



Please address
all communications to
THE SURVEYORS

LLOYD'S REGISTER OF SHIPPING

WHYALLA, S. AUSTRALIA

P.O. Box 327

27 NOV 1965

The Secretary,
LONDON.

22nd November, 1965.

Dear Sir,

"W.D. ATLAS"

Reference is made to your letter, ref. C,DH GK/SO dated 4.6.65 and addressed to the Sydney Surveyors, also to your Memorandum, (Ref.R.) dated 5.11.65, SEI/CB addressed to this Office and to our reply dated 10.11.65 in which it was stated that the Owners were investigating proposals.

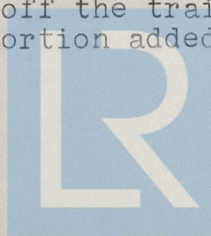
The Owners' proposals have now been received through Sydney Office and your advice is sought on the subject. The history, so far as is known, is set out hereunder for your information.

A General Examination to ensure that the ship sustained no damage or straining during the voyage to Australia was carried out and all found in good condition except for the steering gear and minor leakage in the deck plating.

Apparently trouble was experienced with the steering gear throughout the voyage. It was stated that during the voyage from the U.K. to Lisbon the ship steered badly and in an endeavour to improve the handling qualities an additional area was welded to the trailing edge of the plate rudder.

On the ship's arrival at Singapore the rudder stock was found twisted and fractured. It was further stated that it had been found necessary to screw down the relief valves of the two-ram Donkin hydraulic steering gear and that trouble had been experienced with burst and leaking hydraulic piping.

It was stated that the rudder stock was renewed at Singapore at which time approx. 3" was cut off the trailing edge of the rudder blade, being part of the portion added at Lisbon.



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It was stated that subsequently, during the voyage from Singapore to Whyalla, it was necessary to put in at Geraldton to have a burst section of steering gear hydraulic piping renewed.

From an examination of the steering gear and rudder here at Whyalla with the ship afloat, it would appear that the rudder stock (which was fitted new at Singapore) is now twisted approx. 110°.

Enclosed is a sketch taken from Ferguson Bros. Drawing Yard No.388 showing the original rudder arrangement in blue and the additional area as existing in pencil.

Using Table 44 of the Rules it would appear that the rudder stock diameter is far below that required for the existing blade area and even for the original blade area in accordance with the 1965 Rules although adequate under the 1947 Rules (Table 41).

Judging from the fact that the steering gear would not operate effectively before the relief valves were screwed down and from the trouble experienced with hydraulic piping, it would appear that the steering gear is inadequate to operate the rudder with its present area.

From verbal reports received from ship's personnel it would appear that even with the present rudder blade area, the steering qualities of the vessel are poor.

It was recommended in July last that the rudder and stock be removed for further examination but this has not yet been done and the Owners now propose that the vessel be allowed to proceed in about three months time to Sydney, N.S.W. in its existing condition for dry docking and modifications to the present steering arrangements. It is understood that the Owners are contemplating fitting twin rudders.

The vessel will require to sail through approximately 1100 miles of open water to reach Sydney and, with the steering gear in its present condition, and in view of the trouble experienced during the voyage from Singapore to Whyalla, the Owners' proposal that nothing be done before the voyage to Sydney is considered unacceptable.

It is thought that as a very minimum the rudder and stock should be removed for a thorough examination. (This was done in Singapore with the ship afloat and should therefore be able to be done again here). It is thought that the rudder stock should be then heat-treated in view of the degree of twist (Instructions to



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Surveyors, Part 3a 1963, para.22 - Angle of twist - approx. 11° exceeds $1 \div 2d = 70.0 \div 8.5 = 8.25^{\circ}$., a new keyway cut in either the tiller or the stock to correct for the twist and the whole stock crack-detected before replacing on the vessel. It is also thought that all copper hydraulic pressure pipes on the steering machinery be annealed and tested to at least 2400 lb./sq. inch.

Unfortunately these repairs would only restore the steering gear to some measure of its original condition and would not overcome the apparent inadequacy of the steering machinery and rudder stock to handle the existing rudder blade area under sea-going conditions.

As any reduction in the present rudder blade area may further impair the reported already poor handling qualities, the problem appears very difficult.

X Your guidance in this matter would be very much appreciated as soon as possible to place this Office in a position to reply to the Owners.

Any steering trial carried out at Whyalla would be done in the sheltered waters of Spencer Gulf and therefore may not truly represent conditions experienced in open water.

Yours faithfully,
The Surveyors,

per *L. J. Hitchcock*



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5th REPORTS

C.A.A.

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Early reply requested

Ship development



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