

S/S "SANTI" 4519 tons gross of Monrovia

Summary of Events and Repairs carried out

April 26 to May 10, 1959

After completing loading at Baytown, Texas, 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 ring found to be worn and fractured opposite to the ring butt and 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:-

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

Valve and rod removed to shop and liners removed.

Valve rod tested in lathe and found true.

Carrier washer renewed.

Wire line set up through the valve chamber and the alignment of all parts in the bore and guide bearing found satisfactory.

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

(2) wearing rings supplied as spares.

2. piston and rod removed to shop.

and a section of the piston and 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 and Carlisle piston and 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 HP piston

valve or more probably a piece remaining from the previous occasion

on 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 has been the case.

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

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

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

Also removed M.P. piston and M.P. slide valve, both L.P. slide valves not deemed necessary to remove the two L.P. pistons, and opened up the Port and Starboard main boiler stop valves, both intermediate steam

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

throttle valve seat, one securing set bolt broken and remainder defec-
t, all renewed.

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

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

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 and recommended adjustments to H.P.
crankpin bearing and H.P. valve saddle block carried out.

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

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 adviseable 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.
At 0900 hours with pilot aboard and proceeded towards Galveston at re-
duced power.

At 1030 hours, two tugs alongside to assist.

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

1. Piston and rod removed.

Three 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 and steam pressure, causing excessive pres-
sure 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 and installed on piston.

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

P. valve removed to shop.

No wear of valve rings and valve cage liners but all intact.

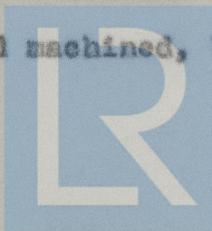
St, machined and properly adjusted and installed new upper and lower
Lockwood and Carlisle valve rings.

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

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

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
fit.



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bottom of quadrant filed true, saddle block squared up and brasses adjusted. All link bearings adjusted to proper clear-

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

head adjusting bar removed to shop, built up by welding, drag ds remachined, 1/16" cut back on the locking square and adjusting secured.

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

Port & Starboard

up, considerable amount of sediment, mud and scale removed from bottom, water sides washed down with fresh water and reclosed. p's crew removed the carbon deposits and cleaned the fire sides furnaces.

Oil lubricator (not previously provided)

ble type cylinder lubricator now supplied and fitted between the e valve and H.P. valve chest.

well filter opened up and arrangement found satisfactory.

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

ards the H.P. valve removed, also H.P. piston rings removed for ation by the undersigned.

ngs found to be developing a good polished glazed surface and all ed in good order.

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

Arni Rennie



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