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THRU: AS-70

1. AS-20 AS-81 13 Jun 47

## Cryptographic Packaging

1. During the period of the last war, several comments were received from the field concerning the large amount of floor space required for a SIGCUM or SIGTOT installation. An off-line Type "A" room circuit would require about 35 square feet of floor space and a Type "B" would require about 50 square feet. This large space requirement was an important as well as a disadvantageous factor in the equipment layout of code rooms.

2. One of the suggested methods of alleviating this condition was the packaging of a cryptographic installation in such the same manner as a teletype-writer set AN/TGC-1. This would not only permit conservation of space but would also permit improved operational facility as well as better availability of equipment for maintenance. Provision could be made for the expeditious replacement of any component of this type of installation. A package unit of this type would be particularly adaptable for fixed plant installations including War Department, Theaters, Army Groups, Armies, Major Air Forces and Airways and Air Communications Service Stations. It is quite reasonable to suppose that Air Force Wings and Groups could in many instances use this type of installation to great advantage. It is also proper to consider the use of this type of installation by tactical units. It is a certainty that this unit would have been installed in the Cryptographic Van in place of the substandard installation that was necessarily installed there had such a unit been available. Since the Army Ground Forces have secured authorization for the development and procurement of seven mobile signal center units, it is apparent that the trend is towards mobility of signal installations and, therefore, future trailer or van installation of code centers may be expected. This type of unit would be particularly adaptable to such use and would greatly facilitate the conversion of an installation from mobile to fixed station or vice versa.

3. It appears that any cryptographic devices for the encipherment of teletype signals to be developed in the near future by this Agency will resemble the SIGTOT or SIGCUM to the extent that associated teletype equipment will be required in order to complete either an off-line or an on-line installation, and accordingly no improvement in space conservation will be effected by contemplated developments.

4. It is recommended that a project be initiated for the development of a package unit in accordance with the inclosed Military Characteristics.

5. It is believed that the Signal Corps should be responsible for this development and that comments or concurrences from Plant Engineering Agency, Communications Engineering Branch, Engineering and Technical Service of the Office of the Chief Signal Officer, as well as the Air Communications Office of the Army Air Forces and Army Ground Forces, should be secured before this problem is submitted to the Research and Development Division of the War Department General Staff.

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6. It may be necessary, in case this project is approved, to consider that future cryptographic equipments of the type herein referred to may have to be considered for rack as well as shelf mounting.

7. Comments are requested.

1 Incl  
Mil Characteristics

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MILITARY CHARACTERISTICS

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PURPOSE

1. The need exists for a package unit to be used for consolidating a teletype cryptographic installation consisting of a cryptographic unit and the associated teletype equipment.

GENERAL CHARACTERISTICS

2. This unit shall be so constructed that:

a. It will contain the components necessary for a basic cryptographic installation.

b. It will be suitable for fixed station and/or tactical use.

OPERATIONAL CHARACTERISTICS

3. This unit shall be so constructed that:

a. It will provide on-line or off-line operation.

b. It will provide for sit-down operation.

c. It will permit connection between components by means of pluggable cords.

d. It will provide protection for power supply.

e. All power and operating controls will be easily accessible to the operator.

f. Expeditious replacement of any component is possible.

g. All components are readily available for maintenance.

h. It will provide measures to prevent interceptable and interpretable radiations by means of shielded cables, power filters and grounding facilities.

i. It will provide for shock mounting of all components.

PHYSICAL CHARACTERISTICS

4. This unit will be:

a. As light in weight and small in size as consistent with other requirements.

b. Capable of operation and storage under all climatic conditions.

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3. AS-80 AS-24 5 Aug 47

Cryptographic Packaging (Continued)

Major Whitehead Ext 489

For consideration of nonconcurrence of AS-70 and return to this office.

1 Incl  
n/c

51 /s/ Paul E. Neff  
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Lt. Colonel, Signal Corps  
Acting Deputy Chief, ASA

4. AS-24 A3-80 12 Aug 47

1. It is believed that the first consideration here is the opinion of the using services, that is the Army Ground Forces, the Army Air Forces and the Signal Corps, as to the desirability of a development project for a device of this kind. It is, therefore, believed that recommendations in this matter should be secured from these services at the earliest possible moment.

2. If it is felt that a definite need exists for such a device, then most certainly development should proceed concurrently with the MX-519, inasmuch as it is possible that the dimensions of the MX-519 may have to be modified in order to fit such a device.

3. With reference to paragraph 2 of Comment No. 2, it is to be noted that the development of this device is not in contradiction to the policy of the War Department in any manner. This development is entirely new and still it should be capable of being utilized with the SIGTOT, SIGCUM, MX-519 or any other future developed cryptographic device to be used in association with teletypewriter equipment.

4. This device is intended to comprise the frame work for a basic cryptographic installation and whether the cryptographic device is an interim or an ultimate is of little importance except that any cryptographic development should be so designed as to fit within this unit, provided this development project is initiated.

5. With reference to paragraph 4 of Comment No. 2, it is not believed advisable to rewrite the Military Characteristics in order to make more specific what associated teletypewriter equipment should be included in the basic

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4. AS-24 AS-60 12 Aug 47

Cryptographic Packaging (contd)

cryptographic installation. These components will depend upon Signal Corps development of teletypewriter equipment and should include those items necessary to perform the well-known cryptographic operational functions.

1 Incl  
a/c

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