

Listing of Enigma G Wiring IDs based on the Heimsoeth & Rinke Technical Drawing Numbers

This is a compilation of all known Enigma G wiring data comprising the technical drawing numbers and, when this is known, the allocated Enigma G serial numbers. The holes in the consecutive numbering of the drawing number do suggest that there might be many more unknown wirings for this machine, however there might also be other reasons for these holes, especially the big gap between Ch 15 Tz 136 a – c and Ch 15 Tz 160 a – c.

The abbreviations GUWxx, GWWxx and GWMxx are non-original indexes created solely for making references to the wirings in this compilation easier. They were not used by H&R or any other German service.

The main source for this data is the reference [TICOM 1945], the files from the Enigma firm Heimsoeth und Rinke (H&R). To try to identify the end users of some of the machines other TICOM documents mentioned in the reference section have been consulted. Furthermore, wheel wiring data from surviving machines in private and museum collections have been used to establish connections between machines, users and the wiring data given by H&R. This puzzle should be considered as ongoing research and new result will be offered if and when new data appears.

The compilation has been slightly modified with the addition of some extra comments and the correction of a few errors that were discovered when writing the new document “Overview of the Enigma G.”

Creation date for some of the Enigma G rotor and UKW wirings:

UKW ID	Wheel drawing	Creation Date
GUW01	UKW: Ch 15 Tz 70	Unknown (commercial)
GUW02	UKW: Ch 15 Tz 115	14 July 1936
GUW03	UKW: Ch 15 Tz 122	14 November 1938
GUW04	UKW: Ch 15 Tz 126	19 June 1939
GUW05	UKW: Ch 15 Tz 132	12 March 1940

Wheels ID	Wheel drawing	Creation Date (Notes)
GWW01	Wheels I – III: Ch 15 Tz 69 a – c	Unknown (commercial)
GWW02	Wheels I – III: Ch 15 Tz 114 a – c	02 October 1936 (unknown creation date)
GWW03	Wheels I – III: Ch 15 Tz 117 a – c	27 May 1941 (unknown creation date)
GWW04	Wheels I – III: Ch 15 Tz 118 a – c	19 January 1938
GWW05	Wheels I – III: Ch 15 Tz 119 a – c	20 January 1938
GWW06	Wheels I – III: Ch 15 Tz 121 a – c	14 November 1938
GWW07	Wheels I – III: Ch 15 Tz 123 a – c	10 July 1943 (unknown creation date)
GWW08	Wheels I – III: Ch 15 Tz 125 a – c	19 June 1939
GWW09	Wheels I – III: Ch 15 Tz 128 a – c	21 August 1939
GWW10	Wheels IV – V: Ch 15 Tz 130 a – b	31 January 1941 (unknown creation date)
GWW11	Wheel I: Ch 15 Tz 131 a	12 March 1940
GWW12	Wheels I – III: Ch 15 Tz 134 a – c	19 July 1940
GWW13	Wheels I – III: Ch 15 Tz 135 a – c	19 July 1940
GWW14	Wheels I – III: Ch 15 Tz 136 a – c	18 February 1942 (unknown creation date)
GWW15	Wheels I – III: Ch 15 Tz 160 a – c	24 October 1940
GWW16	Wheels I – III: Ch 15 Tz 161 a – c	25 October 1940
GWW17	Wheels I – III: Ch 15 Tz 162 a – c	30 October 1940
GWW18	Wheels I – III: Ch 15 Tz 163 a – c	20 December 1940
GWW19	Wheels I – III: Ch 15 Tz 164 a – c	27 May 1941 (unknown creation date)
GWW20	Wheels I – III: Ch 15 Tz 167 a – c	12 June 1943 (unknown creation date)
GWW21	Wheels I – III: Ch 15 Tz 168 a – c	27 July 1943 (unknown creation date)
GWW22	Wheels I – III: Ch 15 Tz 169 a – c	04 September 1943 (unknown creation date)

List of known Enigma G machine wirings allocated to physical machines:

GMW01:

Wheels I – III: Ch 15 Tz 69 a – c

UKW: Ch 15 Tz 70

Probekiffprat (Test cipher) dated: Unknown, probably from 1928 for the A28

Machines: All commercial sales.

GMW02:

Wheels I – III: Ch 15 Tz 114 a – c

UKW: Ch 15 Tz 115

Probeciffprat (Test cipher) dated: 13 August 1936

Machines: G 125, G 126, G 127, G 131, G 132 — Date: 02 October 1936

Machines: G 267, G 332, G 333 — Date: 27 May 1941

GMW03:

Wheels I – III: Ch 15 Tz 117 a – c

UKW: Ch 15 Tz 115

Machines: G 334, G 335 — Date: 27 May 1941

GMW06:

Wheels I – III: Ch 15 Tz 121 a – c

UKW: Ch 15 Tz 122

Probeciffprat (Test cipher) dated: 15 December 1938

Machines: G 222, G 223, G 224 — Date: 11 January 1939

Machines: G 256, G 257, G 404, G 405, G 406 — Date: 1940 (see 29.01.1941)

Machines: G 407 — Date: 19 February 1942

User: I. G. Farbenindustrie A.G.

Enigma G rotor wiring GWW10:

Wheels IV - V: Ch 15 Tz 130 a – b — Date: 31 January 1941 (2nd issue)

User: Deutsches Stickstoff-Syndikat

Note: This is for the two extra IV and V for I. G. Farben.

GMW07, Identified as Abwehr South America Green:

Wheels I – III: Ch 15 Tz 123 a – c

UKW: Ch 15 Tz 115

Machines: G 227, G 228 — Date: 10 July 1943

GMW08, Identified as Abwehr Group II:

Wheel I: Ch 15 Tz 131 a

Wheels II – III: Ch 15 Tz 125 b – c

UKW: Ch 15 Tz 132

Probeciffprat (Test cipher) dated: 03 April 1940

Machines: G 269 - G 273 (5 units) — Date: 27 May 1941

Machines: G 336 - G 345 (10 units) — Date: 27 May 1941

Machines: G 419 - G 426 (8 units) — Date: 23 September 1943

Machines: G 279, G 282 — Date: 23 September 1943

Machines: G 285, G 287, G 289, G 295 — Date: 06 October 1943

Machines: G 286, G 291, G 293 — Date: 03 November 1943

Machines: G 274, G 356 — Date: 18 November 1943

Machines: G 331, G 389 — Date: 07 March 1944

GWM08 (?), Identified as Abwehr Group II:

Wheel I: Ch 15 Tz 132 a (Most likely error for Ch 15 Tz 131 a)

Wheels II – III: Ch 15 Tz 125 b – c

UKW: Ch 15 Tz 132

Machines: G 286, G 291, G 293 — Date: 03 November 1943

GMW14:

Wheels I – III: Ch 15 Tz 136 a – c

UKW: Ch 15 Tz 126

Machines: G 298, G 299 — Date: 28 May 1941

GMW16:

Wheels I – III: Ch 15 Tz 161 a – c

UKW: Ch 15 Tz 115

Machines: G 325, G 326 — Date: 27 May 1941

GMW19:

Wheels I – III: Ch 15 Tz 164 a – c

UKW: Ch 15 Tz 115

Machines: G 324, G 331 — Date: 27 May 1941

GMW20:

Wheels I – III: Ch 15 Tz 167 a – c

UKW: Ch 15 Tz ???

Machines: G 264, G 265, G 381 — Date: 12 June 1943

GMW21:

Wheels I – III: Ch 15 Tz 168 a – c

UKW: Ch 15 Tz 115

Machines: G 383, G 384 — Date: 27 July 1943

GMW23, Identified as Abwehr South America Red:

Wheels I – III: Ch 15 Tz ??? a – c

UKW: Ch 15 Tz 70

Machines: G 209 — Date: 04 August 1943

Machines: G 260, G 263 — Date: 11 August 1943

GMW22:

Wheels I – III: Ch 15 Tz 169 a – c

UKW: Ch 15 Tz 115

Machines: G 417, G 418 — Date: 04 September 1943

Change of UKW wiring for the 58 Enigma G machines G 346 - G 403 dated: 15 July 1941

55 machines changed to three different UKW wirings, 3 machines left unwired.

UKW: Ch 15 Tz 115

Machines: G 361 - G 365 (5 units) — Date: 15 July 1941 (still 10 machines to change)

UKW: Ch 15 Tz 126

Machines: G 356 - G 360 (5 units) — Date: 15 July 1941 (still 5 machines to change)

UKW: Ch 15 Tz 132

Machines: G 346 - G 355 (10 units) — Date: 15 July 1941 (still 20 machines to change)

Machines: G 366 - G 380 (15 units) — Date: 11 December 1941 (still 5 machines to change)

Test ciphers for Enigma G machine wirings:

GMW05:

Wheels I – III: Ch 15 Tz 119 a – c

UKW: Ch 15 Tz 115 — Date: 28 January 1941 (see 31.10.1940)

Probechiffprat (Test cipher) dated: 17 February 1938

GMW09:

Wheels I – III: Ch 15 Tz 128 a – c

UKW: Ch 15 Tz 126 — Date: 31 October 1940

Probechiffprat (Test cipher) dated: 23 August 1939

GMW12:

Wheels I – III: Ch 15 Tz 134 a – c

UKW: Ch 15 Tz 115 — Date: 31 October 1940

Probechiffprat (Test cipher) dated: 08 August 1940

GMW13:

Wheels I – III: Ch 15 Tz 135 a – c

UKW: Ch 15 Tz 115 — Date: 31 October 1940

Probechiffprat (Test cipher) dated: 19 August 1940

GMW15:

Wheels I – III: Ch 15 Tz 160 a – c

UKW: Ch 15 Tz 126 — Date: 28 January 1941 (see 31.10.1940)

Probechiffprat (Test cipher) dated: 13 December 1940

GMW16:

Wheels I – III: Ch 15 Tz 161 a – c

UKW: Ch 15 Tz 115 — Date: 28 January 1941 (see 31.10.1940)

Probechiffprat (Test cipher) dated: 06 December 1940

GMW17:

Wheels I – III: Ch 15 Tz 162 a – c

UKW: Ch 15 Tz 126 – Date: 28 January 1941 (see 31.10.1940)

Probechiffrat (Test cipher) dated: 03 December 1940

GMW18:

Wheels I – III: Ch 15 Tz 163 a – c

UKW: Ch 15 Tz 126 – Date: 28 January 1941 (see 31.10.1940)

Probechiffrat (Test cipher) dated: 23 December 1940

Letter from H&R to OKW/WFSt/Ag WNV/Fu dated 18 February 1942 mentions the two following Enigma G machine wirings:

GMW14:

Wheels I – III: Ch 15 Tz 136 a – c

UKW: Ch 15 Tz 126

GMW15:

Wheels I – III: Ch 15 Tz 160 a – c

UKW: Ch 15 Tz 126

Notes

1. On 14 January 1938 H&R made an offer to OKH/Wa B 7/VI b 3 for six Enigma G machines with the serial number G 189 - G 194 equipped with specially wired wheels and one set of three extra wheels, I - III, for each of the six machines.
2. The abbreviations that are used for the wirings:
GUWxx - Enigma G UKW wiring
GWWxx - Enigma G wheel wiring
GMWxx - Enigma G machine wiring
3. The wheel I, Ch 15 Tz 131 a, and UKW, Ch 15 Tz 132, both created on 12 March 1940 are replacements for wheel I, Ch 15 Tz 125 a, and UKW, Ch 15 Tz 126, that originally must have been used in the machines with wiring **GMW08**. The original wiring data for these machines was created on 19 June 1939.
4. G 249 and G 250 were used for communications of OKH/In 7/IV with the General Staff of the Italian Armed Forces. G 247 and G 275 were used by OKW/Chi to communicate with the Italian Military Attaché. Source: TICOM/DF-190-AM.
5. The KK-machine, German Armistice Commission, captured in Algiers had serial number G 292.
6. The machine wiring GMW08 has been verified as being the wiring for the Abwehr Group II machines. The identification has been done through the recovered UKW of the machine G 341 that was found in the German Embassy in Lisbon in 1945. The recovered machine is described in the OSS report HX-625 entitled "Technical Survey of German Cryptographic Material" dated 12 October 1945. Source: NARA, RG 226, Stack 250, Row 64, Compartment 32, Shelf 5, "Records of the OSS 1940-1946", Box 45. The G 341 is one of the listed machines having the GMW08 wiring and the recovered UKW of this machine corresponds to the UKW of the Abwehr Group II machines. This UKW wiring is unique in the sense that it is not used in any other known machine wirings.
7. The three machines G 242, G 308 and G 309 are most likely Abwehr machines. It is not known on which wiring they are, they might even all be differently wired. They were sent to repair from OKW, Aussendienststelle Stahnsdorf (Abwehr station) on 5 December 1940.

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References

1. OSS. 1945. OSS report HX-625. "Technical Survey of German Cryptographic Material" dated 12 October 1945. NARA, RG 226, Stack 250, Row 64, Compartment 32, Shelf 5, "Records of the OSS 1940-1946", Box 45.
2. 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.
3. TICOM. 1950. DF 190-AM: Enigma Machines in Foreign Countries. RG 457, Series P-4, File 5789, DF 190-AM. NARA, College Park, MD.
4. Kenyon, D. and Weierud, F. 2020. *Enigma G: The counter Enigma*, Cryptologia, Volume 44, Issue 5, pp. 385-420. [Author's Copy](#).