Military Applications Summary Bull- , report on technology developments in Europe and the Middle East. The material contained in the Bulletins should in no way be construed as an endorsement of any product or service described therein.

BULLETIN

OFFICE OF NAVAL RESEARCH EUROPEAN OFFICE Box 39, FPO New York 09510-0700 Phone (AV)235-4131 (Comm) 409-4131

MASB 18-89 8 March 1989

Soundtrak ASW Target Simulator

Background. Thorn EMI Electronics LTD, a UK company, has developed an ASW target simulator called "Soundtrak" which is a towed low-frequency sound source capable of providing a realistic acoustic target for training the crews of submarines and surface ships equipped with towed arrays and aircraft fitted with sonobuoys. Soundtrak can also be used as an effective deceptive acoustic countermeasure. Given a suitable winch and towed-body handling facilities, Soundtrak can be deployed from any vessel. Soundtrak provides the following:

- A realistic acoustic signature for operators and command teams, thereby reducing the need for deployment of both ships and submarines in an exercise role
- Simplified performance assessment of noise ranges and all types of passive sonar including towed arrays and bow, flank, intercept, and sonobuoy systems
- Improved training in antisubmarine warfare techniques for surface ships, submarines, fixed-wing aircraft, and helicopters
- Acoustic and mine countermeasure capabilities
- A low-frequency sound source for scientific and experimental purposes.

Description. The Soundtrak system consists of five major items, as shown in Figure 1, namely:

- Digital signal generator
- Power amplifier
- Towing cable
- Test Unit
- Towed body

The digital signal generator (DSG) provides the various low-level noise and tone signals required. A VDU and small keyboard mounted on the DSG allow the setting and display of the required signal types, levels, and frequencies as well as displaying the towed-body depth and attitude. This information may be recorded on the printer. When the equipment is not in use, a built-in memory can retain eight sets of programs for recall, thus eliminating the need to reprogram the unit. An interface for linking the signal with a spectrum analyzer or oscilloscope is also provided.

The power amplifier provides an accurate high-power replica of the input signal received from the DSG or can replay taped noise signatures.

The towed body is based on the Sonar 182 Mk3 towed body. It is free flooding, is primarily constructed of glass fiber and houses a hydrosounder and pressure vessel.

The system test unit simulates the electrical input and output characteristics of the towed body and allows the manual selection of cable fault conditions.

Soundtrak is easy to deploy and recover. It uses the standard sonar type-182 handling equipment or, for vessels not fitted with this equipment, an alternative winch, davit/crane, snatch blocks, etc. can be used.

The self-contained winch must be capable of holding the 617-m-long x 14.7-mm-diameter towing cable, and able to supply adequate braking to cope with a maximum snatch load of 4 tons.

THORN EMI Electronics can supply and install, where necessary, this alternative equipment to provide a fully operable system.

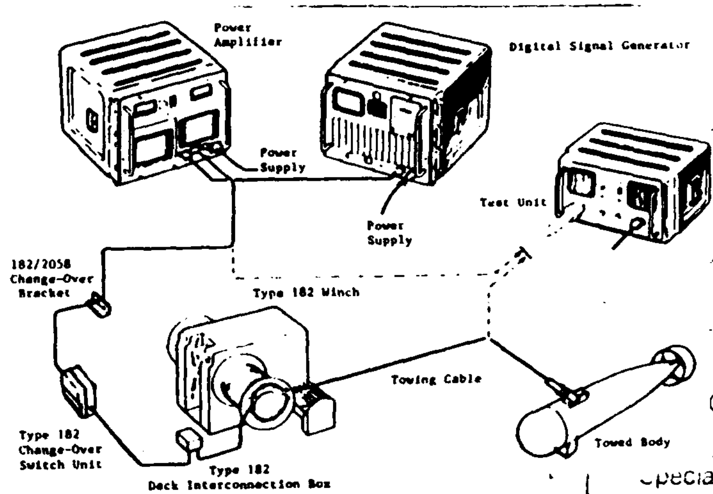

Figure 1. The Soundtrack System.