

Rpt. 4b

Date of writing report 15-5-61. Received London Buenos Aires. No. 32674.
Survey held at BUENOS AIRES. No. of visits 6. In shops 6. First date 19-8-60. Last date 28-4-61.
On vessel 30.

FIRST ENTRY REPORT ON INTERNAL COMBUSTION MACHINERY

No. in R.B. 14315 Name M.V. "HERNANDARIAS". Gross tons 1752
Owners YACIEMENTOS PETROLIFEROS FISCALES. Port of Registry BUENOS AIRES.
Hull built at SAN FERNANDO. (Prov:Bs.Ae.) By ASTARSA ASTILLEROS ARGENTINOS RIO DE LA PLATA S.A. Yard No. 106. When 61-4 mo.
Main Engines made at WINTER THUR. By SULZER BROS. LTD. Eng. No. 49901. When 1959/60.
Gearing made at --- By ---
Donkey boilers made at --- By --- Bir. Nos. --- When ---
Machinery installed at SAN FERNANDO. (Argentina) By ASTARSA ASTILLEROS ARGENTINOS RIO DE LA PLATA S.A. When 1961.

Particulars of restricted service of ship, if limited for classification FOR SERVICE RIVER PARANA AND URUGUAY LIMITING PORTS LA PLATA AND BUENOS AIRES.

Particulars of vegetable or similar cargo oil notation, if required ---
Is ship to be classed for navigation in ice? NO Is ship intended to carry petroleum in bulk? YES.
Is refrigerating machinery fitted? YES If so, is it for cargo purposes? NO. Type of refrigerant FREON.
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 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. No. of propellers. Brief description of propulsion system.

MAIN RECIPROCATING ENGINES. Licence Name and Type No.

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 pressure. Can engine operate without supercharger?

TWO & FOUR STROKE ENGINES-GENERAL. No. of valves. 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? 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)

AS PER WINTERTHUR REPORT NO. 515 ATTACHED.



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? _____

(x) See Winterthur Report. STRAIGHT SHAFTING. Diameter of thrustshaft (x) _____ Material (x) _____ Minimum approved tensile strength (x) _____
 Shaft separate or integral with crank or wheel shaft? (x) _____ Diameter of intermediate shaft 185 mm _____ Material Steel _____
 Minimum approved tensile strength 28/32 tons. _____ Diameter of screwshaft cone at large end 210 mm. _____ Is screwshaft fitted with a continuous liner? No. _____
 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 14 mm. _____ Thickness between bearings _____ Material of screwshaft Steel. _____ Minimum approved tensile strength 28/32 tons _____
 Is an approved oil gland fitted? No. _____ If so, state type _____ Length of bearing next to and supporting propeller 800 mm. _____
 Material of bearing Rubber. _____ 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? Yes. _____

See Marking Form attached. PROPELLER. Diameter of propeller 1800 mm. Pitch 1120 _____ Built up or solid Solid. _____ Total developed surface 437 kgm² _____
 No. of blades 4 _____ Blade thickness at top of root fillet _____ Blade material BRONZE _____ Moment of inertia of dry propeller (x). _____
 (x) Refer to Ham. Cert. not to Hand. 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 Bronze. _____ Moment of inertia (x). _____

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

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

No. of starting air receivers. (Main and Aux. State capacity of each, position in ship and Port and No. of Certificate) _____

How are receivers first charged? _____
 Has the strength of the main engines been tested and found satisfactory? _____
 Are the safety devices in accordance with the Rules? _____

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

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

MAIN ENGINE DRIVEN PUMPS (No. and Purpose) _____

| Name below essential pumps, state position and how driven. Give capacity of bilge 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 |
| G/S Combined. | | | | | | | | | | | | | | | |
| Bilge Pump (45/50 metres ³) at 15/10 metres head. | X | X | X | | | X | | | | X | | | X | | X |
| Fire Pump. | | | | | | X | | | | X | | | X | | X |
| Fuel Transfer Pump. | | | | X | | | | | | | | X | | | X |
| Sanitary Pump. | | | | | | X | | | | | | | X | | X |
| Pump Room Bilge. | X | X | | | | | | | | | | | | | X |
| Hold Bilge Pump. (5 metres ³ /hours). | X | X | | | | | | | | | | | | | X |

Service for which each pump is connected to be marked thus X

Positioned as per General arrangements Plan No. PP-18 D.
 All being electrically driven.

BILGE SUCTIONS. No. and size in each hold, deep tank or pump room. Dry Hold Ford. - 2 at 2" dia. Pump Room Fwd. 1 at 2" dia.

Main Pump Room 1 at 3" dia.

No. and size connected to main bilge line in main engine room 3 at 65 mm (1 C/L aft. 1 (PS) Fwd. 1 (SS) Fwd. In tunnel -

In aux. engine room Pump Room 1 at 3" dia. direct C/L. Size and position of direct bilge suction in machinery spaces C/L aft 1 at 1".

Size and position of emergency bilge suction in machinery spaces 1 at 152 mm C/L mid-length.

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 special requirements for ships carrying petroleum in bulk, 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) |
|-------------------------|------------|------------|--|--|
| ENGINE ROOM. | | | | |
| Port Side Forward. | A.G.M. 428 | Klockner | Eng.No. 2599148-153 | 175 Kw. Ac Kvt 547 ✓ |
| Port Side Aft. | A.G.M. 428 | Humboldt | Eng.No. 2599154-159 | 175 Kw. Ac Kvt 548 ✓ |
| Port side Fwd. Inboard. | A.G.M. 517 | Deutz A.G. | Eng.No. 2608628/31 Köln Cert. No. 60/577. | 45 Kw. |
| Starboard Side. | A.G.M. 428 | | Eng.No. 2599142-147 | 175 Kw. Ac Kvt 546 ✓ |

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 175 Kw. Is an electric generator driven by Main Engine? No.

STEAM INSTALLATION. No. of donkey boilers burning oil fuel _____ W.P. _____ Type _____

Position _____

Is a superheater fitted? _____ Are these boilers also heated by exhaust gas? _____ No. of donkey boilers heated by exhaust gas only? _____ W.P. _____

Type _____ Position _____ 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? _____ Port and No. of report on donkey boilers _____

Is steam essential for operation of the ship at sea? _____ Are any steam pipes over 3 ins. bore? _____ If so, what is their material? _____

For oil fired boilers is the arrangement of pipes, valves, controls, etc., in accordance with the Rules? _____ No. of oil burning pressure units _____ No. of steam condensers _____ No. of Evaporators _____

STEERING GEAR. (State No. of Steam Engines, Electric Motors, Hydraulic Pumps and other particulars)

PASTIES ELECTRIC/HYDRAULIC GEAR NO. H.G. 7852/3. (Greenock Cert. C 7421).

Have the Rule Requirements for fire extinguishing arrangements been complied with? Yes. Brief description of arrangements. C O² Bottles.

Please refer your letter Eng. 10/8/59 and earlier correspondence. (Milan Cert. No. M. 1539 attached, inclusive of Goya (105).

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. 8 hours 23/3/61. 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).

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 and installed under the Supervision of Surveyors to this Society in accordance with the Rules and Regulations and Secretary's letters (Ref. Winterthur Report attached). Installation at Port of Buenos Aires efficient.

Sea trials attended and satisfactory.

The torsional vibrations characteristics and the shafting installation of the Main Machinery has been approved for a service speed of 360 RPM and a notice board has been fitted indicating that Engines are not to be operated continuously between 158 RPM and 178 RPM. Tachometer marked in red accordingly.

Machinery installation recommended for Classing in the Society's Register Books

+ LMC 4.61 and T.S. 4.61 "Engines not to be run continuously between 158 to 178 RPM".

C. Y. Sinclair

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 See Winterthur Report attached.

CRANKSHAFT OR ROTORSHAFT ditto.

FLYWHEEL SHAFT ---

THRUSTSHAFT ditto.

GEARING ---

INTERMEDIATE SHAFTS Markings verified against Hamburg Cert. possession Builders.

SCREW AND TUBE SHAFTS " " " " " " " " " " " "

PROPELLERS " " " " " " " " " " " "

OTHER IMPORTANT ITEMS

Is the installation a duplicate of a previous case? Yes. 8-1-60 If so, state name of vessel "GOYA" (Yard No.105).

Date of approval of plans for crankshaft 17-11-59 Straight shafting 17-11-59 Gearing --- Clutch ---

Separate oil fuel tanks 2-7-59 Pumping arrangements 25/9/59 Oil fuel arrangements 25-9-59

Cargo oil pumping arrangements 3-9-59 & 25/9/59. Air receivers Verified accordance Cert: possession Builders. (Ref. DALMINE-dated 23-3-1956). Donkey boilers ---

Dates of examination of principal parts:--

Fitting of stern tube 5-8-60 Fitting of propeller 19-8-60 Completion of sea connections 19-8-60 Alignment of crankshaft in main bearings ---

Engine chocks & bolts 20-1-61. Alignment of gearing --- Alignment of straight shafting 24-2-61. Testing of pumping arrangements 9-3-61.

Oil fuel lines 16-2-61. Donkey boiler supports --- Steering machinery 9-3-61. Windlass 9-3-61.

Date of Committee FRIDAY 22 DEC 1961

Decision + LMC ES } 4.61
TS }
Special Survey Fee \$ 28,140.00
S.A.F. \$ 850.00

Expenses \$ 1,500.00

Date when A/c rendered 28th April 1961.



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