ADOSO II SYSTEM
(Automatic Distribution Of Service Orders)

MAINTENANCE TESTS
For
Multi-Line Control Unit
PSD-70012-01

1. GENERAL

1.01   This subsection describes the maintenance and trouble-location tests to be applied to the multiline control unit PSD-70012-01, that portion of the ADOSO II System circuitry located in the control plant service center. Only one plant service center has the multi-line control unit PSD-70012-01.

1.02   All associated teletypewriter equipment shall be tested, adjusted, and requirements met, in accordance with standard Bell System Practices and any related instructions.

1.03   If, during the volt-ohmmeter tests, readings disagree with information in this section, the portion of the circuit under test should be examined and trouble corrected. Tests should be repeated where variations of several hundred ohms is experienced. This would occur from condition of the test battery or manipulation of the meter itself.

1.04   It should be noted, also, that this section does not test every item of equipment, nor every circuit.

2. MATERIAL REQUIRED

2.01 <u>Quantity</u>   <u>Item</u>

     1   KS-14510-L1 or equivalent volt-ohmmeter.

     2   Single conductor cords suitable for connecting to the VOM with small aligator-type clips on test end.

     2   Single conductor 3-foot cords equipped with small alligator-type clips on both ends.

     1   KS-6573 22-1/2 volt test battery.

3. TERMINOLOGY

3.01 VOM on + 10   = Set volt-meter indicator on ohms + 10 scale.

3.02 VOM on + 1000   = Set volt-ohmmeter indicator on ohms + 1000 scale.

3.03 Connect (+) "A" 129 = Connect the pin jack marked (+) of the VOM to terminal 129 of the "A" terminal strip.

3.04 Connect (-) "A" 123 = Connect the pin jack marked (-) of the VOM to terminal 123 of the "A" terminal strip.

3.05 VOM infinity   = VOM should read infinity.

3.06 VOM 1200   = VOM should read ap-

proximately 1200 ohms (may vary 200 ohm, depending on meter, battery and setting).

3.07 To explain an apparent polarity error that exists in this test section, the negative of the internal batteries of the KS-14510-L1 meter are connected to the (+) terminal when the ohm scales are used.

4. TEST PREPARATIONS

4.01 Disconnect or open the following before testing:

(A) Line circuits (disconnect from terminal strip "A" or insert an open plug in the set jacks of the 63-C-1 switchboard).

(B) The "D" and "E" cord connectors associated with the 48 and 120V rectifiers.

(C) The "F" and "G" connectors associated with the 28 sequence selector and distributors.

(D) Remove all the 2Y lamps from their sockets.

4.02 Place all keys in normal position.

4.03 Install the 70A fuses in the 18B fuse mountings.

4.04 Remove the four 255A relays.

4.05 Remove the eight 276R relays.

4.06 Remove the six 376B tubes.

4.07 VOM on + 1000.

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5. TESTING OF VARIOUS CIRCUIT COMPONENTS

5.01 Ground and short test before applying AC power.

Test	Result
(A) Connect (-) "A" 123.	
(B) Connect (+) frame of unit.	VOM infinity.
(C) VOM on + 100.	
(D) Connect (+) "A" 130.	
(E) Connect (-) "A" 123.	VOM approximately 2000 ohms.
(F) VOM on + 10.	
(G) Connect (+) "A" 129.	VOM approximately 300 ohms.

NOTE: If in pars. (E) or (G) the VOM reads "0", it indicates a short. Suggest that the 70A fuses be removed one at a time until the circuit in trouble is identified.

5.02 Test line circuits for branches A, B, C and D (branch A first).

Test	Result
(A) VOM on + 10.	
(B) Connect (+) "A" 6.	
(C) Connect (-) "A" 5.	VOM infinity.
(D) Install a 255A relay in position L1.	VOM infinity.

Test	Result

(E) Install a 276R relay in position L9.

VOM 236 ohms.

(F) Manually operate and release the T1 relay.

VOM infinity.

(G) Connect shorting test lead to terminals 43 and 48 of "A" T.S.

(H) Manually operate and relase the T1 relay.

VOM 236 ohms in either condition of T1 relay.

(J) Remove shorting test lead from "A" 43 and 48.

(K) Repeat work operations 5.02(A) through 5.02(J) to test branches B, C and D using the following connections.

(L) To set branch B, connect VOM to 9 in 5.02 (B) and 8 in par. 5.02(C). Install 255A relay in L2 at 5.02(D). Install a 276R relay in position L10 at 5.02(E), operate the T2 relay at 5.02(F). Short terminals 43 and 48 at 5.02(G) and re-operate the T2 relay at 5.02(H).

(M) To test branch C connect VOM to 12 and 11 "A" T.S., install L3 and L11 relays and operate T3 relay.

Test	Result

Add strap to terminals 43 and 48.

(N) To test branch D con-
nect VOM to 15 and 14
"A" T.S., install L4 and
L12 relays and operate T4
relay. Add strap to ter-
minals 43 and 48.

5.03 Test the trunk line circuit.

Test Preparation

Remove the four 255A relays.

(A) VOM on (+) 10.

(B) Connect (+) "A" 3.

(C) Connect (-) "A" 2.   VOM infinity.

(D) Install 276R relay
in position L5.   VOM 100 ohms.

(E) Block T1 relay op-
erated.   VOM infinity.

(F) Install a 255A relay
in position L1 and
manually operate its
armature to contact 4.   VOM 100 ohms.

(G) Manually operate
the L1 relay arma-
ture to contact 5.   VOM infinity.

Test	Result
(H) Unblock T1 relay	VOM 100 ohms.
(J) Block T5 relay operated.	
(K) Connect shorting test lead to terminals 43 and 48 "A" T.S.	
(L) Simultaneously operate and hold the OL1 and OL2 relays.	VOM infinity.
(M) Alternately release the OL1 and OL2 relays.	With either the OL1 or OL2 relays released, the VOM should read 100 ohms.
(N) Release the OL1, OL2, unblock the T5 relay and remove shorting clip from "A" T.S. 43 and 48.	
(P) Repeat work operations 5.03 (E), (F), (G) and (H) to test branches B, C and D as following:	
(Q) To test branch B, operate and block the T2 relay in 5.03 (E) and install a 255A relay in position L2 in 5.03(F).	

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Test	Result

(R) To test branch C,
  block the T3 relay
and install a relay in
position L3.

(S) To test branch D,
  block the T4 relay
and install a relay in
position L4.

5.04 Test Broadcast Relay Circuit.

Test Preparation

Install relays L1, 2, 3, 4, 5,
9, 10, 11 and 12.

(A) Connect (+) "A" 9.

(B) Connect (-) "A" 8.　　　　　　VOM 236 ohms.

(C) Manually operate
  and release BS1　　　　　VOM when BS1 is
relay.　　　　　　　　　　　operated infinity.

(D) Repeat work op-
  erations 5.04 (A),
(B) and (C) to test
branches C and D.

(E) To test branch C,
  connect VOM to
terminal 12 in 5.04
(A) and 11 in 5.04 (B)
and operate the BS2
relay in 5.04 (C).

(F) To test branch D,
  connect VOM to 15
and 14 and operate the
BS3 relay.

Test	Result

(G) Install relays L6, 7 and 8.

(H) Connect (-) of KS-6573 battery to bottom of R14 resistor.

(J) Connect (+22.5 volt) of KS-6573 battery to "A" 123.

VOM 236 ohms.

(K) Manually operate and release BS3 relay.

VOM when BS3 is operated infinity.

(L) Reverse the clips on the KS-6573 test battery. (- will be on "A" 123 and + on bottom of R14 resistor).

VOM 236 ohms.

(M) Manually operate and release the BS3 relay.

VOM 236 ohms with BS3 relay operated or released.

(N) Repeat work operations 5.04(G), (H), (K) and (L) to test branches B and C as follows:

(P) To test branch B, leave KS-6573 battery connected as shown, then connect (+) VOM to "A" 12 in 5.04(A). Connect (-) VOM to all in 5.04(B) and operate the BS2 relay in (K).

Test	Result

(Q) To test branch C,
leave KS-6573 battery
connected as shown then
connect (+) VOM to "A"
12 in 5.04(A). Connect
(-) VOM to all in 5.04(B)
and operate the BS2 re-
lay in par. (K).

(R) Disconnect VOM and
KS-6573 battery.

6. TESTING THE VARIOUS LAMP OPERATING CIRCUITS

Test Preparation

VOM on + 10 for all of par. 6.

Test	Result

6.01 MM lamp circuit.

  (A) Connect (-) "A"
     123.

  (B) Connect (+) "A"
     214.   VOM infinity.

  (C) Manually operate
     and release T6
relay.   VOM 0 (short).

6.02 MBA lamp circuit.

  (A) Connect (+) "A"
     215.   VOM infinity.

Test	Result

(B) Operate on block T6 (Leave blocked for 6.03, 6.04 and 6.05).

VOM infinity.

(C) Manually operate and release T1A relay.

VOM when T1A is operated 0 (short).

6.03 MBB lamp circuit.

(A) Connect (+) "A" 216.

VOM infinity.

(B) Manually operate and release T2A relay.

VOM when T2A is operated 0 (short).

6.04 MBC lamp circuit.

(A) Connect (+) "A" 211.

VOM infinity.

(B) Manually operate and release the T3A relay.

VOM when T3A is operated 0 (short).

6.05 MBD lamp circuit.

(A) Connect (+) "A" 212.

VOM infinity.

(B) Manually operate and release the T4A relay.

VOM when T4A is operated 0 (short).

(C) Unblock T6 relay.

6.06 Alarm lamp circuit.

(A) Connect (+) "A" 235.

VOM infinity.

(B) Manually operate and release AL1 relay.

VOM when AL1 is operated 0 (short).

6.07 FA1 lamp circuit.

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Test	Result
(A) Connect (+) "A" 239.	VOM 0 (short).
(B) Operate and hold RF1 relay.	VOM infinity.
(C) Operate and hold FA2 relay.	VOM 0 (short).
(D) Release RF1 and FA2 relay.	VOM 0 (short).

6.08 NA lamp circuit.

(A) Connect (+) "A" 237.	VOM infinity.
(B) Operate and block TM relay.	VOM infinity.
(C) Operate and block C3 relay.	VOM 0 (short).
(D) Operate and release CM3 relay.	VOM infinity.
(E) Unblock TM relay.	VOM infinity.
(F) Unblock C3 relay.	VOM infinity.

6.09 BO lamp circuit.

(A) Connect (+) "A" 232.	VOM infinity.
(B) Operate and block TM relay.	VOM infinity.
(C) Operate and block C3 relay.	VOM infinity.

Test	Result
(D) Operate and block CM3 relay.	VOM 0 (short).
(E) Operate and hold CM4 relay.	VOM infinity.
(F) Unblock and release TM, C3, CM3 and CM4 relay.	VOM infinity.

6.10 OL lamp circuit.

(A) Connect (+) "A" 233.	VOM infinity.
(B) Manually operate and release OL1 relay.	VOM when OL1 is operated 0 (short).

6.11 BP lamp circuit.

(A) Connect (+) "A" 234.	VOM infinity.
(B) Manually operate and release BC1 relay.	VOM when BC1 is operated 0 (short).

6.12 BR lamp circuit.

(A) Connect (+) "A" 229.	VOM infinity.
(B) Manually operate and release BC2 relay.	VOM when BC2 is operated 0 (short).

6.13 BSB lamp circuit.

(A) Connect (+) "A" 230.	VOM infinity.
(B) Manually operate and release BS1 relay.	VOM when BS1 is operated 0 (short).

6.14 BSC lamp circuit.

Test	Result
(A) Connect (+) "A" 231.	VOM infinity
(B) Manually operate and release BS2 relay.	VOM when BS2 is operated 0 (short).

6.15 BSD lamp circuit.

(A) Connect (+) "A" 226.	VOM infinity.
(B) Operate and release BS3 relay.	VOM when BS3 is operated 0 (short).

6.16 MA lamp circuit.

(A) Connect (+) "A" 161.	VOM infinity.
(B) Manually operate and release MA relay.	VOM when MA is operated 0 (short).

6.17 BYT lamp circuit.

(A) Connect (+) "A" 236.	VOM infinity.
(B) Manually operate and release TK1 relay.	VOM when TK1 is operated 0 (short).

6.18 BYA lamp circuit.

(A) Connect (+) "A" 227.	VOM infinity.
(B) Manually operate and release BR1A relay.	VOM when BR1A is operated 0 (short).

6.19 BYB lamp circuit.

(A) Connect (+) "A" 223.	VOM infinity.
(B) Manually operate and release BR1B relay.	VOM when BR1B is operated 0 (short).

Test	Result

6.20 BYC lamp circuit.

(A) Connect (+) "A" 225.   VOM infinity.

(B) Manually operate and release BR1C relay.   VOM when BR1C is operated 0 (short).

6.21 BYD lamp circuit.

(A) Connect (+) "A" 221.   VOM infinity.

(B) Manually operate and release BR1D relay.   VOM when BR1D is operated 0 (short).

6.22 FA2 lamp circuit.

(A) Connect (+) "A" 218.   VOM 0 (short).

(B) Operate and lock RF2 relay.   VOM infinity.

(C) Manually operate and release the FA1 relay.   VOM when FA1 is operated 0 (short).

(D) Unblock RF2 relay.   VOM 0 (short).

6.23 Part of PF lamp circuit.

Test Preparation

VOM on + 100.

(A) Connect (+) "A" 130.

(B) Connect (-) "A" 217.   VOM 1800.

(C) Connect (-) "A" 219.   VOM 1800.

(D) Connect (-) "A" 240.   VOM 3000.

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Test	Result
(E) Operate and block RF2 relay.	VOM 10,000 (see note).
(F) Manually operate and release RF1.	VOM when RF1 is operated infinity.
(G) Unblock RF2 relay.	VOM 3000.
(H) Connect (-) "A" 152.	VOM 4500.
(J) Manually operate and release RF2 relay.	VOM when RF2 is operated 10,000 (see note).

(NOTE: Readings in (E) and (J) are abnormally high due to diode in the circuit and may vary 2000 ohms).

7. TESTING THE MAJORITY OF THE RELAY OPERATING CIRCUITS

7.01 AL2 relay circuit.

Test	Result
(A) Connect (+) "A" 129.	
(B) Connect (-) "A" 213.	VOM 2,450.
(C) Manually operate and release AL2 relay.	VOM infinity.

7.02 BC1 relay circuit.

(A) Connect (-) "A" 208.	VOM 700.
(B) Manually operate and release BC1 relay.	VOM when BC1 is operated infinity.

Test	Result

7.03 BC2 relay circuit.

    (A) Connect (-) "A" 102.   VOM 200.

    (B) Operate and block
         TK1 relay.   VOM infinity.

    (C) Operate and block
         BC1 relay.   VOM infinity.

    (D) Manually operate and   VOM when T7 is op-
         release T7 relay.   erated 700.

    (E) Unblock TK1 and
         BC1 relays.   VOM 200.

7.04 BC3 relay circuit.

    (A) Connect (-) "A" 209.   VOM infinity.

    (B) Operate and block
         BC2 relay.   VOM 700.

    (C) Manually operate and   VOM when TM2 is
         release TM2 relay.   operated infinity.

    (D) Unblock BC2.   VOM infinity.

7.05 BS1, BS2 and BS3 relay circuits.

    (A) Connect (-) "A" 210.   VOM 2500.

    (B) Connect (-) "A" 99.   VOM 2500.

    (C) Connect (-) "A" 98.   VOM 2500.

7.06 CM1 relay circuit.

    (A) Connect (-) "A" 160.   VOM infinity.

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Test	Result

(B) Manually operate and release TM relay.   VOM 1000.

7.07 T5 relay circuit.

   (A) Connect (-) "A" 155.   VOM infinity.

   (B) Manually operate and release T7 relay.   VOM 1000.

7.08 T6 relay circuit.

   (A) Connect (-) "A" 169.   VOM infinity.

   (B) Manually operate and release OL2.   VOM when OL2 is operated 700.

   (C) Manually operate and release T6 relay.   VOM when T6 is operated 700.

7.09 ST1 relay circuit.

   (A) Connect (-) "A" 110.   VOM infinity or possibly 100 ohms.

   (B) Operate and block BR1A, BR1B and T5.   VOM 875.

   (C) Manually operate and release BR1C relay.   VOM when BR1C is operated infinity.

   (D) Manually operate and release TK1 relay.   VOM when TK1 is operated infinity.

   (E) Operate and block B1 relay.   VOM infinity.

   (F) Operate and block OL1 relay.   VOM 875.

Test	Result

(G) Manually operate and release BC4 relay.   VOM when BC4 is operated infinity.

(H) Connect (-) "A" 107.   VOM 875.

(J) Manually operate and release BR1D relay.   VOM when BR1D is operated infinity.

(K) Unblock BR1A, BR1B, B1, OL1 and T5 relays.

7.10 T1, T2, T3 and T4 relay circuits.

(A) Connect (-) "A" 178.   VOM 700.

(B) Connect (-) "A" 180.   VOM 700.

(C) Connect (-) "A" 176.   VOM 700.

(D) Connect (-) "A" 172.   VOM 700.

7.11 CR and BL relay circuits.

(A) Connect (-) "A" 22.   VOM 350.

(B) Manually operate and block CR relay.   VOM 235.

(C) Manually operate and release BL relay.   VOM when BL is operated infinity.

(D) Manually operate and release TM relay.   VOM when TM is operated 700.

(E) Operate and block CM1 relay.   VOM infinity.

(F) Manually operate and release CM3 relay.   VOM when CM3 is operated 235.

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Test	Result
(G) Unblock CM1 relay.	VOM 235.
(H) Manually operate and release EN relay.	VOM when EN is operated 235.
(J) Manually operate and release B1 relay.	VOM when B1 is operated 235.
(K) Operate and block the TK1.	VOM 235.
(L) Connect (-) "A" 27.	VOM 700.
(M) Manually operate and release EN relay.	VOM when EN is operated infinity.
(N) Unblock TK1 relay.	VOM 235.
(P) Unblock CR relay.	VOM 350.

7.12 H relay circuit.

(A) Connect (-) "A" 33.	VOM 1050.

7.13 CO1 relay circuit.

(A) Connect (-) "A" 26.	VOM 950.

7.14 CO2 relay circuit.

(A) Connect (-) "A" 28.	VOM 550.
(B) Connect (+) "A" 28.	VOM 0 (short).
(C) Connect (-) "A" 129.	VOM 2500.
(D) Connect (+) "A" 129.	VOM 0 (short).

7.15 Part of B1, CO1 and CO2 relay circuit. (Due to diode, the resistance readings may vary 2000 ohms).

Test	Result
(A) Connect (-) "A" 25.	VOM 2000.
(B) Manually operate and release TK2 relay.	VOM 3000.
(C) Connect (-) "A" 29.	VOM 2000.
(D) Manually operate and release TK2 relay.	VOM 5000.

7.16 LT1 relay circuit.

(A) Connect (-) "A" 32.	VOM infinity.
(B) Operate and block LT1 relay.	VOM 1050.
(C) Manually operate and release H relay.	VOM when H is operated infinity.
(D) Operate and block ST2 relay.	VOM infinity.
(E) Manually operate and release BC1 relay.	VOM when BC1 is operated 1050.
(F) Unblock ST2 relay.	VOM 1050.
(G) Manually operate and release B1 relay.	VOM when B1 is operated infinity.
(H) Manually operate and release TK1 relay.	VOM when TK1 is operated infinity.

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Test	Result
(J) Operate and block BL relay.	VOM infinity.
(K) Manually operate and release CO1 relay.	VOM when CO1 is operated 1050.
(L) Unblock BL relay.	VOM 1050.
(M) Operate and block TM relay.	VOM 1050.
(N) Operate and block CM1 relay.	VOM infinity.
(P) Manually operate and release CM3 relay.	VOM when CM3 is operated 1050.
(Q) Unblock LT1, TM and CM1 relay.	VOM infinity.

7.17 MA relay circuit.
     (High resistance readings due to diodes may vary 2000 ohms).

(A) Connect (-) "A" 35.	VOM 10,000.
(B) Operate and block H relay.	VOM 4,000.
(C) Manually operate and release MA relay.	VOM 8,000.
(D) Unblock H relay.	VOM 10,000.

7.18 TK1 relay circuit.
     (High resistance readings due to diodes may vary 2000 ohms).

(A) Connect (-) "A" 31.	VOM 6,000.

Test	Result
(B) Connect (-) "A" 36.	VOM 6,000.
(C) Connect (-) "A" 35.	VOM 6,000.
(D) Connect (-) "A" 34.	VOM 6,000.
(E) Connect (-) "A" 37.	VOM 700.

8. SIMPLIFIED OPERATIONAL TESTS AFTER ALL THE CABINET WIRING IS COMPLETED

8.01 If the control unit is in a teletypewriter maintenance room and monitor teletypewriters are available, perform all the work operations covered in 8.04 through 8.14 and 9 through 15 before the unit is delivered to the control plant service center (PSC) for installation.

8.02 If the control unit has been installed in the PSC and its normal trunk and branch loops are connected, do not perform the work covered in 8.04 through 8.14 or 9 through 15. See 8.03.

8.03 On a working system as stated in 8.02, if it is desired to make tests comparable to those given in pars. 9 through 15, use any or all of pars. 16 through 22.

Test Preparations

8.04 Connect a DC 130V 60-65 mil line test circuit to terminals 2 and 3 of the "A" terminal strip; the negative or tip of loop to terminal 3. This circuit will be called the trunk.

8.05 Connect a second DC 130V 60-65 mil line test circuit to the "A" terminal strip as follows:

(A) Negative or tip of loop to terminal 6.

(B) Strap terminal 5 to terminal 9.

(C) Strap terminal 8 to terminal 12.

(D) Strap terminal 11 to terminal 15.

(E) Plus or ring of loop to terminal 14.

This circuit will be called the branch.

8.06 Place the following straps on the external wiring side of the "A" terminal strip.

(A) Strap 107 to 108.

(B) Strap 110 to 111.

(C) Strap 91 to 92.

(D) Strap 96 to 99.

(E) Strap 95 to 98.

8.07 CAD 4 indicates the wiring of the "A" terminal strip which should be complete except for possible terminals 163, 164, 165, 168, 172 and 176 and other miscellaneous options. For these tests, connect the wires shown in CAD 4 to the above indicated terminals. The other options have been taken care of in previous 8.06.

8.08 In the trunk circuit established in previous 8.04 add a page RO TTY, any type arrangement, but the same speed as the 28 sequence selector installed in the control cabinet.

8.09 In the branch circuit established in previous 8.05 add a PS&R TTY, any type arrangement,

but the same speed as the 28 sequence selector installed in the control cabinet.

8.10 Have all 255A, 276R relays, 376B tubes, fuses, lamps and lamp caps in place.

8.11 The A, B, C, D, E, F and G cords and connectors shall all be properly connected.

8.12 Cabinet power switch shall be in the OFF position.

8.13 Operate the BOA, BOB, BOC and BOD keys on the control panel.

8.14 Connect the main cabinet power cord into a 110-120V AC power supply.

NOTE: If, during the following tests, a failure occurs, stop the tests, locate and clear the trouble, then repeat the test that failed.

9. RECTIFIER ADJUSTMENT, FUSE AND POWER FAILURE TESTS

9.01 AC power.

(A) Operate cabinet AC power switch to the ON position.

(B) The green RF (rectifier) 48 and 120 V lamps should light. This indicates that the two rectifiers are operating.

9.02 120-volt rectifier tests.

(A) VOM on 300DC volts.

(B) Connect (+) VOM to "A" 122.

(C) Connect (-) VOM to "A" 130.

(D) Adjust rectifier to 120 $\pm$ 2 volts.

(E) Disconnect the "C" plug from the "C" AC power receptacle.

(F) VOM should read "0" (zero).

(G) The RF1-120V lamp will go out.

(H) The 120V fuse (FA1) lamp, POWER FAILURE (PF) lamp and ALARM lamp will light.

(J) BUZZER will operate.

(K) Reconnect the "C" plug into the "C" AC receptacle.

(L) The RF1 lamp will light, FA1, PF, ALARM lamps will go out and the BUZZER will stop.

9.03 48-volt rectifier tests.

(A) VOM on 300 DC volts.

(B) Connect (+) VOM to "A" 122.

(C) Connect (-) VOM to "A" 129.

(D) Move VOM to 60 DC volt scale.

(E) VOM should read approximately 48 V (no adjustment available).

9.04 Disconnect "B" (CO3 cord) from "B" AC power outlet.

(A) VOM should read "0" (zero).

(B) The RF2 lamp will go out.

(C) The 48V fuse (FA2) lamp, POWER FAILURE (PF) lamp and ALARM lamp will light.

(D) BUZZER will operate.

(E) Reconnect the "B" plug into the "B" AC outlet.

(F) The RF2 lamp will light, FA2, PF, ALARM lamps will go out and the BUZZER will stop.

9.05 Operate (blown) fuse test.

(A) Install an operated 70A fuse in any of the 120V fuse holders.

(B) The 120V fuse (FA1) lamp, ALARM lamp will light and the BUZZER will operate.

(C) Replace operated 70A fuse.

(D) The FA1 lamp, ALARM lamp will go out and BUZZER will stop.

9.06 Install the operated fuse in any of the 48V fuse holders.

(A) The 48V (FA) lamp, ALARM lamp will light and the BUZZER will operate.

(B) Replace the operated fuse.

(C) The FA2, ALARM lamps will go out and the BUZZER will stop.

10. TRANSMITTER START CODE (TSC) AND LTRS ANSWER-BACK TEST

10.01 Have the AC power at all the stations on the trunk and branches turned off, and the (BOA, BOB, BOC and BOD) keys of the control unit operated.

10.02 Place the BUSY OUT (BOA) key in its normal position.

(A) The (BOA) lamp will go out.

(B) The LS switch will step to position 1.

(C) The AZ lamp will light.

(D) The control unit will send LTRS Z to branch A and the trunk. (The character Z will be printed on the trunk monitor only).

(E) In approximately three seconds the NO ANSWER-BACK (NA) lamp, ALARM lamp will light and the BUZZER will operate.

10.03 Operate the ALARM RELEASE (AR) key, the BUZZER will stop.

10.04 Turn on the AC power of the control PSC A station equipment.

10.05 Operate the CLEAR key.

(A) The CS switch will step to position 1 and the control unit will send CR LF VOID FIGS H LTRS to the branch and trunk.

1. Even though the AC power at PSC A is turned on, it will not print the VOID, as the station was not selected. The VOID will be printed by the trunk monitor only.

(B) In approximately six seconds the control unit will send the TSC Z again to branch A and the trunk.

(C) The LS switch will step to position 2.

(D) The AZ lamp will go out and the AY lamp will light.

(E) The control unit will send TSC Y to the branch and trunk.

(F) In approximately three seconds the NO ANSWER-BACK (NA) lamp, ALARM lamp will light and the BUZZER will operate again.

(G) Operate the ALARM RELEASE (AR) and the CLEAR (CLR) keys again.

  1. The control unit will again send the VOID message and be printed on the trunk monitor only.

(H) In approximately six seconds the control unit will send the TSC Y again.

(J) In about 1 second the control unit will alarm again and the BUSY OUT lamp will light.

(K) Operate the BOA key. The AY, ALARM and BO lamps will go out and the BUZZER will stop. The BOA lamp will light.

  1. The control unit will step to the idle position and stop.

11. CARRIAGE RETURN AND/OR BLANK TEST

11.01 Prepare a test tape containing the following and place it in the PSC A transmitter operating its START key:

    10 LTRS CARRIAGE RETURN 10 LTRS (↓10 ↓ CR↓10↓)

11.02 Place the BOA key in its normal position. The BOA lamp will go out.

(A) The AZ lamp will light and the control unit will send the TSC Z to the A branch and trunk.

11.03 The PSC A transmitter will start and send the LTRS and CR to the line.

(A) The PSC A station equipment will stop and alarm.

(B) Remove the tape from the PSC A transmitter and operate the START key which will retire the station alarm.

11.04 The CS switch will step around and the control unit will send FIGS H LTRS to branch A and the trunk.

11.05 The LS switch will step from position one to position two. The AZ lamp will go out and the AY lamp will light.

11.06 The controller will send TSC Y to branch A and the trunk.

(A) Repeat 10.02(E), 10.03, 10.04 and 10.05.

11.07 Prepare another test tape containing the following and place it in the PSC A transmitter and operate its START key:

10 LTRS BLANK 10 LTRS (↓10 ↓↘↓ 10↓)

11.08 Repeat 11.02 through 11.06.

12. TRUNK CALL DIRECTING CHARACTERS (CDC) TEST

12.01 Prepare a test tape containing the following and place it in the PSC A transmitter and operate its START key:

↓10↓ JX↓CR LF RYs (one line) ↑ H↓10↓

12.02 Rotate all the message registers of the control unit back to 0 (zero).

12.03 Operate the BOA key to the normal position. The BOA lamp will go out.

(A) The control unit will send LTRS Z to branch A and the trunk, starting the PSC A transmitter.

12.04 After the FIGS H LTRS is transmitted, operate the BOA key, the BOA lamp will light.

12.05 The complete tape will be printed on the trunk monitor.

12.06 The PSC A, BOA, RA, DI and TI message registers will all read 1 (one).

12.07 Repeat 12.01 through 12.06 using the following CDCs:

CDC	Message registers that operate
JJ	BO, DI and RA
JK	BO, DI, RA and TI
DD	BO and RA
JJ LTRS X	BO, DI. RA and TI
DD LTRS N	BO, DI and RA

12.08 Repeat 12.01 through 12.04 using the character CC as the CDC.

12.09 The CC message will be received on the trunk monitor.

12.10 The MA lamp will light and the BUZZER will operate.

12.11 Operate the AR key, the MA lamp will go out, the BUZZER will stop and none of the message registers will operate.

13. BRANCH CALL DIRECTING CHARACTER (CDC) TEST

NOTE: Send the following on the PS&R TTY associated with the branch circuits: LTRS LTRS AU LTRS CR LF RYs (several lines) FIGS H 10 LTRS. (Send as soon as the TSC is received).

13.01 Rotate all the message registers back to 0 (zero).

13.02 Operate the BOA key to the normal position. The BOA lamp will go out.

(A) Immediately after the TSC Z is received, send the sentence given in the note above, broken down as shown in 13.02 (B), (C) and (D).

(B) After the CR has been sent and the RYs are still being sent, operate the BOA key. The BOA lamp will light.

(C) As long as the RYs are being transmitted the BYA lamp will flash.

(D) Immediately after the RYs, without stopping, **send the** FIGS H 10 LTRS.

13.03 After the transmission stops the BYA lamp should remain ON (not flashing) for several seconds then go out.

13.04 The RYs will not be received on the RO TTY on the trunk.

13.05 The PSC A message register will read 001.

13.06 Repeat 13.02 through 13.05 using the following CDCs:

CDC	Message register that operates
AA	PSC A
EE	PSC A
EU	PSC A
BB	BOA

14. TEST OF LTRS GENERATOR FOR TRUNK

14.01 Any time all the BO (BOA, BOB, BOC and BOD) keys are operated, the associated BO (BOA, BOB, BOC and BOD) lamps will light. Approximately every 10 seconds two LTRS signals will be transmitted to the trunk.

15. PARTIAL TEST OF BROADCAST CIRCUITS

15.01 Leave the BOA, BOB, BOC and BOD keys operated. The associated lamps will be lit.

15.02 Operate and release the BP (BROADCAST PREPARE) key.

(A) The BP lamp will light.

(B) The BR (BROADCAST READY) lamp will light.

(C) The BUZZER will operate.

15.03 Operate the AR (ALARM RELEASE) key, the BUZZER will not stop.

15.04 Operate the BSB (BROADCAST SEND to branch B) key.

(A) The BSB lamp will light.

15.05 Operate the BSC key.

(A) The BSC lamp will light.

15.06 Operate the BSD key.

(A) The BSD lamp will light.

15.07 Operate the RB (RELEASE BROADCAST) key.

(A) The BUZZER will stop.

(B) The BP, BR, BSB, BSC and BSD lamps will all go out.

15.08 This completes the simplified tests. Remove straps applied in 8.02 - 8.05. Remove and tape the wires connected to the external wiring side of terminals 163, 164, 165, 168, 172 and 176 of "A" T.S. Make all units regular.

16. RELATED MATERIAL

16.01 Test procedures in this subsection are also published for the Western Electric Company under the title, "ADOSO II, Multi-Line Control Unit, Test Procedure No. 20 for W. E. Co. Shops, PSD-70012-01.