M-LEAD PULSE CORRECTOR

SD-99766-01

OUT-OF-SERVICE TESTS

1. GENERAL

1.01 This section describes a method of making out-of-service tests for evaluating the performance of the M-lead pulse corrector, using the SF testing and monitoring circuit, SD-96519-01 or SD-96519-02.

1.02 The tests covered are:

A. ***Supply Voltage Test:*** This test checks the voltage across diode CR1 and the office battery measured through resistance lamp RT1.

B. ***Performance Test:*** This test checks that the pulse corrector will meet the pulsing requirements.

1.03 If the requirements of Test B are not met, the defective unit should be sent to a repair center, since special techniques are involved in testing and clearing trouble in the precision timing circuits.

1.04 The plug-in circuit pack is referred to in this section as pulse corrector; and the 2B signaling test set, as 2B test set.

1.05 Adjustment of the 2B test set for percent break values above 70 must be made ***slowly*** to prevent pulsing out incorrect values. Incorrect values will be obtained, if the vibration rate of the PERCENT BREAK meter pointer is not the same as that of the PULSES PER SECOND meter pointer. To restore correct percent break values, turn the ADJ % BK control counterclockwise until both pointers are vibrating at the same rate; then turn the control ***slowly*** clockwise until the desired percent break value is obtained. It may also be necessary to change the coarse ADJ % BK switch S, M, or L setting to obtain the desired range on the PERCENT BREAK meter.

1.06 Before using the 2B test set, it should be known to be correctly calibrated.

Note: This calibration requires special attention, since the pulse corrector contains precision timing circuits that must be checked carefully.

1.07 The J98613AY SF testing and monitoring circuit (SD-96519-01 or SD-96519-02) is referred to in this section as test circuit. KEYERS switch 1 and RECEIVER switch 2 on this panel are referred to as SW1 and SW2, respectively.

1.08 The KS-14510, L5 volt-ohm-milliammeter is referred to in this section as VOM.

1.09 ***Lettered Steps:*** A letter a, b, c, etc, added to a step number in Part 3 or 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

Test A

2.01 KS-14510, L5, volt-ohm-milliammeter (VOM) including test leads equipped with test prods and alligator clips.

Test B

2.02 Adapter, ED-99983-30, Group 1 (SD-99766-01, Issue 2 or later) used as a test connection between the pulse corrector and the test circuit.

2.03 2B signaling test set — J64730, L1 (SD-56134-02) including patching cords for E and M leads (2P1D and 2P3B cords) and power cord attached.

2.04 Test circuit — J98613AY (SD-96519-01 or SD-96519-02).

2.05 Patching cord — P2A, 6 feet long, equipped with two 347A plugs (2P1D cord).

2.06 Patching cord — P2A, 6 feet long, equipped with two 347B plugs (2P3B cord).

2.07 Patching cord — P3E, 6 feet long, equipped with two 310 plugs (3P15A cord).

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3. METHOD

STEP	ACTION	VERIFICATION
	A. Supply Voltage Test	
1	Set VOM to 60 VDC scale.	
2	Ground positive lead of VOM.	
3	Connect negative lead of VOM to terminal 3 of 906J connector at rear of mounting shelf.	VOM reads between —18 and —26 volts.
4	Move negative lead of VOM to terminal 6 of 906J connector.	VOM reads between —42 and —53 volts.
5	Remove VOM leads from terminals.	
	B. Performance Test	
1	On test circuit — Set all keys to normal position. ***Note:*** The twist keys in the test circuit are operated when the white line is in the vertical position and are normal when the white line is in the horizontal position. The OG-BG key in the 2B test set is operated when in the BG (white line horizontal) position and is normal when in the OG (white line vertical) position.	
2	On 2B test set — Set SCALE SEL switch to PPS position.	
3	Plug power cords of 2B test set into A and B jacks of test circuit.	After 1 minute, PULSES PER SECOND and PERCENT BREAK meters read other than 0.

STEP	ACTION	VERIFICATION
4	Operate CONT PLS key to DIAL PLS position.	PERCENT BREAK meter reads 0 on ***black*** scale.
5a	If the requirement of Step 4 is not met — Adjust pointer adjustment screw of PERCENT BREAK meter to obtain 0 reading.	
6	Insert 258D plug into P jack.	PERCENT BREAK meter reads 100 on ***black*** scale.
7b	If the requirement of Step 6 is not met — Unlock CAL % BK control and adjust to obtain reading of 100 on ***black*** scale. Relock control, taking care not to change reading.	
8	Remove 258D plug. ***Note:*** Repeat Steps 6, 7b, and 8 if test extends beyond 30 minutes.	
9	Restore CONT PLS key to normal.	
10	Set SCALE SEL switch to 200V position.	
11	On test circuit — Set SW1 and SW2 to position 1.	
12	Operate M key.	
13	Patch E and M jacks of test circuit to E and M jacks of 2B test set, using 2P3B and 2P1D cords.	
14	Plug adapter into test circuit.	
15	Insert pulse corrector into adapter.	
16	Patch SENS-1 jack of test circuit to VM jack of 2B test set using 3P7A cord.	On 2B test set — VOLTS meter reads between —18 and —26 volts.
17	Remove cord from SENS-1 and VM jacks.	
18	On 2B test set — Set SCALE SEL switch to PPS position.	
Response Time and Corrected Break Interval		
19	On 2B test set — Adjust ADJ PPS control to 10 pps on PULSES PER SECOND meter.	
20	Set ADJ % BK switch to S position.	
21	Adjust ADJ % BK control to 10 on ***black*** scale of PERCENT BREAK meter.	

STEP	ACTION	VERIFICATION
22	Operate TWD L key to OFF HK position and TWD D key to ON HK position.	
23	Operate PLS and MEAS % BK keys to LINE position.	PERCENT BREAK meter does not exceed 1 on ***red*** scale.
24	Restore PLS and MEAS % BK keys to LINE position.	
25	Adjust ADJ % BK control to 16.5 on ***black*** scale of PERCENT BREAK meter.	
26	Operate PLS and MEAS % BK keys to LINE position.	PERCENT BREAK meter reads between 46 and 55 on ***red*** scale.
27	Restore all test set keys to normal.	
	Distortion	
28	Patch D jack to L jack using 3P7A cord.	
29	On 2B test set — Operate TWD L key to ON HK position.	
30	Operate PLS key to DROP position.	
31	Operate MEAS % BK to LINE position.	
32	Set ADJ % BK switch to M position.	
33	Adjust ADJ % BK control to 65 on ***red*** scale of PERCENT BREAK meter.	
34	Operate TWD L key to OFF HK position and TWD D key to ON HK position.	
35	Operate PLS key to LINE position.	PERCENT BREAK meter reads between 60 and 70 on ***red*** scale.
36	Restore PLS and MEAS % BK keys to normal.	
	Corrected Make Interval	
37	Adjust ADJ PPS control to 12 pps on PULSES PER SECOND meter.	
38	Carefully adjust ADJ % BK control clockwise to 75 on ***black*** scale of PERCENT BREAK meter.	
39	Operate PLS and MEAS % BK keys to LINE position.	PERCENT BREAK meter reads between 64.5 and 73.5 on ***red*** scale.

STEP	ACTION	VERIFICATION
40	Remove all cords, restore all keys to normal, and return pulse corrector to service or spare position.	