

INSTRUCTIONS FOR INSTALLING THE 327471 MODIFICATION KIT  
TO PROVIDE INTERFACING CONNECTIONS AND MOUNTING FOR  
MODEL 35 PRIVATE LINE SETS (ASR, KSR, AND RO) AND 820D2  
DATA AUXILIARY SETS

1. GENERAL

1.01 The 327471 modification kit provides the interfacing cabling and mounting parts to operate Model 35 ASR, KSR, and RO Private Line Sets (VSL330-335, 339, 340, and 357 type (ASCII67)) with 820D Data Auxiliary Sets.

1.02 When using the 820D Data Auxiliary Set in conjunction with the Model 35 Private Line Set, it is necessary to order, in addition to the Data Auxiliary Set, the following WECO components:

		One of the Following:	
1 - 96A	Bracket	1-108A	Data Set
1 - 180A	Backboard	1-108C	Data Set
		1-109A	Data Set

1.03 When a two terminal station (TTY) is used back-to-back in a local system, E/W 109 type data sets, a 13A1 balanced line adjusting resistor assembly is required. This unit is to be located at one station terminal only.

1.04 The use of a 109B Data Set at the hub (service test center) requires a WECO J70165D Line Adjusting Resistor Unit.

1.05 Ten leads are provided in the 327470 cable assembly for additional circuits provided in the auxiliary data set. The associated indicators, switches, etc, are not incorporated in the teletypewriter. The leads assigned are as follows:

<u>DATA SET FUNCTION</u>	<u>CONNECTOR</u>		<u>COLOR</u>
	<u>PIN</u>		
Chassis GRD	1		Black
Transmit. Data (+24 v dc)	2		Yellow
Receive Data (+24 v dc)	3		Red
Request-to-Send	4		White
Clear-to-Send	5		Orange
Data Set Ready	6		Blue
Signal Grd (+24 v dc, -24 v dc)	7		Purple
Carrier Fail	8		Green
+24 v dc	9		Slate

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<u>DATA SET FUNCTION</u>	<u>CONNECTOR PIN</u>	<u>COLOR</u>
Trans. -Rec. Common (-24 v dc)	10	Black
Relay (LCL-D. S.)	12	Brown
Spare (Unassigned)	17	White-Black
Spare (Unassigned)	24	White-Orange
Spare (Unassigned)	25	White-Blue

1.06 Three types of signal systems using 820D2 Auxiliary Data Sets and Data Sets are as follows (Figure 1):

<u>SIGNAL SYSTEM</u>	<u>AUX. DATA SET</u>	<u>DATA SET</u>
Frequency Shift	820D2	108A
Keyed (FSK)		108C
AC Signalling	820D2	108A
		108B (Hub)
2-Wire Private Line (DC-Operation)	820D2	109A
2-Wire Private Line Back-to-Back (DC-Operation)	820D2	109B (Hub)
		109A

1.07 Regardless of the type data set used, the connecting of the signal transmit (+24 v dc), signal receive (+24 v dc), common (-24 v dc), and chassis ground leads between the 820D2 Auxiliary Data Set and the teletypewriter will be the same.

1.08 The 820D2 Data Auxiliary Set interfaces with the teletypewriter but is not operable until a separate circuit card for a 108A, 108C, or 109A Data Set is inserted into the card slot provided in the auxiliary data set.

1.09 The 327471 modification kit consists of:

<u>Qty</u>	<u>Part No.</u>	<u>Description</u>	<u>Qty</u>	<u>Part No.</u>	<u>Description</u>
5	2191	Washer	1	121248	Clamp
10	2669	Washer	1	125231	Nut
6	3438	Washer	5	151631	Screw
1	3598	Nut	1	151819	Assembly, strap
1	7002	Washer	9	153442	Screw
4	76099	Washer	2	311995	Assembly, strap
4	112626	Nut	1	327470	Assembly, cable
1	121243	Clamp	1	327538	Plate, resistor mounting

Note: In early design electrical service units LESU339 (Bell 35P) KSR or RO and LESU340 (Bell 35R) ASR, the two 311995 strap assemblies were not incorporated. The later models have the straps installed. When straps are present in the electrical service unit, discard the straps in the kit.

- 1.10 For parts ordering information, other than the parts in the kit, see Teletype Parts Bulletins 1187B and 1201B.

## 2. INSTALLATION

- 2.01 Assemble the 96A brackets to the 180A backboard using four **153442** screws, 2669 lockwashers, and 112626 nuts (Figure 2).

Note: When installing in a keyboard send-receive (KSR) or receive-only (RO) LAC305 Cabinet, mount the bracket and pack board assembly in the third hole from the left side of the rack. This is to provide clearance when removing a card assembly.

- 2.02 Mount the backboard and bracket assembly to the rack in the knee well of the cabinet. Secure with four 153442 screws, 2669 lockwashers, and 3538 flat washers (Figure 2) .
- 2.03 The above parts should be mounted as far to the right as possible if they are to be installed on a VSL357 equipped with either the 330690 fixed field length kit or the 330710 paper tape verifier kit.
- 2.04 Mount the 820D2 Auxiliary Data Set to the mounting plate, securing with the two clamps available on each side of the mounting plate. Tighten the clamp screws (Figure 3) .
- 2.05 Remove the ac power cord knock-out plate from the lower right end of the cabinet. Remove the two sections of the left knock-out. Place the M3AY cord thru the opening. Reinstall the plate (Figure 4) .
- 2.06 Connect the mating end of the 327470 cable assembly to the J3 connector of the auxiliary data set (Figure 4) .
- 2.07 Connect the mating end of the M3AY cord to the auxiliary data set (Figure 4) .
- 2.08 Place a 121248 cable clamp over both the cable and cord; position the clamp over the third hole on the right side of the lower rack. Secure the cable clamp with a 153442 screw, two 3438 flatwashers, 2669 lockwashers, and 125231 nut (Figure 4) .
- 2.09 Route the terminal end of the 327470 cable assembly and the M3AY cord up and to the right cut out of the cabinet shelf (Figures 4 and 5) .

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- 2.10 Secure the cable with a 121243 cable clamp, 151631 screw (the screw must be inserted in the hole from the inside of the LESU right side frame, Figure 7), 7002 flat washer, 2191 lockwasher, and 3598 nut (Figure 5).
- 2.11 If 820D2 Auxiliary Data Set, with 109A Data Set, for back-to-back operation is used, an additional bracket is required to mount the 13A1 ballanced line adjusting resistor assembly in either one of the two sets (Figure 6).
- 2.12 Mount the 13A1 resistor assembly to the 327538 bracket using two 151631 screws, 76099 flat washers, and 2191 lockwashers (Figure 6).
- 2.13 Mount the 327538 bracket and resistor assembly to the lower rack between the auxiliary data set brackets. Secure with two 151631 screws, 76099 flat washers, and 2191 lockwashers (Figure 6).
- 2.14 Some earlier LESU units may require the relocation of the following wires and resistor prior to installation when being used with 820D Data Auxiliary Sets.
- 2.15 Electrical Service Unit LESU339 (BELL 35P) (KSR or RO): Remove and discard the strap between C4B and C5D.
- 2.16 Remove T-5-BR-Y from C5D of the C field and place on C4B.
- 2.17 Electrical Service Unit LESU340 (BELL-35R) (ASR): Remove and discard the strap between C2G and C3G.
- 2.18 Remove T-5-BR-Y from C3G of the C field and place on C2G.
- 2.19 Electrical Service Unit LESU356 (BELL 35AA): Follow the instruction in 2.22, 2.23, and 2.24 only.
- 2.20 Install the two 311995 straps (red) as follows (Figure 7):

<u>T TERMINAL BLOCK</u>	<u>C FIELD ASR (LESU 340)</u>	<u>C FIELD KSR OR RO (LESU 339)</u>
4	C3G	C6E
7	CJ4	C5D

- 2.21 Resistor Change

<u>EARLY LOCATION ON C FIELD TERMINAL</u>	<u>ELECTRICAL SERVICE UNIT</u>	<u>PRESENT LOCATION ON C FIELD TERMINAL</u>
C4B to C5D	LESU339 (BELL -35P) (KSR or RO)	C5D to C6E
C2G to C3G	LESU340 (BELL-35R) (ASR)	C3G to C4J

2.22 Terminal end of the 327470 cable assembly, connect the black lead with the quick disconnect terminal to the ground terminal of the cabinet (Figure 5).

2.23 Route the other three leads as shown in Figures 4 and 5.

Note: Before connecting the yellow, red, and black leads, remove the 151827 metal strap located between terminals 6 and 7 of the T power terminal block.

Connect the remaining three leads to the T terminal (Figure 7).

<u>COLOR</u>	<u>DESCRIPTION</u>	<u>TERMINAL</u>
Yellow	+24 v dc (Send)	5
Red	+24 v dc (Receive)	4
Black	-24 v dc (Common)	6 or 8

Connect the three leads of the M3AY power cord.

<u>COLOR</u>	<u>DESCRIPTION</u>	<u>TERMINAL</u>
Black	115 v ac (LS)	T2
White	115 v ac (GS)	T1
Green	Power Ground	Frame Ground

2.24 Install the 151819 strap between terminals 6 and 8 of the T terminal block (Figure 7).

2.25 To connect two teletypewriters with 820D2 Auxiliary Data Sets and 109A Data Sets, the customer must provide the tip and ring leads. The ring terminal of one 820D2 Auxiliary Data Set must be connected to and thru the balanced resistor assembly to the tip terminal of the other 820D2 Auxiliary Data Set. The second line is wired in the same manner (Figure 8).

2.26 To make tip and ring connections in an 820D2 Auxiliary Data Set using a 109A Data Set and a 109B Data Set at the service test center (hub), the tip (+) is connected to tip and the ring (-) is connected to ring or visa versa. These requirements are for the 2-wire private line (dc operation) (Figure 7).

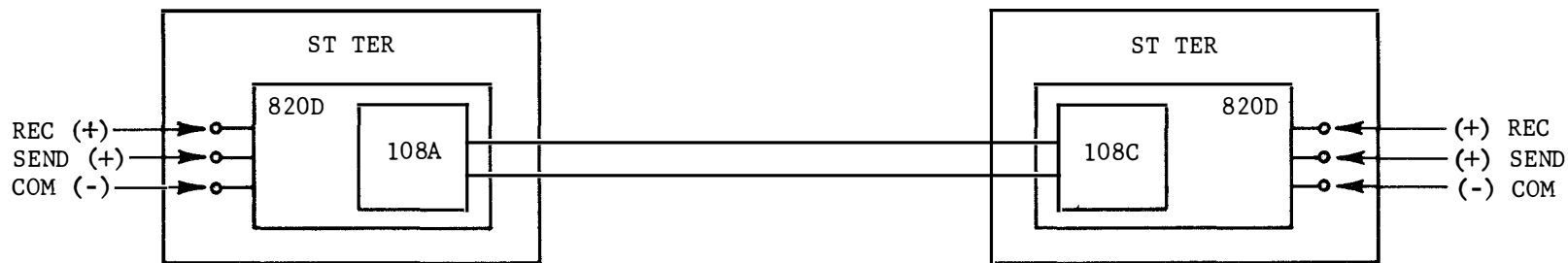
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- 2.27 For tip and ring connections using the frequency shift keyed (FSK) application 820D2 Auxiliary Data Set with 108A and 820D2 with 108C observance of polarity is not concerned and may be wired ring to tip, tip to ring, ring to ring, etc.
- 2.28 The same holds true for the ac signaling using 108A and 108B Data Sets with 820D2 at the teletypewriter stations and the service test center (hub) (Figure 1).

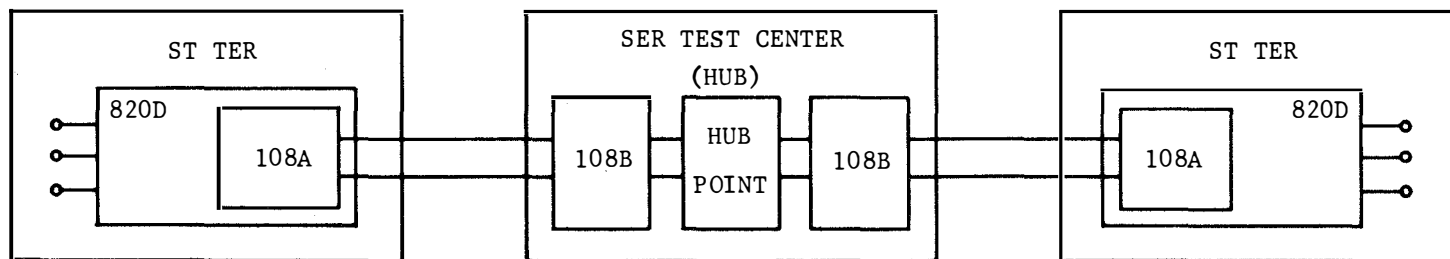
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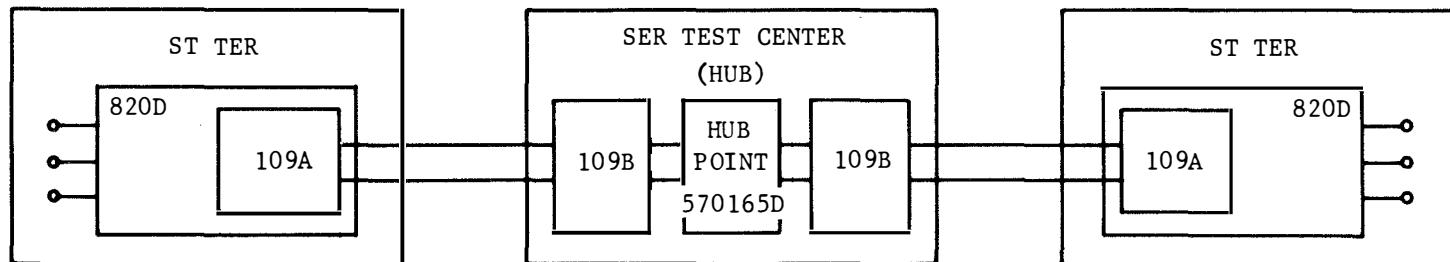
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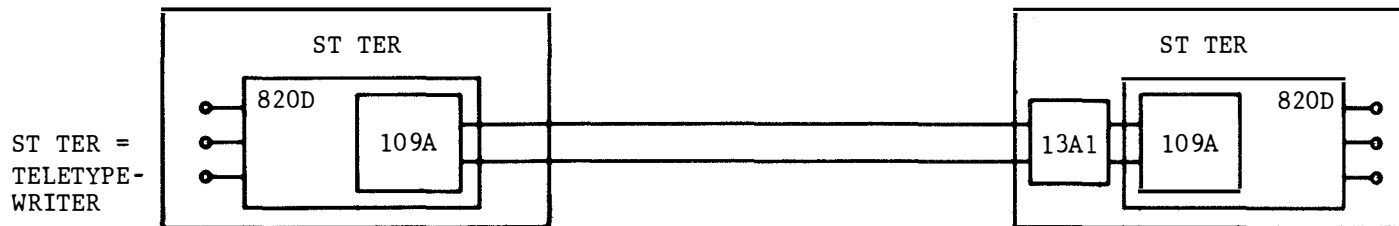
FREQUENCY SHIFT KEYED (FSK)



AC SIGNALLING



2-WIRE PRIVATE LINE (DC OPERATION)



2-WIRE PRIVATE LINE BACK TO BACK (DC OPERATION)

ST TER =  
TELETYPE-  
WRITER

Figure 1 - Data Auxiliary Set and Data Set Application

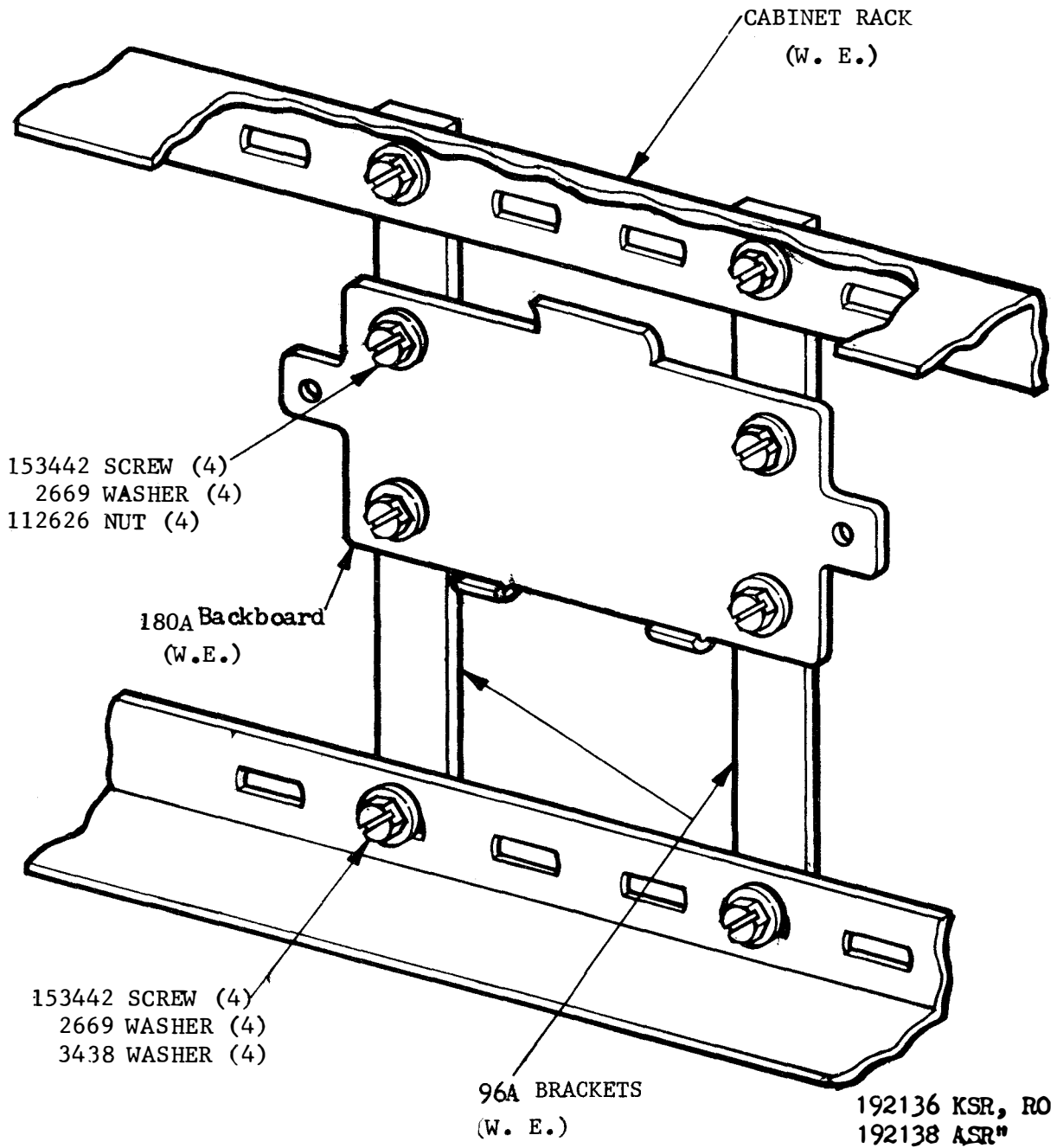


Figure 2 - Bracket and Mounting Assembly



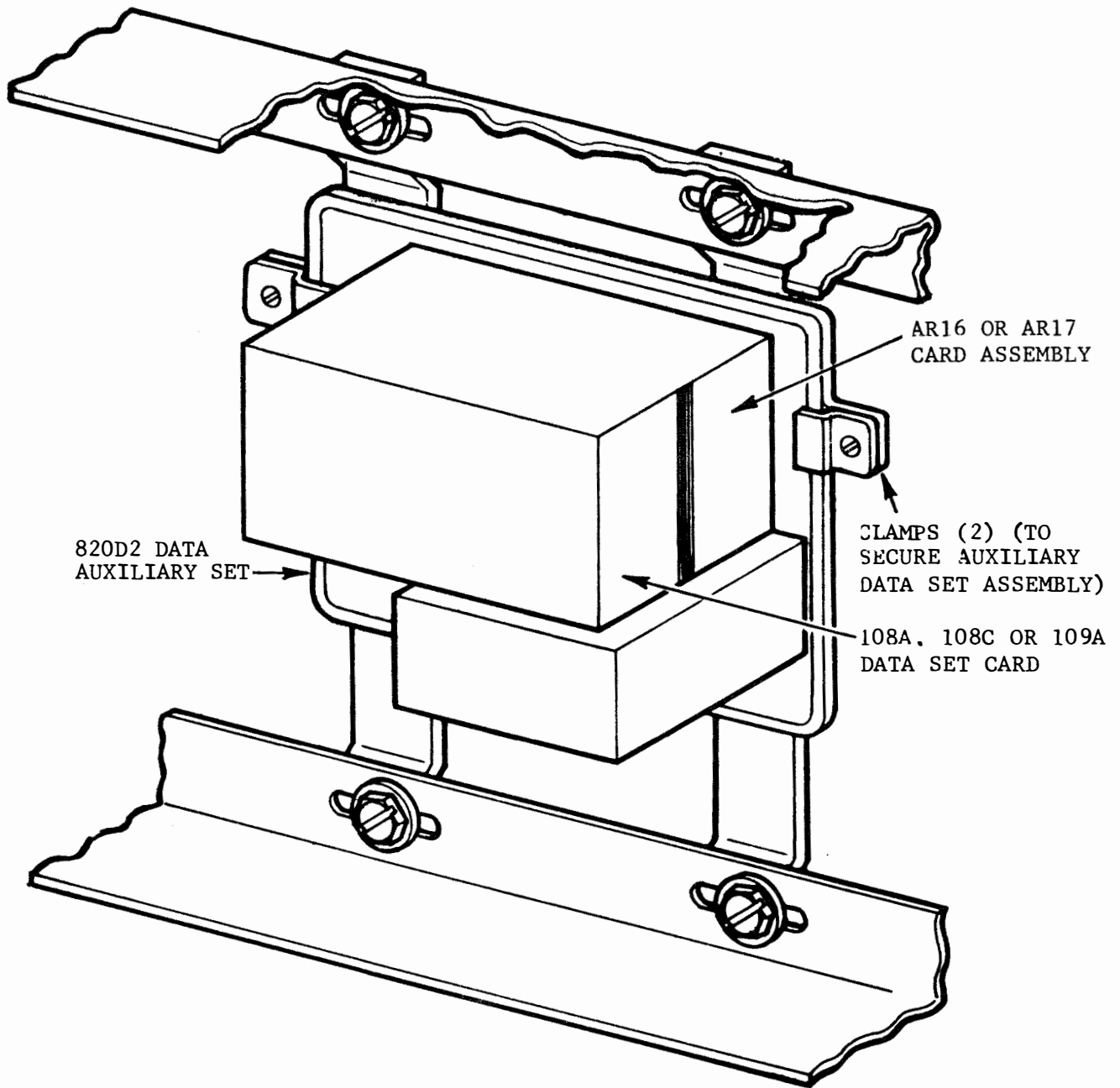
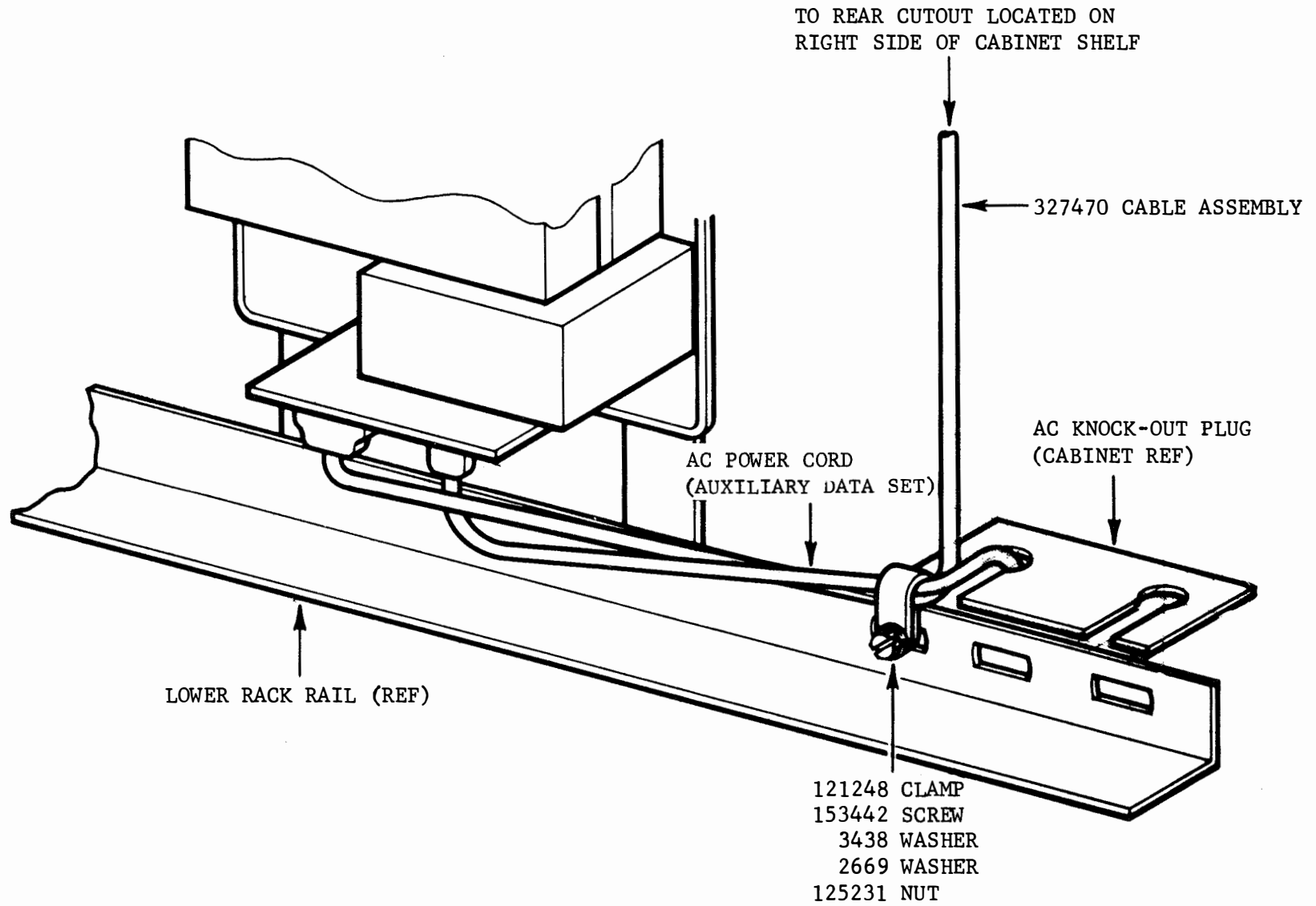


Figure 3 -

Figure 4 - Cable Connections



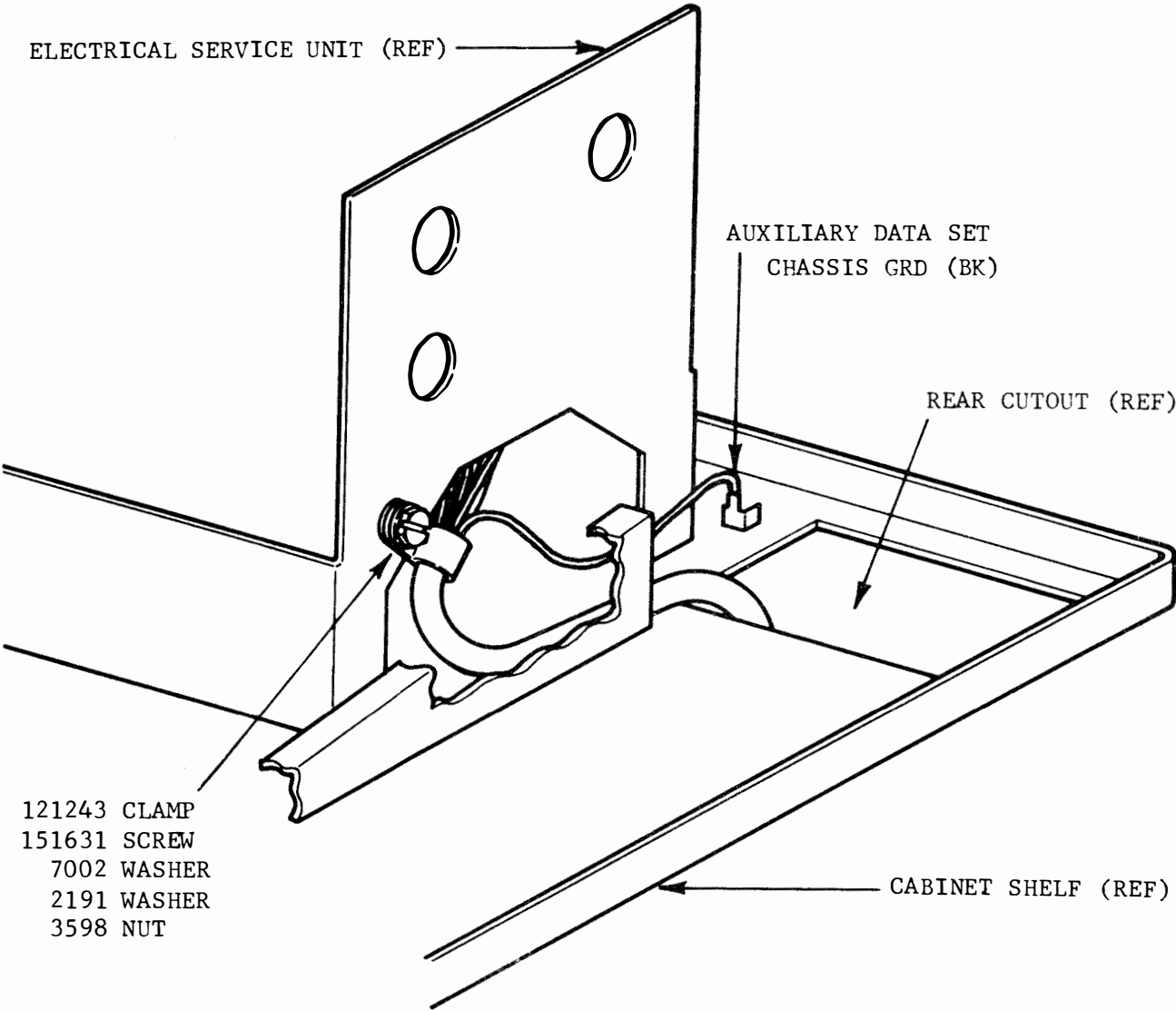


Figure 5 - Routing of 327470 Cable Assembly

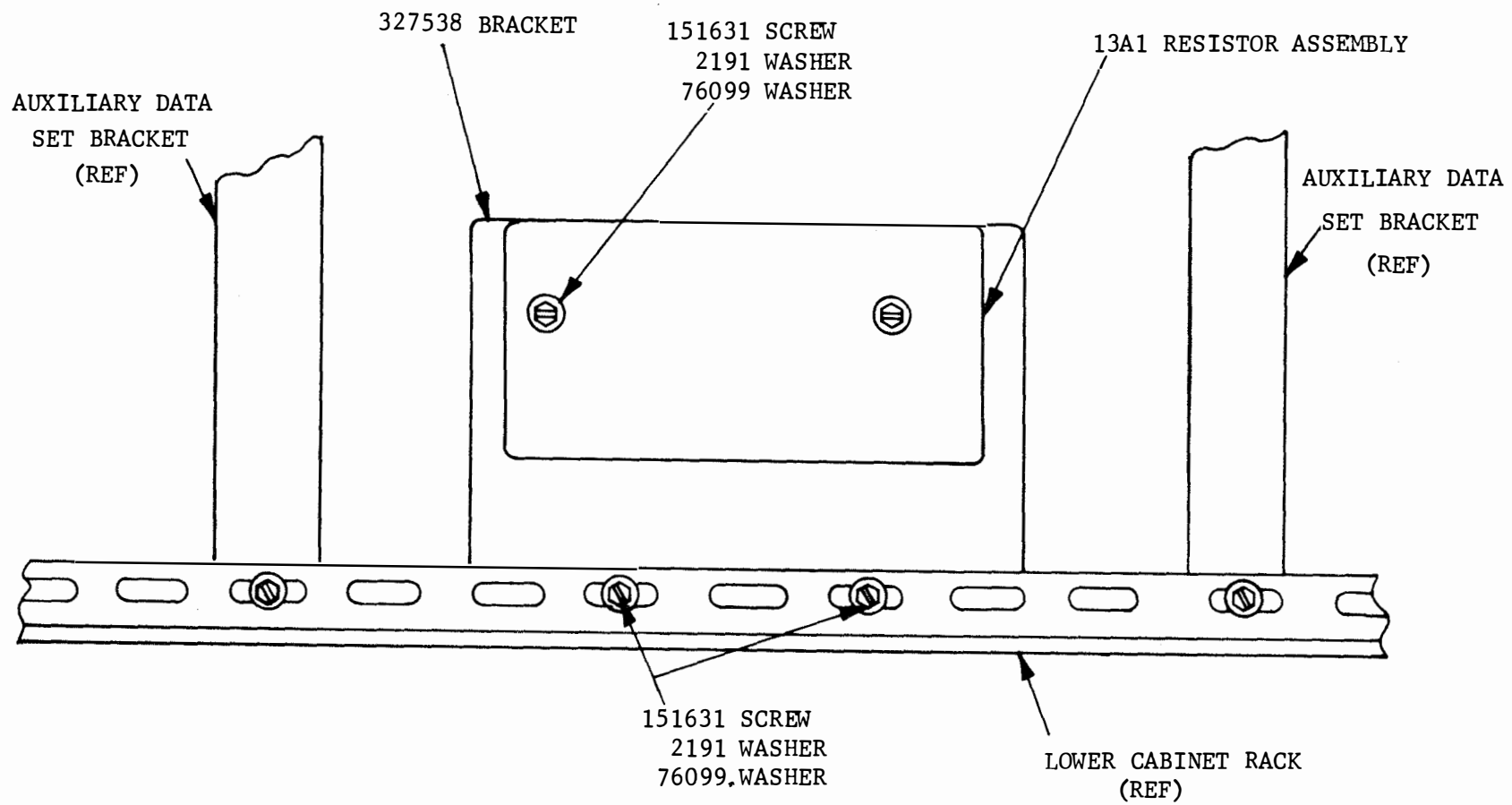
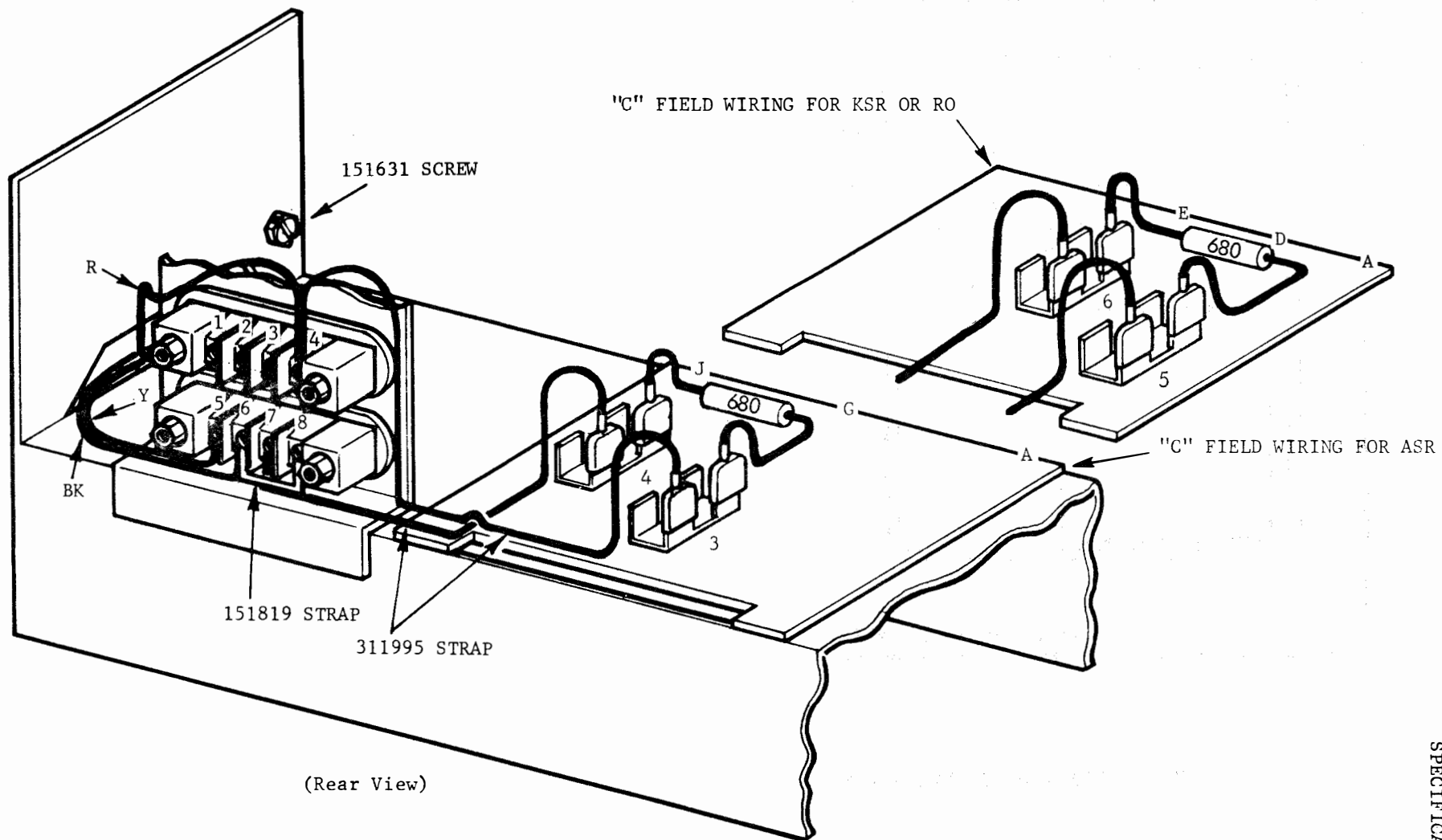


Figure 6 - Back To Back Operation

Figure 7 - "C" Field Wiring for 820D Data Auxiliary Set



(Rear View)

820D2 Data Auxiliary Sets Used With 109A1 Data Sets For Half-Duplex Operation

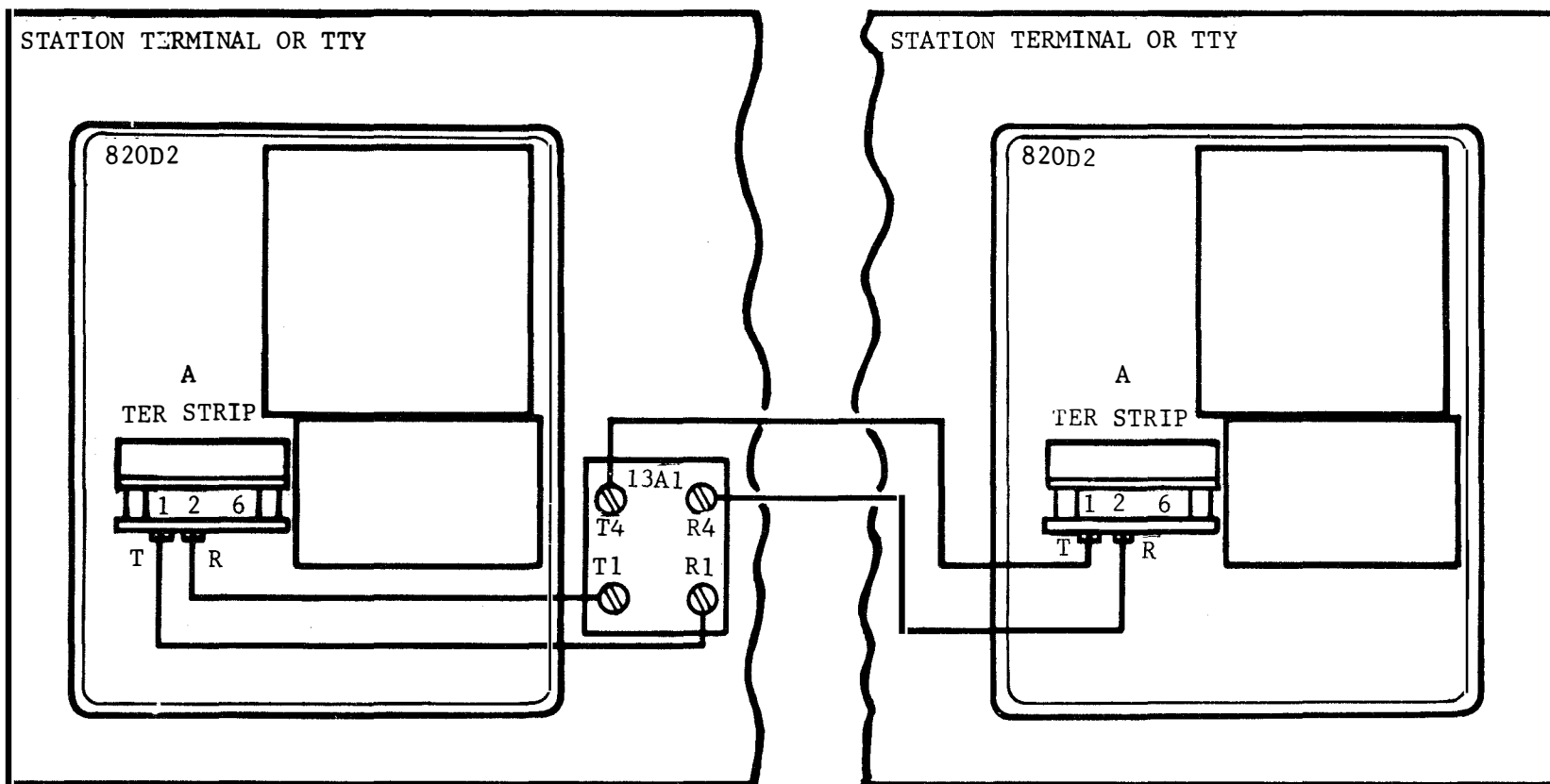


Figure 8 - Tip and Ring Connections (Back to Back DC Operation)