

Nomenclature or designation (1)	Total quantity procured (2)	Unit cost (3)	Production agency or manufacturer	Technical literature (4)	Patent Status	Notes
Converter M-134-T-1	1	Unknown	Signal Corps Laboratories, Ft. Monmouth, N.J.	Exhibit	U.S. Patent No. 2,028,772, issued 28 Jan 36	This was... (5)
Converter M-134-T-2	2	Unknown	Signal Corps Labs.	None	See under item No. 3	(6)
Converter M-134 (SIG HIC)	12	\$2,135	Wallace & Tiernan Products, Inc., Belleville, N. J.	Exhibits	U.S. Patent Application No. 682,096; in secrecy status	(7)
Converter M-134-A (SIG MYC)	56	\$2,400.	ditto	Exhibit	See under item No. 3	(8)
Keying Unit M-229 (XXXXXX)	1	\$2,955.	Signal Corps Labs.		None	(9)
6. Keying Unit M-229 (SIG GROO)	75	\$500.	Wallace & Tiernan Products, Inc.	Exhibit	See under item No. 7	(10)
7. Converter M-134-C (SIG A BA)	3,330	\$1567.	Teletype Corp., Chicago, Ill.	Exhibit	Army: U.S. Pat. Application No. 70,412; in secrecy status Navy: (Some have been filed; details not known)	(11)
3. Converter M-161-C	2	\$1,132	ditto	Exhibit	See under item 7	(12)
7. Converter MX-218/U (SIG ASE)	3	Unknown	Army Security Agency	None	Covered under item 7	(13)
10. Plugable rotor (SIG HEK)	7,000	\$26	L.C. Smith-Corona Typewriter Co., Syracuse, N. Y.	Exhibit	?	(14)

11. Special cipher unit (SIGAMUG)	1,375	\$	Signal Corps Lab	inhibit	?	(15)
12. Converter M-228 (SIGCUM)	2	\$6,417.50	Signal Corps Lab	none	See under Stem 13	(16)
3 Converter M-228 (SIGCUM)	3,220	\$526.40	Teletype Corp.	Exhibit	U.S. Pat. App- lication No. 443,320, in pending status	(17)
4 Converter M-294 (SIGNIN)	500	\$2300	ditto	Exhibit	Cryptographic features covered by application under Stem No. 13	(18)
5 Converter M-294	1	\$20,000	ditto	none	Cryptographic features covered by application under Stem No. 13	(19)
6 Converter M-325	2	\$3500	I. K. Smith- Corona Typewriter Co.	none	U.S. Pat. Application No. 549,086, in pending status	(20)
7 Converter M-325 (SIGFOY)	12,000	\$150.	ditto	Exhibit	See under Stem No. 16	(21)
8 Converter M-409						
9 Rotors						

Notes

- (1) Long title is given first, ^{followed by} short title (when ^{the was} _{assessual})
- (2) The total quantity may have been procured under one or more contracts.
- (3) ^{Where two or more contracts were involved} The unit cost is the average of unit costs of these ^{separate} ~~or more~~ contracts
- (4) Only such technical literature as contain information describing the equipment is included.
- (5) Item 1 was purely an experimental model and was never put into service; available in ^{ASA} museum
- (6) The two machines constituting Item 2 were pilot models for Item 3, available in museum
- (7) ^{These machines were} ~~procured under Contract No. W-1017-SC-240, 27 May 37,~~ 1938 and were ~~delivered to budget~~ in service until superseded by Item 6; then destroyed except for one in museum.
- (8) These machines incorporated some minor modifications in Item 3. Eight machines were purchased from the War Department by the State Department. ^{All 56 machines} ~~following contracts.~~
~~W-1017-SC-317~~ were in service for several years.
- (9) This served as pilot model for Item 6; ^{available in museum} ~~Keying unit M-229~~
- (10) ^{Keying unit M-229} replaced the key-tape transmitter ^{of Items 3 & 4 and served} as controlling element for stepping the rotors.
- (11) This machine was ^{constituted the principal one} used by Army and Navy for inter and inter-service high and medium-schedule classified communications. Preliminary models & pre-production models developed by Teletype Corp

- (12) These were experimental models constructed in an attempt to produce a smaller ^{and lighter} version of Converter M-134-C, available in museum.
- (13) These were experimental models embodying modifications in Converter M-134-C so as to make the latter cryptographically equivalent to Item No. ^{and} Item No. ^{available in museum}.
- (14) This item was designed for ^{emergency use with Item 7} ~~one~~ increase of physical compromise of current rotors and key-^{converted M-134-C}lists, until new rotors and key-lists could be issued. Although produced in quantity and issued it was never used since the ~~occasion~~ emergency never occurred.
- (15) This Special Cipher Unit ^{made} ~~was used to form~~ Converter M-134-C (Item No. 7) ^{utilizable} ~~to be used~~ for Combined Communications (with British only) as ~~the~~ one version of a cryptographic machine designated as the CCM (Combined Cipher Machine).
- (16) These were development models for Item No. 13.
- (17) These machines were employed for on-line and off-line teletype and radioteletype communications.
- (18)
- (19) These were delivered too late to be employed during actual hostilities, now in storage. A few were used in service tests.

- (18) Development model, followed by ~~an additional~~ ^{an additional} development model before standardizing.
- (20) Development model, followed by an additional development model before standardizing.
- (21) The State Department purchased 1000 of these machines, put a number of them into service for a short period. The Army used them briefly in service tests but the machine was never used extensively because of poor performance.

Hebern 31 Mar 21 457,419 30 Sept 24 1,510,441 Reciprocally wrd rotor; Cascade

Koch Ger 26 Sept 20 13 Feb 26 425,147 Basic on rotor
 Brit 10 Nov 19 27,718/19 10 May 20 163,357 " cascade
 U.S. 18 Sept 20 411,229 14 Apr 25 1,533,252 " req. irreg motion

Beyer U.S. 12 Aug 20 403,123 2 May 22 1,414,496 Equivalent of a rotor (But does not claim rotor - claims a suitable member

Wahnöe Denmark 4 Mar 22 6009/23 2 June 24 194,303 Concentric commutators in cascade
 Br 1 Mar 23 628,237 30 Oct 23 1,472,775

"SECURITAS" Nov 23 Feb 18! 8 July 25 416,219 ① Rotor
 ② Rotor in cascade
 ③ Enc-dec switch
 BASIC - no U.S. or other foreign equivalents filed??

Swedish in. Date 10/10/19 Swed 10 Oct 1919 220089 26 Jul 22 52279 Equivalent of rotor Brit in 2-commutators
 Brit 12 Mar 1920 7410/20 14 Aug 21 152,625
 Damm U.S. 2 Apr 1920 370,708 22 Jul 24 1,502,376

Damm Br. 28 Feb 22 5947/22 24 May 23 197,763 Auto. grouping of cipher text & auto spacing
 U.S. 1 Mar 19 22 540,234 2 June 25 1,540,107

General Notes on Data

- (A) Long title is given first, followed by short title (when one is assigned).
- (B) The total quantity may have been procured under one or more contracts.
- (C) Where two or more contracts were involved, the unit cost is the average of the unit costs of the separate contracts.
- (D) Following key numbers signify following producing or manufacturing agencies.
1. Signal Corps Laboratories, Fort Monmouth, N. J.
 2. Wallace and Tiernan Products, Inc., Belleville, New Jersey.
 3. Teletype Corporation, Chicago, Illinois.
 4. L.C. Smith-Corona Typewriter Co., Syracuse, New York
 5. Fournier Institute, Chicago, Illinois.
- (E) Only such technical literature and/or manuals as contain information describing the equipment are included. Under the special notes below will be found data relative to any patents or patent applications filed by U.S. employees covering the specific item or applicable to specific features thereof.

Special notes on the items listed

- (1) Item 1 was purely an experimental model and was never put into service; available in ASA museum. Cost of development unknown but might be obtained from old records of Signal Corps Laboratories. This development was covered by U.S. Patent No. 2,028,772, which was issued 28 Jan 1936.
- (2) The two machines constituting Item 2 were pilot models for Item 3; available in ASA museum. Cost of development unknown but might be obtained from old records of Signal Corps Laboratories. This development was covered by U.S. Patent Application No. 682,096, which was filed 25 July 1933 and is still in secrecy status.
- (3) These machines were delivered in August 1938 and were in service for several years until superseded by Item 7; then destroyed except for one in ASA museum. Pat. application mentioned under item 2 covers these machines.
- (4) These machines incorporated some minor modifications in Item 3. Eight machines were purchased from the War Department by the State Department. About a dozen were given to and used by the OSS after item 7 became available to Army. All machines were in service for several years. Pat. Appl. 682096 applies also to these machines.
- (5) This served as pilot model for Item 6; available in ASA museum. Basic principles covered in U. S. Patent application mentioned under item 7 below. This unit replaced the key-tape transmitter of Items 3 and 4 and served as controlling element for stepping the rotors.

- (6) These units were in use for at most 2 years, until Converter M-134-C replaced Converters M-134 and M-134 A.
- (7) This machine constituted the principal one used by Army and Navy for intra and inter-service high and medium-echelon classified communications. Preliminary models and pre-production models developed by Teletype Corp; available in Navy museum. Basic cryptographic principles are covered by U.S. Patent Application No. 70, 412 which was filed 23 March 1936 and is still in secrecy status. It is believed that certain patent applications have been filed by U.S. Navy personnel and by the Teletype Corporation, Chicago, Ill., to cover certain special features of this equipment.
- (8) These were experimental models constructed in an attempt to produce a smaller and lighter version of Converter M-134-C; available in ASA museum. Cryptographic principles the same as in item 7.
- (9) These special cipher units were purchased from the Navy. They made Converter M-134-C (Item No. 7) utilizable for combined communications (with British only) as one version of a cryptographic machine designated as the CCM (Combined Cipher Machine).
- (10) These were development models for Item No. 11. The cryptographic principles are covered in U. S. Patent Application No. 443,320, which was filed 16 May 1942 and is still in secrecy status.
- (11) These machines were employed for on-line and off-line teletype and radioteletype communications; machines available in ASA museum. The Navy also used these machines. A few were issued to British for use only in combined communications.
- (12) Development model, followed by an additional development model before standardizing; available in ASA museum. Cryptographic features similar to those of item 10.
- (13) These were delivered too late to be employed during actual hostilities; now in storage. A few were used in service tests for a very short time. A few were used in Europe in 1946 by U.S. Constabulary Force for a short time.
- (14) Development model, followed by an additional development model before standardizing; available in ASA museum. Certain features covered in U.S. Patent Application No. 549, 086, which was filed 11 August 1944 and is still in secrecy status.
- (15) The State Department received 1000 of these machines, put a number of them into service for a short period and returned them. The army used them briefly in service tests. The machine was never used extensively because of poor performance.

(16) Developmental model; available in ASA museum.

(17) This item was the one forming the subject matter of Project C-52, Contract OEMsr-542, of Office of Scientific Research and Development, National Defense Research Council, Division 13, NDRC, Washington, 1946, pp 120--22. Developmental work done by Fournier Institute at no cost to the Government.

(18) Rotors of several types were made. The type used with items 2, 3, and 4 were Enigma Style, not reversible or invertible; other rotors were all of Hebern invertible type.

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