

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 26 First date 7-12-58 Last date 8-7-59
On vessel

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 C757.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

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 Breadth of webs at mid-throw Axial thickness of webs

If shrunk, radial thickness around eyeholes Are dowel pins fitted? Crankshaft material Journals Pins Minimum

Approved 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)

013812-013820-0224 1/2

MAIN GAS TURBINES. Name and Type No.

No. of sets of turbines Open or closed cycle BHP per set 85 at 27-8-51 RPM of output shaft

How is drive transmitted to propeller shaft? 85-51-7

ARRANGEMENT OF TURBINES. HP drives at RPM HP gas inlet temperature 85 pressure 85

IP drives at RPM IP gas inlet temperature 85 pressure 85

LP drives at RPM LP gas inlet temperature 85 pressure 85

No. of air compressors per set Centrifugal or axial flow type? Material of turbine blades 85

compressor blades 85 No. of air coolers per set 85 No. of heat exchangers per set 85 How are turbines started? 85

How is reversing effected? 85 Are the turbines operated in conjunction with free piston gas generators? 85

Total No. of free piston gas generators. 85 Diameter of working pistons. 85 Diameter of compressor pistons. 85 No. of double strokes per minute at full power. 85 Gas delivery pressure. 85 Gas delivery temperature. 85 Have the turbines and attached equipment been tested working in the shop? 85 How long at full power? 85

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

No. of generators. 85 KW per generator 85 at 85 RPM AC or DC? 85 Position 85

No. of propulsion motors. 85 SHP per motor 85 at 85 RPM Position 85

How is power obtained for excitation of generators? 85 Motors? 85

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? 85 If single, position of gear thrust bearing 85 Is gearing of epicyclic type? 85

PCD of pinions: First reduction 85 Second reduction 85 PCD of wheels: First reduction 85 Main 85

Material of pinions 85 Tensile strength 85 Material of wheel rims 85 Tensile strength 85

Are gear teeth surface hardened? 85 How are teeth finished? 85 Diameter of pinion journals 85 Wheel shaft 85

journals 85 Are the wheels of welded construction? 85 Is gearcase of welded construction? 85 Has the wheel/gearcase been heat treated on completion of welding? 85 Where is the propeller thrust bearing located? 85 Are gear bearings of ball or roller type? 85

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? 85 If so, what? 85

STRAIGHT SHAFTING. Diameter of thrustshaft 85 Material 85 Minimum approved tensile strength 85

Shaft separate or integral with crank or wheel shaft? 85 Diameter of intermediate shaft 85 Material 85

Minimum approved tensile strength 85 Diameter of screwshaft cone at large end 85 Is screwshaft fitted with a continuous liner? 85

Diameter of tube shaft. (If these are separate shafts) 85 Is tube shaft fitted with a continuous liner in way of stern tube 85 Thickness of screw/tube shaft liner at bearings 85 Thickness between bearings 85 Material of screw/tube shaft 85 Minimum approved tensile strength 85

Is an approved oil gland fitted? 85 If so, state type 85 Length of bearing next to and supporting propeller 85

Material of bearing 85 In multiple screw vessels is the liner between stern tube and A bracket continuous? 85 If not, is the exposed length of shafting between liners readily visible in dry dock? 85

PROPELLER. Diameter of propeller 85 Pitch 85 Built up or solid 85 Total developed surface 85

No. of blades 85 Blade thickness at top of root fillet 85 Blade material 85 Moment of inertia of dry propeller 85

If propeller is of special design, state type 85 Is propeller of reversible pitch type? 85 If so, is it of approved design? 85

State method of control 85 Material of spare propeller 85 Moment of inertia 85

AIR COMPRESSORS & RECEIVERS. No. of main engine driven compressors per engine 85 Can they be declutched? 85

No. of independently driven air compressors. (State capacity, prime mover, position in ship, and Port and No. of certificate) 85

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) 85

Gen.M 536. 3 auxy aft on auxy flat à 160 litres Milan A27 & A27b.

How are receivers first charged? 85 Maximum working pressure of starting air system 85 Are the safety devices in accordance with the Rules? 85 Has the starting of the main engines been tested and found satisfactory? 85

COOLERS. No. of main engine fresh water coolers 85 No. of main engine lubricating oil coolers 85

OIL FUEL TANKS. No. and position of oil fuel settling or service tanks not forming part of hull structure 85

MAIN ENGINE DRIVEN PUMPS (No. and Purpose) 85

INDEPENDENT PUMPS

Name below essential pumps, state position and how driven. Give capacity of bilge pumps. Elec driven unless stated otherwise stated

	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	
Bilge & ballast Pwd. 1/hr	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 Part 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					
" " P aft 350 T					X						X					
2 auxy eng cooling S aft						X					X					
1 air comp " S aft						X					X					
2 fuel valve cooling S aft					X						X					
2 OF booster fwd					X						X					
2 OF transfer P					X						X					
2 ME lub oil S fwd								X			X					
2 feed & 2 Blr. circ. P aft								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 85 at 85 mm. 85 at 85 mm. In tunnel 85 aft.

In aux. engine room 85 Size and position of direct bilge suction in machinery spaces 85 1 Part à 180mm.

1 P à 228 mm. 1 S à 204 mm. Size and position of emergency bilge suction in machinery spaces 85 233 mm. P fwd.

Is the bilge or ballast system fitted with means for separating oily water on the overboard discharge side? 85 Do the piping arrangements comply with the Rules including

Requirements for ships carrying petroleum in bulk cargo oil or classed for navigation in ice? (strike out words not applicable). 85

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? 85 If so, state the minimum No. and capacity of generators required in order that the ship may operate at sea 85 one at 200 Kw.

Is an electric generator driven by Main Engine? 85

STEAM INSTALLATION. No. of donkey boilers burning oil fuel 85 W.P. 100 lbs/in² Type 85 Ansaldo thimble tube

Position 85 Aft on flat in ER on level with Main Engine cylinder covers.

Is a superheater fitted? 85 Are these boilers also heated by exhaust gas? 85 No. of donkey boilers heated by exhaust gas only? 85 1 W.P. 100 lbs/in²

Type 85 Green economiser Position 85 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? 85 Please see note Port and No. of report on donkey

boilers 85 Genoa 23864 85 Milan 17 85 Is steam essential for operation of the ship at sea? 85 Are any steam pipes over 3 ins. bore? 85 If so, what is their

material? 85 steel 85 For oil fired boilers is the arrangement of pipes, valves, controls, etc., in accordance with the Rules? 85 No. of oil burning pressure

units 85 gravity 85 No. of steam condensers 85 1 No. of Evaporators 85 1 à 20 T/day. 1 distiller.

STEERING GEAR. (State No. and Type of Steam Engines, Electric Motors, Hydraulic Pumps and other particulars) 85 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? 85 Brief description of arrangements 85 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? 85 Has all the machinery been tried under full working conditions and found satisfactory? 85 Date and duration of full-

power sea trials of main engines 85 33-7-59 12 hours. Does this machinery installation contain any features of a novel or experimental nature? (Give particulars)

85 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 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.

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.)

RQDS

CRANKSHAFT OR ROTOR SHAFT

FLYWHEEL SHAFT

THRUST SHAFT

GEARING

INTERMEDIATE SHAFTS

SCREW AND SHAFTS

PROPELLERS

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

Gearing

Clutch

Separate oil fuel tanks

Pumping arrangements

20-5-59

Oil fuel arrangements

22-10-58

Cargo oil pumping arrangements

Air receivers

Donkey boilers

Dates of examination of principal parts:-

Fitting of stern tube

26-2-59

Fitting of propeller

20-3-59

Completion of sea connections

28-2-59

Alignment of crankshaft in main bearings

15-6-59

Engine chocks & bolts

15-6-59

Alignment of gearing

Alignment of straight shafting

15-6-59

Testing of pumping arrangements

Oil fuel lines

20-6-59

Donkey boiler supports

5-5-59

Steering machinery

24-6-59

Windlass

24-6-59

Date of Committee

FRIDAY - 1 JAN 1960

Decision

See Rpt. 1

(85%)

Special Survey Fee

Lit. 390.469

Gen. Exps. & Postage

636.795

Expenses

Date when A/c rendered

21st July, 1959