

Lloyd's Register of British and Foreign Shipping

Port of Calcutta

The 5th February 1892.

This is to certify that

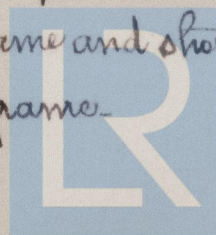
_____ J. D. Mc Kellar _____ the
undersigned surveyor to this society did at the
request of Messrs Turner, Morrison & Co., Agents, and Captain
Calvert, Commander of the S.S. "Waverley", proceed on the 3rd and
4th February 1892, on board that vessel, lying in the Caledonia
dry Dock at Sulkeah, to survey the damages done to Frames,
Floors and Girders under the water ballast tanks, and the bulk-
heads, and report as follows:-

In the after hold, Starboard side.

Two strakes of after ballast tank top plating were removed
from the bulkhead dividing the Engine room from the after hold
aft to the original butt over the twentieth space between the frames
abaft the bulkhead, and the cement cut out from twenty spaces
between the frames from the margin plate of tank down to the
first longitudinal side girder, and for the purpose of this
report I had the Frames numbered 1. 2. 3. &c from the Engine
room bulkhead aft No. 1, being the Frame abaft the bulkhead.

There are three longitudinal side Girders, the outer one,
No. 3, next to the margin plate of tank terminates at the 1st Frame
abaft the Engine room bulkhead.

There are floor plates or division plates, between the longitudinal
side girders on every alternate frame and short plates adjoining
the margin plate on every other frame.



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Damages.

Repairs recommended.

1st Frame angle about the Engine room bulkhead is set up at the third longitudinal side girder from the centre, the girder next to the margin plate of tank.

The girder and the floor plate is also buckled at that place.

2nd Frame about the Engine room bulkhead uninjured.

3rd Frame angle set up between the 2nd and 3rd side girders and between the 1st and 2nd girders.

The third girder is buckled and fractured at the frame angle and the second side girder slightly buckled.

4th Frame set up and the floor plate buckled.

The third longitudinal girder, the one next the margin plate of tank, terminates at this frame.

5th Frame angle set up between the 2nd side girder and the margin plate, and the second side girder buckled, and the rivets in the short floor plate at the margin plate are started and broken.

The upper length of the third longitudinal side girder should be taken out and the second side girder should be removed from the Engine-room bulkhead up to the original butt at the 2nd Frame about the bulkhead, and the buckled parts of both girders straightened and replaced. All the damaged floor plates must be removed and



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6th Frame angle set up between the 2nd Girders and the margin plate of tank and the floor plate buckled and rivets broken.

7th Frame angle set up and fractured between the 2nd side Girders and the margin plate, and buckled between the first and second Girders, and the short floor plate at the end of the frame is buckled and the rivets broken, the second Girders is also buckled in this space, the 1st side Girders is also slightly buckled in the lower part.

8th Frame angle set up between the 2nd Girders and the margin plate and the floor plate buckled at that place.

9th Frame angle buckled on each side of the second Girders and the Girders buckled, also the short floor plate at end of frame is buckled and the rivets broken.

10th Frame angle set up between the second side Girders and margin plate and the floor plate buckled.

and those that are not fractured and can be straightened should be replaced, provided the rivet holes are in line after being straightened, the fractured plates and the plates in which the rivet holes are out of line after being straightened must be replaced with new plates. It is doubtful whether the bent and buckled Frame angles can be set back to shape without

being

11th Frame angle set up between the second girder and margin plate and the girder slightly buckled. Frame angle buckled again on the lower side of the second girder.

12th Frame angle buckled and fractured between the second side girder and the margin plate and the floor plate buckled and fractured at that place.

13th Frame angle set up between the second girder and margin plate and buckled between the first & second girders. The second girder badly buckled and the rivets in the short floor plate at end of frame broken.

14th Frame angle broken between the second girder and the margin plate and the floor plate buckled at that place.

15th Frame angle buckled and set up on both sides of the second side girder.

16th Frame angle set up between the second girder and the margin plate and the floor plate badly buckled at that place.

being injured, and may have to be cut and replaced with new angles, in that case the frame angles in this hold being damaged

outside of the first, and some of them outside of the second side girder, should be cut below where damaged and taken out to the margin

plate leaving no short lengths, and should be cut so as to make good ships of butts and the butts must be strengthened with corresponding

angle bars fitted back to back to cover and support the butts. All rivet holes must be in line and the rivets tight. When the frames,

Girders

17th Frame angle set up slightly between the second girder and margin plate.

18th Frame angle slightly set up outside of the second girder and the floor plate slightly buckled at that place.

19th Frame angle slightly set up outside the second girder and the short floor plate at end of frame slightly buckled.

Girders and floor plates are repaired, the top plating of the tanks must be properly riveted down again and the tanks tested with a head of water the height of the light water mark. The girders floor plates and all iron under the tanks where damaged should be sealed and properly painted after the repairs are finished and the spaces re cemented as before.

The damage on the Starboard side of this hold appears to go no further aft than the nineteenth Frame from the Engineer room bulkhead.

In the Engineer Boiler spaces. Starboard side.

From the bulkhead dividing the after hold from Engine room to the Bulkhead between the stoke hold and the No 2 hold.

The Frames are numbered 1-2-3 &c from the after bulkhead of Engine room forward No 1 Frame being the one forward of the Bulkhead.

1st 2nd 3rd & 4th Frame angles forward of the bulkhead are much bent up between the second and third longitudinal girders from the centre the floor plates buckled and fractured. The third girder from the centre, the one next to the margin plate, is buckled and broken and the second girder from the centre

The damage being under the boilers they will



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badly buckled between the 3rd and 4th
Frame angles.

5th 6th & 7th Frame angles, floor plates and the
girders at those frames appear to be
uninjured, but the rivets in the frames &
floor plates and the rivets of the girders
through the outside plating are started
and some of them broken.

8th Frame angle is set up between the 2nd and
3rd girders, and between the third girder
and the margin plate, and the floor
plates in both spaces are buckled and the
rivets started and broken.

9th Frame angle is set up in the spaces
between the 2nd & 3rd & between the 3rd
girder and the margin plate, and the
rivets connecting the floor plates to the
Frame are started between the No 1 and 2
girders from the centre line, and the floor
plates are buckled in the two spaces
between the 2nd girders and the margin
plate.

10th Frame angle uninjured except that the
rivets in the floor plates and frames are
started and slack.

Thus far there are floor plates on
every frame.

11th Frame, no floor plates, broken between
the 1st and 2nd girders and set up

have to be supported while the repairs are being done.

The buckled floor plates and girder plates will have to be taken out, straightened and replaced.



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between the 2nd and 3rd and between the 3rd girder and the margin plate and the third girder badly buckled.

12th Frame is the one under the bulkhead between the Engine and boiler spaces and is badly bent up between the 2nd and 3rd girders, the floor plate buckled and the rivets started and broken.

13th Frame angle set up between the 1st and 2nd and between the 2nd and 3rd girders and the rivets in the girders broken. The rivets in the short floor plate adjoining the margin plate are also started and broken.

14th Frame angle does not appear to be injured, but the rivets in the frame and floor plates are broken, also the rivets connecting the girder plates to the outside plating are broken.

15th Frame angles ~~are in~~ ~~the~~ ~~same~~ ~~place~~

16th Frame angle set up between the 1st and 2nd and between the 2nd and 3rd girders and the 2nd and 3rd girders buckled.

This Frame is the one under the after end of boiler.

17th Frame angle set up between the 1st and 2nd girders, and the floor plate in that space badly buckled.

and the fractured plates and any of the buckled plates that have been damaged in straightening or the rivet holes out of line must be replaced with new. - The fractured frame angles and those that cannot be



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- 18th Frame angle set up between the 1st & 2nd girders and ~~the~~ between the 3rd girder and the margin plate, and the floor plates between the 1st girder and the margin plate are buckled.
- 19th Frame angle set up between the 2nd & 3rd girders and the second girder ~~are~~ buckled.
- 20th Frame angle set up between the 1st and 2nd girders and the floor plate in that space buckled.
- 21st Frame angle set up between the 1st and 2nd and between the 2nd and 3rd girders and the floor plate buckled between the 2nd and 3rd girders.
- 22nd Frame angle up between the 1st & 2nd and between the 2nd and 3rd girders and the second girder buckled.
- 23rd Frame angle has no damage, this frame is under the forward end of boiler.
- 24th Frame no damage.
- 25th Frame angle set up between the 2nd and 3rd girders and the second girder buckled.
- 26th Frame angle set up between the 1st &

set down to shape will have to be cut and taken out from below the damaged places, after allowing for proper slope, to the margin plate of tank, and the butts strengthened with angle bars, same size as the frame angles, worked back to back



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2nd girder, and the frame and floor rivets shorn and started and the floor plate slightly buckled & between the 2nd and 3rd girders and rivets started.

27th Frame angle set up between the 1st and 2nd and the 2nd and 3rd girders and the second girder buckled.

28th Frame no damage.
This is the frame abast the stoke hold bulkhead.

29th This is the frame under the bulkhead dividing the stoke hold from the No 2 hold.

The Bulkhead between the stoke hold and the No 2 hold appears to be slightly buckled in the middle between the coal bunkers in line of tween decks.

The Bulkhead between the Engine and boiler space is very badly buckled.

A stage should be made in line of tween decks and the bulkhead and rivets examined.

All the fittings on the bulkhead should be removed and the two lower lines of plates removed, the bent angles taken off and straightened and the bulkhead put back to the original shape and new plates worked on the bottom part after the damage to the frames are repaired.

and riveted through the frame angles and through the bottom plating, those angle bars not to be less than three feet long.



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Six tank top plates in the Engine and boiler space have been cut, the ends running under the boilers and engines

To be replaced with new plates when the boilers are lifted, same length and size as the old ones.

Two tank top plates taken up in the Engineer room.

To be replaced after the repairs to the bottom are completed, the old liners between the plates and the reverse frame should be numbered and carefully put aside and used again when the plates are put down, and the tanks when completed must be water-tight and tested with a head of water the height of the light water line.

The principal damage on this side terminates at or near the bulkhead between the stokehole and the No. 2 hold.

There are two or three dented places forward of this, mentioned in the report on the bottom plating where the cement may be broken and the frames and floor plates slightly injured. When the forward water ballast tanks are clear those places should be examined inside and any repairs or recementing required should be done.

Portside.

In the dented places mentioned in the report on outside plating, the cement is no doubt broken, and some of the frame angles, floor plates and girders may be injured, when the tanks on this side are cleared those places should be examined. In the meantime the Contractors will, I think, be able to estimate the damage in those places sufficient to tender for the repairs.

Received for
Rs 96/-



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