

Vessel built at Amsterdam By whom W. V. Heder N. V.
3606 Engines made at Rotterdam

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.

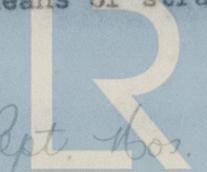
Category No.3, however, will be described separately under its own heading entitled "Major Damage".

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. 15749 + 1530

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Lloyd's Register Foundation

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

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

Method 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 be fully open to the sea, and No.2 Centre and No.3 Starboard would remain 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 Starboard.

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

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

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

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

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

FOUND

RECOMMENDED.

DECK BRIDGE - all on Starboard side. Twelve concrete protection slabs shattered and the caulking of deck under generally started and leaking during rainy weather.

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

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

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

One Ventilator Cowl holed and its coaming scored.

(3) to be repaired.

Direction finder loop and standard damaged beyond repair.

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

Starboard light glass cover missing and ed away.

(5) to be renewed.

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

(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 Lloyd's Register Foundation

6241
3606

Vessel built at Amsterdam By whom H. V. Badel Rob. N. V.
Engines made at Rotterdam

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

FOUND

RECOMMENDED

armour plate (3/4" thick) at
starboard entrance to
is torn and buckled and
removed from top fastenings
and refitted.

(7) the top half to be cropped and
renewed and welded to the lower
half after the latter is removed
and faired.

steel armour plate
is buckled.

(8) to remove, fair and refit.

Deck at top of Wheel
is bent to items 7 & 8
is torn.

(9) to crop damaged plate and renew
10 sq.ft. of plate.

Room concrete pro-
tection is damaged and the
steel bulkhead behind this
is buckled over an area
of 2 sq.ft. and its
top fastenings torn.

(10) to crop and renew 16 sq.ft. of
screen bulkhead and 2 sq.ft. of
steel deckhead and renew damaged
concrete protection.

Deck of fore and aft awning
is carried away.

(11) to renew 15 feet of awning spar.

Approximately 30 feet of fore
bulwark teak rail (situated
under the Bridge and outside the
deck) is shattered.

(12) to renew 30 feet of bulwark
rail in "Wandoo" wood.

Fore and aft bulwark
is attached rail mentioned
is holed in seven places
approximately 36 sq. inches
is damaged in numerous places.

(13) to square up ragged edges of
holes and weld "insert" plates in
position and fill in all possible
scars by electric welding.

Deck adjacent to item
is and torn in numerous
places.

(14) remove approximately 120 linear
feet of wood decking and renew in
"Wandoo" wood and caulk and pay same.

Side of steps (leading
to the Compass Platform)

(15) to remove steps and fit new
side and replace in position.

HOUSE. Starboard door
is damaged and all front wood-
work is shattered and
is damaged in places. Kent
screen intact but the
glass (in which the Kent
screen was fitted) was broken.

(16) to renew all damaged woodwork
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
the window frames to suit the size
of the glass as a temporary measure.

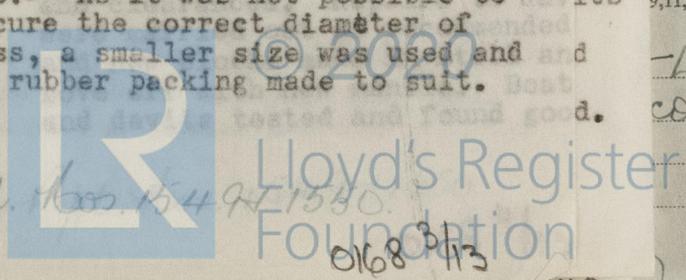
Fore and Starboard side
is damaged.

(17) to be removed and wood panel
substituted.

Detector glasses broken.

(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 was tested and found good.

Attach to Rept. Nos. 1549 & 1550.



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
 deck house scarred in
 places.

(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
 eply 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.

WARD PUMP ROOM. Both ven-
 holed each in several

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

Starboard side (between
 e & 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 1/4" 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).

Attach to Rept. Nos. 1544 & 1550
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 0168 5/113
 0168 113

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

FOUND

RECOMMENDED

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

(43) that these be faired at the Owners convenience. section of plate be cropped and a new piece of plate butt welded in position and its ship's side angle cropped and part renewed. (Items 44, 45)

set up slightly due to four frame spaces

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

BERGPLATZ. Paintwork blackened by smoke.

(45) to be painted at Owners convenience.

PEAK STORE. Paintwork blackened by smoke.

(46) to be painted at Owners convenience.

gratings and benches starboard portion of this store.

(47) to be renewed at Owners convenience.

board side of Chain Locker shell splinters in six

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

bulkhead (on Starboard end of chain locker) middle peak from badly holed and buckled main locker and ship's three stiffeners buckled with their brackets also the valve rod (to Forward Sea Valve) adjacent to end bent.

(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.

Starboard side plating deck Sheerstrake (in way of end mentioned in item 49) two places, one each side bulkhead and approximately metres. These holes were approximately 6 sq.ft. area, frames including the bulkhead badly buckled.

(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).

peak gastight light fittings cracked by heat.

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

PEAK STORE. Paintwork generally by smoke.

(52) to be painted at Owners convenience.

'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 Pump Room and No.3 Starboard. Two horizontal members boom on ship's side torn in hole.

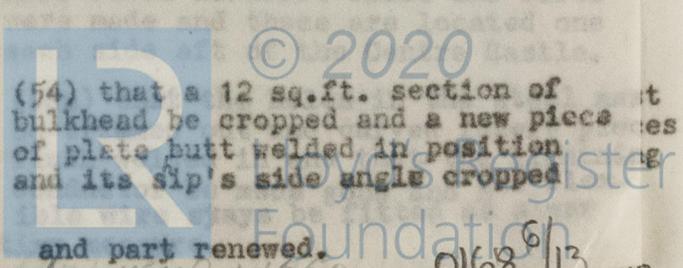
(53) release plate at a rivetted joint and crop at a position forward of the damage and rivet and butt weld and strap a new piece of plate approximately 10 ft. long by 5 ft. wide by 5/8" and fit two new horizontal members.

bulkhead between Pump Room and Starboard Tank buckled (Starboard) over an area of approximately 12 sq. ft.

(54) that a 12 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.

Attach to Rept. 10015449 + 1550

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

FOUND

RECOMMENDED

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

(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.)

discharge overboard valve
 cracked on flange.

(56) to be welded as a temporary
 repair.

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

(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 main 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.

lightning conductor carried
 up to topmast stay, but later
 found intact on deck except
 for broken insulators.

(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.

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

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

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

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

Port section of Deck copper
 pipe split slightly near
 flange.

(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.

Deck and rail along platform cut
 away.

(62) to be filled in with welding.

TOP. Two ventilators to
 Room holed.

(63) to be welded (Now done).

Numerous scores on hull plat-
 form Port side aft.

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

Good Liferrafts lost off
 deck but steel skids

(65) that new Rafts be made and fitted
 and secured in position.

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

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

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.

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 remaining 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
 ad.

Bottom and side plating in way of No.2 Starboard Tank was so badly
 inboard with all frames, stringers, floors etc., that further
 nation by the Diver was not possible, until the undersigned
 mended 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 causing 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 largest 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
 ded through the large aperture caused by the missing longitud-
 bulkhead between No.2 Centre and Starboard Tanks, and also
 ed 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
 fter 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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Attack to Rpt. No. 15497 1360
0168 8/13

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 had partially 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, the Diver recommended that a watertight wooden wall be fitted along 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 carried out 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 ones, and the tank made perfectly watertight, and it also allowed longitudinal stiffening to be fixed to the otherwise unsupported bottom 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 stiffeners at correct locations and have holes drilled in the vertical stiffeners ready for the Diver to fit the five bottom transverse struts between 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-structure in connection with the repairs and enabled a perfectly watertight No.2 Centre Tank to contribute towards the vessel becoming a more generally 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 Fremantle for Repair.

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 Tanks) pulled away at rivetting along 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.

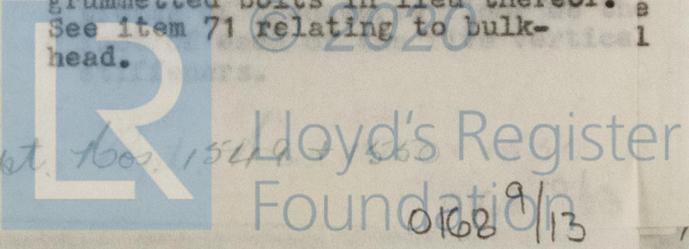
Keelson buckled and twisted at several places between No.2 transverse deep floors forward bulkhead.

(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 aft end where originally attached to the bulkhead between Centre and Starboard Tanks and at the same 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. 1541 & 1563



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

FOUND

RECOMMENDED

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

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

transverse bulkhead between
3 Centre Tanks set in
and holed over a space
x 4 ft. at starboard
corner and indented above
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
rse bulkheads and a posi-
jacent to the forward web
of No. 2 Starboard. The
nd lower stringers were
ssing 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
aged 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-
nd inwards. Hull plating
ructure torn and folded
against forward and after
s. (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.

Attach to Apts Nos. 1549 & 1530
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0168/13

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

RECOMMENDED

angles attaching inboard bulkhead to the... 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.

(72) Then fit a longitudinal stiffener at the ends of these short sections of floors just inside the wooden wall to stiffen the projecting bottom plating against "flexing" and so disturbing the bottom fastenings of the bulkhead when at sea. Fill in the space between this bottom stiffener and the bottom of the bulkhead with cement. Heat bottom of strake below sheerstrake and straighten 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 standing 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 repairs to remainder of bulkhead. See Drawings Nos. 1, 2 & 3 W.G.D. "ONDINA" for details of the repairs which were recommended and seen satisfactorily completed. These Drawings should be read in conjunction with this Report.

CENTRE TANK.

and Cargo pipe line... the Starboard bulkhead... rse stiffener on after... 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-... ed generally (from its... extending forward) for... approximately 12 feet... e bottom up to the... nger or two thirds of... This damage consisted... board longitudinal... eing torn away from the... rverse bulkhead and... roximately 6 ft. high by... and bulged inwards. dinal bulkhead locally... e position and rivetted... ted with many loose

(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 bulkhead of No.2 Starboard Tank not only allowed No.3 Starboard Tank to be pumped out but No.3 Centre Tank.

STARBOARD TANK.

side plating pushed... om bilge Keel up to... ow sheerstrake and... ulkhead to the middle... strut.

(74) Fair along the top of that plating 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.

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

RECOMMENDED

ing was split in
end of the hull
this tank was closely
many laps and these
similar furls in
bulkhead. There were
at each furl.
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
b 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
o 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) l & m.

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

REPAIRS. The following items are to be considered as permanent 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 made to the gusset bracket attachments at the foot of each vertical member. This has now been seen satisfactorily completed.

SHIP'S SIDE PLATING. These bolts approximately 380 in all 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 of the tank could be tightened at will during the voyage last originally contemplated. As the vessel was intended for use as a Mobile Depot ship it was considered that the grumets would not stand up to the effects of vibration, therefore the undersigned recommended and it was agreed that the Owner's Representative that pipe sockets be welded over each bolt and each fitted with a screwed plug. This would isolate the bolts from the effects of the Petrol, and when the vessel even-keel departed for dry dock in ballast, the bolts could be inspected and tightened at will by the simple expedient way of removing screwed plug and inserting a pipe spanner. It is understood that the cost of fitting these sockets and plugs was to be borne by the War Navy, as it was done to enable them to load Petrol in the fore section of the vessel.

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

The whole of the recommended work has been seen satisfactorily completed and an Interim Certificate issued and attached to this report.

Wm. G. Davies.

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



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