

C O P Y

Lloyd's Register of Shipping.



Port Kobe.

26th June 1940.

This is to Certify that

A. R. Riddell & Y. Hamada,

the undersigned Surveyor to this Society did at the request of Messrs. Osaka Syosen Kaisya, Ltd., survey without prejudice the T.M.S. "RIO DE JANEIRO MARU",

9627 tons gross, of Osaka,

on the 29th September 1939 and subsequently whilst the vessel lay afloat and in dry dock at Kobe, for the purpose of ascertaining the nature and extent of damage stated to have been caused by collision with the M.S. "KAGU MARU" on the 4th September 1939, during a dense fog in the Pacific Ocean, about 1840 miles from Yokohama whilst on a voyage from Yokohama to Los Angeles,

For further particulars see Log Books.

As a result of the collision, the Engine Room was flooded and all main and auxiliary power for Engines, pumps, etc., submerged. The vessel was taken in tow, using the ship's cables and towing wires, by the M.S. "Kagu Maru" later assisted by a salvage vessel and arrived at Kobe on the morning of the 23rd September 1939, with 18 feet of water in the Engine Room due to fractured shell plating between frames Nos. 79 to 84 on the port side of the Engine Room. A diver was sent down during that day

(Continued).

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(2)

M.S. "RIO DE JANEIRO MARU".

Kobe, 26th June 1940.

and plugged up the leaking plating whilst a salvage pump was rigged up on the Engine Room top platform. By the afternoon of the 24th, the water level in the Engine Room had been lowered to just over the double bottom tank top and small cement boxes were fitted, as necessary, to make the damaged plating water-tight. On the afternoon of the 23rd, discharge of the ship's cargo was commenced, power for driving the winches being supplied by the M.S. "KANTO MARU", and discharge was completed on the afternoon of the 27th September 1939.

From the 24th to the 28th the ship's hands were employed in general wiping down and cleaning. Temporary lighting power being supplied from shore.

The vessel was placed in Messrs. Mitsubishi Jukogyo Kaisha, Ltd., Kobe, floating dock from the 3rd October to 11th October for the purpose of making a preliminary examination for the damaged plating below the water-line and for effecting temporary repairs to the fractured shell plating by welding temporary plate patches over fractured shell plating and welding and caulking and making rivets and seams.

Upon examination it was found that the damage to the hull extends from the boat deck down to the upper lap of the turn of the large plating.

The collision damage is confined to the port side, in way of the Engine Room and to several shell plates in way of No.5 hold upper tween deck steerage accommodation.



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"RIO DE JANEIRO MARU",

Kobe, 26th June 1940.

HULL DEPARTMENT

FOUND

RECOMMENDED

Extension damage in way of Engine Room and Decks:-

DAMAGE:-

plates numbered from Forward:-

1 & 13 plates in upper deck strake, slightly set in.	To be faired in place.
1 plate in upper deck sheer strake, buckled and broken.	To be renewed.
1 plate in 1st strake below deck sheer strake, buckled broken.	To be renewed.
1 plate in 1st strake below deck sheer strake, slightly set in.	To be faired in place.
1 plate in 2nd strake below deck sheer strake, badly buckled.	To be renewed.
1 plate in 2nd strake below deck sheer strake, buckled.	To be faired in place.
1 plate in 3rd strake below deck sheer strake, buckled broken.	To be renewed.
1 plate in 3rd strake below deck sheer strake, buckled.	To be faired in place.
1 plate in 4th strake below deck sheer strake, badly buckled.	To be renewed.
1 plate in 5th strake below deck sheer strake, badly buckled and broken.	To be renewed.
10 & 11 plates in 6th strake upper deck sheer strake, slightly set in.	To be faired in place.

Frames:- (numbered from Aft):-

frame, No.78, set in.

To be part removed, faired and refitted with butt strap.

frames, Nos.79, 81 & 82, in.

To be removed, faired & refitted.

(continued).

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"RIO DE JANEIRO MARU",

Kobe, 26th June 1940.

FOUND

RECOMMENDED

- (Cont.).

me on frame No.80, badly
l.

Main frame and face angle to be removed, faired and refitted and 2 web plates to be renewed. (12'-9" x 2'-0" x $\frac{1}{8}$ " and 9'-11" x 5'-0" x $\frac{1}{8}$ ").

ide brackets at frames
and 81, buckled.

To be removed, faired & refitted.

deck frames, Nos.81, 82 &
buckled.

To be removed, faired & refitted.

accommodation ladder complete
fittings, lost overboard.

To be renewed.

brackets and lashing rings
owing accommodation
bent, broken and lost.

To be renewed.

Line Room:-

and
pump/dynamo circulating
overboard discharge
started.

To be removed, overhauled and refitted.

el filling pipe deck piece
piece, broken.

To be renewed.

et of air pipes to Nos.4 &
le bottom tanks, broken.

To be renewed.

g pipe for cylinder oil
broken and deck cap
ed.

Pipe to be renewed and cap to be repaired.

et of sanitary water
arge pipe, broken.

To be renewed.

length (12 feet) of sea
on pipe, broken.

To be renewed.

telegraphs and connection
rt and starboard main
es damaged by sea water and
uel.

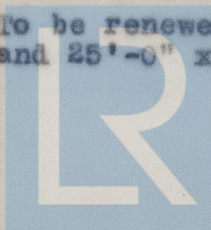
To be cleaned, overhauled and adjusted.

Structure and Deck Damage:-

Deck:-

urtain plates, badly
ed and torn.

To be renewed. (26'-7" x 1'-7" x $\frac{3}{8}$ " and 25'-0" x 1'-7" x $\frac{3}{8}$ ").



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T.M.S. "RIO DE JANEIRO MARU"

Kobe, 26th June 1940.

FOUNDRECOMMENDEDBoat Deck:- (Cont.)

One stringer plate, badly buckled and torn.	To be renewed. (25'-5" x 4' - 1" x $\frac{3}{8}$ ").
One stringer plate, buckled.	To be removed, faired & refitted.
Two stringer plates, slightly buckled at ends.	To be faired in place.
44 feet 6 inches of stringer angles, badly buckled & torn.	To be renewed.
45 feet 9 inches of gutter angles, buckled.	To be removed, faired & refitted.
Two deck plates, in way of above, buckled.	To be removed, faired & refitted.
One deck plate, slightly buckled at end.	To be faired in place.
Two doubling plates on stringer and deck plates, buckled.	To be removed, faired & refitted.
One web deck beam, buckled.	To be removed, faired & refitted and partly renewed.
Four beams, badly buckled.	To be partly renewed with butt straps.
Seven beams, buckled.	To be partly removed, faired and refitted with butt straps.
Four beam brackets, buckled.	To be renewed.
One beam bracket, buckled.	To be removed, faired & refitted.
Six double angles connecting beams to curtain plate, buckled slightly.	To be removed, faired & refitted.
One single angle on web beam connecting beam to curtain plate, buckled slightly.	To be removed, faired & refitted.
Deck planking, broken & damaged.	1500 feet of deck planking to be renewed.
Gutterway cement, broken.	To be renewed.
Two lifeboats complete with fittings, lost overboard.	To be renewed.
Four boat davits for the above, bent and strained.	To be overhauled and repaired.

(continued).

M.S. "RIO DE JANEIRO MARU",

Kobe, 26th June 1940.

FOUNDRECOMMENDEDBoat Deck:- (Cont.)

Caulking of 4 lifeboats, started & several side planks of two of these lifeboats, broken.

Four lifeboats to be repaired as necessary.

Lifeboat chocks on port side of boat deck, damaged and started from deck.

To be repaired and refitted.

50 feet of wash deck service pipes, buckled and broken.

To be renewed.

Bridge Deck:-

Two curtain plates, badly buckled and torn.

To be renewed. (26'-3" x 1'-6" x $\frac{1}{2}$ " and 20'-0" x 1'-6" x $\frac{1}{2}$ ").

Three deck stringer plates, badly buckled.

Two stringer plates to be renewed. (2 off 25'-3" x 5'-7") and one to be partly renewed. (11'-7" x 5'-7").

54 feet 6 inches of stringer angle & 62 feet 3 inches of gutter angle, badly bent and buckled.

To be renewed.

Two deck plates, buckled.

One deck plate to be partly renewed & one deck plate to be faired in place.

One web deck beam, buckled.

To be partly removed, faired and refitted and partly renewed.

Three deck beams, badly buckled.

To be partly renewed with butt straps. (7' - 8").

Eight deck beams, buckled.

To be partly removed, faired and refitted.

Two beam brackets, badly buckled.

To be renewed.

Three beam brackets, buckled.

To be removed, faired & refitted.

Seven angle pieces connecting beams to curtain plate, buckled.

Three to be renewed and four to be removed, faired and refitted.

Fashion plate, slightly buckled.

To be faired in place.

Three bulwark plates, badly buckled and torn.

To be renewed. (one 20'-7" x 3'-2" x $\frac{3}{8}$ " and two 20'-0" & 15'-8" x 3'-2" x $\frac{5}{16}$ ").

Five top rail angles, buckled.

To be removed, faired & refitted.

43 feet of wood guard rail on top rail angles, smashed.

To be renewed.

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"RIO DE JANEIRO MARU",

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RECOMMENDED

Bridge Deck:- (Cont.)

Eight bulwark angle stanchions, badly buckled.

Seven to be renewed and one to be removed, faired and refitted.

Six deck side "T" angle stanchions, buckled.

Four to be renewed and two to be removed, faired and refitted. ($\frac{1}{2}$ " x 5" x 5" x 7'-4").

One vertical tie plate connecting curtain plate to upper deck bulwark, badly buckled and torn.

To be renewed.

Deck planking, broken & damaged.

1300 feet to be renewed.

10 feet of wash deck service pipes, broken and buckled.

To be renewed.

Three scupper pipes from boat deck, broken.

To be renewed.

Butterway cement, broken.

To be renewed.

Upper Deck:-

One deck stringer plate, buckled.

To be partly renewed and partly faired in place.

21 feet 8 inches of stringer angle and 12 feet 1 inch of gutter angle, badly buckled.

To be renewed.

16 feet 9 inches of stringer angle, slightly buckled.

To be removed, faired & refitted.

Three deck beams, buckled.

One to be partly renewed and two to be part-removed, faired and refitted all with butt straps.

Three beam brackets, badly buckled.

To be renewed.

Fashion plate, with half round bar, buckled.

To be partly renewed.

Three bulwark plates, buckled and torn.

Two plates to be renewed. (25'-3" x 4'-0" x $\frac{1}{2}$ " and 25'-0" x 4'-0" x $\frac{1}{2}$ "), and one to be faired in place.

Five bulwark angle stanchions, buckled.

To be renewed.

Five 8 feet 2 inches lengths of bulb angle top rail, buckled.

One length to be renewed and four lengths to be removed, faired and refitted.

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"S.S. "RIO DE JANEIRO MARU",

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FOUND

RECOMMENDED

deck side "T" angle stanchions, buckled and broken.	To be renewed. ($\frac{1}{2}$ " x 5" x 5" x 7'-2").
vertical tie plate connecting certain plate to bridge deck bulwark, badly buckled and torn.	To be renewed.
feet of wooden storm hand rails, broken and damaged.	To be renewed.
feet of deck planking, broken and damaged.	To be renewed.
feet of wash deck service pipes, broken and buckled.	To be renewed.
deck scupper pipes, broken.	To be renewed.
terway cement, broken.	To be renewed.
bonnet caps on air pipes to oil tank and ballast tanks, broken.	To be renewed.
steel protecting covers for oil pipes, buckled.	To be repaired.
ship side "T" piece for oil fuel filling line, smashed.	To be renewed.
small davit for oil fuel filling pipes, badly buckled and bent.	To be renewed.
ship side wood panelling in seven bins for ship's staff use, badly damaged.	To be renewed.
<u>Second deck:-</u>	
stringer deck plate, buckled.	To be renewed, (8'-7" x 4'-5") and partly faired in place.
feet six inches of stringer plate, buckled.	2 feet 4 inches of angles to be renewed and 9 feet 2 inches to be removed, faired and refitted.
shell angles, buckled.	To be renewed.
deck beams, slightly buckled.	To be faired in place.
beam brackets, buckled.	Two to be faired in place and One to be removed, faired and refitted.
ment in stringer chocks, broken.	To be renewed.
side scuttles, broken.	To be renewed.

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"R" 23. "RIO DE JANEIRO MARU",

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FOUND

RECOMMENDED

<p>goose neck ventilators for accommodation, broken.</p> <p>side scuttle glasses, cracked.</p> <p>basin stand, lockers, table</p> <p>hotwater boiler, damaged and</p> <p>corrupted.</p> <p>feels, lockers, drawers and wood</p> <p>gaming in 1 cooks room and 2 boys</p> <p>s, broken and or damaged by</p> <p>and oil fuel.</p> <p><u>Deck:-</u></p> <p>deck stringer plate, buckled.</p> <p>ly.</p> <p>shell angles, buckled.</p> <p>et 7 inches of stringer angle,</p> <p>led.</p> <p>deck beams, slightly buckled.</p> <p>beam brackets, buckled.</p> <p>ision damage in way of No.5 Hold, upper tween deck,</p> <p>side, Steerage Accommodation:-</p> <p><u>Plates numbered from Aft:-</u></p> <p>plate in upper deck sheer</p> <p>ake, slightly set in.</p> <p>& 5 plates in upper deck</p> <p>teer strake, set in.</p> <p>plate in 1st strake below</p> <p>deck sheer strake, set in.</p> <p>plate in 1st strake below</p> <p>deck sheer strake, slightly</p> <p>in.</p> <p>frames, set in.</p> <p>frames, slightly set in.</p> <p>frames, slightly buckled.</p> <p>eam brackets, buckled.</p>	<p>To be renewed.</p> <p>Four glasses to be renewed.</p> <p>To be repaired and to be refitted as necessary.</p> <p>To be renewed.</p> <p>To be partly renewed. (8'-0" x 2'-3").</p> <p>To be renewed.</p> <p>To be partly removed, faired and refitted.</p> <p>To be faired in place.</p> <p>Two to be renewed, one to be removed, faired and refitted and one to be faired in place.</p> <p>To be faired in place.</p> <p>To be removed, faired & refitted.</p> <p>To be removed, faired & refitted.</p> <p>To be faired in place.</p> <p>To be partly removed, faired and refitted with butt straps.</p> <p>To be faired in place.</p> <p>To be faired in place.</p> <p>To be removed, faired & refitted.</p>
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"RIO DE JANEIRO MARU",

Kobe, 26th June 1940.

FOUND

RECOMMENDED

ion damage in way of No.5 Hold, upper tween deck,
slide, steerage Accommodation:- (Cont.).

brackets, slightly buckled. To be faired in place.

angle cement chocks, To be renewed.

scuttles, buckled. To be faired and refitted.

Essential Removals for access for Repairs:-

To effect repairs it will be necessary to remove:-

Upper Deck:-

ood panelling and room furnishings, including windows, electric
light fittings and call bells also steam heaters and piping in
first class cabins.

Lower Deck:-

room fittings, including settees, lockers etc. electric fans,
fittings and call bells also steam heaters and pipes in seven
for ship's staff use.

Mid Deck:-

electric fan and light fittings and steam heaters and pipes in
's room and 2 boys rooms.

Third Deck (In Engine Room):-

one wash basin with fresh water and drain pipes.

one spare strainer.

one fuel oil head tank and connections.

one lubricating oil tank and connections.

sanitary, wash deck and hot sea water pipes with their valves.

.4 & 5 Upper 'Tween Decks:-

steerage accommodation ship's side lining.

steam heaters and pipes.

upper pipes.

air pipes to ballast tanks.

side sparring in baggage room.



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RIO DE JANEIRO MARU".

Kobe, 26th June 1940.

It is recommended that the above removals for access in good condition and where damaged in removal they be or repaired as necessary.

It is also recommended that all new and disturbed work be put and placed in the same good condition as before removal.

FOUND

RECOMMENDED

Chambers:-

in chamber and fish chamber	slab cork insulation on floors and
to a depth of 12 inches	18 in ^s height on sides and floor
insulation on floor and sides	gratings to be renewed.
wood gratings, damaged	
and film of oil fuel.	

Brine piping and shelves in rooms to be removed for access and replaced in good order and brine piping to be tested after use.

SALVAGE DAMAGE

FOUND

RECOMMENDED

Castle:-

ing chock fairleads, and covers, lost.	To be renewed.
and bow rising chock plate, and doubling, buckled.	Plate to be renewed and doubling to be removed, faired & refitted.
rising chock plate and, slightly buckled.	To be faired in place.
ing on brake bands of, badly torn.	Brake lining to be renewed.
Starboard cable compressors, Windlass to be overhauled and repaired.	
bles ranged for examination and one stud missing and slack.	One stud to be renewed and one tightened up.
lengths of towing wire ranged and found out and	One length 5 ³ / ₄ " x 240 metres, One length 5" x 225 metres, One length 4 ¹ / ₂ " x 225 metres, and One length 4 ¹ / ₂ " x 225 metres to be renewed.

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P.M.S. "RIO DE JANEIRO MARU".

Kobe, 26th June 1940.

GENERAL RECOMMENDATION:-

All removals for access to be replaced in good order and all new and disturbed work to be coated as necessary.

The following repairs were effected due to the vessel being out of commission for the long period occupied in effecting repairs:-

- (1) All remaining wooden decks recaulked (97,621 feet), due to decks drying out.
- (2) Removing, storing in No.2 hold during repairs, and replacing 14 life-boats.
- (3) Making and fitting 2 temporary bath tubs with pipes and chimneys, in 3rd class wash place, for the use of crew remaining on board, and removing same when repairs had been completed.
- (4) Making and fitting 1 "Kamado" stove with chimney, in Japanese galley, for cooking purposes.
- (5) Making and fitting 1 "Kanteki" stove with chimney, in Japanese galley, for supplying hot water.
- (6) Overhauling, cleaning and refitting all wash deck pipes, sanitary pipes, fresh water pipes and scupper pipes.

ENGINE DEPARTMENT

Damage caused by Flooding:-

In Engine Room:-

It is stated that the Machinery Space was flooded to a depth of 18 feet over the tank top (about 15 inches below the 3rd deck) and that, during the return voyage to Japan, under tow, on several days the vessel rolled to the extent of 12°. The shaft tunnels were flooded to a depth of about 2 feet before the water

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F.M.S. "RIO DE JANEIRO MARU",

Kobe, 26th June 1940.

on fire tight door was closed. The vessel is equipped with 2 six cylinder Sulzer type 2 S.C.S.A. heavy oil engines for main propelling purposes, 2 electrically driven turbo-blowers for supplying scavenging air to the main engines, 3 six cylinder 4 S.C.S.A. heavy oil engines driving 3 - 230 K.W. generators and the usual complement of electrically driven pumps necessary for the above installation.

(1) The main switchboard is situated on the 3rd deck and is undamaged except for slight splashing during the rolling of the vessel, but

(2) an auxiliary switchboard, carrying the connections for the engine room pumps, etc., placed on the engine room floor level, was submerged.

(2) The following general recommendations were made:-

(3) Port and Starboard main engines and the three auxiliary generator engines to be opened out, cleaned and examined, both auxiliary air compressors and all pumps to be opened out, cleaned, examined and repaired as found necessary.

Nos. 1 & 2 refrigerating machines, two brine and two circulating water pumps to be opened out, cleaned, examined, and repaired as found necessary.

Double bottom lubricating oil, piston cooling water, fresh water and oil fuel tanks in way of the engine room to be cleaned and examined; L.O., and P.C. pipes and systems to and through the Main and Auxiliary Engines to be thoroughly cleaned out.

All spare "gear" attached to bulkheads and the ship sides to be removed, cleaned, examined and replaced.

All submerged electrical generators and motors to be cleaned, overhauled and field and armature coils to be rewound, controllers, starters and switches for the above to be cleaned and repaired as necessary.

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 .S.M.

Kobe, 26th June 1940.

All submerged wiring for generators, motors and lighting circuits to be renewed.

Upon opening up the machinery the following detailed recommendations were made:-

<u>FOUND</u>	<u>RECOMMENDED</u>
<u>Port and Starboard Main Engines:-</u>	
Cylinder covers with their lives, splashed.	Covers to be cleaned and valves overhauled.
Camshaft and camshaft driving gear splashed and partly submerged.	To be cleaned and polished and cam rollers to be overhauled.
Pistons and piston cooling gear submerged in sea water.	Pistons and piston cooling gear to be cleaned and overhauled.
Cylinder and liners, slightly pitted at lower ends.	To be cleaned and polished.
Top end pins of 12 crossheads, slightly pitted on lower sides.	Top end pins to be skimmed up and bearings remetaled.
Water guides and guide shoes rusted with sea water.	To be cleaned, polished & adjusted.
Connecting rods submerged in sea water.	To be cleaned and oil passages cleaned out.
<u>Port and Starboard Main Engine Driven Twin Air Compressors:-</u>	
Cylinder heads submerged in sea water.	Cylinder heads to be cleaned out, H.P., M.P. & L.P. valves to be removed, and overhauled.
Three stage pistons submerged in sea water.	To be cleaned and overhauled and new piston rings fitted.
Three stage cylinders, slightly pitted.	To be cleaned and polished.
Piston rods, slightly pitted.	To be skimmed up and gland packing to be renewed.
H.P., M.P. & L.P. intercoolers filled with sea water.	To be cleaned and overhauled as necessary.
Top end pins of 4 crossheads, pitted on under side.	To be skimmed up and bearings to be re-metaled.
Connecting rods, submerged in sea water.	To be cleaned and polished and oil passages to be cleaned out.

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S. "RIO DE JANEIRO MARU",

Kobe, 26th June 1940.

FOUND

RECOMMENDED

Port and Starboard Main Engine crankshafts, including compressor crankshafts found pitted on journals and crankpins.	To be dressed up, oil stoned and polished, all oil passages to be cleaned out, alignment checked and bearings adjusted.
Port and starboard thrust shafts, slightly pitted.	To be cleaned and polished.
Port and Starboard Intermediate shafting partly submerged and washed with sea water.	To be cleaned and polished.
Port and Starboard Main Engine fuel pumps, submerged and moving parts, slightly pitted.	To be cleaned and overhauled as necessary.
Port Main Engine cylinder and compressor cylinder lubricators, submerged and moving parts, rusted.	To be cleaned and repaired as necessary.
Revolution counters and 2 thermometers for Port and Starboard Engines, rusted up.	To be cleaned and repaired as necessary.
Port and Starboard Main Engine automatic arrangement on air purging gear, rusted up.	To be cleaned and overhauled.
Port case doors jointing saturated with sea water and fuel.	To be renewed.
Asbestos mattresses on exhaust pipes saturated with sea water and oil fuel.	72 square feet of asbestos mattress lagging to be renewed.
Port and Starboard Turbo-Blowers with valves and operating gear, washed with sea water and oil; wire diaphragm of port blower, corroded.	Blowers to be cleaned, valves and operating gear to be cleaned and overhauled and wire diaphragm of port blower to be renewed.

ACCESSORY ENGINES:-

No. 1 (Starboard) and No. 2 (Port Forward) Diesel Engines:-

Cylinder covers, valves and drive gear, rusted up.	To be cleaned and overhauled.
Shaft and camshaft driving gear, rusted up.	To be cleaned and overhauled.
Cylinder liners rusted and slightly pitted.	To be cleaned and polished.
Stones and piston rings rusted	Pistons to be cleaned and polished and piston rings be renewed.

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"RIO DE JANEIRO MARU",

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FOUNDRECOMMENDED(Starboard) and No.2 (Port Forward) Diesel Engines:- (Cont.)Connecting rods, gudgeon pins
bearings, slightly pitted.Connecting rods and gudgeon pins
to be cleaned and polished.shafts, journals and crank
pins, slightly pitted.Journals and crankpins to be
cleaned, polished, oil passages
to be cleaned out and all bearings
be adjusted.

pumps, rusted up.

To be cleaned and overhauled.

(Port Aft) Diesel Engine:-Cylinder covers, valves and valve
gear, rusted up.

To be cleaned and overhauled.

Crankshaft and camshaft driving
gears, rusted up.

To be cleaned and overhauled.

Cylinder liners, rusted and
slightly pitted and Nos.2 & 3
liners pitted and worn.Nos.1, 4, 5 & 6 liners to be
cleaned and polished and Nos.2 &
3 liners to be renewed.Crank and piston rings, rusted
and Nos.2 & 3 pistons fractured
along of piston ring grooves.Nos.1, 4, 5 & 6 pistons to be
cleaned and polished and piston
rings renewed.
Nos.2 & 3 pistons and rings to
be renewed.Connecting rods, gudgeon pins and
bearings rusted and Nos.2 & 3
connecting rods, bent.Nos.1, 4, 5 & 6 connecting rods and
gudgeon pins to be cleaned and
polished and Nos.2 & 3 connecting
rods to be renewed.Crankshaft journals and crankpins,
slightly pitted.Journals and crankpins to be
cleaned and polished, oil passages
to be cleaned out and all bearings
adjusted.

Pump, rusted up.

To be cleaned and overhauled.

No.2 & 3 Diesel Engines:-Crankcase doors jointing,
rusted.

To be renewed.

Tachometers rusted up and
driving belts rotted.Tachometers to be cleaned and
overhauled and driving belts
to be renewed.

Lubricator for cylinders, rusted up.

To be cleaned and repaired.

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"RIO DE JANEIRO MARU",

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FOUND

RECOMMENDED

2 & 3 Diesel Engines:- (Cont.).

ropes rope lagging on 9" dia.
pipes saturated with sea
and oil fuel.

80 feet of asbestos rope lagging
to be renewed.

silencers, saturated with
sea and oil fuel.

255 square feet to be renewed.

Land and Outboard Auxiliary Air Compressors:-

crankshafts, rusted up.

To be cleaned and polished and
all bearings adjusted. H.P., M.P.
and L.P. piston rings to be renewed
and H.P., M.P. & L.P. suction and
delivery valves to be cleaned and
overhauled.

ropes lagging on 45 feet of
saturated with sea water
fuel.

To be renewed.

Electric driven Emergency air Compressor:-

crankshaft and air compressor
parts, rusted up.

To be cleaned, polished and
overhauled.

The following pumps submerged in sea water to be opened out,
overhauled and leather and rubber washers on flexible
joints to be renewed:-

Two Jacket cooling water pumps.

Two piston cooling water pumps.

Two crosshead lubricating oil pumps.

Two main bearing lubricating oil pumps.

Two bilge pumps.

One fire and general service pump.

One hot salt water pump.

Two fresh water pumps.

Two oil fuel shifting pumps.

One oil fuel transfer pump.

One oil fuel transfer pump for purifier.

One oil fuel service pump.

One lubricating oil shifting pump.

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(continued).

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AC OIRIO DE JANEIRO MARU".

Kobe, 26th June 1940.

FOUND	RECOMMENDED
sanitary pump casing ken in way of suction.	To be renewed.
fuel and two lubricating fiers, submerged in sea	To be opened out, cleaned, overhauled, driving shaft ball bearings to be renewed, driving belt and rubber washers in flexible couplings to be renewed.
cooling water cooler and lubricating oil cooler, d in sea water.	To be opened out and cleaned.
lathe, drilling and tool splashed with sea water and	To be cleaned and overhauled.
boiler asbestos lagging and mats on lower side of saturated with sea water fuel.	To be renewed.
1 pumps and two oil fuel unit earth heaters, splashed.	To be cleaned and adjusted.
hand shifting pump, rusted	To be cleaned and overhauled.
steam drain tank filled water and oil fuel and eroded.	Drain tank to be cleaned and float renewed.
er pump, submerged in sea	To be opened out and cleaned.
fire extinguishing ation, submerged in sea	To be cleaned out and re-charged.
<u>Rating Machinery:-</u>	
fts of both compressor, d in sea water.	To be cleaned, polished and bearings adjusted.
pins, rusted and pitted.	To be skimmed up and brasses remetalled.
pressor piston rods, l.	To be ground up.
ne pumps and two circulating amps, submerged in sea water.	To be opened out and cleaned.
cooling water and lubricating in tanks, filled with sea	To be opened out and cleaned.
ton cooling water and ting oil pipes and connections n engines and drain tanks with sea water.	To be thoroughly cleaned out.

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M.S. "RIO DE JANEIRO MARU",

Kobe, 26th June 1940.

FOUND

RECOMMENDED

Miscellaneous Items:-

air receivers submerged or
ashed.

To be opened out and cleaned and
mountings overhauled.

Mandril for bedding in main engine top end brasses, to be
inned up to new diameter of top-end pins.

Two sets of spare top end bearings for main engine, to be
-metalled and machined to suit new diameter of pins.

Two sets of spare top end bearings for main engine air
mpressor, to be remetalled and machined to suit new diameter of pins.

Two spare sets of piston rod gland packing for main engine
r compressors, to be supplied, to suit new diameter of piston rods.

Engine Room clock, to be renewed.

Engine Room desk, to be renewed.

105 Engine Room pressure gauges, to be overhauled and tested.

4 Engine Room pressure gauges, to be renewed.

ELECTRICAL INSTALLATION

FOUND

RECOMMENDED

Electrical Installation:-

in switchboard on 2nd deck,
ashed.

To be cleaned, volt and ammeters
to be tested and damaged insulating
materials to be renewed.

iliary Marble switchboard
Engine Room bottom platform,
bmerged in sea water.

Switchboard to be renewed, ammeters,
voltmeters, circuit breakers and
switches to be repaired and
connections renewed.

ree - 230 K.W. Main Generators,
bmerged in sea water.

Generators to be cleaned and over-
hauled, field and armature coils
to be re-wound, commutators and
brush gear to be overhauled.

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S. "RIO DE JANEIRO MARU".

Kobe, 26th June 1940.

FOUND

RECOMMENDED

Following motors submerged:-

- 200 H.P. motors for auxiliary air compressors.
- 50 H.P. motors for jacket cooling water pumps.
- 48 H.P. motors for refrigerating compressors.
- 36 H.P. motor for general service pump.
- 36 H.P. motor for fire and sanitary pump.
- 28 H.P. motors for piston cooling water pumps.
- 25 H.P. motor for ballast pump.
- 24 K.W. motors for lubricating oil pumps.
- 17.5 K.W. motors for fuel oil shifting pumps.
- 16 H.P. motor for hot sanitary pump.
- 11 H.P. motors for bilge pumps.
- 10 H.P. motors for engine turning gears.
- 7.5 H.P. motors for fresh water pumps.
- 6 H.P. motors for refrigerating brine pumps.
- 5 H.P. motor for work shop motor.
- 3 H.P. motors for lubricating oil purifiers.
- 3 H.P. motors for fuel oil purifiers.
- 2 K.W. motor for fuel oil shifting pump.
- 2 K.W. motor for fuel oil daily service pump.
- 1.05 K.W. motor for fuel oil daily service pump.
- 1.05 H.P. motor for lubricating oil shifting pump.
- 1/2 H.P. motor for fresh water circulating pump.

To be cleaned, overhauled, armatures and field coils to be re-wound, commutators and brush gears to be overhauled and after repair to be tested, and starters, controllers, regulators and switches to be cleaned and repaired or re-wired.

Following motors splashed with sea water and oil fuel:-

- 245 K.W. motors of Port and Starboard turbo-blowers.
- 35 K.W. motor generators for lighting.
- 35 K.W. motors for steering gear.
- Direction indicator tell-tale transmitter for main engines.

To be cleaned, overhauled, dried, varnished, and brush gear overhauled, and afterwards tested. Starters, controllers, regulators and switches to be overhauled.

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"S. "RIO DE JANEIRO MARU".

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Wiring for the above Generators and Motors to and from
and Auxiliary Switchboards submerged. It is recommended that
various sizes and types of cables be renewed, in the same sizes
types as now installed, except for the two motor generator sets,
in cables being above the 3rd deck were undamaged.

Electric lighting wiring and fittings submerged. It is
recommended that approximately 140 lamps and fittings, 3 fuse boxes,
junction boxes and 64 switches be removed, cleaned and repaired
that the various sizes and types of cable be renewed, in same
sizes and types as now installed.

FOUND

in bells, fittings and
connections to the jacket and
on cooling water pumps,
heating oil pumps, steering
and engine telegraphs,
damaged.

and Starboard Main Engine
Fuel Gas Pyrometers and
connections, submerged.

Pyrometers for generators placed
on the pressure gauge board at
main engine control platform,
damaged.

RECOMMENDED

To be repaired and renewed as
necessary.

Pyrometers to be cleaned and
overhauled and connections renewed.

To be cleaned and repaired.

The foregoing recommendations, made in order to place the
ship in as good condition as before the damage was sustained, have
been completed to our satisfaction.

Upon completion of repairs, the shell plating and decks
were tested and found tight and the machinery was tested under
working conditions at sea on the 27th April 1940 with satisfactory
results.

Lists of stores etc. which are stated to have been lost or
damaged will be supplied by the Owners.

Expenses as per account.

Whitaker & Hamada
Surveyor to Lloyd's Register

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