911D TYPE DISTORTION MEASURING SET

(J79911D)

1. GENERAL

1.01 This section describes the operation and maintenance of the 911D (J79911D) distortion measuring set used with No. 2 and No. 9 telegraph service boards.

1.02 The 911D distortion measuring set (DMS) is a relay rack mounted test set used to measure the degradation of low speed data signals in terms of distortion, for example teletypewriter signals.

1.03 Two different control panels, one for each of the above service boards, are available but the printed card unit, J-79911DA, (Fig. 1) is used with either panel.

1.04 Although CD- and SD-70940-01 covers the detailed operation of the 911D DMS, printed wiring cards from the 911C DMS are used. For the complete description, CD- and SD-70938-01 must also be referred to.

2. IDENTIFICATION

2.01 The 911D, as mentioned above, is designed for use in either the No. 2 or No. 9 telegraph service board. Two different control panels are provided to be compatible with the service boards. The panels for the No. 2 and No. 9 boards are shown in Fig. 2 and 3 respectively.

2.02 A digital logic is used throughout the circuitry and is controlled by a crystal clock which requires no adjustment.

2.03 The 911D can be used for any existing Baudot, ASCII and other codes and speeds up to 150 bauds. Selection of the type of code to be received is obtained by the CODE rotary switch on the panel. This code can be either 5-, 6-, 7-, or 8- element code with a start pulse and a stop pulse of one or more element lengths.

2.04 Any distortion, ranging from 0 to 49 percent in 1 percent increments, with an accuracy of ±1 percent is digitally displayed on PIXIE tubes. One tube is used for TENS and the second is used for UNITS display.

2.05 Provision has been made for up to nine crystals corresponding to the baud rate of code received. If a different speed from those for which crystals are provided, an external oscillator may be used. In such cases, the oscillator is adjusted to 100 times the desired baud rate and connected to EXT CLK test point. The BAUDS rotary switch is set to EXT to complete the connection. (When using 21A transmission measuring set, adjust level to 0 dbm.) The crystal clock (J79911BH) is located on the control panel.

2.06 Distortion may be cancelled from the input signal that is displayed by the *type* of distortion lamps (MB, SB etc.). The DISCR % rotary switch controls the amount to be cancelled. Only that type of distortion that exceeds the amount the DISCR % switch is set for will light the type of distortion lamps.

2.07 The PIP-PK 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.
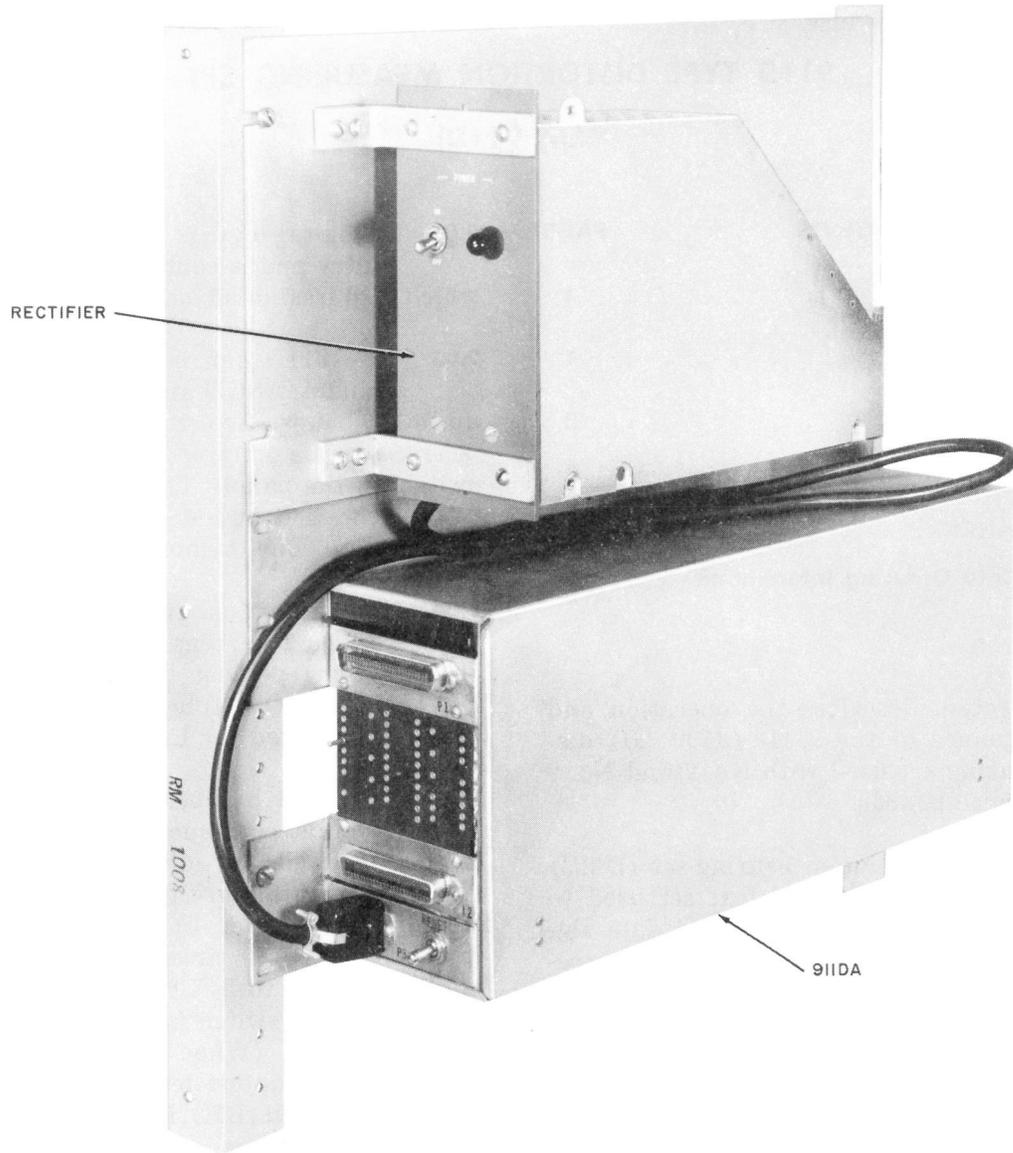
Fig. 1 — 911DA Printed Cards Unit (J79911DA List 1)

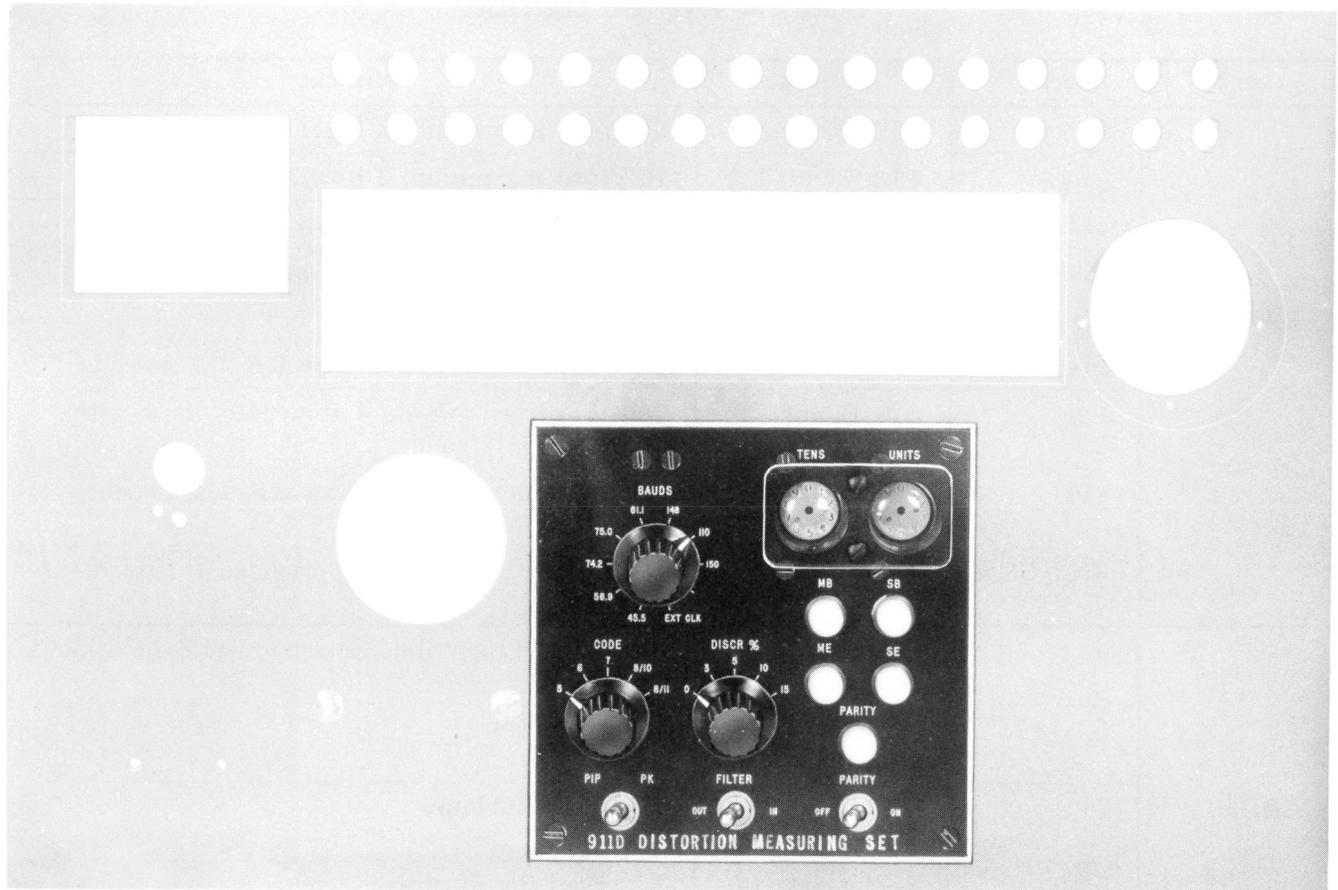**Fig. 2 — 911D Panel for No. 2 Telegraph Service Board**

Fig. 3 — 911D Panel for No. 9 Telegraph Service Board

2.08 When an 8/11 code contains an even parity bit or 8/10 contains and odd parity bit, the PARITY switch operated will cause the PARITY lamp to light whenever parity does not check. Resetting is accomplished by operating the PARITY switch to OFF.

3. OPERATION

3.01 The control designations of the 911D DMS, the meaning and functions are given in Table A.

No Calibration procedures are required for the 911D DMS.

3.02 Under normal operating conditions, the controls of the 911D will be set as follows:

SWITCH	SETTING
BAUDS	Bauds rate of ckt.
CODE	Code of data station.
DISCR %	3
FILTER	OUT
PARITY	OFF
PIP-PK	PIP

4. MAINTENANCE

4.01 The location of cards are shown in Fig. 4. Table B cross references the cards with its ordering information.

TABLE A — 911D DMS CONTROLS

SWITCH	DESIG.	MEANING	FUNCTION
BAUDS	45.5	45.5 Bauds	60 Word per minute 3 Row KB- 5/7.42 code
	56.9	56.9 Bauds	75 Word per minute 3 Row KB- 5/7.42 code
	74.2	74.2 Bauds	100 Word per minute 3 Row KB- 5/7.42 code
	75.0	75.0 Bauds	100 Word per minute 7 element - Government
	61.1	61.1 Bauds	Government Speed
	148	148.5 Bauds	200 Word per minute 3 Row KB- 5/7.42 code
	110	110 Bauds	100 Word per minute 4 Row KB- Used with 8/11M or 8/11 code
	150	150 Bauds	136 Word per minute 4 Row KB- Used with 8/11M or 8/11 code
	EXT CLK	External Clock	Used when crystal is not provided for baud rate desired
CODE	5	5-Element (1.0 Stop or Longer)	3 Row Teletypewriter Station or 6/6 Synchronous
	6	6-Element (1.0 Stop or Longer)	Teletypesetter
	7	7-Element (1.0 Stop or Longer)	Business Machines
	8/10	8-Element (1.0 Stop or Longer)	Reserved for Future
	8/11	8-Element (2.0 Stop or Longer)	100 Word per minute 4 Row KB
DISCR %	0	0 Percent	Percent of distortion to be rejected displayed by type lamps. Distortion exceeding setting will be displayed.
	3	3 Percent	
	5	5 Percent	
	10	10 Percent	
	15	15 Percent	
FILTER	IN	—	Rejects transients shorter than 1.5 msec duration
PARITY	ON	—	Checks EVEN parity for 8/11 code and ODD parity for 8/11 code. Non-check lights PARITY lamp.
PIP-PK	PIP	—	Maximum distortion PER character displayed on PIXIE tubes
	PK	Peak	Highest overall distortion held displayed until MANUALLY reset.
RESET †			Reset Test Sentence to beginning of Sentence

† Switch located on J79911DA Printed Cards Unit.

TABLE B — CARD ORDERING INFORMATION

TYPE OF BOARD	CPS NO.	ORDERING NO.
911D DMS		
Unit Distortion Counter	1	J79911CA
Unit Distortion Store	2	J79911CB
Character Timer, Input Trigger and Parity Check	3	J79911CC
Tens Register and Comparator	4	J79911CD

TABLE B — CARD ORDERING INFORMATION (Cnt'd)

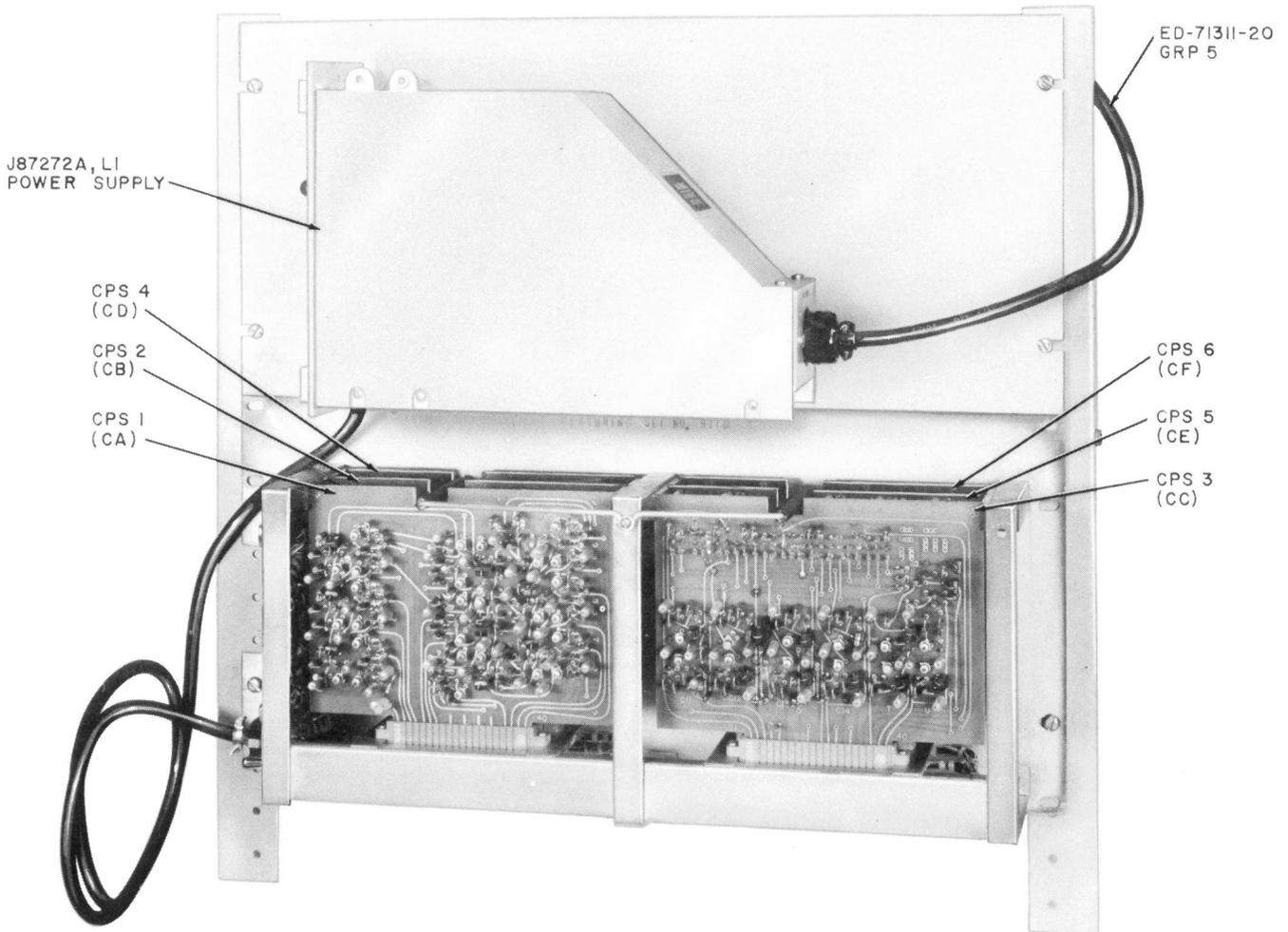| TYPE OF BOARD	CPS NO.	ORDERING NO.
Tens Counter, Tens and Units Samplers	5	J79911CE
Distortion Analyzer Current Input	6	J79911CF
Clock	7	J79911BH-1 (Z Option) J79911BH-3 (X Option)
Voltage Divider	1	ED-71307
Impedance Reducer	2	ED-71310

Fig. 4 — 911DA Printed Cards Unit, Location of Cards