

~~TOP SECRET FROTH~~

III. OUTLINE OF ENIGMA MACHINES

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OUTLINE OF ENIGMA MACHINES

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Names: Commercial
K
Swiss Enigma

Used by: Commercial firms
Reichspost
Reichsbahn
Miscellaneous government departments
Swiss Government

- Rotors:
1. Right fixed sequence, usually QWERTZU.
 2. Three cipher wheels which are interchangeable.
Each wheel has one notch.
Construction: Hebern-type wheels; consists of two parts: the core (containing random-mixed wiring); and the tire which may be revolved to any one of 26 positions with relation to the core. Tire setting called "Ringstellung" and affects motion of wheels and acts as concealment of core positions.
 3. Umkehrwalze or reflector - wired on right side only; 26 contact points wired to each other in mixed order to form 13 reciprocal pairs.

Motion: Regular and meter-like.
Wheel 1 moves once with every letter encipherment; wheel 2 steps one when dog engages notch on wheel 1; wheel 3 steps one when dog engages notch on wheel 2 (at same time, wheel 2 will move again).
Reflector remains stationary but may be set by hand at any one of 26 positions.
Encipherment takes place after stepping.

Reflector: Rotor, not pluggable.

Endplate: Fixed, not pluggable.

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OUTLINE OF ENIGMA MACHINES

Names: Zahlwerkmaschine (Z-Maschine) (Counter)
CHANNE (ASA)
ISK (British)
Abwehr
"Q"
Group II type

Used by: Military Attache until 1943; then by Reich Security Office

Rotors: 1. Right fixed sequence.
2. Three cipher wheels which may be interchanged. Multiple but fixed notches - 11, 15, and 17.
3. Rotating Umkehrwalze.

Motion: Wheel 1 steps one with every letter encipherment; wheel 2 steps one when notch on wheel 1 is in effective position; wheel 3 steps one when notch on 2 is in effective position; Umkehrwalze steps one when notch on 3 is in effective position; each wheel moves only when all wheels to its right (faster than it) move.

Reflector: Rotor, not pluggable, rotating.

Endplate: Fixed, not pluggable.

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Names: Plugboard Stecker
YELLOW (ASA)

Used by: Supreme Command, Army, and Air Force

Rotors: Three from a set of 5 available rotors.
Each rotor has one notch.

Motion: Same as Commercial machine.

Reflector: Fixed plate, not pluggable (until later when the pluggable
D Umkehrwalz was introduced).

Endplate: Pluggable, reciprocal stecker.
Generally, six letters were left unsteckered, the other
twenty letters being steckered together in 10 pairs.
Difference between encipherment of this machine and the
Commercial machine lies in endplate steckering.

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OUTLINE OF ENIGMA MACHINES

Names: Navy Plugboard
4-wheel Machine

Used by: Navy components

Rotors: Four cipher wheels; three from set of eight are used; and one from set of two. In set of eight, five wheels with one notch, three wheels with two notches (regular Enigma wheels). In set of two, one is chosen which does not move but may be set in any one of 26 positions by hand; these wheels have no notches; called by Navy the "Beta" wheel.

Motion: Regular Commercial Enigma motion; notch on slow wheel has no effect.

Reflector: Fixed plate, not pluggable.

Endplate: Pluggable.

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Names: Plugboard with variable notch rotors
Lueckenfuellerwalzen

Used by: Proposed for Army, Navy, and Air Force.

Rotors: Three from set of five.

Motion: Based on multiple, variable notch rotors. Notch patterns
changeable and therefore non-predictable.

Reflector: Pluggable or non-pluggable fixed plate.

Endplate: Pluggable.

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OUTLINE OF ENIGMA MACHINES

Names: Plugboard with Pluggable Reflector
UmkehrwalzeD (Dora)
Uncle Dick

Used by: Just beginning to be used by Air Force, but proposed for Army
and Navy as well.

Rotors: 3 from set of 5; 1 notch per rotor.

Motion: Regular Enigma motion.

Reflector: Pluggable fixed plate.

Endplate: Pluggable.

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