

Rpt. 4b

Date of writing report 21-2-59

Received London

31 MAR 1959

Port CADIZ

No. 2807

Survey held at CADIZ

In shops

No. of visits

On vessel

90

First date

23-3-57

Last date

13-2-59

FIRST ENTRY REPORT ON INTERNAL COMBUSTION MACHINERY

No. in R.B. Name M.V. "BONIFAZ"

Gross tons 12942

Owners NAVIERA CASTILLA

Managers

Port of Registry CADIZ

Hull built at Cadiz

By Astilleros de Cadiz, S.A.

Yard No. 47

Year Month
When 1959

Main Engines made at BARCELONA

By La Maquinista Terrestre y Maritima

Eng. No. 5624

When 1957

Gearing made at None

By S.E.C.N. Sestao

P. 270

Donkey boilers made at Headers & tubes Zaragoza

By Talleres Mercier, S.A.

Blr. Nos. S. 269

When 1958

Machinery installed at CADIZ

By Astilleros de Cadiz, S.A.

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? Yes

Is refrigerating machinery fitted? Yes

If so, is it for cargo purposes? No

Type of refrigerant NH3

Is the refrigerating machinery compartment isolated from the propelling machinery space? Yes

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 drive by reversable engine

MAIN RECIPROCATING ENGINES. Licence Name and Type No. See Barcelona Report No 6760 (herewith)

No. of cylinders per engine 6 Dia. of cylinders 740 mm. stroke(s) 1600 mm 2 or 4 stroke cycle 2 Single or double acting Single

Maximum approved BHP per engine 7500 at 115 RPM of engine and 115 RPM of propeller.

Corresponding MIP 7.9 Kgs/cm² (For DA engines give MIP top & bottom) Maximum cylinder pressure 55 Kgs/cm² Machinery numeral 1500

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? Valves in Cyl. 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 2 Where exhaust gas driven blowers only are fitted, can the engine operate with one blower out of action? Yes

If a stand-by or emergency pump or blower is fitted, state how driven 1 electric driven No. of scavenge air coolers 2 Scavenge air pressure at full power 1.45 Kgs/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 2 Inlet None Exhaust One Starting One Safety One

Material of cylinder covers Cast steel Material of piston crowns Cast steel Is the engine equipped to operate on heavy fuel oil? Yes

Cooling medium for: Cylinders Fresh water Pistons Oil Fuel valves Fresh water 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? Yes

Is the engine of crosshead or trunk piston type? Crosshead Total internal volume of crankcase No. and total area of explosion relief devices 13-6898.5 cm²

Are flame guards or traps fitted to relief devices? Is the crankcase readily accessible? Yes If not, must the engine be removed for overhaul of bearings, etc? Direct tank top

Is the engine secured directly to the tank top or to a built-up seating? How is the engine started? Compressed 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? 18 hours normal and 6 hours at 10% overload

CRANK & FLYWHEEL SHAFTING. Date of approval of torsional vibration characteristics of the propelling machinery system 7-12-56 State barred speed range(s), if imposed

for working propeller 56/67 RPM For spare propeller Is a governor fitted? Yes Is a torsional vibration damper or detuner fitted to the shafting? No

Where positioned? Type No. of main bearings 8 Are main bearings of ball or roller type? No

Distance between inner edges of bearings in way of crank(s) 958 mm. Distance between centre lines of side cranks or eccentrics of opposed piston engines

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

Diameter of journals 550 mm. Diameter of crankpins 300 mm. Centre 550 mm. Breadth of webs at mid-throw 1180 mm. Axial thickness of webs 335 mm.

Crankpin Journals 320 mm. Side Pins Forged Steel Approved

If shrunk, radial thickness around eyeholes Are dowel pins fitted? - Crankshaft material Journals Cast Steel Tensile strength

Diameter of flywheel 1903 mm. Weight 2204 Kgs. Are balance weights fitted? No Total weight Radius of gyration

Diameter of flywheel shaft 520 mm. Material SM Steel Minimum approved tensile strength

Flywheel shaft: separate, integral with crankshaft, integral with thrustshaft. (State which) Integral with thrustshaft

© 2020

Lloyd's Register
Foundation

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 _____ Material _____

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 or case hardened? _____

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 propeller or between engine and this shafting give brief description and, for clutches, state how operated.

Can the main engine be used for purposes other than propulsion when disconnected? _____ 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 _____ 440 mm. Material _____ Steel _____

Minimum approved tensile strength _____ Diameter of screw shaft cone at large end _____ 455 mm. Is screw shaft fitted with a continuous liner? _____ Yes _____

Diameter of tube shaft. (If these are separate shafts) _____ Is tube shaft fitted with a continuous liner in any of stern tube _____ Thickness of screw/tube shaft liner at bearings _____ 25 mm. Thickness between bearings _____ 20 mm. Material of screw/tube shaft _____ Steel _____

Is an approved oil gland fitted? _____ No _____ If so, state type _____ Length of bearing next to and supporting propeller _____ 2495 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 _____ 5400 mm. Pitch _____ Variable _____ Bolt up or solid _____ Solid _____ Total developed surface _____ 103064 cm²

No. of blades _____ 4 _____ Blade thickness at tip of root fillet _____ 207 mm. Blade material _____ Bronze _____ Moment of inertia of dry propeller _____ 60600 Kgs/cm²

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 _____

AIR COMPRESSORS & RECEIVERS. No. of main engine driven compressors per engine _____ None _____ Can they be furnished? _____

No. of independently driven air compressors. (State capacity, prime mover, position in ship, and Port and No. of Certificate) _____ Two: each 240 M³/Hr. capacity _____

driven by electric motors, both port side E.R. lower platform level, Valencia Cert. No. 5/c 687 _____

No. of starting air receivers. (Main and Aux. State capacity of each, position in ship and Port and No. of Certificate) _____ Two main each 12000 litres. Port side _____

E.R. at middle platform level Barc. Certs. Nos. 171 & 173. Three auxiliary 250 Lts. 1 S.S. 1 _____

2 P.S. E.R. Lowest platform level Barcelona Cert. Nos. 225/6 and 7 _____

How are receivers first charged? _____ power from steam dynamo. Maximum working pressure of starting air system _____ 25 Kgs/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 _____ 2 _____ No. of main engine lubricating oil coolers _____ 2 _____

OIL FUEL TANKS. No. and position of oil fuel settling or service tanks not forming part of hull structure _____ Three for main and auxy. engines. _____

E.R. Starboard side upper platform level. Two for Boilers in Boiler Room at after bulkhead _____

MAIN ENGINE DRIVEN PUMPS (No. and Purpose) _____ One main S.W. Circulating. One Main F.W. Circulating. _____

One Main Lubricating Oil. Two Bilge _____

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	EMM Bilge	Boiler Feed	Salt Water Cooling	Fresh Water Cooling	Oil Fuel Tanks	Fire Main	Lub. Oil
Stand by main S.W. circ. Steam driven port side aft 320 tons/hr.		X				X					X				
Stand by main lubricating oil steam driven P.S. aft								X						X	X
Condenser circulating electric 500 tons/hr.					X				X		X				
Stand by main fresh water circ. steam driven S.S. aft					X							X			
Oil fuel transfer steam driven starboard side				X									X		
Bilge steam driven Starboard side 30 tons/hr.	X	X				X									
General service steam driven Stbd. side						X									
Two boiler circulating electric P.S. middle platform															
2 boiler feed 1 in Boiler 1 in E.R. S.S. aft Steam							X			X					
3 auxiliary circ. pump electric															
O.F. daily service electric							X								
2 fuel valve cooling E.R. Starboard side Elec.													X		
Steam driven Butterworth Tank cleaning S.S. aft 100 tons per hour	X					X								X	

discharge through drums/exhaust gas econ. back to drums.

BILGE SUCTIONS. No. and size in each hold, deck tank or pump room _____ Three 80 mm. in main pump room. One 80 mm. in after Cofferdam. Two 65 mm. in forward hold. One 65 mm. in forward pump room. One 65 mm. in forward Cofferdam.

No. and size connected to main bilge line in main engine room _____ Two 90 mm. One 80 mm. One 100 mm. In tunnel _____ No tunnel

In aux. engine room _____ No Auxiliary Engine Room _____ Size and position of direct bilge suction in machinery spaces _____ One 100 mm. S.S.

Aft One 250 mm. P.S. _____ Size and position of emergency bilge suction in machinery spaces _____ One 250 mm. Starboard side aft

Is the bilge or ballast system fitted with means for separating oil? _____ No _____ Do the bilge or ballast tanks comply with the Rules including special requirements for ships carrying petroleum in bulk? _____ Yes _____

STEAM & OIL ENGINE AUXILIARIES

Position of engine	Type	Manufacturer	Port and No. of Rev. or Cert.	Driven Machinery (For electric generator, state output)
Port side forward	ELCANO-GOTAVERKEN	EMPRESA		Electric Generator
E.R. inboard	DM 300/450G3	NACIONAL		125 K.W.
Port side forward	4 stroke	"ELCANO"	VALENCIA	Electric Generator
E.R. outboard	Diesels		REPORT N° 869	125 K.W.
Starboard side				Electric Generator
E.R. forward				125 K.W.
Port side E.R.	Allen Type Compound	S.E. de C.N.	BILBAO	Electric Generator
Midlength	Steam Engine	SESTAO	12512	75 K.W.

Is electric current used for essential services in engine? _____ Yes _____ If so, state the maximum No. and capacity of generators required to ensure that the ship may operate at sea _____ One at 125 K.W.

Is an electric generator driven by Main Engine? _____ No _____

STEAM INSTALLATION. No. of dry type safety valves on the Two _____ w.p. 14 Kgs/cm² Type _____ Mercier type CN. Water tube

Position _____ In separate Boiler Room after end of Engine Room at middle platform level _____

Is a superheater fitted? _____ No _____ Are these boilers also heated by exhaust gas? _____ No _____ No. of dry type boilers heated by exhaust gas only? _____ One _____ w.p. 12 Kgs/cm²

Type _____ LAMONT _____ Position _____ in E.R. at base of funnel _____ Can the exhaust heated boilers deliver steam directly to the steam engine or do they operate only as economisers in conjunction with oil fired boilers? _____ Economiser _____

W.T. Cadiz N° 2783 _____ Exhaust Gas Madrid N° B18 _____ Is steam supplied for operation of the ship at sea? _____ Yes _____ Are any steam pipes over 3 ins. bore? _____ Yes _____ If so, what is their material? _____ Steel & Copper _____

Are off feed boilers in the arrangement of pipes, valves, controls, etc., in accordance with the Rules? _____ Yes _____ No. of off feeding pressure _____

with _____ None _____ No. of steam condensers _____ One _____ No. of evaporators _____ One _____

STEERING GEAR. (State No. and Type of Steam Engines, Electric Motors, Hydraulic Pumps and other particulars) _____ Electro-Hydraulic Hele Shaw type _____

Two pumps each driven by its own electric motor _____

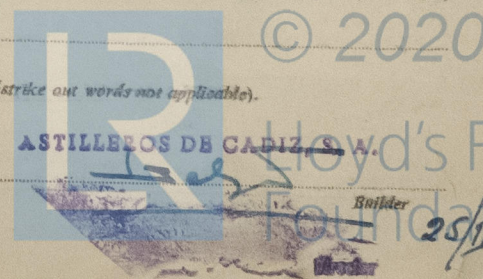
Have the Rule Requirements for the extinguishing arrangements been complied with? _____ Yes _____ Brief description of arrangements _____ CO2 & Steam Smothering in Machinery, Boiler, Pump Room and cargo spaces, fire main with hydrants, hoses and nozzles

Portable froth extinguishers throughout vessel as per Rules Requirements. _____

Has the space 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 test of main engine _____ 7-2-59. 6 hours 13-2-59 6 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).



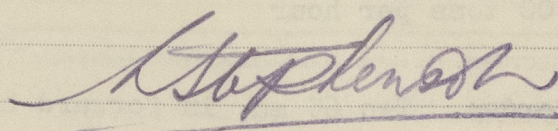
GENERAL REMARKS

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 the Rules, approved plans and Secretary's Letters.

The material and workmanship are good. On completion main and auxiliary machinery examined under working conditions alongside and at sea with satisfactory results.

In my opinion the Machinery is eligible for Classification with this Society with records of +LMC. 2-59, D.B. (W.T.) 2-59, T.S. C.L. (Date with-held) and notation OIL ENGINE, subject to the tailshaft liner being specially examined and dealt with as necessary before the end of January, 1960.



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 Lloyd's Val. N^o 759 30-10-58 J.F.C.SCREW ~~AND TUBE~~ SHAFTS Working Lloyd's Bbo. N^o 8915 20-6-58 J.M.R. *Have 8285*PROPELLERS Working Bronze Lloyd's Bbo. N^o 7631 FL 17-4-58 T.M. 13-11-58

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

Straight shafting 16-5-57

Gearing

None

Clutch

None

Separate oil fuel tanks

3-9-57

Pumping arrangements

17-12-58

Oil fuel arrangements

9-1-59

Cargo oil pumping arrangements

3-9-57

Air receivers

Donkey boilers

20-8-57

Dates of examination of principal parts:—

Fitting of stern tube

7-10-57

Fitting of propeller

8-1-59

Completion of sea connections

7-10-57

Alignment of crank shaft in main bearings

Engine chocks & bolts

17-12-58

Alignment of gearing

-

Alignment of straight shafting

22-10-58

Testing of pumping arrangements

15-1-

Oil fuel lines

15-1-59

Donkey boiler supports

22-10-58

Steering machinery

7-2-59

Windlass

7-2-59

Date of Committee

FRIDAY 17 APR 1959

Special Survey Fee

37175 pts

Decision

See Rpt. 1.

Expenses

1800 pts

Date when A/c rendered

25-3-59



© 2020

Lloyd's Register
Foundation