

*Mr. Bolner*

*AFSA 14 Tech Library*

~~SECRET~~SECTION VDISCUSSION AND RECOMMENDATIONS CONCERNING  
INDIVIDUAL ITELS BEFORE THE BOARDSPEECH SECURITY EQUIPMENT

10. The stand expressed by the Army Ground Forces Equipment Review Board and by the Theaters with regard to speech security equipment may be summarized as follows:

- a. An integrated radio and wire secure telephone system should be the primary means of tactical communication.
- b. Adequate secure and light weight security equipment is the predominant need in achieving such a communications system.
- c. Development of improved speech security equipment should be given the highest priority.

11. The Army Security Agency concurs in the importance of speech security equipment and in the necessity of giving its development the highest priority. The speed, convenience and the advantages of direct personal contact obtained with voice communication are fully recognized. However, certain facts must be considered before a final decision is reached to use voice communication as the primary means of tactical communication.

12. The complex nature of speech results in serious technological difficulties which must be overcome before both secure and light weight ciphony equipment can be provided. At the present stage, secure equipment can be provided but such equipment is large and

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complex. Present light weight equipment is insecure and inadequate in other respects. It must be recognized that no solution is now in sight which will entirely overcome the problems involved and that it will probably be some years before equipment can be developed which is both small and secure enough to be used on the very wide-spread basis contemplated by the Ground Forces. Furthermore, changes in the communications system may be required to accommodate such improved speech security equipment.

13. Another factor to consider in the widespread use of telephone equipment is the lack of a permanent written record. In the case of SIGSALY, a high echelon secure ciphony device, it was found necessary after a period of use to install recorders for this purpose.

14. In view of the above, it is recommended that the development of speech security equipment be continued with the highest possible priority with the aim of ultimately achieving the results desired by the Ground Forces.

15. One important decision which must be made in connection with the application of speech security to an integrated communications system concerns the plan used in applying the equipment to the system. Two general plans are possible:

a. Security equipment located at the users with no intermediate security devices.

b. Security for each link in the system provided by separate sets of equipment. This would mean that when a call passes through several switchboards, separate sets of equipment located at the switch-

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boards, and at the users, would secure each link in the system independently.

While (a) above is the more desirable alternative from a security viewpoint, since the users can be certain that adequate security is being maintained over the entire system, the difficulties in providing and operating the system make it thoroughly impractical. Intero communicable security devices would be required at every telephone. This will only be possible when a very small but highly secure device is available. Furthermore, every user would have to be in possession of the key settings required to communicate with every other user. This is obviously impractical in a highly integrated system from both security and operational viewpoints. It is therefore recommended that plan (b) or a compromise between plans (a) and (b) be adopted.

#### CIFAX EQUIPMENT

16. The Mediterranean Theater has expressed the desire for more extensive use of facsimile equipment and recommends the adaptation of the RC-58 facsimile equipment to receive the tape from an M-209 converter. While this adaptation may serve a definite communications need it is felt that emphasis should be placed on the development of enciphered facsimile (CIFAX). By enciphered facsimile is meant a device which provides security to the facsimile signal rather than normal facsimile transmission of a message previously enciphered by some standard means. It seems likely that

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a need, perhaps not clearly recognized at the present time, exists for a CIFAX device for transmitting classified maps, sketches, photographs, etc. The Cryptographic Plan includes requirements for two types of CIFAX devices: (a) A portable device for use in forward echelons and (b) A fixed plant device for use between higher headquarters.

#### AUTHENTICATION DEVICES

17. The Mediterranean Theater has indicated little need for or use of authentication. This view is contrary to that expressed by the Cook Board Report and to that of the Army Security Agency. It is appreciated that habitual use of authentication is neither required nor desirable. On the other hand it is believed that there is a very definite requirement that a means of authentication be available to be used when enemy counter measures necessitate such use.

#### CIPHER DEVICES

18. Few comments were made either in the Cook Board Report or by the Theaters on the subject of cipher devices principally because of the primary interest in voice rather than literal communication. It is believed however that there will always exist a requirement for literal communication because of the compelling advantages which any recorded communication possesses. It is strongly recommended therefore that, in assigning priority to the development of speech security equipment, the need for improvements in cipher devices not be forgotten. Development projects

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should be continued which have as their aim:

- (a) Increased speed of operation of "off line" devices.
- (b) No transmission delay chargeable to security in the case of "on line" devices.
- (c) Reduction in size, weight and maintenance difficulties.
- (d) Adequate security consistent with operational requirements.

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