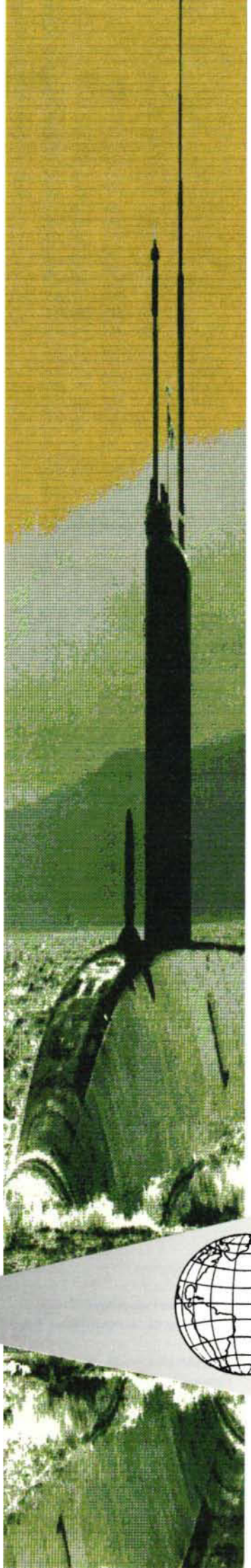
VLF MINIMUM SHIFT KEYING

FOR SUBMARINE COMMUNICATIONS



- Computer automation of broadcast preparation enhances facilities and reduces manpower
- Sophisticated message handling with comprehensive trace facilities
- Short and long term storage with supporting statistics
- TARE accredited
- Extensive computer controlled interconnectivity between Submarine Operating Authorities, Control Site and Transmitter Stations
- Increased capacity for submarine broadcasts by the introduction of MSK modulation meeting STANAG 5030
- Automatic transmitter antenna tuning
- Off air monitoring of all keystreams using bit by bit and character comparison with hard copy print out
- Extensive redundancy and tandem processor working ensures high system availability and reliability

GEC-Marconi
Secure Systems

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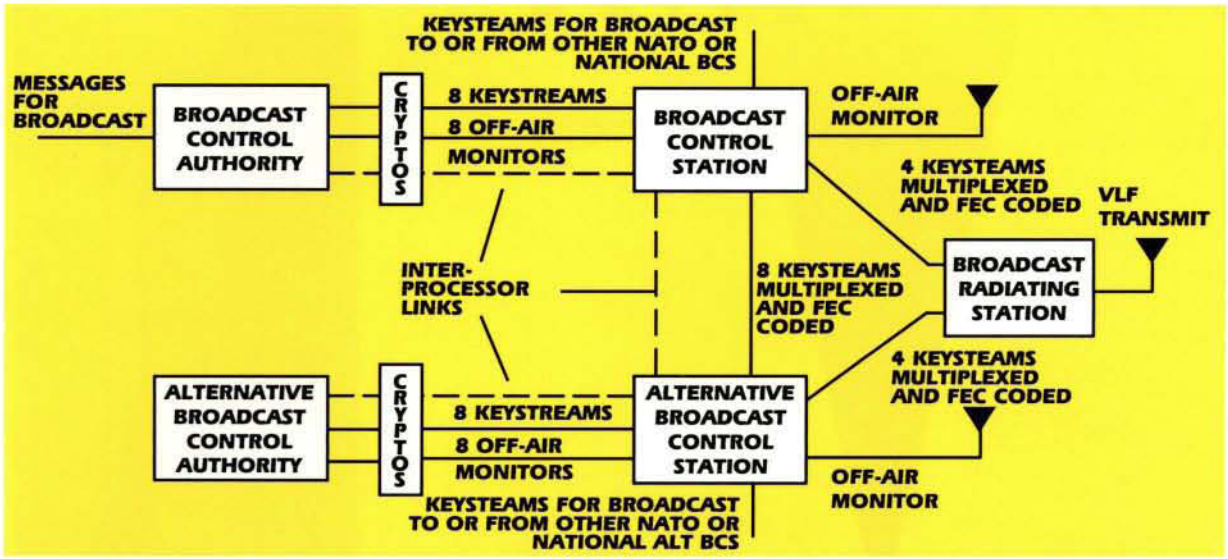

Radically improving the communications management and control of submarine forces, the GEC-Marconi Very Low Frequency (VLF) Control system has been designed to exploit the most recent technology and software developments.

Sophisticated broadcast preparation increases the capacity, efficiency and security of processing command traffic, whilst networked communications to the broadcast transmitters provide unrivalled interconnectivity and information exchange across the entire theatre of operations, permitting effective use to be made of Minimum Shift Keying (MSK) technology.

The system, developed for NATO, and manufactured to comply with the latest NATO standards, equips two broadcast preparation stations and one broadcast transmitter in each of three countries to cover the Atlantic and Mediterranean NATO fleets.

Each GEC-Marconi equipped broadcast preparation centre can accept up to 24 simultaneous in-coming circuits from anywhere in NATO, and provides electronic editing and collation of messages for the generation of up to 8 broadcast keystreams. These are then re-encrypted and sent via a complex line switching matrix which permits full interconnectivity between all sites to the broadcast transmitters, where, after complex data processing, they are transmitted using the NATO VLF MSK equipment produced by GEC-Marconi.

To complete the up-grading of the broadcast stations, GEC-Marconi provides off-the-air monitoring, powerful error detection and correction systems, and electronics which automatically tune the transmitter variometers to ensure optimum broadcast quality.

Computer processing and software controlled automatic switching are essential features of the GEC-Marconi VLF system, which employs ADA software throughout and demonstrates GEC-Marconi's in-depth ADA capability.

Confirming the technical superiority on which the GEC-Marconi reputation is founded, the GEC-Marconi MSK VLF control system provides NATO with modern, reliable, flexible and efficient communications to its submarine fleets.

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