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ENIGMA WIRINGS

Name of Machine: ZAEHLWERK (CA-15)

Source: 47

No wiring was found for this machine, but a brief comment on it is made here since it is of the Group II type.

The Zaehlwerk or Counter Enigma is a four-wheel model having gear drive and employing eccentric teeth for wheel progression. It was sold to the Dutch for military use. Subsequent to the outbreak of World War II, two machines were delivered to OKW at Stahnsdorf.

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ENIGMA WIRINGS

Name of Machine: GROUP II ENIGMA

Source: 4 (p. 1, 5, 6, 12, 18); 6a (p. 10, 17, 19); 6h (p. 1-3);  
 10 (p. 82); 11 (p. 1); 15; 30; 31; 32 (p. 9); 44 (p. 2); 48;  
 55 (p. 4, 172, 177); 61 (p. 1)

The Group II machine, also referred to as the German notation G machine, was the principal Enigma used by the Abwehr until the end of 1944, for European communications. The British ISK section solved the machine in December 1944.

Group II traffic centering on Berlin had approximately 270 out-stations including some ships. This group together with a large group centering on Paris, Brussels, The Hague, Sofia, Vienna, Warsaw, and Zagreb formed one network. These also worked with a large number of out-stations within the subgroups.

Of the three wirings included here, the first two were originally given in digital form. The last one, a twist-free version, appeared as presented in literal form. The first wiring was furnished by the British with the following additional data:

<u>Wheels:</u>	<u>Wheel characteristics:</u>	<u>Cyclometric turnover:</u>
I British Red	Red: 12. 10. 2. 2.	R.B.G.
II " Blue	Blue: 19. 3. 2. 2.	R O S A
III " Green	Green: 18. 8.	S P T B
		S P T C

<u>Clip Differences:</u>	<u>Wheel Twists:</u>
<u>English</u> <u>German</u>	Red    =    8
Reflector    =    17	Blue   =   19
Red            =    18	Green  =   17
Blue           =    12	
Green          =    6	

<u>Conversion Table</u>	<u>English to German</u>
<u>Wheel Order</u> <u>Reflector</u>	Left   Middle   Right
R.G.B.            -9 constant	- 2       + 1       -12
G.R.B.	- 7       -11       -12
B.R.G.	-11       - 9       - 6
R.B.G.	- 2       - 3       - 6
G.B.R.	- 7       + 6       + 8
B.G.R.	-11       +12       + 8

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ENIGMA WIRINGS

GROUP II ENIGMA (continued)

The machine associated with the second wiring was presented as being a variation of the commercial Enigma, differing from it by having the wheels turn over cyclometrically, i.e., no wheel can turn over unless all wheels to the right of it are passing through a turnover position. The reflector also is turned over by the wheel immediately to its right. Like the British version, just described, these wheels have 11, 15, 17 turnovers fixed to the rings, but differ in notch placement and individual digit values. A literal wiring not included here, agrees with the second wiring in corresponding values but differs as to notch markings which are given as follows:

- Green: A/B/C/DE/F/G/HI/JK/L/MNO/P/Q/RS/TU/V/W/XYZ/ - 17
- Blue: A/BC/D/EF/G/H/IJK/LM/N/OPQ/RS/T/UV/WXY/Z/ - 15
- Red: A/BCDE/F/GH/IJK/LM/N/OPQR/STU/VW/X/YZ - 11

A pencilled notation made on the paper giving this wiring reads: "wheels probably twisted".

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ENIGMA WIRINGS

Name of Machine: GROUP II ENIGMA

Endplate Sequence:

A B C D E F G H I J K L M N O P Q R S T U V W X Y Z (Endplate)  
Q W E R T Z U I O A S D F G H J K P Y X C V B N M L (Keyboard)

Rotors:

Red I A/B/C/D E/F/G/H I/J K/L/M N/O P/Q/R S/T U/V/W/X Y/Z/  
R P V E O S B L G K H J T Y U C I A M W Q X F N D Z  
C E

Blue II A/B C/D/E F/G/H/I J K/L M/N/O P Q/R S/T/U V/W X Y/Z/  
W D L C I R U B K J P V A Q M X F S Y O H G T E N Z

Green III A/B C D E/F/G H/I J K/L M/N/O P Q R/S T U/V W/X/Y Z  
J H B Q Y U K C S L I D N V M A O W F P X G T E R Z

Reflector: A B C D E F G H I J K L M N O P Q R S T U V W X Y Z  
U R Z L V Q Y J W H M D K S P O F B N X A E I T G C

Notch patterns are indicated by /

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