

Rpt. 4b

27 FEB 1959

Date of writing report 19th Jan. 1959.

Received London

Port of Antwerp

No. 34339

Survey held at Antwerp

No. of visits

In shops 45  
On vessel 27

First date

27-2-1957  
18-2-1958

Last date

26-8-1958  
12-12-1958

# FIRST ENTRY REPORT ON INTERNAL COMBUSTION MACHINERY

No. in R.B. 91735 Name MARLY I Gross tons 10.340

Owners Cokeries Du Marly Managers -- Port of Registry Antwerp Year Month

Hull built at Tamise, Belgium By Jos Boel & Sons S.A. Yard No. 1360 When 1958

Main Engines made at Ghent - Belgium By Sté.d'Electricité et de Mec. Eng. No. 8500 When 1958-7

Gearing made at - By -

Donkey boilers made at Annan, Scotland By Cochran & Co. Annan Ltd. Blr. Nos. 21832 When 1958

Machinery installed at Tamise Belgium By Jos Boel & Sons S.A. When 1958

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?  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 One main diesel engine directly coupled to intermediate shaft.

MAIN RECIPROCATING ENGINES. Licence Name and Type No. SEM-MAN K 7 Z 70/120°C. No. 8500 Supercharged

No. of cylinders per engine 7 Dia. of cylinders 700 m/m. stroke(s) 1200 m/m 2 or 4 stroke cycle 2 Single or double acting single

Maximum approved BHP per engine 5600 at 120 RPM of engine and 120 RPM of propeller.

Corresponding MIP 7.35 kg/cm2 (For DA engines give MIP top & bottom) Maximum cylinder pressure 55 kg/cm2 Machinery numeral 1120

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?  no 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? ports No. and type of mechanically driven scavenge pumps or blowers per engine and how driven One attached scavenge pump, 7 scavenge pumps formed by the underside of the pistons

No. of exhaust gas driven scavenge blowers per engine 2 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 2 Scavenge air pressure at full power 0.5 kg/cm2

Are scavenge manifold explosion relief valves fitted?  yes

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 - Exhaust - Starting 1 Safety 1

Material of cylinder covers cast iron Material of piston crowns cast steel Is the engine equipped to operate on heavy fuel oil?  yes

Cooling medium for: Cylinders Freshwater Pistons Freshwater Fuel valves Freshwater Overall diameter of piston rod for double acting engines  -

Is the rod fitted with a sleeve?  no Is welded construction employed for: Bedplate?  yes Frames?  no Entablature?  no Is the crankcase separated from the underside of pistons?  yes

Is the engine of crosshead or trunk piston type? crossh. Total internal volume of crankcase 2600 cub.ft. No. and total area of explosion relief devices 7-902 sq.in. Are flame guards or traps fitted to relief devices?  no 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? cromprss.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? 7.5 hrs.

CRANK & FLYWHEEL SHAFTING. Date of approval of torsional vibration characteristics of the propelling machinery system 28/3/59 398.F. 4-12-57 State barred speed range(s), if imposed

for working propeller 55-65RPM For spare propeller 55-65 RPM Is a governor fitted?  yes Is a torsional vibration damper or detuner fitted to the shafting?  no

Where positioned?  - 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) 920 m/m Distance between centre lines of side cranks or eccentrics of opposed piston engines  -

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

Diameter of journals 480m/m with central hole of 120m/m Diameter of crankpins Centre 480m/m with central hole of 120m/m Breadth of webs at mid-throw 750m/m Axial thickness of webs 290m/m

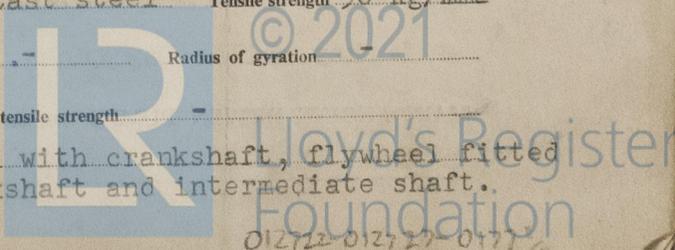
If shrunk, radial thickness around eyeholes journals 212,5m/m Are dowel pins fitted?  no Crankshaft material Journals S.M. Steel Pinned cast steel Minimum 50 kg/mm2

Approved 50 kg/mm2 Webs Cast steel Tensile strength 50 kg/mm2

Diameter of flywheel 2080 m/m Weight 4000 kgr. Are balance weights fitted?  no Total weight  - Radius of gyration  -

Diameter of flywheel shaft none Material  - Minimum approved tensile strength  -

Flywheel shaft: separate, integral with crankshaft, integral with thrustshaft. (State which) Thrustshaft integral with crankshaft, flywheel fitted on coupling of crankshaft and intermediate shaft.



**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 \_\_\_\_\_

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 thrust shaft \_\_\_\_\_ Material \_\_\_\_\_ Minimum approved tensile strength \_\_\_\_\_

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

Minimum approved tensile strength \_\_\_\_\_ Diameter of screw shaft cone at large end \_\_\_\_\_ Is screw shaft fitted with a continuous liner? \_\_\_\_\_

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 shaft liner \_\_\_\_\_

bearings \_\_\_\_\_ Thickness between bearings \_\_\_\_\_ Material of screw shaft \_\_\_\_\_ Minimum approved tensile strength \_\_\_\_\_

Is an approved oil gland fitted? \_\_\_\_\_ If so, state type \_\_\_\_\_ Length of bearing next to and supporting propeller \_\_\_\_\_

Material of bearing \_\_\_\_\_ 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 \_\_\_\_\_ Pitch \_\_\_\_\_ Built up or solid \_\_\_\_\_ Total developed surface \_\_\_\_\_

No. of blades \_\_\_\_\_ Blade thickness at top of root fillet \_\_\_\_\_ Blade material \_\_\_\_\_

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 \_\_\_\_\_

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

No. of independently driven air compressors. (State capacity, prime mover, position in ship, and Port and No. of certificate) \_\_\_\_\_

Two 95 m<sup>3</sup>/h. Electrically driven starbd. side No. 58/172A+B. One 28m<sup>3</sup>/h. Diesel engine starbd. side No. 31 Ham. Rpt. No. 5398.

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

Interdeck in E/R Ant. Rpt. No. 5398. 2 Main; 6m<sup>3</sup>. Portside forward on E/R Hnd. Rpt. No. 57/557; 1 Air Receiver For Whistle; 200 Litres; starbd. in E/R Ant. Rpt. No. 5344.

How are receivers first charged? \_\_\_\_\_ Maximum working pressure of starting air system \_\_\_\_\_ Are the safety devices accordance with the Rules? \_\_\_\_\_ Has the starting of the main engines been tested and found satisfactory? \_\_\_\_\_

**COOLERS.** No. of main engine fresh water coolers \_\_\_\_\_ No. of main engine lubricating oil coolers \_\_\_\_\_

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

2 Donkey boiler Day tanks. Platform Deck 'b' aft in E/R.

**MAIN ENGINE DRIVEN PUMPS** (No. and Purpose) Two 1. Scavenge air pump; 2. Cushioning air pump for piston

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 used thus X															
	SUCTION					DELIVERY										
	Bilge Main	Bilge Direct	Ballast Main	Oil Fuel	Fresh Water Cooling	Sea	Feed Tanks	Lub. Oil	Emergency Bilge	Boiler Feed	Salt Water Cooling	Fresh Water Cooling	Oil Fuel Tanks	Fire Main	Lub. Oil	Piston Cooling
Bilge pump portside E/R	X	X	X			X			X				X			
General serv. pp. p.s. E/R electric 50m <sup>3</sup> /h.	X	X	X			X			X					X		
2 Ballast pps. fwd. in E/R electric 450 m <sup>3</sup> /h.	X		X						X							
M.E. Salt water cooling pp. stbd. fwd. in E/R.					X						X					
M.E. FW. or S.W. cooling pp. stbd. centre in E/R.					X	X					X	X				X
M/E.F.W. cooling pp. Stbd. aft in E/R.					X							X				X
2 M/E Lubr. oil pps. Port side in E/R.									X							X
2 M/E. Heavy fuel. Booster pps. PS. in E/R electr.										X						X
Fuel oil transfer pp. (Heavy fuel) Port side in E/R.					X								X			
Fuel oil transfer pp. (Marine diesel) Port side in E/R.					X								X			
M.E. fuel valve F.W. cooling pp. Starbd. Outbd. in E/R.					X							X				
M.E. Fuel valve S.W. cooling pp. Starbd. inner in E/R.						X					X					
M/E Fuel valve S.W. or F.W. cooling pp. starbd. centre in E/R.					X	X					X	X				
2 donkey blr. feed pps. electric, 1 steam in E/R.							X			X						

**BILGE SUCTIONS.** No. and size in each hold, deep tank or pump room No. 1 Hold 2 1/2" x 2; No. 2 Hold 3" x 2; No. 3 Hold 3" x 2

No. 4 Hold 3" x 2; No. 5 Hold 3" x 2. After peak 51,5 mm. x 1.

No. and size connected to main bilge line in main engine room 4,5 mm. x 2; 64 mm x 2; 4" In tunnel 2 1/2" x 1

In aux. engine room \_\_\_\_\_ Size and position of direct bilge suction in machinery spaces 94,5 mm x 1 S.S.

Size and position of emergency bilge suction in machinery spaces 260 mm. x 1. Ford. Main engine RM.

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 oil 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)
Forwd. starbd inboard A 8 M 428		Messrs. Klockner Humboldt-Deutz A.G. - of Köln -	K.L.N.C. 58/24.	Elec. Generator 225 KVA.
Forwd. Starbd outboard A 8 M 428		"	K.L.N.C. 58/25	" " "
Port A 8 M 428		Deutz.	K.L.N.C. 58/26	" " "
Aft Starboard A 4 M 517		"	K.L.N.C. 58/369	Elec. Gen. Air Compr. 44 KVA.

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 225 KVA.

Is an electric generator driven by Main Engine? no

**STEAM INSTALLATION.** No. of donkey boilers burning oil fuel one W.P. 100 p.s.i. Type codran composite.

Position In boiler room Aft. of M.E. room.

Is a superheater fitted? no Are these boilers also heated by exhaust gas? yes No. of donkey boilers heated by exhaust gas only? none 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 Glasgow Rpt. No. 88503

Is steam essential for operation of the ship at sea? no Are any steam pipes over 3 ins. bore? yes If so, what is their material? steel and copper For oil fired boilers is the arrangement of pipes, valves, controls, etc., in accordance with the Rules? yes No. of oil burning pressure units one No. of steam condensers \_\_\_\_\_ No. of Evaporators \_\_\_\_\_

**STEERING GEAR.** (State No. and Type of Steam Engines, Electric Motors, Hydraulic Pumps and other particulars) 2 A.C. Motors see Augsburg Report No. 58/141. 2-9" Cast 1 Iron Hydraulic cylinders, 2-H.P.6. Heleshaw pumps and telemotor. See Greenock Rpt. No. C.6399.

Have the Rule Requirements for fire extinguishing arrangements been complied with? yes Brief description of arrangements Fire hoses with nozzle 2" hoses: 2 in E/R. 1 in B/R; 2 Gal. Foam Fire Extinguishers 6 in E/R. 5 Kg. CO2 Extinguisher 1 in E/R and 1 in B/R. 10 Gal. foam extinguisher 2 in E/R Emergency fire pump in steering compartment. Stm. smothering arrangement fitted in way of main engine and in boiler room.

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 6-12-58 to 8-12-58 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

No. 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 the Special Survey of the Society's Surveyors in accordance with the Rules, the approved plans and the Secretary's letters. The Workmanship and Materials are good. Satisfactory basin and sea trials were carried out and the Machinery is eligible in our opinion for the record + LMC.12.58 and notations TS.CL. and DB 100 lbs.

Note:- During the sea trials torsionograph records were taken by representatives of M.A.N. and at their request a speed restriction was imposed as previously recommended viz our letter Eng. 4th December 1957) The main engine not to be operated continuously between 55 and 65 R.P.M. and the engine tachometer was marked accordingly. As requested torsionograph records taken during sea trials are attached herewith.

*J. H. U. J. Lobe*  
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.)

Piston RODS Lloyds DTM-HAK-542, 536, 541, 534, 538, 540 Port of origin Witten Rule Germany.  
 Connecting rods:- Lloyds DSF, HS 150, HS 97, HS 149, HS 127, HS 96-HS 150 and JL 97 Port of origin Bochum Germany.  
 CRANKSHAFT OR ROTORSHAFT Lloyds DSF. JL. 15-1-58. Port of origin Düsseldorf.  
 FLYWHEEL SHAFT  
 THRUSTSHAFT Integral with crankshaft.  
 GEARING  
 INTERMEDIATE SHAFTS LLOYDS DSF. W.Sd. / DSF. Rpt. No. 58/1736 (Lloyds DSF. MSA. DSF. Rpt. 58/1752) (P/3.663) (Lloyds DSF. 28-7-58. 663, 8-8-58. 769 / DSF. Rpt. No. 58/1187)  
 SCREW AND TUBE SHAFTS Service: Lloyds DSF. Rpt. No. 58/1496 P1/1/655 MSA. 29-1-58 Lloyds DSF. P1/2/663 / Spare MSA. 29.1.58  
 PROPELLERS Service No. 7862 A.v.H. 13-2-58 Rot. Rpt. No. 58/0937 Spare : A. Nr. 156.294 Ham. Rpt. Lloyds HAM. No. 58/1394.  
 OTHER IMPORTANT ITEMS Piston heads: 611407-GF-Lloyds No. 3702 1394/58 20-5-58 R.B.  
 TDP 21-6-57 No. 208-173-199-188-185-201-192 Port of origin: Schaffhausen.  
 Crossheads: ADO 50530-32613 Lloyd's ANT. JN 19/6/57 No. 2468-2459 (Port of origin: Dommeld)  
 ADO 50767-Lloyds ANT. JN 23/5/57 57E+52N. 2458-2459

Is the installation a duplicate of a previous case? no If so, state name of vessel  
 Date of approval of plans for crankshaft 12/4/57 Straight shafting 12/8/57 Gearing Clutch  
 Separate oil fuel tanks Pumping arrangements 9/10/57 Oil fuel arrangements 24/10/57  
 Cargo oil pumping arrangements Air receivers Donkey boilers  
 Dates of examination of principal parts:-  
 Fitting of stern tube 21-6-58 Fitting of propeller 21-6-58 Completion of sea connections 26-6-58 Alignment of crankshaft in main bearings 22-10-58  
 Engine checks & bolts 22-10-58 Alignment of gearing Alignment of straight shafting 25-8-58 Testing of pumping arrangements 27-11-58  
 Oil fuel lines 27-11-58 Donkey boiler supports 24-9-58 Steering machinery 1-12-58 Windlass 1-12-58  
 Date of Committee FRIDAY 10 APR 1959 Special Survey Fee £s. 48586.-  
 Decision See Rpt. 1. Install. of Machy. £s. 27.600.-  
 Expenses £s. 11.899.-  
 Tax £s. 2833.-

Date when A/c rendered 2.12.1958

