

RESTRICTED

TM 11-356

WAR DEPARTMENT

**TECHNICAL MANUAL
RADIO TELETYPE
TERMINAL EQUIPMENT
AN/FGCI OR AN/FGC-IX**

5 NOVEMBER 1943

**WAR DEPARTMENT
WASHINGTON, 11/5/43**

This Technical Manual published by Western Electric Company on Order No. 15752 Phila.-43 is furnished for the information and guidance of all concerned.

RESTRICTED

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By Order of the Secretary of War:

G. C. MARSHALL,
Chief of Staff

Official:

J. A. ULIO,
Major General
The Adjutant General

Distribution: "X"

(For explanation of symbols see FM 21-6)

SPARE FUSE
MOUNTING AND
TERMINAL STRIPS

AUTOMATIC FREQUENCY
CONTROL UNIT MOUNTS
IN THIS POSITION

FREQUENCY INDICATOR
PANEL

JACKS

RECEIVE RELAY
PANEL

DETECTOR B

DETECTOR A

CURRENT LIMITER B

CURRENT LIMITER A

FUSES

RECTIFIER
X-61680-B

RECTIFIER
KS-5844, LIST 01

ALARM AND MISC.
EQUIPMENT

OUTLET AND HEATER BOX

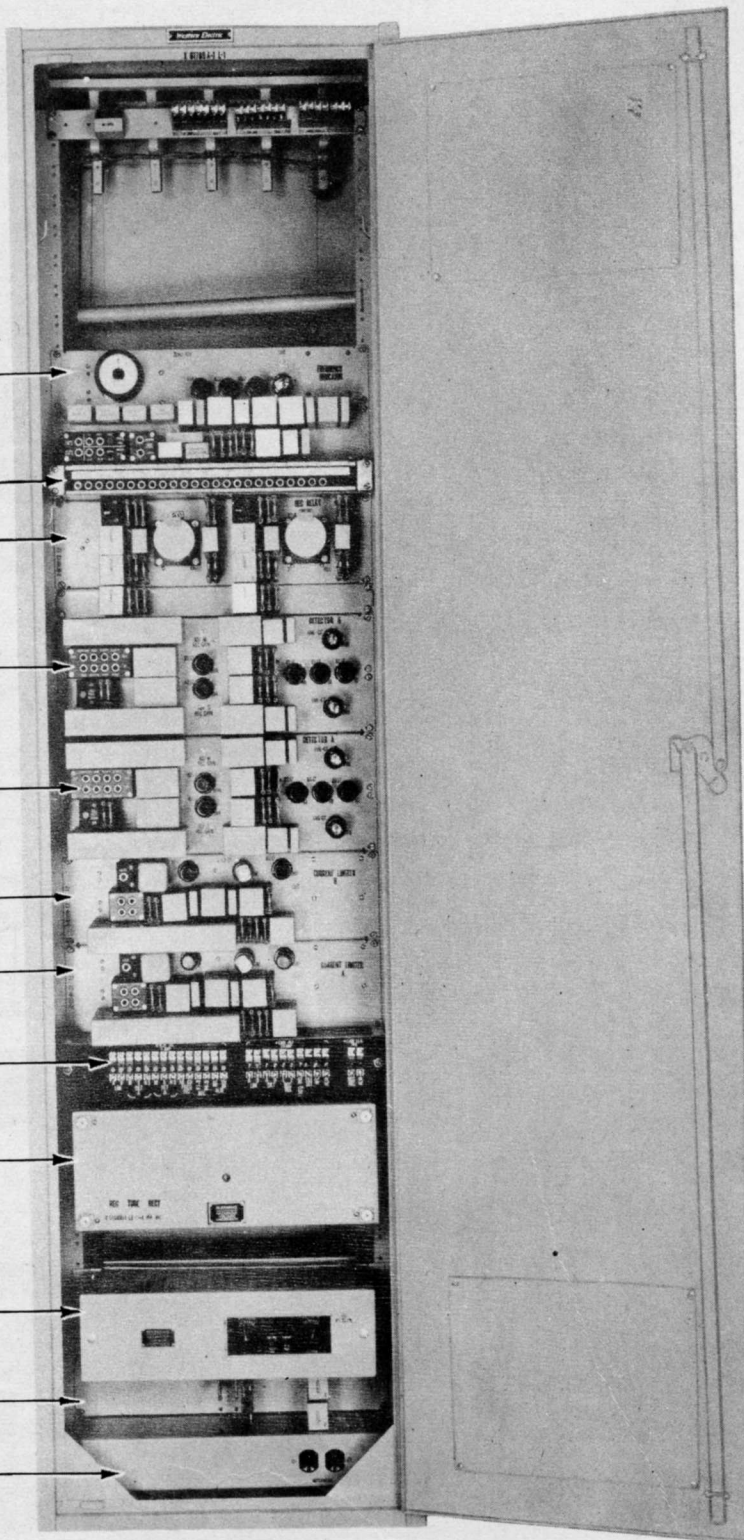


Figure 1 - Radio Teletype Terminal Bay, Front View

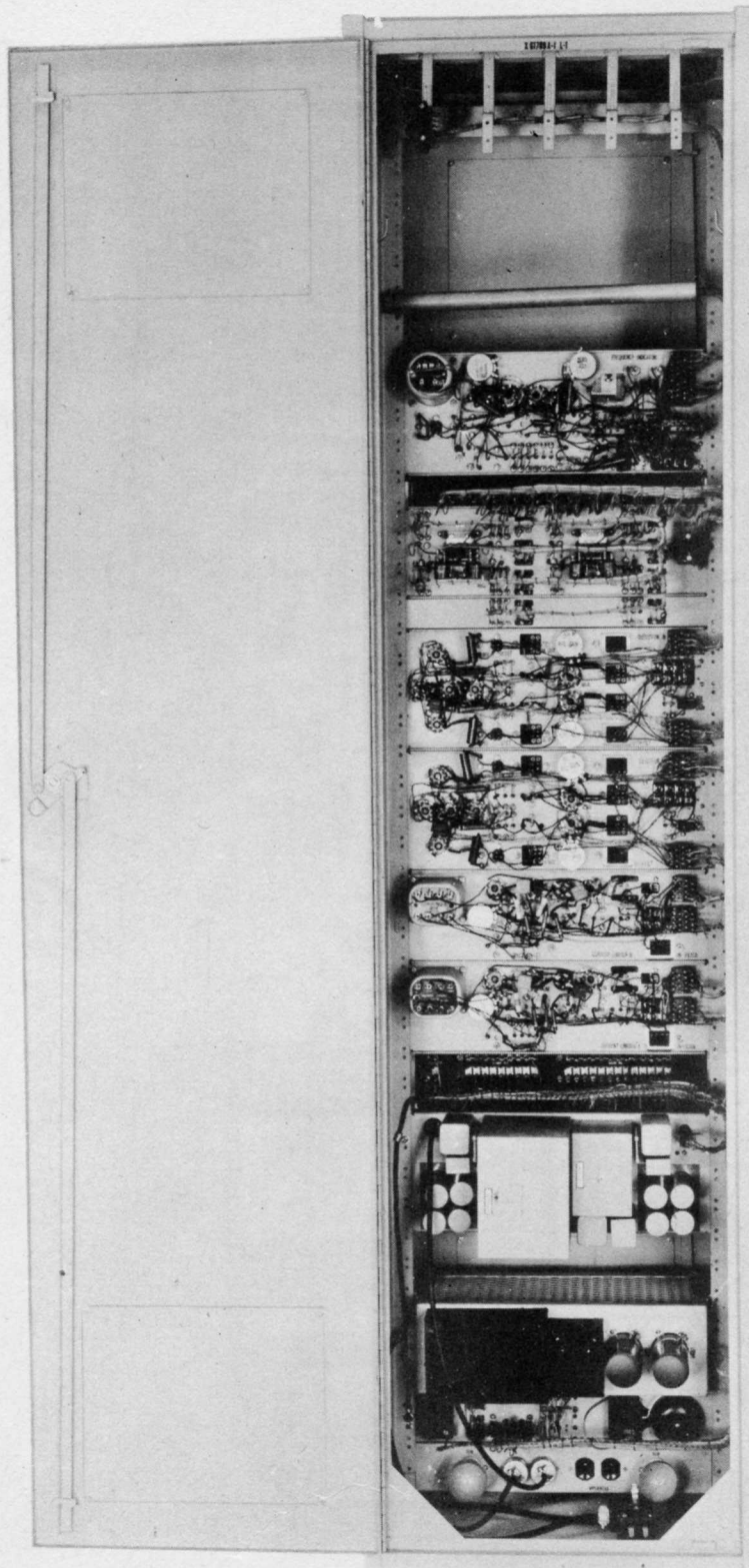


Figure 2 - Radio Teletype Terminal Bay, Rear View

SECTION I
DESCRIPTION

1. INTRODUCTION.

a. The Radio Teletype Terminal Equipment AN/FGC1 or AN/FGC-1X forms part of a radio-telegraph system, the receiving circuit being designed to receive signals alternately from one or two radio transmitters at moderate distances. The radio frequencies employed are in the range of 2 to 26 megacycles. A block diagram of the system is shown in figure 3. AN/FGC1 equipment operates from 50- to 60-cycle a-c power supply and AN/FGC-1X from 25- to 60-cycle supply. The operating and testing procedures are the same for both types. Any reference in this book to AN/FGC1 equipment applies equally to AN/FGC-1X, unless it is stated that the AN/FGC-1X equipment differs.

b. The radio transmitter sends out its normal frequency when the contacts of the telegraph-sending mechanism are closed (marking condition), and when the contacts are opened (spacing condition), the radio frequency is reduced 850 cycles, the amplitude remaining unchanged. At the receiving end these signals are received in superheterodyne receivers, which invert them and finally convert them into frequencies in the voice range of about 2125 and 2975 cycles for the closed and open conditions of the sending contacts, respectively. These voice-frequency signals are rectified in the AN/FGC1 equipment and are passed to the receiving telegraph equipment as d-c telegraph signals.

c. Signals are sent by telegraph printer keyboard or automatically by transmitter-distributor at sixty words per minute. They are received by printer or by typing reperforator.

d. The effect of radio fading is minimized by employing space diversity; the receiving equipment is associated with two receiving antennas which are spaced several wavelengths apart, and thus the reliability of reception is greatly increased.

e. The circuit is arranged so that when the same radio-frequency assignment is being used for transmitting and receiving, the receiving equipment is disabled while the transmitter is in use. When different frequencies are used for transmitting and receiving, however, the circuit may be connected so that these two operations can be carried on simultaneously; in this case, extra printer equipment will ordinarily have to be provided for sending. When messages are not being received, each receiver may be connected to both

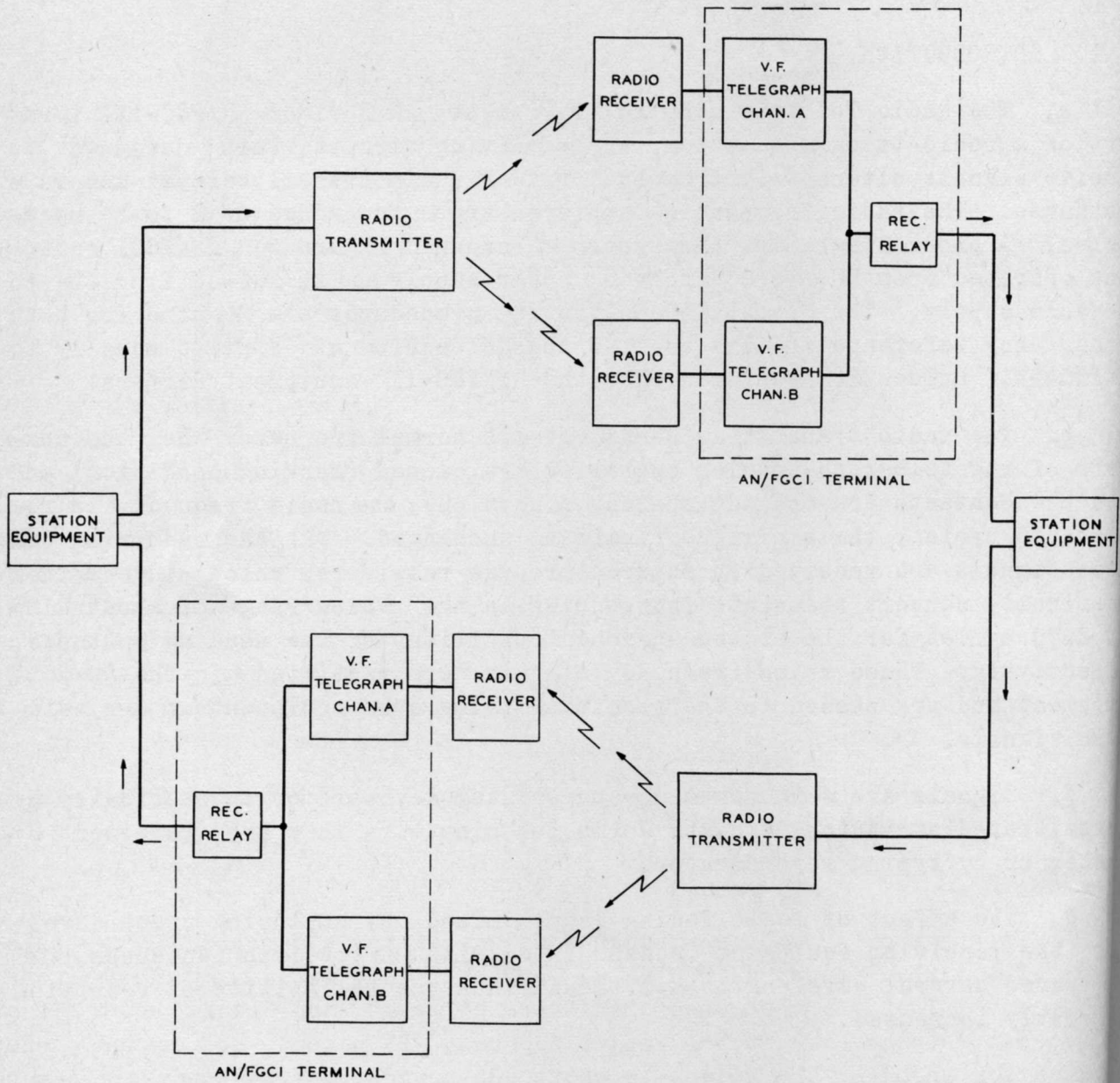


Figure 3 - Block Diagram of System

R
W
7
C
S
2

th
th
th

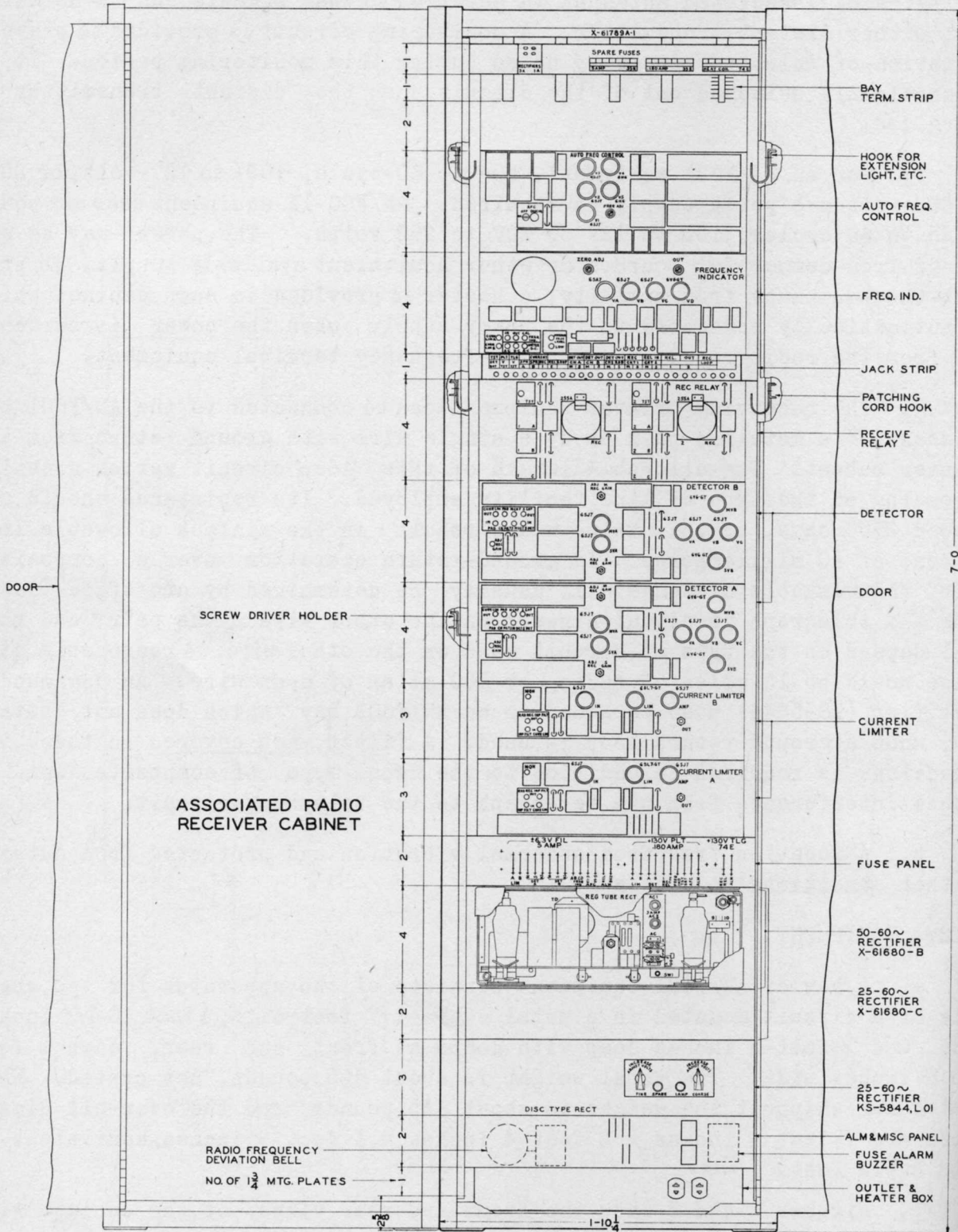


Figure 4 - Cabinet Equipment

wide. Figure 4 shows the arrangement of the equipment on the individual panels and the location within the cabinet.

c. The principal component parts of the equipment mounted in the cabinet are from top to bottom:

- Spare fuses
- One mounting plate for terminal strips
- Frequency-control panel
- Panel containing oscillator and frequency indicator (marked FREQUENCY INDICATOR)
- Jack strip
- Panel containing two receiving-relay circuits (marked REC REL)
- Channel B detectors (marked DETECTOR B)
- Channel A detectors (marked DETECTOR A)
- Channel B limiter (marked CURRENT LIMITER B)
- Channel A limiter (marked CURRENT LIMITER A)
- Fuse panel
- Regulated tube rectifier
- Disc-type rectifier
- Panel containing frequency alarm bell, fuse alarm buzzer and miscellaneous equipment
- Outlet and heater box

d. Unmounted items furnished with each terminal consist of the following:

<u>Quantity</u>	<u>Description</u>	<u>Function</u>
1	Test receiver equipped with headband and cord	For monitoring audio signals
10	165C plug (dummy plug)	For opening jack contacts
3	2-conductor cord, 2 feet long, equipped with two twin plugs (241-type)	Patching
4	2-conductor cord, 4 feet long, equipped with two 2-conductor plugs (347A)	Patching
8	2-conductor cord, 2 feet long, equipped with two 2-conductor plugs (347A)	Patching
2	3-conductor cord, 2 feet long, equipped with two 3-conductor plugs (310)	For patching to meter