

CENTRAL INTELLIGENCE AGENCY  
**INFORMATION REPORT**

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SUBJECT VEB Funkwerk Koepenick:  
Echolot, Echograph, and Fischlupe  
Development

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1. TEN 3 is one of five laboratories in Department TEN in D Area II (TE II) of Funkwerk Koepenick. TEN is headed by a member of the SED. The other four laboratories are:
  - a. TEN 1, engaged in the development of amplifiers, headed by department head Geissler;
  - b. [redacted] of modulation stages, headed [redacted]
  - c. TEN 4, engaged in electro-acoustic development, headed by Fritz Knochenhauer;
  - d. TEN 5, called the "quartz laboratory", headed by Scheil (fnu), a returnee from the USSR.

Construction work for all five laboratories [redacted] carried out in TGK 5, a construction office headed [redacted]

- 2; TEN 3 is a laboratory for hydro-acoustic development. It is [redacted] who is mainly engaged in the development of [redacted] devices. Following is a list of the laboratories and their fields of activity:
  - a. Eng. Ernst Roessler, engaged in the development of the Fischlupe device and of the Echolot device for smallest depths;
  - b. Eng. Ernst Ruffert, also engaged in Fischlupe and Echolot development;
  - c. Eng. Kurt Mueller, engaged in the development of small-type Fischlupe and of Echograph devices;
  - d. Eng. Alfred Kasten, mainly engaged in Echograph development;

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- e. [REDACTED] ardt Hassler, engaged in the development of [REDACTED] millatens;
- f. Eng. Willi Engel, engaged in the development of the [REDACTED] Engel came to TEN 3 and was put in charge of [REDACTED] development on 1 November 1954. He had formerly [REDACTED] pages on the development of [REDACTED] der the supervision of [REDACTED] Echolet development had [REDACTED]
- In addition to the above named persons there are five mechanics and laboratory technicians in TEN 3. In addition to the above named persons there are five mechanics and laboratory technicians in TEN 3.
3. Echolet, Fischlupe and Echograph are ultrasonic depth-sounding devices of the "underwater radar" type. The first two devices make the echo waves visible on a cathode ray [REDACTED] with a graphic [REDACTED] installed [REDACTED] three devices [REDACTED] can be [REDACTED] differ from [REDACTED] in range of operation and in the [REDACTED] the depth [REDACTED] carried out. Following are the characteristics of the [REDACTED]
- Echolet: sounding from a minimum of one meter below the instrument to a maximum of 1,200 meters in depth;
  - Echolet for smallest depths (Echolet fuer kleinste Tiefen): sounding from a minimum of 30 centimeters below the instrument to a maximum of 20 meters in depth with a locating accuracy of 20 centimeters;
  - Echograph: operates similar [REDACTED] a graphic recording installation [REDACTED]
  - Fischlupe: sounding from a minimum of ten to twenty meters below the instrument to a maximum of 1,200 meters. The difference between the Fischlupe and the Echolet devices lies in the fact [REDACTED] Fischlupe carries out the sounding in depth layers, of [REDACTED] depth, so that it can be centered on any twenty meter layer [REDACTED] total depth;
  - Small type Fischlupe (Kleine Fischlupe): sounding twenty meter layers from a minimum of 20 meters below the instrument to a maximum depth of 600 to 800 meters.
4. The most important development carried out in TEN 3 is the development of the Rundechelet device (omnidirectional sounding device). This development was begun in late 1952 upon Soviet orders. It was included in the 1953 research and development plan of Funkwerk Koepenick, completed in 1954 and it has been taken over in the 1955 plan. During 1954 [REDACTED] called "Ausfahrgeraet" model of [REDACTED] was completed on paper. [REDACTED] "Ausfahrgeraet" is a Rundechelet [REDACTED] constructed in such a way that it can stay in the body of the [REDACTED] it is not in operation and can be sunk into the water underneath the ship's keel when the operation is to start. Shortly before the Soviets returned the SAG enterprises to [REDACTED]

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the German administration at the end of 1953, Funkwerk Koepenick was requested to furnish blueprints and calculations pertaining to the development of the Rundecholot. The Soviet-operated scientific-technical offices in Koepenick furnished the blueprints and calculations were made by [redacted] and technician Kesten. Upon orders of the East German government, the Rundecholot development was continued after the [redacted] of SAG administration. It is assumed that the Russians have been informed on its progress and will eventually receive the completed results of the development.

5. The Rundecholot operates not only for vertical depth sounding but also for sounding in all directions within a semi-sphere located around the transmitter. The transmitter consists of two oscillators made of 99.96 percent pure nickel and 0.1 millimeter strong. These oscillators are excited with a transmitter tube developed by Gueldenpfennig in TEN 2. The frequency used is 1 [redacted] which is near the limit of stability. It has to be so low because the device is scheduled to operate at distances of up to 10 kilometers. The regular Echolots, for much smaller distances, use corresponding frequencies. The Rundecholot mentioned with a maximum sound range of 1,200 meter operates with a frequency of 1 [redacted] and the receiver for smallest depths operates with a frequency of 1 [redacted] a "Frequency" of 1 [redacted]. The echo radiation releases a new transmitted impulse when it reaches the receiver. The receiver installation of the Rundecholot consists of an oscillator system, similar to the one used in the transmitter, and a resonance amplifier which amplifies the arriving echo radiation. The amplified impulses are made visible on a cathode ray tube.
6. By early November 1954, only the transmitting installation and the resonance amplifier for the receiving installation of the Rundecholot were completely developed and laboratory samples were made. All other parts were developed on paper only. Even so, the problem of making the impulses visible had not been completely solved. TEN 3 has to [redacted] [redacted] oscillators obtained from supplies of the former German Kriegs-

Field Comment:

1. Kilohertz, or kilocycles per second.

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