

C O P Y.

LLOYD'S REGISTER OF SHIPPING.

PORT FREMANTLE. W.A.

14th June, 1943.

This is to Certify that

Wm.G. DAVIES,

the undersigned Surveyor to this Society did at the request of the Owners Representative, Survey the Steel Screw Motor Tanker "O N D I N A" of Willemstad 6341 Gross Registered Tons, for the purpose of (1) ascertaining the nature and extent of damage which is stated to have been caused by shells and torpedoes during enemy action in November 1942, while the vessel was on a voyage from Fremantle to Overseas Port, and (2) recommending necessary repairs. It is stated that, after the action, the vessel returned to Fremantle under her own power. For further particulars see Log Books.

UPON PRELIMINARY EXAMINATION with the vessel afloat in Fremantle Harbour found damage, which could be grouped into three categories namely (1) minor damages caused by shell splinters and shrapnel at numerous places generally throughout the Hull, Decks, Superstructures and Masts, (2) damage resulting from direct shell hits on Starboard Bow Plating, Starboard Hull Plating Amidships, Bridge, Masts, (3) major damage caused by torpedoes on Starboard Hull and bottom plating in way of No.2 Starboard Tank and Bulkheads of Nos. 2 & 3 Centre and Starboard Tanks which were seen to be flooded.

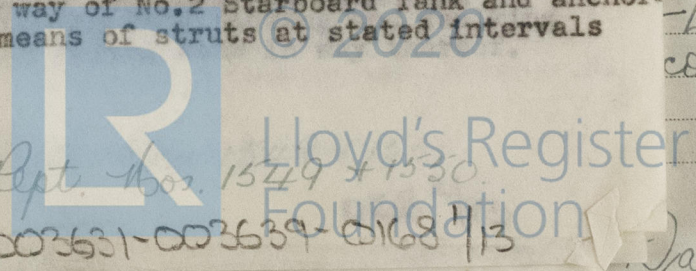
Categories Nos 1 & 2 will be merged in the following report, so that the location of each item will follow a sequence throughout the vessel, irrespective of the extent of damage. Category No.3, however, will be described separately under its own heading entitled "Major Damage".

This preliminary examination revealed such damage as to warrant either permanent repairs being done inside a cofferdam or temporary underwater repairs of a certain nature to enable the vessel to continue her proposed voyage to Melbourne for Dry Docking. Eventually, the vessel was required to proceed to an American Port for permanent repairs which necessitated greater strengthening of structures in way of No.2 Starboard Tank than would have been the case for the voyage to Melbourne, and conferences were held with Mr. McCowan (Principal Surveyor in Australasia to Lloyd's Register) and Mr. Kirkbright (Owners Representative) when a method of strengthening as set out by Mr. Pratt (Surveyor to Lloyd's Register at Whyalla) was discussed.

This suggested method of strengthening by means of horizontal channels bridging the gap in the Hull in way of No.2 Starboard Tank and anchoring the vertical stiffeners by means of struts at stated intervals

Attach to Rept. Nos. 1549 & 1550

003631-003639-0168/13



- 2 -

M.T. "ONDINA" AT FREMANTLE 14th JUNE 1943.

bottom fastenings of the bulkhead between No.2 Centre and Star-
 anks or to transverse floors was then transferred by the under-
 to a drawing of the Hull section of "ONDINA" in way of No.2
 nd submitted to the Principal Surveyor and to the Owners Repres-
 e, and it was agreed that the methods be put into effect.

ethod as shown on Drawing Nos. 1 & 2 W.G.D. "ONDINA" would restore
 strength, but it was fully expected that No.2 Starboard Tank would
 fully open to the sea, and No.2 Centre and No.3 Starboard would
 main completely flooded and unable to be pumped out while No.3
 was to have been made relatively watertight by means of a patch
 by a Diver to the longitudinal bulkhead separating it from No.3
 ard.

gh the original recommendations have been adhered to in their
 ty, insofar as longitudinal vertical and transverse stiffening is
 ned, a considerable amount of extra work had to be done through
 necessity, which resulted in No.2 Centre and No.3 Centre and Star-
 anks being made tight, and opportunity was taken to give double
 al strength to the renewed bulkhead between No.2 Centre and Star-
 anks, as will be seen under the heading of "Major Damage". The
 ity for building a local cofferdam and a watertight wall will
 e seen by reference to "Major Damage".

ANCE DRAWINGS, LETTERS ETC. Drawing No.3 W.G.D. "ONDINA" contains
 separate rough sketches which were originally attached to letters
 Principal Surveyor, Owners Representative and Mr. Pratt.

G NOS. 1 & 2 W.G.D. "ONDINA" shows details of the proposed stren-
 ng while drawing No.1A W.G.D. "ONDINA" shows what was eventually
 to the work.

G NO.4 W.G.D. "ONDINA" shows the alterations to pipe lines found
 ary as a result of the vessel having been chartered (on complet-
 repairs) as a Mobile Depot Supply Ship, and at the same time
 ws a diagrammatic view of the condition of the Hull and the after
 ad of No.3 Starboard Tank and the extent of the opening in the
 of No.2 Starboard Tank.

ing is a summary of findings of damage and recommendations for
 permanent or temporary repairs.

FOUND

LYING BRIDGE - all on Star-
 side. Twelve concrete
 protection slabs shattered
 ne caulking of deck under
 generally started and leak-
 uring rainy weather.

six feet section of hand
 leading to Standard Compass
 sure torn.

ne Ventilator Cowl holed
 ts coaming scored.

irection finder loop and
 ard damaged beyond repair.

orse light glass cover
 ed away.

AVIGATING BRIDGE - all on
 oard side. Machine gun
 in Starboard wing of
 e badly damaged and the
 decking and gratings in way
 of burnt.

RECOMMENDED.

(1) that these slabs be renewed
 after caulking the decks.

(2) this section be renewed,
 faired, repaired and refitted.

(3) to be repaired.

(4) a new loop and standard to
 be fitted.

(5) to be renewed.

(6) to rebuild machine gun nest
 and its concrete protection
 after renewing the gratings.
 and the wood decking and caulking
 and paying same in way thereof.

Attach to Rept. Nos. 1549

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M.T. "ONDINA" AT FREMANTLE 14th JUNE 1943.

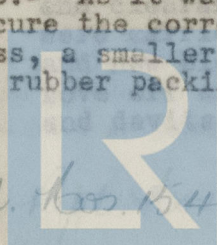
FOUND

RECOMMENDED

armour plate (3/4" thick)
starboard entrance to
torn and buckled and
y from top fastenings
ver.
steel armour plate
and buckled.
Deck at top of Wheel
cent to items 7 & 8
torn.
Room concrete pro-
lly damaged and the
en bulkhead behind this
buckled over an area
t. and steel deck at top
ea of 2 sq.ft. and its
om fastenings torn.
et of fore and aft awn-
arried away.
ximately 30 feet of fore
lward teak rail (situ-
e Bridge and outside the
and immediately under-
11) shattered.
e fore and aft bulwark
is attached rail mentioned
holed in seven places
ximately 36 sq. inches
ed in numerous places.
e Deck adjacent to item
and torn in numerous
side of steps (leading
ard Compass Platform)
HOUSE. Starboard door
ged and all front wood-
lasswork shattered and
red in places. Kent
on screen intact but the
ow (in which the Kent
fitted) was broken.
and Starboard side
oken.
etector glasses broken.

- (7) the top half to be cropped and renewed and welded to the lower half after the latter is removed and faired.
- (8) to remove, fair and refit.
- (9) to crop damaged plate and renew 10 sq.ft. of plate.
- (10) to crop and renew 16 sq.ft. of screen bulkhead and 2 sq.ft. of steel deckhead and renew damaged concrete protection.
- (11) to renew 15 feet of awning spar.
- (12) to renew 30 feet of bulwark rail in "Wandoo" wood.
- (13) to square up ragged edges of holes and weld "insert" plates in position and fill in all possible scars by electric welding.
- (14) remove approximately 120 linear feet of wood decking and renew in "Wandoo" wood and caulk and pay same.
- (15) to remove steps and fit new side and replace in position.
- (16) to renew all damaged woodworking and glasswork, overhaul Kent screen and motor and refit into new glass. Note:- correct sizes of armour plate glass could not be procured, so that it was necessary to make most windows fixed and to case in repairs the wiindow frames to suit the size of the glass as a temporary measure.
- (17) to be removed and wood panels substituted.
- (18) to renew. Note:- As it was not possible to procure the correct diameter of glass, a smaller size was used and the rubber packing made to suit. Boat and davits tested and found good.

Attach to Rept. Nos. 1549 & 1550.



Lloyd's Register Foundation

- 4 -

M.T. "ONDINA" AT FREMANTLE 14th JUNE 1943.

FOUND

RECOMMENDED

Electric Telegraph glasses

(19) Renew glasses suitably marked and test Telegraph.

Motor safety latch deeply bent and one of the cylinders scored slightly.

(20) the latch to be renewed, but the cylinders to be permanently repaired at the Owners convenience.

ART ROOM. Starboard window

(21) to fit wood panel as a war time measure and renew glass after cessation of hostilities.

EDGE DECK (COMPRISING QUARTERS.) Front bulwark in seven places. Starboard holed in four places.

(22) holes to be squared up and insert flush plates welded in.

House front scarred in places.

(23) scars filled in by means of electric welding and dressed up and painted.

USE SIDE. (Starboard) generated and also in four places; carrying from 6" x 6" to 2".

(24) scars to be filled in and dressed and holes squared up and flush plates electrically welded.

Hose Box and its glass doors

(25) to be renewed.

o Ventilator Cowls holed.

(26) holes to be cleaned up and insert pieces welded in and dressed up.

Steel deck under Captain's life- holed in seven places each approximately 6" x 6".

(27) holes to be cut square and flush inserts welded in.

approximately 200 linear feet of decking (adjacent to steel item 27) burnt and scarred.

(28) damaged decking to be removed and new "Wandoo" wood decking laid, caulked and payed.

two gastight deck lights and broken.

(29) to be renewed.

Captain's Lifeboat and its and falls and equipment completely demolished and the after cut in two and its differential broken and steel seatings

(30) a new Lifeboat be placed aboard and fitted out and the after davit repaired by fitting an internal sleeve and electric welding same and a new differential screw made and fitted. Note:- a steel boat of approximately similar dimensions was procured and certain minor repairs done thereon in order to place it in efficient condition. The boat was then equipped as far as possible to meet the requirements of Netherlands Government Regulations, and the davits were each moved three inches in order to give necessary end clearances. Repairs to davits were carried out as recommended and new blocks made in steel and rove off with new manila. Boat and davits tested and found good.

HEAD (Starboard) holed in several places during shelling and generally generally between starboard gunwale.

HEAD (Port side) holed in several places and a number of steel deck.

Attach to Rpt. Nos. 1549 & 1550

Lloyd's Register Foundation

- 5 -
M.T. "ONDINA" AT FREMANTLE 14th JUNE 1943.

FOUND

RECOMMENDED

LIFEBOAT (MOTOR BOAT).
washed and holed (by
bullets while afloat
action) and small items
damage caused elsewhere
t, such as punctured
and tanks.

(31) that damaged planks be renewed
and other small items of damage
made good.

BRIDGE DECK (COMPRISING
QUARTERS. Starboard
ck house scarred in
laces.

(32) fill in scars and dress smooth
(now done).

deck and bulwark stan-
rred in numerous places.

(33) fill in scars and dress smooth
(now done).

deck pipe holed.

(34) to be welded (now done).

DECK. Steel Foredeck
eplly in approximately
abreast the Foremast.

(35) to be filled in by means of
electric welding and all welds
dressed.

DECK BUNKER LINE holed
ce.

(36) to have a patch welded on.

TANK. Steam heater pipe
leaking near lower

(37) to be brazed.

ORD PUMP ROOM. Both ven-
holed each in several

(38) holes to be cleaned up and
insert patches welded in.

Starboard side (between
& Centre Castle and
major damage) plating
ored in approximately 20
th four small holes.

(39) holes and scores to be filled
in with electric welding and welds
dressed.

MAST. Two gas lines badly
numerous places. Two top
s blown away. Four lower
s on the Starboard side
n the Port side either
or blown away. One back
n away. Jumper stay
y. Lightning conductor
lips and insulators torn
eel Mast generally holed.
floodlights and fittings

(40) to fit flush insert patches
electrically welded. To renew all
stays. Note:- Owing to shortage
of materials it was not possible to
procure correct size of stay wire
or any stay wire at all, so that
2 $\frac{3}{4}$ " flexible wire had to be used
as a war time measure. To fit
lightning conductor and new insula-
tors. To fit flush insert patches in
steel mast electrically welded. To
fit new lights and fittings. All
items under this section have now
been seen done.

CASTLE HEAD (Starboard
eck buckled (due to heat
which had occurred in
below during shelling) and
ightly generally between
and starboard gunwale.

(41) that this be faired at the
Owners convenience.

CASTLE HEAD (Port side).
ll holes and a number of
steel deck.

(42) that these be all welded. (Now
seen done).

M.T. "ONDINA" AT FREMANTLE 14th JUNE, 1943.

FOUND

RECOMMENDED

STILE SPACE (Aft of atz). The four deck of the Verf Bergplatz lightly buckled (Star-

et up slightly due to four frame spaces

BERGPLATZ. Paintwork blackened by smoke.

PEAK STORE. Paintwork blackened by smoke.

gratings and benches starboard portion of this store.

board side of Chain Locker shell splinters in six

bulkhead (on Starboard ter end of chain locker ting middle peak from badly holed and buckled ain locker and ship's hree stiffeners buckled ith their brackets also he valve rod (to Forward Sea Valve) adjacent to ead bent.

s. Starboard side plating eck Sheerstrake (in way of ad mentioned in item 49) wo places, one each side lkhed and approximately tres. These holes were oximately 6 sq.ft. area, frames including the bulk- e badly buckled.

peak gastight light fittings racked by heat.

PEAK STORE. Paintwork generally by smoke.

'S SIDE (STARBOARD) DE- 3 STARBOARD TANK AND THE P ROOM. Plate below sheer- s twin shell holes similar in Starboard Bow plating res approximately 4 ft. each side of the bulkhead ump Room and No.3 Star- k. Two horizontal members oom on ship's side torn in e hole.

head between Pump Room and board Tank buckled (Star- e) over an area of approx-

12 sq. ft.

(43) that these be faired at the Owners convenience.

(44) that these be faired at the Owners convenience.

(45) to be painted at Owners convenience.

(46) to be painted at Owners convenience.

(47) to be renewed at Owners convenience.

(48) that the holes be cut clean and flush insert plates welded in. (Now seen done).

(49) that the damaged portion of bulkhead be cropped and a piece of 3/8 plate 4 ft. x 4 ft. be inserted and welded and three new stiffeners and gussets welded in position and a new section of valve rod made and fitted with a new universal joint.

(50) as a permanent repairs, that the damaged plate cropped and a new plate 12 ft. x 7 ft. x 1/2" thick be rivetted and welded in position and one section of one frame renewed and three frames cropped, faired and refitted. (Now seen done).

(51) that these glasses be renewed. (Now seen done).

(52) to be painted at Owners convenience.

(53) release plate at a rivetted joint and crop at a position forward of the damage and rivet and butt weld and strap a new piece of plate approximately 10 ft. long by 5 ft. wide by 5/8" and fit two new horizontal members.

(54) that a 12 sq.ft. section of bulkhead be cropped and a new piece of plate butt welded in position and its slip's side angle cropped

and part renewed.

Attach to Rept. 15449 + 1550

0168 113 100 113

- 7 -

M.T. "ONDINA" AT FREMANTLE 14th JUNE 1943.

FOUND

RECOMMENDED

bulkhead between Pump Room
& Starboard Tank buckled
(ard side) over an area of
mately 20 sq.ft.

discharge overboard valve
y cracked on flange.

INMAST. Steel top mast
rough and hanging and its
down away. Lower mast was
ed except for several stays
splinters and a mast band

lightning conductor carried
th topmast stay, but later
ed intact on deck except
ken insulators.

GENERAL DAMAGE ON AFTER DECK.
ve spindle hand wheels for
P.C. & S. and Nos. 3 P.C &
s broken.

ck set up several inches
length of 32 feet in line
e longitudinal bulkhead
Nos. 2C. & S. Tanks.

ort section of Deck copper
pipe split slightly near
flange.

nd rail along platform cut
es.

OP. Two ventilators to
Room holed.

umerous scores on hull plat-
Port side aft.

ood Liferrafts lost off
eck but steel skids

Foremast holed in a number
braces and stays shot away and
lightning conductor torn off.

(55) that a 20 sq.ft. section of
bulkhead be cropped and a new piece
of plate butt welded in position
and its ship's side angle cropped
and part renewed. (Items Nos. 54
& 55 have now been seen done as a
permanent repair.)

(56) to be welded as a temporary
repair.

(57) that this mast be cut away and
sent down and the top of the standing
mast to be cut level and a steel
mast truck or cap fitted, which in
turn is to be fitted with pulleys for
Radio Aerial, flag halliards etc.,
This man mast top to be renewed at
Owners convenience. Note:- that
pieces were cut out of this top mast
to make flush welded patches for the
Fore top mast.

(58) repair conductor, make new clips
and fair some original clips, fit
new insulators into clips every 3 ft.
along lower mast stay and weld necess-
ary clips on mast between stay band
and truck.

(59) to make and fit new hand wheels
to replace damaged wheels.

(60) to be faired at the same time as
permanent repairs are being carried
out.

(61) that, as steam was in use contin-
uously during repairs a short section
of steel pipe be made and fitted at
first opportunity to enable the copper
pipe to be repaired.

(62) to be filled in with welding.

(63) to be welded (Now done).

(64) to be filled in by means of the
electric welding and dressed. Now
done.

(65) that new Rafts be made and fitted
and secured in position.
Note:- To Owners requirements two
more steel liferaft skids and rafts
were made and these are located one
each side aft of the Centre Castle.

(58a) that the holes in the steel mast
be trimmed out and curved insert pieces
flush welded in and that the lightning
conductor be made good and new flex-
ible wire stays be fitted as a war
time measure.

Attach to Rept. Nos. 15 & 16

0168 113

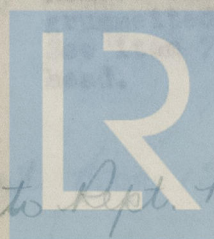
- 8 -

M.T. "ONDINA" AT FREMANTLE 14th JUNE 1943.

MAJOR DAMAGE.

Major damage due to torpedo occurred in No.2 Centre and Starboard .3 Centre and Starboard Tanks and Hull plating and structural s in way of Nos. 2 & 3 Starboard Tanks, while some minor damage ed in No.2 Port Tank. lly it can be said that Nos. 2 & 3 Centre and Starboard Tanks is 4 tanks in all) were open to the sea principally owing to e entire side and bottom of No.2 Starboard Tank being torn nd/or pushed and furred inwards, (2) the bulkhead between No.2 and No.2 Starboard having the forward section for one third k length missing entirely from top to bottom and the remainder outboard with buckled stiffeners and badly holed in places for a strip of undamaged plating 3 feet wide by full height k at its after end, (3) the bulkhead between Nos. 2 & 3 Centre being buckled and holed near Starboard bottom corner, (4) the ad between No.3 Centre and Starboard being buckled, badly holed s its after end and (5) the bulkhead between Nos. 2 & 3 Star- tanks being badly holed in the small remaing flat portion and ed over the remainder and the ship's side in way of No.3 Star- Tank at its after end being curved inboard, and causing the ad and side plating to have so many furred buckles and that it ot possible to distinguish the junction of the ship's side and ead. bottom and side plating in way of No.2 Starboard Tank was so badly l inboard with all frames, stringers, floors etc., that further nation by the Diver was not possible, until the undersigned ended that all this extraneous steel be cut away with under- oxy-hydrogen torches, leaving the bottom plating projecting imately 4 feet beyond the line of longitudinal bulkhead and el thereto except towards the after end where it was considered to leave the up-turned bottom and turned in side to act as a cal stiffener and a protection against heavy wash casuing velo- pressure on the forward bulkhead of No.1 Starboard Tank when the l eventually left Port.

Majority of the large jagged holes in the longitudinal and trans- bulkheads (the larges being 8ft. by 9 ft. and the smallest by 5 ft.) were so close to the intersection of all the four ed tanks that a hole in one longitudinal bulkhead merged into n a transverse bulkhead, so that, in my opinion, any patches ed underwater by a Diver would have been an improvisation, and quently recommended that a wooden cofferdam approximately 16 feet by 16 feet deep be fitted over an 8 ft. by 9 ft. hole in the bulkhead of No.3 Starboard Tank and standing 3 feet away from to allow steel plate patches to be welded on. This cofferdam ed through the large aperture caused by the missing longitud- bulkhead between No.2 Centre and Starboard Tanks, and also ased a 4 ft. by 4 ft. hole in the Starboard bottom corner of the bulkhead of No.3 Centre Tank. This cofferdam together with ber of wooden wedges and sheepskins wedged into the furred side after bulkhead of No.3 Starboard Tank allowed No.3 Centre and oard to be pumped dry and substantial repairs to be carried out ese two tanks. This cofferdam took 12 days to make and fit; the proceeding concurrently with other repair work, and it was well the time and money spent, as these two tanks were eventually tight, and together with No.2 Centre which was also made tight ed the vessel to be usefully employed for six months as a mobile ey depot ship, thus tiding her over winter months, so that her ey overseas to Port of Repair should actually commence and be eted before the end of our Summer.



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Attach to Rpt. No. 15494/1360

0162 8/13

- 9 -

M.T. "ONDINA" AT FREMANTLE. 14th JUNE 1943.

It should be noted, that, owing to the continued presence of oily water in No.2 Centre Tank, the Diver was not able clearly to define the extent of damage in same, and it was not until this condition was finally cleared itself after some months that any damage could be seen at all, and then from the surface it was apparent that there was serious damage existed to warrant having this Tank dried out and repairs rather than trust to underwater work. Consequently, it was recommended that a watertight wooden wall be fitted in the length of No.2 Starboard Tank parallel to and approximately 10 feet away from the damaged longitudinal bulkhead between No.2 Centre and Starboard Tanks.

When completed enabled, not only the repairs effectively to be effected in the No.2 Centre Tank, but also allowed the bulkhead between this tank and No.2 Starboard Tank to be renewed and fitted with stiffeners (vertical and longitudinal) twice as strong as the original, and the tank made perfectly watertight, and it also allowed longitudinal stiffening to be fixed to the otherwise unsupported plating projecting into No.2 Starboard beyond the bulkhead, to prevent this plate from flexing during rolling at sea, as otherwise it would have a tendency to strain the bottom fastenings of the newly erected bulkhead. Also, it was possible to arrange the correct locations and have holes drilled in the vertical stiffeners ready for the Diver to fit the five bottom transverse struts in the new bulkhead and the proposed channel framing over the top of the ship's side in way of No.2 Starboard Tank, after the removal of the wooden wall.

The wooden wall eliminated a considerable amount of doubtful under-keel work in connection with the repairs and enabled a perfectly sound No.2 Centre Tank to contribute towards the vessel becoming a really useful mobile supply ship, and in company with the other damaged tanks gives the vessel a larger margin of safety than would otherwise have been the case for her proposed voyage Overseas to the East of Africa.

The actual items included in the area of major damage found with recommendations made thereon are continued below.

FOUND

RECOMMENDED

No.2 CENTRE TANK. Forward gusset (attaching forward floor to longitudinal bulkhead between No.2 Port and Centre) pulled away at rivetting leaving the vertical angle to bulkhead.

(66) that all rivets be cut out of the gusset angles and new rivets fitted and the heel and toe of both main gussets tack welded to the bulkheads.

Keelson buckled and twisted at several places between forward transverse deep floors and forward bulkhead.

(67) that weakness caused by Keelson buckles be minimised by fitting a large gusset at each end of Keelson and attaching by welding to the bulkheads to form companion gussets to those already originally fitted to Keelson and bulkheads in Nos. 1 & 3 Centre Tanks.

Starboard section of forward floor buckled where attached to Keelson and set up high at its end where originally attached to the bulkhead between Centre and Starboard Tanks and at the time set aft about one foot at its outer end and its gusset buckled and rivets attached to bottom plating slack.

(68) to crop this section of floor and its top angles to within two feet of Keelson, fair and refit. Remove gusset plate and angles and fit new ones. Remove slack rivets and fit grummetted bolts in lieu thereof. See item 71 relating to bulkhead.

Attach to Rept. Nos. 1544 & 1565

Lloyd's Register
Foundation

0168 113

M.T. "ONDINA" AT FREMANTLE 14th JUNE 1943.

FOUND

RECOMMENDED

bulkhead was non exist-
this position forward to
the head and the bottom set
free where not supported by
head.

Starboard intermediate
inal floors of channel
between forward deep
bulkhead badly buckled
over slightly and rivets
along these to bottom slack.

transverse bulkhead between
No. 3 Centre Tanks set in
and holed over a space
of 4 ft. x 4 ft. at starboard
corner and indented above
over a space of 6 ft. x 7 ft.

longitudinal bulkhead between
Centre and Starboard Tanks
missing for its full
between the vertical twin
attaching to the forward
transverse bulkheads and a posi-
tacent to the forward web
of No. 2 Starboard. The
nd lower stringers were
issing from this position.

this forward web stiffener
was bulged to Star-
generally over a large area
ng to within three feet of
er transverse bulkhead.

used the after web stiffen-
e badly buckled as well as
set attaching the starboard
the after deep transverse

Steam heating coils in the
rd side of No. 2 Centre Tank
maged as well as the Fuel
last Pipes. Numerous loose
ky rivets in addition to
reviously mentioned.

No. 2 STARBOARD TANK. (a) Forward
er web stiffeners and their
torn and buckled beyond

(b) Bottom torn and set up-
and inwards. Hull plating
structure torn and folded

against forward and after
ads. (c) The plating was torn
away at the bottom row of

in the strake below sheer-
and this plate was split

ally in several places and
y along its lower edge.

ams generally chipped and
ly buckled.

(69) to remove all slack and leaky
rivets and fit grummetted bolts in
lieu thereof to make watertight
and fill in the entire starboard
half of this tank with cement up
to the level of the channel tops
with an extra depth of cement in
the bay next to the bulkhead when
it is completed.

(70) to bridge across this hole
with a half inch thickness plate
fillet welded and stiffened. A
filling piece to be welded to the
bulkhead to accommodate this plate
because the bulkhead has been
bulged forward at this location.

(71) that prior to fitting the
wooden watertight wall in No. 2
Starboard Tank, the upper half
of the longitudinal bulkhead be
renewed, and after fitting the wall
and pumping No. 2 Centre Tank dry,
this bulkhead be entirely renewed
together with all necessary verti-
cal and horizontal stiffeners
and prepare same for attachments
for lower struts. See drawing
No. 1A W.G.D. "ONDINA" which will
save much description. All loose
rivets to be removed and grummett-
ed bolts fitted and to be covered
with cement as stated in item 69.

allowed No. 3 Starboard Tank to be
pumped out but No. 3 Centre Tank.

(72) to cut away all extraneous
steelwork with the aid of the
Oxy Hydrogen torch underwater,
then all the following work to be
done after fitting a wooden water-
tight wall.

Remove stiffeners and gussets and
the remains of deep transverse
floors from the longitudinal bulk-
head, and after renewing the bulk-
head fit new stiffeners vertical
and horizontal and make short
pieces of transverse floor at the
foot of each of the five vertical
stiffeners.

Lloyd's Register
Foundation
0168 10/13

Attach to Apt. Nos. 1549 & 1550

M.T. "ONDINA" AT FREMANTLE 14th JUNE 1943.

RECOMMENDED

angles attaching
inal bulkhead to the
were laid over
rivets slack and
the space where the
non existent,
bulkhead has large
mately 8 x 9 ft.,
while the remainder
and furled.
and Cargo pipe line
ves, strums, expan-
valve spindles
entirely.
heating coils com-
plished.

twisted
the
attached to
was twisted
inboard
the plat-
bulk-
ies to the

CENTRE TANK.
and Cargo pipe line
the Starboard bulkhead
k.
se stiffener on after
d the tripping brack-
ame buckled.
ransverse Bulkhead
ply over an area of
t. and holed near its
board corner and bulk-
ise lightly bulged
ll width up to half
indented over a space
7 ft.
rd longitudinal bulk-
the and generally (from its
extending forward) for
approximately 12 feet
as began bottom up to the
tanger or two thirds of
This damage consisted
board longitudinal
being torn away from the
verse bulkhead and
awroximately 6 ft. high by
and bulged inwards.
adinal bulkhead locally
ne position and rivetted
ted with many loose

STARBOARD TANK.
side plating pushed
om bilge Keel up to
ow sheerstrake and
bulkhead to the middle
strut.

(72) Then fit a longitudinal stiff-
ener at the ends of these short
sections of floors just inside the
wooden wall to stiffen the project-
ing bottom plating against "flexing"
and so disturbing the bottom fasten-
ings of the bulkhead when at sea.
Fill in the space between this bottom
stiffener and the bottom of the bulk-
head with cement. Heat bottom of
strake below sheerstrake and straight-
en preparatory to fitting channel
stiffeners. Deck beams to be left
until dry docking as they do not
impair the strength of the vessel.
Fit cofferdam 16 x 16 ft. and stand-
ing 3 ft. away from bulkhead and weld
new plate over the 8 x 9 ft. hole
and fit stiffeners to same. See
under No.3 Starboard Tank for re-
pairs to remainder of bulkhead.
See Drawings Nos. 1,2 & 3 W.G.D.
"ONDINA" for details of the repairs
which were recommended and seen sat-
isfactorily completed. These Draw-
ings should be read in conjunction
with this Report.

(73) See Drawing No.4 W.G.D. "ONDINA"
for details of actual work done on
these pipe lines. (This is not on
account of damage but for American
Navy requirements).
Remove, fair and refit stiffener
and brackets.
See item 70 which covers the repairs
to this location.
To remove damaged portion of bulkhead
and renew.
Note:- that the cofferdam 16 ft. by
16 ft. fitted over the forward bulk-
head of No.2 Starboard Tank not only
allowed No.3 Starboard Tank to be
pumped out but No.3 Centre Tank.

bridging plate be strengthened by means of
of bridging pieces to preserve and
strength.
Reference to be made to Drawing No.4
W.G.D. "ONDINA" for details regarding
temporary layout of item 74 (k).
Item 74 (l). These heating coils to
be left as they are.
Item 74 (m). To be faired and refitted
if time permits.

(74) Fair along the top of that plat-
ing which was pushed inboard and then
weld a plate to this position and
extending up at an angle to meet the
ship's side plating on the strake
below the sheerstrake.

Attach to Rept. No. 106 Lloyd's Register
Foundation 0168 11/13

M.T. "ONDINA" AT FREMANTLE 14th JUNE 1943.

RECOMMENDED

ing was split in
es.
end of the hull
his tank was closely
many laps and these
similar furls in
bulkhead. There were
at each furl. this bulk
and lower strin-
isted beyond repair
ir length of the
r web frame and its
t were buckled
r and the corres-
floor was twisted
as also was the
hing it to the
bulkhead.
r strut attached to
r frame was twisted
o that its inboard
and split the plat-
ongitudinal bulk-
ame applies to the
this.
r bulkhead was
s outboard half into
p furls merging into
Hull plating and
and horizontal stiff-
twisted into shape-
er bulkhead was also
9 ft approximately)
ining flat portion.
tioned under item 72
p of this bulkhead
intact for a height of
all width.
inal floors of chann-
twisted for 8 feet
ir after ends.
ction frames more or
buckled in after
the No.3 Starboard
s rivets slack in
worst damage.
and cargo pipe line
d carried away and
ums, expansion
valve spindles broken.
eating coils damaged
ter ends.
uts attached to the
frame were slightly

(74) This in effect would be a false side to the ship at this location. Then the leaks in way of the furls be temporarily stopped by means of sheepskins and cement. As nothing could be done to remove these furls, it would be necessary to fit a curved plate on the inside of the tank to extend from the first reasonably good frame on the ship's side to the first similar stiffener on the remaining flat portion of the after bulkhead. This curved plate to fit as closely as possible to the furls so as to keep the amount of concrete required for this space as small as possible. The plate to be fitted with closely pitched vertical stiffeners and two wide horizontal stiffeners which are really intended to be continuations of the upper and lower stringers and to connect on to the horizontal stiffeners of after and longitudinal bulkheads. The bottom of this structure to be well secured to the bottom and to those longitudinal and transverse floors which were still intact and then several floor bays to be filled in with cement. After this was all done the annular space between the curved plate and the furls was filled in with concrete for strength rather than watertightness, because the curved plate (1/2" thick) had already been made watertight, then the top was plated over and welded. This repair automatically took care of all items 74 a,b,c,d,f,g,h,i & j. In regard to the other items recommended that item 74 (e) be removed and a new temporary horizontal and in addition companion diagonal strut fitted. Also the buckled floor of 74 (d) where bridging plate be strengthened by means of bridging pieces to preserve end strength. Reference to be made to Drawing No.4 W.G.D. "ONDINA" for details regarding temporary layout of item 74 (k). Item 74 (l). These heating coils to be left as they are. Item 74 (m). To be faired and refitted if time permits.

REPAIRS. The following items are to be considered as temporary item 16 (glass windows). Items 17, 18, 20, 21, 43, 44, 45, 46, 57, 58a, 60, 67, 68, 69, 70, 71, (partly) 72 a,b,c,d,e,f,g & h, 74 a,b,c,d,e,f,g,h,i,j,k (partly) 1 & m.

Attach to Rept. Nos. Lloyd's Register Foundation

- 13 -

M.T. "ONDINA" AT FREMANTLE 14th JUNE 1943.

REPAIRS. The following items are to be considered as repairs. Items 1 to 15 both inclusive, items 19, 22, both inclusive, items 48, 49, 50, 51, 53, 54, 55, 58, 59, 61, 64, 65, 66, 71 (partly).

NO.1 STARBOARD TANK.

BULKHEAD. In order to provide additional strength against pressures on this bulkhead, recommended that extensions be to the gusset bracket attachments at the foot of each vertical member. This has now been seen satisfactorily completed.

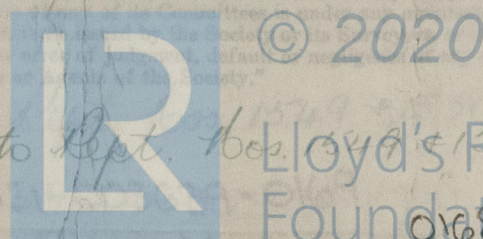
IN SHIP'S SIDE PLATING. These bolts approximately 380 in are used for attaching the 15 x 4 channel stiffeners to the side and they were fitted with the heads outboard, so that the inside the tank could be tightened at will during the voyage last originally contemplated. The vessel was intended for use as a Mobile Depot ship it was ed that the grummets would not stand up to the effects of , therefore the undersigned recommended and it was agreed Owner's Representative that pipe sockets be welded over each d each fitted with a screwed plug. This would isolate the ts from the effects of the Petrol, and whe n the vessel even- departed for dry dock in ballast, the bolts could be inspected ghtened at will by the simple expedient way of removing screwed and inserting a pipe spanner. It is understood that the f fitting these sockets and plugs was to be borne by the an Navy, as it was done to enable them to load Petrol in the section of the vessel.

SION. The vessel's behaviour was noticed on two occasions trial runs in Gage Roads after repairs were completed and gh the sea was comparatively rough on the second occasion the s appeared to be quite stiff and satisfactory.

ole of the recommended work has been seen satisfactorily com- and an Interim Certificate issued and attached to this

Wm. G. Davies.

SHIP & ENGINEER SURVEYOR
TO LLOYD'S REGISTER OF SHIPPING.



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