

Rpt. 4b

Date of writing report 14th December, 1964.

Received London

Port

No.

Survey held at GENOA

No. of visits

In shops 29
On vessel 45

First date

Last date

3.10.63
11.7.6427.7.64
9.12.64

29569

FIRST ENTRY REPORT ON INTERNAL COMBUSTION MACHINERY

No. in R.B. Name m.t. "GIUSEPPE VERDI" Gross tons 31,133

Owners BLACKSEA STATE STEAMSHIP LINES ~~USSR~~

Port of Registry ODESSA

Year Month

Hull built at GENOA SESTRI

By ANSALDO S.A. CANTIERE NAVALE

Yard No. 1597

When 1964-11

Main Engines made at GENOA SAMPIERDARENA

By ANSALDO S.A. STAB. MECCANICO

Eng. No. 909002

When 1964-7

Gearing made at

By

Gear No. -

When -

Aux./boilers made at GENOA SAMPIERDARENA

By ANSALDO S.A. STAB. MECCANICO

Blr. Nos. LLOYDS 500, 501

When 1964-11

Machinery installed at GENOA SESTRI

By ANSALDO S.A. CANTIERE NAVALE

When 1964-11

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? yes

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 wording is not applicable to the installation, a black line should 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 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 oil engine directly coupled to one propeller

MAIN RECIPROCATING ENGINES. Licence Name and Type No. ANSALDO FIAT 909 S type solid injection oil engine

No. of cylinders per engine 9 Dia. of cylinders 900mm. stroke(s) 1600mm. 2 or 4 stroke cycle 2 stroke Single or double acting single

Maximum BHP per engine approved for this installation 19,000 at 122 RPM of engine and 122 RPM of propeller.

Corresponding MIP 8.97Kg/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? no - 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 in cylinders

No. and type of mechanically driven scavenge pumps or blowers per

engine and how driven nine reciprocating pumps directly driven from M.E. 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? -

If a stand-by or emergency pump or blower is fitted, state how driven none

2nd stage
No. of scavenge/air coolers five

Scavenge air pressure at full

power 0.95 Kg/cm² Are scavenge manifold explosion relief valves fitted? yes one

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 No. of supercharge air coolers/per engine two Supercharge air pressure 0.95Kg/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 fresh water Pistons lubricating 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? yes Frames? yes 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 236m³ No. and total area of explosion reliefdevices 9x30300 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? - Is the engine secured directly to the tank top or to a built-up seating? built up seating How is the engine started? by compressed air

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 hours

CRANK & FLYWHEEL SHAFTING. Date of approval of torsional vibration characteristics of the propelling machinery system 11/7/63

State barred speed range(s), if imposed

for working propeller -

For spare propeller -

Is a governor fitted? yes

Is a torsional vibration damper or detuner fitted to the shafting? yes

Where positioned? fore end of crankshaft

Type ANSALDO-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. Side -

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 Approved 55 Kg/cm²

Diameter of flywheel 2870mm.

Weight 3800Kg.

Are balance weights fitted? yes

Total weight

Diameter of flywheel shaft 700mm.

Material S.M. steel

Minimum approved tensile strength 55 Kg/mm²

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

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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. 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. 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. steel

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 screwshaft 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 screwshaft S.M. steel 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? State method of control

Propeller	Diameter mm.	Pitch mm.	Built or solid	Total developed surface m2	No. of blades	Blade thickness at top of root fillet mm.	Blade material	Tensile strength Kg/mm2	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	6480	4620	Solid	18.4	4	249	Ni-Al-Mn-bronze	65	-	CLASS III			
Spare													

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. driven. Port comp. flat. - LA SPEZIA. M.517 - M.549 - M.520.
1 off 60 m3/hr
1 off 15 m3/hr Diesel hand start " " "

No. of starting air receivers. (Main and Aux. State capacity of each, position in ship and Port and No. of Certificate)
One 500 litres port comp. flat. DALMINE 4-115145 -- MILAN A/117
One 200 litres port E.R. floor. DALMINE 3-938383 -- MILAN A/88
One 200 litres foc. le whistle. DALMINE 3-924783 -- MILAN A/83.

How are receivers first charged? hand start diesel comp. 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 3 No. of main engine lubricating oil coolers 4

OIL FUEL TANKS. No. and position of oil fuel settling or service tanks not forming part of hull structure Two boiler fuel oil sett. tanks port side bc room. One stbd. E.R. flat (tween deck level) diesel oil.

MAIN ENGINE DRIVEN PUMPS (No. and Purpose) one lub. oil circ. (chain driven from intermediate shaft) 500 m3/hr dri The
one oil motor directly coupled to one S.W. circ. pump and one F.W. circ. pump.

	X							X
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INDEPENDENT PUMPS		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	
Name below essential pumps, state position and how driven. Give capacity of bilge pumps.																	
Oily water separator	Port fwd.																
Electr.recip.	56m3/hr	X															
Diesel alt.circ.	Stbd.																
Electr.cent.	20m3/hr.					X				X							
T/A cond.extract	Stbd.																
Electr.cent.	6m3/hr																
Blr.circ.	Stbd.aft.																
Electr.cen.	50m3/hr						X			X							
Blr.F/O	Blr.rm.																
Electr.cen.	3.5x0.3m3/hr				X												
Blr.feed	Stbd.aft.																
Electr.cen.	8m3/hr					X				X							
L/O trans.	Port																
Electr.cen.	20m3/hr							X							X		
M.E.F/O booster-	Fwd.																
Electr.cen.	8.6m3/hr				X												
M.E.fuel valve	clg.Stbd.fwd.																
Electr.cen.	17m3/hr					X											
Comp.S/W circ.	Port fwd.																
Electr.cen.	22m3/hr						X										
Comp.S/W circ.	Port fwd.																
Electr.cen.	1.5m3/hr						X										
Aux.diesel O/F	Fwd.																
Electr.cen.	1m3/hr				X									X			
Aux.diesel pre.lub.	Stbd.fwd.																
Electr.cen.	16m3/hr							X									

MAIN CARGO PUMPROOM-									
Bilge	Port fwd.								
Steam duplex	40m3/hr		Pumproom bilges					Overboard	
Ballast	Stbd.aft.								
Electr.cent.	1250m3/hr.		X		X				
-FWD.PUMPROOM-									
Bilge & ballast	Mid.aft.								
Steam duplex	250m3/hr.	X	X		X			Fuel oil or ballast tks.	
Fuel oil trans.	Stbd.								
Steam duplex	100m3/hr		X	X	X			X overboard	
Emerg.fire	Port								
Diesel	250m3/hr				X			X	

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material? W.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

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	
Cond. circ.	Stbd. fwd.						X										X
elect. centrif.	600m3/hr																
Blr. feed	Stbd. aft.							X		X							
Electr. centrif.	35m3/hr																
Atmos. cond. circ.	Stbd.						X				X						
Electr. cent.	300m3/hr																
F/O trans.	Stbd. fwd.																
Electr. cent.	72m3/hr				X								X				
Daily service F/O trans.	Stbd. Fwd.																
Electr. cent.	36m3/hr				X								X				
M.E. lub. oil	Stbd. aft.								X							X	
Electr. cent.	500m3/hr																
F/W & S/W circ. M.E.	stbd.					X						X	X				
Elect. cent.	800/600m3/hr						X		X								
Aux. S/W circ.	Stbd.					X	X					X	X				
Elect. cent.	120m3/hr																
General service	Port fwd.											X					
Elect. cent.	100m3/hr	X	X				X										
Bilge	Port fwd.																
Steam duplex	40m3/hr	X					X										
Ballast & fire	Port														X		
Electr. cent.	250m3/hr						X										
Fire pump	Port														X		
Electr. cent.	250m3/hr						X										
Bilge	Port fwd.																
Electr. cent.	120m3/hr	X	X														

BILGE SUCTIONS. No. and size in each hold, deep tank or pump room. Main Pump Room. One fwd. & one aft. - 100mm.

Fwd. pumproom one cent. - 63mm. Boatswain store one port & one stbd. - 63mm. Chain locker one - 63mm.

No. and size connected to main bilge line in main engine room 1-aft. tunnel well - 125mm. 1 aft. E.R. 100mm. 2P&S fwd. 125mm. 3-P. cent. S. Fwd. coff. 50mm.

Blr. 1-port 1stbd. Fwd. M.E. coff. 100mm. 3-P. cent. S. Fwd. coff. 50mm.

In aux. engine room 1 port & 1 stbd. fwd. 65mm. 1 Port & 1stbd. aft. 80mm. Size and position of direct bilge suction in machinery spaces. 2 P&S mid. E.R. 150mm. 1-Fwd. E.R. - 100mm.

Size and position of emergency bilge suction in machinery spaces. 1-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 & Classed for navigation in ice Class ~~1A~~ 3? yes (Strike out words not applicable.)

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 fwd. Eng. Room	Diesel Sulzer	C.R.D.A.	5818 TRIESTE	550kW
Stbd. Inbd. Eng. Room	6B. CAH. 29	C.R.D.A.	5817 Rpt. 4c.	550kW
Stbd. Outbd. Eng. Room	" "	C.R.D.A.	5816 No. 16254.	550kW
Stbd. Outbd. tween dk. level	Steam turbine	ANSALDO MECC.	GEN. same No. attached	450kW
Stbd. Inbd. " "	Diesel.	M.A.N.	AUGSBURG. 1802.	200kW
Stbd. boatdeck aft.	Diesel. 4 S.C.S.A.	BREDA	MILAN M. 2827.	Emergency. 150kW
Fwd. pumproom	Diesel	"ALFA ROMEO"	MILAN No. 00505-Cert. No. 51	Emergency fire pump. 250m3/hr
Port E.R. comp. flat.	Hand start single cyld. diesel	REGGIO EMILIA	Marked 6762.	Aux. air comp. 15m3/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 ANSALDO FOOSTER WHEELER Water Tube

(See Circular 2144)

Position Port & Stbd. aft. eng. room 'tween deck level (enclosed space up to 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. 8/12 Kg/cm2

Type CASINGHINI "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. Steam at 8 Kg/cm2 can be delivered to turbo alternator. Port and No. of report on aux. ~~donkey~~

E.G. Milan No. 54.

boilers O.F. Genoa. 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 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) electric hydraulic

4 ram. Two electr. motors driving two hydraulic pumps. Greenock Cert. No. C. 224.

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 Blr. Rm., Eng. Rm., Emergency Gnr. Room. Foam ext. in cargo tanks. Fixed & portable fire exts. evenly distributed throughout ship. Hydrants and hoses with Spaay & jet nozzles.

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 1/12/64 - 8 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.)

ANSALDO S.p.A. - CAN

ANSALDO S.p.A.
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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.

This main engine has been built and installed under special survey of tested materials and in accordance with the approved plans, Secretary's letters and rule requirements.

The materials and workmanship are good and the engine has been satisfactorily tested in the shop under full power and overload conditions. After shop trials the engine has been dismantled and the parts found to be in good condition.

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

The machinery of this ship is eligible, in my opinion, to be classed in the Society's Register Book with the notation +LMC 12/64 C.L. "OIL ENGINE".

B.S. Thompson
(B.S. THOMPSON & 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 LLOYD'S GEN S247 S505 S524(two) S674(two) S504(two) S45 16.4.64 - B.T.
Upper piston rods LLOYD'S GEN 7469, 8245, 8205, 7471, 8083, 8084, 8150, 7463, 8086. 21.5.64 - B.T.
Piston rods LLOYD'S GEN P1135, P1115, P1114, P1113, P1112, P1067, P1068, P1069, P578 - 18.5.64 - B.T.
Air Pump piston rods LLOYD'S GEN P86(six) P65(two) P61 LLOYD'S GEN 7.1.64 - B.T. -

CRANKSHAFT OR ROTOR SHAFT

FLYWHEEL SHAFT } Shaft LLOYD'S GEN. SS402 29.11.63 - B.T. -
THRUST SHAFT } Thrust Disc. LLOYD'S GEN. SS106 29.11.63 - B.T. -

GEARING

INTERMEDIATE SHAFTS S.1142 GEN. G.M. 1/7/64.

SCREW AND TUBE SHAFTS S.1151 GEN. G.M. 26.6.64 - Spare:- S.1153 GEN. G.M. 22.7.64.

PROPELLERS GEN. Cert. No. C.24497. P.1063 G.M. 3.9.64

OTHER IMPORTANT ITEMS Exhaust gas driven scavenge blowers - GENOA Cert. M.7121.

M.E. crossheads. LLOYD'S GEN. 1057/1, 1057/2, 1057/3, 1057/4, 1071/1, 481/5, (two), 482/4, 483/4 - 9.4.64

Is the installation a duplicate of a previous case? yes If so, state name of vessel ANSALDO YARD No.1593 - "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 12/3/63 Oil fuel arrangements 30/3/62

Cargo oil pumping arrangements 5/4/62 Air receivers 14/8/62 Aux. donkey boilers Oil fired: 24/18

Dates of examination of principal parts:-

Fitting of stern tube 16/7/64 Fitting of propeller 12/10/64 Completion of sea connections 19/7/64 Alignment of crankshaft in main bearings 8/9/64

Engine chocks & bolts 14/11/64 Alignment of gearing - Alignment of straight shafting 14/11/64 Testing of pumping arrangements 8/12

Oil fuel lines 23/11/64 Aux. donkey boiler supports 2/9/64 Steering machinery 1/12/64 Windlass 1/12/64

Date of Committee FRIDAY 19 MAR 1965

Decision +LMC ES
ABS
SPS
TS(C.L.) } 12-64

Special Survey Fee DURING CONSTRUCTION
Lit. 1.391.250 plus fee for vel
Lit. 94.090 = Lit. 1.488.34
- Actual Exps = Lit. 6.75
R.T. 1 see our A/c N: 7382 dd. H/

Expenses FEE DURING INSTALLATION
Lit. 200.000
Exps (see Rpt 1)
20/1/1965

Date when A/c rendered
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