

Rpt. 4b

27 NOV 1961

Date of writing report 9th October, 1961 Received London Port Lisbon No. 9 2 2 8
Survey held at São Jacinto - Aveiro No. of visits In shops - First date 22/2/61 Last date 3rd October, 1961
On vessel 20

FIRST ENTRY REPORT ON INTERNAL COMBUSTION MACHINERY

No. in R.B. 4119-5 Name m.v. "CONTIMBRIGA" Gross tons 169,48
Owners Soc. de Pesca de Arrasto de Aveiro Managers - Port of Registry LISBOA
Hull built at São Jacinto - Aveiro By Estaleiros São Jacinto Yard No. 53 Year Month When 1961
Main Engines made at Copenhagen By A/S Vølund Eng. No. 5328 When 1960-11
Gearing made at - By - Blr. Nos. - When -
Donkey boilers made at - By - When -
Machinery installed at São Jacinto - Aveiro By Estaleiros São Jacinto When 1961-7
Particulars of restricted service of ship, if limited for classification Trawler
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? Yes If so, is it for cargo purposes? No Type of refrigerant FREON
Is the refrigerating machinery compartment isolated from the propelling machinery space? No 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 1 No. of propellers 1 Brief description of propulsion system Oil Eng. - Hydraulic operated friction clutch to rev. pitch propeller.

MAIN RECIPROCATING ENGINES. Licence Name and Type No. A/S Vølund Dieselmotor type DMT 630.

No. of cylinders per engine 6 Dia. of cylinders 300 mm. stroke(s) 470 mm. 2 or 4 stroke cycle 4 Single or double acting single
Maximum approved BHP per engine 660 at 375 RPM of engine and 375 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 See Cop. Report 18663 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? Built 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?

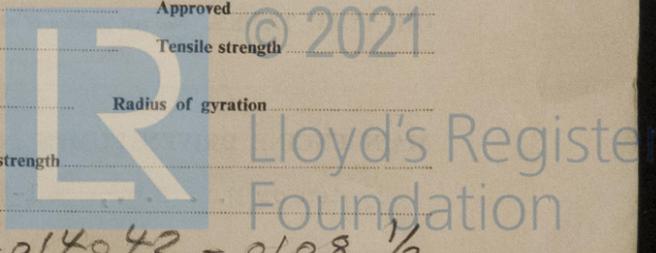
CRANK & FLYWHEEL SHAFTING. Date of approval of torsional vibration characteristics of the propelling machinery system State barred speed range(s), if imposed for working propeller
For spare propeller Is a governor fitted? Is a torsional vibration damper or detuner fitted to the shafting?

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
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)
M.T.



014032 - 014042 - 0108 1/2

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

Oil pressure operated friction coupling.

Can the main engine be used for purposes other than propulsion when declutched? Yes. If so, what? Hyd. Trawl winch pump and elect. alternator.

STRAIGHT SHAFTING. Diameter of thrustshaft 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 screwshaft cone at large end Is screwshaft 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/tube shaft liner at bearings Thickness between bearings Material of screw/tube shaft Minimum approved tensile strength
 Is an approved oil gland fitted? Yes. If so, state type Cedervall. Length of bearing next to and supporting propeller 590 mm.
 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 Moment of inertia of dry propeller
 If propeller is of special design, state type Volund R.P. Is propeller of reversible pitch type? If so, is it of approved design?
 State method of control Material of spare propeller blade manganbronte. Moment of inertia NO. 6 M.E. Cyl. acts

AIR COMPRESSORS & RECEIVERS. No. of main engine driven compressors per engine 1 Can they be declutched? No. as M.E. compressor.

No. of independently driven air compressors. (State capacity, prime mover, position in ship, and Port and No. of certificate) 1 a 14 m³/hr @ 30 kg/cm², Aux. Diesel Engine, A.P. E.R. Flat. Ham. 60/1858
 No. of starting air receivers. (Main and Aux. State capacity of each, position in ship and Port and No. of Certificate) Lower aft S. 95 litres Cert. cop. 1856
 upper A.S. E.R. 350 litres Cert. 1857.
 How are receivers first charged? Diesel-drive comp. Battery start. 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. Combined No. of main engine fresh water coolers and 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 1 E.R. casing ford.

MAIN ENGINE DRIVEN PUMPS (No. and Purpose) 1- Bilge and S.W., 1- S.W., 1- L.O. (engine) 1- L.O. for propeller system or M.E. L.O., 1-F.W.

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
Bilge A.P. E.R. Elect. Motor 18 m ³ /hr @ 38 m.	X	X				X							X		0'B'D'
G.S. A.P. E.R. Platform Aux. Diesel 20 m ³ /hr @ 20 m.	X	X				X							X		0'B'D'
F.W.Circ. F.P. E.R.					X						X				
S.W.Circ. F.P. E.R.						X				X					
O.F. Trans. F.S. E.R. Elect. Motor				X								X			
L.O. for M.E. or V.P. Prop. S.E.R. Elect. Motor								X	Prop. Hyd.						Prop. Hyd.

BILGE SUCTIONS. No. and size in each hold, deep tank or pump room 1-2" in. Hold,
 No. and size connected to main bilge line in main engine room 1-2" In tunnel
 In aux. engine room - Size and position of direct bilge suction in machinery spaces 2" AP. 2" FP.
 Size and position of emergency bilge suction in machinery spaces 2 1/2" Aft. Ctr.
 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 special requirements for ships carrying petroleum in bulk, cargo oil or closed 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)
A.P. E.R. Flat.	Oil Engine.	Motoren Werke Mannheim A.G.	Cert. Mannheim M60/394	Alternator 15 kva, air comp GS Pump.

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 with auto-volt controll.

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) 2 Rem. Hand Hydraulic Cert. Cop. 20/10/60 for gear 14.77.

Have the Rule Requirements for fire extinguishing arrangements been complied with? Yes. Brief description of arrangements Hydrant and hose with jet-spray nozzle, 2 port foam ext., 1 group CO2 ext. 32 Kg., 1 port 16 Kg. CO2 ext.

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 3/10/61 3 hours. 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).

ESTALEIROS SAO JACINTO
 Os Administradores
 Lloyd's Register Foundation
 Builder
 0108 2/2

GENERAL REMARKS

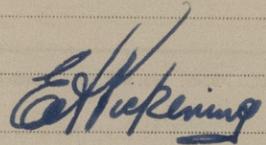
State if the machinery has been constructed and/or installed under special survey in accordance with the Rules, approved plans and Secretary's letters. State quality of materials and workmanship and give recommendations for classification, including any special notation to be assigned. Where existing machinery is submitted for classification the circumstances should be explained as fully as possible.

The machinery of this vessel has been installed under Special Survey in accordance with Rule Requirements, the Secretary's letters and approved plans.

The workmanship and materials used are good.

I recommend that this installation be classed +L.M.C. in the Register Book with a notation of T.S. (OG) in the appendix to the Register Book.

A notice board has been fitted at the control station stating that the main engine is not to be operated continuously between 255 and 297 R.P.M. and the tachometer marked in red in this region.



E. A. Pickering

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
 GEARING
 INTERMEDIATE SHAFTS See Cop. 18663
 SCREW AND TUBE SHAFTS
 PROPELLERS
 OTHER IMPORTANT ITEMS

Is the installation a duplicate of a previous case? No
 If so, state name of vessel -
 Date of approval of plans for crankshaft 22-7-1960 Straight shafting 21-10-60 Gearing - Clutch 22-7-60 & 21-10-60
 Separate oil fuel tanks Local approval. Pumping arrangements 1-7-60 Oil fuel arrangements 1-7-60
 Cargo oil pumping arrangements - Air receivers - Donkey boilers -

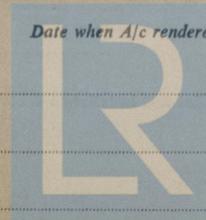
Dates of examination of principal parts:-
 Fitting of stern tube 16-3-61 Fitting of propeller 28-3-61 Completion of sea connections 24-5-61 Alignment of crankshaft in main bearings 30-6-61
 Engine chocks & bolts 30-6-61 Alignment of gearing - Alignment of straight shafting 30-6-61 Testing of pumping arrangements 28-7-61
 Oil fuel lines 18-7-61 Donkey boiler supports - Steering machinery 3-10-61 Windlass 3-10-61

Date of Committee FRIDAY - 5 JAN 1962 Special Survey Fee Esc:- 6,125\$00

Decision +L.M.C. ES }
 TS(OG) } 10.61

Expenses Esc:- 1,700\$00

Date when A/c rendered 21/1/61



Lloyd's Register Foundation

WITH YOUR FIRST ENTRY.