KALIMBASSIERIS MARITIME

65, Akti Miaouli -185 36 Piraeus, Greece -S. 22
Email: pir.maritime@kalimbassieris.gr Website: www.kalimbassieris.com

Ro/Ro – P/S "NORTHERN SEA WOLF"

(ex "AQUA SPIRIT")

GT 2,679 - Built 2001 - IMO 9212450

Vessel's tanks Condition Survey

At Piraeus, Greece

At the request of vessel's Managers
"British Columbia Ferry Services Inc.", Canada

Survey Schedule
Commenced : 26th September 2017
Completed : 26th September 2017

Survey Report
Ref. no.: Own/417297
Dated : 04th October 2017

This inspection has been carried out to the best of our knowledge and ability. The results reflect vessel's condition at the time and place of inspection. Opinions are based on inspection findings and documents, records, etc., and information made available by the vessel and/or her Owners/Managers.

A. Scope of Survey

With the email dated 25/07 this office was requested from vessel's Managers Project Manager Mr. Gary Dale, to carry out internal examination of vessel's void spaces and ballast tanks for providing an opinion on their overall condition to be used by the Managers as guidance for the planning of future maintenance works/repairs after vessel's arrival in her trading area in Canada.

B. Ship's main particulars

Ship's name	:	Northern Sea Wolf
Previous name	:	Aqua Spirit
IMO No.	:	9212450
Flag state/Port of Registry	:	Saint Kitts & Nevis / Basseterre
Ship Type	:	Ro-Ro / Passenger ferry
Year built/place	:	2000 / Greece
Class society	:	Lloyd's Register (LR)
GT	:	1,195 mt
DWT	:	392
Dimensions (LxBxfreeboard)	:	75.4 x 15.0 x 4.2 m
Cargo equipment	:	Single vehicle deck accessed by hydraulic-wire operated stern ramp
Beneficial Owner/ Commercial operator	:	British Columbia Ferry Services Incorporated

C. Survey Circumstances

It was reported that the vessel was taken over by current Managers in Piraeus, Greece on 01/09 and was subsequently towed to the local yard of "SPANOPOULOS GROUP" in Salamis Island the next day, 02/09.

The vessel had recently conducted/credited class H&M renewal surveys by LR (in June 2017), whilst under her previous Greek operators however, the new Managers opted to bring vessel to the yard to carry out their own inspections/verifications, which were not possible/allowed prior take over, as well as some maintenance works/repairs for improving vessel's overall condition, which mainly involved the following:

- Drydocking for hull coating and servicing of sea valves/chests.
- Replacement of stbd anchor chain
- Welding new rectangular shaped steel fender construction on the post and sttbd side sides.
- Cropping and removal of major part of vehicle mezzanine deck
- Partial refurbishment of accommodation
- Cleaning and coating of FP and DB ballast tanks
- Structural renewal of almost entire area of collision bulkhead (found corrosion holed at the time of preparation for coating)

As part of the verifications implemented, a set of new ultrasonic hull thickness gaugings were also taken by the firm "A.R.S. Co." in way of all ballast tanks, void spaces and bottom.

The readings did not indicate any abnormal/excess thickness diminution however, this appeared to be in contradiction with the actual condition as revealed by the corrosion holes discovered afterwards on the collision bulkhead in the FP tank (prior commencement of paining), which necessitated almost its entire renewal.

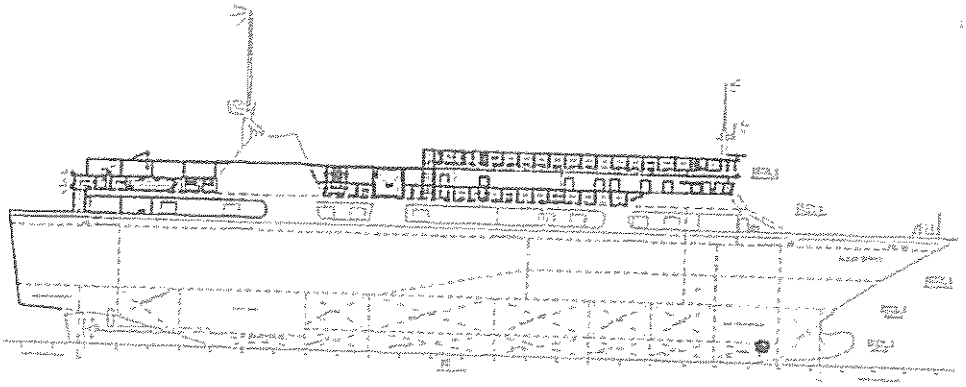
The above discrepancy between the hull thickness measurements and structure actual condition alerted the Managers deciding consequently to engage this Office to carry out visual inspection of all tanks/spaces and provide an opinion on their apparent condition.

D. General arrangement

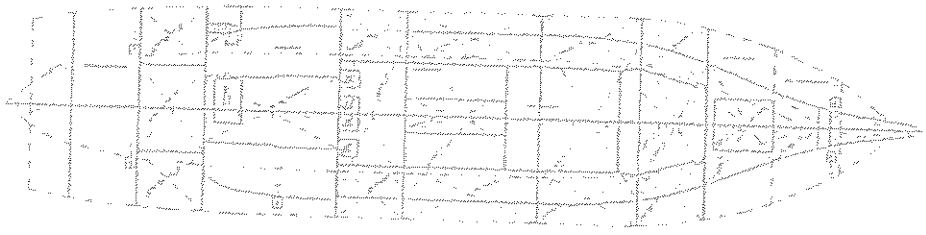
Below the main vehicle deck (no. 2) the vessel is construted with the E.R. and various void spaces, side, double bottom and fore/aft peak ballast tanks.

Fore peak, aft peak, side ballast tanks and void spaces are accessed through manhole openings on deck whilst the double bottom tanks from openings located within the void spaces.

For quick reference, vessel's side view and void spaces/ballast tanks arrangement are shown hereunder:



Vessel's side view



Tanks' arrangement

E. Survey Findings

Following arrangements with ship's agents, our survey was subsequently carried out onboard on 26/09, whilst the vessel was lying dry on the floating dock at "Spanopoulos Shipyard" in Salamis Island undergoing maintenance works/repairs.

Survey was carried out in the presence of Mr. Gary Dale representing and under the full assistance of ship's Master, Capt. Guy Kendall, and Chief engineer, Mr. Oleg Belyakov. The survey covered the following:

- Internal examination of ballast tanks/spaces: Bow thruster space / FPT / Double bottom WBTanks 2, 3, 4, and 5 / Side WBTanks 2, 3 and 4, P&S / Aft Peak tank Stbd and Center / Void spaces 1, 2, 3 and 4 *(Note: the tanks/spaces not available for internal examination were: DB WB tank 1, DB void tank 7 and Aft Peak tank port).*

- General inspection of side shell and bottom plating on drydock

The observations/summary made during the inspection are summarised a follows:

A. Peak tanks

FP: Steel surfaces found generally rusty and/or corroded at places (coating non-existent and anodic protection not fitted) but apparently free of any excessive thinning or wastage. Steel renewal of large section of collision bulkhead noted at completion stage.

AP: Stbd tank found in similar condition as the FP. The center tank was in slightly better condition as coating was still in place although large flakes were seen to have detached at places and plating underneath was starting to rust.

B. Double Bottom Tanks

Nos 2, 3 and 4 exhibited corrosion and/or apparent pitting along the bulkheads, transverse floors/frames and longitudinal girders. Pitting was also apparent along the flat bottom (keel) plating, particularly in DBT no. 3.

The extent of corrosion appeared to be worst in DBT no. 2 were the longitudinal center-line girder was additionally found to exhibit corrosion holes at three locations along its lower part (at connection to bottom plating). Further, all transverse floors/frames in this tank were found with apparent deep pitting over almost their entire width and height.

In addition to the above, light set-ins were also observed at the bottom in DBTank no. 3, approx. between frames 85 and 90, extending at the port side of keel plating. Longitudinals and brackets in way were also slightly distorted. The light set-ins were verified externally by inspection from the drydock. The nature of damage is consistent with previous touching bottom incident.

Pitting was apparent on the bottom plating in DBTank no. 3.

Some concern was also raised on the condition of bottom plating beneath the sounding pipes in DBT 2 and 3 were striker plates were missing and wear in the form of "craters" had been formed.

Previous localised steel renewals in way of transverse floors/bulkheads and longitudinal girders (insert plates) were also apparent at places in way of DBT 3, 4 and 5, mainly towards the centreline/keel area. This may be indicative of repairs on account of a grounding/touching bottom incident in the past.

C. Side ballast tanks

Attention is required in the lower part of the tanks (particularly in tank nos. 2 and 3 and to a lesser extend in tank no. 4) where extensive corrosion and/or pitting was present along the bottom plating, side shell, bulkheads and frames.

D. Void spaces

Attention is required in the lower part of the spaces (particularly in spaces 1, 2 and 3 and to a lesser extend in no. 4) where extensive corrosion and/or pitting was present along the floors, side and transverse bulkheads and frames.

E. Bottom inspection

Inspection from the drydock did not indicate any apparent damage to propellers, shafting, rudders, bilge keels (port and stbd), etc.

The hull plating in way of side water strakes and bottom was found in apparent satisfactory condition. The only exception was the light set-ins on the bottom plating in way of DBT no. 3, as described above.

F. Conclusions:

- DBTank 2, 3 and 4: Apparently heavily corroded areas, particularly in way of floors/bulkheads and girder lower parts, have to be cleared (blasting will be desired) and exposed plating underneath to be again gauged in order to ascertain actual condition and assess the requirement of steel renewals. Same also applies for the apparent deep pitting noted on all floors in DBTank no. 2.

  Renewal as necessary of the corrosion holed longitudinal girder in DBT 2 required immediate attention.

- DBTank 3: on the assumption that the light set-ins on the bottom plating are not recorded in ship's class records (either as a condition or memoranda) they should be brought to class attention and be dealt with as/if necessary.

- All Double bottom tanks: condition of plating underneath the sounding pipes have to be closely examined and striker plates fitted where missing.

- All Side ballast tanks and void spaces: Apparently heavily corroded areas, particularly in way of floors/bulkheads and girder lower parts, must be cleared (blasting will be desired) and exposed plating underneath to be again gauged in order to ascertain actual condition and assess the requirement of steel renewals

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Submitted without prejudice,
for and on behalf of
Kalimbassieris Maritime
s.22

George Papadopoulos, the attending surveyor

Encls.

A set of thirty-six (36) indicative photos

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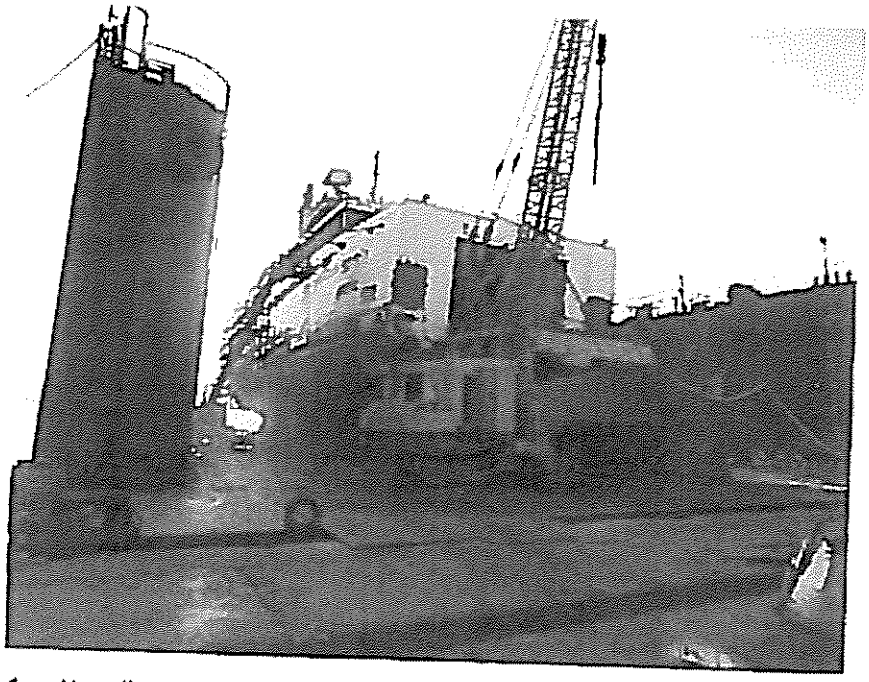
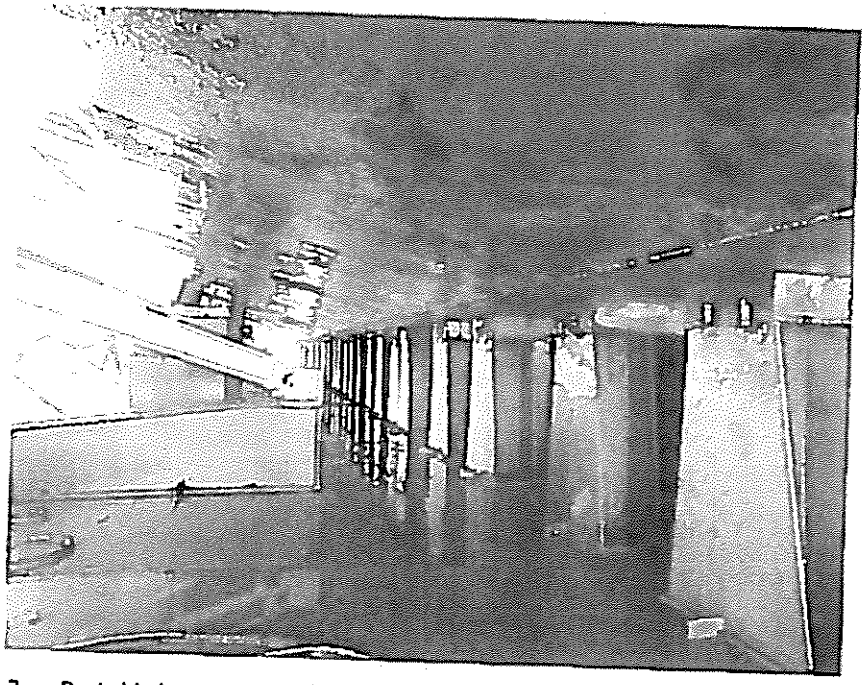
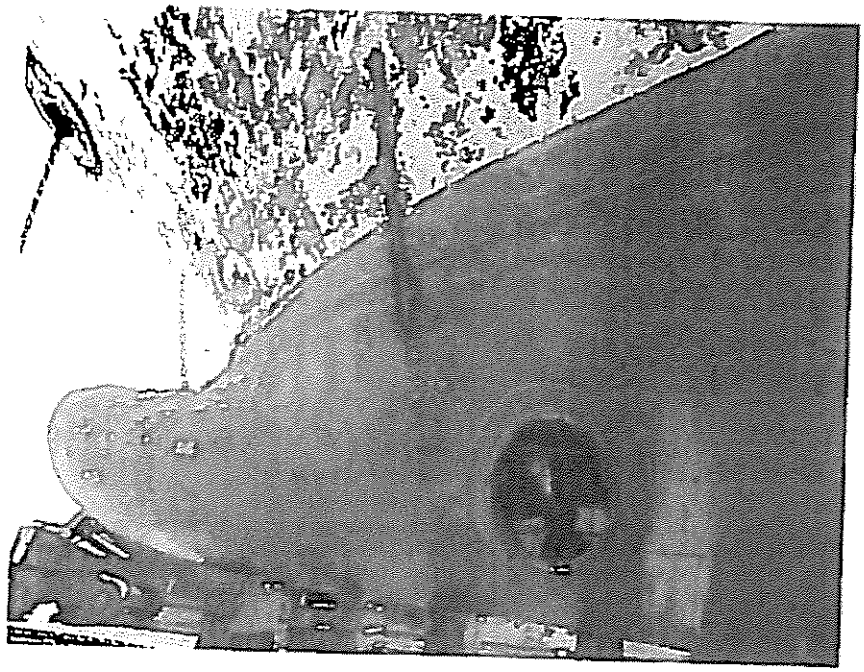
36. Void space no. 4 in similar condition as void no. 2



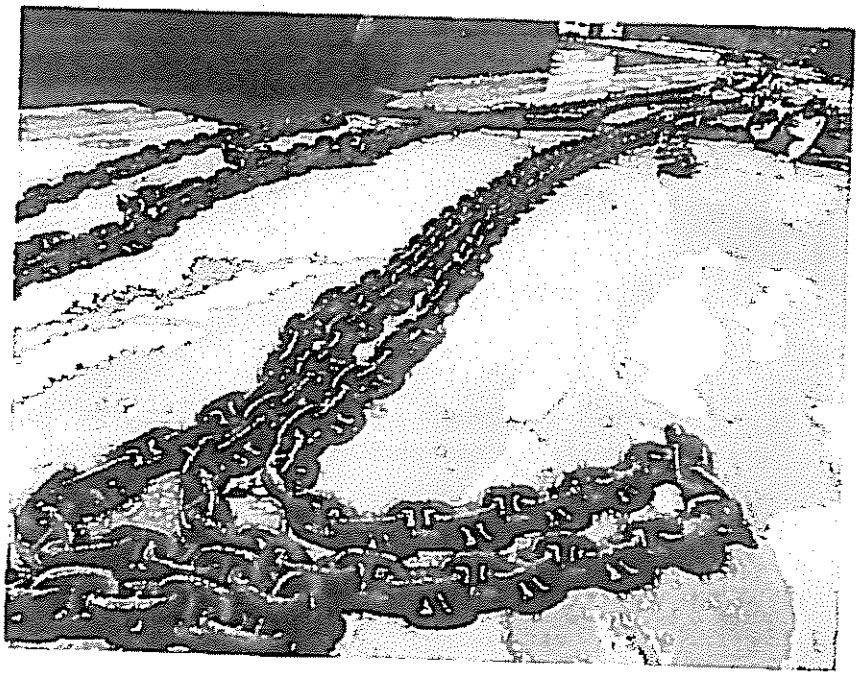
1. Vessel's stern view from port side



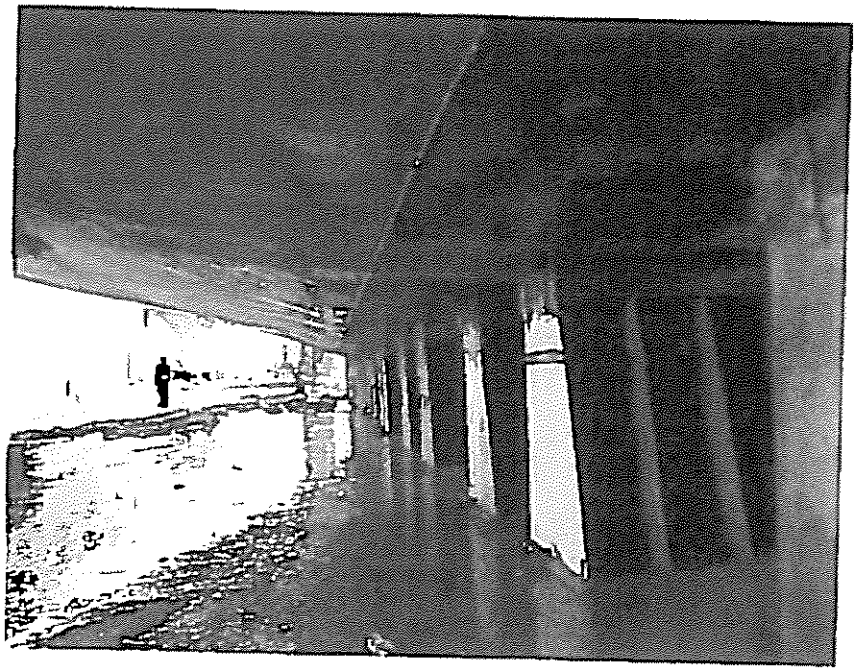
2. Port side bottom plating



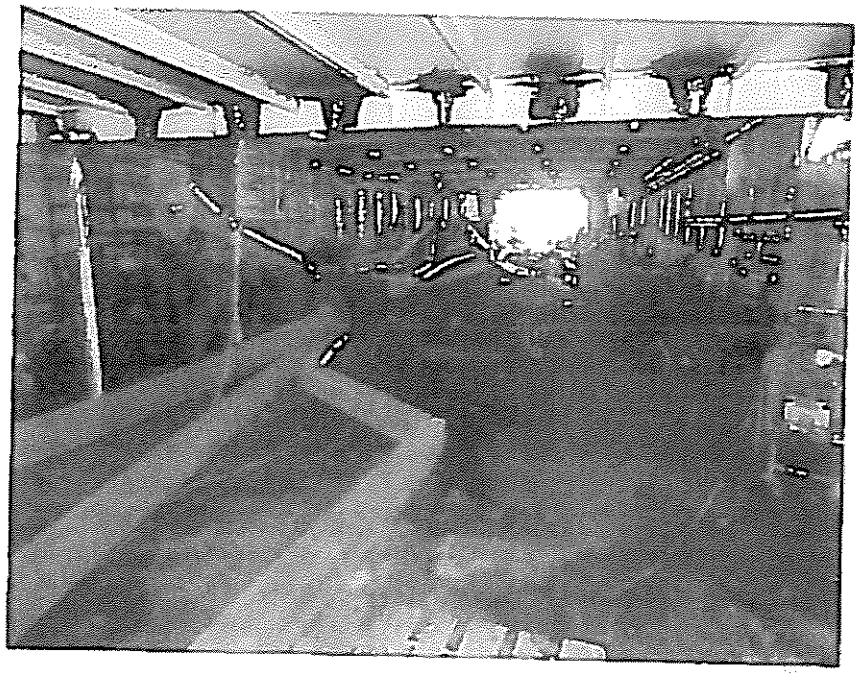
3. Bow thruster



4. Renewed stbd anchor chain

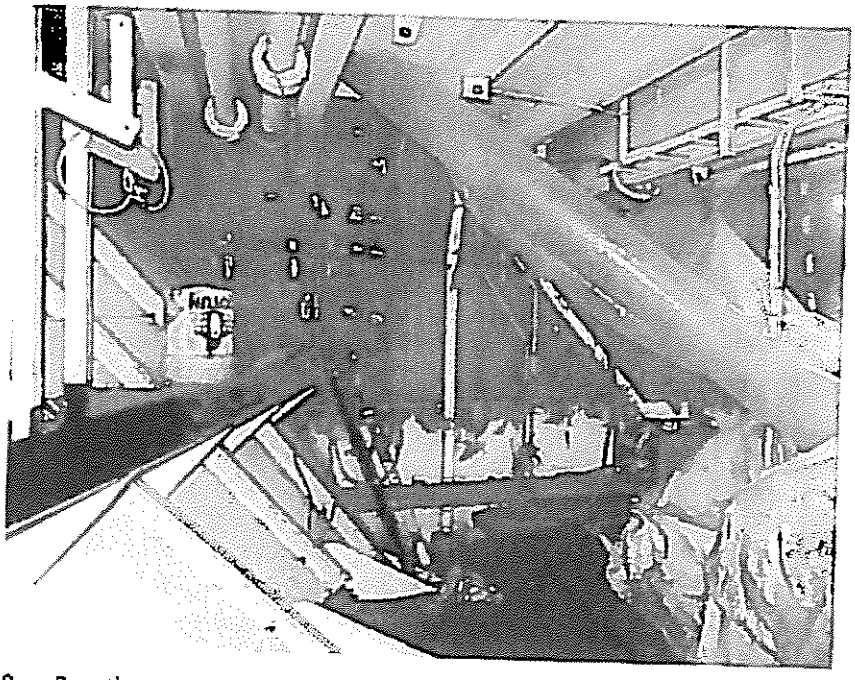


5. Light bottom set-ins in way of DBT 3 port side

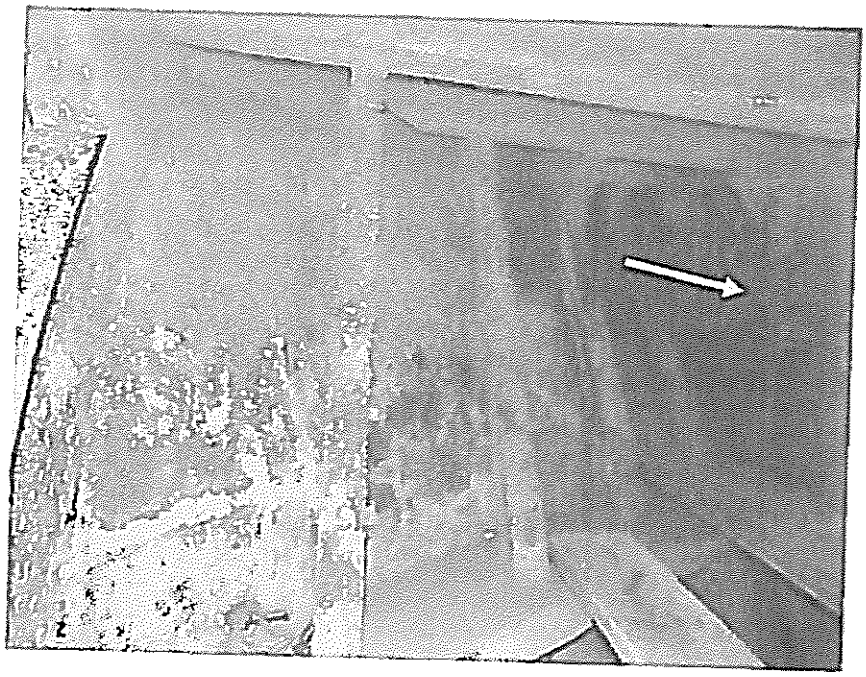


6. Internal ramp communicating decks 3 and 5

7. Car deck no. 3



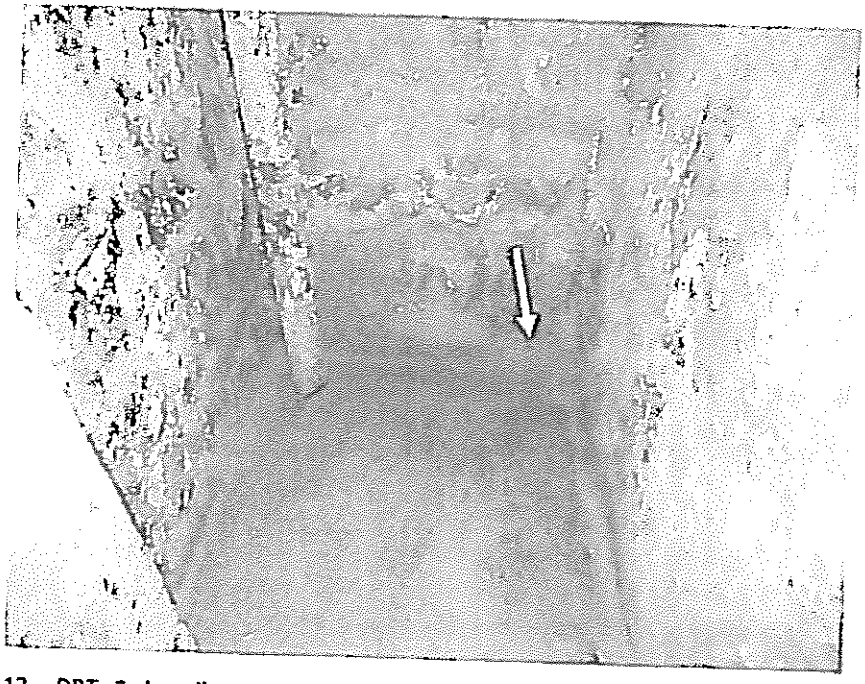
8. Bow thruster space looking at the renewed section of collision bulkhead



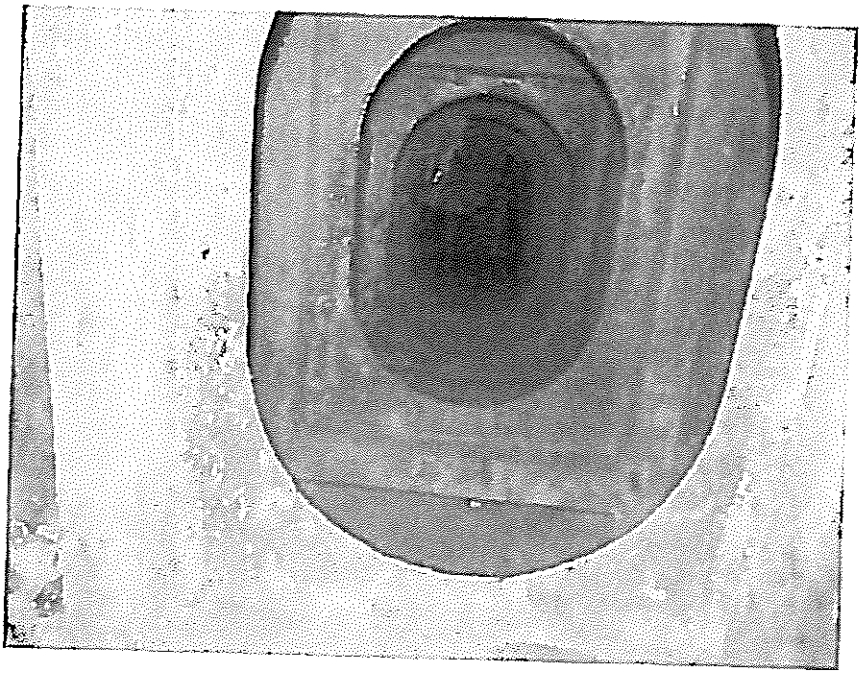
9. FPT stbd side shell plating and framing in rusty condition. Location of renewed section of collision bulkhead arrowed

10. DBT2 pitting on transverse floor plating

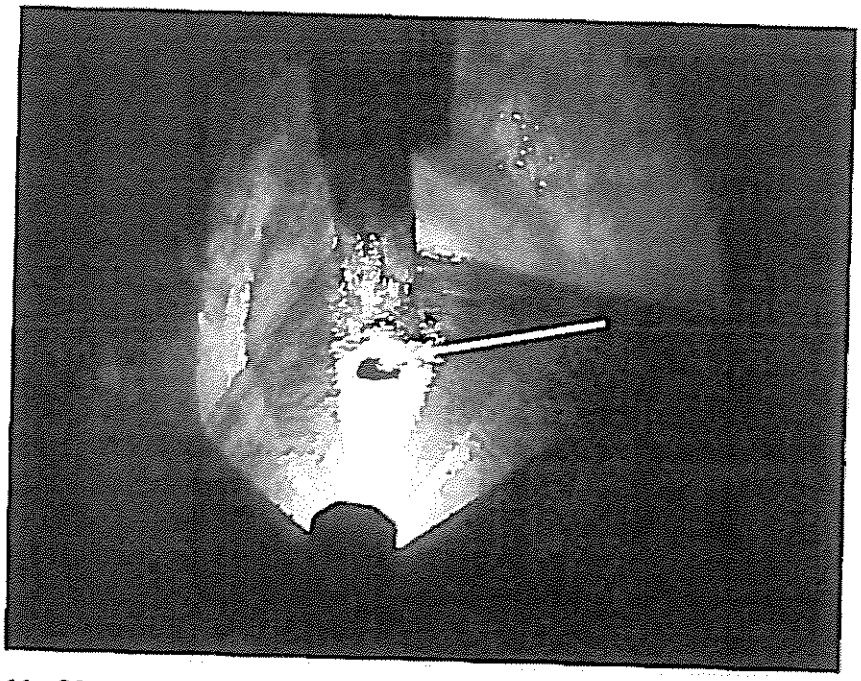
11. As above



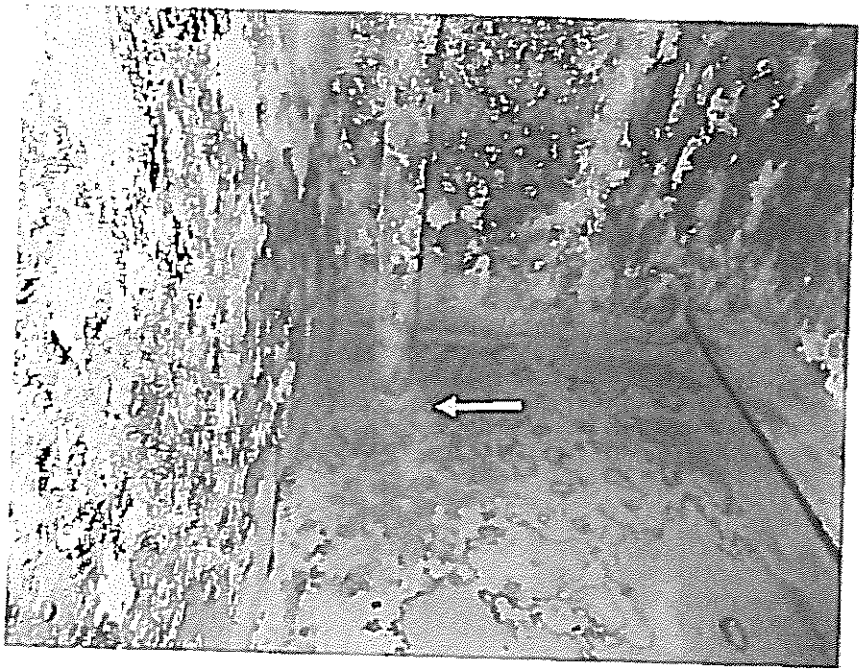
12. DBT 2 heavily corroded and holed lower part of centerline girder (arrowed)



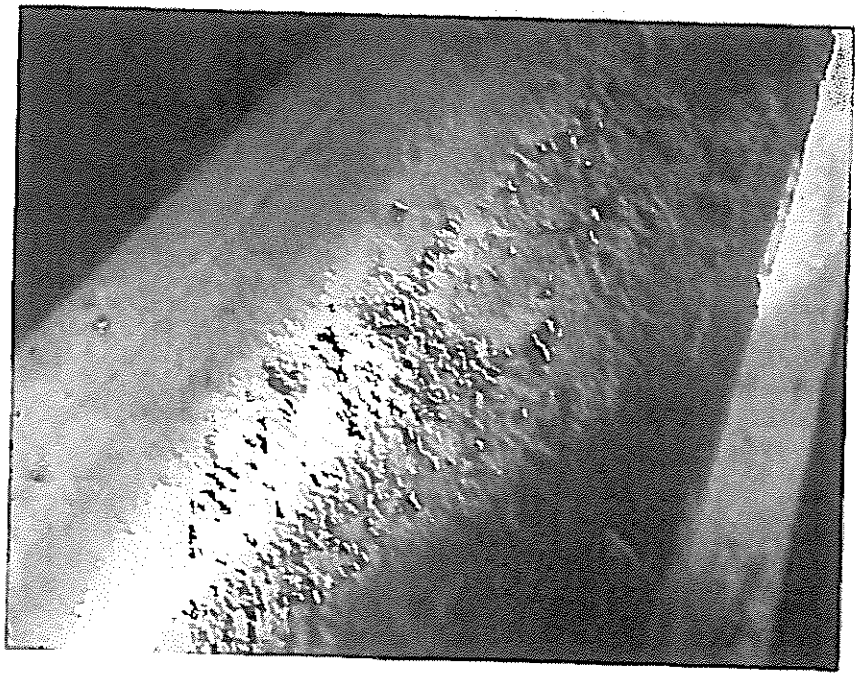
13. DBT2 transverse floors in rusty condition



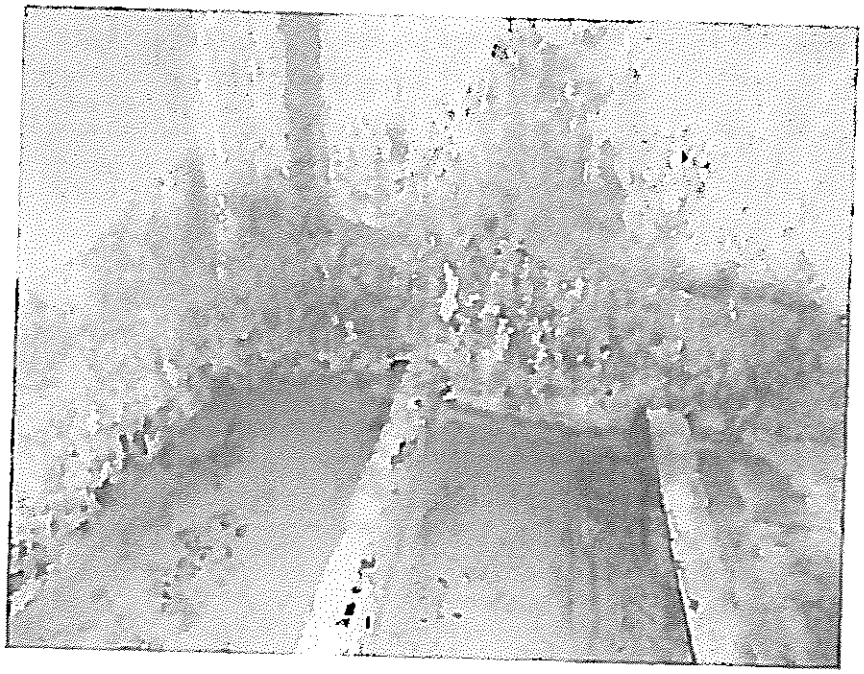
14. DBT 2 crater formed on bottom plating below the sounding pipe due to missing striker plate



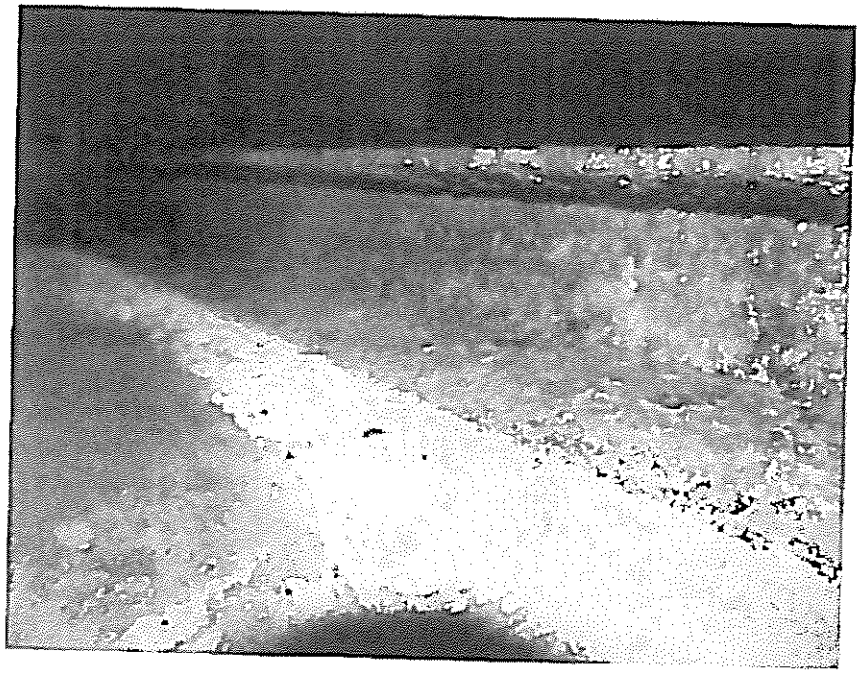
15. DBT 3 heavily corroded steel surfaces around sounding pipe. Striker plate also missing from bottom plating below the pipe (arrowed)



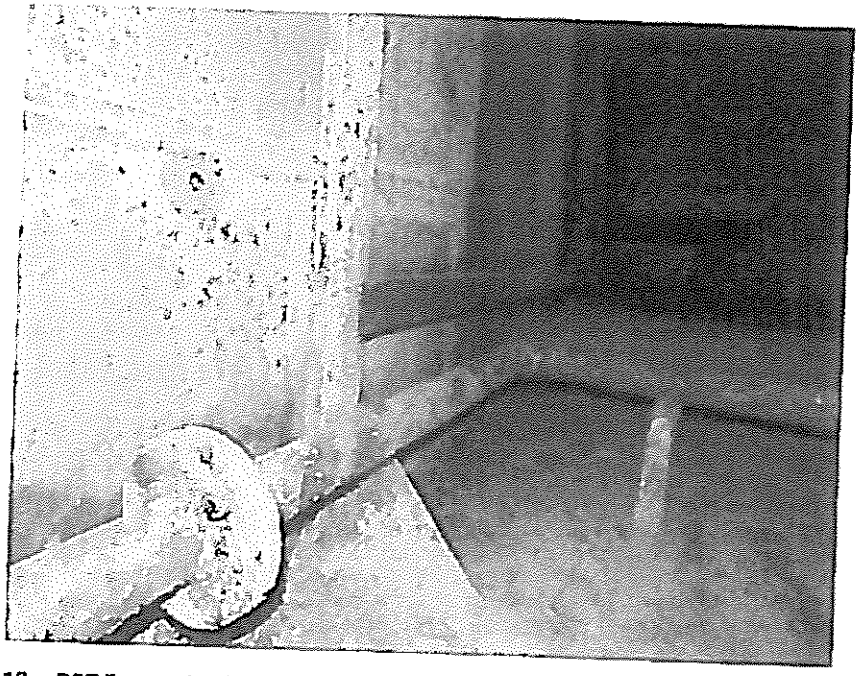
16. DBT 3 pitting on bottom plating



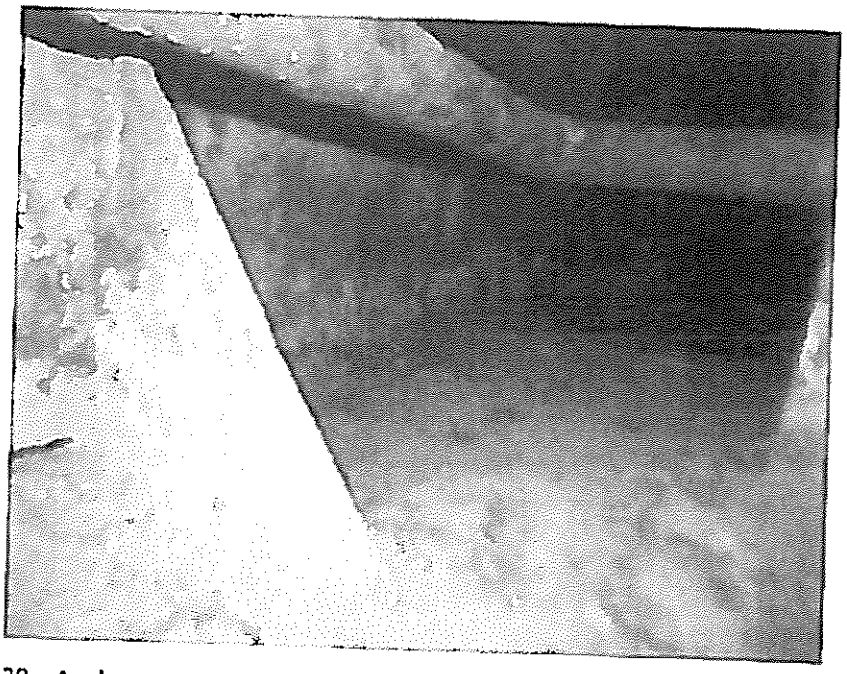
17. DBT 4 corroded steel surfaces



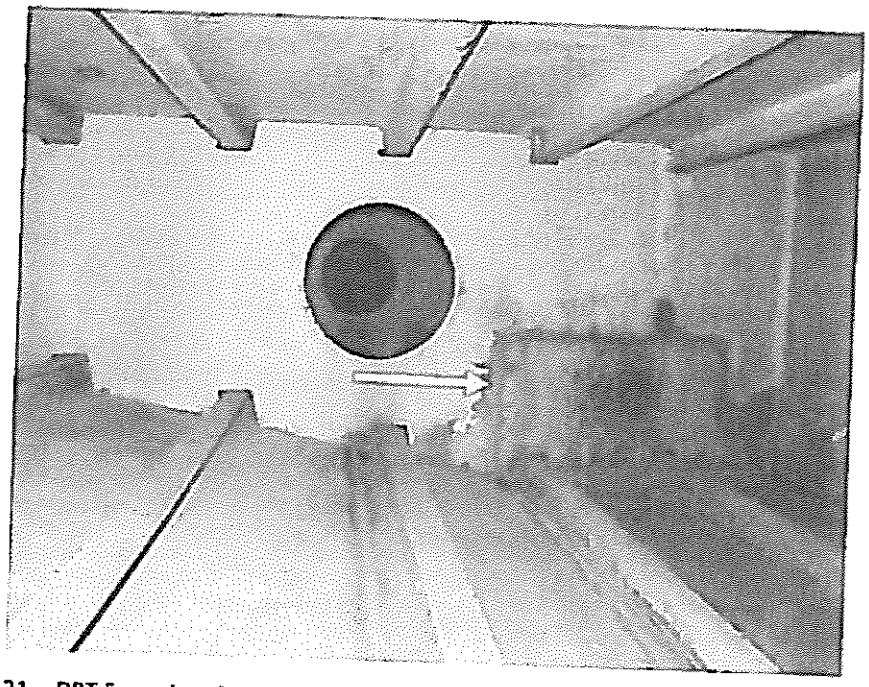
18. DBT 4 corroded bottom longitudinal



19. DBT 5 corroded lower part

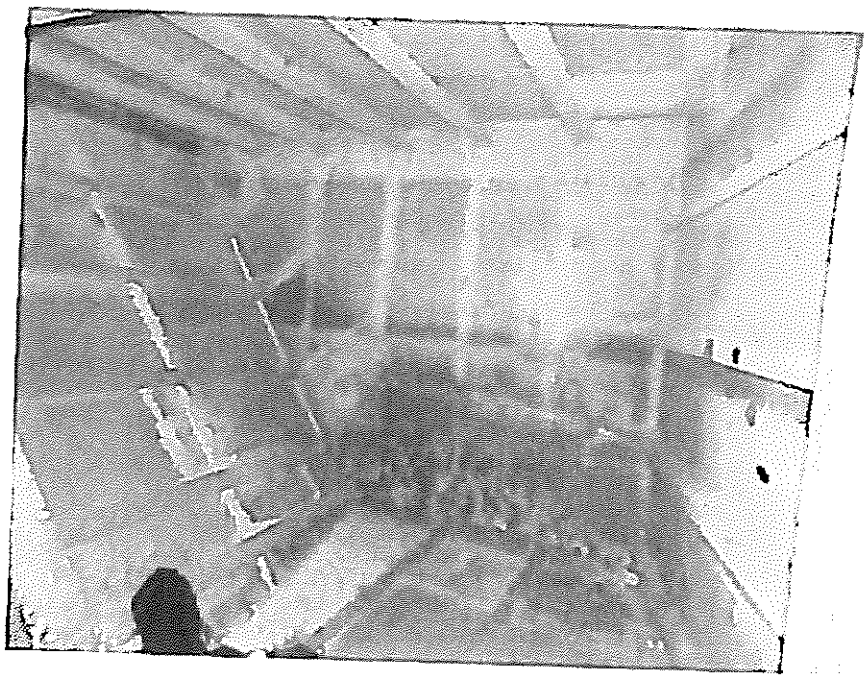


20. As above



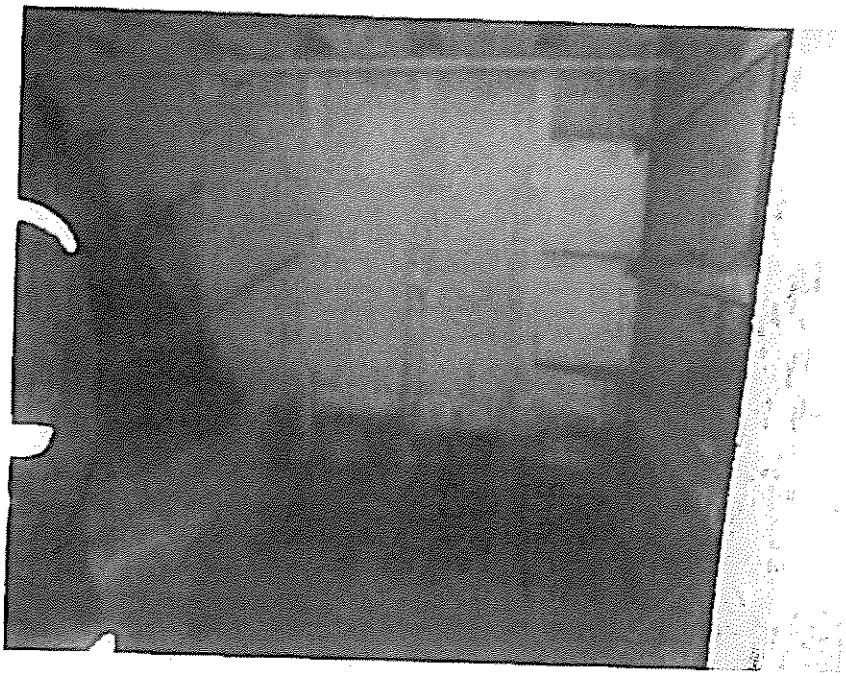
21. DBT 5 previous insert repair in way of transverse frame/floor (arrowed)

22. Side ballast tank 2P with signs of corrosion at lower part of bulkheads, sides and bottom structure.

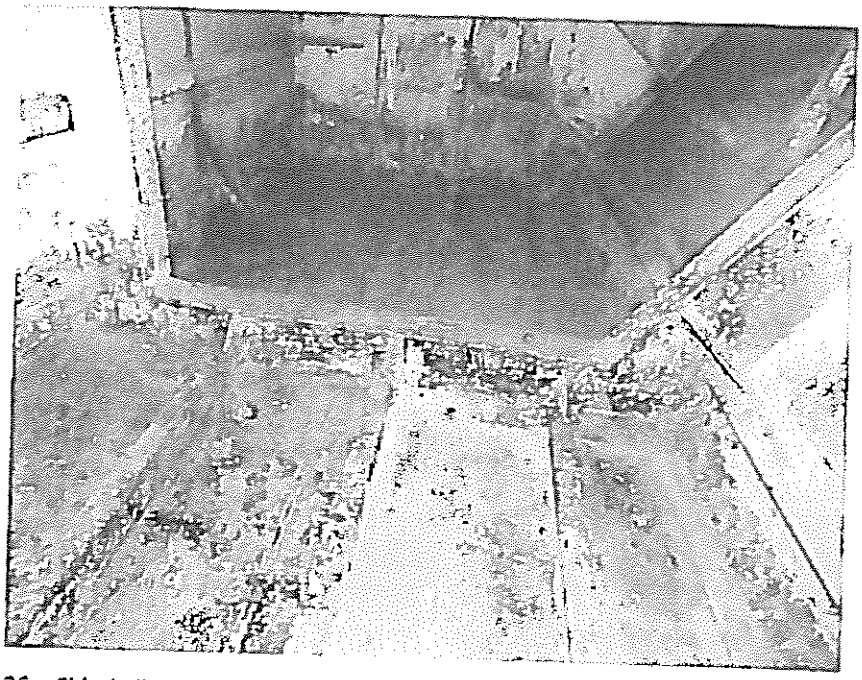


23. Side ballast 2S with signs of corrosion at lower part of bulkheads, sides and bottom structure

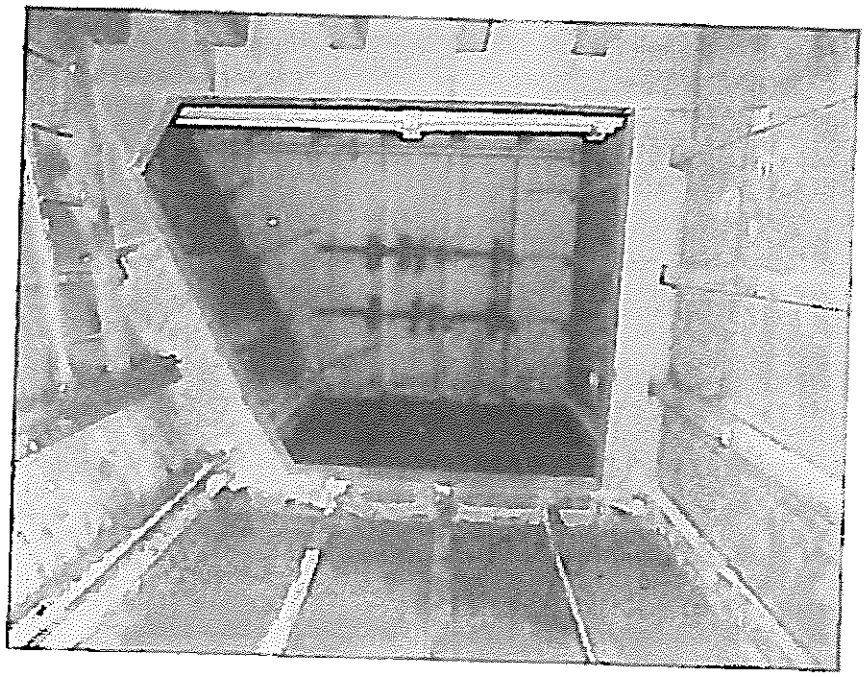
24. Side ballast tank no. 2S as above but under closer view of bottom framing showing the nature of corrosion



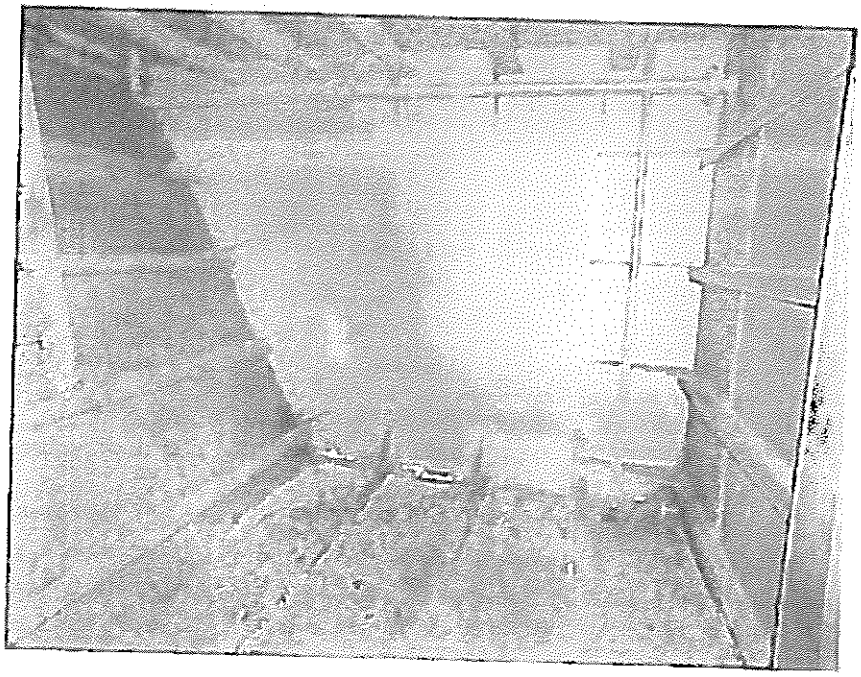
25. Side ballast tank 3P with signs of corrosion at lower part of bulkheads, sides and bottom structure



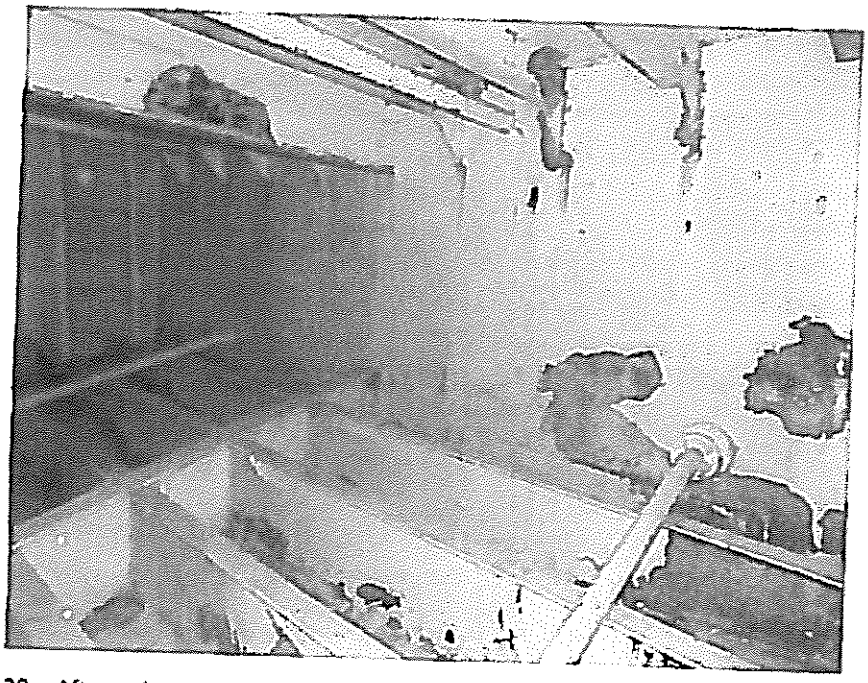
26. Side ballast tank 3S with signs of corrosion at lower part of bulkheads, sides and bottom structure



27. Side ballast 4P in better condition (coating generally intact)



28. Side ballast 4S in similar condition as 4P but with signs of advanced corrosion on bottom plating

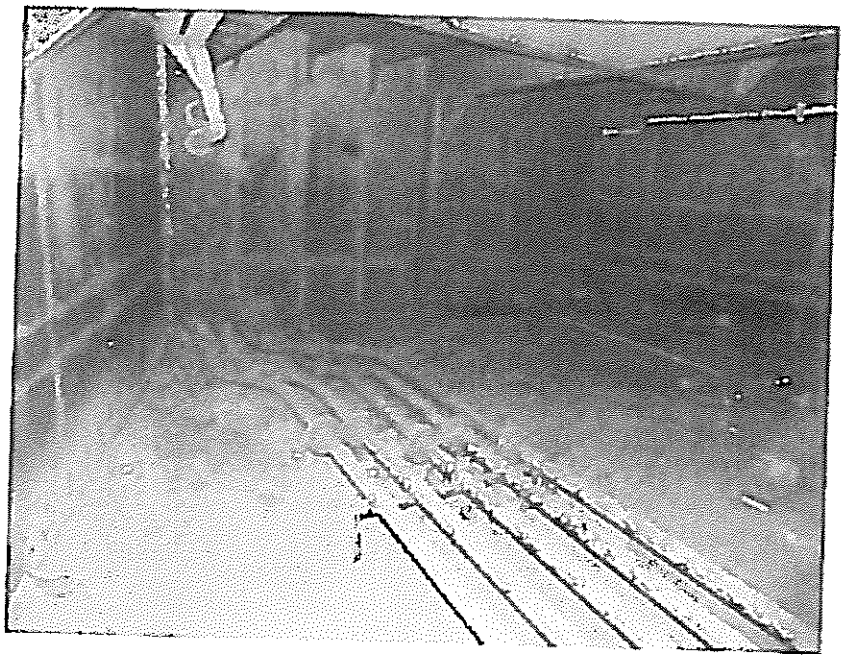


29. Aft peak center in satisfactory condition but with localised peeling off/detachment of paint

30. Aft peak port side in generally rusty and/or locally corroded condition

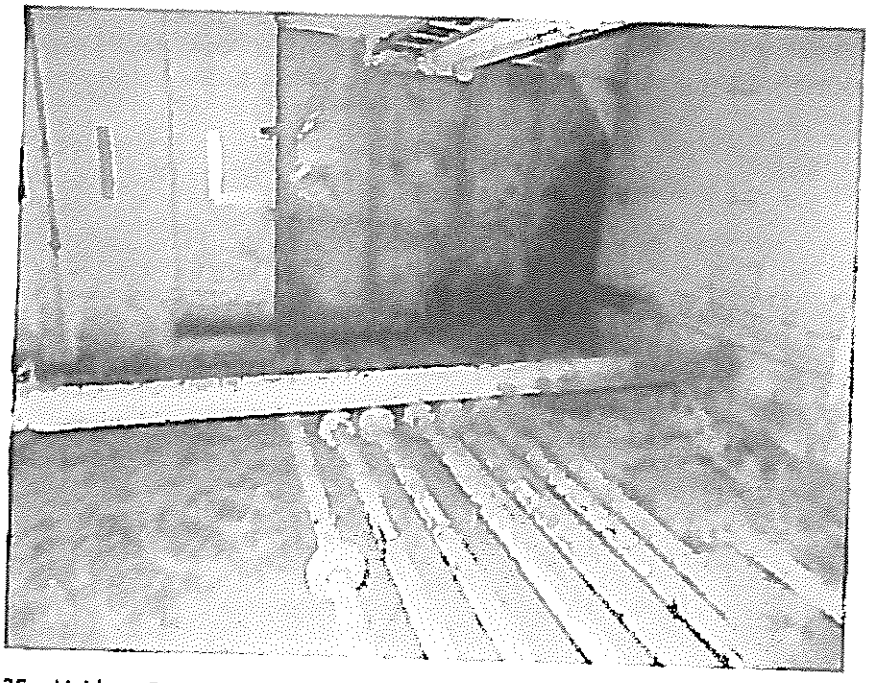
31. Void space no. 1 corroded floor and lower part of bukheads, side and frames

32. Void space no. 1 heavily corroded bilge well and piping

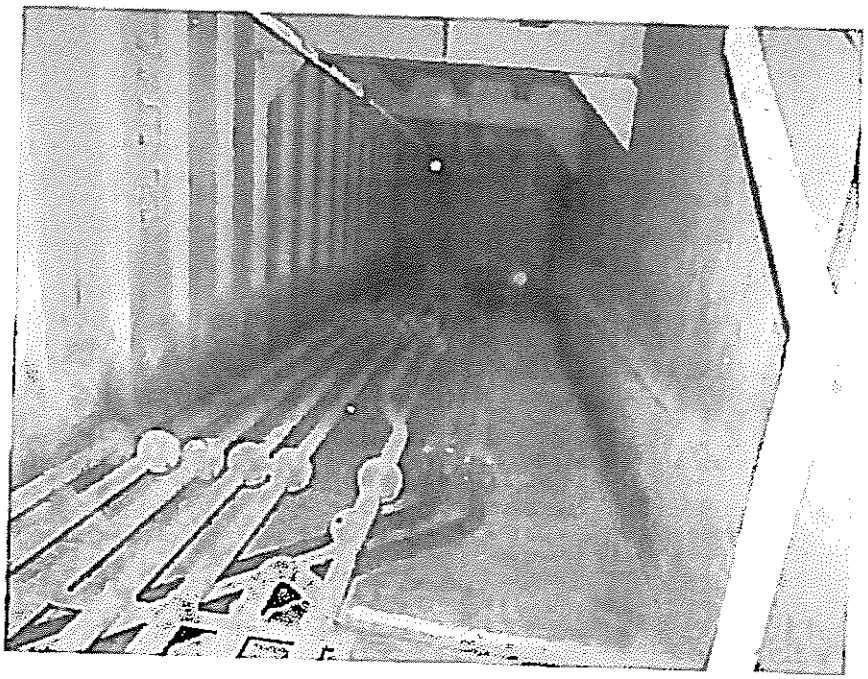


33. Void space no. 2 general view with corrosion affected bottom plating

34. Void no. 3 corroded bottom plating



35. Void no. 3 general view



36. Void space no. 4 in similar condition as void no. 2