

HEADQUARTERS
ARMY SECURITY AGENCY
WASHINGTON 25, D. C.

WDGSS-85

15 May 1946

SUBJECT: Work Load of the Maintenance Branch

TO: Chief, Security Division

1. The Repair Section of Maintenance Branch is faced with an extremely heavy backlog of work due to the large amounts of cryptographic equipment returned from overseas for rehabilitation. Awaiting rehabilitation by the Repair Section is the following list of equipment and the man hours estimated to complete the work required:

<u>EQUIPMENT</u>	<u>MAN HOURS REQUIRED</u>	<u>TOTAL</u>
1808 SIGABA	36	65,088
1182 SIGCUM	12	14,184
300 SIGNIN	4	1,200
2297 SIGIVI	4	9,188
533 SIGAMUG	4	<u>2,132</u>
Total man hours		91,792

These figures represent the number of equipments on hand as of 1 May 1946 and will be continually increased by the arrival of additional equipment from overseas.

2. It is considered probable that the SIGABA will be modified along the lines proposed by the Navy. It is proposed that all SIGABA's be modified at this Headquarters before shipment is made to the field, thus increasing the work load as follows:

<u>EQUIPMENT</u>	<u>MAN HOURS REQUIRED</u>	<u>TOTAL</u>
3241 SIGABA	12	38,892

The above figure of twelve hours per machine is an estimate based on preliminary studies of the proposed change. It may be possible to greatly reduce this total after the changes have been finally agreed on by the Army and the Navy, and time studies can be made under actual conditions.

3. In order to properly preserve these equipments while in extended storage, it is recommended that the proposals set forth in a memorandum to the Chief, Security Division, 4 December 1945, subject "Preparation of

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Cipher Machines for Extended Storage," be approved. A copy of this memorandum is inclosed. Approval of this program will require an expenditure of approximately 7,500 man hours.

4. The Converter M-325 (SIGFOY) has been declared obsolete. Before these items can be salvaged, it will be necessary to dismantle them to avoid disclosure of the cryptographic principles. It is estimated that one man hour per unit will be required for this process which further increases the work load by 12,000 man hours.

5. Recently it has been brought to the attention of the Army Security Agency that the Signal Corps has declared surplus and has taken steps to dispose of all 131B2 Subscriber Sets and 14AB Transmitter Distributors. Should these subscriber sets be disposed of, it would invalidate the rehabilitation program of the SIGCUM, inasmuch as the SIGCUM would be useless without the associated subscriber set. It has been proposed that the Army Security Agency take steps to assure that proper rehabilitation and storage of these items are affected. Should the rehabilitation and storage be undertaken by this Agency, the additional burden of an estimated 75,000 man hours would be added to the present rehabilitation program.

6. In addition to the rehabilitation program, the Repair Section is responsible for the maintenance of certain cryptographic equipment installations, both at Arlington Hall Station and in the vicinity of Washington, D. C. A breakdown of the man hours expended during the past six months is tabulated below:

a. On-post Maintenance:

	Nov	Dec	Jan	Feb	Mar	Apr	TOTAL
M-209 Key Generator	32	17	29	19	21	16	134
SIGTOT Randomizer	25	18	13	14	11	5	86
Signal Center, AHS	8	14	4	17	4	7	54
Methods Branch	0	2	5	1	0	2	10
Machine Branch	0	1	4	0	1	0	6
Rotor Wiring	7	2	8	1	0	0	18
26-30 Check Equip	0	3	11	7	3	3	<u>27</u>
Total on-post maintenance							335

b. Off-post Maintenance:

	Nov	Dec	Jan	Feb	Mar	Apr	TOTAL
White House	64	69	110	48	8	30	329
Code Center, Pentagon	16	240	46	6	12	10	330
State Department	64	104	61	10	4	0	243

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AAF, Bolling Field	16	0	0	3	0	0	19
ATC, Gravelly Point	0	8	22	7	0	12	49
SSU, Washington, D. C.	0	8	6	10	20	12	56
Special Trips	264	256	144	240	73	32	<u>1,009</u>
Total off-post Maintenance							2,035

7. Effective 1 June 1946, the contract for the maintenance of equipment in the Arlington Hall Signal Center by the Chesapeake and Potomac Telephone Company will expire. The telephone company does not propose to renew this contract. Inasmuch as it is not desirable to have two maintenance organizations on the post, Maintenance Branch will assume this maintenance on that date. Four men will be required to furnish twenty-four-hour maintenance seven days per week.

8. The Repair Section is staffed by four officers and ten civilians with an available total of 2,912 man hours per month. The following tables indicate how this available total is expended and the time required to complete the rehabilitation program:

a. Total man hours available per month:

(1) Two officers to be separated by 1 June (Lts. Foran and Grefenstette)	416
(2) Administrative and Supervisory	416
(3) Absenteeism (annual and sick leave)	85
(4) Maintenance of Cryptographic Equipment (See paragraph 6)	395
(5) Maintenance of AHS Code and Signal Centers	960
(6) Rehabilitation of Equipment	<u>640</u>
Total man hours	2,912

b. Man hours required for:

(1) Rehabilitation of SIGABA, SIGCUM, etc. (paragraph 1)	91,792
(2) Modification of SIGABA (paragraph 2)	38,892
(3) Preparation for Storage (paragraph 3)	7,500

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(4) Dismantling SIGFOY (paragraph 4)	12,000
(5) Rehabilitation 131B2 Subsets (paragraph 5)	<u>75,000</u>
Total man hours	225,184

c. Based on the total man hours shown in paragraph 8b above and the availability of 640 man hours per month as shown in paragraph 8a(6) above, it would indicate that with the present personnel it would require 352 months or 29 years to complete this rehabilitation program.

9. In order to reduce this work load, it is recommended that the authorized civilian strength of Maintenance Branch be increased from 20 cryptographic repairmen to 100. The grades involved should be increased as follows:

CPC-10 (\$2980.00 per annum)	
<u>FROM</u>	<u>TO</u>
4	10
CPC-9 (\$2650.00 per annum)	
16	74

Present space can accommodate fifty repairmen and the repair section can be operated on a two-shift basis. Vacancies will exist for three officers in this section and it is imperative that these vacancies be filled as soon as possible. Present officers will all have been separated by 31 August 1946. Applications are now on hand from former officers and enlisted men to bring the repair section up to its present authorized strength by 15 June 1946. In order to increase the strength of this section to one hundred repairmen, it is proposed to request the Personnel and Training Branch to send letters to individuals who formerly were in this section, or who were trained by this section. An extensive file has been maintained of all personnel who were trained by the Maintenance Branch.

George L. Sampson

GEORGE L. SAMPSON
Major, Signal Corps
Chief, Maintenance Branch

1 Incl
Copy of memo, 4 Dec 45, subj
"Preparation of Cipher Ma-
chines for Extended Storage"