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~~STAFF-IN-CONFIDENCE~~

22 Dec 88

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ANNEX TO
CINCFLEET LETTER 259/16/1/1.0
DATED 22 DEC 88

SUMMARY OF ACTION

NB: When an action authority/department is proposed in the end column, CINCFLEET will initiate request for appropriate actions by separate letters.

No	Action	Ref	Action by (proposed)
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BRIDGE AND OPERATIONS ROOM

- | | | | |
|---|---|--------------------------|------------|
| 1 | Improve understanding and practice of close quarters manoeuvring by Junior Officers of the Watch. (The case for provision of a Bridge Simulator, which would enable more time to be devoted to these aspects of basic OOW training, continues to be made). | Annex A
para 31a | CINCNVHOME |
| 2 | Emphasise PWOs responsibility for Ship Safety (QRRN 3163.2) during PWOs training. | Annex A
para 31b | CINCNVHOME |
| 3 | Provision of Black Box Recorder (The existing unacceptable ad hoc recording arrangements for wheel and engine orders has been represented - CINCFLEET's 435/10.M dated 29 Nov 88). | Annex A
para 31c
) | MOD(DNW) |
| 4 | Investigate internal communications facilities in CO's Cabin and Charthouse (Dialogue between the OOW and SPS was conducted on RICE interphone circuit which denied the CO an important source of background information on contacts. Procedural aspects to be examined by FOST). | - | FOST |

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No	Action	Ref	Action by (proposed)
<u>NBCD AND MARINE ENGINEERING</u>			
5	Programme DRIU Training in Fleet time	Annex B para 11c	CINCFLEET
6	Investigate cable gland design	Annex B, App 1, para 10	DGSS
7	Investigate hatch and manhole design	Annex B, paras 5a, 5d, 6b(2) and 11b and App 1 to Annex B para 16.	CNA - ADNA/SS
8	Investigate DC and messdeck locker design	Annex B, App 1 para 11 and 13.	DGSS
9	Increase the allowance of ACRO PROPS instead of DC timber	App 1 to Annex B para 8	DGME
10	Review scale of allowance of DC lamps	-	DGME
11	Standardise wire free communications for whole ship use - introduce the Cougar radio	Annex B para 7b	D of C/SW DGME
12	Review scale of allowances of salvage pumps and eductors	-	DGME

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No	Action	Ref	Action by (proposed)
13	Review provision of emergency cable penetrations of watertight bulkheads	App 1 to Annex B para 10	DGSS ADNA/P
14	Hasten publications of Stability Data Pocket Book and review the Class Book 'after damage' illustrations	Annex B para 7c	CNA
15	Hasten information on "May Be Left Open" (MBLO) Tallies specific to ship class	Annex B para 5e	CNA
16	Provide improved stability training (course content and provision of computerised stability trainer)	Annex B para 7c	CINCNAVHOME DGME
17	Investigate performance of Action Coveralls	Annex C para 10f	DGST(N)/INM
18	Improve performance of mess deck air conditioning	Annex C para 10g	CINCFLEET
19	Reassess contents of Survivor's Clothing Packs	Annex C para 10j	CINCFLEET
20.	Investigate scale of provision of Emergency Reserve Lifejackets (i) Actioned. Recommendation not agreed. Current scales are adequate on the basis that ratings evacuating their mess decks when piped to Emergency Stations <u>must</u> take their personal lifejackets with them. Sea Survival School to promulgate as a 'lesson to be Learned' (ii) Re-examine distribution of GSL throughout the ship.	Annex C para 10h	Sea Survival School MOD Sea Survival Working Party

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No	Action	Ref	Action by (proposed)
<u>MEDICAL</u>			
21	Emphasise 'major incident' problems during New Entry Medical Officers' Course	Annex C para 10a	Surgeon Commodore, Naval Medical Training
22	Review distribution of medical stores. (In hand, revised policy is planned to coincide with the addition of further upper deck medical stations in early 1989).	Annex C para 10b	-
23	Clarify directives on distribution of morphia. (Not agreed, instructions contained in FLAGO 1920)	Annex C para 10c	-
24	Provision of emergency drugs in pre-filled syringes. (Action in hand and new instructions contained in next change to scale of stores).	Annex C para 10d	-
25	Replace FMed 26 by FMed 826 (Action in hand).	Annex C para 10e para 10j	DMSD

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No	Action	Ref	Action by (proposed)
<u>WEAPONS AND ELECTRICAL ENGINEERING</u>			
26	Investigate the loss of RICE Links after the collision	Annex B para 7b(1), CINCFLEET (FES) App 1 para 15;	
27	Investigate whether 'bleep' phones were available for use	Minutes Q248 et seq	SWE0 D5
28	Investigate whether action was taken to restore main broadcast	Annex B para 5e, 6b	SWE0 D5
29	Investigate whether action was taken to restore power to the telephone exchange	Annex B, para 6b,	SWE0 D5
30	Rewrite Rounds Orders to include clarification of SDQ0 and roundsmen's responsibilities	Annex B para 6c,	SWE0 D5
31	Improve the orders for transition from Defence Watches to Emergency Stations	Minutes Q262	SWE0 D5; FOST
32	Improve the training for WEOs as Command Advisors	Annex B para 7e, para 8	CINCNAVHOME
33	Propose amendments to BR 300 and BR 2000(4)	Minutes Q279, Q293	CINCFLEET (FES)
34	xx	xxxxxxxxxxxxxxxx xxxxxxxxxxxxxxxx	CINCFLEET (FES)

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STAFF IN CONFIDENCE

Senior Naval Officer
Middle East
At Dubai



The Commander in Chief Fleet
Northwood
Middlesex

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24 September 1988

Sir,

INVESTIGATION INTO THE CIRCUMSTANCES ATTENDING THE COLLISION BETWEEN HER
MAJESTY'S SHIP SOUTHAMPTON AND THE MOTOR VESSEL TOR BAY

1. We have the honour to report the findings of a Board of Inquiry convened to investigate the circumstances of the collision between HMS SOUTHAMPTON and MV TOR BAY on 3 September 1988, and the immediate actions taken thereafter to ensure the safety of the ship.
2. HMS SOUTHAMPTON was on ARMILLA Patrol and at 1930D, having completed an outbound transit of the Strait of Hormuz with MV SANDGATE, she proceeded eastwards to meet MV TOR BAY, a 34,477 DWT container ship, for an inbound transit starting at 2100D. At about 2050D the two ships collided in position 25°35'N 56°48'E. SOUTHAMPTON suffered heavy damage port side for'ard. TOR BAY sustained appreciable damage to her bow. There were no major casualties. The two ships subsequently proceeded under own power, SOUTHAMPTON to Fujairah and TOR BAY to Dubai.
3. Narratives of the events before and after the collision are at Annexes A and B respectively. A medical report is at Annex C. All Annexes are designed as "stand alone" papers. Relevant supporting documents are enclosed. The following factors affected the accuracy of the report:
 - a. The Board of Inquiry was denied access, for legal reasons, to MV TOR BAY.
 - b. Many of the witnesses, from whose evidence the narratives were compiled, were unsure of the timings and sequence of events.
 - c. Some witnesses were interviewed by [XXXXXXXXXXXX] of the Treasury Solicitor's department, before the Board of Inquiry started work.

BOARD OF INQUIRY CONCLUSIONS

4. Circumstances leading to Collision.
 - a. The Officer of the Watch:
 - (1) Was insufficiently experienced to undertake safely close quarters manoeuvres, unsupervised, in darkness.
 - (2) Did not appreciate the complexity of the manoeuvre he undertook.
 - (3) Prepared only a rudimentary plan for taking station on TOR BAY from forward of her beam.

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(4) Neither sought nor obtained any timely advice on ship safety.

(5) Did not give the Command a full shipping report on TOR BAY in accordance with Captain's Standing Order 0436.3.

b. The Navigating Officer. Did not advise an inexperienced Officer of the Watch on a potentially difficult manoeuvring problem as required by QRRN 3403.4.

c. The On Watch Principal Warfare Officer. In his capacity as Officer in Charge of the Operations Room, failed to provide the Officer of the Watch with advice on ship safety, in accordance with QRRN 3163.

d. The Commanding Officer.

(1) Placed unjustifiable trust in an unsupervised, inexperienced Officer of the Watch, conducting a close quarters manoeuvre in darkness.

(2) Allowed the Officer of the Watch to report only the range and visual identification of TOR BAY without insisting on a full verbal shipping report, as required by Captain's Standing Order 0436.3.

(3) Did not possess the facts essential to ensure the safety of his ship at the rendezvous with TOR BAY.

(4) Consequently, he allowed HMS SOUTHAMPTON to stand into grave danger.

5. Circumstances following Collision.

a. A combination of inherent structural strength and energetic damage control enabled SOUTHAMPTON to stay afloat and steam 70 miles to shelter.

b. Three compartments were needlessly flooded.

c. Alternative methods of providing converted power supplies are needed.

d. Damage Control was conducted with dedication and professionalism, but there were some weaknesses in command and control procedures. There is no evidence to suggest that any standard procedures are at fault.

e. Shortcomings in equipment and ship fittings were identified which need close review.

f. The value of Damage Repair Instructional Unit training was conclusively proved.

6. Detailed recommendations are contained at Annexes A and B. Annex C contains medical conclusions and recommendations which are mainly concerned with medical stores and equipment performance.

BOARD OF INQUIRY OPINIONS

7. The Board of Inquiry's opinion is that the Officer of the Watch made errors of judgement in assessing the situation and was negligent in not properly calling the Commanding Officer. The Navigating Officer also made an error of judgement. The on-watch Principal Warfare Officer was negligent in the performance of his duties. The Commanding Officer's unjustifiable trust in the Officer of the Watch was an error of judgement and his failure to acquire the information necessary to ensure his ship's safety amounts to negligence. No adverse conclusions on personnel were drawn from Annexes B and C.



We have the honour to be,
Sir,
Your obedient Servants

XXXXXXXXXXXXXXXXXXXXXXXXXXXX
XXXXXXXXXXXXXXXXXXXXXXXXXXXX

P⁶² G L GREENSLADE
Surgeon Lieutenant, Royal Navy

XXXXXXXXXXXXXXXXXXXX
XXXXXXXXXXXXXXXXXXXX

M DODDS
Lieutenant Commander, Royal Navy
XXXXXXXXXXXXXXXXXXXX

XXXXXXXXXXXXXXXXXXXX
XXXXXXXXXXXXXXXXXXXX

D B R HUGHES
Commander, Royal Navy
XXXXXXXXXXXXXXXXXXXX

XXXXXXXXXXXXXXXXXXXX
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A H F WILKS MBE
Captain, Royal Navy
XXXXXXXXXXXXXXXXXXXX

XXXXXXXXXXXXXXXXXXXX
XXXXXXXXXXXXXXXXXXXX

P McLAREN
Commodore, Royal Navy
President of the Board

Annexes:

- A. Circumstances leading to Collision
- B. Circumstances after Collision
- C. Medical Report

Enclosures:

1. Authentication Certificate covering Transcript
2. Curricula Vitae of Officer Witnesses
3. List of Witnesses
4. Chart F2888(Master copy only)
5. Worst Case Illustration of Compartments Flooded
6. Photographs
7. Manoeuvring Form
8. Relevant Signals
9. Captain's Standing Order 0436 'Calling the Captain'
10. Extract from Night Order Book
11. Extract from Navigation Record Book
12. Extract from Ship's Log
13. Captain's Standing Order 0462 'Command Open Line'
14. Explanation of Reconstruction
15. Reconstruction Diagram
16. HMS SOUTHAMPTON's S20/2 dated 6 Sep 88 (SOUTHAMPTON Report)

F. 3 No.

Annex A to
Board of Inquiry Report
dated 24 September 1988

CIRCUMSTANCES CULMINATING IN COLLISION

BACKGROUND

1. SOUTHAMPTON was enhanced during a busy AMP when about 40 % of the Ships Company changed over. She sailed for ARMILLA after a short period of sea trials and a pre-deployment work-up which included training in the Damage Repair Instruction Unit at Devonport. On route to the Gulf, passage training focused on improving operational standards, and included close quarters manoeuvring. FOF2 assessed the ship as operationally ready for ARMILLA duties as she left the Mediterranean. SOUTHAMPTON joined TG 321.1 on 12 August 1988.

T25 Q2479-
Q2489

2. When duty ship, the general policy is to achieve sustainability by sensible programming of transits. The organisation of accompaniments is left to the individual Commanding Officers' discretion, although customer demand obviously plays a major role.

T25 Q2537-
Q2559

3. At 1930D on 3 September SOUTHAMPTON was heading for COVER POINT, a pre-arranged rendezvous with MV TOR BAY, having just completed an outbound transit with MV SANDGATE. Signal traffic had been exchanged approving TOR BAY's navigation plan, ordering a speed of advance of 17 kts, and indicating that having identified herself, SOUTHAMPTON would join from the North. Visibility was good with a 10 knot South Easterly wind and approximately half a knot of tidal stream setting towards the south west. It was dark. The following narrative is based on the best assessment of conflicting evidence.

SEQUENCE OF EVENTS

4. The Navigating Officer (NO), Lt Cdr XXXXXXXXXXXXX was the Officer of the Watch for the Last Dog. At 1950 whilst on a course of 115 speed 15 he detected by radar two contacts 10 degrees on the starboard bow approximately 23 and 25 miles away. The Surface Picture Supervisor (SPS) of the Last Dog, AB(R) XXXXXX remembers these contacts at some point bearing 140 - 19 miles, but cannot recall a course or speed. Both contacts were also noted on a bearing of 150 by the PW0, Lt XXXXXXXXXXXX who recalls one heading 340 speed 15 whilst the other was on a course of 297 at 9 kts. This assessment was made at about 2000.

T17 Q1646

SS.1

S7.7

5. Consensus of opinion on watch assumed that TOR BAY was the northerly of the contacts as it was heading towards the NW in the direction of COVER POINT. This assumption, together with the intended navigation track, formed the basis of the handover between Lt Cdr XXXXXXXXXXXX and S/LT XXXXXXXXXXXX who relieved him as OOW of the First Watch. S/LT XXXXXXXXXXXX was familiar with the routine for accompanying entitled ships through the danger zone having kept a watch on 5 out of the previous 10 transits. XXXXXXXXXXXX had, however, been present on the Bridge for only one R/V, which co-incidentally had been that forenoon, in daylight, with MV SANDGATE, and was therefore unfamiliar with the night time identification procedure which required careful briefing from the NO. He had conducted the forenoon join in the presence of the Navigating Officer and the Captain. Although believed by the Commanding Officer (CO) to be competent at station keeping, XXXXXXXXXXXX previous experience of close quarters manoeuvring and taking station was limited to one or two attempts whilst on passage through the Mediteranean, a RAS approach, and OOW manouvres during the pre-deployment BOST. All of these were in daylight and closely supervised by the NO, who accepts the fact that he did not brief the Officer of the Watch on a manoeuvre for joining TOR BAY, although from the aspect of the ships at 2000 the join was likely to be from ahead.

S7.9

T16 Q1324

T17 Q1619

T17 Q1618

T16 Q1438/9

T17 Q1666

6. During the handover period, the CO came to the Bridge and was briefed by Lt Cdr XXXXXXXXXXXX on the two contacts held on radar. At 2000 SOUTHAMPTON was 295 8.5 miles from COVER POINT with the contacts at an approximate range of 19 miles. Captain XXXXXXXX is positive in his own mind that at this point he gave instructions to the OOW to take station on the starboard quarter of TOR BAY, at 1 mile. The normal routine was to take station between 3-5 cables, although the position relative to the customer varied according to the number of ships in the "crocodile" and the threat. In Captain XXXXXXXXXXXX recollection, the distinct instruction to take station at 1 mile was given, so that the ship could adopt a more relaxed posture until approaching the high risk area; it was then his intention to close to 5 cables. Captain XXXXXXXX also recollects his NO asking him to confirm this change of standard procedure, but neither this nor the actual instruction is remembered by anyone else present on the bridge at the time. Captain XXXXXXXX cannot categorically state to whom he addressed his remarks. Sub Lt XXXXXXXXXXXX however is quite certain that the CO instructed him to take station at 3-5 cables, although he cannot be sure if the order was given whilst Captain XXXXXXXX was on the Bridge, or later when he reported the identification of TOR BAY to the Captain in his cabin. Unfortunately the NO cannot substantiate this either. The CO returned to his cabin at approximately 2005, and shortly afterwards, the NO went to the Charthouse where he remained until 2020.

S1.10

T25 Q2566-72

T16 Q1327

T17 Q1678

T16 Q1356

T17 Q1673

S1.13

7. On taking over the watch, S/LT [XXXXXXXXXX] supervised the 2nd OOW, S/LT [XXXXXXXXXX], in taking a fix using the JUD with 1006 radar selected. The fix taken at 1958 placed the ship on track.	T20 Q2073
8. The two contacts became visual at about 8 miles. At some time after 2020 (not noted in the navigational record book), the OOW altered course to close the contact believed to be MV TOR BAY, which by this time had crossed onto the port bow. This alteration increased the rate at which the other contact, still on the starboard bow, drew right. Neither the CO nor the NO were informed of this although the latter did come to the Bridge for a short time at 2020 in order to leave Night Orders for the CO's approval. These orders contained no information about the conduct of the joining procedure with MV TOR BAY. The NO cannot remember seeing or discussing either of the contacts with the OOW, and on satisfying himself that the periodicity and accuracy of fixing was acceptable, he left the Bridge to continue working in the Charthouse. Whilst there, the NO considered himself to be on call to advise the OOW, and was available on the Bridge intercom, but could not monitor discussions between the Bridge and Ops Room on either Command Open Line (COL) or direct line (CCU).	T21 Q2162 T25 Q2580 S1.15 T25 Q2596 T17 Q1691 T17 Q1613 T17 Q1613-5
9. At approximately 2030, whilst the OOW continued to close the contact on his port Bow, the 1st Lieutenant, Lt Cdr [XXXXXXXXXX] went to the CO's cabin to discuss the conduct of operations overnight. In UK waters, Lt Cdr [XXXXXXXXXX] had been given conduct of the ship from time to time when the CO was absent on Squadron business. He had assumed the same responsibility on occasion whilst in the Gulf to allow the CO brief periods of rest during accompanyments, usually between 0400 - 0800. During this time the 1st Lt remained on the Bridge, with the NO who kept a standing morning watch. Although he was aware of the imminent rendezvous, the CO was happy to discuss the nights' routine and, indeed, had been about to summon the 1st Lt when the latter arrived. Both considered the subject important enough to warrant a meeting at that time.	T24 Q2396/2401 T25 Q2573-76 T24 Q2445 T24 Q2472 T25 Q2495
10. From the Ops Room, Lt [XXXXXXXXXX] offered little to help reconstruct this event, other than to state the course and speed of the radar contacts shortly after their detection. During the Inquiry he acknowledged his position as the overall supervisor of the watch, but displayed uncertainty about special duties with regard to ships safety, as laid down in QRRN 3163. He stressed to the Board the importance of maintaining the overall picture in the Ops Room, but when asked to be specific for the night of 3 September, Lt [XXXXXXXXXX] could only recall the Russian anchorage passed on the outboard leg, as an area of minor interest. He was fully aware of the R/V with the TOR BAY, and had a copy of the setting up signal in which SOUTHAMPTON stated she would join from the North. He had briefed S/LT [XXXXXXXXXX] before	T18 Q1839/1899 T18 Q1892 T18 Q1895 T16 Q1337

the latter went to the Bridge to take over the watch, but they did not discuss any plan to take station on TOR BAY. Lt XXXXXXXX stated that the joining routine did not directly concern him although he was aware that it would involve a close quarters manouvre. He did not monitor it on radar.

T18 Q1805

T18 Q1806

T18 Q1818

11. By approximately 2035, S/LT XXXXXXXX had closed the two contacts sufficiently for him to initiate the identification procedure. He ordered the Quarter Master, Leading Regulator XXXXXXXX to flash the masthead obstruction lights and look for a response from the contact now 25 degrees on the port bow. There was no reply. However, the other contact at Green 40, approximately 6 miles, flashed her navigation lights, thereby identifying herself as the TOR BAY. The OOW passed this information to the SPS and the PWO, but not to the NO.

T16 Q1395

S2.8, S6.3,
S7.15

12. It was now approximately 2036 and Captain XXXXXXXX and the 1st Lt were coming to the end of their discussion about the overnight plan. The OOW called the Captain to inform him that TOR BAY had been identified, passing the range of the contact but not its' true or relative bearing. In reply the Captain told him to carry on with the join and to exchange greetings with TOR BAY on VHF. Captain XXXXXXXX stood up at this time, but despite a "feel" that he ought to now go to the Bridge, he remained in his cabin to discuss administrative details with the 1st Lt. The Officer of the Watch advised TOR BAY on channel 16 that he was ready to start the transit, which was acknowledged by TOR BAY.

T25 Q2584-2589

T16 Q1371

T25 Q2608-9

T16 Q1383

T24 Q2427

T24 Q2408

T16 Q1389

13. The PWO in the Ops Room acknowledged the identification of TOR BAY, and reprimanded the EWD who had made an earlier classification error. At this point, the PWO held the TOR BAY on radar on a bearing of 170 at about 5 miles.

S7.18

S7.19

14. The SPS had been tracking both contacts since their initial detection, but after his first report, had given no information to the Bridge other than a statutory call at 10 miles. He cannot remember the track detail that he gave the OOW at that time, but now that a visual identification had been made he found himself having to swap track identities.

T19 Q1949

15. The 2nd OOW recalls that the exchange of identities took place between plotting his 2020 and 2036 fixes. The latter had caused the 2nd OOW some difficulty and was only achieved after changing to 992 radar. It took more than 2 minutes to plot. The position was eventually shown to the OOW, whose attention was drawn to the fact that SOUTHAMPTON was to port of the intended Navigational Track. The OOW acknowledged this, and informed his assistant that they had been steering 105 and not 115 for some time, and that, having identified TOR BAY he was about to come to starboard to close her. The time is now assessed to be 2040.

T20 Q2076

T20 Q2080/83

16. With TOR BAY now at 3 to 4 miles, the OOW had still to formulate a specific plan to take up station. His intention was to ask the SPS for a course to intercept with a view to closing the contact until it reached the one mile range strobe on the Bridge JUD, and then turn slowly to starboard and parallel TOR BAY's course and speed. For this rudimentary plan to work, especially at night, it was essential for the OOW to know TOR BAY's course. S/LT XXXXXXXXXXXX has repeatedly stated that at some stage during the watch he was told TOR BAY was steering 316 but he cannot remember when. In reconstructing events from SOUTHAMPTON's position at 1950, knowing the approximate range and bearing on detection, and the likely intention of TOR BAY to pass through COVER POINT, it seems quite possible that she was indeed steering 316 until minutes before the collision, when she could have been expected to turn to 354 in accordance with her nav plan. The SPS states most positively that he at no time passed a course of 316 to the OOW, but on the contrary remembers TOR BAY being steady on course 349 speed 16 kts from the time she came within 5 miles of SOUTHAMPTON. This information was not passed to the OOW, who omitted to give the SPS any specific reporting instructions. Despite the fact that the unknown contact to the north of TOR BAY was previously recorded as steering 349 speed 16, AB XXXXXXXX is adamant that he correctly transferred track identities, and that the information displayed on the TOR BAY was correct.

T16 Q1406

E15

S6.4

T16 Q1408

T19 Q1960

17. Although still happy with his earlier plan, the OOW for some reason asked the SPS for a course to take station 4 cables on the Starboard quarter of TOR BAY. AB XXXXXXXX was unable to provide that information by his normal manual method of calculation, as in his recollection the ships were less than 2 miles apart at this stage and there was no time available. Instead he offered the OOW a course and speed of 220 - 16 kts to intercept taken from the computer.

T19 Q1977

18. At around this time and following his normal practice, the Marine Engineering Officer (MEO), Cdr XXXXXXXXXXXX went into the Ops Room to discuss the plan for the evening with the PWO. He was unable to see the nearer contacts on radar as Lt XXXXXXXXXXXX display was on the 32 mile range scale on which he remained almost without exception throughout the whole incident. The PWO stated that the MEO's presence distracted him, but he was not at all concerned about this despite the close proximity of TOR BAY.

S7.26

T18 Q1841-43

19. In the Ops Room, the PWO is situated approximately 6 feet from the SPS. Although he was manning COL and talking to the MEO when the ship altered course to 220, Lt XXXXXXXXXXXX stated that he overheard a report of "steady bearing" being passed by the SPS to the Bridge. He completely dismissed any thought of a possible collision, suggesting that in good visibility the Officer of the Watch always had a clearer understanding than the PWO of a manoeuvring problem.

T18 Q1830

T18 Q1844

T18 Q1846/1850

20. Just before the alteration of course, both the lookout on the Bridge, Seaman (Sonar)xxxxxxxxx and the QM saw TOR BAY on the starboard bow at an estimated range of 2-3 miles. When SOUTHAMPTON steadied on 220, both ratings state that TOR BAY was fine on the port bow. The 2nd OOW cannot substantiate this as he was at the Chart Table behind the curtain.
- T22 Q2277
T21 Q2178
T22 Q2278
21. Having completed the turn to 220 the OOW claims to have plotted TOR BAY on the JUD until it reached one mile when he ordered starboard 10, immediately followed by starboard 15. He had not looked at the advance and transfer figures available in the Navigation Data Book, and indeed displayed a lack of understanding on the subject when questioned by the Board. At no time did he consider the Rule of the Road situation in altering at close range to show a clear RED light to TOR BAY, nor had he appreciated that both ships were now in the vicinity of COVER POINT where he might have expected the merchant vessel to turn to a course of 354. The range between the two ships was now closing rapidly. The OOW, surprised by this, ordered the SPS to confirm the course of TOR BAY as 316 and was told she was steering 348, at which stage he immediately increased the wheel.
- T16 Q1411
T16 Q1418
T16 Q1429
22. The PWO noticed his tote showing SOUTHAMPTON's turn to 220 and at the same time TOR BAY's alteration to starboard, but by now, the contact was lost in the ground wave on the 32 mile range scale. A JUD is available next to the PWO's position, but this was not used. Although he momentarily considering the possibility of a collision, the PWO for reasons known only to himself, dismissed the thought immediately from his mind, and did not alert the OOW or CO.
- T18 Q1832
23. The SPS, whose display was on the 16 mile range scale, lost the contact in the ground wave at about 5 cables, but he continued to report "steady bearing" to the Bridge from information displayed on his tote. At 3 cables the SPS emphasised the steady bearing to the OOW who acknowledged with a report that he was coming further to starboard. The SPS did not alert his immediate supervisor PO(R)xxxxxxxxx or call the PWO about his growing concern for the ship's safety.
- T19 Q1983
T19 Q1994
T19 Q1981
24. On the Bridge the OOW was taking visual bearings of the TOR BAY during the latter stages of his manoeuvre. He focussed his attention on the starboard navigation light, which he assumed to be on the Bridge superstructure at the after end of the vessel. He noted initial bearing movement to the right, but soon realised it to be steady. At this time the lookout reported to the OOW that the TOR BAY was very close and the QM reported that he could see her bow wave.
- T16 Q1425
S4.10
T21 Q2186

25. By this time, the CO had cut short his discussion with the 1st Lt and was moving through his sleeping quarters on his way to the Bridge. He was not aware of any noticeable heel on the ship, although by now she was turning through more than 100 degrees at 16 kts and approaching maximum helm. He did, however, sense an urgent need to be on the Bridge. T24 Q2478
26. Seconds prior to impact AB xxxxxxxxx felt sure that TOR BAY was turning towards SOUTHAMPTON, and sensing disaster warned the Bridge personnel to "Get out or Get Off the Bridge", before rushing out of the port Bridge wing door and running aft. At this stage the OOW ordered full ahead, starboard 35 in an attempt to avoid collision, and pressed the General Alarm once. He did not pipe "close all red openings", thinking that the ships's company would have little or no time to react to it. A few seconds later the two ships collided. The QM was dislodged from his seat, and along with the other members of the Bridge team, found himself thrown to starboard, which was extremely fortunate for them, as the whole of the port side of the Bridge was crushed. T25 Q2613
27. On hearing the alarm, the CO rushed towards the Bridge, but managed only a few steps before impact. He reached the primary conning position, believing that they had struck a mine, only to be confronted with TOR BAY's bows towering above the Bridge. Unknown to him the engines were still in Bridge control, with the power control levers set at zero port, and starboard 100 ahead. The MCR was trying every means of contacting the Bridge without success. It took the Command some time to assess the situation and consider how best to separate the two ships. In the darkness and confusion, Captain xxxxxxxx estimated that the ship was still driving ahead and sent a message to the MCR via a runner, to go astern at lever 30. Some minutes later, when the ships had drawn apart and the CO sensed movement astern, an order to stop both engines was passed in the same way. T22 Q2282/2296
T16 Q1411
T23 Q2325
28. In the MCR, the Chief of the Watch CPO xxxxxxxx was on his feet at the sound of the General Alarm. After the impact he went to take MCR control of the engines, but was advised against doing so by the Deputy Marine Engineering Officer, WOMEA xxxxxxxx who had quickly arrived and, like others present, was not aware of the situation on the Bridge. T23 Q2326
29. Some 7 to 8 minutes later the Chief of the Watch took MCR control due to a forced lube pump problem on the starboard Tyne. Again, he was unable to inform the Bridge. When the CO's runner eventually arrived his message was misinterpreted by those present into "Take the way off the ship". This was done by applying 10 degrees of stern pitch to both propellers for one minute, when it was assessed the ship would be stopped in the water. T23 Q2333
T23 Q2342

CONCLUSIONS

30. The Board Concludes:

a. The Officer of the Watch:

- (1) Was insufficiently experienced to undertake safely, close quarters manoeuvres, unsupervised, in darkness. (para 5)
- (2) Did not appreciate the complexity of the manoeuvre he undertook. (paras 16 and 21)
- (3) Prepared only a rudimentary plan for taking station on TOR BAY from forward of her beam. (para 16)
- (4) Neither sought nor obtained any timely advice on ship safety. (paras 8, 10, 12, 14, 16 and 22)
- (5) Did not give the Command a full shipping report on TOR BAY in accordance with Captain's Standing Order 0436.3. (para 12)

b. The Navigating Officer, did not advise an inexperienced Officer of the Watch on a potentially difficult manoeuvring problem as required by QRRN 3403.4. (paras 6 and 8)

c. The on watch Principal Warfare Officer, in his capacity as Officer in Charge of the Operations Room, failed to provide the Officer of the Watch with advice on ship safety, in accordance with QRRN 3163. (para 22)

d. The Commanding Officer:

- (1) Placed an unjustifiable trust in an unsupervised, inexperienced Officer of the Watch, conducting a close quarters manoeuvre in darkness.
- (2). Allowed the Officer of the Watch to report only the range and visual identification of TOR BAY without insisting on a full verbal shipping report, as required by Captain's Standing Order 0436.3. (para 12).

(3). Did not possess the facts essential to ensure the safety of his ship at the rendez-vous with TOR BAY. (paras 12, 17, 21, 22, 23 and 24)

(4). Consequently he allowed HMS SOUTHAMPTON to stand into grave danger.

31. Recommendations

a. Junior Officers of the Watch should be given every opportunity to practise, and improve their understanding, of close quarters manoeuvres. A Bridge simulator would greatly enhance training.

b. During training PWO's should be specifically briefed on their special duties with regard to ships safety.

c. A "black box" should be incorporated into the AIO system to ensure accurate reconstruction of events.



CIRCUMSTANCES AFTER COLLISION

1. Background At the time of the collision, the ship was in Damage Control State 2 Condition Yankee and was steaming on both Tynes in Bridge Control. The MEO was in the Operations Room, the WEO and the Forward Fire and Repair Party Post (FRPP) Officer were in their cabins.

DAMAGE CAUSED

2. The bow of the TOR BAY sliced into the port side of SOUTHAMPTON immediately forward of the Bridge. The flare of the bow crushed the whole port side of the Bridge, but the major damage is to the hull. A triangle was cut in 1 Deck, the shape of TOR BAY's bow, with the apex by the Sea Dart launcher ring and the base 16 feet long at the deck edge. The split tapers to about 8 feet long at the waterline, but below that the bulbous bow has created considerable damage. It has been calculated that the bulbous bow penetrated far enough just to touch the keel with the top probably about one foot below 2 Deck.

3. It seems likely that the flare crushing the Bridge was the first contact, and this absorbed some of the impact before the bulbous bow, followed by the stem, entered the hull. It is thought that a combination of TOR BAY's resultant swing to port and SOUTHAMPTON's forward speed held the ships locked in the same relative position and prevented any further damage after initial impact.

4. A worst case illustration of compartments flooded is at Enclosure 5. Those opened to the sea and free flooded were:

- a. 4.5" Magazine
- b. Sea Dart Magazine
- c. Starboard Sea Dart Spray Compartment
- d. Port Sea Dart Spray Compartment through the cross-connection from c.
- e. The WTC between c and d.
- f. Sea Dart Quarters Position.
- g. Sonar Instrument Space.
- h. 3F Mess.
- i. Stores and Sonar gear underneath g and h.
- j. Conversion Machinery Room and adjacent Fresh Water Pump space.

SEQUENCE OF EVENTS

5. Damage Control Actions

- a. The Sea Dart Quarters Position - 3E2. CPOWEA xxxxxxxx was closed up in the compartment and was extremely fortunate to escape unscathed up the ladder. There was clearly nothing that could be done to save the space which was open to the sea and wrecked, so the hatch was closed and shored. xxxxxxxx used the escape manhole which can only be operated from below, so it was necessary for DC parties to open the hatch, re-secure the manhole and then close the hatch before shoring. T2 Q183
- b. Free Surface in the Forward 2 Deck Cross Passage - 2E. Flooding on 2 Deck was caused primarily by a burst firemain and was quickly stopped by closing isolating valves, but water was also slopping in through the hole in the side. Spreading was prevented by erecting dwarf bulkheads in 2 Deck port passageway whilst mattresses from an adjacent CPO's cabin were used to seal gaps. The water was cleared by a portable eductor which ran for the next 15 hours without interruption. T3 Q363
T3 Q365
T3 Q375
- c. The Sea Dart Hydraulics and Power Room - 3E1. The room itself was undamaged by the collision but became flooded because the X-Ray hatch to the Spray Compartment was fully open (para 6c). Damage Control parties shored the hatch in 2 deck to prevent floodwater spreading further should the bow sink lower in the water. T1 Q50
T2 Q192
T1 Q46/47
- d. 3D Mess. The mess was filled with water as the occupants were scrambling out. CPOMEA xxxxxxxx went down into the mess when it was half full, could see no reason for the ingress of water, checked that no-one was still there, and prepared to pump the compartment out. He had just got two submersible pumps rigged and was ready to start when electrical power was lost because of the flood in G Electrical Distribution Centre (EDC) (para 5e). CPOMEA xxxxxxxx went back up to 2 deck and shored the hatch. Several hours later it was decided to pump out the compartment in order to lighten the load on the bows and bring them further out of the water. The hatch in 2 deck was opened and submersible pumps started but there was considerable difficulty caused by the continual blocking of the suctions by flotsam (Appendix 1 para 7). When the water was low enough, it was found that the cause of flooding into the mess was the hatch to the T3 Q335
T3 Q347
T3 Q348

4.5" magazine below. Although closed and locked it leaked through both the hatch/manhole joint and the hatch/coaming joint whilst there was also a jet of water from the keyhole. This hole was plugged and the hatch and manhole were shored.

T4 Q595
T4 Q597
T4 Q602
T6 Q859

e. Computer Room/G EDC/SRE Compartment Flat - 3G. The first men on the scene saw that the Yankee Hatch to the Conversion Machinery Room and the FW Pump Space below was open and there was a 'May Be Left Open' tally on it. The compartment below was filling with water rapidly, and the level was two or three rungs from the top of the ladder when first seen. There was difficulty in closing the hatch because of the upward rush of air and the fact that the ladder to 2 Deck Passageway above has to be lifted to allow the hatch cover to be lowered. Once down, the clips had swung to the wrong position so that only two of the six would engage in their wedges. CPOMEA XXXXXXXXXX lifted the hatch to rotate the clips to the position which would enable them to be dogged home but could only manage one more before he decided to shut the hatch again as the upward air flow was increasing and further delay might prevent shutting it at all. It took two men standing on the hatch to engage the three clips and, in rising floodwater, the team shored it with Acro Props. This reduced the incoming flow of water sufficiently to allow the compartments to be pumped out with a submersible pump and the level to be subsequently held down with a portable eductor. At its worst, the water level rose to about four feet and this has caused damage to the computer, but more importantly for the Damage Control effort, it flooded G EDC and caused vital electrical power to be lost in a ship which had all four generators running and all switchboards operational. One immediate result was that power to the portable sockets forward was lost and 3D messdeck had to be abandoned.

T4 Q471
T5 Q693
T5 Q690

T4 Q451
T5 Q707

T1 Q100

T4 Q502

f. The Midships Sewage Treatment Plant (STP)/Refrigerating Machinery Compartment - 4H. The flood in 4H was less than a foot deep and was caused by the STP overflowing as a result of power lost to the effluent pumps. CPOMEA XXXXXXXXXX changed the by-pass valve to the discharge overboard position and the compartment was pumped out using the fitted eductor. This relatively straightforward act was hindered because the valve handle had come off the stem and fallen between the ship's side and the Stores Office panelling. It was retrieved by lowering a small "volunteer" MEM head first down behind the panelling.

T4 Q565
T4 Q559

T4 Q563

6. Avoidable Damage

a. Preamble. In addition to the damage caused by the collision, there were three compartments needlessly flooded. These caused a considerable extra Damage Control effort, diverted attention from other tasks and added to the long-term repair bill.

b. Computer Room/G EDC/SRE Compartment - 3G.

(1). The hatch in 3G Flat gives access to the Fwd Fresh Water Pumps and the Conversion Machinery Room. It is used by the LMEM(M) of the MCR Watch for FW tank dips and for starting and stopping pumps, by the MEM(L) of the Watch for rounds of conversion machinery and by the Computer Room WEM for rounds of WE equipment. In the week before the collision, water rationing had been enforced because of evaporator defects, which resulted in even more frequent visits to 4G.

T9 0961

T9 0971

(2). The hatch leading to 4G is very difficult to operate. It is heavy and fouled by the ladder leading to 2G. The solution devised by SOUTHAMPTON was to leave this Yankee hatch permanently open. This undoubtedly caused the flood in 3G, but it was exacerbated by the difficulty experienced in closing the hatch, even after the ladder had been removed (see Appendix 1 para 16).

T9 Q969
T12 01113-6

[illegible]

(4). The unnecessary loss of G EDC, coupled with the destruction of E EDC, had potentially disastrous consequences for the Damage Control effort.

c. Sea Dart Hydraulics and Power Room - 3E1. This compartment flooded because the X-ray hatch to the Spray Compartment below was open. The Fwd FRPP watchkeepers do not do rounds there because a notice hanging on the 2 deck hatch warns: "DANGER DO NOT ENTER. POWER ROOM SWITCHED REMOTE RUN UP". WE Standing Orders, however, require rounds by the Computer Room watchkeepers of the Hydraulics Room hourly and of the Spray Compartment once a watch. Of the two on watch at the time, the WEA Apprentice is under the impression that he should not go into the compartments as the notice is quite clear with its message "DO NOT ENTER". The WEM claimed that he did

T1 050

d. 3D Mess. There is no evidence to suggest that the hatch to the 4.5" Magazine was not correctly locked or clipped, and it does not appear to be distorted. But even after shoring, water is still leaking in via the hatch/coaming and the manhole/hatch seals. The flood in 3D mess was, therefore, not caused by any negligence or poor practice; the hatch just does not contain a flood below.

7. Command and Control of Repairs

T4 Q655
T4 Q656
T14 Q1215

(1) The MEO, as Action NBCDO, was in overall charge and always had a good picture of the situation in spite of a very early failure of all installed internal communications. He ran a battery powered phone to the Bridge for briefing the Command and to the After FRPP, but otherwise all messages were passed by runner. There was no shortage of hands from the Flight Deck and they proved to be extremely fast and accurate. The XO also provided an excellent service by seeming to be everywhere at once and ensuring that the situation was understood at all levels.

T1 Q154

T1 0161

T1 Q116
T15 Q1277

flooded compartments were either pressed or filled to within a few inches of the deckhead) and the small amount of water on 2 deck was quickly removed. Detailed information, however, was not available because one copy of the Class Book was in the MEO's cabin which was wrecked and the other was in the cabin of the OOW who was suffering from shock. No effort was made to get them because the MEO preferred to use the sketch and calculations drawn up by the last SMEO to D5 which he found to be extremely helpful and reassuring. The stability information in the Class Book has not been expanded to include the long awaited ready-reference nomagrams. It is of interest that Incident 2 in the Book shows more severe flooding in the same general area of the ship yet the waterline is in a very similar position to SOUTHAMPTON's. This, presumably, is a reflection of the enhancements made to the ship since the calculations, and the Class Book, therefore, gives a more optimistic picture than reality justifies.

T1 Q112

d. The Command was satisfied with the stability advice he was given.

e. Weapon Safety. Having deduced that both the 4.5" and the Sea Dart magazines were completely flooded, the WEO felt able to advise the Command that they were relatively safe. This advice was accepted.

T2 Q294

f. The Forward FRPP.

(1) The Supply Officer is the Officer-in-Charge of the Forward FRPP. He closed up quickly, but his Incident Board operator (an LSA) was delayed for about 15 minutes through no fault of his own. The Incident Board is in the Senior Ratings' bathroom at the corner of the starboard 2 deck passageway and the forward cross-passage and was in darkness. As the Supply Officer was moving around and receiving and giving all his information to runners, the Incident Board operator was not in the picture and his Board remained without a mark on it.

T7 Q907

T3 Q330

T3 Q412

T3 Q434

T7 Q913

(2) HQ1 had an accurate picture of the incidents, but the Supply Officer was fully aware only of the three in which he was directly involved; the erection of dwarf bulkheads in the port passageway, emptying water from the starboard side of the cross-passage and the flood in 3D mess. He had little idea of the work in 3G Computer Room flat. In the event, this proved to be only a procedural error as the flood was being urgently attended to.

T3 Q413

T3 Q431

g. The After FRPP. There was no damage in the after part of the ship, but an accurate picture was kept on the Incident Board, and an invaluable flow of men and equipment was supplied when required.

h. The Bridge. Only about half of the Bridge was tenable, and the Incident Board was destroyed. The Commanding Officer knows his ship well and is entirely content that he understood the situation by his mental picture. It would, however, have lessened the load on his mind if the Ops Room Board had been provided for him.

Statement by
CO after Q442

8. Damage Control Training

a. The ship had conducted numerous NBCD exercises, and their worth was proved by the automatic reactions of many of the personnel involved in Damage Control. All incidents (except the hole in the side) had been practised before.

b. Shortly before deploying, the ship went to the Plymouth areas with the specific objective of landing DC parties for training in the Damage Repair Instructional Unit (DRIU) at HMS RALEIGH. This initiative undoubtedly helped greatly, and those involved were unanimous in their praise of the facility and the instruction given. It was variously described as excellent, realistic, worthwhile, and the nearest possible to the real thing. It prepared them well for the staggering speed of water ingress through a small hole and provided good practice in all forms of leak stopping. Experience was also gained in swimming in damaged, darkened compartments.

T1 Q107

T3 Q344

T4 Q617

c. DRIU training was arranged entirely on the initiative of the Commanding Officer and was fitted into a very tight programme with much difficulty.

T1 Q109

d. There was a feeling that ratings of the ME branch were the best trained and that others need more awareness of techniques.

T4 Q617-9
T6 Q875-7

9. Accolades

a. There were many acts of dedication and great professional skill demonstrated that night and it is difficult to single out anyone. However MEM(L) xxxxxxxxxx received praise from many quarters for performing well beyond the normal course of duty (Appendix 1 para 7a).

T1 Q64
T3 Q347

b. CPOWEAXXXXXXX also stood out as a man who, despite narrowly escaping death, worked with a will and remained constantly available to the Forward FRPP (para 5a).

c. * The MEO provided reassuring advice on stability and other matters to the Command (para 7c). The XO compensated for failures in Command and Control and internal communications (para 7b) by acting dynamically to keep everyone in the picture.

PERFORMANCE OF EQUIPMENT

1. Main and Auxiliary Machinery All four Main Machinery Spaces were undamaged and the Tyne engines and generators continued running. No breakers came off. The other two generators were quickly started and put on load without difficulty. Steering gear was not affected, but the destruction of the Bridge meant that Mechanical Wheel and ad hoc communications were required.

2. Air Conditioning Plants

a. SOUTHAMPTON is one of the few Type 42s which can isolate chilled water forward and aft, and in temperate climates the circumstances of this incident would have enabled air conditioning to be maintained in the after part of the ship. In the Gulf in Summer, however, it had been found necessary to run three plants de-isolated so the fracturing of the Chilled Water Main caused them all to trip on low flow.

[illegible]

3. Fire Pumps

a. The two in-use fire pumps continued running throughout, and the forward pump was started without difficulty. The after pump was not available because of a defect, but there was never any shortage of firemain pressure in spite of the number of eductors in use.

b. The firemain was fractured when the stem of TOR BAY T1 Q31 sliced through it, but it was quickly isolated and caused no difficulty once the resultant floodwater had been removed.

4. HP Air

a. A fracture in the line made a noise which the Supply Officer found to be distracting and slightly unnerving. CPOMEA xxxxxxxxxx was used to HP Air leaks and it did not trouble him at all. T3 Q322

5. Hydraulics The triple hydraulic pipes in 2 deck passageway were fractured and CPOMEA xxxxxxxxxx made and fitted blanks so that the cable holders could be used. The intention had been to ditch the anchor to lessen the load on the bow, but subsequently it was decided not to do so in case the vibration further weakened the structure and because of the fear that it would be difficult to stop the cable at a joining shackle. T4 Q579

6. Lighting The immediate loss of E EDC and the subsequent loss of G EDC left the forward part of the ship without main lighting but all the AELs worked well, were sensibly positioned and received universal praise. They were still providing adequate illumination when emergency lighting was rigged about 2 hours after the collision and continued burning for about 3 to 4 hours. T3 Q314
T4 Q449
T3 Q317

7. Portable Pumps

a. Given power, the pumps worked well, but the problem caused by flotsam blocking suctions was well illustrated in 3D mess. At first, the pumps were lowered to the deck but they blocked almost immediately and so they were raised to the surface. This was much more successful, but it was still necessary for a man to enter the mess to clear debris. For some 2 hours, MEM(L) xxxxxxxx worked at this task in a dark, wrecked compartment in which he was initially out of his depth. This would have been much more difficult in cold water. T1 Q64
T1 Q65
T3 Q347

b. There is no reason to suppose that all the flotsam was caused by poor securing for sea. The force of the impact had burst locker doors and boot lockers open and the 'fridge was floating on the surface of the water. T1 Q61
T3 Q349

8. Shores

a. Although the ship's teams made a good, professional job of using 4 x 4 shores, complaints that they were difficult to measure and cut in a confined area and were manpower intensive to erect were commonly voiced. Acro Props, on the other hand, were popular, being found to be easy to erect and successful in use. T3 Q341
T3 Q359
T4 S10
T5 Q715

b. If it had not been for the 4.5" Gun emergency re-supply beam above 3D mess which was used as a strongback, the deckhead height and congested area would have made shoring difficult.

T4 Q531

c. Shoring of hatches on 3 Deck was made more awkward because of the openings in 2 Deck immediately above, but with sensible use of bridging timber, the results were good.

9. Indicator Test Plugs (ITP) ITPs worked well, and many Officers and Senior Ratings remarked on how useful it was to be able to hear and feel the 'breathing' of a compartment which was open to the sea, and the hiss of escaping air from a compartment which was filling.

T4 Q525

10. Cable Glands Several deck glands above flooded compartments leaked and continued to require regular pumping until either the level in the compartment below was lowered or the gland was sealed with a cement box. Left untended, the leaks would have added to the free surface and the eventual repair bill, but in the event proved to be merely a continuing nuisance.

T1 Q74
T1 Q75
T4 Q569
T4 Q572

11. Damage Control Lockers The team working in 2E Cross Passage had continual difficulty with the open doors of the DC lockers which obstruct access and generally get in the way. The Supply Officer stated that he spent a lot of time stowing gear away and closing the doors. Removable doors are not the answer as the gear can too easily fall out, and it is for consideration that a dedicated store is required. To avoid putting all one's eggs into one basket, however, it may be better to have racks mounted on bulkheads in convenient passageways.

T4 Q659
T3 Q379
T3 Q400
T4 Q660

12. Trim Tanks In an effort to improve the trim, the MEO ordered both After Heeling Tanks and Q WTC to be flooded. The WTC and the Starboard Heeling Tank were no trouble to open, but on the Port tank, four of the bolts could not be shifted and the recess for the Allen Key in one of them was badly rounded. The lid was never removed. The planned maintenance item to free the bolts was due to be performed a few days after the collision.

T1 Q110
T6 Q846

13. Messdeck Furniture The shambles in 3D mess was caused by the collision but exacerbated by the poor construction of boot and clothing lockers which do not stand up to use.

T1 Q61
T3 Q349

14. External Communications External communications remained available throughout.

15. Internal Communications Because of flooding in the CMR, RICE was lost immediately, Main Broadcast and the 24V system lasted about 10 minutes and the Telephone Exchange lasted about 20 minutes. T1 Q41

16. Hatches

a. The problem of hatches being fouled by ladders was touched on in paragraph 6b. It is just possible to open such a hatch by pushing the ladder up with one's shoulder whilst bending down to swing the hatch up, but this is barely achievable by one man. Provision of a hook to hold the ladder slightly raised would alleviate the problem but a better solution would be to re-position the hinges so that the hatch opened against the ladder back. Whilst this would prevent it opening fully and a retaining catch would have to take the weight, it would at least provide less incentive for people to leave the hatch open. T4 Q467

b. The problem of clips swinging under their own weight to a position which prevents them from being properly dogged has been mentioned in paragraph 5e. The tiny wedges provided are unsatisfactory as the clips have to be adjusted to be slack enough to engage on the dogs below and this means that they are not retained by the wedges on top. A solution is required and options appear to be: T4 Q462

1. To devise a reliable method of holding all clips in the correct position when the hatch is open.

2. To fit an escape manhole in all hatches; this would also avoid the need to lift a ladder for access. T4 Q474
T1 Q91

3. To replace the clips in the main hatch cover with a different mechanism.

c. The Board noted that 3 other hatches in SOUTHAMPTON have been fitted with spring assistance as a minor trial. This has already made life much easier and should be more generally adopted. T1 Q91