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V. APPENDICES

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APPENDIX A

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TICOM/DF-190-AM

Enigma Machines in Foreign Countries

S. 4/21

High Command of the Armed Forces  
Armed Forces Operations Staff, Armed Forces  
Radio Communications Branch (WFSt/Ag WNV/Fu IIa)

Berlin, 13 Sep 1943

File Nr. 1122/43 TOP SECRET

Reference: Your letter 89b 30.28/13d Nr. 1177/43 TOP SECRET

To: High Command of the Armed Forces, Chief of Army Equipment and  
Commander of the Replacement Training Army, General Army, Office,  
Inspectorate 7 IV<sup>13</sup> (OKH/Chef H Ruest u Bd E./AHA/In 7 IV<sup>13</sup>).

In response to your letter it is reported in answer to question 1.):  
The following countries have Enigma cipher machines with plugboards:  
Italy, Romania, Hungary, Slovakia, Bulgaria. There have been delivered  
to the following countries:

A. 26-unit printing cipher machines to: Argentina (Ch. 14), Germany-  
Japan for the Nitrate Syndicate (Ch. 14), Japan (Ch. 3), and Hungary (Ch.  
14)

B. 26-unit light bulb cipher machines similar to model K and model K  
(commercial type plus special wirings of the wheels) to: Afghanistan with  
identification letter A, Argentina with identification letter A, Brazil  
with identification letter A, Chile with identification letter A, Germany  
with identification letter A and K to a private customer, England with  
identification letter A, France with identification letter A and K, Japan  
with identification letter K and T, Mexico with identification letter A,  
Austria with identification letter A, Poland with identification letter A,  
Russia with identification letter A, Sweden with identification letter A,  
Switzerland with identification letter K, Czechoslovakia with identifica-  
tion letter A, Hungary with identification letter A, and USA with identi-  
fication letter A.

C. 26-unit lamp bulb cipher machines with counter similar to model G  
and model G (some with special wirings of the wheels) to: Chile with iden-  
tification letter A, Germany with identification letter G (for the  
Nitrate Syndicate and I.G. Farben), Holland with identification letter A  
and G, Sweden with identification letter A, Czechoslovakia with identifi-  
cation letter A, and Hungary with identification letter G.

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D. 10-unit lamp bulb cipher machines with numbers 1-9 and 0 to:  
Chile and Sweden.

\* \* \* \* \*

Lorenz for allied (eidgen) military depot	commercial	K323-324
Lorenz for Spanish Morocco	"	K356-358
Japanese Navy	"	K962-963
Switzerland		K755-858
Croatian General Staff of the Reserves, special wiring		K881-892
Italian Air Ministry	commercial	K302-311
Italian Military Attache Rome	special wiring	K583-584
Italian Navy	" "	K621-624
Italian Embassy Berlin	" "	K964-967
Italian Naval Attache	" "	K961
Communications of OKH/In 7 IV with the General Staff of the Italian Armed Forces		G249-250
Chi (Cryptologic Agency) with the Italian Military Attache	special wiring	G247-275

Reference question 2.): We do have the wheel wirings. Under the agreement more precise data will not be released right away.

The Chief of the High Command of the Armed Forces

per (Illegible signature)

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## APPENDIX B

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C O P Y

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TICOM/I-84

S - 4584

FURTHER INTERROGATION OFR. R. DR. HUETTENHAIN AND SDF. DR. FRICKE OF OKW/CHITICOM, 4 September 19451. Who made and wired the Enigma wheels, and where was this done?

The patents were held by the firm of Heimsoeth & Rinke, but they did not build the machines. Heimsoeth was a lawyer from Cologne and Rinke a woman. The man who developed the machine, in collaboration with Fenner, was Dipl.Ing.((Willi)) Korn. The firm received a royalty on every machine built and the Army tried to get rid of them. They were located in Berlin on Uhlanstrasse. The wheels for the Army and Air were made by Konski & Krueger, Berlin, Chausseestrasse, a small firm which probably made only Enigma machines. The Naval machines were made by Ertel in Munich. Other machines were made by the Olympia typewriter company in Erfurt, who also made Lueckenfuellerwalze...

6. What do they know about the Croatian Enigma?

It was the commercial type with different wiring, and no stecker. It was probably used both for diplomatic and service traffic. It was worked on and solved at In 7/VI by Marquardt in the mathematical section, about two years ago. How were the wheel-wirings obtained? They got them from Konski & Krueger, who did the wiring. They could always get any special wheel wirings from them except the Swiss (who did their own wiring) and the Hungarian. The Hungarians were connected with the firm, and they used to take the wheels at night when the women had gone home and change the wirings enough to make the records useless. How many special wirings did K&K make? About 200. Special wirings were controlled by Fu, who had records of them all. At one time they brought them all to Huettenhain, who did not want them and passed them to Mettig, who gave them to Oblt Ecker (liaison Officer to OKL/Chi). Whose special wirings were these? They were used by special units of the Army, such as Hitler's train. Korn said they were getting their records in order and had to keep them somewhere. The officer at Fu connected with this control was Inspektor Boligh, under Colonel Fuchs. It was thought that his office moved to Breslau or Torgau...

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APPENDIX C

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TICOM/I-104

Report on Berlin Targets by Major Heller

of G.S.I(S), 21.A.G. B.O.A.R.

TICOM, 17 September 1945

TICOM Investigation of Berlin Technical Targets

1. Targets visited:

- (a) Heimsoeth and Rinke, Chiffriermaschinen Gesellschaft
- (b) Siemens, Werner Werke
- (c) AEG
- (d) Lorentz
- (e) Telefunken

Remaining targets were located in the Russian Zone of Berlin.

2. General. All targets had been previously visited by Russian Intelligence and technical experts who had removed virtually all documents and subsequently removed all machinery, plant and equipment. Despite this fact it was possible to collect a certain amount of information and equipment.

3. Heimsoeth and Rinke. Chiffriermaschinen Gesellschaft. This firm mentioned in PROC 5802 as being located in the Steglitzerstrasse 2 was finally located at Uhlandstrasse 138, Wilmersdorf.

All other addresses which have from time to time been mentioned in connection with the manufacture of Enigma machines were previous locations of the above firm who are the sole manufacturers of Enigma machines for all Germany.

Personalities: Ob. Ing. Korn (Absent on 'holiday').  
Ing. Schroeder  
Ing. Schiele

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## 3. (continued)

Items removed:

a. Zaehlwerkmaschine type CA 15. This machine is a four-wheel model having a gear drive and employing eccentric teeth for wheel progression. It was sold to the Dutch for military use. Subsequent to declaration of war, two machines were delivered to OKW at Stahnsdorf.

b. Lueckenfuellerwalze (drawings and prototype model). This type of wheel was a new design carried out at the request of OKW and intended to replace the existing type throughout the German Armed Forces. It was in fact approved but had not reached production stage at cessation of hostilities. It differs essentially from current type of wheels in use, in that the fixed tooth or teeth which cause the progression of neighbouring wheels, is replaced by 26 variable teeth whose setting can be altered daily. This change in design results in a basic alteration of tyre-setting and wheel body, although in practice only the progression is affected. The prototype obtained is designed for army use and is fitted with a 'neutral' wheel body.

c. Umkehrwalze D. One complete army fitting was obtained. This differs only in external measurements from the naval version. The history of Umkehrwalzen is a little odd. Type was requested by OKW and duly delivered but for unknown reasons, was withdrawn from service almost immediately. Orders were then given to design a new type having improved security characteristics. Type D was the result. This was approved and put into production, but never reached full distribution. It was withdrawn, no reasons being given, and production of type B was recommenced.

Other material located at the factory in Russian territory (Chaussee-strasse 117, Stettiner BHF.).

a. Strip printer adaptor for German Service model. This adaptor fitted over the lamp sockets and consisted of a straightforward teleprinter which was actuated via relays by the current which would normally light the bulbs.

b. Page printer Naval model. Based on the Springschreiber, this model consisted of a straightforward naval type Enigma which was operated electro-magnetically, the enciphered or clear text being printed directly on to a paper page. Only a limited number of these machines were delivered to the navy.

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## 3. (continued)

c. Numerous commercial 4-wheel models. These are standard commercial models.

d. Russian investigation. Both factory and offices were visited by Capt. Polin and Lt. Medwedjew. Both officers appeared to be fully conversant with the Army model and demonstrated obvious familiarity with the mechanics of the Army model. Ing. Schroeder gained the impression that both were cryptographers. These officers removed a complete set of drawings for the Lueckenfuellerwalze and a Naval type Enigma machine which they stated they had never before encountered. They did not enquire regarding the Umkehrwalzen nor did they obtain a complete model of the Lueckenfuellerwalze.

General

The offices contain large number of files relating to commercial sale of Enigma machines and current production correspondence. Schiele stated that all SECRET files had been burnt before the Russians entered the town. The files were not examined in detail.

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APPENDIX D

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C O P Y

~~TOP SECRET~~TICOM/M-13MANUFACTURE OF ENIGMA MACHINES BY HEIMSOETH AND RINKE, BERLINTICOM, 17 November 1945Report on second visit to Heimsoeth & Rinke, Uhlandstr., 136, Berlin

1. A second visit was paid to this firm with a view to obtaining information on wiring diagrams of drums and full details of serial numbers of the various types of machines manufactured by this firm.

2. According to the statement of Willi Korn, Chief Design Engineer of the firm and present senior representative, all wheel wiring diagrams were destroyed in April at the time of the entry of the Russians into the city. This destruction is stated to apply to ALL wirings including those of commercial machines sold to private individuals prior to declaration of war.

3. Complete correspondence files of all transactions with German War Dept. (OKW/AgWNV/Fu) and allied departments were however found on the premises. These files have been removed and are being forwarded to GCCS for detailed examination.

4. These files contain considerable information on the preparation of specially wired drums together with special orders for foreign governments including such as were members of the Axis. It goes perhaps without saying that duplicates of all machines supplied to organisations other than OKW were supplied to OKW.

5. Appendix 'A' gives a list of serial numbers of those machines manufactured by the Berlin branch of the firm Konski & Krueger and delivered to OKW. Approximately 3000 serial numbers are missing owing to a subcontract being given to a firm Geyer in Nuernberg and who were allocated a separate block of serial numbers.

6. Appendix 'B' is a short summary of the Serial Number types and their special uses or applications.

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7. If further specific information is required, this may, with the exception of wiring diagrams, still be available at the Heimsoeth & Rinke offices.

29 Oct 45

Major Heller  
G.S.

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Appendix 'A'

TICOM/M-13

Jahr	Heer			Marine		
	Stuecke	Lfd Nr.	Ges.Lief. Stuck	Lfd Nr.	Ges.Lief.	
1927	400	A366-A756	400			
28	12	866-867				
		897-906	412			
29	52	868-896				
		907-929	464			
30	122	930-934				
		936-1052	586			
31	160	1053-1212	746			
32	100	1253-1352	846			
33	722	1353-2074	1568			
34	713	2075-2787	2281	401	M501-M901(M1)	401
35	1000	2788-3787	3281	60	M902-M961(M1a)	461
36	1738	3778-5525	5019			
37	2449	5526-7974	7468	150	M962-M1111(M1a)	611
38	2180	7975-10154	9648	310	M1112-M1421(M2)	921
39	524	10155-10678	10172	580	M1422-2001(M2a)(M3)	1501
40	760	10679-11438	10932	800	M2002-2801(M3)	2301
41	1886		12818	1011	M2802-3812(M4)	3312
42	1774		14592	1450	M3813-5262(M4)	4762
43	2347		16938	2238	M5263-M7500(M4)	7000
44						
Jan	190	H 91 6403 46 + 53	17129	100	Jan	7100
Feb	144	120 42 24	17273	105	Feb	7205
Mar	220	80 140	17493	150	Mar	7355
Apr	200	160 40	17693	120	Apr	7475
May	200	150 50	17893	195	May	7670
					K.u.K. = 120	
					Geyer = 75	
Jun	272	187 25	18105	190	Jun	7960
		H SS L			K.u.K. = 125	
					Geyer = 65	
Jul	291	126 40 125=291	18396	100	Jul	7960
					K.u.K. = 90	
					Geyer = 10	
Aug	199	84 40 75=199	18595	240	Aug	8200
					K.u.K. = 140	
					Geyer = 100	
Sep	225	85 45 95=225	18820	170	Sep	8370
					K.u.K. = 120	
					Geyer = 50	
Oct	267	52 45 170=267	19087	100	Oct	8470
Nov	313	153 45 115=313	19400	30	Nov	8500
Dec	309	151 45 113=309	19709			
2770=1944			1500 = 1944			

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Appendix 'A'

TICOM/M-13

Jahr	Heer			Ges.Lief. Stuck	Marine	
	Stuecke	Lfd Nr.			Lfd Nr.	Ges.Lief.
Jan	H 106	SS 75=181		19890		
Feb	RB 30 +	9 + 4 + 32 = 75		19965		
Mar	20 +	39 + 45 + 157 = 261		20226		
Apr	50	30 * 80		20306		

Note: Serial numbers all consecutive. All Army Nos. are "A". Navy Serials also consecutive.

Serials are only those produced in the Berlin Factory. Geyer production listed separately from a separate block of serials.

Appendix 'B'Summary of Serial Types

1. Standard Serial Type A Machines. Serial numbers prefixed by the letter A without additional suffix denotes a standard wiring Army machine as issued to Army, SS, and GAF. A total of some 20,000 such machines were manufactured.
2. Serial A machines with Greek suffix letters. A limited number of standard machines were returned to Helmsoeth & Rinke for special re-wiring. Such machines bore the Greek letters Alpha or Delta as suffix to the main serial number. Wheels likewise received this suffix, (i.e., A246176 a). The purpose or distribution of these machines was not known.
3. Serial B201 - B224. All machines bearing the above serial are specially wired throughout and have wheel and plugboard markings in red. They were believed to be designed for the Fuehrer Hauptquartier.

A limited number of other B serial machines were also prepared for some unspecified special purpose. The wiring diagrams of these machines received special security treatment.

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4. Serial K301 onwards. All machines bearing a K serial number were specially ordered, each order having a new and different wiring diagram. The machines were supplied without plugboard but had fitted a special adjustable "Umkehrwalze" which was designed to take the place of the plugboard. Some 30 separate wirings were made up for these machines. They are believed to have been intended for use by Agents.

5. Serial G machines. Also known as "Zaehlwerkmaschine". Supplied to Dutch and Hungarian Army. Possibly also to Swiss Army. 200 machines were supplied to OKW for special purposes.

6. Serial M machines. Standard Naval machine. Four modifications brought out numbered, M1 to M4. Type M4 was equipped with ten wheels, numbers 1 - 8 being numbered A, B, etc., and two fixed wheels numbered with corresponding Greek letters. One single position of these two supplementary wheels was designed for working with the standard type A machines.

7. Type T machines. Five hundred of these machines numbered from 1 to 500 were supplied to the Japanese Navy. These machines are standard wiring 8-wheel machines similar to type K.

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