

911G TEST SENTENCE GENERATOR—TESTS

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this change constitutes a general revision, arrows ordinarily used to indicate changes have been omitted.

1. GENERAL

1.01 This section contains test procedures to assure that the 911G Test Sentence Generator (TSG) is operating properly. These tests should be performed periodically and when test results cause equipment performance to be in question. Local procedures should be followed for disposition of equipment that is not serviceable.

1.02 This section is reissued to include a third "FOX" test sentence for use in testing 37-type teletypewriters (TTYs), to add Part 4—References, and to make minor editorial changes throughout to comply with present format. Since

1.03 The 911G TSG is one of a series of serial data test sets that has been designed to provide greater testing flexibility in hub-type telegraph serviceboards. Complementary test sets that will usually appear in test installations with the TSG are as follows:

- (a) 911F Distortion Measuring Set
- (b) 911J Data Signal Distorting Set.

1.04 The 911G Test Sentence Generator (Fig. 1) provides serial data test signals to test teletypewriters, data equipment, and transmission facilities.

1.05 The 911G TSG uses three different plug-in printed circuit translator matrix cards to generate three "FOX" test sentences.

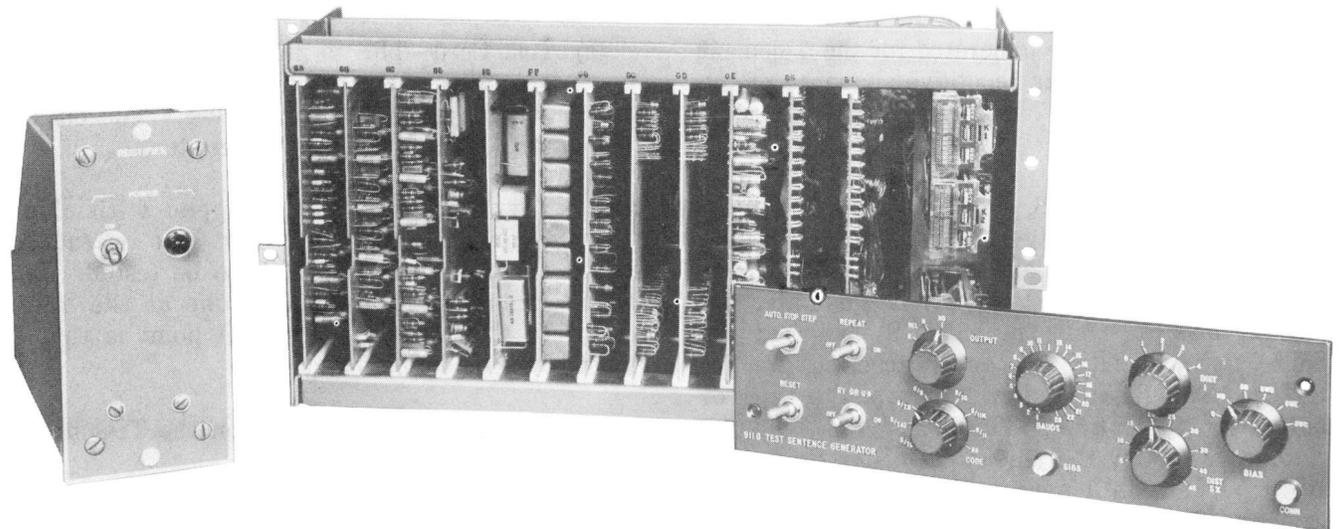


Fig. 1—911G Test Sentence Generator, List 1—Control Panel Shown

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- (a) The 5-element Baudot (or Murray) code test sentence, using the J79911GG-1, List 1 card, is as follows:

THE QUICK BROWN FOX JUMPED OVER A
LAZY DOGS BACK 1234567890 A1A TESTING

- (b) The 8-element ASCII (American Standard Code for Information Interchange) test sentence, using the J79911GF-1, List 1 (MD) card, is as follows:

THE QUICK BROWN FOX JUMPED OVER A
LAZY DOG'S BACK 1234567890 TESTING

- (c) The 8-element ASCII test sentence, using the J79911GF-1, List 2 card, is as follows:

The Quick Brown Fox Jumped Over a Lazy
Dog's Back 1234567890 Testing yzyz

1.06 The J79911GF-1, List 2 card is used for testing 37-type teletypewriters, which have upper and lower case characters. A space plus four additional characters have been added after the word "Testing" for determining the length of the TTY line. (The last "z" in the test sentence is the 73rd character in the test sentence.) This card also may be used in testing 33- and 35-type TTYs. The printout will be the same as for the 37-type *except* that all characters will be upper case.

1.07 A repetitive sequence of the characters "R" and "Y" may be generated for the 5-element Baudot code. A similar repetitive sequence of the characters "U" and "*" may be generated for the 8-element ASCII.

1.08 Using the BIAS, DIST 5%, and DIST 1% controls, the TSG generates a signal containing a predetermined type and amount of distortion. The types of distortion that may be generated are marking bias (MB), spacing bias (SB), switched bias (SWB), switched end (SWE), and switched combination (SWC). The BIAS switch controls the type of distortion, while the DIST 5% and the DIST 1% switches will vary the amount of distortion from 0 to 49 percent in 1-percent increments with an accuracy of ± 1 percent.

1.09 The CODE switch conditions the TSG to generate serial data signals with 5, 6, 7,

and 8 information elements, a start element, and a stop pulse of one or more element lengths.

1.10 The BAUDS switch allows for selection of operating speeds up to 200 baud as determined by the clock frequencies available in a specific installation. The equipment package at present provides five crystal units available separately with the 911G and equips BAUDS switch positions 1 through 5 with speeds in the following order: 45.6, 56.9, 74.2, 110.0, and 150.0. The accuracy of the clock frequencies provided for the TSG determine the basic accuracy of the unit.

1.11 The tests outlined in this section will test the functioning of the TSG as well as determine the basic accuracy of clock frequencies that might be common to other units of test equipment within a test center. The TSG is used, where applicable, to test other units within a test center complex; therefore, the tests in this section should be performed carefully to uphold the validity of subsequent tests.

2. PREPARATION

2.01 Test Equipment: The following test equipment is required in addition to apparatus normally mounted in the testboard:

- (a) A 911C Distortion Measuring Set (DMS) (J79911C) that has been calibrated against standard signals.

- (b) Test Cord—TRS to pin plug. This test cord provides a circuit between the tip of a 3-conductor plug and a pin plug. The circuit must include a series 100 k Ω resistor.

2.02 The DMS must be equipped with clock frequencies that will allow it to operate at rates compatible with the TSG to be tested. The DMS cannot function without one or the other (CPS7 or CPS9). The important point is that it must have compatible baud.

2.03 Set the control switches on the TSG to the position shown in Table A.

2.04 Make connections from the TSG to the TTY (5-element machine) as shown in Fig. 2.

2.05 Depress CONN switch (if 911K Exclusion Unit is provided) on TSG control panel.

TABLE A
TSG SWITCH SETTINGS

SWITCH	SETTING
AUTO-STEP	AUTO
REPEAT	OFF
OUTPUT	HD
BAUDS	1
BIAS	0
DIST 1%	0
DIST 5%	0
RY OR U*	OFF
CODE	5/7.42

Observe that the SIGS lamp is flashing on the TSG and the DMS. (The CONN switch is a locking type, ie, push to lock, push to release.)

2.06 Operate the START SIGS switch on the TTY and operate the RESET switch on the TSG; observe that the TTY starts from the beginning and prints the following test sentence:

THE QUICK BROWN FOX JUMPED OVER A LAZY DOGS BACK 1234567890 A1A TESTING

2.07 Set the REPEAT switch on the TSG to ON. Observe that the TTY continuously prints the last character generated before the REPEAT switch was operated. Restore the REPEAT switch to the OFF position.

2.08 Operate the RY OR U* switch to ON. Observe that the TTY prints a repeated sequence of the characters "R" and "Y". Restore the RY OR U* switch to OFF, and note that the TTY again starts the test sentence from the beginning.

2.09 Operate the RESET switch, and observe that the TTY starts the test sentence from the beginning each time the RESET switch is operated.

2.10 Place the AUTO.-STOP-STEP switch in the STOP position. Observe that the TTY will print a single character of the test sentence each time the switch is operated to the STEP position. Restore the AUTO.-STOP-STEP switch to AUTO. position.

2.11 Select an 8-element code and speed provided in the TSG, and change the TTY connection to an 8-element machine. The 8/10 code, 150-baud signal should be connected to the 37 KSR, and the 8/11 code, 110-baud signal should be connected to the 35 KSR (Fig. 2). Repeat procedures outlined in 2.06 through 2.10. The test sentence printed for the 35 KSR should read as follows:

THE QUICK BROWN FOX JUMPED OVER A LAZY DOG'S BACK 1234567890 TESTING

The test sentence printed for the 37 KSR should read as follows:

The Quick Brown Fox Jumped Over A Lazy Dog's Back 1234567890 Testing yzyz

Note: The space plus four additional characters after the word "Testing" are used for determining the length of the TTY line. The last "z" in the test sentence is the 73rd character in the sentence.

2.12 Disconnect the TTY and connect the DMS as shown in Fig. 3.

2.13 Set the control switches of the TSG as indicated in Table A, and set the control switches of the 911C DMS to the positions shown in Table B.

2.14 Apply power to the DMS, operate the CONN switch on the TSG (if 911K Exclusion Unit is provided), and observe that the DMS Pixie readout tubes indicate 00. (With the CONN switch operated, in 2.05, the switch will release the exclusion circuit, if operated here).

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3. TESTS

3.01 Perform the following test.

STEP	ACTION	VERIFICATION
1	911G: Set BIAS switch to MB. Vary DIST 5% switch from 0 to 45.	911C: MB lamp flashes and Pixie readout follows distortion switch settings within ± 3 percent.
2	911G: Set DIST 5% switch to 20. Vary DIST 1% switch from 0 to 4.	911C: MB lamp flashes and Pixie readout follows 1-percent changes of distortion.
3	911G: Set BIAS switch to SB. Vary DIST 5% switch from 0 to 45.	911C: SB lamp flashes and Pixie readout follows distortion switch settings within ± 3 percent.
4	911G: Set DIST 5% switch to 20. Vary DIST 1% switch from 0 to 4.	911C: SB lamp flashes and Pixie readout follows 1-percent changes of distortion.
5	911G: Set BIAS switch to SWB, DIST 1% switch to 0, and DIST 5% switch to 25.	911C: DMS indicates 23 to 27 percent distortion and the MB and SB lamps flash.
6	911G: Set BIAS switch to SWE, DIST 1% switch to 0, and DIST 5% switch to 25.	911C: DMS indicates 23 to 27 percent distortion and the ME and SE lamps flash.
7	911G: Set BIAS switch to SWC, DIST 1% switch to 0, and DIST 5% switch to 25.	911C: DMS indicates 23 to 27 percent distortion and the MB, SB, ME, and SE lamps flash.

3.02 Repeat Steps 1 through 7 for each code and speed provided with the TSG installation.

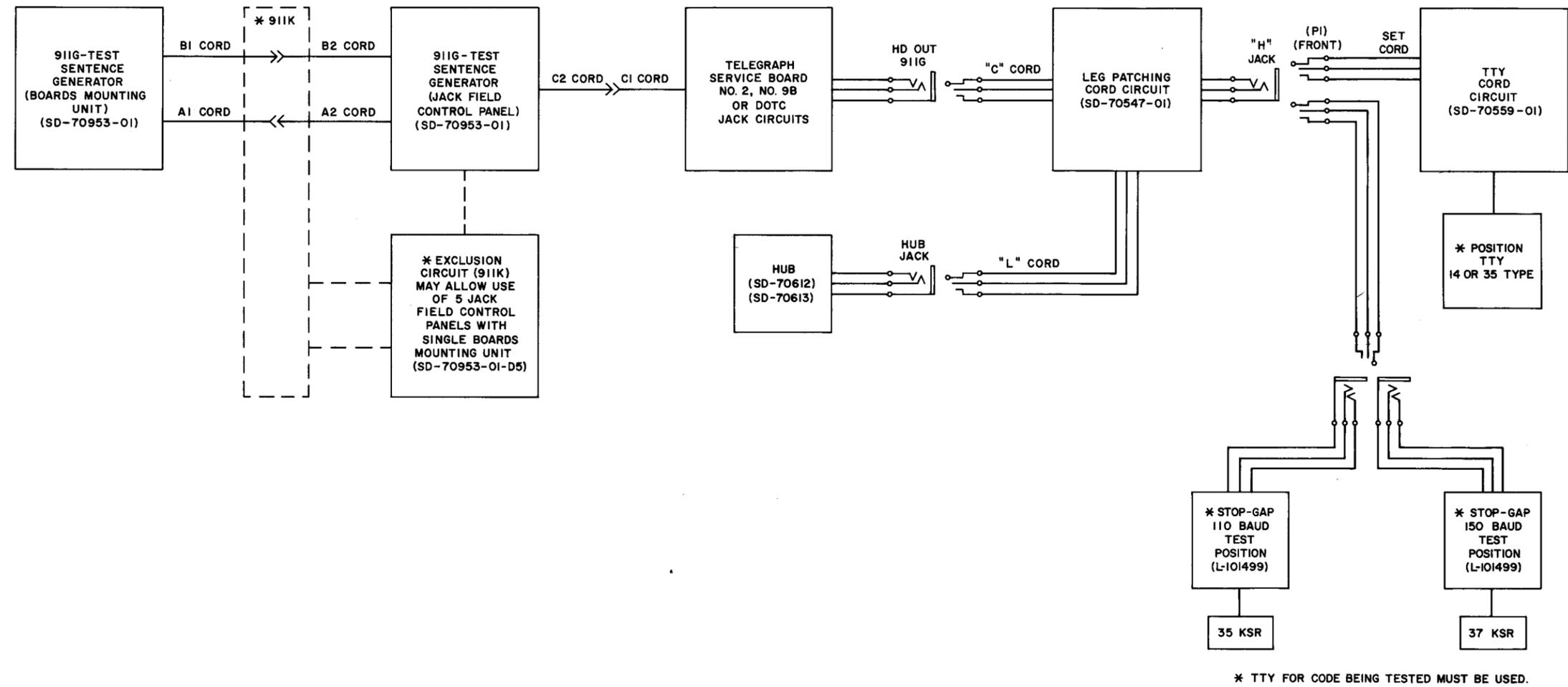


Fig. 2—911G Test Sentence Generator to Teletypewriter Test Connections

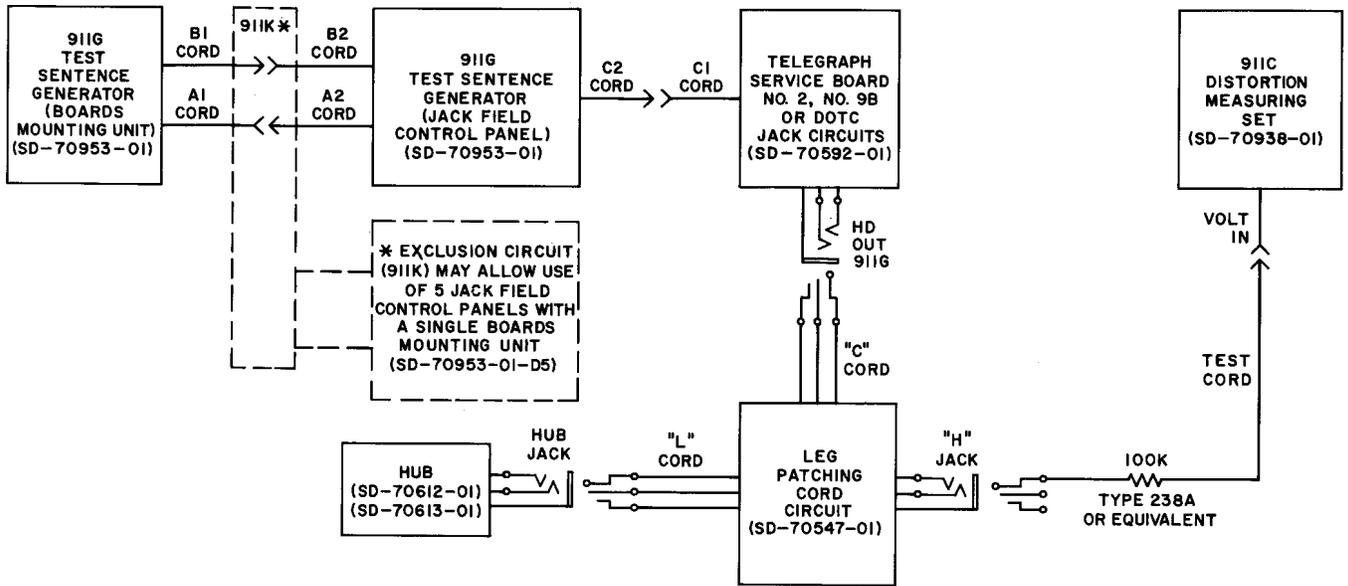


Fig. 3—911G Test Sentence Generator to 911C Distortion Measuring Set Test Connections

TABLE B
DMS SWITCH SETTINGS

SWITCH	SETTING
INPUT	NORM 20
BAUDS	45.5
CODE	5
DISCR %	3
PIP-PK	PIP
PARITY	OFF
FILTER	OUT

SECTION	TITLE
103-813-103	911F Distortion Measuring Set—Description and Operation
103-813-105	911J Data Signal Distorting Set—Description and Operation
103-813-106	911K-Type Exclusion Unit—Description and Operation
103-813-107	911M Multiclock Unit—Description and Operation

4. REFERENCES

4.01 Additional information on the 911G Test Sentence Generator and associated test equipment may be found in the following:

SECTION	TITLE
103-813-104	911G Test Sentence Generator—Description and Operation
103-813-100	911A, B, and C Data Test Sets—Description, Operation, and Maintenance

NUMBER	TITLE
SD-&CD-70953-01	911G Test Sentence Generator
SD-&CD-70938-01	911C Distortion Measuring Set
SD-&CD-70952-01	911F Distortion Measuring Set
SD-&CD-70954-01	911J Data Signal Distorting Set
SD-&CD-70957-01	911K Exclusion Unit
SD-&CD-70966-01	911M Multiclock