

DATA AUXILIARY SET 824A-TYPE
50-KILOBIT DATA RECOGNIZER
(FOR COAM EQUIPMENT USE)
TEST PROCEDURES

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1. GENERAL

1.01 This section contains test procedures for Data Auxiliary Set (DAS) 824A-type. (DAS 824A1 is shown in Fig. 1, and DAS 824A2 is shown in Fig. 2.)

1.02 This section is reissued to provide only those tests applicable to DAS 824A-type when used with Customer-Owned and Maintained (COAM) equipment (X option). The tests previously shown in this section which apply to DAS 824 used in other applications (options) will not be found in this section. Due to extensive revision, change arrows have been omitted.

1.03 The test procedures in this section are for testing DAS 824A with X option only and with no associated apparatus required. An associated jack field will be provided for all wideband and voiceband line appearances which are connected to the data recognizer as a convenient access test point. These jacks should not be confused with the two jacks provided on the data set.

1.04 The connection diagram for X option is shown in the section entitled Data Auxiliary Set 824A-Type, 50-Kilobit Data Recognizer, (For COAM Equipment), Installation and Connections (598-060-200). When testing the data recognizer, it may be helpful to refer to the diagrams.

1.05 Tests are to be made at the time of installation and when clearing routine trouble conditions.

1.06 The following equipment is required to perform the tests described:

- 1—912A Wideband Data Test Set (WDTS)
- 1—21A Transmission Measuring Set (TMS) or equivalent
- 1—3P6A cord or equivalent
- 1—ED 73248-20-G1 (used with 912A WDTS)
- 1—3P14A cord or equivalent
- 2—3P17A cords or equivalent
- 1—KS-14510 volt-ohm-milliammeter or equivalent
- 4—258-type dummy plugs.

1.07 For the preparation of the 21A TMS, refer to the section entitled J94021A (21A) Transmission Measuring Set, Description (103-221-100).

2. CAUTIONS

2.01 The following cautions must be observed when working with the data recognizer:

- Before removing or installing printed wiring boards, always disconnect the power cable assembly from the power source of the data recognizer.

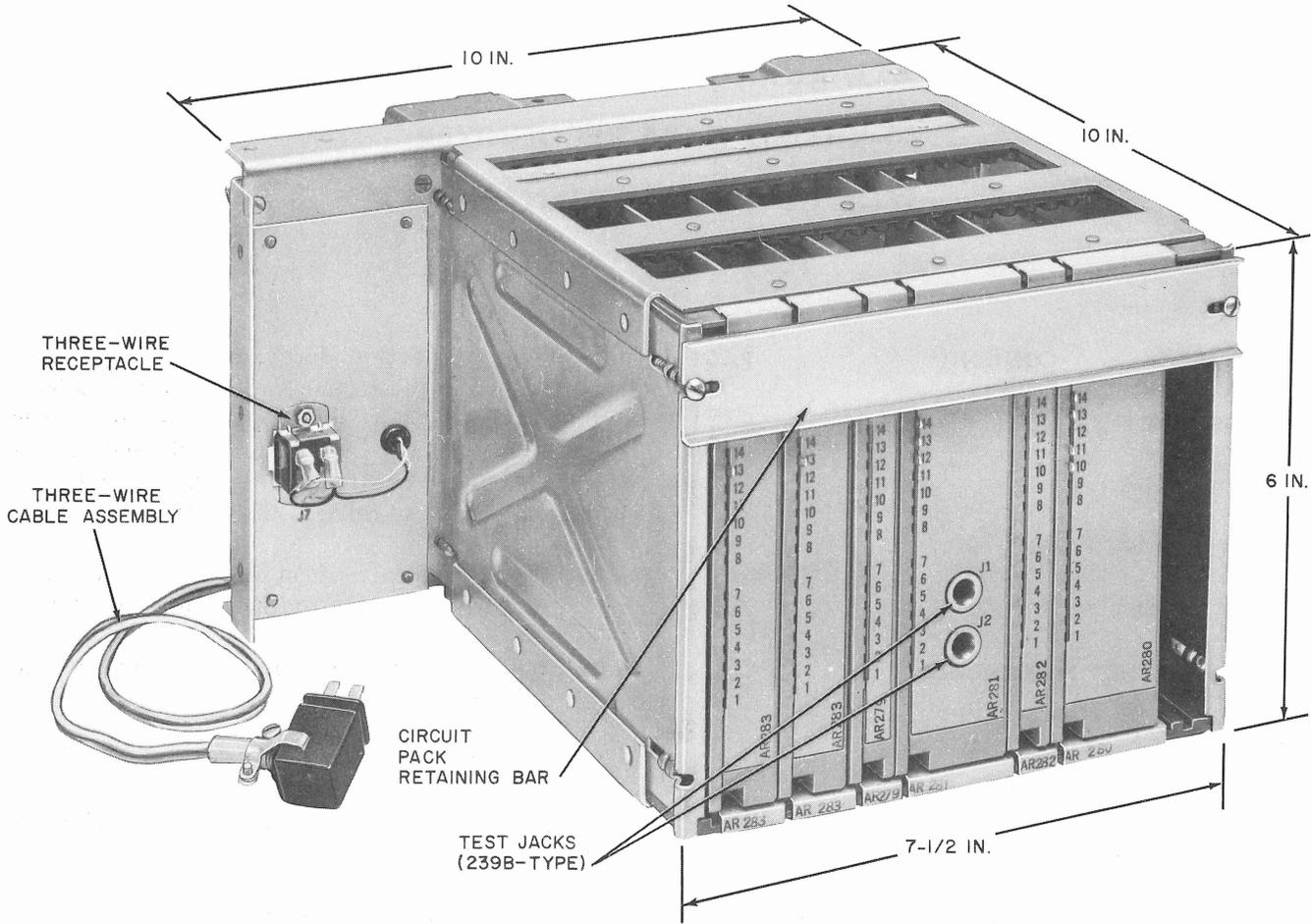


Fig. 1—Data Auxiliary Set 824A1, Front View

- Before repairing or replacing any wires on the rear of the data recognizer, always disconnect the power cable assembly from the power source of the data recognizer.
- Before attempting any testing, check that all circuit packs are seated securely in their respective connectors.
- To avoid damage to the components and connectors involved, be very careful when

sliding circuit packs into or out of the data recognizer.

3. TEST PROCEDURES

GENERAL

3.01 The test procedures to be performed are for power supply and option features. These test procedures are listed in a step-procedure format.

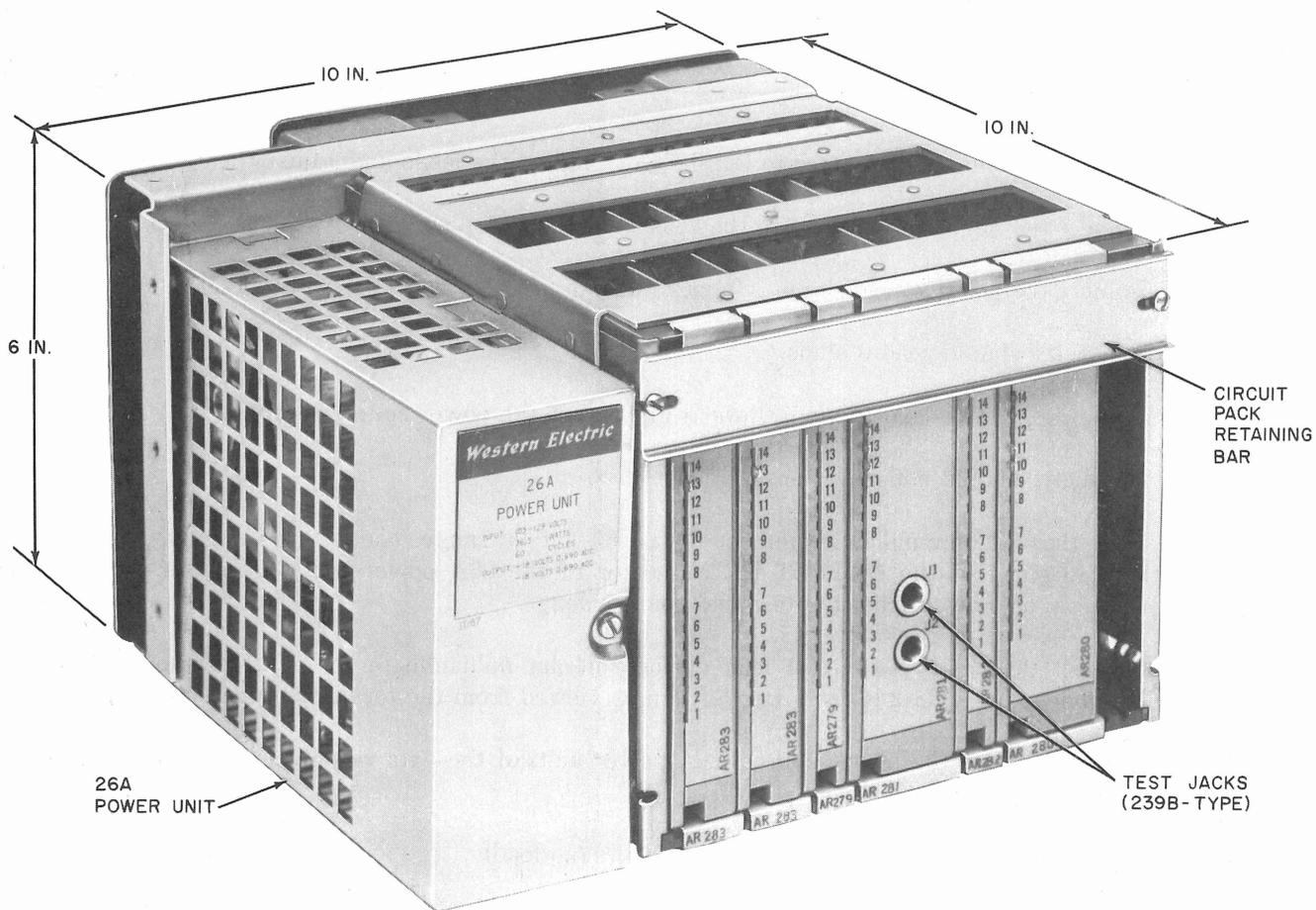


Fig. 2—Data Auxiliary Set 824A2, Front View

STEP	PROCEDURE
26A POWER UNIT TEST	
1	Turn power OFF to power unit.
2	Visually check and repair as required: <ul style="list-style-type: none"> (a) Power cables (b) Plugs (c) Sockets for proper contact.
3	Disconnect the data recognizer 3-wire low voltage cable from its OUTPUT DC connector.

STEP	PROCEDURE
4	Set the volt-ohm-milliammeter to OHMS—X1. (Short the leads and adjust for 0 ohms.)
5	Connect the negative test lead to the chassis of the 26A power unit.
6	Connect the positive lead to pin 1 (upper left pin) of the power source receptacle.
7	The meter should read 0 ohms.
8	Move the positive lead to pin 4 (lower right pin) of the power source receptacle.
9	The meter should not move (open circuit).
10	With the volt-ohm-milliammeter set at the 60-volt dc range, connect the negative (—) test lead to pin 4 of the OUTPUT DC connector of the 26A power unit. (Pin 4 is the lower right pin as viewed from the terminal board side.)
11	Connect the positive (+) test lead of the volt-ohm-milliammeter to pin 2 of the OUTPUT DC connector. (Pin 2 is the lower left pin as viewed from the terminal board side.)
12	Apply power to the power source (26A power unit) of the data recognizer or of an adjacent data auxiliary set.
13	The meter should read approximately 20 volts (no load).
14	Connect the positive test lead of the volt-ohm-milliammeter to pin 4 (lower right pin) of the OUTPUT DC connector.
15	Connect the negative test lead of the volt-ohm-milliammeter to pin 3 (upper right pin) of the OUTPUT DC connector.
16	The meter should read approximately 20 volts (no load).
17	TURN OFF AC POWER applied to the power source of the data recognizer and replace OUTPUT DC connector.
18	If any of the voltages or resistances measured in Steps 7, 9, 13, or 16 are incorrect, the 26A power unit must be replaced. Refer to the section entitled Data Auxiliary Set 824A-Type, 50-Kilobit Data Recognizer, Maintenance (598-060-300) for 26A power unit replacement procedures.
19	If all voltages and resistances are correct, proceed with the option test procedures.

4. OPTION TEST PROCEDURES

GENERAL

4.01 Test procedures in this part cover testing of X option and are divided into *wideband* and *voiceband* tests. Check the option card (CP AR282) for correct option strapping. Connect the 3-wire cable assembly to the power source receptacle on the 26A power unit.

4.02 A special test cable (ED 73248-20-G1) has been developed for use in testing the data recognizer with a 912A Wideband Data Test Set (WDTS). The special test cable has a coaxial cable with a Burndy connector on one end which mates

with the Burndy connector of the 912A WDTS. On the other end, a pair of tip and ring plugs mates with the test jacks on the front of the data recognizer. This cable provides the connection between the 912A WDTS and the 824A-type data recognizer.

4.03 Additional information concerning the 912A WDTS is contained in the section entitled 912A Wideband Data Test Set, Description and Operation (107-400-100).

4.04 Two 3P17A cords (or equivalent) are used to connect the 21A Transmission Measuring Set (TMS) to the 824A-type data recognizer for voiceband tests.

STEP	PROCEDURE
<p>OPTION X WIDEBAND TEST</p>	
1	Connect the special test cable (ED 73248-20-G1) to the high-speed connector of the 912A Wideband Data Test Set (WDTS).
2	Insert plug P1 (output of the 912A) in jack J2 (Customer—Side A Input to the data recognizer) or in its equivalent in an associated jack field.
3	Insert plug P2 (input to the 912A) in jack J1 (Customer—Side A Output of the data recognizer) or in its equivalent in an associated jack field.
4	<p>Set the controls on the 912A WDTS as follows:</p> <p style="padding-left: 40px;">POWER—OFF</p> <p style="padding-left: 40px;">TRANSMIT BIT RATE—50</p> <p style="padding-left: 40px;">TRANSMIT TRIGGER—+ (plus)</p> <p style="padding-left: 40px;">TRANSMIT TEST SIGNAL—2087</p> <p style="padding-left: 40px;">TRANSMIT OUTPUT—NORMAL</p> <p style="padding-left: 40px;">RECEIVE BIT RATE—50</p> <p style="padding-left: 40px;">RECEIVE TRIGGER—+ (plus)</p> <p style="padding-left: 40px;">RECEIVE TEST SIGNAL—2087</p> <p style="padding-left: 40px;">RECEIVE INPUT—NORMAL</p>

STEP	PROCEDURE
	<p>RECEIVE WORD SYNC—AUTO</p> <p>RECEIVE TIMING—0</p> <p>RECEIVE COUNTER—OFF</p> <p>TEST MODE—BAL</p> <p>SEND REQ—OFF</p> <p>MODE—SYNC</p> <p>LOCAL TEST—OFF</p> <p>DATA TERM READY—OFF</p> <p>TRANSMIT (interface controls)—A0 and B0.</p>
5	<p>Patch around the customer-owned translators at the associated patch field by connecting as follows:</p> <p>T1 to T4</p> <p>R1 to R4</p> <p>T2 to T3</p> <p>R2 to R3.</p> <p> <i>Do not transpose the transmit and receive pairs.</i></p> <p>Note: An associated patch field is provided for bypassing the customer-owned translators.</p>
6	<p>Insert dummy plugs (258-type) in both INPUT and OUTPUT of Customer—Side B of the data recognizer. An associated patch field is provided for this purpose.</p>
7	<p>Apply operating power to the data recognizer.</p>
8	<p>Operate the POWER switch on the 912A WDTS to ON.</p>
9	<p>The RECEIVE NO DATA lamp on the 912A WDTS will extinguish.</p>
10	<p>The NO SYNC lamp is lighted.</p>
11	<p>Patch the Customer—Side B Output of the data recognizer to the Customer—Side B Input of the data recognizer. An associated patch field is provided for this purpose.</p>
12	<p>The RECEIVE NO DATA lamp on the 912A WDTS will remain extinguished.</p>

STEP	PROCEDURE
13	The NO SYNC lamps extinguishes. (Note: If the NO SYNC lamp remains lighted, check for T and R reversal.)
14	Temporarily remove the patch around the customer-owned translator (placed in Step 5). The RECEIVE NO DATA and NO SYNC lamps on the 912A DTS will light.
15	Remove the patch cord (connected in Step 11). (The RECEIVE NO DATA and NO SYNC lamps on the 912A WDTS will remain lighted.)
16	Remove plugs P1 and P2 (connected in Steps 2 and 3).
17	Reinsert patch cords around the customer-owned translator. (Repeat Step 5.)
18	Reinsert dummy plugs (258-type) in both INPUT and OUTPUT of Customer—Side A.
19	Insert plug P2 (output of the 912A) in the Customer—Side B Input to the data recognizer. An associated patch field is provided for this purpose.
20	Insert plug P1 (input to the 912A) in the Customer—Side B Output of the data recognizer. An associated patch field is provided for this purpose.
21	The RECEIVE NO DATA lamp on the 912A WDTS will extinguish.
22	The NO SYNC lamp is lighted.
23	Patch the Customer—Side A Output of the data recognizer to the Customer—Side A Input of the data recognizer.
24	The RECEIVE NO DATA lamp on the 912A WDTS will remain extinguished.
25	The NO SYNC lamp extinguishes.
26	Remove the patch cord around the customer-owned translator. The RECEIVE NO DATA and NO SYNC lamps on the 912A WDTS will light.
27	Remove the patch cord (connected in Step 19). (The RECEIVE NO DATA lamp on the 912A WDTS will remain lighted.)
	Note: If the results expected in the preceding test procedures are not obtained, difficulty in the wideband portion of the data recognizer is indicated. Refer to Part 5 in this section.
28	When wideband testing has been completed, remove plugs P1 and P2, all patch cords, and test leads.

STEP	PROCEDURE										
VOICEBAND TEST											
29	Set the oscillator to read 0 dBm at 1000 Hz.										
30	Remove patch cord 3P14A from OSC OUT and DET IN jacks.										
31	Insert one of the 3P17A patch cords in jack J1 of the data recognizer and insert the double plug in the OSC OUT jack of the 21A Transmission Measuring Set (TMS).										
32	Insert the second 3P17A patch cord in jack J2 of the data recognizer, and insert the double plug in the DET IN jack of the 21A TMS.										
33	<p>If single-frequency (SF) signaling units are used in the system, the SF signaling units must be bypassed while testing. If SF signaling units are <i>not</i> used in the system, the bypassing would have to take place during installation. Terminals on the terminal board must be strapped as follows:</p> <table data-bbox="292 850 755 1144" style="margin-left: auto; margin-right: auto;"> <thead> <tr> <th style="text-align: center;">STRAP TERMINAL</th> <th style="text-align: center;">TO TERMINAL</th> </tr> </thead> <tbody> <tr> <td style="text-align: center;">TB2-14</td> <td style="text-align: center;">TB2-15</td> </tr> <tr> <td style="text-align: center;">TB2-16</td> <td style="text-align: center;">TB2-17</td> </tr> <tr> <td style="text-align: center;">TB2-18</td> <td style="text-align: center;">TB2-19</td> </tr> <tr> <td style="text-align: center;">TB2-20</td> <td style="text-align: center;">TB2-21</td> </tr> </tbody> </table>	STRAP TERMINAL	TO TERMINAL	TB2-14	TB2-15	TB2-16	TB2-17	TB2-18	TB2-19	TB2-20	TB2-21
STRAP TERMINAL	TO TERMINAL										
TB2-14	TB2-15										
TB2-16	TB2-17										
TB2-18	TB2-19										
TB2-20	TB2-21										
34	Patch the Customer—Side B Output of the data recognizer to the Customer—Side B Input of the data recognizer. An associated patch field is provided for this purpose.										
35	<p>A reading of 0 dBm should be obtained on the dB meter in the detector section of the 21A TMS.</p> <p><i>Note:</i> If a meter reading is not obtained after correctly performing the previous test procedures, difficulty in the voiceband portion of the data recognizer is indicated. Refer to Part 5 in this section.</p>										
36	When voiceband testing has been completed, remove the plugs (from test jacks J1 and J2 of the data recognizer), all patch cords, and all temporary straps on TB2. (Terminals will be temporarily strapped for testing only when SF signaling units are used in the system.)										

5. CORRECTION OF DIFFICULTIES

5.01 If the trouble was not located in Part 3, the difficulties within the data recognizer should have been determined through the option test procedures.

5.02 Replacement of the circuit packs which comprise the data recognizer is dependent

on whether the difficulty was found to be in the wideband circuits, the voiceband circuits, or both the wideband and voiceband circuits of the data recognizer.

5.03 Circuit packs should be replaced in accordance with Table A.

TABLE A

DIFFICULTY	REPLACE*	REMARKS
Wideband Circuit (Voiceband Satisfactory)	CP AR283 CP AR279 CP AR281	There are two CPs AR283. The difficulty could be in either one.
Voiceband Circuit (Wideband Satisfactory)	CP AR281	
Wideband and Voiceband Circuit (Difficulty was not determined in Part 4.)	CP AR281	
Customer equipment will not stay on- line prior to receiving data.	CP AR283 CP AR280 CP AR279 CP AR281	

* Where more than one circuit pack is listed, the circuit pack which is probably causing the difficulty is listed first.

5.04	Retest the data recognizer following any change or circuit pack replacement.	598-060-200	Data Auxiliary Set 824A-Type, 50-Kilobit Data Recognizer, (For COAM Equipment), Installation and Connection
5.05	If the difficulty cannot be corrected through circuit pack replacement, the data recognizer must be replaced.	598-060-300	Data Auxiliary Set 824A-Type, 50-Kilobit Data Recognizer, Maintenance
6. REFERENCES			
SECTION	TITLE		
598-060-100	Data Auxiliary Set 824A-Type, 50-Kilobit Data Recognizer, (For COAM Equipment), Description	107-400-100	912A Wideband Data Test Set, Description and Operation
		103-221-100	J94021A (21A) Transmission Measuring Set, Description