

Rpt. 4b

Date of writing report 24th March, 1964.

Received London

Port

GENOA

No. 291291

Survey held at

TURIN

No. of visits

In shops 46

On vessel 50

First date

12/4/1963

Last date

18/2/1964

6/7/1964

FIRST ENTRY REPORT ON INTERNAL COMBUSTION MACHINERY

No. in R.B. Name m.t. "GIORDANO BRUNO"

Gross tons 31,294

Owners BLACK SEA STATE STEAMSHIP LINE

Managers

Port of Registry

ODESSA

Hull built at GENOA SESTRI

By

S.A. ANSALDO CANTIERE NAVALE

Yard No.

1595

Year Month

Main Engines made at TURIN

By

FIAT S.G.M.

Eng. No.

5065

When 1964/2

Gearing made at

By

Gear No.

When

Aux./donkey boilers made at GENOA SAMPIERDARENA

By

ANSALDO S.A. STABILIMENTO MECCANICO

Blr. Nos.

6810 & 6811

When 1963-12

Machinery installed at GENOA SESTRI

By

ANSALDO-CANTIERE NAVALE

When 1964-7

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

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

If ship is to be classed for navigation in ice, state whether Class 1, 2 or 3 yes: ice class 3

Is ship an oil tanker? yes

Is refrigerating machinery fitted? domestic only

If so, is it for cargo purposes? no

Type of refrigerant

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 report need not be repeated below, but all other relevant particulars must be given and the port and report number should be stated.

No. of main engines one

No. of propellers one

Brief description of propulsion system

one direct reversing oil engine directly coupled to intermediate and screwshaft

MAIN RECIPROCATING ENGINES.

Licence Name and Type No.

FIAT airless injection type 909S supercharged

No. of cylinders per engine 9

Dia. of cylinders

900mm.

stroke(s)

1600mm.

2 or 4 stroke cycle 2

Single or double acting single

Maximum BHP per engine approved for this installation

19000

at 122

RPM of engine and

122

RPM of propeller.

Corresponding MIP 8.97 Kg/cm²

(For DA engines give MIP top & bottom)

Maximum cylinder pressure

70 Kg/cm²

Machinery numeral

3800

Are the cylinders arranged in Vee or other special formation? in one vertical line

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

9 reciprocating type pumps driven by the main engine crossheads

No. of exhaust gas driven scavenge blowers per engine

4

Where exhaust gas driven blowers only are fitted, can the engine operate with one blower out of action?

2nd stage

If a stand-by or emergency pump or blower is fitted, state how driven

No. of scavenge/air coolers

5

Scavenge air pressure at full power

0.99 Kg/cm²

Are scavenge manifold explosion relief valves fitted? yes

TWO AND FOUR STROKE ENGINES.

Is the engine supercharged? yes

Are the undersides of the pistons arranged as supercharge pumps? no

No. of exhaust gas driven blowers per engine

4

1st stage

No. of supercharge/air coolers per engine

2

Supercharge air pressure

0.99 Kg/cm²

Can engine operate without supercharger? yes

No. of valves per cylinder:

Fuel one

Inlet none

Exhaust none

Starting one

Safety one

Material of cylinder covers S.M. steel

Material of piston crowns

S.M. Steel

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

Cooling medium for: Cylinders F.W.

Pistons

lub. oil

Fuel valves

F.W.

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? yes

Entablature? yes

Is the crankcase separated from the underside of pistons? yes

Is the engine of crosshead or trunk piston type? cross-head

Total internal volume of crankcase

236 M3

No. and total area of explosion relief devices

9 - 30300 cm²

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? no

Is the engine secured directly to the tank top or to a built-up seating? built up seating

Can the engine be reversed? yes

If not, how is reversing obtained?

Has the engine been tested working in the shop? yes

How long at full power? 3 hrs. at 19000 BHP-122RPM and 1 hr. at 20900 BHP-126RPM

CRANK & FLYWHEEL SHAFTING. Date of approval of torsional vibration characteristics of the propelling machinery system

18/7/1963

State barred speed range(s), if imposed

for working propeller

For spare propeller

Is a governor fitted? yes

Is a torsional vibration damper fitted to the shafting? yes

Where positioned? fwd. end of crankshaft

Type

FIAT

No. of main bearings

11

Are main bearings of ball or roller type? no

Distance between inner edges of bearings in way of crank(s)

1220mm.

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 700mm.

Diameter of crankpins

Centre 700mm.

Breadth of webs at mid-throw

1330mm.

Axial thickness of webs

420mm.

If shrunk, radial thickness around eyeholes

312.5mm.

Are dowel pins fitted? no

Crankshaft material: Journals S.M. forged steel

Webs S.M. cast steel

Minimum Approved 55 Kg/mm²

Tensile strength

Diameter of flywheel 2870mm.

Weight

3800 Kg

Are balance weights fitted? yes

Total weight

5960Kg.

Radius of gyration

Nos. 3 & 5=939,7mm.

Nos. 6 & 9=960mm.

Diameter of flywheel shaft see thrust

Material

Minimum approved tensile strength

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

integral with thrustshaft

012078 - 012088 - 0338 1/3

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. State Port and report No.)

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. Full particulars to be reported on Form 4e.) Port _____

Report No. _____

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 _____ 700mm. Material S.M. forged steel Minimum approved tensile strength 55 Kg/mm²

Shaft separate or integral with crank or wheel shaft? separate from crankshaft Diameter of intermediate shaft 580mm. Material S.M.

Minimum approved tensile strength 55 Kg/mm² Diameter of screwshaft cone at large end 625mm. 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 55mm. Thickness between bearings 43mm. How is the after end of the liner made watertight in the propeller boss? rubber ring

Material of screw/tube shaft S.M. Minimum approved tensile strength 55Kg/mm² Is an approved oil gland fitted? no If so, state type _____

Length of bearing next to and supporting propeller 3100mm. 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. If of special design, state type _____ no Is it of reversible pitch type? _____ no

If so, is it of approved design? _____ no State method of control _____

For Class 1 or 2 ice strengthening only

Is electric current used for essential services at sea? _____ yes

at sea _____ one - 450 kW

Is an electric generator driven by Main Engine? _____ no

STEAM INSTALLATION. No. of aux./donkey boilers burning oil fuel two W.P. 12 Kg/cm² Type Foster Wheeler W/T(10.5m³/hr)

Position port & stbd. aft. eng. rm. flat. (enclosed space upto upper deck level)

Is a superheater fitted? _____ no Are these boilers also heated by exhaust gas? _____ no

Type "Diesecon G" Position just below funnel casing

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? _____ yes

Port and No. of report on aux./donkey boilers E.G. Milan No. 42, O/F GENOVA

Is steam essential for operation of the ship at sea? _____ yes

Are any steam pipes over 3 ins. bore? _____ yes

If so, what is their material? M.S. solid drawn 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 two

No. of steam condensers one No. of Evaporators two

STEERING GEAR. (State No. and Type of Steam Engines, Electric Motors, Hydraulic Pumps and other particulars including particulars of alternative means of steering)

Have the Rule Requirements for fire extinguishing arrangements been complied with? _____ yes

Brief description of arrangements Steam smothering in Blr. Rm. & cargo tanks. CO₂ in E.R., Blr. Rm. and emerg. diesel enr. rm. Foam ext. in all cargo tanks. Fixed and portable exts. throughout ship. Hydrants & hoses with spray and jet nozzles throughout ship.

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 30th June, 1964-12 hours.

Does this machinery installation contain any features of a novel or experimental nature? (Give particulars) _____

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											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	
Oil water separator Port fwd.																
Electr. recip. 56m ³ /hr	X	X														
Diesel alt. circ. Stbd.																oilly water separator
Electr. cent. 20m ³ /hr						X					X					
V/A cond. extract Stbd.																
Electr. cent. 6m ³ /hr																
Blr. circ. Stbd. aft.																
Electr. cen. 50m ³ /hr							X				X					
Blr. F/O Blr. rm.																
Electr. cen. 3.5x0.3m ³ /hr				X												
Blr. feed Stbd. aft.																
Electr. cen. 8m ³ /hr						X					X					
V/O trans. Port																
Electr. cen. 20m ³ /hr							X									
M.E. F/O booster-Fwd.																
Electr. cen. 8.6m ³ /hr				X												
M.E. fuel valve c/g. Stbd. Fwd.																Main eng.
Electr. cen. 17m ³ /hr					X											M.E. fuel valves
Comp. S/W circ. Port fwd.							X									Main air compressors
Electr. cen. 22m ³ /hr																Aux. air compressor
Comp. S/W circ. Port fwd.																
Electr. cen. 1.5m ³ /hr							X									
Aux. diesel O/F Fwd.																
Electr. cen. 1m ³ /hr				X												
Aux. diesel pre. Lub. Stbd. Fwd.												X				
Electr. cen. 16m ³ /hr								X								

MAIN CARGO PUMPROOM-																
Bilge	Port fwd.															
Steam duplex	40m ³ /hr															
Ballast	Stbd. aft.															Overboard
Electr. cent.	1250m ³ /hr															

-FWD. PUMPROOM-																
Bilge & ballast	Mid. aft.															
Steam duplex	250m ³ /hr	X														
Fuel oil trans.	Stbd.															Fuel oil or ballast tks.
Steam duplex	100m ³ /hr															
Emerg. fire	Port															X overboard
Diesel	250m ³ /hr															

Fwd. pump room	No. 00507															
Port comp. flat	Diesel hand start	ALFA ROMEO	Milan 53.													Emergency fire pump 250 m ³ /hr
		REGGIO EMILIA														Emergency air comp. 15m ³ /hr

Is electric current used for essential services at sea? _____ yes	at sea _____ one - 450 kW	Is an electric generator driven by Main Engine? _____ no	Is steam essential for operation of the ship at sea? _____ yes	Are any steam pipes over 3 ins. bore? _____ yes	If so, what is their material? M.S. solid drawn 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 two	No. of steam condensers one	No. of Evaporators two
---	---------------------------	--	--	---	--	--	---------------------------------------	-----------------------------	------------------------

STEERING GEAR. (State No. and Type of Steam Engines, Electric Motors, Hydraulic Pumps and other particulars including particulars of alternative means of steering)	Have the Rule Requirements for fire extinguishing arrangements been complied with? _____ yes	Brief description of arrangements Steam smothering in Blr. Rm. & cargo tanks. CO ₂ in E.R., Blr. Rm. and emerg. diesel enr. rm. Foam ext. in all cargo tanks. Fixed and portable exts. throughout ship. Hydrants & hoses with spray and jet nozzles throughout ship.
---	--	---

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 30th June, 1964-12 hours.	Does this machinery installation contain any features of a novel or experimental nature? (Give particulars) _____
---	--	--	---

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.)	ANSA LDO S.p.A. - CAN	STABILIMENTO GRANDI MOTORI	Lloyd's Register
--	-----------------------	----------------------------	------------------

Propeller	Diameter	Pitch	Built or solid	Total developed surface	No. of blades	Blade thickness at top of root fillet	Blade material	Tensile strength	Design moment of inertia of propeller (dry)	Blade thickness at 25% radius	Blade thickness at tip	Length of blade section at 25% radius	Rake of blade
-----------	----------	-------	----------------	-------------------------	---------------	---------------------------------------	----------------	------------------	---	-------------------------------	------------------------	---------------------------------------	---------------

Working	6.6	4.553	S	-	4	249mm	Ni-Al-Mn bronze	46.94	182.000				
Spare	6.48	VAR.	S	-	4	275mm	steel	46.94	182.000				

For Class 1 or 2 ice strengthening only	Class III
---	-----------

AIR COMPRESSORS & RECEIVERS. No. of main engine driven compressors per engine _____ none Can they be declutched? _____	No. of independently driven air compressors. (State capacity, prime mover, position in ship, and Port and No. of certificate)	2 off. 405 m ³ /hr each. Electr. drive. Port twi. dk. level LA SPEZIA cert. no. _____	1 off. 60m ³ /hr " " outbd. of above LA SPEZIA cert. no. _____	1 off. 15m ³ /hr hand start diesel driven outbd. of above.
--	---	--	---	---

No. of starting air receivers. (Main and Aux. State capacity of each, position in ship and Port and No. of Certificate)	3 main. port comp. flat 9m ³ each Gen/ cert.	1 aux. comp. flat fwd. 500 liters. Mil. A. 113. X	1 aux. port E.R. floor 200 liters. Mil.	1 aux. fwd. fore-castle dk. 200 liters. Mil.
---	---	---	---	--

How are receivers first charged? hand start diesel comp.	Maximum working pressure of starting air system 30 Kg/cm ²	Are the safety devices _____
--	---	------------------------------

COOLERS. No. of main engine fresh water coolers three	No. of main engine lubricating oil coolers four
---	---

OIL FUEL TANKS. No. and position of oil fuel settling or service tanks not forming part of hull structure two boiler fuel port side Blr. room.	One stbd. E.R. flat - (diesel oil)
--	------------------------------------

MAIN ENGINE DRIVEN PUMPS (No. and Purpose) One lub. oil circ. chain driven from Intermediate shaft 500m ³ /hr	driving one oil motor directly coupled to one S.W. circ. pump and one F.W. circ. pump.
--	--

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.

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.

PROPELLER. If of special design, state type no Is it of reversible pitch type? no

If so, is it of approved design? no State method of control -

Propeller	Diameter M	Pitch M	Built or solid	Total developed surface	No. of blades	Blade thickness at top of root fillet	Blade material	Tensile strength Kg/mm ²	Design moment of inertia of propeller (dry)	For Class 1 or 2 ice strengthening only			
										Blade thickness at 25% radius	Blade thickness at tip	Length of blade section at 25% radius	Rake of blade
Working	6.6	4.553	S	-	4	249mm	Ni-Al-Mn bronze	46.94	182.000				
Spare	6.48	VAR.	S	-	4	275mm	steel	46.94	182.000				

AIR COMPRESSORS & RECEIVERS. No. of main engine driven compressors per engine none Can they be declutched? -

No. of independently driven air compressors. (State capacity, prime mover, position in ship, and Port and No. of certificate)
2 off. 405 m³/hr each. Elect. drive. Port twn. dk. level LA SPEZIA cert. no. 5182
1 off. 60 m³/hr " " " outbd. of above LA SPEZIA cert. no. 4762
1 off. 15 m³/hr hand start diesel driven outbd. of above.

No. of starting air receivers. (Main and Aux. State capacity of each, position in ship and Port and No. of Certificate) 3 main, port comp. flat 9m³ each Gen/cert.
1 aux. comp. flat fwd. 500 liters. Mil. A. 113. X
1 aux. port E.R. floor 200 liters. Mil. See Certs Mil. A. 113 + A. 114 (Paw)
1 aux. fwd. fore-castle dk. 200 liters. Mil.

How are receivers first charged? hand start diesel comp. Maximum working pressure of starting air system 30 Kg/cm² Are the safety devices

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 three No. of main engine lubricating oil coolers four

OIL FUEL TANKS. No. and position of oil fuel settling or service tanks not forming part of hull structure two boiler fuel port side Blr. room.
One stbd. E.R. flat - (diesel oil)

MAIN ENGINE DRIVEN PUMPS (No. and Purpose) One lub. oil circ. chain driven from intermediate shaft 500m³/hr

driving one oil motor directly coupled to one S.W. circ. pump and one F.W. circ. 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											DELIVERY				
	SUCTION											Boiler Feed	Salt Water Cooling	Fresh Water Cooling	Oil Fuel Tanks	Fire Main
Cond. circ.																
elect. centrif. 600m ³ /hr																
Blr. feed																
elect. centrif. 35m ³ /hr																
Atmos. cond. circ.																
Electr. cent. 300m ³ /hr																
F.O. trans.																
Electr. cent. 72m ³ /hr																
Daily service F/O trans. - Stbd. Fwd.																
Electr. cent. 36m ³ /hr																
M.E. lub. oil																
elect. cent. 500m ³ /hr																
F.W. & S.W. circ. M.E. Stbd.																
Elect. cent. 800/600m ³ /hr																
Aux. S.W. circ.																
Electr. cent. 120m ³ /hr																
General service Port fwd.																
Electr. cent. 100m ³ /hr																
Bilge Port fwd.																
Steam duplex 40m ³ /hr																
Ballast and fire Port																
Electr. cent. 250m ³ /hr																
Fire pump Port																
Electr. cent. 250m ³ /hr																
Bilge Port fwd.																
Electr. cent. 120m ³ /hr																

BILGE SUCTIONS. No. and size in each hold, deep tank or pump room Main pump Rm. One fwd. One aft. 100mm.
Fwd. pump Rm. One cent. 63mm.
Boatswains store. Two P&S 63mm.
Chain locker. One. 63mm.
No. and size connected to main bilge line in main engine room One aft. tunnel well 125mm. Two P&S fwd. 125mm.
One aft. engine room. Two P&S fwd. M.E. coff. 100mm. three P. cent. S. fwd. coff. 50mm.
In aux. engine room two - P&S fwd. 65mm.
two - P&S aft. 80mm.
Size and position of direct bilge suction in machinery spaces two - P&S mid. eng. Rm. 150mm.
one - fwd. eng. Rm. 100mm.
Size and position of emergency bilge suction in machinery spaces one - stbd. E.R. 350mm.

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 oil tankers, ships carrying cargo oil or classed for navigation in ice Class 1, 2 or 3? (Strike out words not applicable) Class III - 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)
Port	Diesel Sulzer	C.R.D.A.	5811	TRIESTE
Stbd. Inbd.	"	C.R.D.A.	5810	CERT. No.
Stbd. Outbd.	"	C.R.D.A.	5812	5636
Stbd. Tween deck	303099 " M.A.N.	M.A.N.	5812	550 kW
Stbd. tween deck	Steam turbine 1764	ANSALDO WEC.	GENOA attached.	Harbour service - 200 kW
Stbd. boat deck	Diesel-Breda	BREDA	Milan 47	450 kW
Fwd. pump room	No. 00507 Diesel-ALFA ROMEO	ALFA ROMEO	Milan 53.	150 kW
Port comp. flat	Diesel hand start	REGGIO EMILIA		Emergency fire pump 250 m ³ /hr Emergency airc. comp. 15m ³ /hr

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 - 450 kW

Is an electric generator driven by Main Engine? no STEAM INSTALLATION. No. of aux./donkey boilers burning oil fuel two W.P. 12 Kg/cm² Type Foster Wheeler W/T (10.5m³/hr)

Position port & stbd. aft. eng. rm. flat. (enclosed space upto upper deck level)

Is a superheater fitted? no Are these boilers also heated by exhaust gas? no No. of aux./donkey boilers heated by exhaust gas only? one W.P. 12 Kg/cm²

Type "Diesecon G" Position just below funnel casing Can the exhaust heated boilers deliver steam directly to the steam range of the engine? yes

boilers E.G. Milan No. 42, O/F GENOA verified to turbo alternator. Port and No. of report on aux./donkey same No. attached. Is steam essential for operation of the ship at sea? yes Are any steam pipes over 3 ins. bore? yes If so, what is their material? M.S. solid drawn and cop. For oil fired boilers is the arrangement of pipes, valves, controls, etc., in accordance with the Rules? yes

units two No. of steam condensers one No. of Evaporators two

STEERING GEAR. (State No. and Type of Steam Engines, Electric Motors, Hydraulic Pumps and other particulars including particulars of alternative means of steering)

Hasties 9135.6
Two electric motors driving two hydraulic pumps operating four rams.
Greenock Cert. No.

Have the Rule Requirements for fire extinguishing arrangements been complied with? yes Brief description of arrangements Steam smothering in Blr. Rm. & cargo tanks. CO2 in E.R., Blr. Rm. and emerg. diesel gen. Rm. Foam ext. in all cargo tanks. Fixed and portable

exts. throughout ship. Hydrants & hoses with spray and jet nozzles throughout ship.

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 30th June, 1964 - 12 hours.

Does this machinery installation contain any features of a novel or experimental nature? (Give particulars)

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.)

ANSALDO S.p.A. - CAN

Director

ANSALDO SESTRI

STABILIMENTO GRANDI MOTORI

Servizi Studi e Progettazione

Ing. P. L. Scuderi

Lloyd's Register
Foundation

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 constructed under special survey of tested materials and in accordance with the approved plans, Secretary's letters and Rules Requirements.

The material and workmanship are good.

The complete installation has been tried under working conditions at full power and found satisfactory.

The torsional vibration characteristics of the main machinery shafting installation have been approved for a service speed of 122 RPM.

The machinery of this vessel is eligible to be classed in the Society's Register Book with the notation

"+LMC". 7/64 ~~Oil Engine~~ - Oil Engine".

R. Elliott

(R. ELLIOTT & S. DINNEN)

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.)

Connecting RODS:- 67,69,70,72,637,638,640,642,899-LLOYD'S TEST GEN.R.E. 12/11/63.

upper piston rods:- N.8532,8533,8530,8501-LLOYD'S TEST GEN.R.E. 8/11/63; N.8536,8534,8531,8502,8536-LLOYD'S TEST GEN.R.E.

lower piston rods:- 880,881,883,885,886,887,893-LLOYD'S TEST GEN. R.E. 29/10/63; 884,892-LLOYD'S TEST GEN.R.E. 8/11/63.

CRANKSHAFT ~~OR ROTOR SHAFT~~ fwd. and after sections LLOYD'S DSP. 10/4/63.W.S.

FLYWHEEL SHAFT

LLOYD'S TEST GEN. 73. R.E. 12/4/63: thrust collar; LLOYD'S TEST GEN.P.4673 R.E. 15/11/62.

THRUST SHAFT

GEARING

INTERMEDIATE SHAFTS S.1073. G.M. 17/2/64-GEN-

ROBBIN. 5781 21.76 x GEN

SCREW AND TUBE SHAFTS S.1034.GM.3/2/1964-GEN-

" spare S.1114.G.M.3/2/1964-GEN-

PROPELLERS P.485 M. 15/2/1964-GEN-

" spare:- S.V.27345 A.H.H.9/4/1964-OSLO-ST.5700.

OTHER IMPORTANT ITEMS Exhaust gas driven scavenge blowers. Genoa Cert.M.7160

Main engine crossheads:- LLOYD'S TEST GEN. 575(3), 229, 576, R.E. 7/11/63.

LLOYD'S TEST GEN. 229(2), 576, 577, R.E. 25/10/63.

Is the installation a duplicate of a previous case? Yes

If so, state name of vessel

m.s. "LEONARDO DA VINCI"

Date of approval of plans for crankshaft 27/8/62

Straight shafting 23/10/62

Gearing -

Clutch -

Separate oil fuel tanks 25/10/63

Pumping arrangements 12/3/1963

Oil fuel arrangements 30/3/1962

Cargo oil pumping arrangements 5/4/1962

Air receivers 14/8/1962

Aux. donkey boilers O.F. 24/5/62
E.G. 18/1/63

Dates of examination of principal parts:-

Fitting of stern tube 17/12/63

Fitting of propeller 30/3/64

Completion of sea connections 15/12/63

Alignment of crankshaft in main bearings 16/3/1964

Engine chocks & bolts 28/5/1964

Alignment of gearing -

Alignment of straight shafting 28/5/1964

Testing of pumping arrangements 30/6/64

Oil fuel lines 3/19-6-64

Donkey boiler supports 17-2-64

Steering machinery 30-6-64

Windlass 30/6/64.

Date of Committee

FRIDAY 30 OCT 1964

Decision

+ LMC ES

ABS

7.64

TS(4)

SIS

Special Survey Fee DURING CONSTRUCTION

Lit. 1391.250 plus fee for

parts lit. 97.090 = Lit. 1488.

Expenses - R.T. - - - Lit. 6.6

A/c. dd. 23/3/64 R.T. - - - Lit. 49.6

Special Survey Fee during Install

Lit. 800.000

Exp. (see Rpt. 1)

Date when A/c rendered 23/6/1964.



© 2021

Lloyd's Register
Foundation