

DIGITAL TRANSMISSION SYSTEMS

T1 AUTOMATIC STANDBY UNIT

INITIAL TESTS

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and standby lines in each direction of transmission must be supplied with a bipolar signal. These signals are normally provided by a digital terminal; however, if a terminal is not connected, the J98710R quasi-random signal source (QRSS) should be used. Signals from working lines through bridging repeaters, the KS-20775, L2 error rate test set, the Bowmar 271B error rate test set, or two J98710F fault-locating sets can be used.

1. GENERAL

1.01 This section provides the procedures for testing the T1 automatic standby unit (T1ASU) before it is placed in service.

1.02 Whenever this section is reissued, the reason for reissue will be stated in this paragraph. This issue affects the Equipment Test List.

1.03 The T1ASU is a one-for-one protection switch arrangement. At the transmitting end, a bridging repeater is bridged across the regular line and furnishes a duplicate signal for the standby line. Both signals are then transmitted over the T1 carrier network to a T1ASU at the receiving end.

1.04 Each received signal is monitored by a T1 line monitor. The regular line signal is normally connected to the output of the T1ASU if the transmission quality is above an acceptable level. If the quality of the regular line deteriorates below an acceptable level, the standby line is connected to the output of the T1ASU. If the quality of both lines is not acceptable, a major alarm condition exists and both lines must be repaired. Each direction of transmission is handled in the same manner.

2. APPARATUS

2.01 The apparatus listed below is required for the tests in this section. Both the regular

2—QRSS Outputs or Other Signal Sources (see above)

1—J98710G Error Detecting Set

2—258-Type Dummy Plugs

2—3P6D Cords

1—265C and 266C Tool (used for checking fuse alarms)

1—KS-21144, L1 Lamp Extraction Tool

1—386B Termination Plug

3. PREREQUISITES

3.01 The following procedures must be completed prior to performing the tests of this section.

(a) Tests of Section 365-224-500

(b) Tests of Section 103-493-107

(c) Protective tape removed from ED-3C412-30 alarm unit connector

(d) Bridging repeater installed in LTU

(e) Dummy fuses installed in MAIN and CKT fuse holders of LTU

SECTION 365-200-204

4. TESTS

4.01 All tests must be performed at both ends of the system. The tests positively identify the regular and standby lines and establish a

nonalarm condition in the T1 automatic standby equipment. The alarm unit lamps and outputs are also checked, as well as the signal path through the line switch.

STEP	PROCEDURE
	At the Transmitting End
1	Determine if a terminal is connected to the T1ASU.
2a	If a terminal is connected, proceed to Step 4.
2b	If a terminal is not connected, proceed to Step 3.
3	Connect a bipolar signal to the regular and standby lines using the signal sources of 2.01.
	At the Receiving End
4	If the digital terminal is not connected, place a 386B plug in the COMMON OUT jack of the T1ASU jack strip.
5	Verify that the ACO keys on the regular monitor (REG MON) and the standby monitor (STBY MON) are in the vertical position.
6	Observe the indicator lamps on the REG MON and STBY MON.
	Requirement: No lamps light or flash.
	Note 1: If a J98710R QRSS furnishes the bipolar signal and the requirement is not met, insert bridging repeaters between the QRSS outputs and the regular and standby lines. If the requirement still cannot be met, see Note 2.
	Note 2: If the requirement is not <i>met</i> , check the wiring to the monitor per SD-3C182-01 and if necessary, refer to Section 365-200-504 for trouble location.
7	At the transmitting end, remove the signal from the regular line by inserting a dummy plug into the IN jack at the T1ASU, DSX-1, or office repeater bay (ORB), or disconnect the signal source.
8	At the receiving end, observe the REG MON.
	Requirement: The ABSENCE VIOLATIONS lamp lights or the ABSENCE VIOLATIONS and BIPOLAR VIOLATIONS lamps flash.
	Note: If the STBY MON indicates this condition, the wiring of the lines is probably reversed (see SD-3C182-01).
9	At the transmitting end, restore the bipolar signal to the regular line and remove the signal from the standby line.

STEP	PROCEDURE
10	At the receiving end, observe the STBY MON. Requirement: The ABSENCE VIOLATIONS lamp lights or the ABSENCE VIOLATIONS and BIPOLAR VIOLATIONS lamps flash.
11	At the transmitting end, restore the bipolar signal to the standby line.
12	Observe the lamps on the alarm unit. Requirement: No lamps are lighted. Note: If the requirement is not met, depress the ACO button on the alarm unit, check the wiring to the alarm unit per SD-3C182-01, and if necessary, refer to Section 365-200-504 for trouble location. Note: During this procedure if any alarm unit lamp or T1 line monitor lamp does not light when specified, remove the suspect lamp using the KS-21144, L1 lamp extractor. Replace the suspect lamp with a GL128 lamp, which may be obtained from Precision Lamp Engineers, San Francisco, California.
13	Place the 266C tool (steel music wire) into the 265C tool (contact burnisher) and place the cap over the 265C tool.
14	Using the 265C and 266C tools, momentarily short the fuse to the alarm contact in the fuse cap of the alarm unit. Requirement 1: LOCAL FUSE lamp lights. Requirement 2: Minor office alarm operates. Note: If requirement 1 is not met, but requirement 2 is met, replace the lamp. If neither requirement is met, replace the alarm unit. If requirement 1 is met but requirement 2 is not met, check the wiring to the unit.
15	Using the 265C and 266C tools, momentarily short the fuse to the alarm contact in the fuse cap of the REG MON or STBY MON. Requirement 1: EXT FUSE light on alarm unit lights. Requirement 2: Minor office alarm operates. Note: If requirement 1 is not met, but requirement 2 is met, replace the lamp. If neither requirement is met, replace the alarm unit. If requirement 1 is met, but requirement 2 is not met, check the wiring to unit.
16	Connect the J98710G error detecting set to the COMMON MON jack of the T1ASU jack strip. Requirement: Pulses present.

STEP

PROCEDURE

Note: If the requirement is not met, verify that the wiring is intact per SD-3C182-01 before checking the line switch circuit or replacing the REG MON.

- 17 Insert a dummy plug into the REGULAR IN jack at the TIASU jack strip.

Requirement 1: The DETR and LSW lamps on the REG MON light.

Requirement 2: The MN ALM lamp on the alarm unit lights.

Requirement 3: Minor office alarms operate.

Note: If requirement 1 is not met, see table for possible causes. If requirement 2 is not met but requirement 3 is met, replace the lamp. If requirement 2 and requirement 3 are not met, replace the alarm unit. If requirement 2 is met, but requirement 3 is not met, check the wiring to the unit.

DETR	LSW	
OFF	OFF	Replace plug-ins
OFF	ON	Replace lamp, replace plug-ins, check wiring
ON	OFF	Replace lamp, replace plug-ins, check wiring

- 18 Momentarily depress the ACO button on the alarm unit.

Requirement 1: The MN ACO lamp on the alarm unit lights.

Requirement 2: The office alarm ceases to operate.

Note: If requirement 1 is not met but requirement 2 is met, replace the lamp. If neither requirement is met, replace the alarm unit. If requirement 1 is met but requirement 2 is not met, check the wiring to the unit.

- 19 Remove the dummy plug from the REGULAR IN jack of the TIASU jack strip.

Requirement: After the automatic restoral period (approximately one minute), no lamps are lighted on the alarm unit or the line monitors and no office alarms are operated.

- 20 Insert the dummy plug into the REGULAR IN jack again.

- 21 Remove the dummy plug again and depress the RESET button on the violation rate alarm unit in the REG MON.

Requirement: No lamps are lighted on the alarm unit or the line monitors and no office alarms are operated.

STEP	PROCEDURE
22	Insert a dummy plug in the STANDBY IN jack of the T1ASU jack strip. Requirement: The MN ALM lamp on the alarm unit lights and the minor office alarm operates.
23	Insert a dummy plug in the REGULAR IN jack of the T1ASU jack strip and momentarily depress the ACO button on the alarm unit to silence the office alarms. Requirement 1: The MJ ALM lamp on the alarm unit lights and the MN ALM lamp remains lighted. Requirement 2: The MJ ACO and MN ACO lamps light and both office alarms cease. Note: If requirements are not met, replace lamps. If requirements are still not met, first replace the alarm unit and then check the wiring to the alarm unit per SD-3C182-01.
24	Remove the dummy plugs from the REGULAR IN and STANDBY IN jacks of the T1ASU jack strip and momentarily depress the RESET buttons on the REG MON and STBY MON. Requirement: No lamps lighted and no alarms operated.
25	Disconnect J98710G test set from COMMON MON jack.
26	Maintain a bipolar signal over the system until service is brought up.
