

Rpt. 4b

Date of writing report 15-8-59 Received London Port Naples No. 6821
Survey held at Castellammare di Stabia No. of visits In shops First date 7-12-58 Last date 8-7-59
On vessel 26

FIRST ENTRY REPORT ON INTERNAL COMBUSTION MACHINERY

No. in R.R. 25038 Name mv "PALLADE". Gross tons 12647

Owners S.p.A; di Nav. "ERICE" Managers - Port of Registry Palermo

Hull built at Castellammare By Navalmeccanica Yard No. 624 Year Month When 1959 7

Main Engines made at Genoa By S.A. Ansaldo SM Eng. No. 757008 When 1959

Gearing made at - By -

Donkey boilers made at Genoa & Milan By Ansaldo & Casinghini Blr. Nos. 6338 & 8109 When 1958/9

Machinery installed at Castellammare By Navalmeccanica Castellammare di Stabia When 1959

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? no If so, is it for cargo purposes? - Type of refrigerant -

Is the refrigerating machinery compartment isolated from the propelling machinery space? - Is the refrigerated cargo installation intended to be classed? -

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 One oil engine directly coupled to 1 prop.

MAIN RECIPROCATING ENGINES. Licence Name and Type No. FIAT C2757.S airless injection supercharged.

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

Maximum approved BHP per engine at RPM of engine and 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 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? 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

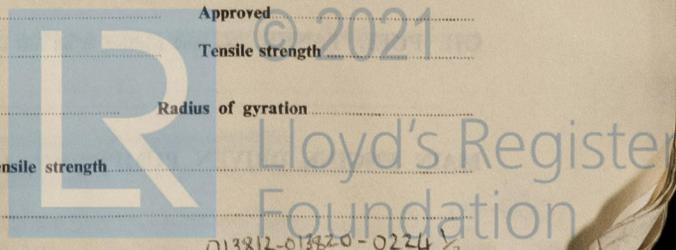
Webs Tensile strength

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)

GENOVA REPORT No. 21022



013812-013820-0224 1/2

MAIN GAS TURBINES. Name and Type No.

No. of sets of turbines Open or closed cycle BHP per set 35 at 3000 RPM of output shaft
 How is drive transmitted to propeller shaft? Direct
 ARRANGEMENT OF TURBINES. HP drives at RPM HP gas inlet temperature 300 pressure 300
 IP drives at RPM IP gas inlet temperature 300 pressure 300
 LP drives at RPM LP gas inlet temperature 300 pressure 300
 No. of air compressors per set 2 Centrifugal or axial flow type? Centrifugal Material of turbine blades Aluminum
 compressor blades 450 No. of air coolers per set 2 No. of heat exchangers per set 2 How are turbines started? Electric
 How is reversing effected? By reversing the propeller Are the turbines operated in conjunction with free piston gas generators? No
 Total No. of free piston gas generators 0 Diameter of working pistons 100 Diameter of compressor pistons 100 No. of double strokes per minute at full power 1800 Gas delivery pressure 300 Gas delivery temperature 300 Have the turbines and attached equipment been tested working in the shop? Yes How long at full power? 3000

ELECTRIC PROPULSION (Reciprocating engines or gas turbines. Electrical particulars to be reported on Form 4d.)

No. of generators 2 KW per generator 300 at 3000 RPM AC or DC? AC Position on
 No. of propulsion motors 2 SHP per motor 300 at 3000 RPM Position on
 How is power obtained for excitation of generators? By generator Motors? on

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? Double helical If single, position of gear thrust bearing on Is gearing of epicyclic type? No
 PCD of pinions: First reduction 300 Second reduction 300 PCD of wheels: First reduction 300 Main 300
 Material of pinions Steel Tensile strength 300 Material of wheel rims Steel Tensile strength 300
 Are gear teeth surface hardened? Yes How are teeth finished? By grinding Diameter of pinion journals 300 Wheel shaft journals 300
 Are the wheels of welded construction? Yes Is gearcase of welded construction? Yes Has the wheel/gearcase been heat treated on completion of welding? Yes Where is the propeller thrust bearing located? on Are gear bearings of ball or roller type? Ball

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? Yes If so, what? for auxiliary power

STRAIGHT SHAFTING. Diameter of thrust shaft 440 Material E.F. steel Minimum approved tensile strength 44 kg
 Shaft separate or integral with crank or wheel shaft? separate Diameter of intermediate shaft 420 mm Material E.F. steel
 Minimum approved tensile strength 44 kg Diameter of screwshaft cone at large end 448 mm Is screwshaft fitted with a continuous liner? yes
 Diameter of tube shaft. (If these are separate shafts) 23 mm Is tube shaft fitted with a continuous liner in way of stern tube no Thickness of screw/tube shaft liner at bearings 17.5 mm Material of screw/tube shaft E.F. steel Minimum approved tensile strength 44 kg
 Is an approved oil gland fitted? no If so, state type oil gland Length of bearing next to and supporting propeller 1881 mm
 Material of bearing wood In multiple screw vessels is the liner between stern tube and A bracket continuous? no If not, is the exposed length of shafting between liners readily visible in dry dock? no

PROPELLER. Diameter of propeller 5150 mm Pitch 3907 mm Built up or solid solid Total developed surface 10.417 M²
 No. of blades 4 Blade thickness at top of root fillet 220 mm Blade material Mang. bronze Moment of inertia of dry propeller 54000 Kgm²
 If propeller is of special design, state type no Is propeller of reversible pitch type? no If so, is it of approved design? no
 State method of control hand start Material of spare propeller none Moment of inertia no

AIR COMPRESSORS & RECEIVERS. No. of main engine driven compressors per engine none Can they be declutched? no
 No. of independently driven air compressors. (State capacity, prime mover, position in ship, and Port and No. of certificate) 2, P fwd & aft on aft auxy flat in elec driven à 290 m³/hr. La Spz.M149. 1 hand start diesel driven à 18 m³/hr P aft. La Spz M
 No. of starting air receivers (Main and Aux. State capacity of each, position in ship and Port and No. of Certificate) 1 P & 1 S under deck in ER & 8000 litres Gen.M 536. 3 auxy aft on auxy flat à 160 litres Milan A27 & A27b.
 How are receivers first charged? hand start diesel comp. Maximum working pressure of starting air system 30 Kg/sq.cm 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 3
 OIL FUEL TANKS. No. and position of oil fuel settling or service tanks not forming part of hull structure none

MAIN ENGINE DRIVEN PUMPS (No. and Purpose) none

Name below essential pumps, state position and how driven. Give capacity of bilge pumps. Elec driven unless stated otherwise stated	Service for which each pump is connected to be marked thus X														
	SUCTION						DELIVERY								
	Bilge Main	Bilge Direct	Ballast	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 & ballast P fwd	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
" " Stm 2P mid 140	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
" " Stm P aft 120	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
ME cooling P fwd					X					X					
" " P mid					X				X	X					
" " P aft 350 T					X				X	X					
2 auxy eng cooling S aft					X				X	X					
1 air comp " S aft					X				X	X					
2 fuel valve cooling S aft					X				X	X					
2 OF booster fwd					X				X	X					
2 OF transfer P					X				X	X					
2 ME lub oil S fwd					X				X	X				X	X
2 feed & 2 Blr.circ.Paft					X				X	X					

BILGE SUCTIONS. No. and size in each hold, deep tank or pump room 2 at 91 mm in each hold. 1 at 91 in fwd pump room.

No. and size connected to main bilge line in main engine room 2 at 82.5 mm in P aft at 150 mm. In tunnel Mohy aft.

In aux. engine room 1 P à 228 mm. 1 S à 204 mm. Size and position of direct bilge suction in machinery spaces 1 P aft à 180mm.

Size and position of emergency bilge suction in machinery spaces 233 mm. P fwd.
 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 including requirements for ships carrying petroleum in bulk cargo oil-cases for navigation in ice? 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)
Aft on flat P	Diesel	Ansaldo	Genoa 23864	Generator Kw 200
" " " Middle	"	"	"	"
" " " S	"	"	"	"
" " " S fwd out	"	"	"	Kw 50

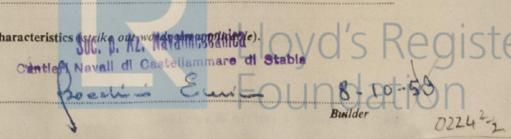
Is electric current used for essential services at sea? yes If so, state the minimum No. and capacity of generators required in order that the ship may operate at sea one at 200 Kw. Is an electric generator driven by Main Engine? no

STEAM INSTALLATION. No. of donkey boilers burning oil fuel 1 W.P. 100 lbs/in² Type Ansaldo thimble tube
 Position Aft on flat in ER on level with Main Engine cylinder covers.

Is a superheater fitted? no Are these boilers also heated by exhaust gas? no No. of donkey boilers heated by exhaust gas only? 1 W.P. 100 lbs/in²
 Type Green economiser Position in funnel 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? Please see note Port and No. of report on donkey boilers Genoa 23864 Milan 17 Is steam essential for operation of the ship at sea? yes if on heavy FO Are any steam pipes over 3 ins. bore? yes If so, what is their material? steel For oil fired boilers is the arrangement of pipes, valves, controls, etc., in accordance with the Rules? yes No. of oil burning pressure units gravity drain 1 No. of Evaporators 1 à 20 T/day. 1 distiller.

STEERING GEAR. (State No. and Type of Steam Engines, Electric Motors, Hydraulic Pumps and other particulars) Hastie electro-hydraulic, 2 - 30 HP elec motors. 2 LP 18 Hele-Shaw pumps. 4 - 10" hyd cylinders & rams. Greenock Cert C 7105.
 Have the Rule Requirements for fire extinguishing arrangements been complied with? yes Brief description of arrangements CO₂ station, 90 bottles à 30 Kg. in permanent piping to ER & holds. Stm smothering on DB flat. Portable extinguishers to Rules.
 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 33-7-59 12 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 (State only when applicable) yes
 Builder Stabil



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 and donkey boilers of this ship have been installed under Special Survey in accordance with the approved plans and the Secretary's letters, the arrangements being as shown on the approved plans or equivalent thereto. The installation has been tried under working conditions at sea at full power and the results found satisfactory.

The safety valves of the donkey boilers have been properly adjusted under steam and a satisfactory accumulation test carried out.

In our opinion this machinery installation is eligible to be classed in the Society's Register Book with the record of **+LMC 7.59 DB 100 lbs. TS.CL.** and to have the notation of **"OIL ENGINE"**.

NOTE. It is the intention of the Owner that the exhaust heated boiler shall eventually deliver steam direct to the steam range. To this end a fusion welded steam and water drum (Milan Cert. M1305) has been placed on board but not yet fitted.

Barred speed range:- a notice board has been fitted at the control stating that the main engine is not to be run continuously between 55 & 66 R.P.M. & the tachometer has been marked in red accordingly.

[Handwritten Signature]

E.F. Butler & C. Starc. 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	SCREW AND TUBE SHAFTS	PROPELLERS
					LR. Gen. 3622 WG. 19-12-58. LR. Gen. 3729 "+3-3-59"	LR. Gen. 3617 AG. 7-3-59. Spare "LR. Gen. 3621 WG. 22-6-59"	LR. Gen. P 6220 WG. 23-12-58

See Genoa Report No. 24022

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	
Separate oil fuel tanks		Gearing	
Cargo oil pumping arrangements		Pumping arrangements	20-5-59
Dates of examination of principal parts:-		Air receivers	
Fitting of stern tube	26-2-59	Completion of sea connections	28-2-59
Engine chocks & bolts	15-6-59	Alignment of crankshaft in main bearings	15-6-59
Oil fuel lines	20-6-59	Alignment of straight shafting	15-6-59
Date of Committee	FRIDAY - 1 JAN 1960	Donkey boiler supports	5-5-59
		Steering machinery	24-6-59
		Windlass	24-6-59

Decision: *See Rpt!* (85%) Special Survey Fee Lit. 390.469
 Gen. Exps. & Postage 636.795
 Travelling Exps. 231.526

Date when A/c rendered 21st July, 1959
 Lloyd's Register Foundation