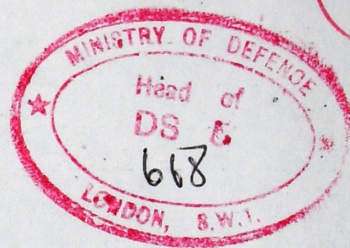


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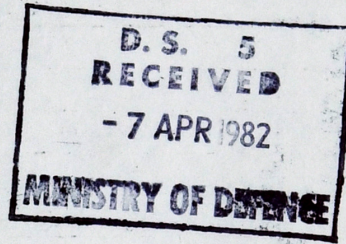
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7140

It is understood that the Secretary of State requires to know the arrangements for communication with SSR's in the South Atlantic. A brief is attached.

It should be appreciated that knowledge of our dependence on UHF satellite communications has become extremely sensitive as it is within the technical capability of the Argentinians to jam the satellite channel. They appear unaware of this option.

ACNS(O)

Understand from NA/1SL that CBS wishes to see this brief before it goes to Sops (and to docs 1SL).

DNOT

By RLld/CSO.

Copy passed by hand to NA/1SL at 1630A. Content agreed.
5/4/82.

SSN COMMUNICATIONS IN THE SOUTH ATLANTIC

1. The elements of communications with SSNs in the S. Atlantic are outlined below:

UK to SSN

2. Two systems are in use:

- a. UHF Satellite Communications - A high speed broadcast is transmitted from Northwood every 15 minutes. The submarine can receive this broadcast rapidly at periscope depth (by putting a mast above the surface) and is required to do so at least every 24 hours during transit (reducing to an interval of 12 hours or less in the area of interest).

The satellite system is subject to the following limitations:

- i. Reception through the submarine aerial is particularly inefficient between 20°N and 20°S (the latitude of the Falkland Islands is 52°S).
- ii. The channel is vulnerable to interference, either accidental or deliberate.
- iii. The performance of the submarine aerial has technical limitations.

- b. VLF - Arrangements have been made to relay super-encrypted messages from Northwood through

The USN VLF station at Bilbao, Panama. Transmissions from this USN station will cover the area of interest.

VLF broadcast reception is very much slower than satellite communications. The submarine does not however have to proceed to periscope depth.

SSN to UK

3. Two systems are available:

a. UHF Satellite Communications - The submarine can access Northwood rapidly through the UHF satellite channel from periscope depth with a mast raised, and with the significant advantage of a reduced probability of enemy ^{deliberate} intercept. The system is, however, vulnerable to interference.

b. HF ship-shore - Interference on the UHF satellite channel would lead to the use of the submarine's HF system ^{relaying through} to UK and allied HF stations. The submarine HF system is technically inefficient and it can take some hours at periscope depth to clear traffic. It also increases the chance of revealing the SSN's position through enemy intercept and direction finding (DF). The South Atlantic is a poor area for HF communication.

Force Commander to SSN

As HMS INVINCIBLE and HMS HERMES are each fitted with SHF satellite communications with which they can

(2)

access Northwood. Northwood can therefore act as a relay to the SSN for force commander communications at extended range. HMS HERMES has UHF satellite communications with which she can monitor the submarine satellite broadcast. It may also be possible to establish a direct UHF satellite link between HERMES and SSNs.

Over limited range (roughly horizon) SSNs are capable, when at periscope depth, of communication with aircraft and ships using UHF. They also carry expendable transmitting buoys which float free and can be left astern for reception and subsequent relay from NIMROD or naval helicopters to the force commander.

5. MESSAGE TIME BETWEEN WHITEHALL AND SSN

The message transit time between Whitehall and the SSN is a compromise between the tactical restraint imposed on the SSN and the needs of command and control. A requirement to read a submarine broadcast at least every 12 hours is planned when SSNs reach the area of interest although, subject to the tactical situation, it may be possible to shorten this notice.

Current Activity

All SSNs deployed have recently been equipped with satellite communications. A bilateral arrangement with the USN has been maintained which is providing a second UHF channel but methods to increase this contingency ^{should be explored.} ~~are being explored.~~