ Approved _____
Webs _____ 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) bolled to crankshaft

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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 _____ Material _____ Minimum approved tensile strength _____

Shaft separate or integral with crank or wheel shaft? integral with crankshaft Diameter of intermediate shaft 190 mm (bobbin piece) Material St 60 Steel

Minimum approved tensile strength 44 kg/cm² Diameter of screwshaft cone at large end 20 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/tube shaft St 60 Steel Minimum approved tensile strength 44 kg/cm²

Is an approved oil gland fitted? _____ If so, state type rubber ring type Length of bearing next to and supporting propeller 820 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 1700 mm Pitch 1100 mm Built up or solid solid Total developed surface 58%

No. of blades 4 Blade thickness at top of root fillet 6.4 mm Blade material bronze Moment of inertia of dry propeller 237 kgm²

If propeller is of special design, state type _____ 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 274 kgm²

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

No. of independently driven air compressors. (State capacity, prime mover, position in ship, and Port and No. of certificate) one DEQ compressor no 596 cap 30 m³/h - Starb aux. eng. driven - cert Groningen no 594342

No. of starting air receivers. (Main and Aux. State capacity of each, position in ship and Port and No. of Certificate) 2 - cap 500 lbs each - fitted Starb. upper one no 50-R-14932 - LR-HNO cert C. 561569 - lower one no 50R-14930 - LR-HNO cert C. 561569

How are receivers first charged? Starb aux. eng. hand started Maximum working pressure of starting air system 20 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 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 fitted in top casing ER

MAIN ENGINE DRIVEN PUMPS (No. and Purpose) Bilge pump - seawater circ pump - fresh cooling water pump - lub 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
Starb general service pump	X	X	X			X				
aux. eng. driven - cap. 40 m ³ /h										X
Port general service pump	X	X	X			X				
aux. eng. driven cap 40 m ³ /h										X
Stand by lub oil pump							X			
Starb aux. eng. driven										X
Harbour fresh cooling pump					X					X
elec. driven - fitted p.s. aft										
O.F. transfer pump				X						X
elec. driven - fitted p.s. fore										
hand - O.F. transfer pump				X						X

BILGE SUCTIONS. No. and size in each hold, deep-tank or pump-room 12.5 forward 3" φ - 12.5 aft 3" φ

No. and size connected to main bilge line in main engine room 1 - 2" φ - 1-1/2" φ

In aux. engine room _____ Size and position of direct bilge suction in machinery spaces Starb.

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). 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)
Starb	A3M 514 246047/79 3 cyl	Deutz	cert. K.L.N. C. 591068	general service pump stand-by lub. oil pump compressor
Port	A3M 514 2460480/82 3 cyl	Deutz	cert. K.L.N. C. 591068	generator 7kw general service pump generator 6kw
harbour - set in precast	FL 712 2493707	Deutz		

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 none

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. _____

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) one hand - hydraulic - v.d. Giessen - steering gear - LR ROK no 121

Have the Rule Requirements for fire extinguishing arrangements been complied with? yes Brief description of arrangements 4 x 9 lb foam ext^s - 1 CO₂ ext - 16 kg - one hose with hydrant in ER.

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-sea trials of main engines 23-10-59 - 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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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.

This engine and auxiliaries have been constructed and fitted under special survey in accordance with the approved plans, Society's Rules and Secretary's letters.

The materials and workmanship were found good.

The Machinery has been tested under full working conditions on a trial trip with satisfactory results.

In my opinion the Machinery of this ship merits the approval of the Committee and may be recorded in the R.B. with notation of +LMC 10, 59 -oil engine.

Engine 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

GEARING

INTERMEDIATE SHAFTS bobbin piece: LLOYD KLN 707 HR 2-6-59 LLOYDS ROT 020 HD / AVB 21-0-59 end. Gns 59/339

SCREW AND TUBE SHAFTS LLOYDS ROT 020 HD / AVB 21-0-59 " 59/340

PROPELLERS LLOYDS ROT 020 AVH 26-5-59 end. Rotterdam 59/1915.

OTHER IMPORTANT ITEMS

Is the installation a duplicate of a previous case?

If so, state name of vessel

Date of approval of plans for crankshaft

Straight shafting 26-5-59

Gearing

Clutch

Separate oil fuel tanks

0-10-59

Pumping arrangements

2-6-59 — 31-8-59

Oil fuel arrangements

31-0-59

Cargo oil pumping arrangements

Air receivers

Donkey boilers

Dates of examination of principal parts:—

Fitting of stern tube

22-0-59

Fitting of propeller

19-6-59

Completion of sea connections

5-9-59

Alignment of crankshaft in main bearings

13-10-59

Engine chocks & bolts

17-9-59

Alignment of gearing

Alignment of straight shafting

17-9-59

Testing of pumping arrangements

13-10-59

Oil fuel lines

13-10-59

Donkey boiler supports

Steering machinery

23-10-59

Windlass

23-10-59

Date of Committee

FRIDAY - 5 FEB 1960

Special Survey Fee

FLS 315,-

Decision

See Rpt-1.

Expenses

fls 59,-

Date when A/c rendered

30-11-59

