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Se refiere al hundimiento de la SHEFFIELD, publicado por el Ministerio de Defensa de Gran Bretaña.

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**COMMANDER-IN-CHIEF FLEET**

**LOSS OF HMS SHEFFIELD  
BOARD OF INQUIRY**

**Report of Captain Salt  
Enclosure 2**



Shortly afterwards - approximately 1415 - SHEFFIELD was hit on the starboard side by one Exocet missile. She subsequently reported two missiles - one which had struck her and one which had missed. There were no subsequent reports of the second missile. Other ships, including INVINCIBLE, had fired Chaff Delta by this time and if a second missile had been launched, it may have been either decoyed or merely ditched without being observed.

There are indications that a further missile or missiles were fired at the TG between 1439 and 1455. However, there is no conclusive evidence of this from INVINCIBLE records/memories.

### Reconstruction of Events in Time and Distance (Annex B)

10. In Annex B the information in Annex A and paragraphs 5 - 9 above has been used to attempt a reconstruction of the Super Etendard/Exocet attack profile.

11. An aircraft speed of 400kts and missile speed of XXXXX have been used to relate time/distance at the time of the attack SHEFFIELD's bearing from INVINCIBLE was about 220, range about 19nm. GLASGOW's bearing was about 265, range about 17nm. YARMOUTH's bearing about 250, range about 5nm. HERMES was approximately south of INVINCIBLE at 2000Z.

An early assessment was that two aircraft had each launched one missile at the TG/SHEFFIELD. This evidence stemmed from:

a. SHEFFIELD's xxx who initially reported seeing two missiles - one which struck and one which missed.

b. The evidence of the two separate targets seen on INVINCIBLE's 1022 at 30nm (Annex A - 103 Comments 4).

c. The two tracks established by INVINCIBLE at approximately 20 - 25nm.

12. In view of their apparently slow speed and nature the latter are now considered to have been spurious 1022 tracks - many of which have been seen since arrival of the Falklands. The former, it is understood, has been rescinded by SHEFFIELD's xxxxxx. This

Alternative explanation for 12b is that what was actually seen was a single Super Etendard releasing its missile. The fact that the minimum launch height for an air to surface Exocet is 60m (approx 200ft) and for INVINCIBLE's 1022 to have line of sight with it at 30nm would require it to be at about 250ft support: this view. The burst of smoke could also help to enhance the Exocet target. After launch the Exocet would drop to its preset height and the aircraft would almost certainly turn away and go low. Hence both targets appeared to disappear together. The single aircraft theory is also supported by the apparently single brief contact achieved at 50nm. However, it is possible that in a multiple attack only one aircraft might need to gain target information which could then pass to others.

15. The apparently minimum range (11nm) at which the missile was launched at SHEFFIELD could indicate a number of things:

a. That the 50nm 'pop up' was in fact too late and that the time needed for missile settings - apparently of the order of 3 mins - forced a late engagement.

b. That applying the settings took longer than it should.

c. That the missile was in fact intended for the high value units behind SHEFFIELD - as both INVINCIBLE at 30nm and HERMES at approximately 20nm were well within the range of the launched Exocet.

16. However, from the position of the hit on SHEFFIELD there is strong evidence that the missile did 'acquire' her. Measurements taken from photographs indicate that the mid height selection of 14ft was used - quite reasonable in view of the prevailing sea state. This also indicates that a 'lower' target might have been intended.

#### Comment

17. Although, in retrospective analysis, it can be seen that there were indications that an attack against the TG might be imminent, the evidence was extremely limited. It consisted of a brief detection of a CONDOR EW by one ship, plus unclassified tracks by two others about 16 minutes before missile impact, a sweep or two of radar contact by two ships at 50nm - 4 minutes before impact - and a few more at 30nm - 1 minute before impact and at/after missile release.

18. In isolation any of these detections would undoubtedly have alerted the ships concerned, who would have then made the appropriate ZIPPO call and alerted all ships. However, these indications were not isolated occurrences. As indicated in paragraph 11, it has already been established that EW detections from the Mirage III's DRAC 37B radar could be confused with those of the Super Etendard's 'CONDOR' - and a long range presence of Mirage IIIs was expected at the time of the attack. Also, as indicated in paragraph 13, spurious indications on IQ22 are very frequent. Had full ZIPPO reactions been applied to all such EW/radar detections on 1st May, most of the TG's Chaff Delta would have been attended.

19. From the enemy's point of view, in order to be confident of achieving an attack of this nature with aircraft which are both specialised and few in number, he must have wished to eliminate three factors:-

- a. Limited time on task preventing the attack's successful execution
- b. The attacking aircraft being detected by CAP
- c. The attacking aircraft failing to find their targets

20. To achieve these the enemy may have:-

- a. Re-fueled the aircraft in flight shortly before or after the attack and, in the absence of any evidence of TACDI or a SHAD
- b. Had radar information from the Port Stanley area regarding the TG's CAP distribution
- c. Had TG positional/formation information from either radar or EW facilities

#### Conclusions and Lessons Learned/Re-learned/Confirmed

21. Resulting from the above analysis of the Super Etendard/Exocet attack on 4 May and subsequent discussion/signals the following conclusions have been drawn and lessons learned/re-learned/confirmed:

a. Conclusion The Super Etendard's flight profile to launch was well executed and gave the minimum chances of detection consistent with achieving a successful attack.

#### Lessons

1. The pilot was skilful and probably well practiced.
2. Units must be reminded/made aware of the brief EW/radar detection pattern of a low level attack. Personnel need to develop a feeling in the water that an attack is imminent, based probably on a variety of fleeting indications.
3. All such indications must be put on the LINK and thoroughly investigated - initially by computer injection to determine course

and speed - until proven to be spurious or to be coming from some other non-threat source.

4. Ships, their weapon systems and their personnel must be at a sufficient state of readiness when potentially at risk from enemy attack to act fully upon such detections that are achieved and must be brought to the highest state when they are achieved.

5. EW detections are likely to be the first indications of an enemy air attack by Exocet and the only indication which will allow time to deploy the TG's air assets against it. The importance of early EW information cannot be over emphasised and must not be hazarded in favour of other equipments (forinstance SCOT) while vulnerable to enemy attack.

6. The possibility that the Super Etendard(s) received in flight re-fueling could extend their range well into the eastern sectors of the TEZ.

Conclusion The CAP failed to intercept the attack.

Lessons

1. CAP aircraft should be directed down the bearing of any enemy racket as quickly as possible. They should be stationed at 4000' to 7000' so as to be able to 'look down' to sea level.
2. Further alert a/c should be launched to take appropriate CAP stations and/or to pursue the investigation until intercept or until assessed non threat.
3. The possibility that the enemy obtain accurate positional information regarding the TG's CAP distribution via Falkland based radar should not be ignored.

Conclusion The flight profile of the Super Etendard - particularly the pop up look at 50nm from the HVU - indicates that the enemy may have had good positional and possibly formation information on the TG.

Lessons

1. Every effort should be made to deny the enemy accurate positional and formation information and hence force him to expose himself more often and for longer to obtain it. This could be done by:
  - i. ECM - to avoid/minimise electronic detection
  - ii. By positioning - to avoid radar detection
  - iii. By neutralising the enemy's detection/radar equipment - particularly in the Falklands
  - iv. By varying the TG's disposition/formation

Conclusion No HVU or Main Body unit was damaged

Lesson

1. The AAW screen formation proved effective in providing sufficient warning to the HVU/Main Body to allow them to take Air Raid Warning Red/Action Stations/Chaff/evasive steering measures, both during the first and probable second missile attack.

Conclusion No unit which fired Chaff Delta was damaged

Lesson

1. Chaff Delta remains, potentially, the most effective measure to decoy an exocet missile. It should be fired as proscribed or when in doubt due to an incomplete picture. However, rockets are in short supply and must not be wasted.

Conclusion No ship fired any weapon during the attack

Lesson

1. Every effort must be made during an attack to bring to bear area and point defence weapons to destroy enemy a/c or missiles. If exocet are suspected these ships without fully automatic systems should pay particular regard to short range (24nm) 1022/965/992 presentations.

5. Conclusion A single exocet hit on HMS SHEFFIELD resulted in the loss of the ship.

Lessons

1. An exocet homes on the mid point of its looked echo. A ship caught beam on is likely to suffer severe damage in the vital area of machinery spaces/ops room/HQ1 etc. A hit in the bow or stern is likely to do less damage to essential services, many of which will be required for subsequent damage control.
2. If a missile is detected late it is best to take the shortest route to putting the missile either on the bow or the stern, rather than risk being caught half way.

Postscript

23. Having placed a spotlight on the events leading up to the loss of HMS SHEFFIELD it is important, finally, to review these in the wider context of the experience gained during the first few days of Falklands operations.

24. Since arriving in the TEZ there have been many occasions when either EW radar detections or a combination of both have occurred which could have been the initial indications of an air or air/exocet attack. Some of these, as per [redacted] (paragraph 1 refers), have been actual enemy transmissions and contacts, but the hostile aircraft have not pressed home an attack on the TG. Many more have been mis-identifications of own forces' transmissions or have been detections of own returning aircraft/helos prior to identification, or merely spurious radar echoes. Only on one important occasion have such indications proved to be an enemy attack on the Group.

25. Having perhaps over reacted to all such detections on the first day within the TEZ, there are indications that some may have swung too far the other way prior to and during the attack on 4 May. A natural desire to conserve both human and material resources by day four of the Falklands operation may also have played a part in any under reaction.

26. Clearly, as our experience increases, we will be better able to strike the right balance between over and under reaction for any given set of circumstances. In the meantime, it would seem best to over rather than under react - at least in the sense of taking the established measures at the appropriate time/threat distance until the picture clarifies. As far as the air threat is concerned, such measures are considered to include:

- a. Maintaining a high state of material/manpower readiness whenever vulnerable to air attack - with particular regard to EW/radar detections and weapon preparedness
- b. Maintaining the appropriate CAP/alert a/c posture and being prepared to use either or both as soon as a suspicious contact is detected.
- c. Laying Chaff Hotel
- d. Covering unknown or engaging enemy contacts/taking evasive steering actions/laying Chaff Delta

Only when it can be positively established that there is no threat to the TG or units within it should these measures be abandoned or terminated. Only in this way can we be sure that we will have taken the necessary measures on the one in a thousand occasions that it proves to be the real thing.

SEQUENCE OF EVENTS FROM RECORDS/PERSONNEL IN INVINCIBLESOURCES

1. XXXXXXXXXXXX memory
2. Secure Speech Log
3. XXXXXXXX - INV memory
4. Ops Room Narrative Log
5. Bridge Log

S38,  
S40,  
S44

<u>Time</u>	<u>Event/Action</u>	<u>Source</u>
1200	2 CAP stations allocated; STATION 10 @ 7000' (270/80nm) STATION 12 @ 500' (330/75nm)  Both stations positioned after information about recon a/c and 4 Mirages reported passing points relative to the force to the West. CAP's height to aid pick up of low targets (7000ft) and to avoid detection near Falklands(500ft)	1
1300	STATION 12 inbound to safety Lane J	1
1310	Launched 2 SHAR from INV to STATION 11 (300/80nm)	1
1345	HERMES to INVINCIBLE - request you cover my 1430/1530 CAP - cannot as I want to launch attack at 1430 - 1530	2
1349	INVINCIBLE to HERMES - reference your last I will cover 1430/1530	2
1349	HERMES to all - HDS at 1500 is delayed due to unserviceability and other requirements. Task for Surface Search helo sector 210/270 - keep clear land and CAP cover	2
1358	Report of CONDOR heard from GLASGOW	3
1359	Unknown a/c approaching on 992, south of CAP which is heading to investigate - contacts speed assessed as M4	4

1400 State of CAP - 1 in STATION 10 and one airborne heading South West. Ht of aircraft 7000' in order to be able to obtain optimum look down to sea level 1

1400 Course 310/Speed 20 5

1405 XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX 4

SHEFFIELD has sighted orange smoke and a liferaft. We have contact

1400 Course 200 5

1410 Reports from XXXX and XXXX of 1 paint at 50nmish South West (240) and an additional fleeting contact at 270. At 30 miles 2 paints South West from INVINCIBLE seen by AG3. CAP aircraft vectored South West - nothing seen 1

1410 Hands to Action Stations/Air Raid Warning RED 4

1410 Speed 22 5

1412 Course 205 (INV fired 1st Chaff D pattern XXXXXX) 5

1415 approx (probably carriers) 2 contacts seen 1022/ADAWS automatic track established. GLASGOW/SHEFFIELD asked for information to confirm. Nothing seen initially, then GLASGOW held intermittently at 20 - 25nm. Comms with SHEFFIELD intermittent and information being passed on AAWG HF and via GLASGOW 1

1415 SHEFFIELD on fire 4

1415 Flag to INVINCIBLE - confused with Foxtrot 4 explosion on XXXXXX 2

1416 Bridge and Ops Room SHEFFIELD not manned - hands on upper deck fighting fire 4

1417 Threat to South West/Attack coming from 205° now 2

538  
540  
544

538,  
540,  
544

1419	Flag to INVINCIBLE - suggest surface search down bearing SHEFFIELD - could be internal	2
1422	SHEFFIELD hole in Stbd side - possible Submarine, ARROW stand by to give assistance	4
1430	SHEFFIELD assesses air launched EXOCET	4
1431	INVINCIBLE to Flag - SHEFFIELD reports hit by Exocet	2
1435	Zippo 1 - threat 240 2nd Chaff D pattern fired by INVINCIBLE	4
1440	All helos thumba /Threat RED 70°	4
1438	Launch alert aircraft - helo to be launched as decoy	4
1435	Hostile 120 from GLAMORGAN Missile coming in - no missiles in flight	4
1445	Flag to INVINCIBLE - have we pattern for probe I asked for	2
1453	INVINCIBLE to Flag - one pair 230 currently 60 miles opening/ well ahead threat 230 - 120/ they will turn upwards 260/second pair turn to 210 180	2
1455	Splash in water 140° (? from ALACRITY)	4
1503	Flag to INVINCIBLE - Activate AAWC HF	2

AC3 COMMENTS NOTED BY AD IMMEDIATELY AFTER INCIDENT

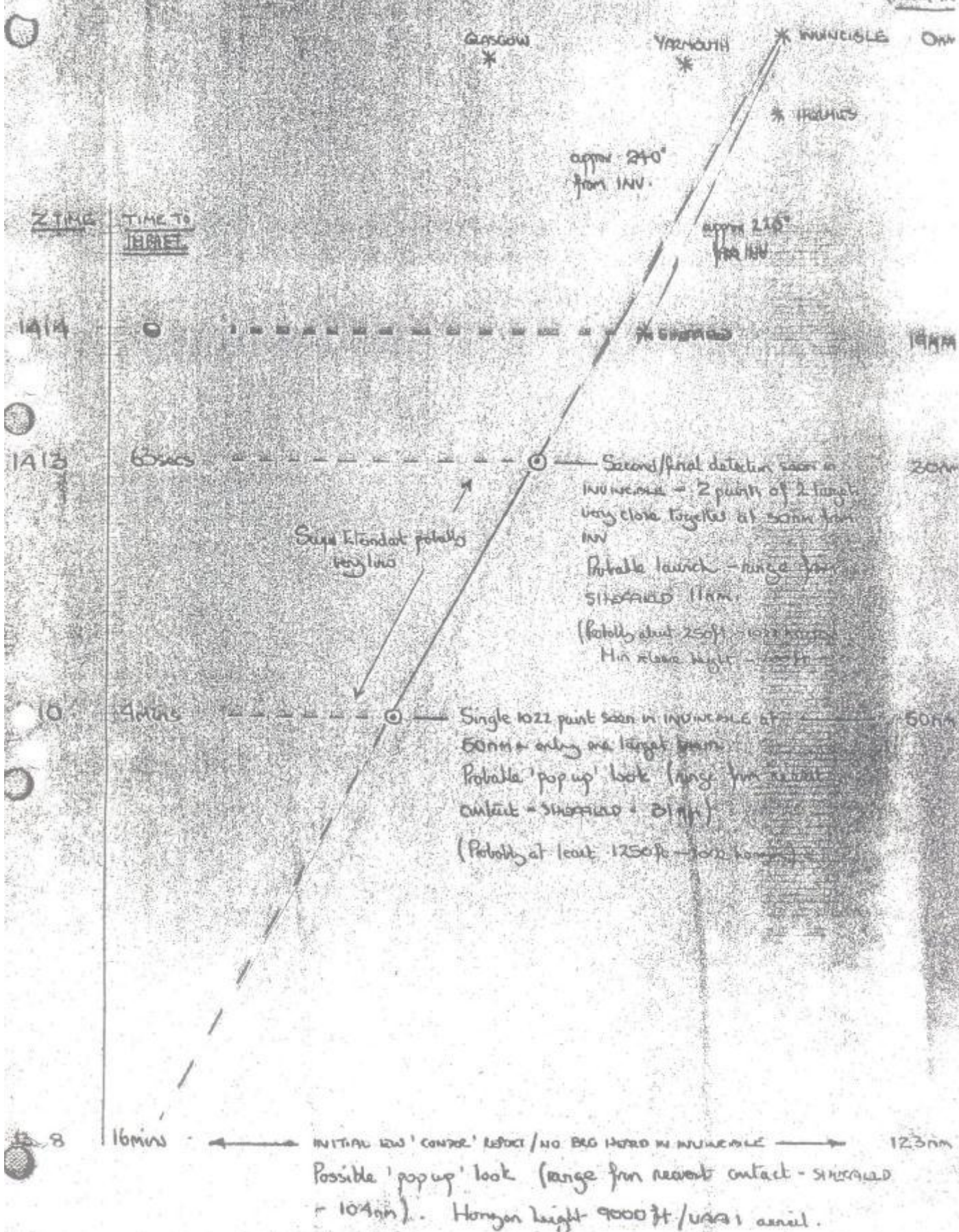
1. Brief point at 50nm/bearing 240
2. CAP /2 SHAR/ were on Station 10
3. CAP turned towards

4. Paints re - appeared at 30 nm/bearing 240/two separate targets/turned hard port, East and West. Controller altered CAP for out off, paints faded.
5. Intercept by IR was not successful.
6. The CAP were turned West, told 'look low', no joy.
7. Whole incident lasted 4 minutes.
8. Nothing seen.
9. AGS spotted paints and took immediate action as above.
10. CAP were about 20 miles from first contact.
11. CAP were 60nm from ship.

Reconstruction of Putable Slips Elandus Attack / Exocet launch profile

2/1/69

DISTANCE  
(FROM IN)



1414

1413

1410

1408

GLASGOW \*

YARMOUTH \*

MUNICIPLE \*

INVERMURRAY \*

approx 240°  
from INV.

approx 215°  
from INV.

Z TIME

TIME TO TARGET

65secs

4mins

Slips Elandus probably  
very low

Second/final detection seen in  
INVERMURRAY - 2 points of 2 target  
very close together at 50nm from  
INV  
Probable launch - range from  
SHORFIELD 11nm.  
(Probably about 250ft - 1000 ft)  
Min above height - 100ft

Single 1022 point seen in MUNICIPLE at  
50nm - only one target beam.  
Probable 'pop up' look (range from nearest  
contact - SHORFIELD - 21nm).  
(Probably at least 1250ft - 1000 ft)

INITIAL LOW 'CONTACT' REPORT / NO BIG HAZARD IN MUNICIPLE

Possible 'pop up' look (range from nearest contact - SHORFIELD - 104nm). Horizon height 9000 ft / USAF aerial.