

911A, B, AND C DATA TEST SETS

DESCRIPTION, OPERATION, AND MAINTENANCE

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1. GENERAL

1.01 This section covers the description, operation, and maintenance of the following:

- 911A-1 Data Test Set (J79911A-1) (MD)
- 911A-2 Data Test Set (J79911A-2)
- 911B-1 Test Sentence Generator (J79911B-1) (MD)
- 911B-2 Test Sentence Generator (J79911B-2)
- 911C-1 Distortion Measuring Set (J79911C-1) (MD)
- 911C-2 Distortion Measuring Set (J79911C-2)

These sets are used for evaluation of the performance of low-speed data terminal equipment and facilities; eg, transmission and reception of teletypewriter (TTY) signals (Fig. 1). Except as otherwise noted, information on the current and superseded models is the same.

1.02 This section is reissued to include a fourth "Fox" test sentence for use in testing 37-type teletypewriters and to add the printed circuit card for generating this sentence. Information on the use of test cords (3.05) also has been expanded and minor changes have been made throughout the section. Since this reissue constitutes a general revision, arrows ordinarily used to indicate changes have been omitted.

1.03 The 911A Data Test Set (DTS) is a portable electronic test set containing a 911B Test Sentence Generator (TSG), a 911C Distortion Measuring Set (DMS), and a rectifier. The test set is housed in a gray metal case measuring 19 inches wide, 8 inches high, and 11 inches deep, and weighing approximately 35 pounds. The cover is used to store the necessary test cords, power cord, and a 5-element or 8-element translator matrix printed wiring card for alternate use with the TSG if both cards are required. The method of storing is shown in Fig. 2.

Note: The nameplates for both the J79911A-1 and J79911A-2 are marked 911A; however, the BAUDS switch markings will provide quick identification. The complete code identification is stamped on the rear of the TSG panel.

1.04 The basic differences between the two TSGs are the designations on the BAUDS switches. The 911B-1 TSG BAUDS switch is designated with specific bauds (45.5, 56.9, etc), whereas the 911B-2 TSG is designated with sequential numbers from 1 to 15. In addition, each BAUDS switch has a position to permit use of an external clock (EXT CLK or EXT) to transmit rates not available with the internal crystals. An etched plastic information plate (P46U504) is provided for recording the baud of each switch position.

Note: Some 911A-1 sets may have been modified in the field to convert the BAUDS switches and clock equipment to function as a 911A-2, in which case the BAUDS switches are mounted on the front panel with mounting adapter plates.

1.05 The 911B TSG is available as an individual portable test set, including a rectifier, housed in a gray metal case measuring 11-1/2 inches wide, 8 inches high, and 11 inches deep and weighing approximately 20 pounds. The cover is used to store the test cords, power cord, and an alternate translator matrix printed wiring card if required (Fig. 3).

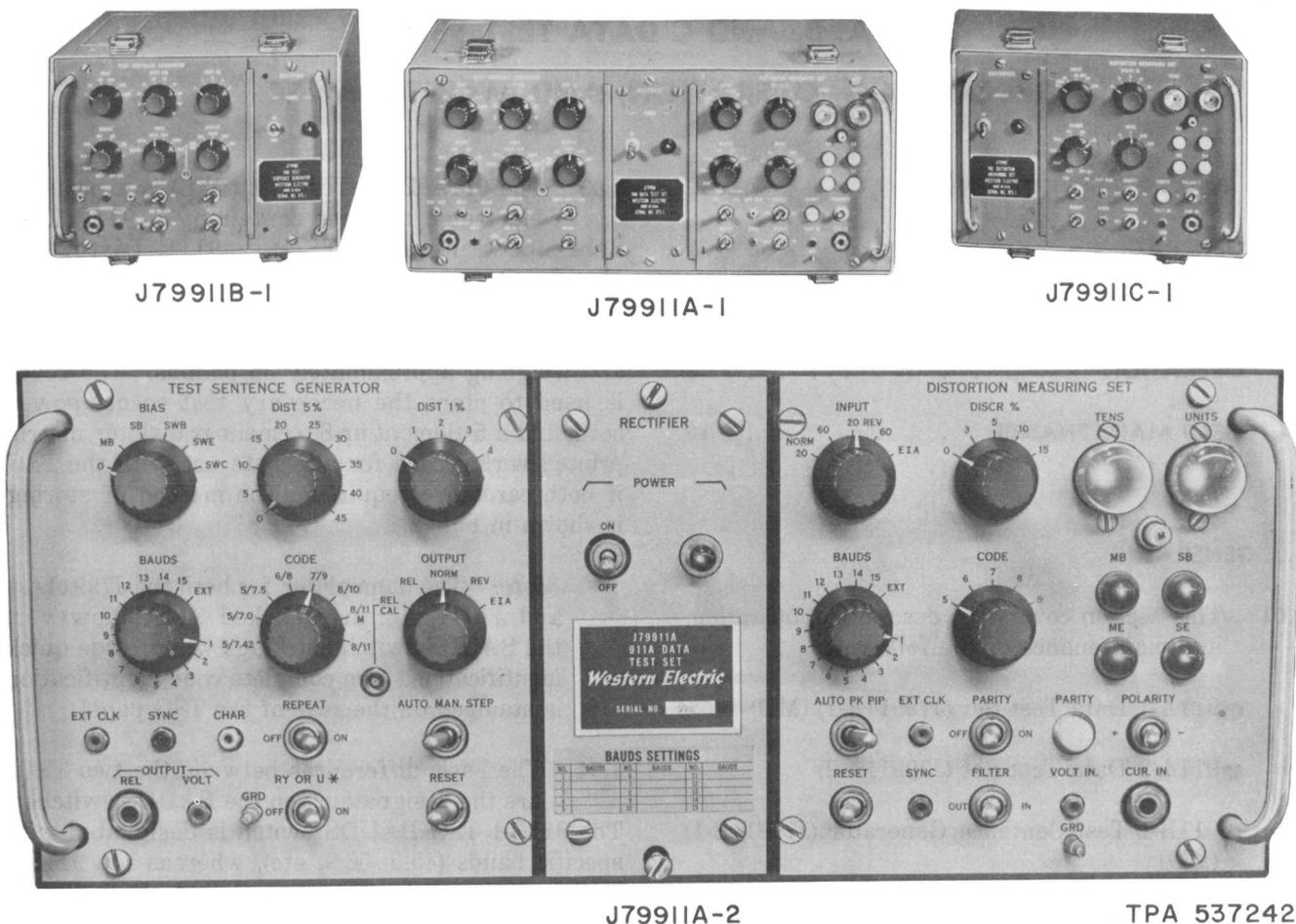


Fig. 1—J79911A-1, B-1, C-1, and J79911A-2 Data Test Sets Without Covers

1.06 The 911C DMS is available as an individual portable test set housed in a gray metal case the same size as the 911B TSG. The method of storing the cords is shown in Fig. 4. A translator matrix card is not required in the 911C DMS.

1.07 The 911A, 911B, and 911C are also available as rack-mounted models.

2. DESCRIPTION

2.01 Since the 911A DTS combines the 911B TSG and the 911C DMS, a separate description of the 911A DTS will not be given.

911B Test Sentence Generator

2.02 The 911B TSG (Fig. 3) is used as a source of low-speed data signals. The set is a

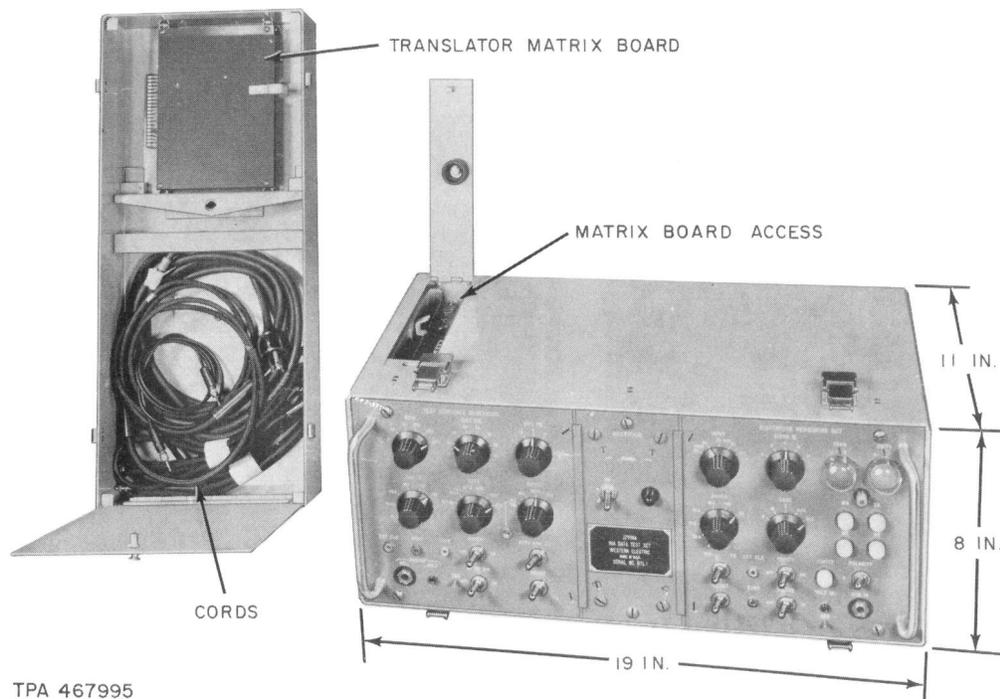
compact unit requiring no adjustments and using transistorized digital circuitry, magnetic memory circuitry, and a crystal controlled clock, which generates either distorted or undistorted pulses for testing a teletypewriter circuit. A teletypewriter connected to the circuit prints out a test sentence.

2.03 The 911B is divided electronically into two basic sections—a word generator section and a distortion generator section.

Word Generator

2.04 The test sentence transmitted by the 911B TSG using the J79911BF-1, List 1 (CP 5A) (MD) and J79911BG-1, List 1 (CP 5B) (MD) is:

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



TPA 467995

Fig. 2—J79911A-1 Data Test Set With Cover Removed

Each sentence is preceded by the transmission of four nonprinting characters, which are LETTERS (5-element code) or RUB OUT (8-element code), CARRIAGE RETURN, CARRIAGE RETURN, and LINE FEED.

2.05 The test sentence transmitted by the 911B using the J79911BG-1, List 2 (CP 5D) 5-element code translator matrix is:

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

The test sentence transmitted by the 911B using the J79911BF, List 3 8-element ASCII code translator matrix card (CP 5C) is:

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

Note: The J79911BF, List 3 card must be used for testing 37-type TTYs, which have upper and lower case characters. It also may be used in testing 33- and 35-type TTYs, which will print the test sentence in upper case characters only. 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 (including spaces) in the sentence.

Each test sentence transmitted by the 911B using the J79911BF, List 2 or List 3 or the J79911BG, List 2 matrix card is preceded by the transmission of four nonprinting characters which are LETTERS (for 5-element code) or RUB OUT (for 8-element code), CARRIAGE RETURN, LINE FEED, LETTERS or RUB OUT.

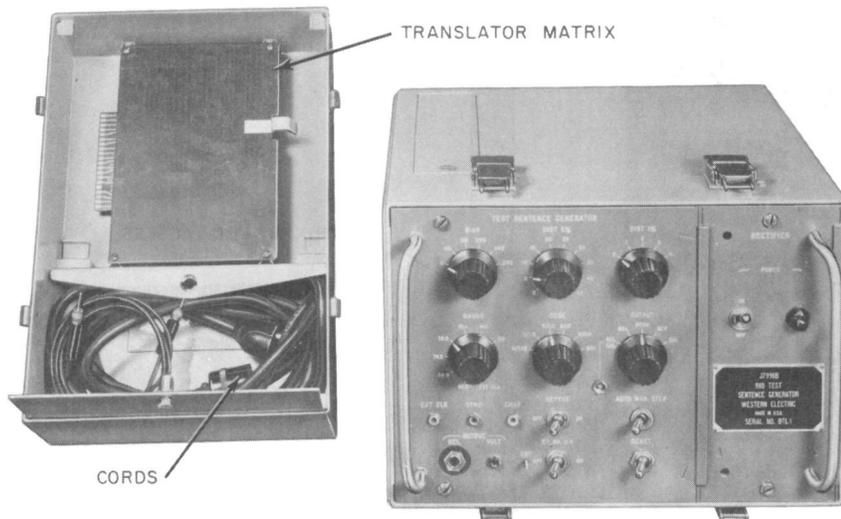


Fig. 3—J79911B-1 Test Sentence Generator With Cover Removed

2.06 The RY OR U* switch provides for the word generator to alternately produce the characters R and Y for 5-element code or the characters U and * for the 8-element code.

2.07 The transmitted speed of the characters is under control of the BAUDS switch. The code is under control of the CODE switch, and requires the proper matrix card to be installed in the set.

2.08 A manual method of selecting an individual character from the test sentence for repeated transmission is provided. This operation is under control of the AUTO. MAN. STEP and REPEAT switches.

2.09 The output signal from the 911B TSG may be either a voltage or a contact closure. The OUTPUT switch determines the type of output signal obtained.

Distortion Generator

2.10 The distortion generator is used to introduce distortion of a predetermined type and amount into the word generator output.

2.11 The type of distortion to be introduced is under control of the BIAS switch; the amount of distortion is under control of the DIST 1% and DIST 5% switches.

Rectifier

2.12 The rectifier used to supply the necessary voltages is of the saturable transformer type. This provides a constant voltage output with varying loads. The limits for the input to the rectifier are 105 to 125 volts ac 50 to 60 Hz.

911C Distortion Measuring Set

2.13 The 911C DMS (Fig. 4) is used to measure the quality of low-speed data signals, such as teletypewriter signals.

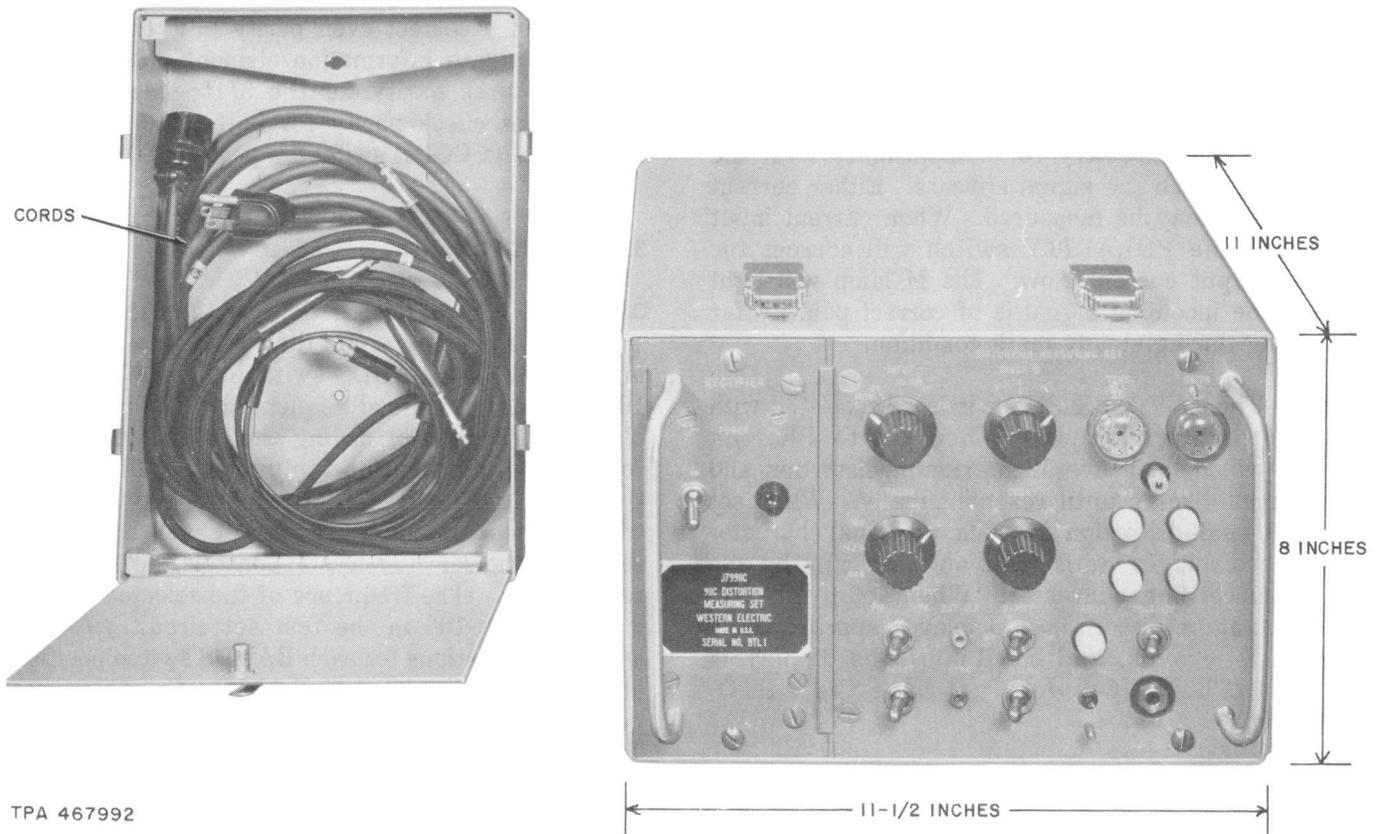


Fig. 4—J79911C-1 Distortion Measuring Set With Cover Removed

2.14 Digital logic is used throughout the circuitry and is controlled by a crystal clock which requires no adjustment.

2.15 The 911C can be used for any existing Baudot, ASCII (American National Standard Code for Information Interchange), or other code and for speeds up to 150 baud. The type of code to be received is selected by the CODE switch located on the front panel. This code can be either a 5-, 6-, 7-, 8-, or 9-element code with a start pulse and a stop pulse of one or more element lengths.

2.16 Distortion ranging from 0 to 49 percent in 1-percent increments, and with an accuracy of ± 1 percent, is digitally displayed on Pixie tubes. One tube is used for TENS and the other tube is used for UNITS display.

2.17 Provision is made for up to 15 crystals in the 911C-2, which correspond to the speed of the signals received. Depending on the BAUDS

switch assembly used in the 911C-1, provisions were made for up to nine crystals. (Only eight crystals are available in the 911C-2 DMS.) On an optional basis for the 911C-2, two groups of crystals are available. One is for 3-row teletype speeds only; the other is for 4-row teletype only. If a different speed from those for which crystals are provided is desired, an external oscillator may be used. In such cases, the oscillator is adjusted to 100 times the desired signaling speed and connected to the EXT CLK test point, and the BAUDS switch is set to EXT. (When using a 21A transmission measuring set as the external clock, adjust level to 0 dBm.)

2.18 The DISCR % switch may be adjusted to provide a threshold for operation of the *type of distortion* lamps (MB, SB, etc). Only an amount of distortion exceeding the value of the DISCR % switch setting will light the corresponding distortion lamp. [A telegraph line being tested remotely may cause two or more lamps to flash off and on. The DISCR % switch allows all but

the predominant (transmitted) type of distortion to the disregarded.]

2.19 The INPUT switch is used to select the proper circuitry for compatibility with the circuit in which the signal appears. Either current or voltage may be measured. When current input is used, the POLARITY switch will correct for proper input current flow. The M lamp will light when the incoming signal is of correct polarity for marking during steady mark condition.

2.20 The AUTO.-PK-PIP switch is associated with the Pixie tubes. When set to PK, the tubes will display overall maximum distortion and hold that display until reset manually. When set to PIP, peak distortion for each individual character will be displayed until reset automatically by the next succeeding character. When set to AUTO., the maximum distortion is displayed approximately every 2 seconds, and the Pixie tube display is reset. (The 911C-1 does not have the AUTO. position.)

2.21 The FILTER switch, when set to IN, prevents spurious impulses, such as contact bounce, from affecting the distortion indications. Under normal conditions, the switch is set to OUT. This is especially true when measuring a circuit using electronic receiving equipment, where response time is extremely short.

2.22 When the PARITY switch is ON, the PARITY lamp will light if the 8/10 or 8/11 code does

not contain a correct even parity bit. (The parity bit is the eighth information element. The 911C-1 does not check parity for the 8/10 code, but the 911C-2 does check parity for both 8/10 and 8/11 codes with its CODE switch on position 8.)

3. OPERATION

3.01 The control designations of the 911B-1 TSG, their meanings, and their functions are given in Table A. The BAUDS switch on the 911B-2 has 16 positions, numbered sequentially 1 through 15, plus EXT, instead of having the bauds designated for the switch positions, plus EXT CLK, as on the 911B-1. The BAUDS switch selects any one of the crystals with which the set has been equipped; the selected crystal controls the signaling rate in baud. (The frequency of the selected crystal is divided by 100 in the test set circuitry.) The crystal designations for each BAUDS switch position of the 911B-2 are listed in Table B. Crystals must be selected for each desired baud as shown in Table C.

3.02 Due to the design of the 911-type test sets, calibration of the bias for the PR1 relay, located in the 911B TSG, is the only adjustment required.



Calibration of the PR1 relay bias is required only when relay replacement is necessary. Calibration procedures are described in Part 4.

TABLE A
911B TEST SENTENCE GENERATOR CONTROLS

SWITCH	POSITION ¹	MEANING	FUNCTION
AUTO. MAN. STEP	AUTO.	Automatic	Automatic transmission of test sentence
	MAN.	Manual	Manual selection of character transmitted
	STEP	Step	Provides manual stepping of test sentence
BAUDS	45.5 (1)	45.5 Baud	60-word per minute (wpm), 3-row KB; 5/7.42 code
	56.9 (2)	56.9 Baud	75-wpm, 3-row KB; 5/7.42 code
	74.2 (4)	74.2 Baud	100-wpm, 3-row KB; 5/7.42 code
	75.0 (5)	75.0 Baud	100-wpm, 7-element — Government
	61.1 (3)	61.1 Baud	Government speed
	148	148.5 Baud ²	200-wpm, 3-row KB; 5/7.42 code
	110 (6)	110 Baud	100-wpm, 4-row KB; used with 8/11M or 8/11 code
	(7)	134 Baud ³	IBM code
	150 (8)	150 Baud	150-wpm, 4-row KB; used with 8/10 code
	EXT CLK (EXT)	External Clock	Used when crystal is not provided for baud desired
BIAS	0	No Bias	Undistorted signals
	MB	Marking Bias	Distortion — marking bias per amount of DIST 1% and DIST 5% switch setting
	SB	Spacing Bias	Distortion — spacing bias per amount of DIST 1% and DIST 5% switch setting
	SWB	Switched Bias	Distortion — alternate MB and SB per amount of DIST 1% and DIST 5% switch setting
	SWE	Switched End Distortion	Distortion — alternate ME and SE per amount of DIST 1% and DIST 5% switch setting
	SWC	Switched Combination	Distortion — alternate MB, SB, ME, and SE per amount of DIST 1% and DIST 5% switch setting
CODE	5/7.42	5-Element Code 1.42 Stop Pulse	3-row teletypewriter stations — 5-element matrix card installed
	5/7.0	5-Element Code 1.0 Stop Pulse	Government stations — Simulate 6/6 synchronous by sending this code — 5-element matrix card installed
	5/7.5	5-Element Code	European teletype stations — 5-element matrix card installed
	6/8	6-Element Code 1.0 Stop Pulse	Reserved for future — 5-element matrix card installed

TABLE A (Cont)

SWITCH	POSITION ¹	MEANING	FUNCTION
CODE (Cont)	7/9	7-Element Code 1.0 Stop Pulse	Reserved for future — 8-element matrix card installed
	8/10	8-Element Code 1.0 Stop Pulse	150-wpm, 4-row KB; 8th element even parity, 8-element matrix card installed
	8/11M	8-Element Code 2.0 Stop Pulse	100-wpm, 4-row KB; 8th element always mark, 8-element matrix card installed
	8/11	8-Element Code 2.0 Stop Pulse	100-wpm, 4-row KB; 8th element even parity, 8-element matrix card installed
DIST 1%	0-4	0 to 4 Percent	Adjusts percent of distortion in 1% steps from 0% to 4%
DIST 5%	0-45	0 to 45 Percent	Adjusts percent of distortion in 5% steps from 0% to 45%
REPEAT	ON	Repeat Character	Repeated transmission of manually selected character
RESET	—	Reset	Resetting test sentence to beginning of sentence
RY OR U*	ON	Send RY or U*	RY sent for 5-element code or U* sent for 8-element code
OUTPUT	REL CAL	Relay Calibrate	For calibration of PR1 relay
	REL	Relay	Contact signals
	NORM	Normal	Voltage signals (+9 volts mark, Grd space)
	REV	Reverse	Voltage signals (Grd mark, +9 volts space)
	EIA	Electronics Industries Association	Voltage signals (-12 volts mark, +12 volts space)

Note 1: Designations in parentheses are for BAUDS switch on J79911B-2.

Note 2: Not provided in J79911B-2.

Note 3: Not provided in J79911B-1.

TABLE B
CRYSTAL DESIGNATIONS FOR J79911B-2 TSG

BAUDS SW POSITION	CRYSTAL DESIGNATION
1	Y1
2	Y2
3	Y3
4	Y4
5	Y5
6	Y6
7	Y7
8	Y8
9	Y9
10	Y10
11	Y11
12	Y12
13	Y13
14	Y14
15	Y15

TABLE C
CRYSTAL SELECTION FOR J79911B-2 TSG

BAUD	FREQ RANGE, KHz	CRYSTAL DESIG
40 to 55.9	4.000 to 5.599	Y1, Y9
56 to 76.9	5.600 to 7.699	Y2, Y3, Y4, Y5, Y10, Y11, Y12
70 to 200	7.000 to 20.000	Y6, Y7, Y8, Y13, Y14, Y15

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3.03 Under normal operating conditions, set controls on the 911B as follows:

SWITCH	SETTING
AUTO. MAN. STEP	AUTO.
BAUDS	Speed of circuit
BIAS	0
CODE (Note)	Type of code used by data station
DIST 1%	0
DIST 5%	0
OUTPUT	Type desired
REPEAT	OFF
RY OR U*	OFF

Note: Station code will determine which translator matrix card to install in the 911B.

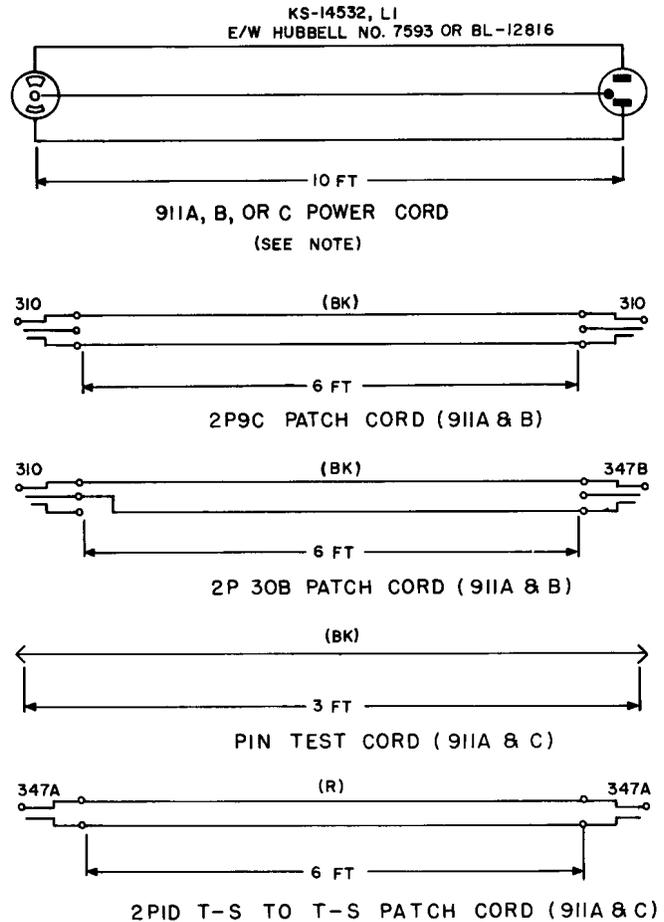
Translator Matrix Card Replacement

3.04 Use the following procedure for translator matrix card replacement.

- (1) Turn off rectifier and remove power cord.
- (2) To remove translator matrix, release fastener (1/4 turn counterclockwise) holding matrix cover, open cover, and remove translator matrix card.
- (3) Insert matrix card desired, and verify that card is secure in its connector.
- (4) Replace matrix card cover and tighten fastener (1/4 turn clockwise).
- (5) Replace power cord and turn on rectifier.

3.05 To connect the 911B TSG to a circuit to be tested, three different test cords are provided (Fig. 5). For current input, the 2P9C cord is used with the 911B TSG when normally open = mark; the 2P30B is used with the 911B when normally closed = mark. The 2P1D cord is used for current input to the 911C DMS. The PIN cord is used with the DMS and TSG for voltage operation.

3.06 The control designations of the 911C DMS, their meanings, and their functions are given in Table D. The BAUDS switch information for



NOTE:
TPA 469807 ONLY ONE SUPPLIED WITH 911A DTS

Fig. 5—Cords for 911A, B, and C Data Test Sets

the 911C is the same as the BAUDS switch on the 911B. Refer to 3.01 for details on the switch and crystal selection. The 911C-2 has controls similar to the 911C except as follows:

- (a) The fourth and fifth positions of the CODE switch on the 911C-2 are labeled 8 and 9, instead of 8/10 and 8/11 as on the 911C-1. These positions permit measuring signals with 5, 6, 7, 8, or 9 information element codes with a stop pulse of one or more element lengths.
- (b) The 911C-1 has a switch designated PIP-PK. The corresponding switch on the 911C-2 is designated AUTO.-PIP-PK. With the switch set to AUTO., the maximum distortion is displayed approximately every 2 seconds and the Pixie tube display is reset.

TABLE D
911C DISTORTION MEASURING SET CONTROLS¹

SWITCH	POSITION ²	MEANING	FUNCTION
BAUDS	45.5 (1)	45.5 Baud	60-wpm, 3-row KB; 5/7.42 code
	56.9 (2)	56.9 Baud	75-wpm, 3-row KB; 5/7.42 code
	74.2 (4)	74.2 Baud	100-wpm, 3-row KB; 5/7.42 code
	75.0 (5)	75.0 Baud	100-wpm, 7-element, Government
	61.1 (3)	61.1 Baud	Government speed
	148	148.5 Baud ³	200-wpm, 3-row KB; 5/7.42 code
	110 (6)	110 Baud	100-wpm, 4-row KB; used with 8/11M or 8/11 code
	(7)	134 Baud ⁴	IBM code
	150 (8)	150 Baud	150-wpm, 4-row KB; used with 8/10 code
	EXT CLK	External Clock	Used when crystal is not provided for baud desired
CODE	5 (5)	5-element (1.0 stop or longer)	3-row teletypewriter station or 6/6 synchronous
	6 (6)	6-element (1.0 stop or longer)	Teletypesetter
	7 (7)	7-element (1.0 stop or longer)	Business machines
	8/10 (8)	8-element (1.0 stop or longer)	150-wpm, 4-row KB; 37-type TTY
	8/11 (9)	8-element (2.0 stop or longer)	100-wpm, 4-row KB
DISCR %	0	0 percent	Provides threshold for operation of <i>type of distortion</i> lamps (MB, SB, etc). An amount of distortion exceeding the value of DISCR % switch setting will light corresponding distortion lamps.
	3	3 percent	
	5	5 percent	
	10	10 percent	
	15	15 percent	
FILTER	IN	—	Rejects transients shorter than 1.5 msec duration
INPUT	20 NORM	Normal 20 mA	Recognizes +20 mA as mark, 0 mA as space
	20 REV	Reverse 20 mA	Recognizes +20 mA as space, 0 mA as mark
	60 NORM	Normal 60 mA	Recognizes +62.5 mA as mark, 0 mA as space
	60 REV	Reverse 60 mA	Recognizes +62.5 mA as space, 0 mA as mark
	EIA	—	Mark, GRD or — voltage (space trigger voltage +2 volts instead of +5 volts for REV)

TABLE D (Cont)

SWITCH	POSITION ²	MEANING	FUNCTION
PARITY	ON	—	Checks even parity for 8/11 code. Noncheck lights PARITY lamp
PIP-PK (AUTO.-PIP-PK)	PIP	—	Maximum distortion per character displayed on Pixie tubes. Next character resets display.
	PK	Peak	Highest overall distortion held displayed until manually reset. (Operate PIP-PK switch to PIP, then back to PK.) On AUTO. the display recurs every 2 seconds.
POLARITY	+ —	Positive Negative	Current input — place switch to polarity on SLEEVE of connecting cord
RESET			Operate when power is first turned on to prepare set to receive incoming signals. Do not operate while receiving signals.

Note 1: See 3.06 for differences between the 911C-1 and the 911C-2 Test Sets.

Note 2: Designations in parentheses are for BAUDS and CODE switches on J79911C-2.

Note 3: Not provided in J79911C-2.

Note 4: Not provided in J79911C-1.

(c) The 911C-1 checks even parity for the 8/11 code. The 911C-2 checks even parity for both the 8/10 and 8/11 codes.

Note: Setting depends on the particular circuit and measurement to be made. Set to give least confusing indication on Pixie display.



No field calibration or maintenance is required for the 911C DMS.

Reversals

3.08 The 911B TSG may be used as a square-wave generator. To obtain a square-wave output, set controls as follows:

3.07 Under normal operating conditions, the controls of the 911C will be set as follows:

SWITCH	SETTING
BAUDS	Baud of signal
CODE	Code of data signal
DISCR %	As required (see note)
FILTER	OUT
INPUT	Type at testing point
PARITY	OFF
PIP-PK or AUTO.-PK-PIP	PIP
POLARITY	Current signal type

SWITCH	SETTING
BAUDS	Desired baud
BIAS	0
CODE (Note)	8/10
DIST 1%	0
DIST 5%	0
REPEAT	ON
RY OR U*	ON
RESET	Momentarily operate

Note: With 8-element matrix installed in TSG.

4. FIELD MAINTENANCE

4.01 Field maintenance of the 911A DTS shall be limited to checking that the set is functioning properly, as follows:

- (a) Connect ac power.
- (b) Adjust TSG and DMS controls as follows:

Test Sentence Generator

SWITCH	SETTING
AUTO. MAN. STEP	AUTO.
BAUDS	Desired speed
BIAS	0
CODE (Note)	—
DIST 1%	0
DIST 5%	0
OUTPUT	NORM
REPEAT	OFF
RESET	OFF
RY OR U*	OFF

Note: Code to agree with translator matrix card installed.

Distortion Measuring Set

SWITCH	SETTING
BAUDS	Agree with TSG
CODE	Agree with TSG (Note 1)
DISCR %	As required (Note 2)
FILTER	OUT
INPUT	As required
PARITY	OFF (Note 3)
PIP-PK or AUTO.-PK-PIP	PIP

Note 1: For 911A-2 use position 8 on DMS for 8/10, 8/11M, and 8/11 codes on TSG.

Note 2: Setting depends on the particular circuit and measurement to be made. Set to give least confusing indication on Pixie display.

Note 3: PARITY switch should be ON if 911A-2 generates even parity to check this feature.

- (c) Connect TSG VOLT pin jack to VOLT IN pin jack of DMS using P1N test cord.
- (d) Pixie tubes display distortion, if any. PARITY lamp off.
- (e) Adjust DIST 1%, DIST 5%, and BIAS controls on TSG; DMS will follow distortion settings within ± 2 percent.

PR1 Relay Replacement

4.02 Use the following procedure for PR1 relay replacement.

- (1) Turn off rectifier and remove power cord.
- (2) Loosen the six captive screws (911A) or four captive screws (911B) but do not remove them.
- (3) Slide chassis out of case, exposing the PR1 relay (Fig. 6).
- (4) Replace relay using a 303-type relay.
- (5) Replace chassis and tighten captive screws.
- (6) Replace power cord.

PR1 Relay Calibration

4.03 Adjust TSG and DMS controls as follows:

Test Sentence Generator

SWITCH	SETTING
AUTO. MAN. STEP	AUTO.
BAUDS	74.2 or 110
BIAS	0
CODE	5/7.0 or 8/11
DIST 1%	0
DIST 5%	0
OUTPUT	REL CAL
REPEAT	OFF
RY OR U*	OFF

SECTION 103-813-100

Distortion Measuring Set

SWITCH	SETTING
BAUDS	Agree with TSG
CODE	5 (74.2 baud) 8 or 8/11 (110 baud)
DISCR %	0
FILTER	OUT
INPUT	EIA
PARITY	OFF
PIP-PK or AUTO.-PK-PIP	PIP

4.04 Interconnect the REL OUTPUT jack of the 911B to the VOLT IN pin jack using a 2W17A cord (not furnished with set), or equivalent.

Connect the tip of the cord, equipped with a No. 141 cord tip, to VOLT IN of 911C, and the ring to GRD of 911C.

4.05 With a screwdriver, adjust the REL CAL potentiometer of the 911B for 00 distortion as displayed.

4.06 The location of cards is shown in Fig. 6. For ordering information on the cards refer to Section 807-462-152. For detailed operation, refer to the following circuit descriptions (CDs) and schematic drawings (SDs):

- CD- & SD-70937-01—911B Test Sentence Generator
- CD- & SD-70938-01—911C Distortion Measuring Set

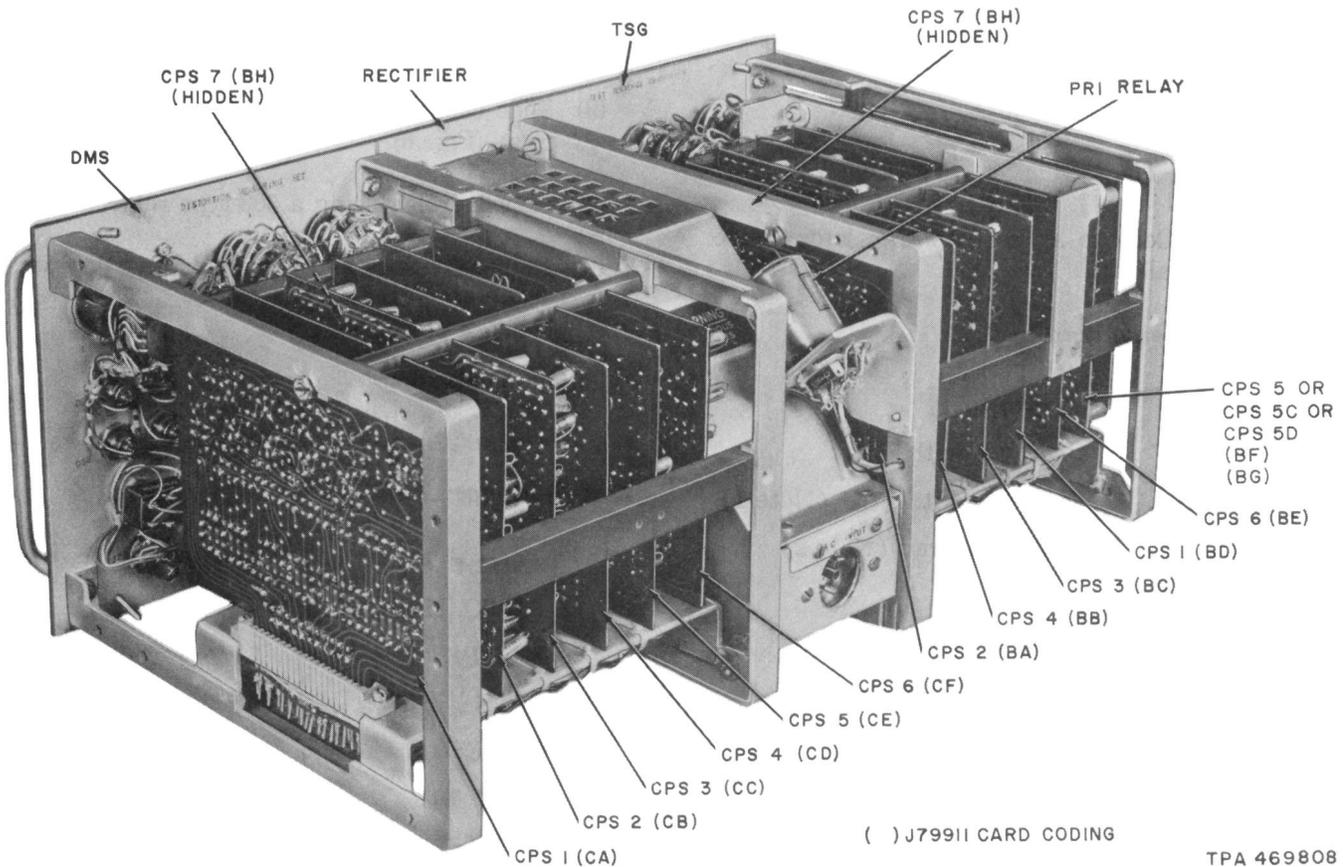


Fig. 6—J7991A-1 Data Test Set—Location of Cords