



**2600-Hz E1C OR E2C SINGLE-FREQUENCY SIGNALING CIRCUIT  
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 179-320-502, Issue 7. 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. This addendum does not affect the Equipment Test List.

**Attached:**

**Page 1 dated June 1973—Revised  
Page 2 June 1973—Reissued**

**2600-HZ E1C OR E2C SINGLE-FREQUENCY SIGNALING CIRCUIT  
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 methods of making out-of-service tests of 2600-Hz single-frequency signaling circuits per SD-98086-01 or SD-98086-02 using testing circuit per SD-96519-01 or SD-96519-02. If the requirements of this section cannot be met after readjustment of potentiometers or relays, the units should be returned to a repair center, since special techniques are involved in testing and clearing trouble in some of the components.

**1.02** This section is reissued to revise the brief test for new or modified E2C units.

This reissue does not affect the Equipment Test List.

**1.03** The tests covered are:

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| <b>A. Pulsing of Transmitter A Relay:</b><br>This test checks that the A relay is properly following pulses and that the pulse corrector and cut circuit are functioning properly. . . . . | 6           |
| <b>B. Hold of B Relay:</b> This test checks the B relay release time. . . . .  | 10          |
| <b>C. Transmitted Tone Level:</b> This test checks the level of the transmitted single-frequency tone . . . . .  | 11          |
| <b>D. Cutoff Voltage of Q9 Transistor:</b><br>This test checks that Q9 transistor is not conducting when there is no signal input. . . . .   | 12          |
| <b>E. Test of 4-Wire Terminating Circuit, Gain of Receiver Voice Amplifier, Blocking of Amplifier, and Insertion of Band-Elimination Network:</b> The                                      |             |

following features are checked: (a) transmission loss from 2-wire to 4-wire transmit, (b) transmission loss from 4-wire receive to 2-wire and adjustment of REC or RCV potentiometer, (c) transhybrid loss from 4-wire receive to 4-wire transmit, and (d) blocking of the voice amplifier by the received signal frequency and insertion of band-elimination network. . . . . **12**

**F. Operate Sensitivity of Receiver Signaling Amplifier:** This test checks the receiver sensitivity and describes its adjustment by means of the SS potentiometer. . . . . **15**

**G. Timing of Receiver R Relay:** This test checks the operate and release time of the R relay. . . . . **15**

**H. Receiver Guard Action:** This test checks the receiver guard circuit in limiting operation by voice signals. . . . . **17**

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

**1.05** 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.

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

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**1.07** 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. Jacks and keys mentioned in this practice are part of the test circuit unless otherwise specified.

**1.08** Percent break adjustments of the 2B test set should be made slowly above 70 percent. 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, turn the control slowly clockwise until the desired percent break value is obtained. It may also be necessary to change the coarse ADJ % BK control from S, M, or L setting to obtain the desired range on the PERCENT BREAK meter.

**1.09** Since this section covers units of various degrees of circuit modifications, the following designations are used and apply to the units shown.

The E1C is used as an example, similar notations will apply to E2C units.

DESIGNATION USED IN SECTION	DESIGNATION ON SF UNIT
E1C	E1C
E1C-10	E1C-10 (number will be specified)
E1C Stamping followed by any dash numbers	E1C-( )
All E1C units with or without series numbers	All E1C

**1.10 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 on local conditions. The condition under which a lettered step or a series of lettered steps should be made is given in the ACTION column, and all steps governed by the same condition are designated by the same letter within a test. Where a condition does not apply, all steps designated by that letter should be omitted.

**1.11 A Brief Test for New or Modified Units:** The steps listed below are to be used only

when it is reasonably certain that units have not suffered damage; otherwise, the complete test must be performed. These limited tests are not extensive enough to ensure that a unit will meet all requirements; however, they provide a reasonable degree of assurance of proper operation.

TEST FOR	UNIT	TEST	STEPS
A Relay	E1C	A	26 through 37f, 46, 70g, 71, and 72.
	E2C	A	26, 38g through 48, 54g through 74h
B Relay		B	26 through 32, 34, 38, and 40.
RCV Pot.		E	17 through 19, 53, 54, and 55.
SS Pot.		F	16 through 23.
R Relay		G	26 through 34.

**2. APPARATUS**

**2.01** The apparatus required for each test is shown in Table A. The details of each item are covered in the paragraph indicated by the number in parentheses.

**2.02** Test circuit, J98613AY (SD-96519-01 or SD-96519-02) including folding test fixture J98613AC.

**2.03** 2B test set, J64730B (SD-56134-02) *W* option or later includes power cords and patch cords for E and M leads (2P1D and 2P3B cords).

**2.04** 13A or J94021A (21A) transmission measuring set (TMS). The 21A TMS must be used if test circuit is mounted in a REVERTIVE-TERMINATING bay.

**2.05** Patching cord, P2A cord, 6 feet long, equipped with two 347A plugs (2P1D cord).

**2.06** Patching cord, P2A cord, 6 feet long, equipped with two 347B plugs (2P3B cord).

**2.07** Patching cord, P3E cord, 6 feet long, equipped with two 310 plugs (3P7A cord).

**2.08** Testing cord for 13A TMS, W2DL cord, 6 feet long, equipped with a 310 plug and