5102

SUBJECT: Report of Contacts Outside of Security Division

TO: Plans and Operations Staff Date 24 Nov 1947

Organization visited: Navy Communications Annex

Person(s) contacted: Commander Seiler, Commander Stienbeck, Mr. Ruederman, Mr. Darnell

Subject(s) discussed: TOT Tape Production
The Modified SIGCUM (33 Type)
The Development of Compact SIGJODO

Results of discussion including commitments made: The Navy was contacted by Mr. Brann, Mr. Kuhn, and the undersigned, in regard to obtaining data on their TOT Tape Production System for possible use in redoing our randomizers. Their plan is quite different from the one now being used by this Agency but all in all, it does not seem to offer any great advantages. It is my opinion that it will generate a very flat key but its operating characteristics will not even come up to the standards now being obtained in our Production.

The essence of the key generator is a SIGABA rewired to give possible ~~marked~~ space Baud arrangements. A completely new rotor set up is used for the generation of each tape which provides a great deal of security but it is not too desirable operationally. The key is sent to a relay panel which determines either mark or space arrangements on the typing reperforators sending contacts. An artificial start pulse trips off the key board shaft and the sending contacts transmit the signal to the selector mechanism. Tapes are punched simultaneously as they are in our system. However, if it was necessary, the Navy system of using the sending contacts would allow more than one tape reperforator thus producing many more like tapes. The timing for the segments is done by cam the end of the main shaft of the SIGABA driving a gear train which will operate a contact after 600 operations. (Navy uses 600 character segments instead of the 360 used by the Army.) At this time, an operator must come over to the operating panel and operate a series of switches to punch the numbering holes into the tape. It is my opinion that this characteristic is the greatest loss to their system for the following reasons:

Recommendation and/or action taken:

a. It slows up tape production because the equipment has to stop for approximately thirty seconds for every segment.

b. The sequence of levers to be operated is conducive to operating error which would result in incorrect segment numbering.

c. Because of the electromagnetical principles in setting up and

Name Rank

Branch Section

SIS-SC Form No. 1475
(Rev) 15 Mar 45

SUBJECT: Report of Contacts Outside of Security Division

TO: Plans and Operations Staff Date 24 Nov 1947

Organization visited: Navy Communications Annex

Person(s) contacted: Commander Siler, Commander Stienbeck, Mr. Ruederman, Mr. Darnell

Subject(s) discussed: TOT Tape Production
The Modified SIGCUM (33 Type)
The Development of Compact SIGJODO

Results of discussion including commitments made:

accomplishing the numbers by the operating of these levers, the levers must be operated very slowly so as to allow the relays to operate in sequence. This to, is a very undesirable condition.

The Navy Tapes contain 25 segments of 600 characters each ~~in~~ about 45 minutes. These tapes are wound by a hand winder on to wooden centers. The idea of the wooden center seems fairly good but one of our electrical winders certainly would be very advantageous to them for winding their tape.

Because of the difference in size of tapes and amount of equipment, a true picture can not be obtained in the number of tapes produced per day by ASA and NCA. However, judging from the amount of tape used, it is estimated that the Navy equipment produces one-half the number of key characteristics per unit as compared to ASA's present system. It is my opinion that even though the equipment does produce a flat key it is too complicated operationally to be considered as a solution to our TOT Tape production problem.

The Modified SIGCUM (Navy 33 Type), was also examined. They have taken many steps to improve the security which includes reflexing through the maze and ~~Recommendation and/or action taken~~ transposition and the addition and subtraction of the Bauds. They feel that they have the security up to a point where they may operate the device for 24 hours on one setting. From all appearances, the changes seem to be more in a major than a minor category, and it is felt that they are definitely improving the SIGCUM but they are not getting up to the standards of the MX 519.

Compact SIGJODO (Navy off-line equipment). This project is still in early stages of development but great strides have been made in making the equipment much more compact. This device will accomplish almost the same functions of SIGJODO and yet it is incorporated into the SIGABA increasing its width approximately five inches and increasing the depth the same amount. The tape transmitter head is located to the left of the present SIGABA. This device

Name Rank

Branch Section

SIS-SC Form No. 1475
(Rev) 15 Mar 45

SUBJECT: Report of Contacts Outside of Security Division

TO: Plans and Operations Staff

Date 24 Nov 1947

Organization visited: Navy Communications Annex

Person(s) contacted: Commander Siler, Commander Stienbeck, Mr. Ruederman, Mr. Darnell

Subject(s) discussed: TOT Tape Production
The Modified SIGCUM (33 Type)
The Development of Compact SIGJODO

Results of discussion including commitments made:
will allow the operator to punch clear text on the key board and come out with a perforated cipher tape.

However, this cipher will not be operated in code groups. It will be a continous line of characters. This will necessitate having similar devices on the other end of the circuit and will not allow the traffic to be broken by a conventional SIGABA holding that cryptographic system. This is a very bad characteristic. The CW traffic, however, can be taken care of because this device will still contain the standard ABA printing head which will produce a copy of the enciphered text and produce the grouping mechanically. The Model under development now utilizes Christmas Tree circuits made with Lake relays but Commander Stienbeck stated that they planned to try the 5-32 translators developed by the Army for the MX 519.

Representatives from NCA were very cooperative in showing ASA representatives anything they indicated an interest in.

Recommendation and/or action taken:

John A Smith

John Smith, 1st Lt
Name Rank

Branch Section

SIS-SC Form No. 1475
(Rev) 15 Mar 45