

Rpt. 9

Date of writing report August 12, 1958

Survey held at Ciudad Trujillo

REC'D NEW YORK AUG 20 1958

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Port NEW YORK

No. of visits nine

First date Sept. 25, 1957

Last date Oct. 3, 1957

No. 57166

# REPORT OF PERIODICAL SURVEYS & REPAIRS OF MACHINERY

No. in R.B. 59880 S.S. Name M.V. TS SS "ESPANA" (Ex - CANBERRA)

Owners Govt. of Dominican Republic (Navy) Managers

Gross tons 7710

Date of build 1913-3

Engines made By A. Stephen & Sons, Ltd.

Port of Registry Ciudad Trujillo

No. of Main Engines No. of Screws

Type 8Cy. 25 1/2 "35"50" & 70" X 48"

No. of Main Boilers 6 SB W.P. 215#

Records of Survey & Special Notations as per Register Book

No. of Aux./Donkey Boilers W.P.

Hull

Machinery

Surveyed Afloat or in Dry Dock Drydock

Nature of Survey Part Mchy. & BS

Was Damage Report issued? no Int. Cert.? yes

Last Report (For Head Office only)

+100 Al Shelter Dk. with fbd. 12/54

+LMC 3/52 BS 4/54

SS (Dr) 6/53

CLp. 5/51N s. 3/52N

SURVEYOR OVERDUE-CLASS SUSPENDED 3/58

The condition of any of the following items is to be described as "good" only when the part has been examined, found or placed in good condition, and is considered to be acceptable until the due date of the next Periodical Examination. Where it is considered that re-examination or repairs should be effected before the due date of the next Periodical Examination a distinguishing mark thus † should be inserted against the item and the circumstances and action recommended described fully under "defects and repairs". At part or complete Special Surveys those items which are not applicable to the ship should be cancelled with a black line; this need not be done when the machinery is on a continuous survey basis. When any part has been subjected to pressure test this should be stated. Engine parts when referred to by numbers should be counted from forward.

DOCKING Propellers good Wear Down of Stern Bushes Close fit, See Rpt. On Glands

Fastenings good Has Screwshaft/Tubeshaft been drawn? see Rpt. re P.S. Date of Examination Sea Connections good

Has Shaft now fitted been previously used? Has Shaft now examined/fitted a continuous liner? Has Shaft been changed?

MAIN ENGINES (Recip. Steam or I.C.) PORT APPROVED OIL GLAND? STARBOARD

1 Cyls., Covers, Pistons & Rods

2 Valves & Gears

3 Connecting Rods, Top Ends & Guides Side Centre

4 Crankpins & Bearings Side Centre

5 Journals & Bearings

## MAIN ENGINE DRIVEN AIR COMPRESSORS

6 Cyls., Covers, Pistons & Rods

7 Connecting Rods & Top Ends

8 Crankpins & Bearings

9 Journals & Bearings

10 Coolers & Safety Devices

## MAIN ENGINE DRIVEN SCAVENGE PUMPS

Cyls., Covers, Pistons & Rods

Connecting Rods & Top Ends

Crankpins & Bearings

Journals & Bearings

Lever

## SCAVENGE BLOWERS

## SUPERCHARGERS

## MAIN TURBINES

Casings, Rotors, Blading, Bearings & Thrusts

## EXHAUST STEAM TURBINES (WITH RECIP. ENGINES)

## STEAM COMPRESSORS

## CLUTCHES & HYDRAULIC COUPLINGS

## REDUCTION GEARING

## THRUST BLOCKS, SHAFTS & BEARINGS

## INTERMEDIATE SHAFTS & BEARINGS

## HOLDING DOWN BOLTS & CHOCKS

## CONDENSERS (MAIN & AUX.)

## STEAM RE-HEATERS

## DE-SUPERHEATERS

## STOP & MANOEUVRING VALVES

## MAIN ENGINE DRIVEN PUMPS

## CRANKCASE DOORS & EXPLOSION RELIEF DEVICES

Have Main Engines been tested working and manoeuvring?

## OPINION OF MACHINERY AND RECOMMENDATIONS

THIS REPORT IS FORWARDED FOR THE INFORMATION OF THE COMMITTEE.

TUESDAY 21 OCT 1958

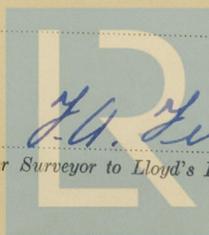
Date of Committee

Decision

Signature

Deferred

Noted for Header



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If certificate is required state where to be sent

"ESPANA"

List of Machinery Items Surveyed by Mr. E. Watson, Surveyor at Kingston, Jamaica, on or about 1 October, 1956.

- 1) Oil fuel transfer pump examined.  
Repairs Effected:- New rings fitted to steam & fuel pistons. Completely overhauled and adjusted.
- 2) Outboard and Inboard fuel service pumps examined.  
Repairs Effected:- Completely overhauled.
- 3) Oil fuel heaters examined.  
Repairs Effected:- Opened and cleaned. Tested to 250 lbs. per sq. in. All thermometers and pressure gauges on oil fuel unit renewed.
- 4) Observation Tank examined. Good. New sight glasses fitted.
- 5) Starboard Fan Engine examined. Good.  
Repairs Effected:- Completely overhauled. Piston rings renewed. Top end bearings renewed. Top end pin renewed. Main bearings reinstalled. Bottom end bearing renewed.
- 6) Center fan engine examined. Good. Same repairs as above.
- 7) Port fan engine examined. Good. Same repairs as above.
- 8) Four Main Feed Pumps examined. Good.  
Repairs Effected:- Water end liners renewed. Water pistons and rods renewed. Shuttle valves renewed, and three spares complete supplied. Neck bushes and glands renewed. Water and steam piston rings renewed. Valve gear bushes renewed. Suction and discharge valves renewed.
- 9) Fire Pump starboard side forward examined.  
Repairs Effected:- Completely overhauled. Water end liners renewed. Steam and water end piston rings renewed.
- 10) Starboard Main circulating pump examined.  
Repairs Effected:- Completely overhauled. Steam piston rings renewed. Impeller shaft and bearings renewed.
- 11) Port Main circulating pump examined.  
Repairs Effected:- Completely overhauled. Steam piston rings renewed. Impeller shaft and bearings renewed.
- 12) Sanitary and Bilge pump port recess E.R. port side examined.  
Repairs Effected:- Water end liners renewed. Water end pistons renewed. Steam and water piston rods renewed. Deck bushes and glands for steam and water ends renewed. Steam and water end piston rings renewed. Suction and discharge valves & seats renewed.
- 13) Bilge Pump Port Forward End Engine Room, examined.  
Repairs Effected:- Water end liners, pistons, piston rods, piston rings, renewed. Water end glands and neck bushes renewed. Valve gear bushes renewed. Steam end piston rings renewed.
- 14) Sanitary and Fire Pump Port side forward end E.R. examined.  
Repairs Effected:- Steam and water piston rings renewed.
- 15) No. 1 Generator Engine (Forward) examined.  
Repairs Effected:- H.P. & L.P. piston rings renewed. Completely overhauled.

- 32 Essential Independent Pumps (Identify by position)
- 33 Bilge, Ballast & Oil Fuel Suction Lines, Fittings & Controls
- 34 Have the remaining Piping Arrangements & Fittings in the machinery space been examined as considered necessary?
- 35 Fresh Water Coolers
- 36 Lub. Oil Coolers
- 37 Heaters (state service)
- 38 Independent Air Compressors, Coolers & Safety Devices
- 39 Air Receivers & Safety devices—Main
- 40 Auxiliary
- 41 Oil Fuel Tanks (Not forming part of hull structure)
- 42 Evaporators
- 43 Have Evaporator Safety Valves been tested under steam?
- 44 Steering Machinery
- 45 Windlass
- 46 Fire Extinguishing Arrangements

AUXILIARY ENGINES (Identify by position)

PROPULSION	PORT	STARBOARD	AUXILIARY EQUIPMENT
a Generators			1 Generators & Governors
b Exciters			2 Motors
c Air Coolers			SEE REPORT REGARDING ELECTRICAL EQUIPMENT.
d Motors			3 Switchboards & Fittings
e Air Coolers			4 Circuit Breakers
f Control Gear, Cables, etc.			5 Cables
g Insulation Resistance			6 Insulation Resistance
h Insulating Oil Test			7 Steering Gear Generators and Motors
i Overspeed Governors			8 Navigation Light Indicators
j Magnetic Couplings			
k Air Gap			

BOILERS OPENED UP & EXAMINED (Identify by position and state latest date of internal examination of each boiler)

MAIN centre after Boiler - 2 Oct. 1957 (see body of report) AUXILIARY, DONKEY or PRESS.

Superheaters  
 Safety Valves good  
 Mountings, Doors & Fastenings good  
 Safety Valves Adjusted to Sat. not adjusted  
 Spt.  
 Boiler Securing Arrangements good  
 Main Economisers Exhaust Gas Heated Economisers  
 Steam Heated Steam Generators Steam Generator Safety Valves Adjusted to  
 Were Oil Burning System & Remote Controls examined working in accordance with Rules? Forced Circulating Pumps  
 Have Saturated Steam Pipes in cylindrical boiler smoke boxes been examined as required by Rules? Funnel

EXAMINATION & TESTING OF STEAM PIPES (State material)

Main Auxiliary (over 3 in. bore)  
 Were Copper Pipes annealed? Have Saturated Pipes in cylindrical boiler smoke boxes been tested?

PARTICULARS OF DEFECTS & REPAIRS, ETC. (Damage repairs should be detailed separate from wear and tear repairs; state what action has been taken regarding items are subjects of class)

LEAVE THIS SPACE BLANK

Survey fees ...  
 Damage fee ...  
 Expenses...  
 Date when A/c rendered

"ESPANA"

continued:-

16) No. 1 Generator examined.

Repairs Effected:- Armature shaft renewed. Armature re-impregnated and tested.

Commutator trued up.

17) No. 2 Generator Engine (Port) examined.

Repairs Effected:- H.P. and L.P. piston rings renewed. Engine completely overhauled.

18) No. 2 Generator examined.

Repairs Effected:- Armature checked and tested. Commutator trued up.

19) No. 3 Generator Engine examined. (Starboard).

Repairs Effected:- H.P. and L.P. piston rings renewed.

20) No. 3 Generator examined.

Repairs Effected:- Armature checked and tested. Commutator trued up.

21) Ballast Pump starboard side E.R. examined.

Repairs Effected:- Completely overhauled. Steam and water piston rings renewed.

22) Port and Starboard Main Condensers examined.

Repairs Effected:- Condensers completely retubed, and fitted with John Crane packing and ferrules, Main condensers tested. Port March 15th, 1956, and Starboard May 10th, 1956.

23) Auxiliary Condenser starboard side E.R. examined.

Repairs Effected:- Tube sheets renewed. All tubes renewed and fitted with ferrules and John Crane packing. Water boxes renewed. Forward and After doors renewed.

24) Auxiliary Condenser, air and circulating pump examined.

Repairs Effected:- Air pump liner and bucket renewed. Air pump rod renewed with new gland and neck bush. Port and starboard circulating pump water end liners, pistons, piston rods, glands and neck bushes, piston rings, and suction and discharge valves and seats, renewed. Steam end piston rings renewed. Shuttle valve completely overhauled.

25) Fresh water pump port side E.R. (Forward Pump) examined.

Repairs Effected:- Completely overhauled including automatic steam control.

26) Fresh Water Pump Port side E.R. (After Pump) examined.

Repairs Effected:- Completely overhauled. Steam and water end piston rings renewed. Suction and discharge valves renewed. This pump is additional to be used as stand by, was previously a brine pump (Lamond-Duplex) in connection with the old refrigeration. Capacity 250 gallons per minute.

27) Port and Starboard Turning Engines examined.

Repairs Effected:- Completely overhauled and adjusted.

28) Port and Starboard Reversing Engines examined.

Repairs Effected:- Completely overhauled and adjusted.

29) Emergency Generator Engine examined.

Repairs Effected:- Completely overhauled. Piston rings, injectors, bottom end bearings renewed. Water cooling pump renewed.

30) Port center and Starboard After Main Boilers all examined under hydrostatic test of 250 lbs. per sq. in. 19/9/56.

"ESPANA"

## 30) - continued:-

All boilers examined internally during renewal of furnaces and after repairs to cracked end plates.

Repairs Effected:- All furnaces renewed.

All plain and stay tubes renewed. Safety valves and seats renewed. Salinometer cocks renewed. Main and auxiliary feed valves and chests renewed. (stated to have been tested to 430 lbs. per sq.in. Witnessed by Mr. Anfosso). Soot blowers renewed. Water gauges renewed. Steam and water cocks for water gauges renewed. Steam gauges renewed. All air heater tubes and tube plates renewed. All mountings overhauled. All end plates cracked at the turn of the flange at the bottom, repaired by welding.

## 31) Steering Engine examined.

Repairs Effected:- Completely overhauled and adjusted.

## 32) Telemotor examined.

Repairs Effected:- Completely overhauled. Renewed all pipes entirely from bridge to steering engine control. Lines tested at 450 lbs. per sq. in. Lines removed from deck A aft. in way of Nos. 3 and 4 hatchways and fitted below deck.

## 33) Windlass examined.

Repairs Effected:- Completely overhauled. Mainshaft bearings renewed. Piston rings renewed.

34) Note:- No. 1 winch completely overhauled. All bearings renewed. Piston rings renewed. Nos. 3 and 4 winches (4) renewed. New winches by American Hoist & Derrick Co. 7" x 12" with capacity of 5 tons. Hydraulic system removed including all machinery pipe lines to ram, etc., Eight rams complete with cylinders removed from vessel. Openings in decks A. B. and C. securely blanked off, proved W.T. and wood sheathing fitted.

## 35) Port Main Engine examined.

Repairs Effected:- Completely overhauled H.P. piston rings renewed. All piston rod metallic packing renewed. All main bearings remetalled and shaft alignment deflection checked. Thrust bearings and collars remetalled. H. P. and 1st. L.P. eccentric straps remetalled. All valve spindle packing renewed with metallic packing. All valve spindle guide brasses and neck bushes renewed. Main stop valve discs renewed.

## 36) Starboard Main Engine:-

Repairs Effected:- Completely overhauled H.P. piston rings renewed. All piston rod metallic packing renewed. All main bearings remetalled & shaft alignment and deflection checked. Thrust bearings and collars remetalled. All reversing quadrants machined to a true radius and tumbling blocks and brasses renewed. All valve spindles trued up & fitted with stainless steel sleeves. All valve spindle packing renewed with metallic packing. All valve spindle guide brasses and neck bushes renewed. Main stop valve discs renewed.

## 37) Port &amp; Starboard Main Engine Telegraphs examined.

Repairs Effected:- Completely overhauled and all wire cables & chains renewed, completely.

## 38) Port Main Engine Air Pump examined.

Repairs Effected:- Liner, bucket, and rod renewed.

"ESPAÑA"

continued:-

39) Starboard Main Engine Air Pump examined.

Repairs Effected:- Liner, bucket, and rod renewed.

40) Main and Auxiliary Feed Lines examined.

Repairs Effected:- Renewed complete and tested to 500 lbs per sq. in. before fitting. Flanges for 600 lbs. welded. Test witnessed by Mr. Anfosso.

41) All boilers examined internally and externally. All mountings examined. All boilers examined under hydrostatic test, but, on raising steam, either steam was raised too quickly, or the water was not circulated when raising steam, because all end plates in all boilers developed cracks at the turn of the flanges at the bottom. Cracks have been repaired by welding and inspected on completion. Now awaiting hydrostatic test prior to raising steam for adjustment of Safety valves.

42) Sea connections examined.

43) Propellers examined. Tailshafts examined. Port tailshaft condemned. Outer stern bushes re-wooded. Inner stern bushes renewed.

NOW DONE Towards the Machinery Survey and Recommended Repairs by the Undersigned:-

The following items of repairs were found during the carrying out of the commencement of the Special Survey of the hull and the requirements for the Passenger Certificate.

1) One strainer plate missing for the general service pump sea suction starboard side aft, strainer plate to be supplied and fitted.

2) The suction valves to port and starboard tanks to be altered by fitting the valves to the bulkheads instead of spool pipe pieces, with tail pipes to lowest possible point for complete drainage.

#3 Double Bottom Tank (P&amp;S) Oil Fuel Tanks

3) The sounding pipes to be extended down to the bottom of the tanks and rejoin stand pipes to tank top.

#8 Double Bottom Tanks Port &amp; Starboard

4) The port sounding pipe wasted and thin to be renewed.

5) Electrical Installation

In Holds - Numerous loose electric wiring unsheathed rubber coated wiring lightly installed, (not suitable for ships use) open connection boxes, some exposed loose lamp sockets in the four holds requires to be completely overhauled or renewed with correct conductors, guarded cargo lamp fittings and proper steel junction boxes where required, all other loose and unsuitable electrical fittings to be removed, with the exception of the fire detectors.

The electric wiring in the numerous passengercabins now examined, in passageways, forward dormitory cabin spaces, in ventilator fan rooms, in forecastle spaces found in deplorable state, with loose and open lamp fittings, wooden junction boxes loose and adrift, and abundant amount of loose wiring and taped wiring throughout, megger tests were taken of considerable number of the above circuits with very unsatisfactory results: It is the opinion of the undersigned that approximately 90% of the electrical wiring and fittings will have to be renewed as far as now seen to accomplish a satisfactory electrical installation in the vessel.

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continued:-

6) Emergency Fire & Bilge Pump

Some work has been accomplished on this pump but still not satisfactory, the pump suction line is led into the tunnel direct bilge suction line, with a gate valve between the pump suction and bilge tunnel well suction, (the gate valve not fitted with extension rod).

It was advised that a satisfactory system of bilge and sea suction piping to the emergency bilge and fire pump be fitted, preferably with a direct ship-side sea suction at the pump, blank off the direct bilge suction, as the tunnel area has already three bilge suction fitted, and the arrangement submitted for approval (see also item No. 63) (Rpt. 10 dated Oct. 7, 1957)

7) Boiler Room Bilge Suctions

The boiler room forward bilge suction port and starboard have gate valves fitted at mud boxes, these valves to be replaced by non-return valves and mud box covers to be fitted with toggle nuts for quick removal and replacement without the use of any tool.

8) No. 4 Hold Bilges

Port & starboard bilge suction pipes have been fitted at forward end of hold leading into tunnel well space and led to emergency fire and bilge pump suction with globe valve and extended spindle, this is not satisfactory, bilge well hat boxes to be fitted at port and starboard drains and led into bilges in tunnel well area with stop valves or cocks, the bilge wells be covered in hold with perforated plates, drilled with 3/8" dia. holes, the new sounding pipes to be extended in to wells. (see item #74) (Rpt. 10 dated Oct. 7, 1957)

9) Fresh Water Deep Tanks

Sounding pipes from the port and starboard fresh water tanks now terminate in passenger accommodation on "D" deck, pipes to be led up to "A" deck with proper screwed closing ends.

10) No. 3 Hold Bilges

Previous drainage from centre section at after end of #3 hold (see item #78) into cofferdam not yet satisfactorily dealt with, a 6" dia. hole in cofferdam tank top plating to be closed by suitable doubling plate, and satisfactory bilge pumping arrangements are to be installed with sounding pipes to Rule requirements so that the port, centre and starboard bilges may be pumped out with their separate bilge connections (port and starboard bilges not available at this time owing to permanent ballast being fitted at port and starboard wings of hold).

11) Air pipe from #7 Double Bottom tank port side in engineroom found previously renewed using reducing piece from original 4" dia. piping to 2" dia., this air pipe to be renewed for full length up from reducing piece by 4" dia. pipe as original.

12) The battery of CO2 sbottles on "B" deck, are in a compartment which is used for stores. The stores must be removed, and the door kept locked. The key to the door to be kept in the glass front box provided for this purpose on the bulkhead. The twisted wire restraining the operation of the control handle, should be removed, and alarm bell to be fitted in boiler room when CO2 is required to be used.

"ESPANA"

continued:-

13) Access to the sounding pipes of the after deep tanks is through the CO2 storage room which is unsatisfactory. These pipes should be extended to an easily accessible place about "B" deck, and their ends closed with a suitable device.

14) The emergency fire and bilge pump at present, has only one suction pipe connected to the bilge mains and to a sea inlet pipe. This sea inlet pipe connection to be removed and permanently blanked at the emergency and main bilge connections. A separate sea suction line to be led from the remote controlled valve on the auxiliary condenser sea suction line direct to the emergency pump where a new branch valve is to be installed with its readh rod control to the bulkhead deck. The ships side auxiliary condenser valve to have a notice fixed on the valve to read in Spanish:

"THIS VALVE TO BE KEPT OPEN AT ALL TIMES". The suction valve to #4 hold port and starboard bilges is a gate valve under the platform near the emergency pump, this valve to be replaced by a non-return valve. (Regulation 17 Instrument 1952 #1948 Part III).

15) A five (5) inch dia. bilge suction line to be led from the boiler room direct to a suitable connection on a bilge pump suction manifold. This suction and the other bilge suction in these spaces to be fitted with mud boxes placed at platform level with straight open ended tail pipes. This does not apply to the main bilge injections nor the tunnel suction which may have detachable perforated strum boxes. (Instrument 1952 No. 1948 Part III). Amend plan #79504 accordingly.

The mud boxes are to have covers which can quickly be removed and replaced without the use of any tool. The strainer plate in the mud box to have a number of 3/8" dia. holes of a total area equal to twice the area of the suction pipe it serves.

16) A non-return valve 3-1/2 inch in diameter to be installed just above the port and starboard bilge strums in #2 hold. Plan No. 79504 to amend accordingly. Similar valves are already fitted in #1 Hold.

17) Bunker tanks to be emptied, cleaned and certified gas free. The overflow pipes from port and starboard tanks to the boiler room bilges to be removed and permanently blanked off. The external sounding pipes to the two tanks to be removed and the openings permanently blanked off. New internal sounding pipes to be installed in the port and starboard tanks with striking pads at their bottoms, and the upper ends led to accessible places above the bulkhead deck and protected with self closing fittings.

18) All oil fuel sounding pipes to have their self closing cocks or valves made workable. All drip trays under oil fuel units to have the drain holes closed, so that oil cannot drain to the bilges. All oil fuel vent pipes to have gauze diaphragms fitted at their open ends. The oil fuel overflow system to be overhauled to ensure it is clear so that the overflow tank may receive any excess and so avoid spillage on decks. The oil fuel pumps, both service and transfer, and all suction valves on all deep and settling tanks have controls from outside the casings. These all require to be placed in good condition, and name plates in Spanish affixed. Their locations should be indicated on the General Arrangement Plan.

19) The steam smothering fire extinguisher system in the boiler room to be deleted from the plan as it does not exist.

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continued:-

20) No. 4 hold at present, does not have proper bilges, there is just a suction pipe on port and starboard side at deck level. A bilge well of ample capacity to be furnished and installed at the forward end on each side and the present suction connected to the wells. The openings in the deck should be large enough to enable the wells to be cleaned and painted. Plates perforated with 3/8" dia. holes to be laid over the openings. Sounding pipes to be installed and led to "A" deck.

Commencement of the Boiler Survey

Examined the centre after boiler throughout without mountings, and found in good condition except the following:-

- a) Combustion back and wrapper plates and back and between stays to be scaled free of scale deposit.
- b) Steam separators to be removed and cleaned in all boilers.
- c) The bottom shell plate drain valves of all boilers to be removed, cleaned of hard salt deposit and valves ground in and rejointed.
- d) Boiler lagging at bottom of all boilers to be refitted and part renewed as necessary.
- e) Boiler collision chocks to be renewed or built up by electrically welding sufficient to fulfill their purpose.

To complete the Boiler Survey the port and starboard after boilers and the port, centre and Starboard boilers, with their mountings remain to be examined.

The port and starboard propeller shafts were examined by Mr. E. Watson, the port propeller shaft was found badly grooved at the keyway, this shaft has now been replaced for emergency use only. It was stated a new shaft will be placed on order and delivery is expected in approximately 8 months.

Both Tailshafts were in position during the present survey.

In the opinion of the undersigned, as all the items examined by Mr. E. Watson were carried out as late as October, 1956, all requirements for the Machinery Survey be again examined for a fresh record of Survey.

*JA Findley*

*MS  
29/9/58*

