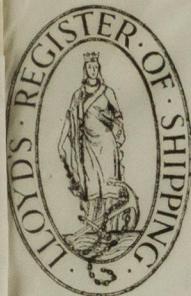


COPY

# LLOYD'S REGISTER OF SHIPPING

UNITED WITH THE BRITISH CORPORATION REGISTER



Port DURBAN

9th July, 1957.

This is to Certify that

**P. F. BALFOUR**

the undersigned Surveyor to this Society did at the request of

Messrs. John T. Rennie & Sons, Lloyd's Agents at Durban, and the Owners, attend onboard the T.S.S. "LARGS BAY", 14362 tons gross of London, in order to survey and report upon the condition of parts of machinery, and make recommendations for repairs.

The undersigned attended onboard on the 3rd June, 1957, and on subsequent dates, and discussed fully with Mr. Cadenhead, Owners' Superintendent, and Chief Engineer, the condition of the following parts of machinery :-

The three (3) generator prime movers (reciprocating compound steam engines).  
The auxiliary circulating pump.

It was reported that extensive repairs and adjustments had been carried out on the generator engines on the Australian Coast. The ship left Fremantle on the 19th May, 1957, and arrived Durban on the 3rd June, 1957.

In spite of these repairs and adjustments, constant trouble was reported during the passage.

The major defects reported upon arrival at Durban were :-  
PORT GENERATOR ENGINE : 75 K.W. CLARKE CHAPMAN.

L.P. trunk guide casting broken beyond repair.

CENTRE GENERATOR ENGINE : 125 K.W. ALLEN.

L.P. top end brasses broken. L.P. guide slipper broken.

STARBOARD GENERATOR ENGINE : 125 K.W. ALLEN.

This machine was actually running on arrival, but was obviously in a most unsatisfactory condition.

AUXILIARY CIRCULATING PUMP. Reported to be unsatisfactory and in need of overhaul.

A general examination of the above machinery was made, and it was agreed by all parties concerned, that the condition was such, that a complete overhaul was necessary, and accordingly the (3) three generator engines, and the auxiliary circulating pump were stripped completely, examined, and repairs and adjustments recommended as follows :-

This Certificate is issued upon the terms of the Rules and Regulations of the Society, which provide that:-

"While the Committees of the Society use their best endeavours to ensure that the functions of the Society are properly executed, it is to be understood that neither the Society nor any Member of any of its Committees is under any circumstances whatever to be held responsible for any inaccuracy in any report or Certificate issued by the Society or its Surveyors, or in any entry in the Register Book or other publication of the Society, or for any error of judgment, default or negligence of any of its Committees or any Member thereof, or the Surveyors, or other Officers or Agents of the Society."

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T.S.S. "LARGS BAY".

FOUND

RECOMMENDED

PORT GENERATOR ENGINE.

Crankshaft. Journals, crankpins and eccentric sheaves. Rough surfaces caused by corrosive action.  
Eccentric sheaves out of round.

The crankshaft to be removed and journals, crankpins and eccentric sheaves ground.  
Grinding saved time as against lapping and polishing by hand.

Main and bottom end bearings worn.

To be remetaled.  
Eccentric straps to be renewed to suit new diameter of sheaves.

Crosshead pins badly worn together with their brasses.

Pins and brasses to be renewed.

L.P. trunk guide smashed beyond repair.

To be renewed. Spare trunk guide casting supplied by ship.

Pistons and piston rods and packing for same.  
HP piston solid, 1/32" slack.  
LP piston rings worn.  
Piston rods rough.

HP piston to be fitted with two (2) rams bottom rings.  
LP piston rings to be renewed.  
Piston rods to be machined, wiper or scraper packing (metallic) to be renewed.  
Soft packing in steam glands.

Valve rods rough.

To be machined.  
Soft packing in glands.

Governor. Four (4) springs broken.

Four (4) springs to be renewed.

After completion of repairs and reassembly, engine was carefully run in, only minor adjustments being necessary. Finally, the generator was run on load and found satisfactory. Governor was tested.

During the trials considerable vibration was noted on plating of generator flat, and examination revealed that rivets in engine seating and in beams below flat, were somewhat slack. To stiffen the generator flat, the toes of the beams were welded to the flat plating below engine seating, and this resulted in considerably damping the vibration.

FOUND

RECOMMENDED

CENTRE GENERATOR ENGINE.

The engine and generator bedplates laid on wood.  
Wood soft and sodden with oil and water.

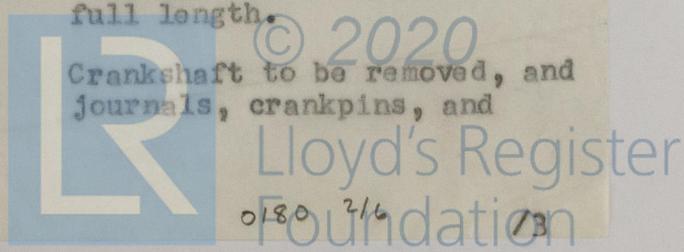
Bedplate to be lifted for examination of foundations.

Wood foundation unfit for purpose intended, in way of bedplate landings.

Wood foundation to be part renewed.  
Four (4) planks renewed for full length.

Crankshaft. Journals, crankpins and eccentric sheave (one) badly

Crankshaft to be removed, and journals, crankpins, and



T.S.S. "LARGS BAY".

FOUND

RECOMMENDED

roughened surfaces through corrosive action, and after journal not down on bearing.

sheave to be ground.

Main and bottom end bearings worn.

Main and bottom end bearings to be remetaled, and bedplate to be removed to shop for line boring main bearings, after bottom halves of main bearings had been bedded into bedplate bearing pockets. The eccentric strap to be remetaled.

Crosshead pins badly worn. H.P. brasses worn and L.P. brasses broken.

Crosshead pins to be renewed together with their brasses.

L.P. guide slipper broken.

To be renewed. Spare piston rod and slipper supplied by ship.

L.P. connecting rod bent at fork end.

To be replaced by spare connecting rod supplied by ship.

NOTE. It is considered that the bend in forked end of connecting rod was the cause of the broken LP top end brasses, guide slipper and securing bolts.

The guide faces are part of the entablature casting, and the H.P. and L.P. guide faces were worn and ridged.

Entablature to be removed to the shop and the H.P. and L.P. guide faces to be machined.

Piston rods somewhat worn, and steam and wiper gland packing badly worn. (Metallic packing).

Piston rods to be machined, and all metallic packing to be replaced with soft packing, glands and stuffing boxes being adapted to suit.

H.P. valve rod slightly worn and L.P. valve rod badly worn.

H.P. valve rod to be machined and L.P. valve rod to be renewed.

L.P. piston rings worn.

To be renewed.

The attached lubricating oil pump, driven by eccentric sheave, badly worn.

The pump plunger to be renewed, and the bushing to be bored out to suit.

After completion of repairs and reassembly, the engine was carefully run in, and after several adjustments, the generator was run on load and found satisfactory. Governor was tested.



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FOUND

RECOMMENDED

STARBOARD GENERATOR ENGINE.

Crankshaft. Crankpins and eccentric sheave out of round.

Crankpins and eccentric sheave to be ground true. Journals to be polished only. Bottom end bearings and eccentric strap to be remated. Main bearings to be adjusted.

Crosshead pins worn and roughened on surfaces.

Crosshead pins to be renewed, together with their brasses.

Piston rods and packing. Both steam and wiper packing (metallic) badly worn.

Piston rods to be polished, and all metallic packing to be replaced with soft packing, glands and stuffing boxes being adapted to suit.

Valve rods roughened on surface.

Valve rods to be polished and packing renewed.

The L.P. piston rings worn.

To be renewed.

The attached lubricating oil pump driven by eccentric sheave, badly worn.

The pump plunger to be renewed, and the bushing to be bored out to suit.

After completion of repairs and reassembly, the engine was run in slowly, but shortly after starting to run, the lubricating oil pump plunger seized in the bushing, smashing the pump body beyond repair, breaking delivery pipe and bending the eccentric rod.

A new lubricating oil pump, plunger, bushing for same and pump body, made and fitted, together with new delivery pipe. Eccentric rod faired and replaced.

After removal of the eccentric rod and the yoke piece which actuates valve rods, it was noted that the guide rod in centre of yoke piece was cracked at lower end. This yoke piece and guide rod are one forging, and complete renewal would have involved delay, it was therefore decided to make a new guide rod and screw same into yoke piece.

As in the case of the port generator, considerable vibration was noted during trials, and the toes of the beams below generator flat were welded to flat plating, which considerably dampened vibration.

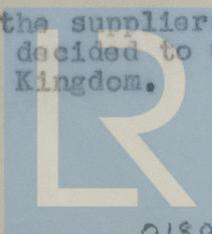
Final trial under load proved satisfactory.

Governor tested.

NOTE. Owing to a misunderstanding between the ship and the shop, only the steam glands of the centre and starboard engines were adapted for, and fitted with, soft packing, and the metallic packing in wiper glands was renewed.

It should also be noted that, exceptionally high temperatures are experienced in the generator flat, which is situated at the after end of engineroom, below the refrigerating machinery room. It was reported that the temperature of the lubricating oil in the generator engines reached 173°F during the passage from Fremantle-Durban.

These conditions were discussed with the suppliers of lubricating oil in Durban (Wakefield), and it was decided to use a higher grade oil for the voyage to the United Kingdom.



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LIARY CIRCULATING PUMP.

er examination in place, with impeller casing cover removed, which revealed that the impeller shaft was severely worn and rings for same, it was decided that the pump and it's prime mover should be removed to the shop in it's entirety.

ND, AFTER COMPLETE DISMANTLING.

oller shaft severely worn together with bearings for same. prime mover, single cylinder steam engine, in very satisfactory condition, all working parts being excessively old and worn.

COMMENDED AFTER CONSULTATION WITH SUPERINTENDENT.

Impeller shaft and it's bearings to be renewed.  
prime mover: Journals, crankpin and eccentric sheave to be ground true, and main bearings to be remetaled. Crankpin brasses and eccentric straps to be renewed.  
Crankshaft pin to be renewed together with it's brasses.  
Crankpin rod and valve spindle to machine, and glands and stuffing boxes to be bushed to suit.  
Crankpin rings to be renewed, also piston valve.  
Crankpin engine bedplate and impeller casing were mounted on a boring machine, and after aligning together, coupling bolt holes in bedplate and impeller casing were reamed and new bolts fitted.  
Impeller shaft bearings and crankshaft main bearings were lined up.

When above repairs were being carried out, it was noted that the exterior of the impeller casing was deteriorated through oxidation, and was cracked in one small area adjacent to one of the studs which secure cover. This crack was repaired by the "METALLOCK" process, and as an additional safe guard, the impeller casing was fitted with a substantial cement box after replacement of cover. The pump was finally examined under working conditions and found satisfactory.

AM SEPARATOR IN STEAM LINE TO GENERATORS.

Steam separator was opened up for internal examination. It was noted that the flange of the steam receiver casting was cracked, and the crack ran into the body of receiver. Receiver was removed to the shop, stripped of lagging, cleaned and examined, when it was found that the crack ran across the flange, through bolt hole for full width of flange and into body of receiver, the length of crack in receiver being approx. 3 ins. It was stated that the ship was proceeding to the United Kingdom, and would then go out of commission, it was therefore decided to carry out temporary repairs only, the crack being repaired by the metallock process.  
On completion of temporary repairs the receiver was tested by hydraulic pressure to 350 lbs. per sq. in. (working pressure tested to be 175 lbs. per sq. in.) and was found to be sound and tight.

AIR TO LONGITUDINAL STAY IN FORWARD CENTRE BOILER.

Forward centre boiler was opened up for cleaning, and it was reported that the lower centre longitudinal stay was broken, some 12 ins. from forward end plate.  
This stay was repaired by renewing the short end of stay, connecting to existing stay by welding and sleeving joint, sleeve and fillet welded at each end.



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CAUSE OF CONDITION IN WHICH THE AFOREMENTIONED MACHINERY WAS FOUND.

The unsatisfactory condition in which the aforementioned machinery was found at this survey, was, in my opinion, due to wear and tear, which, so far as the generator engines were concerned, was accentuated by severe contamination of the lubricating oil with water which found access into the crankcase through piston and valve rod steam and wiper glands.

ERRATA. PAGE 2 \*

The attached lubricating oil pump, driven by eccentric sheave, badly worn.

The pump plunger to be renewed, and the bushing to be bored out to suit.

(Signed) P.F. Balfour.

SURVEYOR TO LLOYD'S REGISTER  
OF SHIPPING.

Survey Fee £35.0.0.  
Expenses £2.18.6.



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