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14 Oct 49

Department of State

Mr. Alex Prengle, Department of State; Mr. Kon Schmidt, Research Product Co., Danbury, Connecticut; Mr. A. Mantschikoff, Dictagraph Products Inc., Washington, D.C.

Physical Security Equipment

AFSA Personnel Attending: Mr. A. W. Small, Mr. David Wolfand, Mr. R. M. Scott, Lt. Joseph Bezjian, Lt. Joseph L. Burton

1. On 12 October 1949 engineers from AS-81 visited the State Department for the purpose of examining several devices recently designed for physical security measures.

2. The Research Products Company of Danbury, Connecticut, in conjunction with the Dictagraph Corporation has developed a cable from which it is extremely difficult to intercept intelligence. This cable to date has not been tapped successfully either physically or inductively by the developers or the State Department. The cable and associated end-equipment were developed to meet a requirement of the State Department in their embassy installations. The construction of the cable includes 51 uncoded pairs over which is placed two layers of metallic foil, one layer being a continuous solid cover and the other layer spirally coiled around the cable with an extremely small separation between the turns. These layers of foil are separated radially by a fine layer of nylon.

3. The end-equipment is a device which contains a saw-tooth oscillator, an alarm, micro-switches, and station indicators. The saw-tooth oscillator produces a signal which is impressed across the two layers of foil. The theory of operation is that when any physical incision is made to reach the pairs any instrument which goes through the two layers of foil will create a short circuit which will immediately set off an alarm. This theoretically prevents a physical interception. To prevent interception inductively the signal which is applied across the layers of foil creates a strong magnetic field which is of a high level with reference to the level of the intelligence on any of the pairs, thereby preventing any intelligence from being picked up. Several possible ways of intercepting the cable both physically and inductively which had not been attempted by the developers were brought forward by the engineers from AS-81, however these ideas were theoretical and have not been tried.

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Report of Contacts Outside of Security Division, 14 Oct 49, Continued

4. Discussion with Mr. Schmidt of the Research Products Company revealed that he personally has physically tapped gas-filled cables similar to the gas-filled cables in use at the Army Security Agency; and that he personally has inductively tapped other cables similar in their inductive shielding to such gas-filled cables; so that he believes gas-filled cables are insecure. This information has been passed to AS-83 for any action deemed necessary.

5. A Proximity Alarm System was demonstrated. This unit is a device that will detect any person or body that approaches within the field of a long wire or screen antenna. It operates on a balanced plate-supply circuit for an oscillator which feeds the antenna. A change in the antenna field causes more plate current to be drawn which will set off an alarm in a guard station. It is also to be provided with a microphone placed in the protected area which enables a guard at a remote point to monitor noises in the protected area.

6. There was also demonstrated a development of an electric-type lock which was developed to replace the three-combination lock; the three-combination lock requires replacement because of recently developed supersonic devices which have permitted the opening of this type of lock in short order. This electric lock operates on a principle of interlocking relays which are operated in a definite sequence. The relays are operated by push buttons which appear on the face of device being locked. There are ten operating buttons of which six constitute the proper combination and four are blank with reference to the combination. If any of the four blanks are pushed at any time the alarm will be set off because they are wired directly to the alarm system. If any of the six control buttons are pushed out of sequence the alarm will sound. The sequence of six buttons out of ten may be changed at any time. In the event that someone should start working the proper combination up to the sixth digit and then fail to complete the combination, the lock will automatically reset itself after a period of twenty seconds, and the proper sequence of six has to be started again. This lock in the opinion of AS-81 engineers is an extremely fine device.

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