REPLACING PAGE ADDENDUM
Filing Instructions:

1. REMOVE FROM THE SECTION THE PAGES NUMBERED THE SAME AS THOSE ATTACHED TO THIS PINK SHEET.
2. INSERT THE ATTACHED PAGES INTO THE SECTION IN THEIR PLACE.
3. PLACE THIS PINK SHEET AHEAD OF PAGE 1 OF THE SECTION.

2400-HZ OR 2600-HZ E1B, E2B, E3B, OR E4B SINGLE FREQUENCY SIGNALING CIRCUITS OUT-OF-SERVICE TESTS USING TESTING CIRCUIT SD-96519-01 OR SD-96519-02 AND 2B SIGNALING TEST SET J-64730B

1. GENERAL

1.001 This addendum supplements Section 179-316-502, Issue 6. The attached pages must be inserted in accordance with the filing instructions above.

1.002 This addendum is issued to change the title to include the 2B signaling test set J-64730B and to correct verification in Test G, Step 61h. This addendum does not affect the Equipment Test List.

Attached:

Page 1 dated June 1973—Revised
Page 2 dated June 1973—Reissued
Page 17 dated June 1973—Revised
Page 18 dated Novemeber 1971—Reissued

2400- OR 2600-HZ E1B, E2B, E3B, OR 34B SINGLE-FREQUENCY SIGNALING CIRCUITS OUT-OF-SERVICE TESTS USING TESTING CIRCUIT SD-96519-01 OR SD-96519-02 AND 2B SIGNALING TEST SET J-64730B

1. GENERAL

1.01 This section describes a method of making out-of-service tests of 2400- or 2600-Hz single-frequency signaling circuits per SD-98085-01, SD-98090-01, SD-98124-01, SD-98124-02, or SD-98124-03 using testing circuit SD-96519-01 or SD-96519-02. It also describes a method of making potentiometer adjustments to correct changes in the characteristics of some circuit elements. If the requirements of this section cannot be met after readjustment of potentiometers or relays, the units should be returned to a repair center because special techniques are involved in testing and clearing trouble on some of the components.

> ***Note:*** 291- and 303-type relays shall be maintained in an upright position for not less than 1 minute before beginning any tests.

1.02 This section is reissued to revise steps in Tests E and G and to correct attenuator settings in Test I. This reissue does not affect the Equipment Test List.

1.03 The tests covered are:

PAGE

A. Pulsing of Transmitter M Relay: This test checks that the M relay is properly following pulses. 7

B. Hold of HL Relay and, for all E2B, all E3B, or all E4B Units, Release of CO Relay: This test checks that the HL and CO relays release within the desired time limits. 8

C. Transmitter Voice Path and Transmitted Tone Level: This test checks the transmitter voice path and the level of the transmitted single-frequency tone. 10

D. Voice Amplifier Cutoff Transistor: This test checks the base voltage of transistor (Q84-E1B, E2B; Q94-E3B, E4B) with no signal input. 12

E. Gain of Receiver Voice Amplifier and Insertion of Band-Elimination Filter: This test checks transmission of the voice path through the receiver and blocking of the signal tone when present on the line. A method of adjusting the REC or RCV potentiometer for zero transmission loss is provided. . . . 12

F. Operate Sensitivity of Receiver Signaling Amplifier: This test checks the receiver sensitivity and describes its adjustment by means of the SS potentiometer. 14

G. Timing of Receiver R, RG, and G Relays: This test checks the operate and release time of the R and RG relays and describes a method of adjusting the OT, RT, and PM potentiometers to meet requirements. It also provides a test to assure proper limiting of the signal amplifier. The operate and release time of the G relay is also checked. . 15

H. Receiver Guard Action and 2-Wire Controls: This test checks the receiver guard circuit in limiting operation by voice signals. Control for the insertion of the echo-eliminating network for 2-wire line facilities is also checked. . . . 22

I. Final Adjustment of Receiver Sensitivity: This test describes the method of adjusting the SS potentiometer to obtain the sensitivity needed in 2- or 4-wire offices where +4 receiving levels are used or in 2-wire offices where +7 receiving levels are used. . . . . .

1.04 The 2400- or 2600-Hz single-frequency signaling unit is referred to in this section as an SF unit.

1.05 The 13A or the J94021A (21A) transmission measuring set is referred to in this section as the TMS.

1.06 The dial switch on the 13A TMS or the DET INPUT switch on the 21A TMS is referred to in this section as the TMS attenuator switch. The specific settings of the TMS attenuator switch are not given in the procedure unless necessary to prevent overload and possible damage to the instrument. The proper setting will be that which results in an on-scale reading on the TMS meter and will depend upon whether the 13A or 21A TMS is used and the specific value to be measured.

1.07 The 2B signaling test set is referred to in this section as 2B test set.

1.08 Slowly make percent break adjustments of the 2B test set above 70 percent to prevent pulsing out incorrect values. Incorrect values will be obtained if the rate of vibration of the PERCENT BREAK meter pointer is not the same as that of the PULSES PER SECOND meter pointer. To restore correct percent break values, turn the ADJ % BK control counterclockwise until both pointers are vibrating at the same rate; then turn the control slowly clockwise until the desired percent break value is obtained. It may also be necessary to change the coarse ADJ % BK switch from S, M, or L setting to obtain desired range on the PERCENT BREAK meter.

1.09 The J98613AY test panel (SD-96519-01 or SD-96519-02) is referred to in this section as test circuit. KEYERS switch 1 and RECEIVER switch 2 on this panel are referred to as SW1 and SW2, respectively.

1.10 Two values of transmitted power are specified in Test C and four values of attenuator setting are specified in Test I. The value to be used is determined from the following, depending upon the circuit transmission levels and whether 4- or 2-wire (4W or 2W) line facilities are provided.

(a) ***+4 Line, −13 Line (4W or 2W):*** The connection of the signaling receiver to the circuit at a point where the transmission level is +4 dB is indicated by ***+4 line.*** ***−13 line*** indicates that the associated signaling transmitter connects to the circuit at a point where the transmission level is −13 dB.

(b) ***+7 Line, −16 Line (4W or 2W):*** The term ***+7 line*** indicates that the signaling receiver connects to the circuit at a point where the transmission level is +7 dB. ***−16 line*** indicates that the associated signaling transmitter connects to the circuit at a point where the transmission level is −16 dB.

1.11 Since many steps in this section relate to different procedures for the talk-off improved, partially improved, and unmodified units, the designations shown below are used to identify groups of units. The E3B unit is used in this example. Similar notations will be used for the E1B, E2B, and E4B units.

DESIGNATION USED IN SECTION	DESIGNATION ON SF UNIT
E3B	E3B
E3B-10	E3B-10 (Number will be specified)
E3B stampings followed by any dash numbers	E3B-( )
All E3B units with or without series numbers	All E3B

1.12 ***Lettered Steps:*** A letter ***a, b, c,*** etc, added to a step number in Part 3 or 4 of this section indicates an action which may or may not be required depending upon local conditions. The condition under which a lettered step or a series of lettered steps should be made is given in

STEP	ACTION	VERIFICATION
47	Adjust ADJ % BK control to 45 on ***black*** scale of PERCENT BREAK meter.	
48	On test circuit— Set SW1 to position 8.	PERCENT BREAK meter indicates between 48 and 50 on ***red*** scale for E1B, E2B, and E3B and between 50 and 52 on ***red*** scale for E4B. See Step 49g.
49g	If requirement of Step 48 is not met— Turn RT potentiometer of SF unit fully counterclockwise; then slowly rotate it clockwise until a reading of 49 for E1B, E2B, and E3B or 51 for E4B is obtained.	
50	Set SW1 to position 7.	
51h	If testing E4B-( )— On 2B test set— Restore all keys to normal.	
52h	Set coarse ADJ % BK switch to S and OG-BG key to BG.	
Adjust PM Potentiometer		
53h	Remove the cords which connect the E and M jacks of the 2B test set to the E and M jacks of the test circuit.	
54h	Patch the D jack of the 2B test set to the E&M jacks of the test circuit using a 3P17B cord. The notched end of the 241A plug should be inserted in the M jack.	
55h	On the 2B test set— Set the TWD-D key to OFF-HK.	
56h	Set the PLS key to DROP.	
57h	Set the MEAS % BK key to DROP.	
58h	Turn ADJ % BK control to its full clockwise position.	
59h	Adjust ADJ PPS control to 12 pps on PULSES PER SECOND meter (0 to 20 scale).	
60h	Adjust ADJ % BK control counterclockwise to ◗85◖ on ***black*** scale of PERCENT BREAK meter.	
61h	On test circuit— Set SW1 to position 8.	PERCENT BREAK meter indicates between ◗65 and 69◖ on ***red*** scale. See Step 62i.

STEP	ACTION	VERIFICATION
62i	If the requirement of Step 61h is not met— Turn the PM potentiometer of SF unit until a reading of 67.5 is obtained on ***red*** scale of PERCENT BREAK meter.	
63h	On test circuit— Set SW1 to position 7.	
64h	On 2B test set— Restore all keys to normal.	
65h	Set ADJ % BK switch to M.	
66h	Set OG-BG key to OG.	
67h	Remove the 3P17B patch cord between the D jack of the 2B test set and the E and M jacks of the test circuit.	
68h	Patch the E and M jacks of the test circuit to the E and M jacks of the 2B test set using 2P3B and 2P1D cords.	
69h	On 2B test set— Set TWD-L key to OFF-HK.	
70h	Set PLS key to LINE.	
71h	Set MEAS % BK key to LINE.	
72	◗Adjust ADJ PPS control to 12 pps on PULSES PER SECOND meter (0 to 20 scale).◖	
73	Adjust ADJ % BK control to 75 on ***black*** scale of PERCENT BREAK meter.	
74	On test circuit— Set SW1 to position 8.	Unit pulses uniformly with PERCENT BREAK meter reading between 59 and 72 on ***red*** scale. ***Note:*** The total fluctuation of meter needle should not exceed one-half division during 5-second observation interval. Look for momentary upward or downward needle deflections. If such deflections are observed, the requirement is ***not*** met.
75j	If requirement of Step 74 is not met— On test circuit— Set SW1 to position 7.	