

COPY *for London*

LLOYD'S REGISTER OF SHIPPING

UNITED WITH THE BRITISH CORPORATION REGISTER



Port of NAPLES.

Palermo, 16th May, 1956.

SC. 603

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This is to Certify that

P.H.W. EVANS,

the undersigned Surveyor to this Society did at the request of Messrs. Placido Mancuso & Figli, Lloyd's Agents, Palermo, on behalf of the Salvage Association London, and with the consent of the Owners, attend on board the :-

S/S. "K U W A I T"

17613 tons gross of Monrovia, on the 23rd February, 1956 and subsequently, whilst the vessel was afloat and in dry dock at Palermo, for the purpose of ascertaining the nature and extent of damage to deck fittings, structure, and loss of rudder, alleged to have been caused by :-

Heavy weather encountered on a loaded voyage from Mena Al Ahamadi to the Isle of Grain, from the 3rd February 1956 until 12th February 1956, prior to arrival and again :-

In ballast passage from the Isle of Grain destined for the Persian Gulf, from the 18th February until arrival at Palermo on the 22nd February, 1956, when vessel was diverted to Palermo on account of the loss of the rudder.

For further information see log book. Extract of log for heavy weather attached hereto.

It is recorded in the log book that the vessel left the Isle of Grain for the Persian Gulf on the 14th Feb. 1956, in ballast. On the 15th February, "A stroke was heard in the engine room", which led the Master to investigate the stern part of the ship and a lifeboat. It would appear, that from the Master's observations, the upper part of the rudder plating

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"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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on the starboard side was found missing. It was stated that this plate had broken away above the third diaphragm from the top.

The vessel resumed the voyage with instructions to make for Palermo although steering was reported to be difficult. On the 19th February steering no longer became possible and on further investigation by the Master, the rudder plating on the port side was also found partly broken away. A test was carried out on the steering gear and whilst the rudder stock and upper casting piece moved at the direction of the steering wheel, the bulk of the rudder was very little influenced by this action.

Tug assistance was therefore requested - but later cancelled.

On the 20th February, the rudder had broken away below the upper casting of the rudder and was missing (see photographs) and emergency repairs were carried out by lashing Suez Canal doors to the upper casting piece, windsails and awnings were used on the foremast stay and vent' cowls and oil drums were lowered into the sea at the after end as required, in order to give drag port on starb' as required. The vessel was also trimmed by the head or the stern as desired, in order to give more or less hull plating exposed to the wind. This arrangement, it was stated, proved fairly helpful in the management of direction, which led to decision to cancel the tugs previously requested. During this time wind forces of an average of some 6 are recorded in the Log.

February 22nd, two tugs were dispatched from Palermo, as the vessel neared the coast in the vicinity of Palermo and the vessel arrived later the same day.

The vessel was dry docked on the 23rd February, and the following found and repairs recommended without prejudice to the terms and conditions of insurance.

FOUNDRECOMMENDED

- | | |
|---|--|
| (1) The upper casting piece of the rudder securely attached to the rudder stock by undisturbed coupling bolts. | Dismantle stock from steering gear remove to shop for alignment check. |
| (2) Lower pintle 'Micarta' bush in the sternframe skeg, broken and partly missing. | Remove bush and cage and renew both. |
| (3) Upper rudder pintle secure in the sternframe gudgeon. | Remove upper pintle and renew. |
| (4) Rudder missing from the upper casting but small part of the side plating still attached. Casting projection piece broken. | Renew rudder complete in accordance with the approved builders plans. Upper and lower rough casting pieces supplied by Owners. |

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- (5) Retaining ring for the lower pintle still intact. (Shipped air freight from U.S.A.)
 Test for tightness on completion.
 Renew coupling bolts.
- (6) Propeller and fastenings all good. Remove and renew.
- (7) Check alignment of sternframe from carrier to lower skeg.
- (8) Slight misalignment of the sternframe upper pintle gudgeon. Build up by electric welding and bore out true.

The fact that the retaining ring, mentioned in the item (5) was still in place, disproved a theory that the loss of the rudder had been brought about by the disappearance of the lower pintle. The rudder is constructed with the lower pintle secured to the rudder and hangs vertically in the skeg bush. Had the lower retaining ring attached to the under side of the skeg been missing, a slack pintle could have passed through the bush and been lost and the cause of the damage would have reached a satisfactory conclusion.

The Owners claim, that the cause of the damage is on account of heavy weather encountered on the previous loaded voyage to the Isle of Grain and subsequent bad weather up till the loss of the rudder.

Two possible alternative causes could have been :-

- (a) Contact with discharging berth pier on arrival or departure from the Isle of Grain, or grounding in mud or sand by the stern.
- (b) Contact with unknown object.

The Master of the vessel disproves (a) but with regard to (b) it is recorded in the Log Book that : "a stroke was heard in the Engine Room" on the 15th February, the day after leaving the Isle of Grain.

The casting vertical projection piece referred to in item (4) above, is that part of the casting which connects up with a vertical 'H' section steel girder passing through the rudder, also connecting with the lower pintle casting in the same way. The connections are welded in both cases.

The 'stroke' which was reported to have been heard could have been the noise made by the breaking of the upper cast piece of the Rudder. Assuming this to be so, the strain would then have been transferred to the rudder side plating

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(in this case, the starboard side with a tendency for port helm) and it would only be a question of time before the rudder starboard side plating failed, followed by the failure of the port side plating.

It was stated that the steering became increasingly difficult and it was found necessary to give more port helm up to the time when the rudder was lost.

At Palermo, in order to check alignment, a line was passed from the centre position of the carrier, through the sternframe top gudgeon and thence to the skeg bore centre. It was found that no undue malalignment existed which could possibly be sufficient to impose a stress necessary to break the casting, in fact the misalignment at the sternframe top gudgeon was estimated to be no more than 3 m/m. in the fore and aft direction.

With regard to the condition of the associated parts of the steering gear when examined, the following was found and repairs recommended :-

FOUNDRECOMMENDEDCARRIER BEARING ASSEMBLY

- | | |
|---|--|
| (9) Gland and carrier bush considerably worn and scored on one side for about 2/3 circumference. | Renew gland and carrier bush. |
| (10) Corresponding rough marks found on rudder stock. | Skim up the rudder stock in lathe. |
| <u>NOTE</u> The above score marks positioned about 45° aft to starb' from the transverse centre line. | |
| (11) Main tiller guide surfaces extremely rough on the starb' side only. | Machine main tiller guides surfaces. |
| (12) Tiller bronze slipper bushes extremely rough starb' side only. Also the bores scored. | Renew tiller slipper bushes. |
| (13) Ram crosshead pins scored. | Skim in lathe and make good. |
| (14) Thrust and carrier rough over full bearing surface. | Renew bronze thrust plate in two halves.
Skim carrier face. |

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FOUND

RECOMMENDED

HYDRAULIC STEERING PUMPS
AND MOTORS

- (15) Starb' pump unit :-
- (16) Radial pump axle ball race, at coupling end slack and journal scored in way of bearing races. Machine axle journal and shrink fit a steel sleeve, ground afterwards to suit new ball race. New ball race supplied by vessel.
- (17) Radial plungers and cylinders slightly scored. Clean and reinstall.
- (18) Radial pump axle ball race, opposite to coupling defective. Renew ball race.
- (19) Renew motor ball races. New spares supplied by Owners.
- (20) In view of the defects found to the starb' pump unit, the port unit was recommended to be opened and similar repairs as above carried out.
- (21) On completion of rudder and steering gear repairs, test and prove in good working order.

DECK FITTINGS :-

- (22) One section of steam pipe to windlass fractured. Renew pipe.
- (23) Crosshead guards missing port and starb' cylinders, also intermediate gear wheel guards. Renew.
- (24) Pipe guard, 4' x 10' missing together with supports, clip and fastening devices. Renew.



- (25) Forward catwalk steam pipe lagging partly missing. Renew as necessary.
Approx. 125 feet by 3" to 6" diameter, various sizes pipe.
- (26) On forward deck one section main steam pipe 4" x 15 feet fractured at welded flange connections. Disconnect from catwalk clips, repair defect, test, prove tight and reinstall complete with new lagging.
- (27) Port cargo deck winch on forecastle deck, one section 2' x 4' of steam pipe guard missing and deck clips bent. Renew guard and make good clips.
Resecure in good order.
- (28) Boat deck to bridge deck scupper drain pipe 2" x 9' port side missing together with bracket and clips. Renew scupper pipe and securing device.
- (29) Starboard bridge lifeboat light, reflector missing. Renew reflector.
- (30) Main condenser inlet, lower sea suction strainer 4½" x 6½" x ¾" missing complete with studs and fastening device. Renew strainer and fastening device as original.
- (31) Auxiliary condenser, inlet sea suction strainer 3½" x 4½" x ¾" missing together with studs and fastening devices. Renew strainer and fastening devices as original.
- (32) Clean and coat all new and disturbed works.
- CARGO TANKS :-
- (33) Minor bulkhead fractures between centre tanks Nos. 6, 7, 8, and 9. Vee out and weld.

Damage subsequent to loss of Rudder.

Anchor windlass :-

- (34) Both port and starb' windlass brake bands worn. Renew brake lining.



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- (35) Two 30" cowls used to assist in steering vessel as brake, damaged beyond use. Renew.
- (36) Two Suez tonnage doors from foc's'le head, rigged and temporary bolted to remaining rudder casting as jury rudder, bent and distorted. Fair, renew rollers and hinges and reinstall in place as original.

The foregoing recommendations were made with a view of placing the hull and fittings in the same good condition as before the alleged casualty occurred and all repairs have been satisfactorily completed during the vessel's stay at this port from the 23rd February, until the 21st March, 1956.

The vessel was dry docked on the 23rd February, 1956, and undocked on the 25th February, 1956.

She was subsequently re-docked on the 16th March, for fitting of the rudder, and floating on the 19th March, 1956.

The vessel left the port on the 21st March, 1956.

The repairs were entrusted by the Owners to Messrs. Cantieri Navali Riuniti of Palermo.

The cost of the repairs now carried out, in accordance to accounts presented by the Owners' Representative amounted to :

Lire : 24.339.294.=

including general expenses which is considered reasonable for the work performed.

Scrap Material :-

The old rudder upper steel casting piece together with the old pintle fitted with a brass liner and nut are deposited at the yard of Messrs. Cantieri Navali Riuniti of Palermo, awaiting disposal.

In further consideration of the causes of the loss of the rudder and referring to the rudder upper casting (see sketch) the fracture of the vertical projection piece would appear to have initiated on the starb' side (as indicated in blue) and had the appearance of having for some time existed previous to the final failure whilst the remainder of the fracture (red) is considered to be of recent origin (smooth on the forward edge but rough and ragged on the after edge).

Continuation Rpt. N° _____ on the S/S. "KUWAIT"

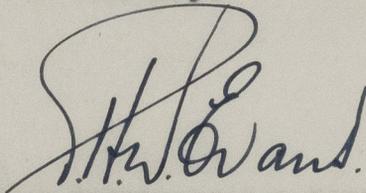
The internal surfaces of the rudder casting were well coated with a heavy protective film of oxidised asphalt and were not corroded.

No evidence of discolouration of the grain of the final secondary fracture existed to denote that same was of a propagating nature but rather that fracture was instantaneous when it occurred.

To recapitulate the sequence of events leading up to the loss of the rudder :-

- (1) 15th February, noise heard in Engine Room.
- (2) 15th February, investigation of rudder by Master when part starb'side plating was found missing.
- (3) Steering becoming increasingly difficult.
- (4) 19th February, unable to steer. Port side plating broken.
- (5) 20th February, rudder found missing.

The cause of the damage could, in my opinion, and from the information obtained, be due to heavy weather, as claimed, and, in this respect, it is possible that the rudder side plating developed initial defects as a result of heavy weather stated to have been encountered during the loaded voyage from Mena Al Ahamadi to the Isle of Grain from 3rd Feb. to 12th Feb. 1956, and that the condition of the Rudder plating and structure became progressively worse during the subsequent voyage Isle of Grain - Palermo until the final failure reported by the Master on the 15th February at which time the upper casting of the rudder probably fractured completely with the subsequent loss of the rudder below the upper casting which it is stated occurred on the 20th February.



Surveyor to Lloyd's Register of Shipping
P A L E R M O

FEE and EXPENSES £. 77. 0.0



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