

## 400A TONE GENERATOR (RECEIVER OFF-HOOK TONE)

### TESTS

#### 1. GENERAL

1.01 The 400A tone generator generates a distinctive tone signal which is applied to a customer line on which the receiver has been left off-hook. The acoustic output of the receiver is intended to alert the customer to replace the receiver.

1.02 This section is reissued to include coverage per Test D for the new no voltage alarm circuit.

1.03 The tests covered are:

**A. Pulse Generator:** This test checks the pulse generator section of the P-42E811 printed wiring card. . . . . 2

**B. Oscillators:** This test checks each oscillator section of the P-42E817 printed wiring card. . . . . 2

**C. Amplifiers:** This test checks the amplifier section of the P-42E811 printed wiring card and the KS-19221, List 1 amplifier. . . . . 3

**D. Tone Alarm:** This test checks the tone alarm section of the P-42E811 printed wiring card. . . . . 3

1.04 All tests require taking the 400A tone generator out of service.

1.05 All tests should be performed in the order described.

1.06 Failure to observe verification is an indication of defective circuit on printed wiring card under test.

1.07 No maintenance should be attempted on the printed wiring cards. Defective cards should be forwarded to centralized repair center in accordance with local practice.

1.08 The output of +11VU measured in Step 8 of Test C is the maximum output recommended for the 400A tone generator. This level is decreased about 6VU by the auxiliary trunk to produce approximately +5VU at the customer's side of the main distributing frame. Due to differences in customer loop impedance, the tone level is measured at the 400A tone generator output rather than across a customer's line.

1.09 **Lettered Steps:** A letter a, b, c, etc, added to a step number in Parts 3 and 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.

#### 2. APPARATUS

2.01 Three W1AP cords for connecting between terminals on TB1.

2.02 Two W1AK cord assemblies for connecting voltmeter to terminals on TB1.

2.03 Two 1W8A cords for connecting between volume indicating meter and terminals on TB1.

2.04 Four 624B tools to adapt W1AK and 1W8A cords to fit terminals on TB1.

2.05 Electronic ac voltmeter, Hewlett-Packard 400-type.

**SECTION 201-576-501**

2 06 Volume indicator meter, KS-16653, List 1.

**3. PREPARATION**

*Caution: Extreme care must be exercised while making connections of test equipment*

*and cords to terminals on TB1, since shorting terminals or inadvertent connection to wrong terminals may damage the transistor circuits.*

**3. PREPARATION (Cont)**

<b>STEP</b>	<b>ACTION</b>	<b>VERIFICATION</b>
-------------	---------------	---------------------

**All Tests**

- |   |  |                    |
|---|--|--------------------|
| 1 | Remove cover.                              |                    |
| 2 | Connect terminal 46 to terminal 47 on TB1. | ST relay operates. |

**Tests A and B**

- |   |   |  |
|---|---|--|
| 3 | Set voltmeter range switch to 3-volt range. |  |
|---|---|--|

**Tests A, B, and C**

- |   |   |  |
|---|---|--|
| 4 | Connect GND or G terminal of voltmeter to terminal 34 on TB1. |  |
|---|---|--|

*Note:* Allow voltmeter 5-minute warm-up time.

**Test C**

- |   |   |  |
|---|---|--|
| 5 | Set voltmeter range switch to 0.3-volt range. |  |
|---|---|--|

**Test D**

- |    |  |  |
|----|--|--|
| 6a | If option Z is not provided—<br>Connect terminal 31 to terminal 32 on TB1. |  |
|----|--|--|

**4. METHOD**

<b>STEP</b>	<b>ACTION</b>	<b>VERIFICATION</b>
-------------	---------------	---------------------

**A. Pulse Generator**

- |   |   |   |
|---|---|---|
| 5 | Connect voltmeter input terminal to terminal 13 on TB1. | Meter pulses with peak deflection reading above 0.5 volt. |
|---|---|---|

**B. Oscillators**

- |   |   |   |
|---|---|---|
| 5 | Connect voltmeter input terminal to terminal 14 on TB1. | Meter pulses with peak deflection reading above 1 volt. |
| 6 | Connect voltmeter input terminal to terminal 15 on TB1. | Meter pulses with peak deflection reading above 1 volt. |

STEP	ACTION	VERIFICATION
7	Connect voltmeter input terminal to terminal 25 on TB1.	Meter pulses with peak deflection reading above 1 volt.
8	Connect voltmeter input terminal to terminal 24 on TB1.	Meter pulses with peak deflection reading above 1 volt.
9	Operate voltmeter range switch to 0.03-volt range.	
10	Connect voltmeter input terminal to terminal 12 on TB1.	Meter pulses with peak deflection reading above 0.01 volt.
<b>C. Amplifiers</b>		
6	Connect voltmeter input terminal to terminal 11 on TB1.	Meter pulses with peak deflection reading above 0.1 volt.
	<i>Note:</i> This step tests the preamplifier section of P-42E811 printed wiring card.	
7	Disconnect voltmeter.	
8	Operate key on volume indicator meter to HIGH IMP position.	
9	Connect volume indicator meter to terminals 17 and 27 on TB1.	Meter indicates +11VU.
10b	If meter does not indicate +11VU and verifications in Tests A and B and Step 6 of Test C are satisfactory— Adjust LEVEL CONTROL on printed wiring card P-42E811 for a +11VU volume indicator meter reading.	Meter indicates +11VU.
<b>D. Tone Alarm</b>		
7	Connect terminal 12 to terminal 41 on TB1.	TA relay released. ◆DS1 lamp lighted.◆
8	Remove connection between terminals 12 and 41 on TB1.	TA relay operated. ◆DS1 lamp extinguished.◆
9	Remove connection between terminals 46 and 47 on TB1.	ST relay released.
10a	◆If option Z is not provided—◆ Remove connection between terminals 31 and 32 on TB1.	TA relay released. ◆DS1 lamp lighted.◆
11	Replace cover.	