

BRIDGE POLAR SEND-RECEIVE

UNIT C-6612-11

1. GENERAL

- 1.01 The Bridge Polar Send-Receive Unit is designed to replace the C-6448 and C-6469 Sending Units. It will also replace the C-6431 Receiving Unit to a limited degree.
- 1.02 Its major components are three plug-in, 200 type, mercury contact relays and a 429A Electron Tube mounted on a chassis as shown in Fig. 1.
- 1.03 The major advantages of this unit are:
- (a) Sending and Receiving, receiving only, sending 2-way and sending 1-way only options available thru the addition or removal of its plug-in components.
 - (b) An isolated, stable power supply.
 - (c) Longer relay contact life.
 - (d) The advantage of having one universal Bridge Polar Unit.
 - (e) Lower transmission noise level.



Figure 1

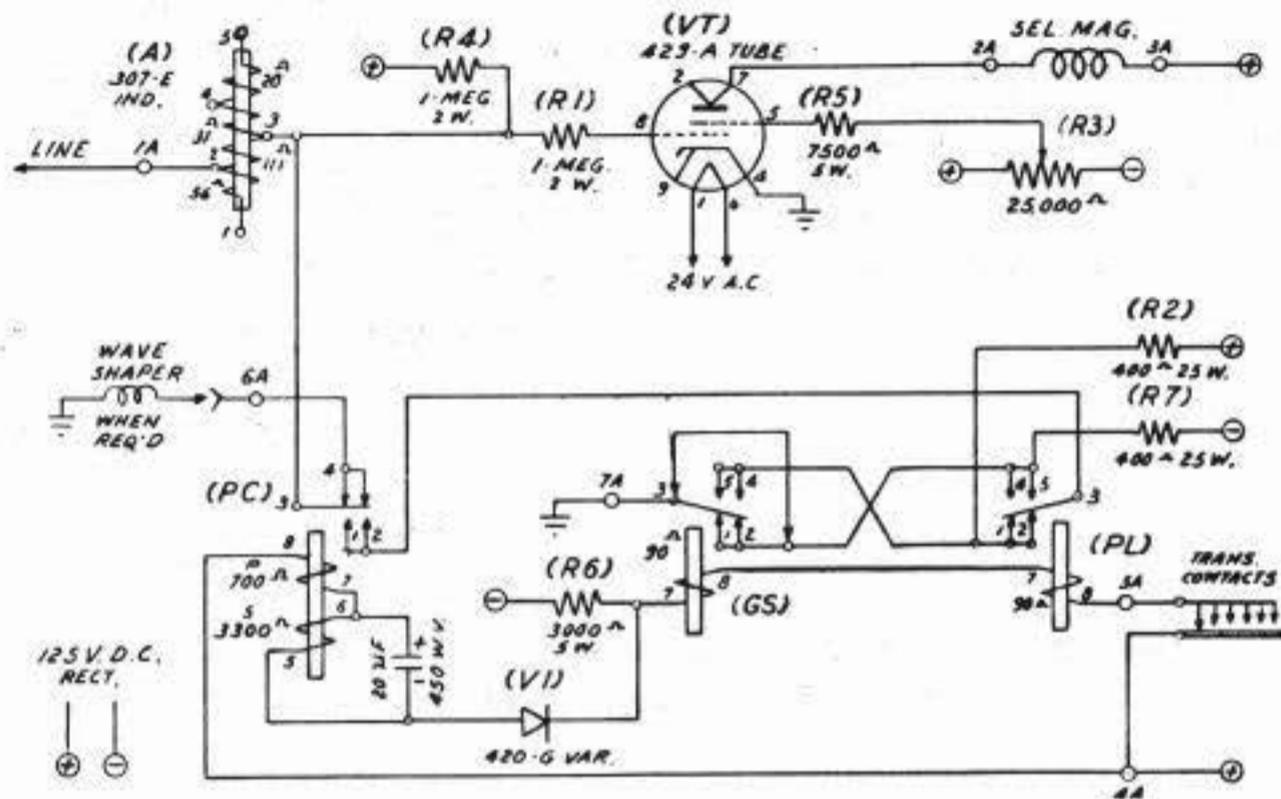


Figure 2

2. DESCRIPTION OF OPERATION

Receiving Section

2.01 When properly connected, current will flow through the teletype selector magnets under control of the potential applied to the grid (Term. 8 of the 429A tube) from the line. When the line potential is positive, current sufficient for energizing selector magnets will flow through the 4-7 (cathode plate) section of the tube. When no line potential is present, the grid will be kept positive through (R-1) and (R-4) resistors (2 megohms) to positive potential. This will keep the tube conducting and hold the selector armature marking. When the line potential becomes negative, the tube is biased to cut off, releasing the selector armature; thus the selector armature will be moved from mark to space and vice versa under control of the line potential (+ mark, - space).

Sending Section

2.02 The sending section consists of three Mercury contact relays, the pulse connect (PC), pulse line (PL), and ground switching (GS). They are under control of the sending apparatus in the teletypewriter.

2.03 In the idle or marking condition, the (PL) and (GS) relays are operated and the (PC), which is shunted by this operating path, is released. The (PC) relay, being released at this time, has disconnected the sending section from the line. The (GS) relay, in the operated condition, grounds the negative side of the power supply.

2.04 Any spacing pulse opens the operate path of (GS) and (PL) relays and allows the (PC) relay to operate, connecting the sender to the line. The release of the (GS) switches the ground to the positive side of the power supply and the release of the (PL) applies negative (spacing) potential to the line. The capacitor (C-1) will hold the (PC) relay operated, after the (GS) and (PL) relays reoperate, for a time interval corresponding to approximately three consecutive marking pulses.

2.05 The (GS) and (PL) 276H relays are made before break and for approximately 1 millisecond the output of the rectifier is shorted. The (R2) and (R7) resistors provide an 800 ohm pad to protect the rectifier during this interval.

3. OPTIONS

Receiving Only Option

3.01 When this unit is to be operated receiving only, the (GS), (PL) and (PC) relays are removed. The (GS) relay is replaced with a dummy plug (Amphenol - #86CP8) which is strapped between Terminals 2 and 3. This strap will keep the negative side of the power supply grounded for receiving only.

Sending Only Option

3.02 For sending 1-way the (PC) relay is replaced by the Amphenol #86CP8 plug which is strapped between terminals 2 and 3. This keeps the sender connected to the line at all times.

3.03 For blind sending with no monitor copy, the 429-A tube should be removed.

4. POWER SUPPLY

4.01 A KS-5663 L4 or KS-5663 L7 rectifier supplies the 125V D.C. for this unit. The 20V A.C. filament voltage is supplied by an I5-107 transformer manufactured by the Central Transformer Company of Chicago, Illinois.

5. REQUIREMENTS

5.01 Adjust rectifier output to 125V D.C. measured at pin jacks.

5.02 Adjust potentiometer for .032 amp. in the selector magnet circuit measured across Terminal 2A and 3A.

5.03 There should be a minimum of 20 volts A.C. at Terminals 1 and 6 of the 429A tube (filament voltage).

5.04 The I5-107 transformer supplies approximately 24V A.C. with 117V A.C. input.

6. DRAWINGS

6.01 The drawings for the Bridge Polar Send-Receive Unit are as follows:

Wiring and Schematic	C-6612-11
Assn. and Mat'l.	L-1955
Chassis Detail	F-1748

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7. ORDERING INFORMATION

- 7.01 For Sending, Sendings or Receiving, or Receiving Only with circuit assurance order: Set, Polar Unit C-6612-11, Gr. 1 & Gr. 2.
- 7.02 For Receiving Only use, order: Set, Polar Unit C-6612-11, Gr. 1.
- 7.03 When used with #28 teletypewriter having only one utility outlet order Gr. 3 (Double outlet utility box with cord) in addition to Gr. 1 or Gr. 1 and Gr. 2.