

# Enigma D versus Zählwerk Enigma

## Introduction

This is an attempt at discovering which Enigma machines were of the commercial model, Enigma D, and which were *Zählwerk* Enigma, later (1931) named Enigma G. The early *Zählwerk* Enigma machines were also called *Zählwerk Maschine 1927* and A28 for the 1928 model. The commercial model Enigma D, also called A26, was slightly modified in 1927, and it was then called A27. Later, this model became Enigma K.

Until the introduction of the Enigma G and Enigma K models, all the glow-lamp Enigma machines, irrespective of model and including the Enigma I (Roman One) sold to the German army, received their serial numbers from one number series, the A-series. After the introduction of Enigma G and Enigma K, only the Enigma I machines continued to be given A-series serial numbers.

This means it is impossible from the serial number alone to determine if a machine is an Enigma D, *Zählwerk* Enigma, or Enigma I. However, as the machines received consecutive numbers in this series, it is possible to know exactly how many machines were produced within a given period.

Below, we will try to list those machines known to be Enigma D, *Zählwerk* Enigma, or Enigma I.

We will start with the machines A 316 and A 317, which were the prototype machines for the later Enigma I and that were delivered in the spring of 1926 for test by the German army — *Reichswehrministerium* (RWM).

## Enigma A-Series (1926–1931)

### Enigma D (A26) and A27:

- **A 316, A 317 — RWM, 1926 — Enigma I**
- A 319 — USA, discovered at US auction house in 2024 (1)
- A 320 — United Kingdom (1)
- A 323 — United Kingdom (1)
- A 324 – A 325 — Sweden (2)
- A 327 – A 328 — Sweden (2)
- A 330 — Chile (1)
- A 333 – A 334 — Argentina (2)
- A 337 — Chile (1)
- A 338 — France (1)
- A 339 – A 340 — Germany — Otto Petersen, Essen (1926)<sup>[1]</sup> (2)
- A 341 – A 342 — Argentina (2)
- A 343 – A 344 — Germany — Direktor Schernikau, Berlin (1926)<sup>[2]</sup> (2)
- A 345 — Russia (1)

- A 347 – A 348 – Argentina (2)
- A 353 – A 354 – Argentina (2)
- A 356 – A 358 – Chile (3)
- A 359 – A 360 – Germany – J.M. Voith Maschinenfabrik, Heldenheim (2)
- A 361 – France (Originally lent to Sweden in April 1927) (1)
- A 362 – Unknown user. It was initially lent to Sweden in April 1927. (1)
- A 363, **A 365** – Germany (Most likely an error for A 364) – Hugo Rosenfeld, Nürnberg<sup>[3]</sup> (2)
- A 365 – Argentina (1)
- **A 366 – A 765 – RWM, 1927 – Enigma I (400)**
- A 766 – USA (1)
- A 767 – A 769 – Chile (3)
- A 770 – A 771 – Czechoslovakia (2)
- A 772 – USA (1)
- A 773 – A 776 – Czechoslovakia (4)
- A 777 – A 778 – Hungary (2)
- A 779 – A 784 – Czechoslovakia (6)
- A 785 – A 786 – Mexico (2)
- A 787 – A 792 – Afghanistan (6)
- A 793 – A 796 – Austria, Polizeidirektion Wien (4)
- A 797 – A 800 – Poland (4)
- A 801 – A 802 – Sweden (2)
- A 803 – Germany – Polizei-Direktion München (1928) (1)
- A 805 – A 815 – Austria (11)
- A 817 – A 822 – Austria (6)
- A 824 – Austria (1)
- A 830 – A 836 – Austria, Polizeidirektion Wien (7)
- A 837 – A 838 – Germany – I.G. Farbenindustrie AG, Stickstoff-Direktion, Ludwigshafen (1930) (2)
- A 839 – A 840 – Germany – I.G. Farbenindustrie AG, Einkaufs-Abteilung, Berlin (1931) (2)
- A 844 – Chile
- A 846 – A 852 – Chile (7)
- A 857 – Germany – Dipl.-Kaufmann Fritz Müller, Berlin-Tempelhof (1929)<sup>[4]</sup> (1)
- **A 866 – A 867 – RWM, 1928 – Enigma I (2)**
- **A 868 – A 896 – RWM, 1929 – Enigma I (29)**
- **A 897 – A 906 – RWM, 1928 – Enigma I – Special version for use with Enigma II (10)**
- **A 907 – A 929 – RWM, 1929 – Enigma I (23)**
- **A 930 – RWM, 1930 – Enigma I (1)**
- **A 931 – A 934 – RWM, 1930 – Enigma I – Special version for use with Enigma II (4)**
- **A 935 – This serial number seems never to have been used. Probably due to an error.**
- **A 936 – A 1052 – RWM, 1930 – Enigma I (117)**
- **A 1053 – A 1212 – RWM, 1931 – Enigma I (60)**
- A 1213 – A 1215 – Italy (1932), extra wheels, wiring IV – VI: Ch 11 Tz 350 a – c, (1941) (3)

- A 1214 — Italy, Rome, wiring D, (1)  
extra wheels, wiring IV – VI: Ch 11 Tz 350 a – c, (1941)
- A 1216 — Italy, wiring D, (1)
  - A 1216 — In Spain (05.08.1939)
- A 1217 — Argentina (1)
- A 1218 — Unknown (1)
- A 1219 – A 1221 — Austrian – German Police (1934) (3)
  - A 1219 — Austrian Army Machine with 3 normal wheels and 3 special wheels
  - A 1220 – A 1221 — Police Munich, 3 normal wheel and 3 special wheels, Oberleutnant von Berchem, München 2 NW, Haslangstr. 3
  - A 1219 and A 1220 returned to H&R for repair on 1.2.1939 by Sturmbannführer Kronitz from the Reichsnachrichtenschule der SA, oberste SA-Führung, Rottenburg/Neckar.
- A 1222 – A 1225 — Germany, Chiffrierstelle des RKM, wiring A?, (March 1936) (4)
- A 1226 - A 1231 — Unknown, wiring B (6)
  - A 1226 – A 1229 — equipped with specially wired wheels IV and V, wiring B ext. — Ch 11 Tz 183 a–b (1937)
  - A 1226 – A 1229 — Croatia, Croatian General Staff of the reserves, special wiring, (Nov 1943) (4)  
UKW: Ch 11 Tz 86, I - III: Ch 11 Tz 364 a– c
- A 1231 — Croatia, Croatian General Staff of the reserves, special wiring, (Nov 1943) (1)  
UKW: Ch 11 Tz 86, I - III: Ch 11 Tz 364 a– c
- A 1232 — Spain, North Army, wiring C (1)
- A 1233 — Spain, Chief of the Armed Forces in Morocco, wiring C (1)
- A 1234 — Spain, South Army, wiring C (1)
- A 1235 — Spain, General Franco's Headquarters, wiring C (1)
- A 1236 — Italy, Italian Naval Ministry, Rome, wiring D, Dora (1)
  - A 1236 — Italy, returned to Berlin via German Naval Attaché in Rome, wiring D. (07.11.1939), see [5] (1)
- A 1237 — Italy, special wiring D, Dora (1)
- A 1238 — Italy, Italian Naval Ministry, Rome, wiring D, Dora (1)
  - A 1238 — Italy, returned to Berlin via German Naval Attaché in Rome, wiring D. (07.11.1939), see [5] (1)
- A 1239 — Italy, special wiring D, Dora (1)
- A 1240 — Unknown (1)
- A 1241 – A 1242 — Spain, Spanish Embassy in Rome, wiring F (2)
- A 1243 – A 1246 — Unknown, but possibly police communications, wiring A (4)
  - A 1245 – A 1246 — Japan<sup>[5]</sup>
- A 1247 – A 1248 — Austria (2)

- A 1249 – A 1250 — Italy, Italian Navy, wiring D, Dora, with three extra wheels IV–VI (2)
  - In 1933 the A 1249 was equipped with three extra wheels with the same special wiring as the special wheels for A 1219.
  - A 1249 returned to H&R for repair on 1.2.1939 by Sturmbannführer Kronitz from the Reichsnachrichtenschule der SA, oberste SA-Führung, Rottenburg/Neckar.
  - A 1250 — Italy, returned to Berlin via German Naval Attaché in Rome, wiring D. (07.11.1939), see [5] (1)
- A 1251 – A 1252 — Italy, special wiring D, Dora (2)
  - A 1251 – A 1252 — In Spain (05.08.1939)
- **A 1253 – A 1352 — RWM, 1931 — Enigma I (100)**

### **Zählwerk Enigma:**

- A 350 – A 351 — Sweden (2)
- A 823, A 825 — The Netherlands (2)
- A 826, A 829, A 842, A 843 — Chile (4)
- A 845 — The Netherlands (1)
- A 853 – A 855 — Sweden (3)
- A 856, A 858 — The Netherlands (2)
- A 859 – A 860 — Chile (2)
- A 862 – A 864 — Czechoslovakia (3)
- A 865 — The Netherlands (1)

### **Unknown Machines until 1931:**

- A 318, A 321, A 322, A 326, A 329, A 331,  
A 332, A 335, A 336, A 346, A 349, A 352, A 355,  
A 804, A 816, A 827, A 828, A 841, A 861, A 935

## Analysis

From early 1926 until 1931, 107 Enigma D and 20 *Zählwerk* Enigma machines were made and sold, totalling 127 commercial Enigma machines. In addition, there are 21 serial numbers for unknown machines. Looking at the known machines, we see that 84% are Enigma D and 16% are *Zählwerk* Enigma machines. This ratio will likely divide the unknown machine into 18 Enigma D and 3 *Zählwerk* Enigma machines. Which of the 21 unknown machines are of the type *Zählwerk* Enigma is almost impossible to tell. Often, the serial numbers of one type leapfrog the serial number of another type. E.g. A 823 and A 825 are *Zählwerk* Enigmas while A 824 is an Enigma D. However, most likely, the *Zählwerk* Enigma machines were made in very small batches. Therefore, numbers adjacent to known *Zählwerk* machines are probable candidates. Such numbers are A 827, A 828, A841, and A 861.

That 21 machines are missing from the surveys of the sales of commercial Enigma machines can have several causes. However, two are the most likely. Firstly, it is logical to assume that ChiMaAG would have had a number of both Enigma D and the *Zählwerk* Enigma in their stock for immediate sale to customers. Secondly, machines sold to German authorities, such as the Enigma I machines, would not appear in the listings. We know the German Foreign Office bought one or two machines in 1926, and other authorities might also have bought test machines. What is clear is that no other customer would have been able to buy many of these machines, and the belief that the Reichswehr purchased and used several *Zählwerk* Enigma machines from 15 July 1928 to 31 May 1930 must, therefore, be wrong.

## References

- 1) TICOM. 1945. Documents from the ENIGMA firm Heimsoeth & Rinke. Bestand Rückgabe TICOM, Politisches Archiv des Auswärtigen Amts. Berlin. Archive Signature: T 1715, T1716, T1717, and T1718.
- 2) Soler Fuensanta, José Ramón, López-Brea Espiau, Francisco Javier, and Weierud, Frode; [Spanish Enigma: A History of the Enigma in Spain](#), Cryptologia Volume 34, Issue 4 October 2010 , pp. 301-328. [Author's Copy](#) – [Complementary Article Information](#)
- 3) [Memorandum: Enigma – Commercial Sales Since 1926, 21 October 1935](#)
- 4) [Memorandum: Enigma – Commercial Sales in Germany, 24 October 1935](#)
- 5) Marine. 1939. Marineattachégruppe Italien, Bd. 1. RM 11/59, pp. 300. Bundesarchiv, Freiburg.

## Notes

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1. Otto Petersen was the Chiffriermaschinen AG (ChiMaAG) representative in the Rhineland and Westphalia area. The two machines were used as demonstration machines. Later, the machines were forwarded to the firm Schäfer & Clauss, which was the representative for the American “Dalton” Adding Machine. According to information from the Reichswehr’s Chi-Stelle (cipher office), was these machines said to have been brought to Russia by the Alliance of Red Front-Fighters (*Roter Frontkämpferbund*). ↩
2. Director Schernikau represented the Swedish company Svenska Tändsticksaktiebolaget (STAB—Swedish Match AB). Since his address was Behrenstrasse 43/44, Berlin, the address for the [Disconto-Gesellschaft](#), which later became the Deutsche Bank, it is possible that he handled STAB’s bank relations in Germany. One of the machines, A343, was discovered in Sweden in 2019. ↩
3. These two machines were later returned to ChiMaAG. ↩
4. This machine was bought for the firm Alexander v. Kryha. ↩
5. This entry was added in pencil on the receipt for the four Enigma machines A 1243 – A 1246 dated 21 February 1934. If it means these machines were delivered to Japan or planned for being used there is not known. ↩