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TELEPHONE CENTRAL OFFICE SET TC-2 (CORPS)

1. Telephone Central Office Set TC-2 (Corps) is a 60 to 120 line, local and common battery, telephone exchange for use at Corps Headquarters.
2. This development of this equipment was recommended by the Signal Corps Board in Case 236 for use at Division Headquarters, but it was later decided to use it at Corps Headquarters. Military Characteristics were forwarded and development authorized by CSigO on 26 April 1937.
3. Detail drawings and specifications were completed by this Laboratory in April 1938. From this procurement data, two models were ordered from Automatic Electric Company. These two models were turned over to the Signal Corps Board for service test on 15 June 1939. After completion of service test, standardization of this equipment was recommended by the Signal Corps Board for use at Corps Headquarters.

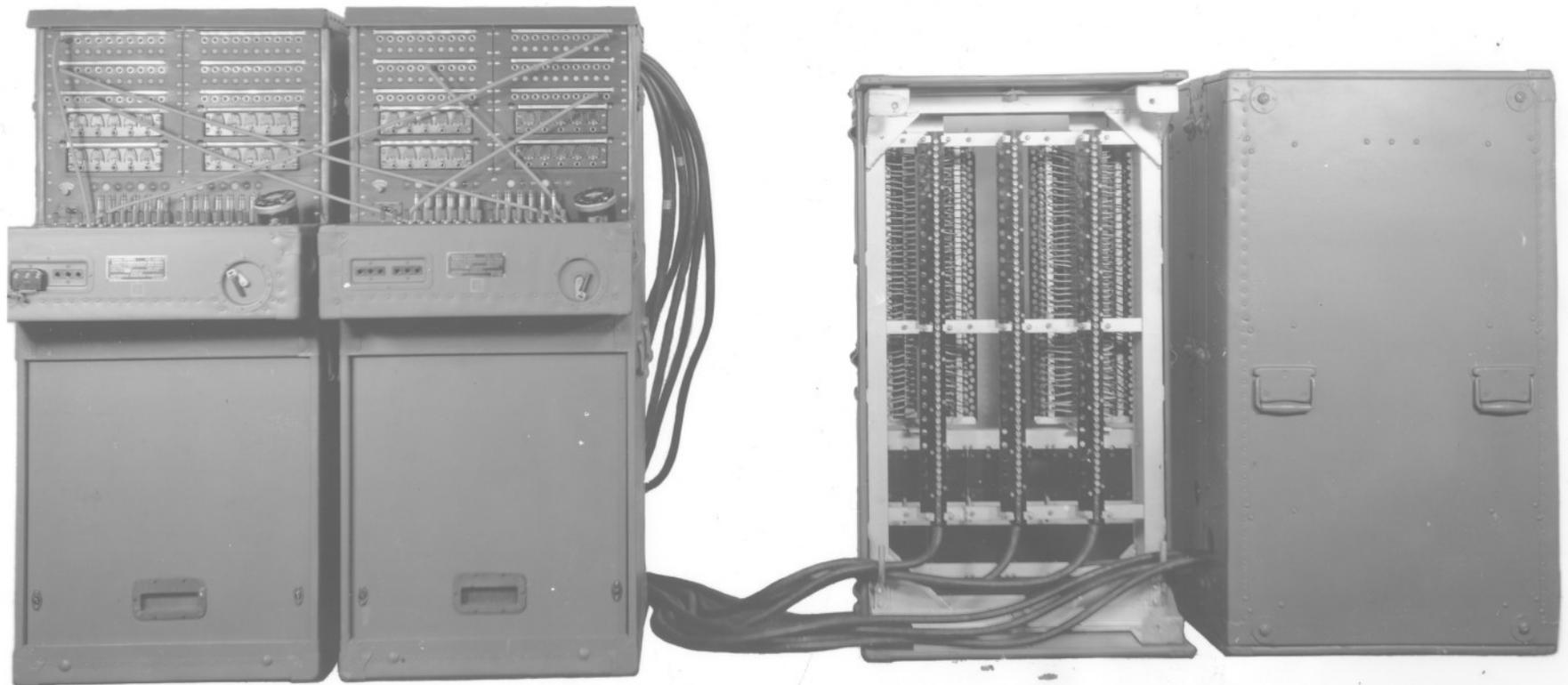
2 Incls. -

Incl. 1 - Photograph No. SCGDL 48

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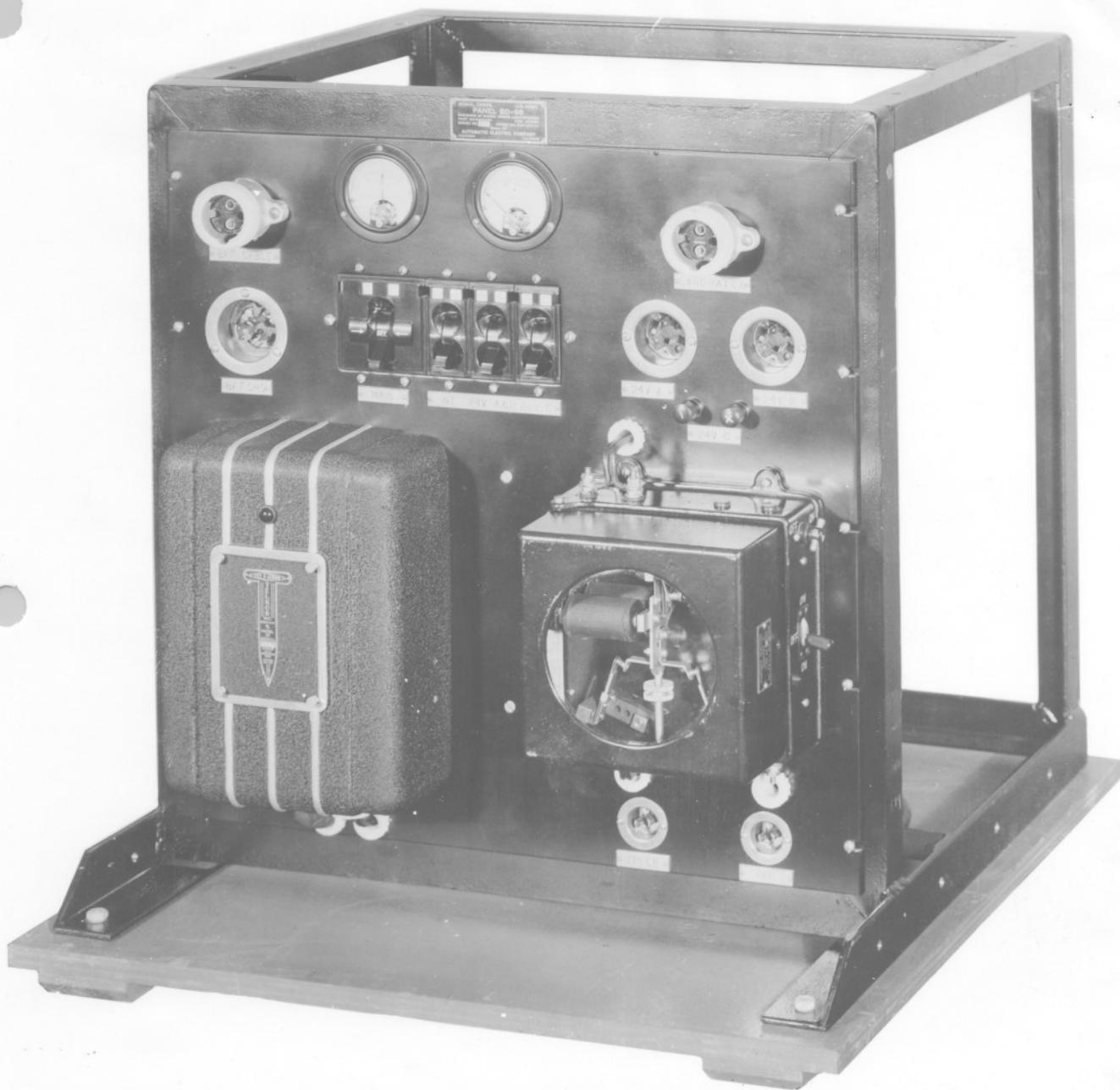
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SWITCHBOARD BD-89-A . CABINET BE-79 . PART of TELEPHONE CENTRAL OFFICE SET TC-2
As One Installation

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PANEL BD-98 . PART of TELEPHONE CENTRAL OFFICE SET TC-2
Front View . Cover Removed

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TELEPHONE CENTRAL OFFICE SET TC-4.

1. Telephone Central Office Set TC-4 is a 40 line, local battery, telephone exchange for use at Division Headquarters.

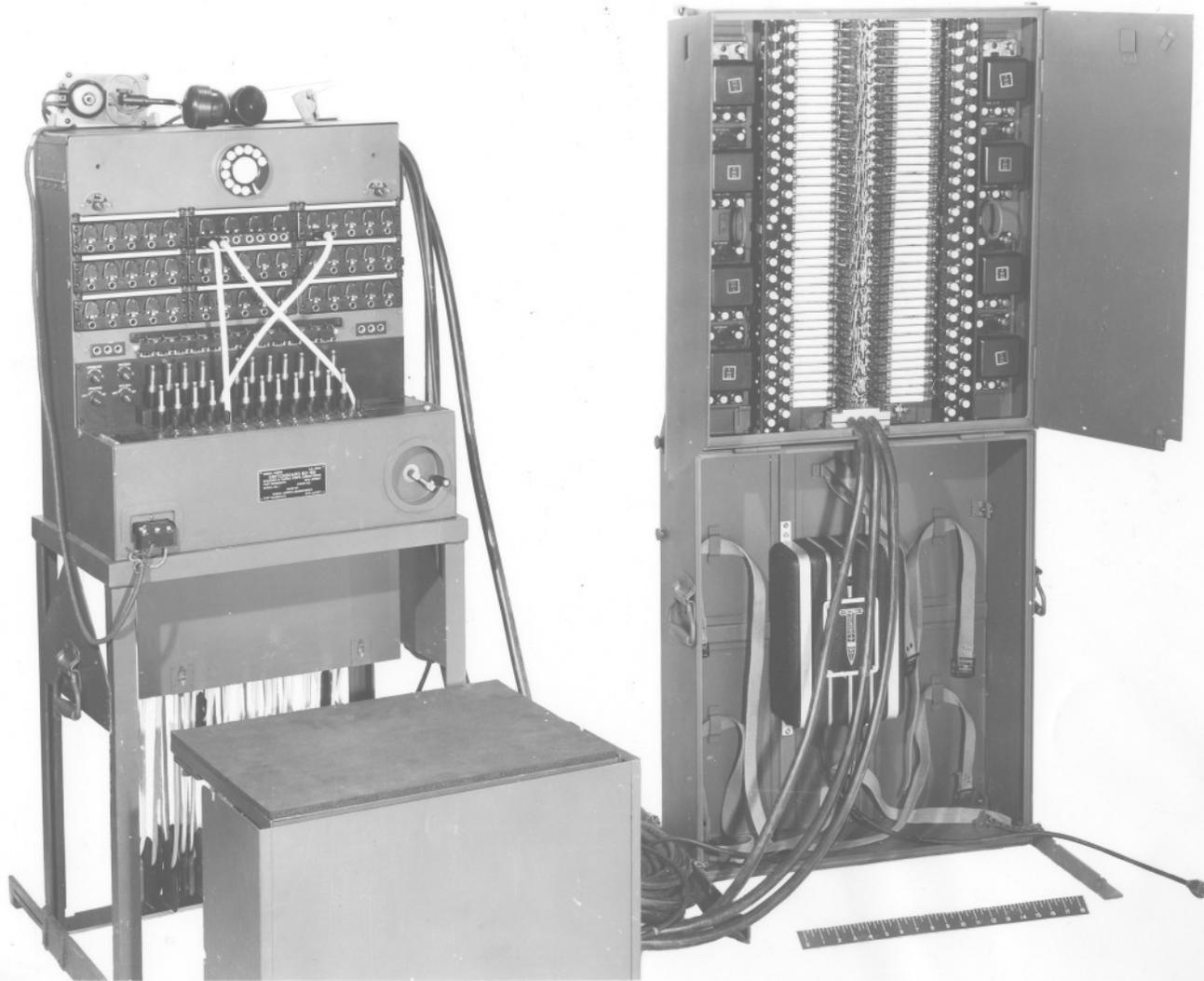
2. With the standardization of Telephone Central Office Set TC-2 (Corps) for Corps Headquarters instead of Division Headquarters as originally intended, a need existed for an exchange of this size. Military Characteristics for Switchboard BD-96 and Panel BD-97 (the main components of Telephone Central Office Set TC-4) were recommended by SCTC Meeting No. 176, 8 January 1940.

3. Design was started at Eatontown Signal Laboratory in June 1940 and a model was constructed as a check on the drawings and specification. On 28 August 1940, procurement information was forwarded to OCSigO.

1 Incl. -
Incl. 1 - Photograph No. SCGDL 580

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SWITCHBOARD BD-96 and PANEL BD-97 . PART of TELEPHONE CENTRAL OFFICE SET TC-4
Ready for Operation

*Serial 1
Panel 1*

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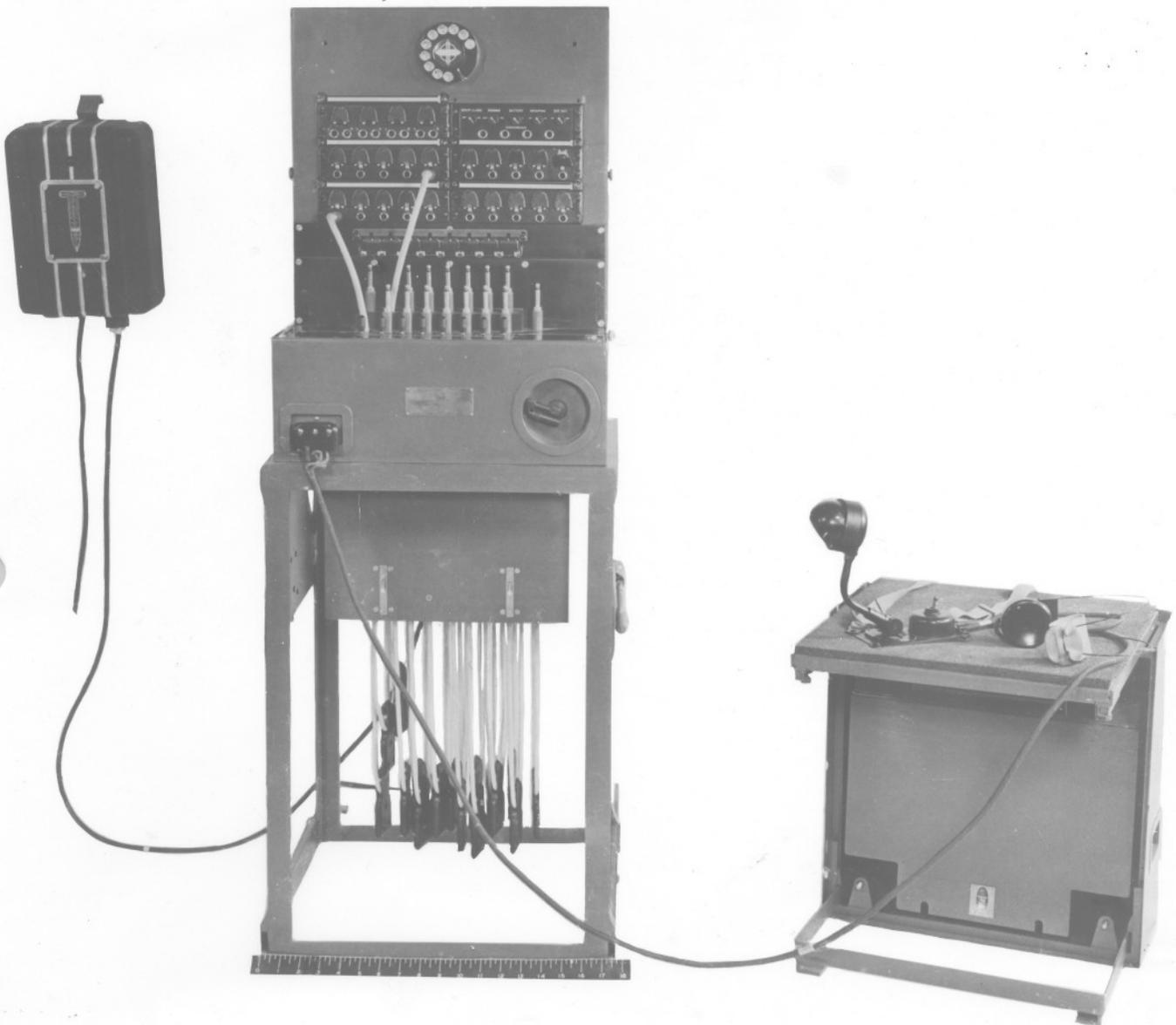
TELEPHONE CENTRAL OFFICE SET TC-12

1. Telephone Central Office Set TC-12 is a 20 line, local battery, telephone exchange for use by the AAF.
2. The development of Switchboard BD-91, the main component of Telephone Central Office Set TC-12, was assigned to this Laboratory by CSigO on 6 July 1939. Military Characteristics for this equipment were recommended by SCTC Meeting No. 174, 20 November 1939. Work on this project was not begun immediately due to lack of allocation of funds. During 1941, drawings and specifications were prepared and a contract placed to have two service test models constructed.
3. Service test was begun 18 August 1941 by the 1st Pursuit Group, Selfridge Field, Michigan, and the 33rd Pursuit Group, Mitchell Field, N. Y. Favorable reports were received from both groups in February 1942 and, on 23 March 1943, procurement data were forwarded to CSigO.

2 Incls. -
Incl. 1 - Photograph No. SCGDL-880
Incl. 2 - Photograph No. SCGDL-883

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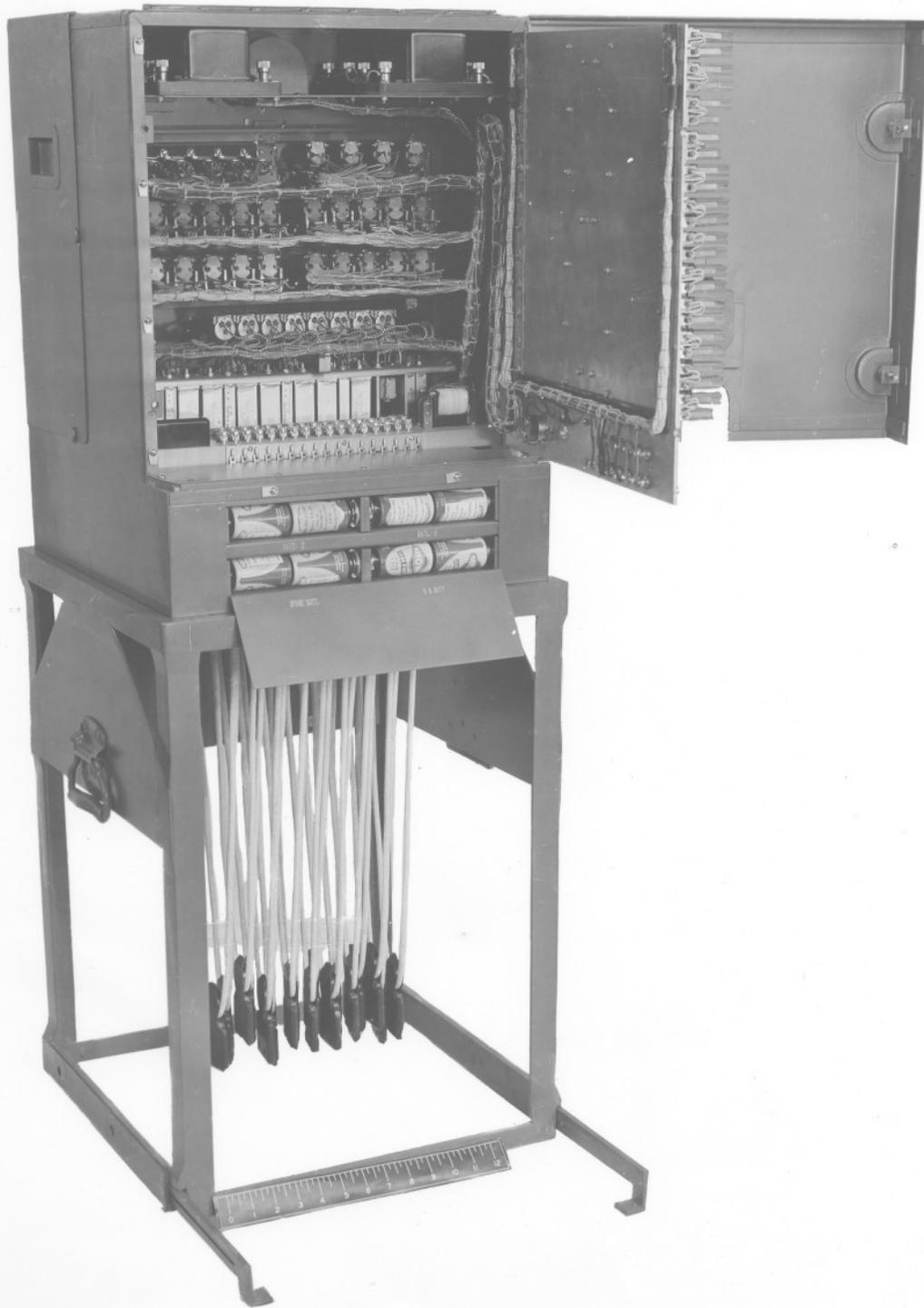
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SWITCHBOARD BD-91-T1 . PART of TELEPHONE CENTRAL OFFICE SET TC-12
Operating Position

DATE 5-15-41 - SIGNAL CORPS GENERAL DEVELOPMENT LABORATORY - NO. SCGDL-880

Steel 1

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SWITCHBOARD BD-91-T1 . PART of TELEPHONE CENTRAL OFFICE SET TC-12
Rear View of Interior

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LIGHT FIELD TELEGRAPH PRINTERS

A. Printer TG-6-T1.

1. This development was the result of an effort to adapt modern telegraph equipment and methods to field requirements of the Army.
2. In 1931, after investigation of various types of commercial equipment, it was decided that the Model 14 teletype, a tape printer manufactured by Teletype Corporation, offered the greatest possibilities. Service tests during 1932 were favorable and recommendations were made for its adoption as a standard, but action was held in abeyance pending the investigation of other types of machines, since the tape printer possessed definite limitations for field use.

B. Printer TG-7-T1.

1. In 1933, 6 model 15, page-type printers were purchased from Teletype Corporation with a view toward modification for field use, but investigations showed that the features of portability and simplification for Army use were not incorporated in this model. Four service-test models were produced and these were tested by the Signal Corps Board. Several recommendations were made as to the power units, motor-generator sets and a start-stop device, and in 1937, 4 modified, commercial, model 15 printers were made available for service tests.
2. Procurement data for this equipment was forwarded on 12 October 1940.
3. Standardization of Printer TG-7-T1 as Printer TG-7 was approved in 1941.

C. Printer TG-7-T3.

1. Further development was found necessary in order to produce a light, field, page-type printer to operate under field conditions from small unstable power plants.

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2. A new model, Printer TG-7-T2, was constructed and preliminary tests proved it to be dependable. In 1937, a pilot model was produced and an order placed with Automatic Electric Company for 14 exact reproductions. Service tests during 1938 revealed that the fundamental theory and design was sound, but that certain refinements were required to resist wear and to maintain adjustment and alignment and that strengthening of its structure was required. The redesigned model, incorporating the necessary changes, was designated Printer TG-7-T3.

3. Military Characteristics were recommended by SUTC Meeting No. 131, 11 November 1935, and approved by AGO on 3 December 1935. This development was authorized by CSigO on 23 May 1935.

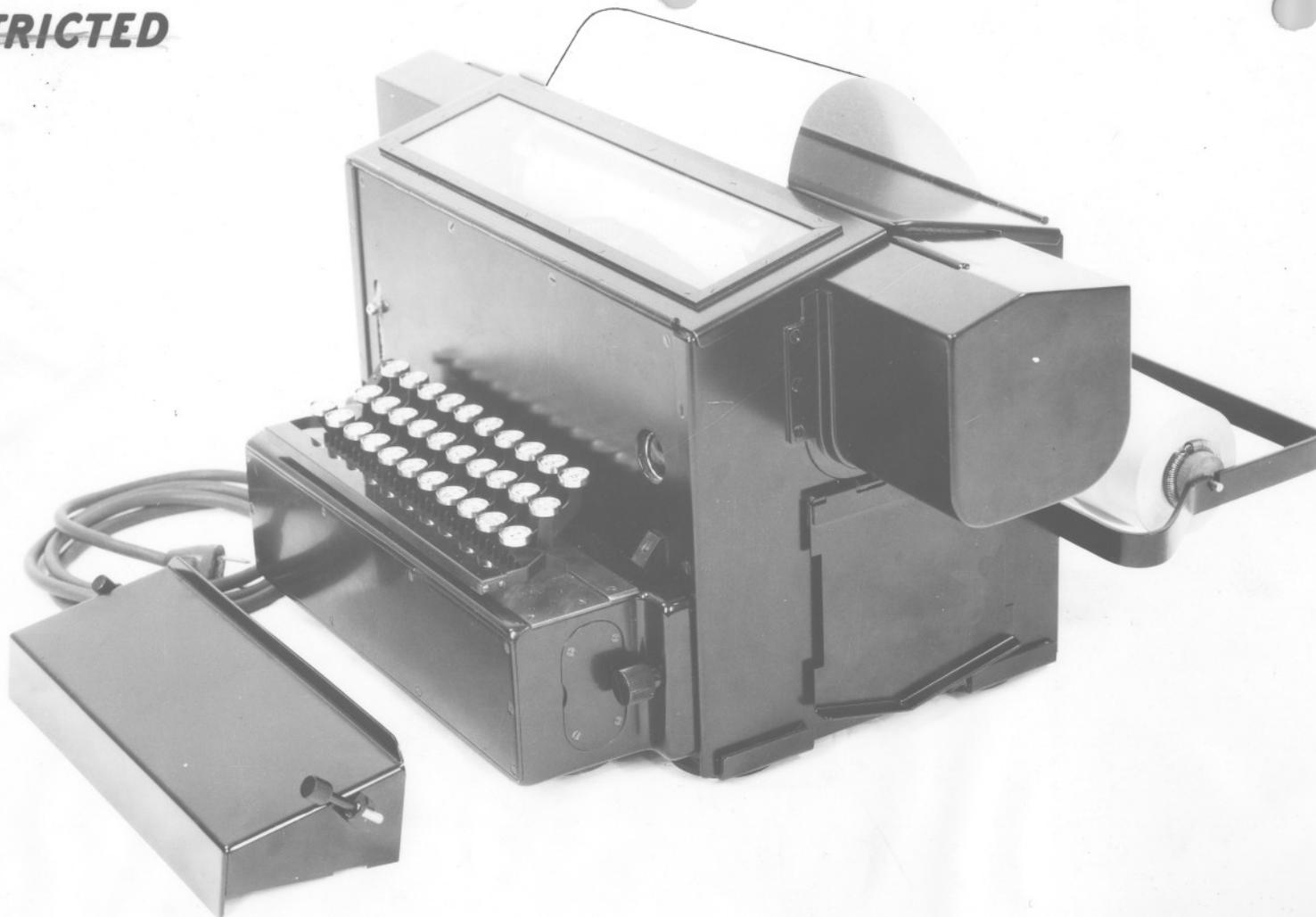
4. The first of 15 models constructed by the Wallace and Tiernan Products Inc. of Belleville, N. J. has been submitted and is now undergoing laboratory tests.

4 Incls. -

- Incl. 1 - Photograph No. SCGDL 189
- Incl. 2 - Photograph No. SCGDL 2288
- Incl. 3 - Photograph No. SCGDL 9623
- Incl. 4 - Photograph No. SCGDL 9622

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PRINTER TG-7-T3

Prepared for Operation . Showing Keyboard Dust Cover Removed

DATE 6-8-41

- SIGNAL CORPS GENERAL DEVELOPMENT LABORATORY - NO. SCGD- 189

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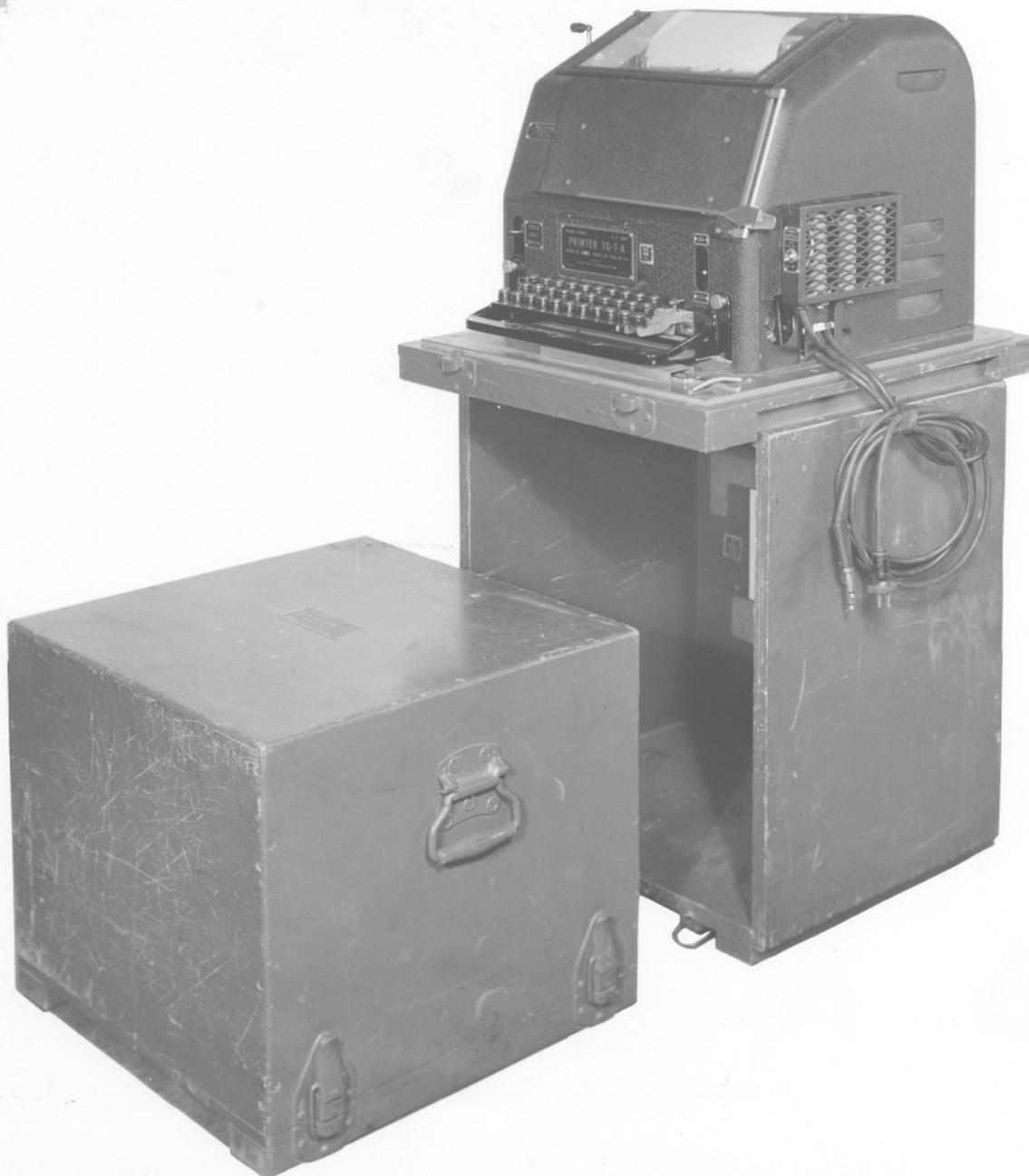


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PRINTER TG-7-T3 . As USED with LINE UNIT BE-77 and POWER UNIT PE-77
In Operation

DATE 8-5-41 - SIGNAL CORPS GENERAL DEVELOPMENT LABORATORY - NO. SCGDL-2288

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PRINTER TG-7-A

Prepared for Operation

DATE 10-7-43

SIGNAL CORPS GROUND SIGNAL SERVICE

NO. SCGSS 9623

Incl. 3

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PRINTER TG-7-A
Cover Removed

DATE 10-7-43

SIGNAL CORPS GROUND SIGNAL SERVICE

NO. SC655 9622

Incl. 4

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REPERFORATOR TELETYPEWRITER SETS TC-16 AND TC-17-

1. Reperforator Transmitter TG-26-() (Teletypewriter), the major component of Reperforator Teletypewriter Set TC-16, produces a printed and perforated tape from teletypewriter signals on a perforated tape or from a manually - operated keyboard. Reperforator Transmitter TG-27-() (Teletypewriter), the major component of Reperforator Teletypewriter Set TC-17-(), is the same as Reperforator Transmitter TG-26-() (Teletypewriter) except that it is provided with a weather symbol keyboard.

2. During September 1942, at the request of CSigO, sketches were prepared showing views of the proposed reperforator transmitter sets. In October 1942 action was taken to procure three test models of Reperforator Transmitter TG-26 (Teletypewriter). Except for minor details, all modifications of the preproduction pilot model manufactured by Teletype Corporation were approved by this Laboratory.

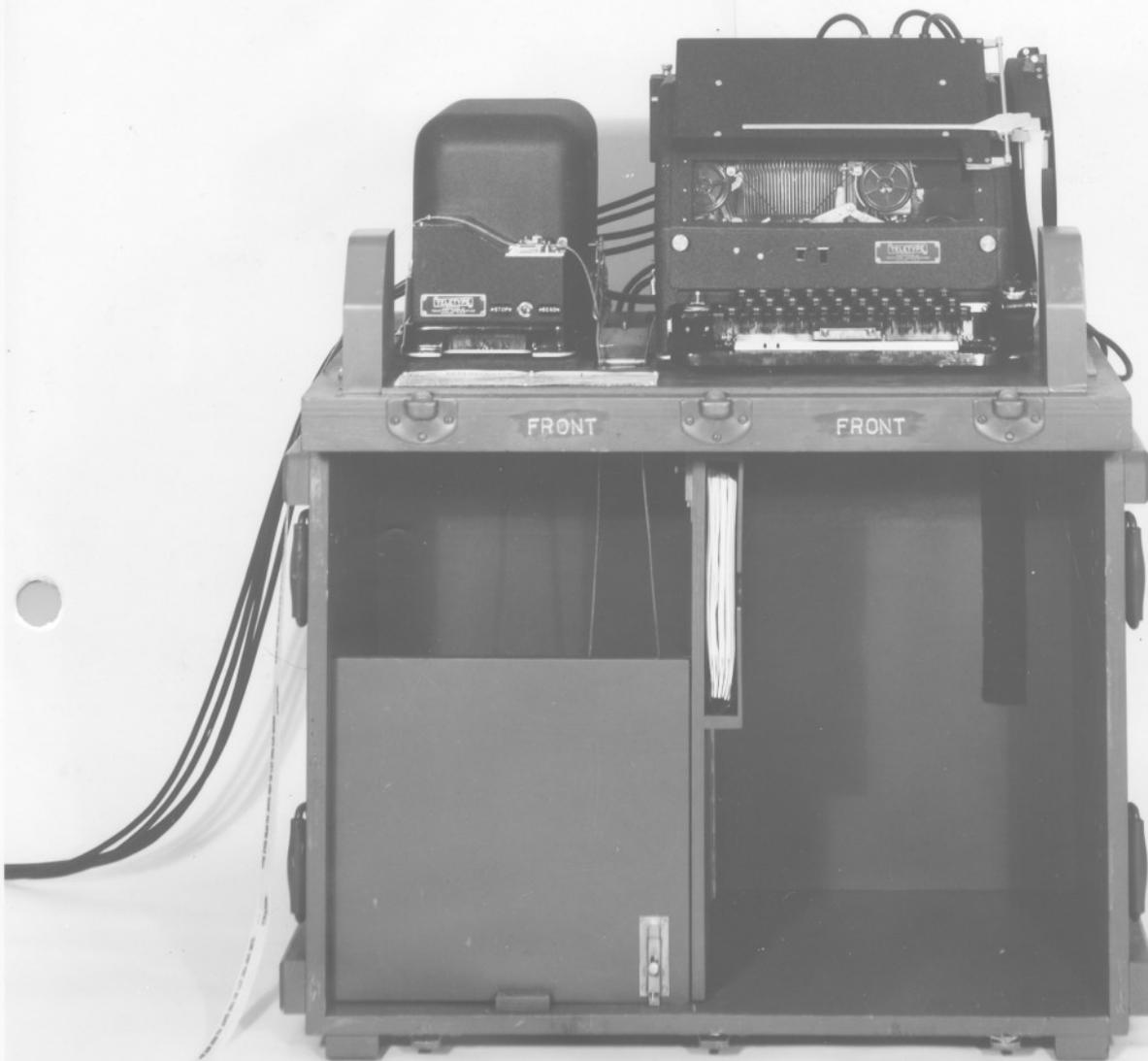
3. Parts lists of Reperforator Teletypewriter Sets TC-16 and TC-17 were reviewed and authenticated May 1943.

4. Investigations were made to determine the practicability of a transparent dust cover to be attached to the top of the tape transmitter of the transmitter distributor used with Reperforator Transmitter TG-26 (Teletypewriter), and recommendations were forwarded to CSigO in August 1943. It was found practicable to construct such a device as part of these reperforator transmitter sets.

5. Three models of Reperforator Transmitter TG-26 (Teletypewriter) were received and tested by this Laboratory but as yet no service tests have been performed.

- 3 Incls. -
Incl. 1 - Photograph No. SCGSS 8258
Incl. 2 - Photograph No. SCGSS 8299
Incl. 3 - Photograph No. SCGSS 8300

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REPERFORATOR TRANSMITTER TG-26-() (Pilot Model)
Part of Reperforator Teletypewriter Set TC-16 . Front View

DATE 5-7-43

SIGNAL CORPS GROUND SIGNAL SERVICE

NO. SCGSS 8258



Jack

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REPERFORATOR TELETYPEWRITER SET TC-16

Front View . Prepared for Operation

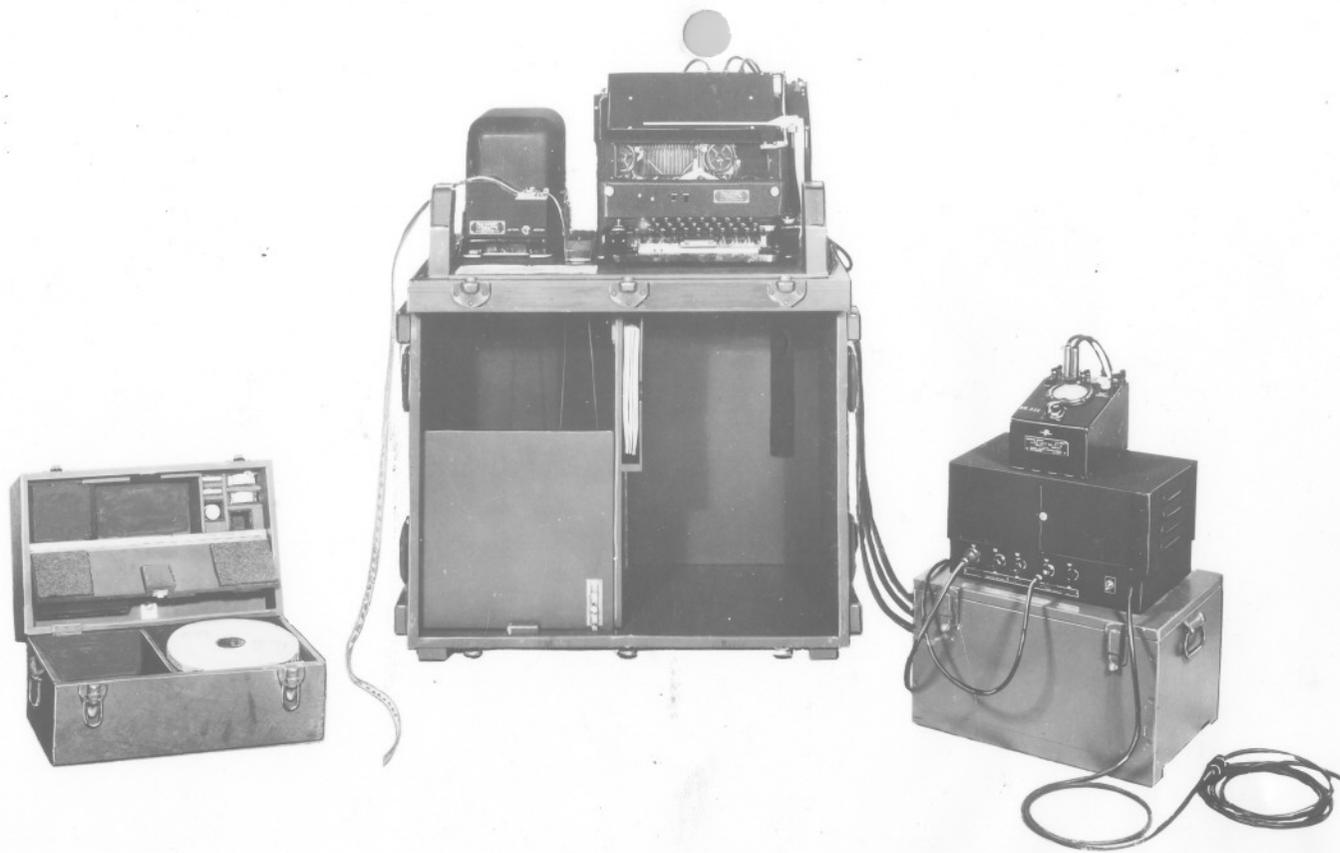


DATE 5-13-43

SIGNAL CORPS GROUND SIGNAL SERVICE

NO. SCGSS 8299

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REPERFORATOR TELETYPEWRITER SET TC-17

Front View . Prepared for Operation



DATE 5-13-43

SIGNAL CORPS GROUND SIGNAL SERVICE

NO SCGS 8300

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TELEGRAPH REPEATERS

A. Repeater TG-30 (Terminal) and TG-31 (Intermediate)

1. Repeater TG-30 (Terminal) consists of a terminal telegraph repeater for transmitting and receiving teletypewriter or manual telegraph signals over open-wire or long field lines without requiring adjustment to compensate for changing line conditions.

2. Repeater TG-31 (Intermediate) consists of an intermediate telegraph repeater for receiving and repeating teletypewriter or manual telegraph signals on long field or open wire line, for providing means of operating an intermediate station, or for extending the range of a circuit and is designed to operate with Repeater TG-30 (Terminal) without adjustment to compensate for changing line conditions.

3. Military Characteristics for Repeater Set TC-18-() (Terminal) and Repeater Set TC-19-() (Intermediate), of which the major components are Repeater TG-30 (Terminal) and Repeater TG-31 (Intermediate) respectively, were recommended by SCTC Meeting No. 234, 12 October 1942, and approved by SOS on 17 October 1942.

4. Tests of this equipment conducted in Gainesville, Florida during March and April 1943 concluded with satisfactory results. Tests indicated an operational range of 75 miles on either of the two types of wire with which the tests were made (Wires W-143-T5 and W-143-T6), under conditions of severe leakage.

5. The development of this equipment was completed with the forwarding of procurement data to the CSigO on 8 September 1943.

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B. Test Equipment

1. Concurrently with the development of Repeater TG-30 and TG-31, Bell Telephone Laboratories Inc. designed a test set for indicating the proper adjustment of certain polar telegraph relays. This equipment was assigned nomenclature "Test Set I-170-()." Another device, "Test Set I-193-()," for testing polar telegraph relays, was also proposed. This set would be capable of testing the polar relays in Repeaters TG-29, TG-30, and TG-31 as well as other Signal Corps equipment, such as Telegraph Terminal CF-2 (Carrier) and Relay Unit BE-84. In view of the broad application of the proposed Test Set (I-193-()), it was decided to proceed with its development and subsequent standardization which occurred in April 1943.

C. Repeater TG-29-() (Electronic, Regenerative)

1. Consideration of the Army field printer network as a whole indicated that regenerative repeaters would be required in order to obtain the mileage ranges contemplated over the facilities available and also facilitate the possibilities of circuit interconnection.

2. In August 1942, development began on a motor-driven regenerative repeater consisting of a portable, electromechanical, field-type repeater for regenerating 368 c.p.m. teletypewriter signals, operating on 50-60 cycles, 115 volt, commercial or engine-generated power or battery supply. This was called Repeater TG-28-() (Motor-driven, Regenerative), but in June 1943, work was suspended pending the completion of the development of Repeater TG-29-() (Electronic, Regenerative).

3. Repeater TG-29-() (Electronic, Regenerative) consists of a

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portable, vacuum-tube-operated, field-type repeater for regenerating 368 o.p.m. teletypewriter signals and operated on 50-60 cycle, 115 volt, commercial or engine-generated power or on battery supply.

4. Military characteristics for this equipment were recommended by SCTC Meeting No. 231, 21 September 1942, and approved by SOS on 24 September 1942.

5. A complete detailed comparison of regenerative repeater arrangements (to determine the approximate size and weight) was transmitted to CSigO in June 1943.

6. A contract was awarded to Western Electric Company during September, 1943 to furnish models of Repeater TG-29-() (Electronic, Regenerative), incorporating all features necessary for compliance with the military characteristics. Laboratory models of this equipment were tested and two pre-production models have been ordered, but as yet have not been received.

2 Incls. -

Incl. 1 - Photograph No. SCGSS 8287

Incl. 2 - Photograph No. SCGSS 8292

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