

**DATA SET 602A1**  
**TRANSMITTER-RECEIVER**  
**TEST PROCEDURES**

CONTENTS	PAGE
1. GENERAL . . . . .	1
2. INSTALLATION TEST PROCEDURES . . . . .	1
A. Power Ground Noise Test . . . . .	1
B. Loop-Back Test . . . . .	4
C. Automatic Answer Test . . . . .	4
3. MAINTENANCE TEST PROCEDURES . . . . .	6
A. Interface Test . . . . .	6
B. End-To-Data Test Center Test . . . . .	6
C. End-To-End Test . . . . .	11

**1. GENERAL**

**1.01** This section covers test procedures which may be used at time of installation and on repair visits.

**1.02** This section is reissued to include new test procedures utilizing the 914B Data Test Set (DTS) and to revise the power ground noise test. Due to extensive revision, arrows ordinarily used to indicate changes have been omitted.

**1.03** The following tests are described in this section:

- Power Ground Noise Test
- Loop-Back Test
- Automatic Answer Test
- Interface Test
- End-To-Data Test Center Test
- End-To-End Test

**1.04** When more than one method of performing a test procedure is listed, the method used should be determined by the type of test equipment available.

**2. INSTALLATION TEST PROCEDURES**

**2.01** The following tests are to be performed to ensure proper installation of Data Set 602A1 and to reduce the possibility of data errors due to improper grounding arrangements. The tests may also be used during a maintenance visit.

**A. Power Ground Noise Test**

**2.02** The power ground noise test should be performed when the data set and business machine are not served from the same ac distribution panel and there is a possibility of data errors due to a difference of potential between grounds.

**2.03** There are two methods of performing the power ground noise test:

6A impulse counter and 901B Data Test Set (DTS) cover (interface test adapter) method

6A impulse counter and 914B DTS method.

**2.04** The 6A impulse counter is connected and the test is performed as shown by either Fig. 1 if the 901B DTS is used, or Fig. 2 if the 914B DTS is used.

**Note:** General description, calibration, and operating procedures for the 6A impulse counter are contained in the section entitled 6A Impulse Counter—Description, Operation, and Maintenance (103-620-100).

**2.05** If any counts are noted in a 15-minute period, grounding arrangements must be improved as covered in the section entitled Data Set 602A1—Transmitter-Receiver—Installation and Connections (596-011-200).

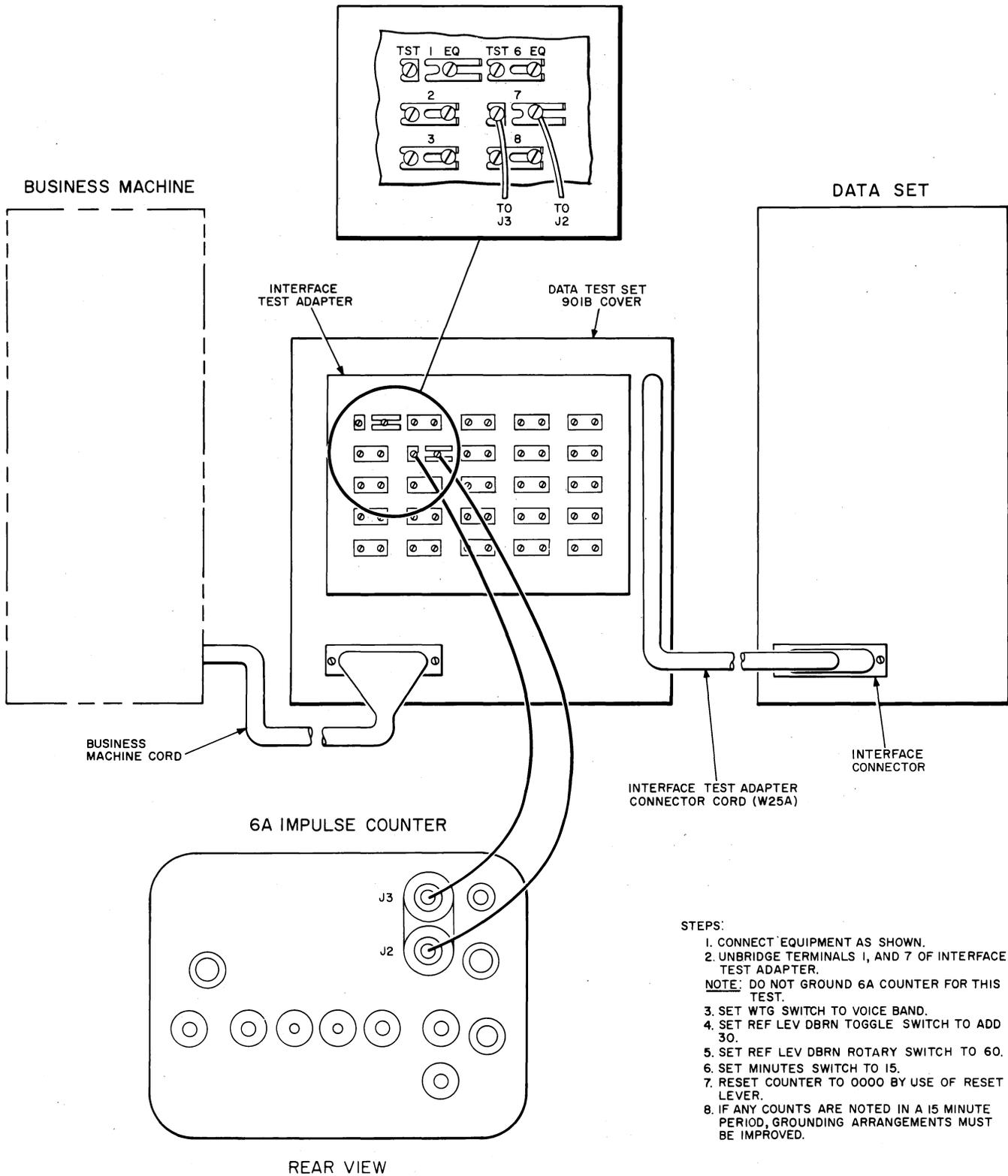


Fig. 1—Power Ground Noise Test Using 6A Impulse Counter and Interface Test Adapter

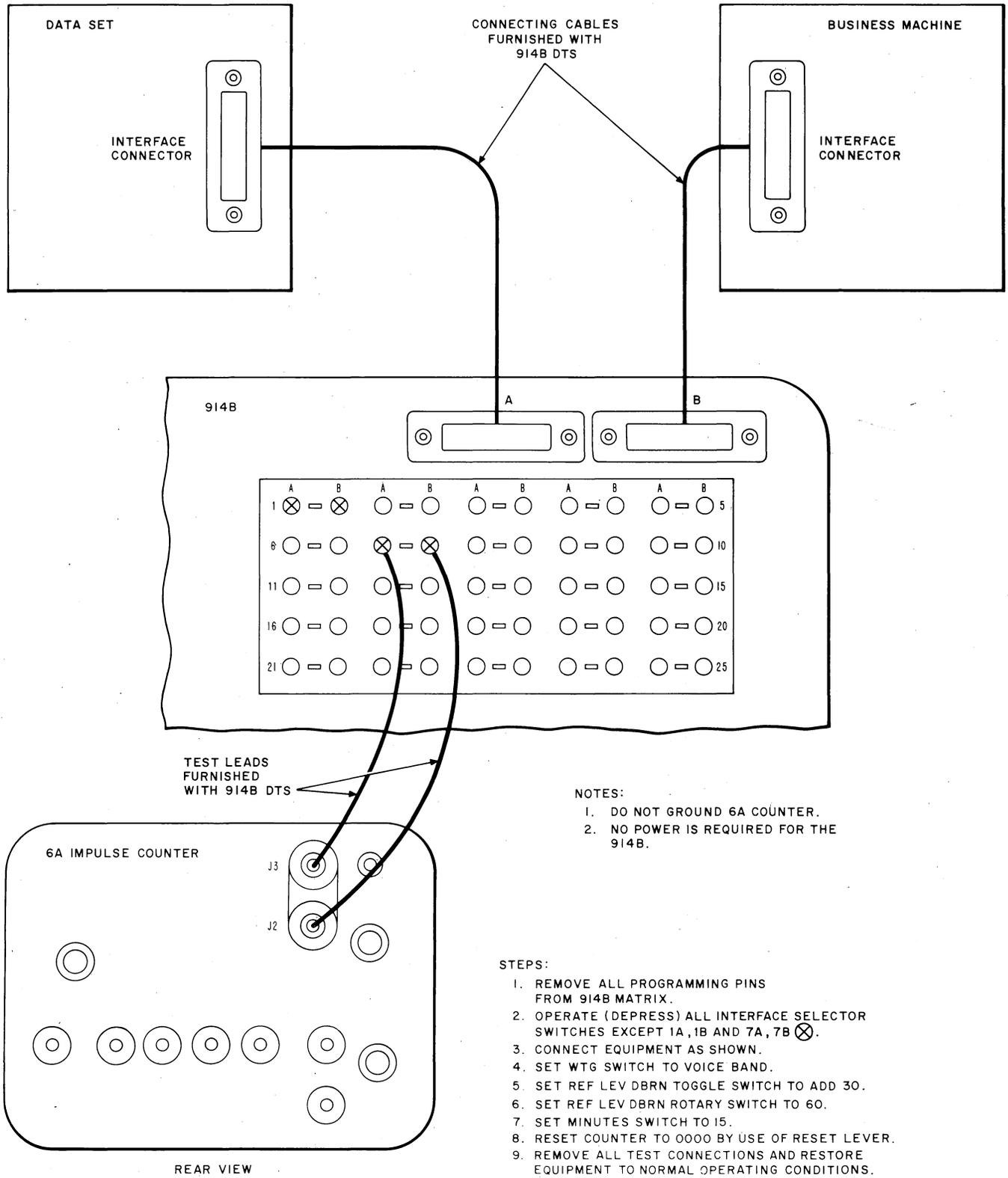


Fig. 2—Power Ground Noise Test Using 6A Impulse Counter and 914B Data Test Set

**SECTION 596-011-500**

**B. Loop-Back Test**

**2.06** The purpose of the loop-back test is to allow the data test center to test the operation of various portions of the data set. There is no test equipment required for this test.

**2.07** Call nearest data test center and request loop-back test. When instructed to do so, depress TEST button on data set and hang up.



*Testing of private line data sets is controlled by the serving test center (STC). The STC should be the only contact for test procedure.*

**2.08** The test center now has complete control of the data set and will check operation of the following:

- Carrier detector
- Request-to-send circuit
- Receive data circuit

Sync/guard circuit

Modulator-demodulator circuit and linearity.

**Note:** After completion of the above tests, call the test center and verify the test results.

**C. Automatic Answer Test (Required only when Y option is used)**

**2.09** This test procedure tests the automatic answer capability of Data Set 602A1. The test may be performed with the business machine conditioned for automatic answer and connected to the data set or by using a 901-type DTS or 914B DTS.

**901-Type DTS Method**

**2.10** Perform the test using the following procedure.

STEP	PROCEDURE
1	Plug the 901-type DTS plug into the interface jack of Data Set 602A1.
2	Set the SELECTOR switch to 4 for 901B DTS or to 202A for 901A DTS.
3	Set the A TEST switch to OFF.
4	Set the B TEST switch to OFF.
5	Set the UNATT-ATT switch to UNATT.
6	Call test center on data line. Request a ringback to test automatic answer feature.
7	Hang up handset.
8	When test center calls, data set bell will ring.
9	Wait 10 seconds, pick up handset, and depress TALK button. Verify that test center received answer-back tone.

**914B Data Test Set Method**

2.11 Perform the test using the following procedure.



*Before making test connections, ensure that all programming pins are removed from the matrix.*

STEP	PROCEDURE
1	Connect the A connector of the 914B DTS to the interface connector of Data Set 602A1, using the cord provided with the 914B DTS.
2	Depress all A connector switches on the 914B DTS.
3	Set S1 through S8 switches to the OFF position.
4	Set INTERFACE MODE switch to CONTACT position.
5	Set METER FUNCTION switch to OFF position.
6	<p>Place a P1-type programming pin into each of the following crosspoints in the matrix of the 914B DTS:</p> <p style="padding-left: 40px;">22 and GRD</p> <p style="padding-left: 40px;">23 and DS8.</p> <p style="padding-left: 40px;">19 and GRD</p> <p style="padding-left: 40px;">20 and GRD</p> <p style="padding-left: 40px;">21 and GRD</p>
7	Plug 914B DTS power cord into a customer-supplied source of 115-volt 60-Hz power, and operate POWER switch.
8	Call the test center on the data line. Request a ringback to test automatic answer feature.
9	Hang up handset.
10	When test center calls, data set bell will ring momentarily and DS8 lamp will flash.
11	Wait 10 seconds, pick up handset, and depress TALK button. Verify that the test center received answer-back tone.

**SECTION 596-011-500**

**3. MAINTENANCE TEST PROCEDURES**

**3.01** The following tests are to be performed if Data Set 602A1 has not met the requirements of the loop-back test and after a telephone company employee has been dispatched to the station.

**A. Interface Test**

**3.02** This test may be used to localize trouble within the data set and will help to identify a particular defective board or line control unit.

**3.03** Perform these tests as outlined in Table A (for the 901-type DTS) or Table B (for the 914B DTS.) If any of the steps fail, refer to printed board affecting that step shown at right. Where more than one board is shown, either may be at fault. Replace in sequence indicated and retest after each replacement. The board designations referred to in Tables A and B are applicable to

Data Set 602A1 series 5, and later models. Refer to Table C for circuit pack and apparatus designations.

**B. End-To-Data Test Center Test**

**3.04** The purpose of this test is to check the linearity of the system by transmitting and receiving test voltages to the DTC.

**3.05** The only test equipment required to perform this test is a 914B DTS.

**3.06** Before making test connections, ensure that all programming pins are removed from the 914B DTS matrix.

**3.07** For further information on the 914B DTS, refer to the section entitled 914B Data Test Set—Description and Operation (107-101-100).

**3.08** Perform the following procedure:

STEP	PROCEDURE
1	Disconnect customer interface cord from Data Set 602A1.
2	Using the cord supplied with the 914B DTS, connect between the interface connector of Data Set 602A1 and the A connector of the 914B DTS. Depress all A interface switches on the 914B DTS.
3	Set the following switches on the 914B DTS.  INTERFACE MODE — VOLTAGE  S1 through S8 — OFF  TEST SET MODE — TRMT SER  COUNTER — INTERVAL X100  FUNCTION — OFF  REFERENCE VOLTAGE — 0  OUTPUT — TP3  WORD LENGTH — DOT  SIGNAL LEVEL — $\pm 4V$  BIT RATE — 150

**TABLE A**  
**INTERFACE OUTPUT TESTS**

STEP	PREPARATION	901 DATA TEST SET				VOLT-OHMMETER			LEAD TESTED AND CONDITION	UPON FAILURE REPLACE
		A TEST	B TEST	TOGGLE SWITCH	SCALE	CONNECT PROBE		REQUIREMENT		
						+	-			
1	Plug 901 set into 602A1 data set. Set SELECTOR switch to 4 (901A Data Test Set to 202A).	OFF	OFF	ATT	60VDC	C	A	0V		Data Set
2	Call local test center, go to data mode.	OFF	1	UNATT	60VDC	C	A	$18 \pm 2.0$ V	- Power	Data Set
3	Stay in data mode. Disconnect test probes before moving TEST switch B to 2.	OFF	2	UNATT	60VDC	A	C	$18 \pm 2.0$ V	+ Power	Data Set
4	1. Disconnect test probes before moving test switches. 2. Pick up handset. 3. Depress TALK button on 602 A1.	1	OFF	UNATT	12VDC	C	A	$10 \pm 2$ V	Interlock (off)	CP AS25
5	Disconnect test probes before moving toggle switch.	OFF	OFF	ATT	X10,000	B	C	Approximately 300,000 ohms	Ring indicator (off)	58A Control Unit
6	1. If data set is not wired for Y option, strap terminal 13 to 35 on 58A control unit, for remainder of steps. 2. Request ringback from test center and hang up.	OFF	OFF	ATT	X10,000	B	C	Approximately 100,000 ohms during ring cycle	Ring indicator (on)	58A Control Unit
7	Move toggle switch during silent interval of ringing cycle.	OFF	OFF	UNATT	X10,000	B	C	Approximately 300,000 ohms during silent interval*	Ring indicator (on)	58A Control Unit
8	Disconnect test probe B before setting meter.	1	OFF	UNATT	12VDC	A	C	$10 \pm 2$ V	Interlock (on)	CP AS25
9		2	OFF	UNATT	12VDC	A	C	$0 \pm 1$ V †	Receive data (off)	1st Choice— CP AS82 2nd Choice— CP AS83
10	Disconnect test probes.	5	OFF	UNATT	12VDC	C	A	$6 \pm 2$ V	Carrier on (off)	1st Choice— CP AS82 2nd Choice— CP AS83
11	Disconnect test probes.	7	OFF	UNATT	12VDC	A	C	$7 \pm 2$ V	Receive data (on)	1st Choice— CP AS82 2nd Choice— CP AS83
12	Connect ground to TRANSMIT DATA red terminal of 901 set.	8	OFF	UNATT	3VDC	A	C	$0 \pm 1$ V †	Receive data (off)	1st Choice— CP AS82 2nd Choice— CP AS83
13	Disconnect test probes.	11	OFF	UNATT	12VDC	A	C	$6 \pm 2$ V	Carrier on (on)	1st Choice CP AS82 2nd Choice— CP AS83
14	1. Disconnect test probes. 2. Remove ground from TRANSMIT DATA red terminal on 901 test set. 3. Depress TALK key and have test center release line. 4. If Y option is not specified, remove strap from terminal 13 to 35 on 58A control unit.									

\*Meter should dip during next ringing cycle, then return to 300,000 ohms. Test center hears 2025-Hz tone, DATA lamp lights.

†If reversed reading is indicated, reverse test probes.

**TABLE B**  
**INTERFACE OUTPUT TESTS**

STEP	PREPARATION	914B DATA TEST SET					RESULT	LEAD TESTED	UPON FAILURE REPLACE
		MATRIX	SWITCHES	REFERENCE VOLTAGE	METER	VERTICAL MONITOR			
1	Plug data set into A connector, apply power and depress all A interface switches on 914B DTS.	19 and GRD, 20 and GRD, 21 and GRD, 1 and GRD, 7 and GRD	S1 through S8 to OFF  INTERFACE MODE to VOLTAGE	OUTPUT: OFF  SELECT: 0	POLARITY: NOR  RANGE: DCV 30  FUNCTION VOLT INT	Position 9			
2	Go to talk mode and call DTC.						+ 18 ± 2	+ Power	Data Set
3					POLARITY: REV	Position 10	+ 18 ± 2	- Power	Data Set
4		6 and DS1					DS1 off	Interlock (off)	1st Choice— AS 25 2nd Choice— Data Set
5		8 and DS2					DS2 off	Carrier on (off)	1st Choice— AS 82 2nd Choice— AS 83
6					RANGE DCV 3	Position 3	-0.5 ± 0.5	Receive data (off)	1st Choice— AS 82 2nd Choice— AS 83
7	Depress and release DATA button, DATA lamp lights.							Interlock (on)	1st Choice— AS 25 2nd Choice— Data Set
8		4 and S1 2 and TP3	S1 ON	OUTPUT: TP 3			DS2 lit	Carrier on (on)	1st Choice— A S82 2nd Choice— AS 83
9					POLARITY: NOR		0 ± 0.5	Receive data (off)	1st Choice— AS 82 2nd Choice— AS 83
10				SELECT +7.0	RANGE DCV 10		+6.5 ± 0.5	Receive data (on)	1st Choice— AS 83 2nd Choice— AS 83
11	Depress TALK button, request ringback and go on-hook.	Remove pins placed in step 8. Place pins in 22 and TP 3 and 23 and DS3	S1 OFF				DS3 flashes during ringing DATA lamp lights, DS1 lights		Data Set

**TABLE C**  
**CIRCUIT PACKS AND APPARATUS**

DESIGNATION	FUNCTION
CPS1* CPS AS6 CP AS83†	Data and sync modulator
CPS2* CP AS4 CP AS82†	Data demodulator
CPS3* CP AS5	Sync demodulator
CPS4* CP AS25	Remote test and interlock circuitry
CPS5	Circuit protection, level matching, and limiter for line control
Control Unit 58A	Line control and automatic answer

\* Data Sets 602A1 Series 3 and lower.

† Data Sets J1D602A Series C and above and  
602A1 Series 5 and above.

STEP	PROCEDURE
4	Place a red programming pin into the following crosspoints on the 914B DTS matrix.  GRD and 1, 7, 19, 20  SD and 17  S1 and 4  TP3 and 2  DS1 and 6
5	Plug Data Set 602A1 and the 914B DTS into a customer-supplied source of 115 volt 60 Hz power and depress POWER switch on the 914B DTS.
6	Depress TALK button and lift handset of Data Set 602A1. TALK lamp should light. Call the nearest DTC and request an end-to-DTC test of Data Set 602A1. Arrange to perform the test. Request the DTC return on line after receiving and measuring the four test frequencies.

## SECTION 596-011-500

STEP	PROCEDURE
7	Depress DATA button and replace handset. TALK lamp should extinguish. DATA and DS1 lamps should light.
8	Place S1 to ON. DTC should receive and measure $1500 \pm 60$ Hz. If the sync channel option is installed, switch between the 150 and EXT— positions of the BIT RATE switch; DTC should monitor the tone.
9	Place SELECT switch to +1.0 position. DTC should receive and measure $1636 \pm 60$ Hz.
10	Place SELECT switch to +2.0 position. DTC should receive and measure $1171 \pm 60$ Hz.
11	Place SELECT switch to +7.0 position. DTC should receive and measure $2450 \pm 60$ Hz.
12	Depress TALK button and lift handset. TALK lamp should light, DATA and DS1 lamps should go out.
13	<p>Discuss results of test with the DTC. Request the DTC transmit the following frequencies one at a time.</p> <p style="padding-left: 40px;">1500 Hz</p> <p style="padding-left: 40px;">1636 Hz</p> <p style="padding-left: 40px;">1771 Hz</p> <p style="padding-left: 40px;">2450 Hz</p> <p>Request DTC return on line after transmitting the frequencies.</p>
14	<p>Set the following switches on the 914B DTS.</p> <p style="padding-left: 40px;">VERTICAL MONITOR — POSITION 3</p> <p style="padding-left: 40px;">FUNCTION — VOLT INT</p> <p style="padding-left: 40px;">RANGE — DCV3</p> <p style="padding-left: 40px;">OUTPUT — OFF</p> <p style="padding-left: 40px;">S1 — OFF</p> <p style="padding-left: 40px;">POLARITY — NOR</p>
15	Depress DATA button and replace handset. TALK lamp should extinguish, DATA and DS1 lamps should light.
16	When 1500 Hz is received, meter on 914B DTS should indicate $0 \pm 0.5$ .
17	When 1636 Hz is received, meter should indicate $1.0 \pm 0.5$ .
18	When 1771 Hz is received, meter should indicate $2.0 \pm 0.5$ .

STEP	PROCEDURE
19	Place RANGE switch to DCV10 position.
20	When 2450 Hz is received, meter should indicate $6.5 \pm 0.5$ .
21	Depress TALK button and lift handset. TALK lamp should light, DATA and DS1 lamps should extinguish.
22	Discuss results with DTC. Arrange to repeat any part of the test that was missed.
23	End of test; return to pretest conditions.

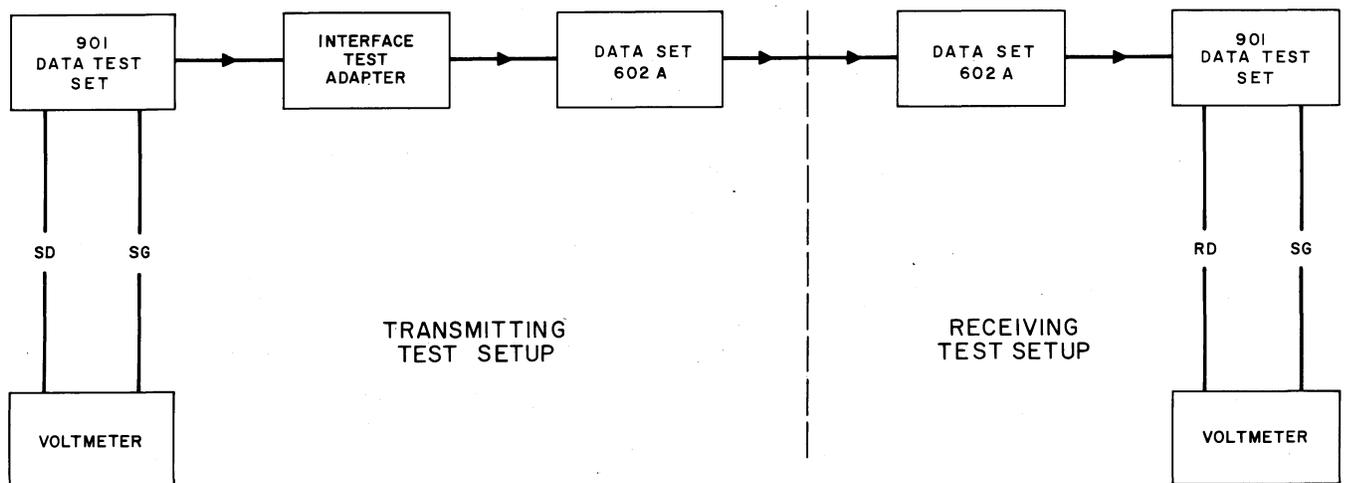
**C. End-to-End Test**

**3.09** The end-to-end test checks the ability of the system to handle data by placing a voltage on the transmitting end and reading the voltage at the receiving end. This procedure checks the data sets and the connecting facilities. This test should not be performed unless all other tests have been performed and the trouble has not been located.

**Interface Test Adapter Method**

**3.10** Figure 3 is a block diagram of the end-to-end test using the interface test adapter method. The following test equipment is required for the test:

- (a) 901-type DTS
- (b) KS-14510-L1 volt-ohm-milliammeter, or equivalent 20,000 ohms-per-volt meter
- (c) J79901B-L3 DTS (interface test adapter)
- (d) Three resistors, Western Electric type 145A:  
 2610 ohms  
 7500 ohms  
 8250 ohms
- (e) 3 General Radio banana plugs, type 274-MB, or equivalent.



**Fig. 3—Block Diagram, End-To-End Test, Interface Test Adapter Method**

**SECTION 596-011-500**

**3.11 Transmitting End Preparation:**

- (1) Set controls of the 901-type DTS as follows:  
 SELECTOR switch to position 4 (901A DTS to position 202A)  
 A TEST switch to position 8  
 B TEST switch to OFF  
 UNATT-ATT switch to UNATT.

(2) Connect the 7500-ohm resistor across one banana plug and the 2610-ohm resistor across another banana plug. Connect a shorting strap across the third banana plug.

(3) Connect the 8250-ohm resistor between terminals 2 and 9 of the interface test adapter.



***Do not open any of the interface test adapter captive shorting clips.***

- (4) Plug shorting banana plug into TRANSMIT DATA terminals on the 901-type DTS.
- (5) Connect KS-14510 meter between TRANSMIT DATA terminals on the 901-type DTS; connect

+ to red terminal, - to black terminal. Set meter on 12 VDC scale.

(6) Connect the 901-type DTS cord into interface test adapter connector.

(7) Connect interface test adapter cord into Data Set 602A (in place of business machine.)

**3.12 Receiving End Preparation:**

- (1) Set controls of the 901-type DTS as follows:

SELECTOR switch to position 4 (901A DTS to position 202A)

A TEST switch to OFF

B TEST switch to OFF

UNATT-ATT switch to UNATT.

(2) Connect KS-14510 meter between RECEIVE DATA terminals of the 901-type DTS; connect + to red terminal, - to black terminal. Set meter on 12 VDC scale.

(3) Connect the 901-type DTS to Data Set 602A1 (in place of business machine cord).

**3.13. Perform the following procedure.**

STEP	PROCEDURE
1	Transmitting station establishes a call on the data line over the switched network or line facilities customer will normally use.
2	Inform receiving station that transmitting station is ready to proceed with testing.
3	Request receiving station to depress DATA button.
4	Depress DATA button at transmitting station. Observe that DATA lamp lights.
5	Meter should read $0 \pm 0.5$ volt at transmitting station. Record voltage obtained at receiving station.
6	Disconnect meter.
7	Disconnect shorting banana plug and replace with banana plug equipped with 2610-ohm resistor.

STEP	PROCEDURE
8	Reconnect meter.
9	Meter should read $3.5 \pm 0.5$ volts at transmitting station. Record voltage obtained at receiving station.
10	Disconnect meter.
11	Disconnect banana plug connected to 2610-ohm resistor and replace with banana plug equipped with 750-ohm resistor.
12	Reconnect meter.
13	Meter should read $7.0 \pm 0.5$ volts at transmitting station. Record voltage obtained at receiving station.
14	A 3.5-volt change at the transmitting station should result in a change of $3.5 \pm 0.5$ volts at the receiving station. The 7-volt change should result in a change of $7 \pm 1.0$ volts at the receiving station.  <i>Note:</i> Voltage difference between readings should be calculated from readings taken on the same meter scale.
15	If calls and data transmission will be made in both directions, change setup so that former transmit station becomes receive station and former receive station becomes transmit station, and repeat Steps 1 through 14.

### 914B Data Test Set Method

**3.14** Figure 4 is a test connection diagram showing the equipment required to perform an end-to-end test of Data Set 602A1 using the 914B DTS.

**3.15** Test set switches not shown on the test connection diagram or not mentioned in text are not required for the test.

**3.16** Before making test connections, ensure that all programming pins are removed from the 914B DTS matrix. Insert only those pins shown in the test connection diagram.

**3.17** For information on the 914B DTS, refer to the section entitled 914B Data Test Set—Description and Operation (107-101-100).

**3.18** Perform the following procedure.

STEP	PROCEDURE
1	Connect the equipment as shown in the test connection diagram (Fig. 4).
2	Plug the two 914B DTSs and data sets into a customer-supplied source of 115 volt 60 Hz power, and depress POWER switches.
3	Transmitting station should establish the call to the receiving station on the data line over the switched network or line facilities customer will normally use.

STEP	PROCEDURE
4	When ringing is received at receiving 914B DTS, lamp DS8 should flash.
5	Inform receiving station that transmitting station is ready to proceed with testing. Request receiving station place INTERFACE MODE switch on 914B DTS to VOLTAGE.
6	Request receiving station depress DATA button. DATA and DS1 lamps should light.
7	Depress DATA button at transmitting station. DATA and DS1 lamps should light.
8	Place S1 to ON at transmitting station, and if the sync channel option is installed in both data sets, switch between the 150 and EXT- positions of the BIT RATE switch. At the receiving station, DS2 should light and the meter on the 914B DTS should indicate voltage or no voltage as the BIT RATE switch is switched. This indicates presence and absence of the sync frequency.
9	At receiving station, place METER RANGE switch to DCV 10 position and METER FUNCTION switch to VOLT INT. Meter should indicate $0 \pm 0.5$ .
10	At transmitting station, place SELECT switch to +1.0 position. Meter on receiving 914B DTS should indicate $1 \pm 0.5$ .
11	At transmitting station, place SELECT switch to +2.0 position. Meter on receiving 914B DTS should indicate $2 \pm 0.5$ .
12	At transmitting station, place SELECT switch to +7.0 position. Meter on receiving 914B DTS should indicate $6.5 \pm 0.5$ .
13	Both stations should return to talk mode and discuss results of the test. If calls and data transmission will be made in both directions, change setup so that former transmit station becomes the receive station, and the former receive station becomes the transmit station, and repeat the test.

**Potentiometer and Battery Method (to be used only if interface test adapter or 914B DTS is not available)**

**3.19** Figure 5 is a block diagram of end-to-end test using potentiometer and battery method.

**3.20 Test Equipment:**

901-type DTS

KS-14510-L1 volt-ohm-milliammeter, or equivalent 20,000 ohms-per-volt meter.

22.5-volt battery

1000-ohm potentiometer, wire-wound and capable of handling at least 2 watts.

**3.21 Transmitting End Preparation:**

(1) Set controls of the 901-type DTS as follows:

SELECTOR switch to position 4 (901A DTS to position 202A)

A TEST switch to position 8

B TEST switch to OFF

UNATT-ATT switch to UNATT.

(2) Connect KS-14510 meter between TRANSMIT DATA terminals on the 901-type DTS; connect + to red terminal, - to black terminal. Set meter to 12 VDC scale.

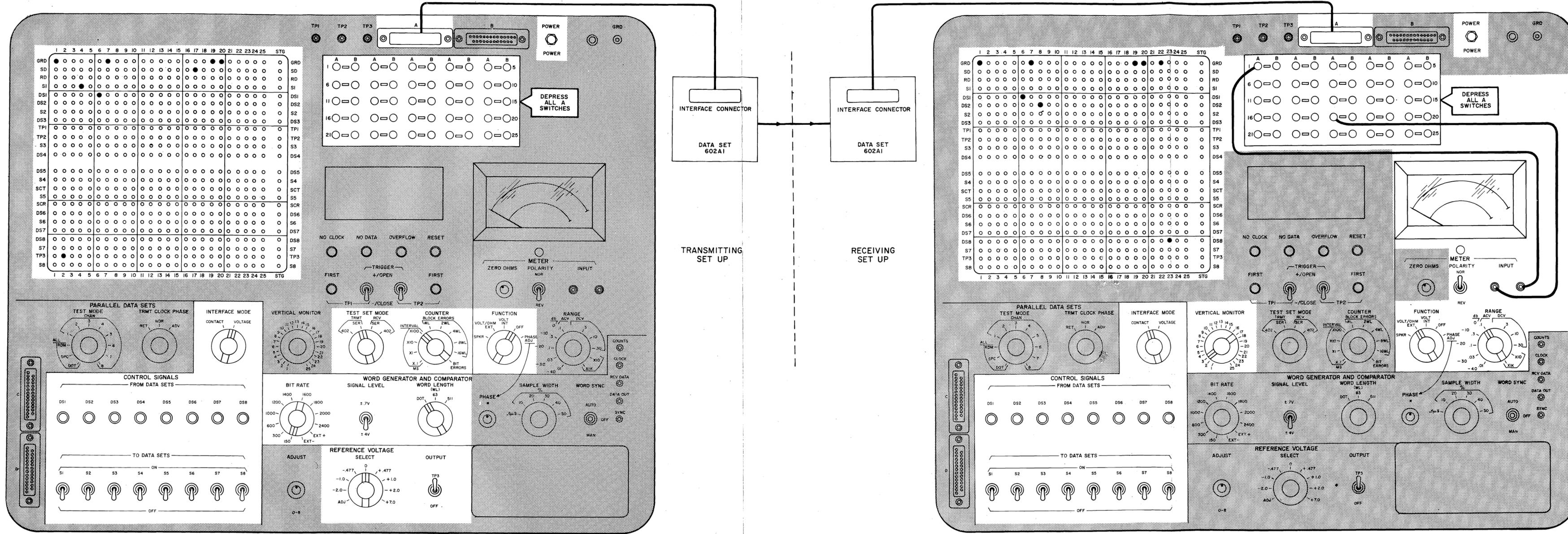


Fig. 4—Test Connection Diagram, End-To-End Test 914B Data Test Set Method

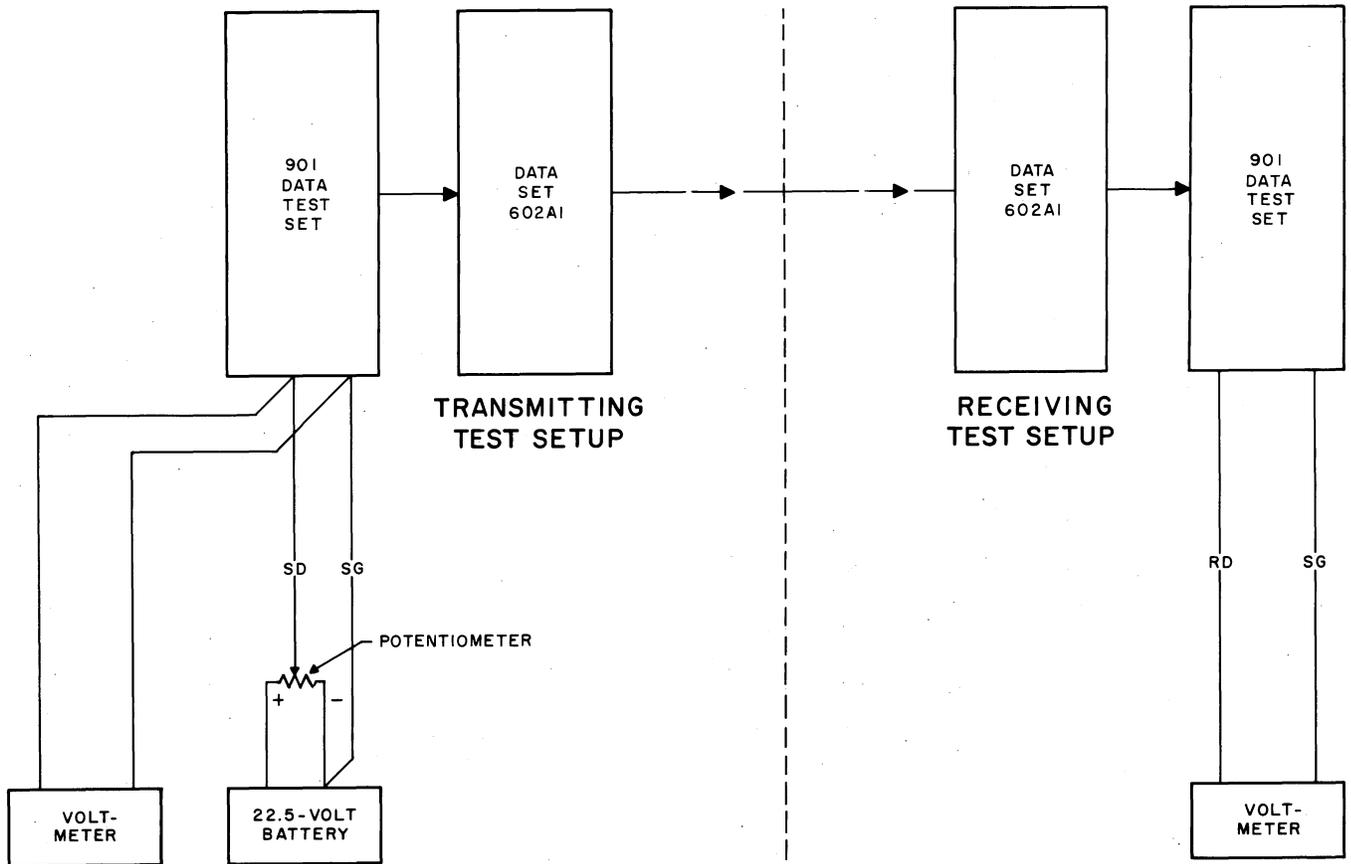


Fig. 5—Block Diagram, End-To-End Test Using Potentiometer Method

**SECTION 596-011-500**

(3) Connect 22.5 volt battery to potentiometer as shown in Fig. 2. ***Polarity of battery must be connected as shown.***

(4) Connect the 901-type DTS to Data Set 602A1 (in place of business machine cord).

B TEST switch to OFF

UNATT-ATT switch to UNATT.

**3.22 Receiving End Preparation:**

(1) Set controls of the 901-type DTS as follows:  
 SELECTOR switch to position 4 (901A DTS to position 202A)

A TEST switch to OFF

(2) Connect KS-14510 meter between RECEIVE DATA terminals of the 901-type DTS; connect + to red terminal, - to black terminal. Set meter on 12 VDC scale.

(3) Connect the 901-type DTS to Data Set 602A1 (in place of business machine cord).

**3.23** Perform the following procedure.

STEP	PROCEDURE
1	<p>Transmitting station establishes a call on the data line over the switched network or line facilities customer will normally use.</p> <p><b>Note:</b> Take proper steps to ensure that customer is not billed for test calls. Refer to the section entitled Crediting Charges on Test Calls (010-250-001).</p>
2	<p>Inform receiving station that transmitting station is ready to proceed with testing.</p>
3	<p>Request receiving station to depress DATA button.</p>
4	<p>Depress DATA button at transmitting station. Observe that DATA lamp lights.</p>
5	<p>Adjust potentiometer to obtain meter reading of 0 volt at transmitting station. Record voltage obtained at receiving station. Repeat this step for send voltage levels of +3.5 and +7 volts. A 3.5-volt change at the transmitting station should result in a change of <math>3.5 \pm 0.5</math> volts at the receiving station. A 7-volt change should result in a change of <math>7 \pm 1.0</math> volts at the receiving station.</p> <p><b>Note:</b> Voltage difference between readings should be calculated from readings taken on the same meter scale.</p>
6	<p>If calls and data transmission will be made in both directions, change setup so that former transmit station becomes receive station and former receive station becomes transmit station, and repeat Steps 1 through 5.</p>