

WIDEBAND STATION USING DATA SET 303-TYPE ECHO-FOX UHF RADIO SYSTEM TEST PROCEDURES

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1. GENERAL

1.01 This section covers test and troubleshooting procedures for the wideband data station portion of the Echo-Fox UHF Radio System.

1.02 Since the components of the data station use inherently high-reliability solid-state circuitry, no routine test procedures are required. Testing and troubleshooting are performed only when trouble is encountered and has been isolated to the wideband data station by overall systems tests.

Note: Although routine maintenance is not required, **it is recommended** that the tests described in Part 2 be performed at least on a semiannual basis. This will (1) ensure that maintenance personnel will continue to be familiar with the tests described herein, and (2) ensure that the required test equipment and facilities are available and in satisfactory working condition.

1.03 Before making the tests described herein, make a thorough visual inspection to ensure that all connections are securely made. If this is an initial test (before system has become operational), make sure that all the required options have been properly installed, as described in the section entitled Wideband Station Using Data Set 303-Type—Echo-Fox UHF Radio System—Installation and Connections (593-800-202).

1.04 Test equipment as described in the section entitled Wideband Station Using Data Set 303-Type—Echo-Fox UHF Radio System—Maintenance (593-800-302) will be required for performing the tests.

1.05 Tests described herein cover **only** local tests of the wideband data station, and are intended for use after initial installation and in clearing trouble. For information on complete systems tests, refer to the section entitled Air-Ground Radio Private Systems—Echo-Fox UHF Radio System Tests—Overall System (406-116-500).



Before making any test upon the Echo-Fox system, obtain permission to remove the circuit from service from the plant control office.

1.06 In this practice, the indication resulting from the operation of a switch occurs simultaneously with the operation of the switch unless otherwise noted. Controls and indications not mentioned in the text have no bearing on the test being performed and should be disregarded.

1.07 When the indication or result of each individual step is as specified, proceed to the next step. If the indication is **not** as specified, refer to the corresponding step in the troubleshooting chart in Part 3.

1.08 Remote tests (loop-back tests) are incorporated in the Echo-Fox system to provide for testing from the control office or the data test center. These tests are designated Remote Test 1 (RT1) and Remote Test 2 (RT2); they permit testing of the transmission facilities as well as the wideband data station. RT1 provides a loop-back of the lines on the line side of the data station; RT2 provides a loop-back at the DS 303H7 data interface. The first two tests described herein (Steps 1 through 8) are designed to test for proper functioning

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of these loop-back tests at the data station. Data detection and control functions are checked in the next test (Steps 9 through 14). A baseband local test is covered in the next test, (Steps 15 through

20) and a data error check is made in the final test (Steps 21 through 38). Since much of the testing involves the 10A2 Data Unit, a front view is illustrated in Fig. 1.

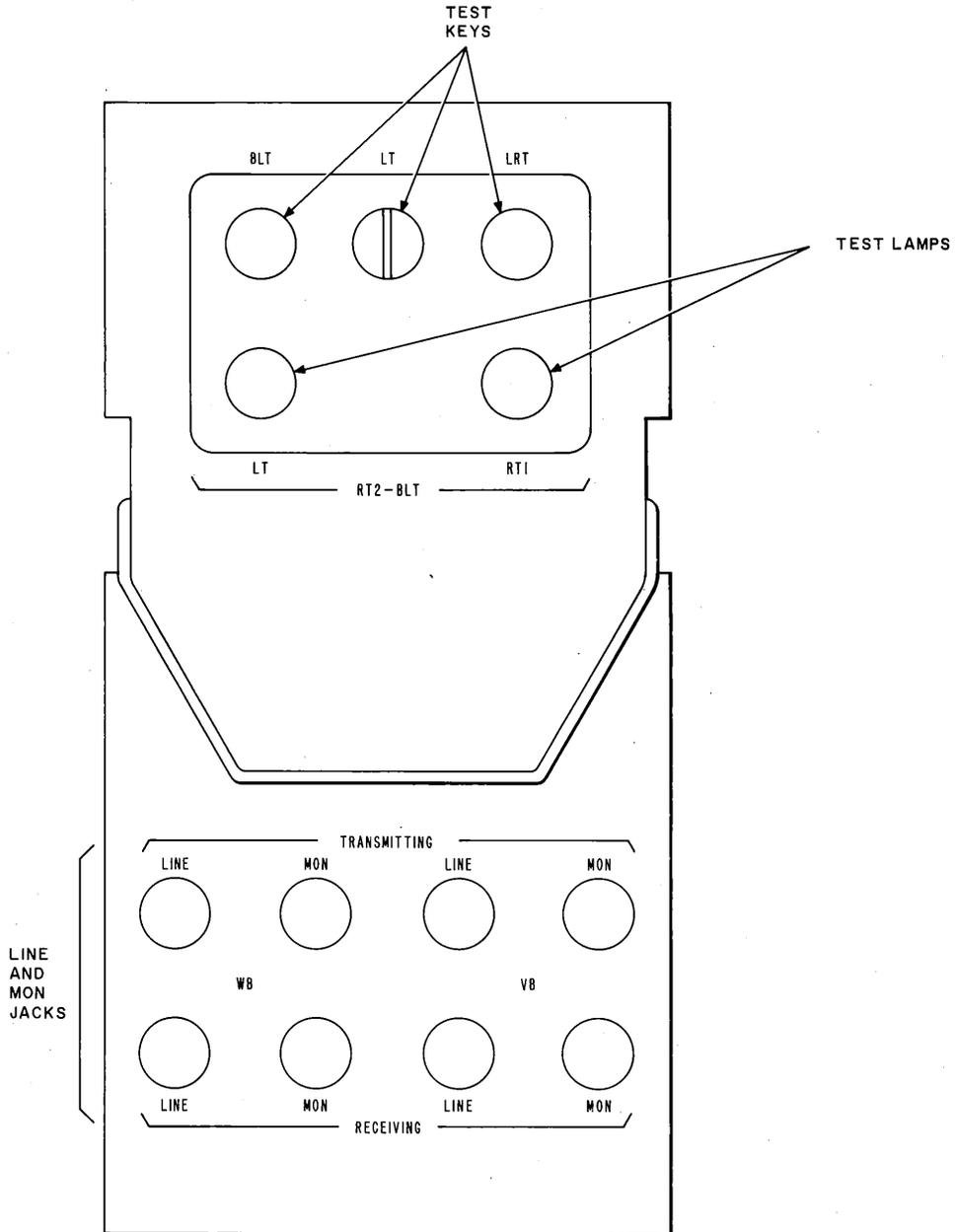


Fig. 1—10A2 Data Unit Jacks, Controls, and Indicators

2. TEST PROCEDURES

A. Testing Remote Test Sequential Relay Circuits (10A2 Data Unit)

2.01 General:

- (1) Steps 1 through 4 are designed to test the operation of the remote test sequential relays only.
- (2) Steps 5 through 8 test the complete remote test circuitry within the wideband data station.

2.04 Procedure:

STEP	PROCEDURE
1	Depress and hold the LRT key on 10A2 Data Unit in DAS 806B7 until a relay is heard to operate (about 8 seconds). Note that the RT1 lamp lights when the LRT key is released. <i>Note:</i> The station is now in the RT1 mode and both the wideband and voiceband line facilities are looped back toward the control office.
2	Depress and hold the LRT key until the LT lamp lights (about 8 seconds). The LT and RT1 lamps should remain lighted. <i>Note:</i> The station is now in the RT2 mode and the data set is looped back at the DS 303H7 data interface.
3	Depress and hold the LRT key until the RT1 lamp extinguishes (about 8 seconds). Release the LRT key. The LT lamp should extinguish. <i>Note:</i> The station is now in the normal (operational) mode.
4	Remove the terminated 310 plug from the WB RCV LINE jack.

B. Testing Remote Test Feature From Voice Line Side

2.05 Equipment Required:

- 1—310 plug with 135-ohm termination
- 1—Wideband service bay (WSB) (or equivalent).
- 1—Set of patch cords for WSB.

2.06 Preparation

- (1) At the WSB, adjust the oscillator to 2800

2.02 Equipment Required:

- 1—310 plug with 135-ohm termination

2.03 Preparation:

- (1) Remove covers (as required) from the data set and data auxiliary sets and lay aside. Remove retaining bar on Data Auxiliary Set (DAS) 806B7 to gain access to controls and test points on the 10A2 Data Unit.
- (2) Insert the terminated 310 plug in the WB RCV LINE jack of DAS 806B7 to disconnect Data Set (DS) 303H7 receiver from the line.

± 5 Hz. Verify frequency using the electronic frequency counter in the WSB. Adjust oscillator output to 15 dB below the test level point at the VB RCV EQPT jack on the WSB. (For example, if the test level is +7 dBm, the oscillator output should be adjusted to -8 dBm.)

- (2) At the wideband data station, insert the terminated 310 plug into WB RCV LINE jack on DAS 806B7 to disconnect the DS 303H7 receiver from the line.

2.07 Procedure:

STEP	PROCEDURE
5	<p>Have attendant at the WSB connect the output of the 2800-Hz oscillator to the VB RCV EQPT jack for about 10 seconds. Observe that the RT1 lamp lights.</p> <p>Note: The station is now in the RT1 mode and both the wideband and voiceband line facilities are looped back toward the control office.</p>
6	<p>Have attendant at the WSB again connect the output of the 2800-Hz oscillator to the VB RCV EQPT jack for about 10 seconds. Observe that both the LT and RT1 lamps are lighted.</p> <p>Note: The station is now in the RT2 mode and the data set is looped back at the DS 303H7 data interface.</p>
7	<p>Have attendant at the WSB again apply 2800 Hz to the VB RCV EQPT jack for about 10 seconds. Observe that LT and RT1 lamps extinguish.</p> <p>Note: The station is now in the normal (operational) mode.</p>
8	<p>Remove the terminated 310 plug from the WB RCV LINE jack.</p>

Testing DAS 824B-Type, DS 303H7, and DAS 809B1

2.08 Equipment Required:

- 1—912A Wideband Data Test Set e/w 912AA interface unit
- 1—KS-14510 or KS-20538 multimeter or equivalent
- 1—ED 73248-20 GR1 or GR2 cord
- 2—310 plugs with 135-ohm termination
- 1—Set of patch cords for WSB.

2.09 Preparation

- (1) Turn the LT key on the 10A2 Data Unit of DAS 806B7 to vertical position to establish local test mode. Observe that the LT lamp lights.

- (2) Connect the multipin connector of the ED 73248-20 GR1 or GR2 cable to the high-speed connector on the 912AA interface unit. Connect P1 on the opposite end of the cable to the DATA TRS LINE jack and connect P2 to the DATA REC LINE jack on the SUPPLEMENTARY RADIO BAY TEST JACK PANEL. **Be careful not to cross connections.**

Note: P2 carries data *out of* the 912A Test Set; P1 carries data *in to* 912A Test Set.

- (3) Set multimeter selector switch to 60 Vdc full scale range. Connect multimeter to DATA RLY LINE jack on the SUPPLEMENTARY RADIO BAY TEST JACK PANEL.
- (4) Set switches on the 912A Data Test Set as follows:

SWITCH	SETTING		
TRANSMIT BIT RATE	18.75 KB/SEC	RECEIVE TEST SIGNAL	2087 BITS/WORD
TRANSMIT TEST SIGNAL	2087 BITS/WORD	RECEIVE INPUT	NORMAL
TRANSMIT TRIGGER	+	RECEIVE WORD SYNC	AUTO
TRANSMIT OUTPUT	NORMAL	RECEIVE TIMING	0
RECEIVE BIT RATE	18.75 KB/SEC	RECEIVE COUNTER	OFF
RECEIVE TRIGGER	+	INTERFACE UNIT TEST MODE	BAL
		POWER	ON

2.10 Procedure—Data Detection and Control Functions:

STEP	PROCEDURE
	<i>Note:</i> The data path through the wideband data set should now be complete.
9	Observe that the NO DATA and NO SYNC lamps on the 912A Data Test Set are extinguished. Disregard all other lamps.
10	Set COUNTER switch to ON. Observe that the counter does not count. Turn COUNTER switch to OFF.
11	Operate TEST MODE switch on the 912AA interface unit to LOOPED. The voltmeter should indicate 0 Vdc.
12	Operate TEST MODE switch to BAL. The voltmeter should indicate 48 Vdc. (This is an indication that DAS 824B1 or B3 has recognized data and provided a contact closure to condition the radio transmitter for wideband mode.) Operate LT key to normal (horizontal) position.

2.11 Preparation:

- (1) Insert terminated 310 plugs in WB TRMT LINE jack and WB RCV LINE jack on WSB.
- (2) Connect patch cord from WB TRMT EQPT jack to WB RCV EQPT jack on WSB.

2.12 Procedure—Data Detection with Loop-back at WSB:

STEP	PROCEDURE
13	Repeat Steps 9 through 12.
14	Remove all connections unless proceeding to next step. If proceeding to next step, remove patch and terminations at WSB.

2.13 Procedure—Baseband Local Test:

STEP	PROCEDURE
15	Turn LT key on 10A2 Data Unit to vertical position. Observe that the LT lamp is lighted.
16	Depress the BLT key on DAS 806B7. Observe that the RT1 lamp on DAS 806B7 lights and remains lighted after BLT key is released. Disregard all other lamps.
17	Set the multimeter to 12 Vdc full scale range.
18	Connect the positive (+) multimeter lead to TB1-31 and the negative (–) lead to TB1-27 on DS 303H7. The meter should indicate less than +0.5 volt. (The indication may be slightly negative).
19	Return the data station to normal by setting the LT key on the 10A2 Data Unit of DAS 806B7 to the normal (horizontal) position. Observe that both the LT and RT1 lamps extinguish.
20	Set LT key to the vertical position. Observe that the LT lamp lights. The multimeter should indicate greater than +5.5 Vdc. Return LT key to normal (horizontal) position unless proceeding to Step 21.

D. Testing Data Station Performance

2.14 Equipment Required:

- 1—912A Wideband Data Test Set e/w 912AA interface unit
- 1—KS-14510 or KS-20538 multimeter or equivalent
- 1—ED 73248-20 GR1 or GR2 cord
- 1—310 plug with 135-ohm termination.

2.15 Preparation:

- (1) Observe that the LT lamp is lighted.

Note: This lamp was lighted by operating the LT key on 10A2 Data Unit of DAS 806B7 in Step 20.

- (2) Confirm that P1 of ED 73248 cord is still connected to DATA TRS LINE jack and P2 to the DATA REC LINE jack on the SUPPLEMENTARY RADIO BAY TEST JACK PANEL, being sure connections are not crossed.

Note: These connections were made in 2.09 (2).

- (3) Set switches on the 912A Data Test Set as follows:

SWITCH	SETTING		
TRANSMIT BIT RATE	18.75 KB/SEC	RECEIVE TEST SIGNAL	2087 BITS/WORD
TRANSMIT TRIGGER	+	RECEIVE INPUT	NORMAL
TRANSMIT TEST SIGNAL	DOT	RECEIVE WORD SYNC	AUTO
TRANSMIT OUTPUT	NORMAL	RECEIVE TIMING	0
RECEIVE BIT RATE	18.75 KB/SEC	RECEIVE COUNTER	OFF
RECEIVE TRIGGER	+	INTERFACE UNIT TEST MODE	BAL
		POWER	ON

2.16 Procedure—Error Check:

STEP	PROCEDURE
21	The data path through the wideband data station should now be complete. Observe that the NO DATA lamp is extinguished and the NO SYNC lamp is lit. Disregard all other lamps.
22	Set COUNTER switch to ON. Observe that counter counts.
23	Set COUNTER switch to OFF.
24	Set TRANSMIT TEST SIGNAL to 2087.
25	Observe that the NO DATA and NO SYNC lamps are extinguished. Disregard all other lamps.
26	Reset counter to 0.
27	Set COUNTER switch to ON. Observe that the counter does not count.
28	Set TIMING switch to +30 and then to -30. The counter should not register any count for either setting. Turn counter switch to OFF.
29	Momentarily depress the BLT key on the 10A2 Data Unit in DAS 806B7. The RT1 lamp should light and remain lighted after the BLT key is released. <i>Note:</i> DS 303H7 is now looped back on itself through BLT relay contacts in DAS 809B1; the VSB modem is bypassed.
30	Set the TRANSMIT OUTPUT switch to INVERTED. Observe that the NO DATA lamp is extinguished and the NO SYNC lamp is lit. Disregard all other lamps.

STEP	PROCEDURE
31	Set COUNTER switch to ON. Observe that counter counts.
32	Set COUNTER switch to OFF.
33	Set TRANSMIT OUTPUT switch to NORMAL. Observe that the NO DATA and NO SYNC lamps are extinguished.
34	Reset counter to 0.
35	Set counter switch to ON. Observe that the counter does not count.
36	Set counter switch to OFF.
37	Set LT key on the 10A2 Data Unit of DAS 806B7 to the normal (horizontal) position. Observe that the LT and RT1 lamps extinguish.
38	Remove all data test set cords. The data station is now in normal (operational) mode.



Notify the control office when testing and troubleshooting are completed, and the data station is returned to normal mode.

3. TROUBLESHOOTING

3.01 The tests described in Part 2 are designed to determine if the wideband data station is operating properly. Failure of the data station to meet any of the specified test steps is an indication of trouble. Step numbers in the troubleshooting chart of Part 3 correspond to the test step numbers in Part 2, so that when a step does not give the expected results as listed in Part 2, the same step number in the troubleshooting chart will give the probable cause of the trouble.

3.02 Some of the steps in the test chart (Part 2) specify procedure and do not require an indication, therefore, some steps are blank in the troubleshooting chart (Part 3).

3.03 The troubleshooting chart lists the control or indicator, the *correct* condition of the control or indicator for that step, and the probable cause of the trouble if the correct condition is not present. If the unit listed in the PROBABLE CAUSE/CORRECTIVE ACTION column is verified to be operating properly and the trouble persists, make a point-to-point check of the interconnecting wiring.

3.04 The relays, controls, and indicators involved in the local and remote tests are described in Part 2 and summarized in Table A.

3.05 The signal path, test access points, and indicators in the wideband data station are shown in Fig. 2. For signal tracing through DS 303H7, refer to the section entitled Wideband Data Station Using Data Set 303-Type—Test Procedures (593-800-500).

TROUBLESHOOTING CHART

STEP	CONTROL OR INDICATOR	NORMAL CONDITION	PROBABLE CAUSE AND/OR CORRECTIVE ACTION
1	RT1 Relay	Heard to operate	Trouble in DAS 806B7 — either 10A2 Data Unit or CP AR122. J2 terminal 7 should be +18 Vdc when LRT is depressed. TP3 and TP5 on 10A2 Data Unit should become +18 Vdc 6 to 9 seconds after LRT key is depressed. (TP1 is ground.)
	RT1 Lamp	Lighted	If relay operated and lamp does not light, check RT1 bulb.
2	LT Lamp	Lighted	Defective 10A2 Data Unit.
	RT1 Lamp	Lighted	Defective CP CR1. Defective LT bulb.
3	RT1 Lamp LT Lamp	Extinguished Extinguished	Defective 10A2 Data Unit.
4	—	—	—
5	RT1 Lamp	Lighted	Voiceband line not connected to DAS 806B7. Option V missing. Check for straps between TB1-1 and TB1-2 and between TB1-4 and TB1-5 on 10A2 Data Unit. Tone not applied for sufficient interval. Should not require more than 9 seconds. If more than 9 seconds is required, the 2800-Hz detector is probably defective. Replace CP AR122.
6	LT Lamp RT1 Lamp	Lighted Lighted	Defective 10A2 Data Unit.
7	LT Lamp RT1 Lamp	Extinguished Extinguished	Defective 10A2 Data Unit.
8	—	—	—

TROUBLESHOOTING CHART (Cont)

STEP	CONTROL OR INDICATOR	NORMAL CONDITION	PROBABLE CAUSE AND/OR CORRECTIVE ACTION
9	LT Lamp NO DATA Lamp SYNC Lamp (On 912A DTS)	Lighted Extinguished Extinguished	Defective 10A2 Data Unit. Check connections. Perform self-check of 912A DTS. Defective 10A2 Data Unit. Defective DS 303H7. Defective DAS 824B2 or B4 Defective DAS 809B1. Proceed to Step 29.
10	ERROR COUNTER (On 912A DTS)	Not Counting	Perform self-check of 912A DTS. Defective DS 303H7. Defective DAS 809B1. Proceed to Step 29.
11	Voltmeter	0V dc	Defective DAS 824B1 or B3.
12	Voltmeter	48V dc	Defective DAS 824B1 or B3. Defective DAS 824B2 or B4. Defective DS 303H7. Defective 10A2 Data Unit. Check level at WB TRMT MON jack on 10A2 Data Unit, using VTVM. If -10 dBm is not present at this point, check level at TB2 terminals 28 and 29 on DAS 824B2 or B4, using VTVM. If -10 dBm is not present, DAS 824B2 or B4 is defective. If -10 dBm level is present at WB TRMT MON jack, check for -10 dBm at WB RCV MON jack. If -10 dBm is not present at WB RCV MON jack, 10A2 Data Unit is probably defective.

TROUBLESHOOTING CHART (Cont)

STEP	CONTROL OR INDICATOR	NORMAL CONDITION	PROBABLE CAUSE AND/OR CORRECTIVE ACTION
13	—	—	See Steps 9 through 12.
14	—	—	—
15	LT Lamp	Lighted	Defective 10A2 Data Unit.
16	RT1 Lamp	Lighted (with BLT key depressed)	Defective 10A2 Data Unit.
		Lighted (with BLT key released)	Defective CP CK1 on DAS 809B1 or Defective 10A2 Data Unit.
			Check BLTK and BLTL leads between DS 303H7 and DAS 806B7.
17	—	—	—
18	Voltmeter	+0.5V dc	Defective CP AR112 in DAS 809B1.
19	LT Lamp	Extinguished	Defective 10A2 Data Unit.
	RT1 Lamp	Extinguished	Data station could be in RT1 or RT2 mode. Momentarily disconnect power to data station to remove from remote test condition. Defective 10A2 Data Unit or Defective CP CK1 on DAS 809B1.
			Check BLTK and BLTL leads.
20	LT Lamp	Lighted	Previously checked in Step 15.
	Voltmeter	+5.5V dc	Defective CP AR112 in DAS 809B1. Defective DAS 809B1.
21	NO DATA Lamp (on 912A DTS)	Extinguished	Perform self-check of 912A DTS. Check connections. Defective 10A2 Data Unit. Defective DS 303H7.

TROUBLESHOOTING CHART (Cont)

STEP	CONTROL OR INDICATOR	NORMAL CONDITION	PROBABLE CAUSE AND/OR CORRECTIVE ACTION
21 (Cont)	NO SYNC Lamp (on 912A DTS)	Lighted	Defective DAS 809B1. Perform self-check on 912A DTS.
22	ERROR COUNTER (on 912A DTS)	Counts	Perform self-check on 912A DTS.
23	—	—	—
24	—	—	—
25	NO DATA Lamp	Extinguished	Refer to Step 21.
	NO SYNC Lamp	Extinguished	Perform self-check on 912A DTS. Defective DS 303H7 or Defective DAS 809B1. Proceed to Step 29 to determine which is defective.
26	—	—	—
27	ERROR COUNTER	Not Counting	Same as NO SYNC indication in Step 25.
28	ERROR COUNTER	Not Counting	Same as NO SYNC indication in Step 25.
29	RT1 Lamp	Lighted	Refer to Step 16.
			<i>Note:</i> If Steps 21 through 28 fail, continue through Step 36. If Step 29 passes and Steps 30 through 36 fail, trace signal through DS 303H7. If Steps 30 through 36 pass but Steps 21 through 28 failed, trace signal through DAS 809B1.
30	NO DATA Lamp	Extinguished	Defective DS 303H7. Repeat Step 18.

TROUBLESHOOTING CHART (Cont)

STEP	CONTROL OR INDICATOR	NORMAL CONDITION	PROBABLE CAUSE AND/OR CORRECTIVE ACTION
30 (Cont)	NO SYNC Lamp	Lighted	Perform self-check on 912A DTS. Tip-ring turnover at DS 303H7.
31	ERROR COUNTER	Counts	Perform self-check on 912A DTS. Tip-ring turnover at DS 303H7.
32	—	—	—
33	NO DATA Lamp	Extinguished	Refer to Step 30.
	NO SYNC Lamp	Extinguished	Perform self-check on 912A DTS. Defective DS 303H7.
34	—	—	—
35	ERROR COUNTER	No Counts	Defective DS 303H7.
36	—	—	—
37	LT Lamp	Extinguished	Previously checked. Refer to Step 19.
	—	—	—
38	—	—	—

TABLE A

SUMMARY OF TEST MODES (SEE NOTE)

LOCAL TEST

Obtained by: Operating LT locking key (vertical position).

Indicator(s): LT lamp lighted.

Relays operated: LTA, LTB, LTC, LTD on 10A2 Data Unit; RTN and RTNS in Sequential Relay Circuit.

Remarks: Isolates data station from WB and VB lines. Terminates WB lines in 135 ohms and VB lines in 600 ohms, respectively. Loops WB TRMT pair to WB RCV pair so that data station can send to itself.

BASEBAND LOCAL TEST

Obtained by: Operating BLT key momentarily while in LOCAL TEST mode.

Indicator(s): LT and RT1 lamp lighted.

Relays operated: LTA, LTB, LTC, LTD on 10A2 Data Unit; BLT on DAS 809B1; RTN and RTNS in Sequential Relay Circuit. (RT1A and RT2A relays *not* operated.)

Remarks: WB and VB lines isolated, terminated, and looped as in LOCAL TEST. Also, VSB modem is isolated from DAS 303H7 by looping back in DAS 809B1. This enables testing the DS 303H7 without DAS 809B1.

RT1 TEST (local)

Obtained by: Depressing LRT key on 10A2 Data Unit for 10 seconds, then releasing key. (Relay operating limits 6 to 10 seconds.)

Indicator(s): RT1 lamp lighted.

Relays operated: SR relay in 2800 Hz Test Detector; RT1A, RT1B on 10A2 Data Unit; RT1 and RT1S in Sequential Relay Circuit. (RTN and RTNS released).

Remarks: RT1A loops WB TRMT pair to WB RCV pair; RT1B loops VB TRMT pair to VB RCV pair. This permits local testing of remote test feature and circuitry to and from WSB.

TABLE A (Cont)

RT2 TEST (local)

Obtained by: Depressing LRT key on 10A2 Data Unit again for 10 seconds, then releasing key.

Indicator(s): RT1 and LT lamps lighted.

Relays operated: RT2A in DS 303H7; RT2, RT2S in Sequential Relay Circuit. (RT1A and RT1B released; RTN, RTNS, RT1, RT1S in Sequential Relay Circuit released).

Remarks: Loops WB TRMT pair to WB RCV pair at DS 303H7 data interface. Permits local testing of remote test feature.

RT1 TEST (remote)

Obtained by: Applying 2800 Hz to VB RCV pair at Wideband Service Bay or at Control Office for 10 seconds, then removing.

Indicator(s): RT1 lamp lighted.

Relays operated: T and SR relays in 2800 Hz Test Detector; RT1 and RT1S in Sequential Relay Circuit; RT1A and RT1B in 10A2 Data Unit. (RTN, RTNS, RT2, RT2S in Sequential Relay Circuit released.)

RT2 TEST (remote)

Obtained by: Applying 2800 Hz to VB RCV pair at Wideband Service Bay or at Control Office again for 10 seconds, then removing.

Indicators: RT1 and LT lamps lighted.

Relays operated: T and SR relays in 2800 Hz Test Detector; RT2 and RT2S in Sequential Relay Circuit; RT2A in DS 303H7. (RT1, RT1S, RTN, RTNS in Sequential Relay Circuit released; RT1A and RT1B on 10A2 Data Unit released.)

Note: There are six relays in the Sequential Relay Circuit, designated K1 through K6. Three of these relays are used internally, while three others, slaved to the first three, are used to control external circuitry. The relay designations are as follows:

K1 = RT1	Remote test 1 — internal control
K2 = RT2	Remote test 2 — internal control
K3 = RT1S	Remote test 1 slave — external control
K4 = RT2S	Remote test 2 slave — external control
K5 = RTN	Remote test normal — internal control
K6 = RTNS	Remote test normal slave — external control

With power applied to the data station, RTN and RTNS are always operated, *except* when in RT1 and RT2 modes. For further details, see CD-1D097-01.

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4. REFERENCES

4.01 The following Bell System Practices contain information which may be helpful in maintaining the Echo-Fox Wideband Data Station.

SECTION	TITLE
593-800-102	Wideband Data Station Using Data Set 303-Type—Echo-Fox UHF Radio System—Description
593-800-202	Wideband Data Station Using Data Set 303-Type—Echo-Fox UHF Radio System—Installation and Connections
593-800-302	Wideband Data Station Using Data Set 303-Type—Echo-Fox UHF Radio System—Maintenance
590-010-200	Data Sets—General Installation and Connection Information
593-800-100	Wideband Data Station Using Data Set 303-Type—Description and Operation
593-800-200	Wideband Data Station Using Data Set 303-Type—Installation and Connections
593-800-500	Wideband Data Station Using Data Set 303-Type—Test Procedures
598-034-100	Data Auxiliary Set 809B1—Identification and Operation
598-042-100	Data Set 806B-Type—Identification
598-060-101	Data Auxiliary Set 824B-Type—18.75 Kilobit Data Recognizer—Description
598-012-201	Data Auxiliary Set 824B-Type—18.75 Kilobit Data Recognizer—Installation and Connections

593-012-100	Data Set 303-Type—Description
406-116-100	Air-Ground Radio Private Systems—Echo-Fox UHF Radio System—Overall System Description
107-400-100	912A Wideband Data Test Set—Description and Operation
406-116-500	Air Ground Radio Private Systems—Echo-Fox UHF Radio System—Overall System Tests

4.02 The following circuit descriptions (CDs), schematic drawings (SDs), and other listed documents provide additional information on the data set and data auxiliary sets used in the Echo-Fox System.

NUMBER	TITLE
CD- & SD-1D100-01	Data Set 303-Type
CD- & SD-1D097-01	Data Auxiliary Set 806B-Type
CD- & SD-1D067-01	Data Auxiliary Set 809B-Type
CD- & SD-1D134-01	Data Auxiliary Set 824-Type
SD-1D060-01	Printed Wiring Boards
SD-1D098-01	10A-Type Data Unit
SD-1D099-01	Data Station Arrangements
FA 25172-SD (LL)	Addition of Q Option to Data Auxiliary Set 824B-Type
FA 25173-SD (LL)	Data Station For Wideband Service Using Data Set 303H7
FA 40843-SD (LL)	Radio Systems—400 MHz FM Base Station (Supplementary Radio Bay)

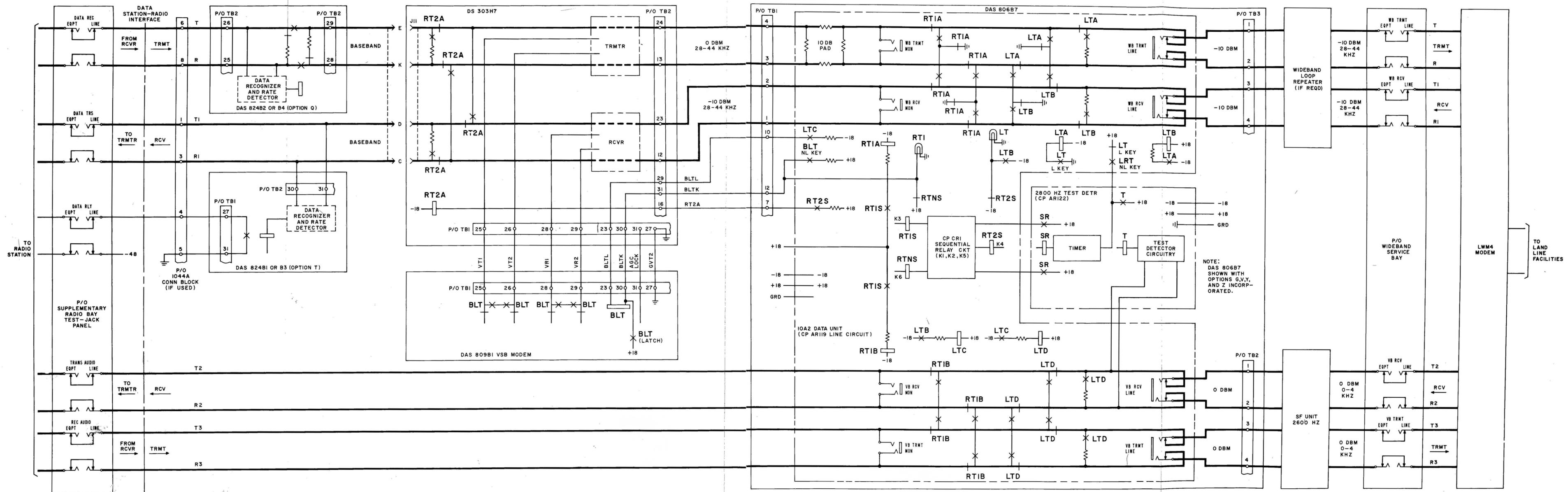


Fig. 2—Echo-Fox Wideband Data Station—Functional Diagram