

COPY

# LLOYD'S REGISTER OF SHIPPING

UNITED WITH THE BRITISH CORPORATION REGISTER

A/c No. 3734



Port of HONG KONG,

24th April, 1958.

This is to Certify that

J. MOAR

the undersigned Surveyor to this Society did at the request of Messrs. Gilman & Co., Ltd., Lloyd's Agents, Hong Kong, attend on board the M.S. "BLYTH TRADER", 6743 tons gross, of London, whilst afloat at this port, on the 22nd April, 1957, for the purpose of ascertaining the nature and extent of Damage (No.1) alleged to have been sustained to the port & starboard main engines through one of the port main engine HP compressor coils parting at the coil header on the 6th February, 1957, on voyage Singapore to Kaimaishi.

Also stated the part leakage of the blast air into the SW circulating system, caused the port main engine compressor jacket safety disc to burst, and the SW cooling pipe line to the port main engine cylinders, situated at the back of this engine, parted or pulled out of the expansion gland, this having the effect of starving both engines of jacket cooling water, the system being cross connected between both engines, causing overheating of the port & starboard main engine cylinders.

The blast air cross connection was also open, which allowed the starboard engine to partly supply the port main engine with blast air, both engines then running on reduced blast, causing further overheating of cylinders.

An extension on the port main engine compressor safety disc, which forms a hand operated lever quick shutoff valve was operated, causing a sudden re-entry of cold cooling water through all engine cylinders and pistons.

The following are extracts from the vessel's log book of engine failures, after the above casualty, and including same.

Vessel left Singapore on the 6th February, 1957, for Kaimaishi, and on that day one of the port main engine HP compressor coils parted at the coil heater, the engine was stopped and the coil blanked off.

Engine restarted on the 7th February, 1957.

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



On the 8th February, the port main engine No.6 cylinder head cracked, the engine was stopped and this cylinder was blanked off and the engine restarted on that day. Arrived at Kaimaishi on the 18th February, and the port main engine No.6 cylinder head was repaired.

Vessel left Kaimaishi on the 26th February, arrived at Yokohama on the 27th February, and left for Sydney on the 28th February, and on that day the starboard main engine No.2 cylinder head fractured at the exhaust pocket, the engine was stopped, cylinder blanked off and engine restarted.

On the 12th March, the port main engine supercharger blower stopped, main engine was changed over to natural air.

Vessel arrived at Sydney on the 15th March, whilst there the starboard main engine cylinder head and the defective coil were repaired, but the coil not fitted.

Vessel left Sydney on the 21st March, and on the 23rd March, various happenings occurred to the starboard main engine, the engine was stopped and found the supercharger valve spindle and in a closed position with possible damage through water and at the No.2 cylinder, water pouring down internally from cylinder and exhaust manifold. Before stopping a knock was heard in the No.6 cylinder crankcase and main drive chain chattering. Upon removal of crank case doors of this engine, it was stated upon examination the following found and repairs effected:-

The crankshaft centre coupling open 40/1000 inches and a twist at coupling flanges, the coupling bolts were hardened up.

The No.6 cylinder crankshaft after web balance weights found slack, steel wedges were driven in between the faces of the balance weights.

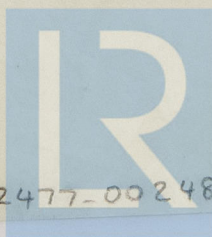
The supercharger blower was disconnected and engine put on natural air.

Starboard main engine restarted on the 24th March, and on the 26th March, the domestic refrigerating machine crankshaft broke, the vessel was deviated into Rabaul and arrived on the 29th March.

Vessel left Rabaul on the 29th March, and on the 30th March, the port main engine No.6 cylinder head fractured, the engine was stopped and this cylinder blanked off. On the 3rd April, No.1 & 5 fuel valves of the port main engine burnt out and replaced.

On the 6th April a leaking starting air valve changed. Vessel arrived Kobe on the 8th April, where the machinery was examined:- Refer to Damage Report No.L.A.39751 Kobe dated 4th May, 1957.

Vessel left Amagasaki on the 15th April for Hong Kong where the Owners decided to have all repairs attended to.



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On the 16th April, the starboard main engine No.1 cylinder head fractured, the cylinder was blanked off. Also on the 16th April, the port main engine No.4 cylinder exhaust valve head broke and dropped into the cylinder, the engine was stopped and all head valves changed, started engine and fuel valve burnt out on this cylinder, this cylinder was blanked off.

Vessel arrived Hong Kong with four of the cylinders on each engine (6 cylinders each engine) in a workable condition, but unable to go astern.

The undersigned after a preliminary examination, found that overheating had taken place, distortion of both supercharger blower casings of the waste gas side of turbine, silencer casings and in way of these casings, funnel paint burnt off completely.

Upon examination with machinery opened out.

#### FOUND

1. The starboard main engine forward section of the main crankshaft at the after journal running eccentric 300/1000", and the after crank web of the No.3 cylinder crank pin had moved on this pin. Also the centre coupling of the crankshaft out of alignment and all the coupling bolts slack in their holes.

The starboard No.6 cylinder after crank web balance weight as stated temporary repaired by steel wedges.

Port & starboard main engine cylinder heads (11) cracked or fractured.

Main engine piston heads (3) cranked.

Port main engine supercharger blower turbine bearing metal run out.  
Turbo casing at the waste gas end distorted.

#### RECOMMENDED

The starboard main crankshaft deflections and oscillations to record. No.3 cylinder crank pin of the main crankshaft to be renewed.

(This incurred the removal of the air compressor engine No.1, 2 & 3 cylinders complete with entablatures and main chain drive gear and casings etc. to ships deck.)

The forward section of the main crankshaft removed ashore to workshop, new crank pin to forge (tested material) machine and fit by shrinking and machinery all (4) journals and remetalting all (4) main bearings. Machining of the main crankshaft centre coupling holes and renewing all (8) coupling bolts.

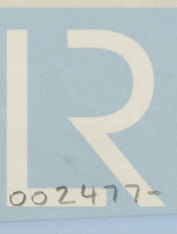
All crankshaft balance weights to test.  
Studs (2) in the No.6 to be renewed.

To be repaired.

To be renewed.

Shaft to test for truth.  
Rotor bearings to be remetalled.  
Casing to machine and fit.

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FOUND

Starboard main engine super-charger blower change valve pins broken.

Turbo casing at the waste gas end distorted.

Domestic refrigerating machine crank shaft broken.

RECOMMENDED

Change valve to be refitted.

Casing to machine and fit.

To be renewed.

The damage found is in the opinion of the undersigned could be consistent with the cause alleged, overheating of the cylinders etc. had taken place, the period that the engines had run under these conditions is unknown, also the time period after, when the compressor jacket disc burst, that the quick shut off lever valve was operated, allowing the cooling water to recirculate the engine jackets. The twisting of the crank shaft at No.3 crank pin when water entered No.2 cylinder.

Repairs were carried by the Hongkong & Whampoa Dock Co., Ltd. and the cost Hong Kong Dollars Three Hundred and Eighty-Nine Thousand, Eight Hundred and Eighty-Seven and Cents Thirty only (HK\$389,887.30) is considered fair and reasonable.

This cost does not include 3 main engine piston heads supplied by Owners, or damage to domestic refrigerating crankshaft.

The cost includes

Repairs	HK\$387,127.30
Cleaning of the L.O. D.B. Tank	1,600.00
Transferring of L.O.	160.00
Salt water for domestic use	<u>1,000.00</u>
Total	<u><u>HK\$389,887.30</u></u>

Repairs were commenced on the 22nd April, 1957 and completed to the satisfaction of the undersigned on 13th September, 1957.

Damage (No. 2)

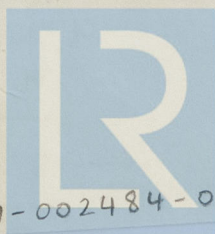
Stated caused through continuation of the main engine lubricating oil, indicating sabotage, time unknown.

After completion of Damage (No. 1), vessel lay at anchorage and on the 22nd September, 1957, vessel encountered typhoon "Glory" and was got under way for 6 hours strenuous running, with behaviour of machinery satisfactory.

It was after this that it is stated that owing to an idle period the Owners Representative decided further adjust the port & starboard main engine bearing clearances.

On the 25th October, the vessel drydocked for periodical Docking Survey.

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On the 5th November after satisfactory alongside trials, sea trials were carried out, during which the starboard main engine No.5 bottom end ran hot and the starboard No.5, 6 & 7 main bearings wiped and upon opening out of these items, grit was found loose on the metal.

Vessel was taken back into port.

The undersigned recommended the end doors being removed from crankpins and journals, and the internal passages were examined in the crankshaft of both engines, and found the internal walls of the passages covered with a layer of gritty grease, approx. 1/16" thick. Recommended pipes in the lubricating oil system were removed and examined internally and found internally a thin layer of hard scale adhering below the soft greasy layer.

From this examination the undersigned

#### RECOMMENDED

#### FOUND

Lubricating system internally in a bad condition and in bottoms of the D.B. lub. oil sump tanks, thrust blocks and lub. oil coolers was found a layer of greasy gritty sludge. Starboard M.E. No.6 piston internally, with a soft salty wafer scale adhering to the crown. All other pistons clean internally.

All the lubricating oil system to both main engines to be opened out and cleaned. (This incurred approx. 300 pipes, the larger ones cleaned by steam jets and hammering externally, and the smaller ones by pickling). To open out and clean - Lubricating oil double bottom tanks. Port & starboard M.E. thrust blocks. Both lubricating oil coolers and filters and pumps. Port & starboard M.E. crankcases. Port & starboard crankshaft bearings and oil passages and including port & starboard. Supercharger blower bearings. For internally examination - Starboard M.E. Nos.1 & 6 pistons. Port M.E. No.3, 4 & 6 pistons (oil cooled).

Upon completion of these recommendations, the lubricating oil from the system was circulated through the oil purifiers to satisfactory results, then circulated through the main system by passing the crankshafts, at all outlets muslin cloth was fitted and also in the filters until satisfactory results.

On the 29th November, alongside dock trials were carried out, when the port M.E. No.6 bottom end bearing ran hot and the starboard M.E. No.5 bottom end bearing ran warm, both lubricating oil pump thrusts ran out, these bearings were adjusted and the thrust pads (8) reinstalled.

On the 2nd December, alongside dock trials were satisfactory and vessel proceeded on sea trials during which the starboard M.E. No.5 bottom end bearing warmed up and the port M.E. No.2 bottom end bearing ran hot.

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When opened out, black loose gretty matter was found in the oil ways and the bearing surface block. Upon examination of the lubricating oil filters, the extra cloth filtering media was found free from grit; the internal passages of the crankshaft when opened out was again slightly gritty.

Part of both main engine top end bearings were examined which suggested a further examination and cleaning of the major part of both engines from which was found very small grit content at bottom of sump tank and thrust blocks of the main engines. The lubricating oil again circulated through the efficient purifiers and then again through the main system, discharging through muslin cloth before entering the engines with good results. It was then recommended that all the main engine bearings of both engines to have their clearances increased by 4/1000" liners.

On the 16th December, dock side trials were carried out satisfactory and the vessel proceeded on sea trials, first under light load condition up to full speed, and during this period indicator cards were taken off each cylinder, this being the first time that it was possible since the engines previously, had never run long enough or at a speed to show results. Results of these cards showed uneven loading, and it was found that where overheating had taken place, the cylinders of these bearings were over loaded, both engine cylinders were balanced and during the 4 hour trials all parts ran satisfactory.

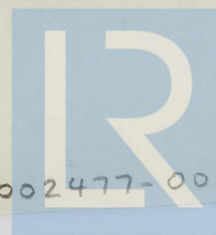
It is the opinion of the undersigned that the internal condition of the lubricating system had developed over a long period, that the statement, sighted, where on the previous voyage, due to running short of lubricating oil, salt water was used as a make up, advanced this condition, although at the Damage (No. 1) repairs no signs of bearing trouble was noted.

That the long period whilst repairs were being done for this damage also advanced this condition.

On the second opening up of the bearing, the plugs for the drilling of the oil passages through the crank webs were removed, these passages which are not used for the oil, otherwise blank ends, were partly full with this gritty wax, which could only have got into this condition over a long period. The Owners requested the commissioner of Police with the assistance of the Hong Kong Marine Department to investigate the case due to sabotage, which stated, brought no results.

It is the opinion of the undersigned that during the period when the vessel was laid up between the two damage, when stated that both main engine bearings were further adjusted by making the bearing clearances finer, together with the uneven loading conditions through the cylinders, and still presence of slight iron scale due to the oil surging effect through the pipes or passages could be the cause of damage.

Repairs were carried out by the Hongkong & Whampoa Dock Co., Ltd. and the cost Hong Kong Dollars Ninety Five Thousand Nine Hundred and Seventy only (HK\$95,970.00) is considered fair and reasonable.



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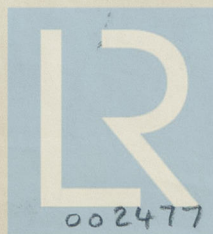
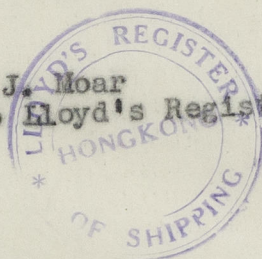
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Repairs were commenced on the 5th November, 1957  
and completed to the satisfaction of the undersigned on the  
16th December, 1957.

(Signed) J. Moar  
Surveyor to Lloyd's Register.



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