

Report on Production of Enigma Cypher Machines  
by the Ertel Factory, Hohenaschau

TICOM Report I-187, 5 February 1946

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Editor: Frode Weierud, Crypto Cellar Research



NATIONAL SECURITY AGENCY  
CENTRAL SECURITY SERVICE  
FORT GEORGE G. MEADE, MARYLAND 20755-6000

Serial: MDR-54665  
12 February 2008

Mr. Frode Weierud  
Le Pre Vert, 1041 Rte de Mategnin  
F-01280 Preveassin-Moens, France

Dear Mr. Weierud:

This responds to your request of 23 January 2008 for the Mandatory Declassification Review of the following four documents: S-4165 (TICOM/DF 234-A) ENIGMA files; S-4166 (TICOM/DF 239-B) ENIGMA files; S-4847 (TICOM/I-187), Report on Production of ENIGMA Cipher Machines; and S-3119 (TICOM/D-3m), The Enigma.

The first two documents (234-A and 239-B) have been sent to the National Archives and Records Administration (NARA) and are no longer available from this agency. You may request them directly from NARA at the following address:

National Archives and Records Administration  
8601 Adelphi Road  
College Park, MD 20740-6001

Document D-3m was declassified in 1995 and document I-187 has been reviewed and declassified. They are both enclosed.

We have determined that the enclosed documents do not contain any classified or exempt NSA/CSS information; therefore, your request is granted in full.

Sincerely,

A handwritten signature in cursive script, reading "Linda L. Huffman".

LINDA L. HUFFMAN  
Chief  
Declassification Services

Encls:  
a/s

SECRET

TICOM/I-187

REPORT ON PRODUCTION OF ENIGMA CYPHER MACHINES  
BY THE ERTTEL FACTORY, HOHENASCHAU

The attached report was prepared in September, 1945, by the Director of the ERTTEL PRECISION FACTORY, HOHENASCHAU (CHIEMGAU) at the request of Captain Henry H. Schell, H.Q. 3rd U.S. Army.

TICOM

5th February, 1946.

No. of Pages: 6

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Report on Production of Enigma Cypher  
Machines by the Ertel Factory,  
Hohenaschau, and Related Questions

The Enigma was developed by Heimsoeth & Rinke, Berlin - Wilmerdorf, Uhlandstrasse 136, and first produced by the firm Kanski & Krüger, Berlin N4, Chausseestrasse 117. This firm had been producing the cypher machine long before the war, and for peacetime requirements also (railway, postal services, other official bodies, industry). After Heimsoeth & Rinke, it is best in a position to give information on technical details, stages of development, basic principles of construction and similar matters. We should point out here that to our knowledge the peacetime model of the machine differs in external details from that developed at present for war purposes, and that only the above mentioned firms are in a position to give information on this. During the war other firms were commissioned by OKH with the production of the Enigma. See appendix.

The Ertel factory received its first contract shortly after the commencement of negotiations on 29th April 41 from Oberkommando des Heeres (Director of Army Equipment and Commander of Reserve Army), Wa J Rü (Wu G 7/VII a 4); this contract was SS 222 - 2 - 6402/41 with special priority SS II/41 and was for 600 "Enigma" cypher machines, complete as per drawings. This first contract was followed by others: - 3.10.42; 900 Enigma cypher machines, contract SS 222 - 6402/42, Wa J Rü (Wu G 7/VII a 4); on 17.3.43; 1600 Enigma cypher machines, contract SS 4911/0222 - 6401/43 from Wa J Rü (Wu G 7/VII a 4); on 11.1.44; 2400 Enigma cypher machines, contract SS 4947/0222 - 6403/43.

The first two contracts were completely executed. Of the third contract for 1600 machines up to the end of the war 960 had been accepted and delivered. Of this contract there are still in the factory 80 completed and accepted 70 completed but not yet accepted, and 10 almost completed Enigmas, of which, as already reported to the American military authorities, six have been removed by American military commissions consisting of officers. The remaining machines of the above contract are almost completely in the possession of our firm in the form of unassembled parts, some of which come from subcontractors and some which have been produced in our own factory. We would thus be able to deliver 500 cypher machines (in addition to the 150 already completed) in a short time, provided that the still outstanding parts (pressed parts) were delivered and about 20 workers (women) were made available. (We would require 6 months to fulfil the whole of the contract for 1600 cypher machines.) Of the last contract we received, about 50% of the necessary unassembled parts and half completed material, as before partly supplied by subcontractors, partly manufactured by us, is to hand in the factory.

However we can make no statement of our ability to complete, or even of any delivery dates. The manufacture of the Enigma cypher machine, which has been our only production since April 44 (firm completely bombed out) was stopped after the last Wehrmacht acceptance commission left the factory at Hohenaschau before the end of the war. This was in the middle of April. Since then the cypher machines with unassembled parts and drawings have been lying inside our factory building quite untouched (with the exception of the machines removed by the Americans).

In connection with the production of cypher machines our factory received an order on 24th July 44 from the above named firm Heimssoeth & Rinke, Berlin-Wilmersdorf - acting on behalf of OKW Wa J RÜ (Wu G. 7/VI a 4) and having received from them the contract SS 4947/0222 - 6452/44 of 23.6.44, requirements group (A.St.M.) 6253 - for 8000 so-called wheel cages [Walzenkäfige] according to drawing. The number was then increased to 12000. The wheel cages represent a new wheel for the Enigma machine, called the Lückenfüller wheel. We have in our possession only a few of these wheels, which we have installed in 5 machines at the orders of the American authorities. We had begun production of this wheel also; however no completed parts had yet been accepted or delivered.

A further assignment connected with the cypher machine was received in the form of a preliminary technical notice given in the form of a contract; contract issued by Reichsminister der Luftfahrt, Director General of air equipment, technical office, GL/C - B 4/IV, contract SS 4947 - 5444 - 0004/44 of 3.7.44 for 1600 "Enigma" Schlüsseluhren. This was an attachment to the Enigma, about which, however, we cannot give any more details, as our firm never received any completed Schlüsseluhr and produced only quite a small number of turned parts for this instrument, the principal manufacturer of which was the above mentioned firm Konski & Krüger. Our firm was also to take over the assembly. On 13.2.45 the contract was cancelled by the special committee "Telegraphic Equipment", Berlin. With this all work begun on parts of the Schlüsseluhr came to an end. The parts are lying in the factory.

The total value of the completed and half-completed products specified above has been computed by the factory with a very careful examination of all the documents and fixed at 501,170 Reichsmark 54 pfennig. The documents showing the details of this estimate, which is given in more detail in the appendix, are in the factory and are available. We should point out that parts not yet delivered, but which are lying ready completed at the subcontractors concerned and which only the events of the war have prevented being collected, are included in the estimate. The firm is solely responsible for the sum stated above. It has not - not even in part - been paid or guaranteed by any other party. It has only been reported to our bank as a claim by the firm against the OKW. In this sum is also included the value of the 80 cypher machines already accepted, as these have been neither collected, valued nor paid for.

On each occasion the cypher machines were accepted by military officials acting for the Army Acceptance Office (Signals), Munich. After acceptance the machines were collected by Army transport and sent first to Army Ordnance Depot, Freilassing. We know nothing about further destination and employment of the machines.

Ertel Precision Factory.

Specification of contracts and prices

No. of items	Date of contract	Commencement of delivery	Conclusion of delivery	Number delivered	Price per item
600	3.4.41	Jan. 42	31.8.43	600	175x731.- 425x575.-
900	3.10.42	Sept. 43	31.3.44	900	900x460.-
1600	17.3.43	Sept. 44	31.3.45	950	950x350.-

Note: In our factory there are still 80 Enigmas which have been accepted by the competent Army acceptance authority. Also a further 70 Enigmas which can be considered as completed.

Acceptance.

The Enigma cypher machines were accepted according to the technical conditions of delivery by the competent Army acceptance authority (N) Munich. The conditions of delivery were destroyed during an air raid in April 44. Up to present we have been unable to replace them.

Firms engaged in development and production

Development: Heimsoeth & Rinke Cypher Machine Co.  
Berlin-Wilmersdorf, Uhlandstrasse, 136.  
Production: Kanski & Krüger, Berlin N4, Chausseestr. 117.  
Ertel Precision Factory, Hohenaschau/Chiemgau.  
Olympia Office Equipment Factory Co., Erfurt,  
Mainzerhofplatz.

The cypher machines produced by Olympia were destined for the Navy only.

Subcontractors:

<u>Firm, address</u>	<u>Part specification</u>	<u>State of contract</u>
Julius Posselt Presswerk Gablonz/Sudetengau.	Figure ring, cover disc [Abdeckscheibe] Contact disc	part contract 1600 still outstanding
Brehm & Kärmerer Langewiesen/Thür	Wheel bodies	part contract 1600 still outstanding
Mössner & Thurner München 56 Unterbiebergerstr. 38	Base plate, driving bail, Blocking shaft	fulfilled
Heinrich Wunder Rothschweige nr. Dachau	Steel Reinforced wooden cases, stamped parts	Stamped parts fulfilled, reinforced cases up to 90%
Ernst Gomolka Zehdenick (Lark)	Upper key plate	fulfilled
Alfred Ransmayer & Albert Rodrian, Berlin SO 16 Köpenickerstr. 113	Key buttons (also suitable for normal typewriter)	fulfilled
Hermann Römmler & Schumann, Berlin- Friedenau Kaiserallee 78	Stecker upper and lower section	part contract 1600 still outstanding
Geo. F. Krämer, Augsburg, Bismarkstr. 4	Springs	fulfilled
Gg. Socher & Co., Rötze Opf.	Assembly work	fulfilled
Radio Rim Unterföhring Gasthaus Lechner	Assembly U 10 Battery boxes	part contract 1600 delivered.

Where "part contract 1600 outstanding" has been noted in last column, the contract for 2400 has not yet been delivered.

Alterations during production:

(mainly simplifications of production)

- Dispensed with dust excluders (rubber)
- " " Dora wheel (plug wheel) Additional exchange
- " " Caesar wheel in place of Berta wheel.
- Wheel bodies with impressed ratchet wheel
- Figure ring with impressed ratchet teeth
- Lamp bridge S - springs
- Battery boxes at first metal plate with lid;  
now compressed paper without lid
- Spring assemblies (Päckchen) in Ertel production  
raised knob the same in all sub-groups.

Total costs of production of 1600 and 240  
Machines etc. which has been stopped:

			RM
1600 Contract:	80 machines completed		28,000.--
	70 " ready for acceptance		
	10 " 90% completed		
	490 " in production		186,725.05
2400 contract:	2400 " in production		259,341.67
12000 Luckenfüller wheels:	production started		11,962.99
8000 E. Uhren:	production started (now stopped however)		15,140.83
			RM 501,170.54

In the above total are included all material and wages  
accumulated.