

Rpt. 9

Date of writing report May 30, 1959

Received London 8

Port Galveston, Texas

No. 6621

Survey held at Galveston, Texas

No. of visits 12 (4)

First date May 13

Last date May 19, 1959

REPORT OF PERIODICAL SURVEYS & REPAIRS OF MACHINERY

No. in R.B. 93171 Name S.S. "SANTI"

Gross tons 4519 Date of build 1928

Owners Ibero Continental S.A.

Managers

Port of Registry Monrovia

Engines made Mtl. By Canadian Vickers Ltd.

Type T 4 Cy. (Corvette type)

No. of Main Engines 1 No. of Screws 1

Records of Survey & Special Notations as per Register Book

No. of Main Boilers 2 SB W.P. 225 lb.

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

Surveyed Afloat or in Dry Dock Afloat, Todd S.C.

Nature of Survey Damage & repairs

Was Damage Report issued? - Int. Cert.? Yes

Last Report (For Head Office only)

+100A1

Reclassified 10/58

SS Cdz.(M) 10/58 - mos.

Docking 9/58

Oil Tanker

*LMC 10/58

MBS 10/58

CL 10/58

+NE made 41 refitted 57

+NB made 40 refitted 57

O.F. 4/57

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

Wear Down of Stern Bushes

Oil Glands

Sea Connections

Fastenings

Has Screwshaft/Tubeshaft been drawn?

Date of Examination

Has Shaft been changed?

Has Shaft now fitted been previously used?

Has Shaft now examined/fitted a continuous liner?

Approved oil gland?

MAIN ENGINES (Recip. Steam)

PORT-

STARBOARD

1 Cyls., Covers, Pistons & Rods H.P. & I.P. - good
(H.P. & I.P. & both L.P. - good
2 Valves & Gears (H.P. eccentrics

3 Connecting Rods, Top Ends & Guides Side
Centre H.P. - good

4 Crankpins & Bearings Side
Centre H.P. - good

5 Journals & Bearings Nos. 2 & 3 - good

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

11 Cyls., Covers, Pistons & Rods

12 Connecting Rods & Top Ends

13 Crankpins & Bearings

14 Journals & Bearings

15 Levers

16 SCAVENGE BLOWERS

17 SUPERCHARGERS

MAIN TURBINES

18 Casings, Rotors, Blading, Bearings & Thrusts

19 EXHAUST STEAM TURBINES (WITH RECIP. ENGINES)

20 STEAM COMPRESSORS

21 CLUTCHES & HYDRAULIC COUPLINGS

22 REDUCTION GEARING

23 THRUST BLOCKS, SHAFTS & BEARINGS

24 INTERMEDIATE SHAFTS & BEARINGS

25 HOLDING DOWN BOLTS & CHOCKS

26 CONDENSERS (MAIN & AUX.)

27 STEAM RE-HEATERS

28 DE-SUPERHEATERS

29 STOP & MANOEUVRING VALVES

- Good

30 MAIN ENGINE DRIVEN PUMPS

31 CRANKCASE DOORS & EXPLOSION RELIEF DEVICES

Have Main Engines been tested working and manoeuvring? Yes

OPINION OF MACHINERY AND RECOMMENDATIONS

This vessel's machinery, so far as now seen, is in a safe working condition & eligible in my opinion to remain as classed without fresh survey record.

Date of Committee

Decision

NEW YORK

JUN 24

Noted
for
Header

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Lloyd's Register
Engineer Surveyor to Lloyd's Register of Shipping

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If certificate is required state where to be sent

S/S "SANTI"

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

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

MAIN P. & S. Boilers opened up for cleaning only..... AUXILIARY, DONKEY or PRESS.....

Superheaters.....

Safety Valves.....

Mountings, Doors & Fastenings P. & S. stop valves - good.....

Safety Valves Adjusted to { Sat.
Spt.

Boiler Securing Arrangements.....

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 them are subjects of class)

To survey and repairs (afloat at Todd Shipyards Corp., Galveston, Texas) from 26th April to 10th May, 1959 in consequence of damage to H.P. piston & valve, also subsequent return to Galveston for further repairs (H.P. piston & valve rings excessively worn) from 13th to 19th May 1959, voyage loaded (lub. oil) from Baytown, Texas to Avela, Spain.

See also Gal. Rpt. No. 6592 - and it should be stated that the H.P. piston was moved by the ship's engineers at anchorage & replaced before proceeding to the Shipyard. The Chief Engineer stated that no broken pieces of the H.P. valve lower were found in the H.P. cylinder, but having thrown overboard some of the recovered pieces from the H.P. valve chamber it could not be positively determined if pieces remained in the main engine cylinders or valve chambers.

Summary of Events & Repairs carried out

(1) April 26 to May 10, 1959

After completing loading at Baytown, Texas and about 80 miles off Galveston, 24th April at 0525 hours an increase in the I.P. valve casing pressure was noted, H.P. valve opened up and the top rod found to be worn and fractured opposite to the ring butt and (See Contn.)

Survey fees.....

Damage fee..... \$340.00

Expenses..... 30.00

S.A.F..... 18.00

Date when A/c rendered..... 30/5/59

valve replaced.

At 1230 hours proceeding back to the Galveston Roads and anchored.

25th April, at 0700 hours, whilst manoeuvring at the Roads, the H.P. piston broke. With assistance of 3 tugs proceeded to Shipyard and berthed 1430 hours for examination and necessary repairs, viz:

H.P. piston valve removed, upper and lower rings (Lockwood & Carlisle type) & liners (valve cages) somewhat worn, also the upper ring fractured opposite to the ring butt & some pieces broken off one half of the wearing ring.

Valve & rod removed to shop & liners removed.

Valve rod tested in lathe & found true.

Lower carrier washer renewed.

A wire line set up through the valve chamber and the alignment of all fits in the bore & guide bearing found satisfactory.

The upper and lower rings and upper and lower valve gauges respectively renewed of good grade close grain cast iron containing nickel, and the rings of Lockwood & Carlisle type properly assembled & adjusted.

Two (2) wearing rings supplied as spares.

H.P. piston & rod removed to shop.

Found a section of the piston & rings broken away into innumerable pieces, viz. approximately a 13" to 15" segment from the lower flange of the piston body, a 12" segment from the piston hood, and a 15" segment from the Lockwood & Carlisle piston & restriction rings.

Piston rod badly bent in way of the taper fit into the piston body.

It is presumed that a broken piece from the upper ring of the H.P. piston valve or more probably a piece remaining from the previous occasion when the lower ring was badly broken, had fouled the H.P. piston clearance at the top or bottom of the stroke, there being evidence of surface indentations indicating that such had been the case.

A new piston, body & hood, casting supplied and machined as originally. There being no Lockwood & Carlisle type rings available from the makers representatives, a tee type carrier ring with two (2) one inch snap rings, cast, machined and fitted of suitable material. Two (2) rings furnished as spares.

H.P. piston rod (bent at top end) renewed of tested quality steel, machined to original diameter and the metallic rod packing rings bored out to suit.

H.P. connecting rod removed to shop tested in lathe for truth and faces of upper and lower palms machined true.

H.P. crankpin & bearings examined, Nos. 2 & 3 journals & bearings (adjacent to H.P. crank) opened up & journals tested for truth by rotating in four positions and found satisfactory.

H.P. cylinder top & bottom covers tested by Zylaglow for possible fractures & minor breakage of top cover spigot dressed up.

Broken pieces of piston & rings, etc. removed from H.P. cylinder & valve chamber.

Also removed M.P. piston & M.P. slide valve, both L.P. slide valves (not deemed necessary to remove the two L.P. pistons), and opened up the Port & Starboard main boiler (P.T.O.)

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stop valves, both intermediate steam stop valves and the throttle valve, steam piping, receiver piping and steam ports, etc. blown through with compressed air.

Throttle valve seat, one securing set bolt broken and remainder defective, all renewed.

Thrust shaft bearing opened up, lateral clearance verified and found satisfactory.

The machinery parts opened up for examination and repairs, reassembled, adjusted and clearances verified.

Dock trial, machinery tested under working conditions, approx. 4 hours at 75 R.P.M. (attended by undersigned) afterwards H.P. valve removed for examination, found satisfactory & recommended adjustments to H.P. crankpin bearing & H.P. valve saddle block carried out.

Ship sailed P.M., 10th May, 1959.

(2) May 13 to May 19, 1959

As per note of protest.

May 12, 1959, at 0700 hours, main engines were stopped, H.P. piston rings examined, found to be excessively worn, and spare rings fitted, at 1300 hours when it was deemed advisable to return to Galveston.

May 13, 1959, at 0430 hours, anchored near port entrance.

H.P. piston rings again examined and found to be excessively worn.

0900 hours with pilot aboard & proceeded towards Galveston at reduced power.

1030 hours, two tugs alongside to assist.

At 1100 hours, berthed at Todd Shipyards, Galveston for further examination and necessary repairs, viz:

H.P. piston & rod removed.

Both sets of piston rings which had been in use found to be excessively worn and slack in the cylinder, and this type of plain angle cut ring unsuitable for engine speed & steam pressure, causing excessive pressure on cylinder walls.

Two (2) lockwood & Carlisle type restriction and four (4) Piston rings (two being as spare) cast of good grade material, cut, machined, properly fitted and adjusted for compression, & installed on piston.

Crosshead bearings opened up, alignment verified, rod trained. A .035" liner fitted under the after palm of the connecting rod & .010" liner removed from the forward palm, piston central H.P. crosshead guide realigned.

H.P. valve removed to shop.

Some wear of valve rings & valve cage liners but all intact.

Cast, machined & properly adjusted and installed new upper & lower Lockwood & Carlisle valve rings.

The upper and lower valve cage liners removed to shop, and the internal surfaces machined, ground to a true & smooth bore and refitted.

H.P. valve rod guide brasses removed to shop, closed up, rebored to a true diameter and lined out true to valve chamber.

H.P. valve reversing gear removed to shop, the astern eccentric rod (slightly bent) faired and bearing palms machined.

Saddle block pin built up by welding and machined, bearings machined to suit.

Top and bottom of quadrant filed true, saddle block squared up and slipper brasses adjusted. All link bearings adjusted to proper clearances.

Ahead & astern eccentric straps opened up, 1/8" machined off ahead strap distance pieces, liners fitted & straps adjusted.

Valve lead adjusting bar removed to shop, built up by welding, drag link ends remachined, 1/16" cut back on the locking square & adjusting screw secured.

After L.P. valve, guide bearing cap removed to shop, 3/16" machined from split, reinstalled with 1/8" liners and properly adjusted.

Boilers, Port & Starboard

Opened up, considerable amount of sediment, mud and scale removed from boiler bottom, water sides washed down with fresh water and reclosed.

The ship's crew removed the carbon deposits and cleaned the fire sides of the furnaces.

Cylinder lubricator (not previously provided)

A suitable type cylinder lubricator now supplied & fitted between the throttle valve & H.P. valve chest.

Hotwell filter opened up and arrangement found satisfactory.

Dock trials: Machinery tested working for two hour period, H.P. valve chest cover removed for examination of valve cages, dock trial continued for a further four (4) hour satisfactory period of continuous running (attended by the undersigned).

Afterwards the H.P. valve removed, also H.P. piston rings removed for examination by the undersigned.

All rings found to be developing a good polished glazed surface and all reclosed in good order.

Ship sailed P.M., 19th May, 1959.

umi Rennie



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59