ADOSO II SYSTEM
(Automatic Distribution of Service Orders)

MAINTENANCE TESTS
For
Branch Station - Plant Service Center
Control Unit PSD-70011-01

1. GENERAL

1.01 This section describes the maintenance and trouble location tests applied to Branch Station - plant service center control unit PSD-70011-01. This portion of the ADOSO II System circuitry is located in a PSC on a branch circuit, when it is normally associated with a 28 RO teletypewriter, a No. 14 or 28 ROTR, and a No. 14 or 28 transmitter-distributor. Every branch line has a control unit PSD-70011-01.

1.02 All associated teletypewriter equipment shall be tested, adjusted, and requirements met according to standard BSPs and related instructions. This includes those in PSD-70011-01, PED-70011-10, PJ70011A, and PT-70011-10.

1.03 The paper handling equipment shall be adjusted to fit the form being used.

1.04 The tests in this section assume the station equipment is installed.

1.05 Functional operation of the circuit is described in PSD-70011-01.

1.06 If for any reason the requirements of this section cannot be met, contact the proper engineering people.

2. MATERIAL REQUIRED FOR TESTING

2.01
Quantity	Material
1	KS-14510-L1 Volt Ohm Meter or Equivalent VOM
1	Set of Test Cords for VOM equipped with small alligator clips.

3. PRELIMINARY TO TESTING

3.01 Disconnect both cords of rectifier.

3.02 Test for wiring and frame crosses. Set VOM on 100 ohm scale.

(A) Place positive of VOM on 43 "A" T.S. and negative on frame. VOM should read infinity.

(B) Place positive of VOM on 47 "A" T.S. and negative on frame. VOM should read infinity.

(C) Place positive of VOM on 43 "A" T.S. and negative on 47 "A" T.S. VOM should read about 1100 ohms if a 14 transmitter is being used and about 1560 ohms if a 28 transmitter is being used.

3.03 Reconnect both cords of rectifier.

3.04 Set message register to zero.

3.05 Place forms in RO machine align correctly.

4. TESTING AC AND DC CIRCUIT

4.01 Terminate all AC plugs to equipment, and turn on all power switches.

(A) All machines run closed.

(B) Copy lamps ON.

(C) PWR lamp ON.

4.02 Using VOM on 300V DC scale, place positive lead on 43 "A" T.S. and negative on 47 "A" T.S. Adjust output rectifier to 120V.

4.03 Operate C relay manually.

(A) ROTR should run closed.

4.04 The C relay releases.

(A) About 1 second T relay operates.

(B) C relay releases.

(C) T relay releases.

4.05 If some type of sending and receiving teletypewriter of the proper speed is available, patch it into the local loop. Or have the serving toll testroom place a send and receiving monitor in the loop, preparatory for making the following tests. This machine will be referred to as the test machine.

5. TESTING RESPONSE TO VALID CODES

5.01 From test machine send FIGS H LTRS.

(A) H relay operates.

(B) Tape feed-out on ROTR.

(C) About 4 seconds T relay operates. (About 2 seconds if Y option is used).

(D) Stops tape feed-out.

(E) H relay releases.

(F) T relay releases.

5.02 Send J on circuit from test machine.

(A) C1 relay operates.

5.03 Send CR LF LTRS AE JS on circuit from test machine.

(A) Neither of the C2 or the C3 relays will operate.

5.04 Repeat 5.01. After T relay operates, C1 relay will also release.

5.05 Repeat 5.02 to 5.04 using codes B, C, D, N, R, and X instead of J.

5.06 Send LTRS Y from test machine.

(A) C relay operates.

(B) About 1 second T relay operates.

(C) C relay releases.

(D) T relay releases.

(E) Block the T relay released.

5.07 Send LTRS Y A LTRS CR LF (Line of RYs) from test machine.

(A) C relay operates.

(B) C2 relay operates.

(C) On CR, RO goes into print. Prints line of RYs.

(D) ROTR prints line of RYs.

5.08 Send codes C, B, J, N, R, X, and JX from test machine.

(A) Print on RO.

(B) Print on ROTR.

(C) C1 and C3 relays do not operate.

(D) Unblock the T relay.

5.09 Send FIGS H LTRS from test machine.

(A) H relay operates.

(B) Message register counts 1.

(C) Tape feed-out on ROTR.

(D) Form-feed on RO.

(E) About 4 seconds T relay operates. (About 2 seconds if Y option is used).

(F) Stops tape feed-out.

(G) H, C and C2 relay release.

(H) T relay releases.

5.10 Repeat 5.07 to 5.09 using code E in place of A.

5.11 Send LTRS JX LTRS CR LF (Line of RYs) from test machine.

(A) Relays C1, C2, and C3 will be operated.

(B) RO starts printing on CR print line of RYs.

(C) ROTR does not print.

5.12 Send FIGS H LTRS from test machine.

(A) H relay operates.

(B) RO form-feeds.

(C) Tape feed-out on ROTR.

(D) Message register counts.

(E) In about 4 seconds, the T relay operates. (About 2 seconds if Y option is used).

(F) Stops tape feed-out.

(G) H, C1, C2, and C3 relays release.

(H) T relay releases.

5.13 Send LTRS Y LTRS AU LTRS X LTRS CR LF (Line of RYs) from test machine.

(A) Block the T relay released.

(B) C, C1, and C2 relays will operate.

(C) RO starts printing on CR and prints the line of RYs.

(D) ROTR prints the AUX and the line of RYs.

(E) Unblock the T relay.

5.14 Send FIGS H LTRS from test machine.

(A) H relay operates.

(B) RO form-feeds.

(C) Tape feed-out on ROTR.

(D) Message register counts.

(E) In about 2 seconds, the T relay operates.

(F) ROTR stops tape feed-out.

(G) C, C1, C2, and H relays release.

(H) T relay releases.

5.15 Repeat 5.13 and 5.14 using these code groups: EU LTRS N, KE LTRS R and KA LTRS B. The results will be the same as given in 5.13 and 5.14.

5.16 Send LTRS Y LTRS JX LTRS L LTRS CR LF (line of RYs) from test machine.

(A) Block the T relay released.

(B) C, C1, C2, and C3 relays will operate.

(C) RO starts printing on CR and prints line of RYs.

(D) ROTR prints the JX, but not the L or the line of RYs.

(E) Unblock the T relay.

5.17 Send FIGS H LTRS from test machine.

(A) H relay operates.

(B) RO form-feeds.

(C) Tape feed-out on ROTR.

(D) Message register counts.

(E) In about 2 seconds, the T relay operates.

(F) ROTR stops tape feed-out.

(G) C, C1, C2, C3, and H relays release.

(H) T relay releases.

5.18 Be sure form-out contacts are open and PO1 relay is released.

5.19 If 14 transmitter is used, tape withhold magnet is operated. TR relay is operated irrespective of the transmitter used.

5.20 Place a tape in the transmitter with a character M over the sensing pins. (Do not operate the start key).

5.21 Send LTRS Z from test machine.

(A) S relay operates momentarily.

(B) Start magnet in transmitter operates, and transmitter sends LTRS. (May send 1, 2, or 3 LTRS).

(C) START magnet releases.

5.22 Repeat 5.21 five times.

6. TEST TAPES REQUIRED

6.01 Prepare six test tapes per the following samples:

6.02 10 LTRS A LTRS LF LTRS SPACE LTRS T LTRS CR LF LTRS A SPACE LF SPACE T SPACE FIGS H 10 LTRS.

6.03 Make a continuous tape: 10 LTRS A LTRS CR LF (Line of RYs) CR LF FIGS H 10 LTRS. Repeat using codes E and AU in place of the A.

6.04 Make a continuous tape: 10 LTRS J LTRS CR LF LTRS (Line of RYs) CR LF FIGS H 10 LTRS. Repeat using codes X, N, R, C, D, and B in place of the J.

6.05 Make tape: 10 LTRS CR 10 LTRS.

6.06 Make tape: 10 LTRS BL 10 LTRS.

6.07 Make tape: 10 LTRS JX LTRS. CR LF LTRS (Line of RYs) 10 LTRS.

7. TESTING CODE CONVERTER

7.01 Place test tape 6.02 in transmitter.

7.02 Operate START key momentarily.

(A) S1 relay operates.

(B) START lamp lights.

7.03 Send LTRS Z from test machine.

(A) Transmitter starts.

(B) BUSY lamp flashes.

7.04 Test machine will receive the following J, R, N, O, CR LF A SPACE, LF SPACE T SPACE FIGS H LTRS.

7.05 FIGS H LTRS received on circuit.

(A) Message register does not count.

(B) RO does not form-feed.

(C) No tape feed-out ROTR.

7.06 Repeat 7.01 to 7.05 five times.

8. TESTING TRANSMITTER START

8.01 Place test tape 6.03 in transmitter.

8.02 Operate START key momentarily.

(A) S1 relay operates.

(B) START lamp ON.

8.03 Send LTRS Z from test machine.

(A) Transmitter starts.

(B) BUSY lamp flashes.

8.04 Test machine received the following J CR LF (Line of RYs).

8.05 FIGS H LTRS received on circuit.

(A) Transmitter stops.

(B) No form-feed 28RO.

(C) No tape feed-out ROTR.

(D) No message count.

8.06 Repeat 8.02 to 8.05 until test tape 6.03 runs out. In 8.04, second tape will have D instead of J; third will have JK instead of J.

8.07 Place tape 6.04 in transmitter.

8.08 Operate START key momentarily.

(A) S1 operates.

(B) START lamp ON.

8.09 Send LTRS Z from test machine.

(A) Transmitter starts.

(B) BUSY lamp flashes.

8.10 Test machine will print the codes as contained in the tape. These codes will not convert.

8.11 Send FIGS H LTRS on circuit.

(A) Transmitter stops.

(B) No form-feed 28 RO.

(C) No tape feed-out ROTR.

(D) No message count.

8.12 Repeat 8.09 to 8.11 until test tape 6.04 runs out.

9. TRANSMITTER ALARM CIRCUITS

9.01 Place test tape 6.05 in transmitter.

9.02 Operate START key momentarily.

(A) S1 relay operates.

(B) START lamp ON.

9.03 Send LTRS Z from test machine.

(A) Transmitter starts.

(B) BUSY lamp flashes.

9.04 CR on circuit before valid code.

(A) BL relay operates.

(B) Transmitter stops.

(C) BREAK lamp lights.

(D) BUZZER operates.

9.05 Send LTRS Z from test machine.

(A) No LTRS response.

9.06 Send FIGS H LTRS Z from test machine.

(A) No LTRS response.

9.07 Operate START key.

(A) Does not release alarm.

9.08 Remove the tape from the transmitter, and operate START key momentarily.

(A) BL relay releases.

(B) BREAK lamp OFF.

(C) BUZZER silenced.

9.09 Repeat 9.02 to 9.08 using test tape 6.06.

9.10 Place test tape 6.07 in transmitter.

9.11 Operate START key momentarily.

(A) S1 relay operates.

(B) START lamp ON.

9.12 Send LTRS Z from test machine.

(A) Transmitter starts.

(B) BUSY lamp flashes.

9.13 Code JX CR received on circuit.

(A) RO machine prints line of RYs.

9.14 Tape clears 6 pin; no FIGS H LTRS on circuit.

(A) BL relay operates.

(B) Transmitter stops.

(C) BUZZER operates.

(D) BREAK lamp lights.

9.15 Send LTRS Z from test machine.

(A) No LTRS response.

9.16 Send FIGS H LTRS Z from test machine.

(A) No LTRS response.

(B) Message registers count 1.

(C) Machine form-feeds.

9.17 Operate START key.

(A) BL relay releases.

(B) BREAK lamp OFF.

(C) BUZZER silenced.

10. FORM-OUT AND RIBBON CHANGE CIRCUIT

10.01 Insert test tape 6.02 in transmitter.

(A) Operate START key.

(B) S1 relay operates.

(C) START lamp lights.

(D) Raise cover of machine so form-out contacts operate, and leave open until 10.05.

(E) PO1 relay operates.

(F) S1 relay releases.

(G) START lamp goes out.

10.02 Send LTRS Z from test machine.

(A) S relay operates and locks.

(B) Transmitter starts and sends LTRS.

(C) Combination of the Z LTRS operates the PO3 relay.

(D) The operated PO3 relay stops the transmitter.

(E) PO4 relay operates.

(F) PO3 relay releases.

(G) Restarts transmitter which sends LTRS.

(H) BREAK and BUSY lamps flash.

(J) Alarm lamp at RO position lights.

(K) BUZZER at RO position operates.

10.03 Transmitter sending LTRS on circuit. Operate BZ-RLS key at RO position momentarily.

(A) PO2 relay operates.

(B) BUZZER is silenced.

(C) BUSY and BREAK lamp ON steady.

10.04 Turn off power switch of the RO machine.

(A) Transmitter continues to send LTRS.

(B) BUSY and BREAK lamp remain ON.

(C) ALARM lamp remains lit.

10.05 Close cover of machine. Be sure form-out contacts release.

10.06 Turn on power switch of RO machine, and operate its BZ-RLS key.

(A) PO1, PO2, PO4 relays release.

(B) Transmitter stops.

(C) Transmitter lamp out.

(D) ALARM lamp out.

(E) BREAK and BUSY lamp OFF.

11. TESTING BLINDING CIRCUIT ROTR

11.01 Send LTRS Y J LTRS CR LF (Line of RYs) from test machine.

(A) ROTR unblinds prints J, then blinds again.

(B) C and C1 relays operated.

11.02 Send FIGS H LTRS from test machine.

(A) Operates H relay.

(B) Releases C relay.

(C) Tape feed-out on ROTR.

(D) About 2 seconds T relay operates.

(E) Stop tape feed-out on ROTR.

(F) Release C1 and H relay.

(G) Release T relay.

11.03 Repeat 11.01, 11.02 for each code B, C, D, N, R, and X in place of J.

11.04 Send LTRS YA LTRS CR LF (Line of RYs) from test machine. (Do not pause between Y and A or C relay will release and blind ROTR).

(A) ROTR unblinds. Prints A and everything following.

(B) C and C2 relay operated.

(C) RO prints line of RYs.

11.05 Send FIGS H LTRS from test machine.

(A) H relay operates.

(B) RO machine form-feeds.

(C) Message register counts.

(D) Tape feed-out on ROTR.

(E) About 4 seconds T relay operates. (About 2 seconds if Y option is used).

(F) Stop tape feed-out.

(G) C, C2, and H relay releases.

(H) T relay releases.

11.06 Repeat 11.04, 11.05 using code E instead of A.

12. TESTING MESSAGE REGISTERS

12.01 Set registers at zero.

12.02 Send LTRS A LTRS CR LF FIGS H LTRS from test machine.

(A) Message register count 1.

(B) RO machine form-feeds.

12.03 Repeat 12.02 two more times. Register counts 2 then 3.

12.04 Send LTRS E LTRS CR LF FIGS H LTRS from test machine.

(A) Message register counts 4.

(B) RO machine form-feeds.

12.05 Repeat 12.04 two more times. Register counts 5 then 6.

12.06 Send LTRS JX LTRS CR LF FIGS H LTRS from test machine.

(A) Message register counts 7.

(B) RO machine form-feeds.

12.07 Repeat 12.06 two more times - register counts 8 then 9.

12.08 Send LTRS B C D J N R X CR LF FIGS H LTRS from test machine.

(A) Message register does not count.

(B) RO machine does not form-feed.

12.09 Repeat 12.08 two more times.

12.10 Message register should remain at 9.

12.11 This completes tests.

13. RELATED MATERIAL

13.01 Test procedures in this section are published for the Western Electric Company under the title, "ADOSO II, Branch Station Control Unit PSC, Test Procedure No. 19 for W. E. Co.-PSD-70011-01".