

**PARITY CHECK CIRCUIT  
OUT-OF-SERVICE TESTS  
A1 DIGITAL DATA SIGNALING SYSTEM  
PRIVATE SERVICE SYSTEMS**

**1. GENERAL**

**1.01** This section describes a method of making out-of-service tests on the parity check circuit used in the A1 digital data signaling system.

**1.02** This section is reissued to cover a change in the parity check circuit to improve performance and increase sensitivity. Since this reissue covers a general revision, arrows ordinarily used to indicate changes have been omitted.

**1.03** *Parity Check:* This test verifies that parity errors are properly indicated when the input word does not contain the proper number of bits.

**1.04** The following abbreviations are employed:

W GEN — word generator  
P.C. — parity check circuit

**1.05** *Lettered Steps:* A letter a, b, c, etc, added to a step number in Part 3 of this section indicates an action which may or may not be re-

quired 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** One word generator SD-1G005-01 or SD-1G097-01, adjusted for 1300 bit-per-second rate and 16-bit word operation.

**2.02** Oscilloscope, KS-16305, equipped with Waterman Company A-10-C combination probe (formerly called DF1-027-A01) and test lead A-14-K (formerly called DF1-029-A01).

**2.03** Volt-ohm-milliammeter, KS-14510, List 1, or equivalent, referred to in the section as the voltmeter.

**2.04** Jack and connector circuit, SD-1G008-01.

**2.05** Two patching cords, P3E cords equipped with two 310 plugs (3P7E patch cords).

**3. PREPARATION**

STEP	ACTION	VERIFICATION
1	Arrange word generator as W GEN No. 1 per block diagram, Fig. 101, SD-1G008-01 (Issue 3 or higher), "Jack and Connector Circuit."	
2	Energize the equipment.	
3	Set voltmeter switch to 300-volt dc range.	
4	Insert negative lead from voltmeter into W GEN GRD test jack.	

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<b>STEP</b>	<b>ACTION</b>	<b>VERIFICATION</b>
5	Insert positive lead from voltmeter into W GEN + 130-volt test point.	Voltmeter reads between 125 and 135 on the 300-volt scale.
6	Disconnect voltmeter cords.	
7	Set voltmeter switch to 60-volt dc range.	
8	Connect negative lead from voltmeter to P.C. -48-volt test point.	
9	Connect positive lead from voltmeter to P.C. +F test point.  <i>Note:</i> Adjust FIL potentiometer, if necessary.	Voltmeter reads 40 on 60-volt scale.
10	Disconnect voltmeter cords.	
11	Prepare KS-16305 oscilloscope per Section 100-658-100, preliminary installation and adjustments, setting V INPUT SELECTOR to PANEL.	
12a	If word generator SD-1G097-01 is provided — Set switch S1 to position 16 and switches S2 to S12 to OFF (up) position.	
13b	If word generator SD-1G005-01 is provided — Set switch S14 to position 16 and switches S1 to S13 and S15 to OFF (down) position.	
14	Using A-14-K cord connect W GEN SYNC test point to oscilloscope SYNC input.	
15	Set V MULT switch of oscilloscope to CAL, adjust CAL potentiometer to obtain reading on oscilloscope voltmeter of 0.3 volt peak to peak.	
16	Adjust oscilloscope V GAIN knob to obtain 1-inch peak-to-peak deflection.	
17	Connect oscilloscope (A-10-C), set for 10:1 attenuation, to V-INP-AC jack of oscilloscope. Set V MULT switch of oscilloscope to 10.	
18	Insert oscilloscope probe into ST test point; adjust sweep of oscilloscope.	A normal start pulse appears on oscilloscope.
19	Remove oscilloscope probe.	
20	Patch from word generator S jack to parity check circuit S MON jack.	
21	Patch from word generator D jack to parity check circuit D MON jack.	

STEP	ACTION	VERIFICATION
22	Set DDT-DDR switch of W GEN to DDT and the output level to 1.1 volts peak to peak.	
23	Connect oscilloscope probe A-10-C to DATA test point P.C. Set switch S2 of W GEN to ON position. <i>Note:</i> Adjust data potentiometer, if necessary.	A positive square wave greater than 45 volts appears on the oscilloscope. <i>Note:</i> When adjusted in accordance with Steps 15 and 16 and the A-10-C probe is set at 10:1, with the V MULT switch set at 10, a 1-inch deflection equals 30 volts.
24	Connect oscilloscope to ST test point of P.C. <i>Note:</i> Adjust start potentiometer, if necessary.	A negative square wave of 36 volts or more appears on the oscilloscope.

#### 4. METHOD

STEP	ACTION	VERIFICATION
	<b>Parity Check</b>	
25	Operate START switch.	Counter tube lights.
26	Set parity switch to EVEN.	
27	Operate toggle switches No. 2, 4, 6, 8, 10, and 12 on word generator to ON position.	The spot on the counter tube remains fixed. <i>Note:</i> Spot on counter tube should remain stationary after switches have been properly set.
28	Set parity switch to ODD.	
29	With toggle switches No. 2, 4, 6, 8, and 10 on word generator, set to ON position, operate switch 12 to OFF position.	The spot on the counter tube remains fixed. (See note above.)
30	Operate an additional toggle switch on the word generator; restore this switch to normal after a 1-minute interval.	The spot on the counter tube rotates. The message register on the P.C. counts to 488 $\pm 10$ in 1 minute.