

Rpt. 4b

Date of writing report

MAY - 7, 1958

Received London

Port Kobe

No. FE-5706

Survey held at

Kobe

No. of visits

In shops

96

On vessel

20

First date

21st Nov., 1956
6th Feb., 1958

Last date

31st March, 1958
13th May, 1958

FIRST ENTRY REPORT ON INTERNAL COMBUSTION MACHINERY

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

Owners Phoenix Compania De Navegacion S. A.

Gross tons 9,431

Hull built at Kobe, Japan

Managers Mitsubishi Heavy Ind., Reorganized, Ltd.,
By Kobe Shipyard & Engine Works

Port of Registry Monrovia

Yard No. 883

Year Month
When 1958-5

Main Engines made at - ditto -

By - ditto -

Eng. No. 1547

When 1958-1

Gearing made at

By

Donkey boilers made at Osaka, Japan

By Hirano Iron Works Co., Ltd.

Blr. Nos. H-588

When 1958-1

Machinery installed at Kobe, Japan

By Mitsubishi H.I., Reorganized, Ltd., Kobe Shipyard & Engine Works

When 1958-5

Particulars of restricted service of ship, if limited for classification None

Particulars of vegetable or similar cargo oil notation, if required None

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 Direct expansion of
dichlorodifluoromethane

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 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 Reciprocating oil engine directly coupled to line shafting
Mitsubishi Kobe Sulzer 7SD72 two cycles solid injection single acting
with crosshead reversible type

MAIN RECIPROCATING ENGINES. Licence Name and Type No.

No. of cylinders per engine 7

Dia. of cylinders 720 mm

stroke(s) 1250 mm

2 or 4 stroke cycle 2

Single or double acting single

Maximum approved BHP per engine 5300

at 130

RPM of engine and 130

RPM of propeller.

Corresponding MIP 6.20kg/cm²

(For DA engines give MIP top & bottom)

Maximum cylinder pressure 54kg/cm²

Machinery numeral 1060

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? through ports

No. and type of mechanically driven scavenge pumps or blowers per engine and how driven 7 - Reciprocating piston pumps driven by main piston

No. of exhaust gas driven scavenge blowers per engine None

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 None

No. of scavenge air coolers None

Scavenge air pressure at full

power 0.23kg/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

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 Steel

Material of piston crowns Forged Steel

Is the engine equipped to operate on heavy fuel oil? Yes

Cooling medium for: Cylinders Fresh Water

Pistons Lub. Oil

Fuel valves Fresh Water

Overall diameter of piston rod for double acting engines

Is the rod fitted with a sleeve? No

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 2800 ft³

No. and total area of explosion relief

devices 230 in² x 7

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? tank top

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? 4 hours

CRANK & FLYWHEEL SHAFTING. Date of approval of torsional vibration characteristics of the propelling machinery system 25th May, 1957

State barred speed range(s), if imposed

for working propeller 30 r.p.m.

For spare propeller 30 r.p.m.

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) 934 mm

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 490 mm

Diameter of crankpins 490 mm

Breadth of webs at mid-throw 980 mm

Axial thickness of webs 295 mm

If shrunk, radial thickness around eyeholes 243 mm

Are dowel pins fitted? No

Crankshaft material Journals Forged Steel

Webs Forged Steel

Minimum

Approved 52.74 kg/mm²

Tensile strength

Diameter of flywheel 2423.9 mm

Weight 1580 kgs.

Are balance weights fitted? Yes

Total weight 1700 kgs.

Radius of gyration 857 mm

Diameter of flywheel shaft 490 mm

Material Forged Steel

Minimum approved tensile strength 52.74 kg/mm²

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

Integral with thrust shaft

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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 $\sqrt{490}$ mm Material Steel Forging Minimum approved tensile strength 50 kg/mm²
 Shaft separate or integral with crank or wheel shaft? separate Diameter of intermediate shaft $\sqrt{340}$ mm Material Steel Forging
 Minimum approved tensile strength 45 kg/mm² Diameter of screwshaft cone at large end $\sqrt{390}$ mm Is screwshaft fitted with a continuous liner? Yes
 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 22.5 mm Thickness between bearings 18.5 mm Material of screw/tube shaft Steel Forging Minimum approved tensile strength 45 kg/mm²
 Is an approved oil gland fitted? No If so, state type Length of bearing next to and supporting propeller $\sqrt{1600}$ 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 $\sqrt{4800}$ mm Pitch 3650 mm Built up or solid solid Total developed surface 7.4 M²
 No. of blades 4 Blade thickness at top of root fillet 228 mm Blade material Mn-BC Moment of inertia of dry propeller 115,000 kg-cm
 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

AIR COMPRESSORS & RECEIVERS. No. of main engine driven compressors per engine. No Can they be declutched?
 No. of independently driven air compressors. (State capacity, prime mover, position in ship, and Port and No. of certificate) 3 x 35 H.P. coupled by magnetic couplings with Dynamo Engine
 Port side in Engine Room Kobe No.M-46762
 No. of starting air receivers. (Main and Aux. State capacity of each, position in ship and Port and No. of Certificate) 2 - Main, 9.0 M³ Port 2nd Deck in Eng. Room Kobe No.AR-48049, 1-Aux. 300 Lit. Port Fwd. Platform in Eng. Room Kobe No.AR-46469.

How are receivers first charged? by Emergency Air Compressor 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. No. of main engine fresh water coolers $\sqrt{1x200}$ M² No. of main engine lubricating oil coolers $\sqrt{2x140}$ M²

OIL FUEL TANKS. No. and position of oil fuel settling or service tanks not forming part of hull structure Bunker Oil for M.E.: - Aft Centre 2nd Deck in 1-Service Tank Centre, 2-Settling Tanks Port & Stard., Diesel Oil: - Port Aft 2nd Deck in E.R., 1-Service Tank Fwd. 1-Settling Tank aft, 2-Donkey Boiler Fuel Tanks: - Port 2nd Deck in E.R.

MAIN ENGINE DRIVEN PUMPS (No. and Purpose) 7 - Oil Fuel Injection Pumps only

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
S. F&A Sea Water Circ. Pump		X				X				X				
S. F&A Jacket Cool. F.W. Pump					X						X			
S. in/out Fuel Valve Cooling					X						X			
S. in/out Piston Cooling & L. O. Pump								X					X	X
(P) F.O. Transfer Pump				X								X		
P. F&A F.O. Booster Pump				X								X		
P. in & out A in & out F.O. Combined Pumps				X								X		
(P) F.O. Service Pump				X								X		
(S) Fire & G.S. Pump	X	X	X			X							X	
(S) Bilge & Ballast Pump	X	X	X			X							X	
(S) Bilge Pump	X		X			X								
S. in/out Sanitary Pump						X				X				
S. in/out Fresh Water Pump							X				X			
S. L.O. Service Pump								X						X
S. in/out Feed Pump							X		X					
P. F&A F.O. Burning Pump				X										
P. Sea Water Circ. Pump for Dynamo						X				X				

BILGE SUCTIONS. No. and size in each hold, deep tank or pump room No.1 hold $\sqrt{2x4}$ " (P&S), No.2 hold $\sqrt{2x3}$ " (P&S), No.3 hold $\sqrt{2x3}$ " (P&S), No.4 hold $\sqrt{2x4}$ " (P&S), No.5 hold $\sqrt{2x2}$ " (P&S), No.6 hold $\sqrt{2x2}$ " (P&S), No.7 hold $\sqrt{2x2}$ " (P&S), No.8 hold $\sqrt{2x2}$ " (P&S), No.9 hold $\sqrt{2x2}$ " (P&S), No.10 hold $\sqrt{2x2}$ " (P&S), No.11 hold $\sqrt{2x2}$ " (P&S), No.12 hold $\sqrt{2x2}$ " (P&S), No.13 hold $\sqrt{2x2}$ " (P&S), No.14 hold $\sqrt{2x2}$ " (P&S), No.15 hold $\sqrt{2x2}$ " (P&S), No.16 hold $\sqrt{2x2}$ " (P&S), No.17 hold $\sqrt{2x2}$ " (P&S), No.18 hold $\sqrt{2x2}$ " (P&S), No.19 hold $\sqrt{2x2}$ " (P&S), No.20 hold $\sqrt{2x2}$ " (P&S), No.21 hold $\sqrt{2x2}$ " (P&S), No.22 hold $\sqrt{2x2}$ " (P&S), No.23 hold $\sqrt{2x2}$ " (P&S), No.24 hold $\sqrt{2x2}$ " (P&S), No.25 hold $\sqrt{2x2}$ " (P&S), No.26 hold $\sqrt{2x2}$ " (P&S), No.27 hold $\sqrt{2x2}$ " (P&S), No.28 hold $\sqrt{2x2}$ " (P&S), No.29 hold $\sqrt{2x2}$ " (P&S), 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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.

The machinery of this ship has been built by Special Survey in accordance with the Rules, approved plans and the Secretary's letters.

The workmanship and materials are sound and good.

The Machinery has been examined under full working condition in the shop and comprehensive sea trial and found satisfactory.

In our opinion, this ship's machinery is worthy to have records of LMC 5,58, DBS 7kg/cm² 5,58 and TS (CL) 5,58.

A notice board has been fitted at the control platform stating that the engine is not to be operated continuously under 30 R.P.M. and the engine tachometer marked accordingly.

Peter Manson.

Engine Surveyor to Lloyd's Register of Shipping.
P. Manson & S. Matsumoto.

PARTICULARS OF IDENTIFICATION MARKS (Including Port of origin) of important Forgings and Castings. (Copies of certificates should be forwarded with report.)

Connecting RODS KOB No. KW-F2635, 2636, 2637-1, 2637-2, 2648, 2652-1, 2653-1

CRANKSHAFT ~~OR ROTOR SHAFT~~ NAG No. MC-CK227F, 227A

FLYWHEEL SHAFT NAG No. 2000

THRUSTSHAFT -

GEARING -

INTERMEDIATE SHAFTS YKA No. Y-10887, Y-10885-C, Y-11852, Y-10890, Y-10885-B

SCREW ~~AND TUBE~~ SHAFTS YKA No. Y-10886-A, B

PROPELLERS NAG No. MN-B02477

OTHER IMPORTANT ITEMS

Cylinder covers:- KOB No. KR-C305, 306, 308, 310, 310, 311, 312, 314

Crossheads:- KOB No. KW-F2559, 2560, 2568, 2568-1, 2614-1, 2637-2, 2629-1

Is the installation a duplicate of a previous case? Yes If so, state name of vessel M.V. "EDDA"

Date of approval of plans for crankshaft 11-10-56 Straight shafting 22-1-57 Gearing - Clutch -

Separate oil fuel tanks 27-1-58 Pumping arrangements 27-1-57 Oil fuel arrangements 4-2-58

Cargo oil pumping arrangements - Air receivers 31-5-57 Donkey boilers 3-5-57

Dates of examination of principal parts:-

Fitting of stern tube 15-2-58 Fitting of propeller 17-2-58 Completion of sea connections 21-2-58 Alignment of crankshaft in main bearings 29-3-58

Engine checks & bolts 19-3-58 Alignment of gearing - Alignment of straight shafting 10-4-58 Testing of pumping arrangements 18-4-58

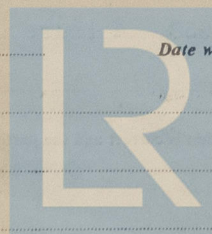
Oil fuel lines 17-4-58 Donkey boiler supports 12-3-58 Steering machinery 26-4-58 Windlass 26-4-58

Date of Committee FRIDAY 18 JUL 1958 Construction Installation Special Survey Fee ¥678,000.- AR

Decision See Rpt. 1.

Expenses See Rpt. 1

Date when A/c rendered



Lloyd's Register
Foundation