KEY PULSING ALARMS

1. GENERAL

1.01 This section covers tests of Common Timing and Alarm Circuit SD-90482-01 and of alarms associated with key pulsing No. 3 toll switchboard link and sender circuits. The tests are as follows:

(A) Rapid Check of Common Timing and Alarm Circuit Operation.

(B) Check of Common Timing and Alarm Circuit Timing Cycle.

(C) Common Timing and Alarm Circuit A and B Leads Ground Alarm Test.

(D) Common Timing and Alarm Circuit No Voltage Alarm Test.

(E) Sender Alarm Test.

(F) Link Circuit Test Lead Alarm Circuit Test.

(G) Link Multiple Chain Circuit Trouble Alarm Test.

(H) Link Start Lead Ground Alarm Test.

(I) Link Release and Stuck Link Alarms Test.

(J) Link Start Alarm Test.

(K) Link Group Alarm Test.

1.02 It is expected that test (A) will be made following each transfer from the regular to the emergency common timing and alarm circuit, and at daily or more frequent intermediate intervals.

1.03 Tests (B) and (C) should be made on the regular and emergency common timing and alarm circuits on alternate test cycles. It is assumed that the test schedule will be so co-ordinated with the common timing and alarm circuit operating schedule that these tests will be made on the circuit to be left in service after completion of the tests.

1.04 Test (C) should be made only during periods of very light traffic, since it may cause premature timing out of links or senders served by the A and B leads used in its performance. The test should be made from a different A lead and different B lead on each test cycle so that it will be made periodically from each A and each B lead.

1.05 Test (E) should be made from a different sender on each cycle of test, so that the test will be made periodically from each sender. Test (E) need not be scheduled in offices using Manual Test Circuit SD-90635-01 for testing senders, since an equivalent test is in that case included with the sender tests.

1.06 In connection with each link circuit test lead alarm circuit, test (F) should be made from a different link on each test cycle, so that it will be made periodically from each link.

1.07 In connection with each link group, tests (I) and (J) should be made from a different link on each test cycle, so that they will be made periodically from each link.

2. APPARATUS

2.01 The apparatus required for each test is indicated in Table A. The details for each item are covered in the indicated paragraph.

2.02 W2AB Cord, 6 Feet Long, equipped with a No. 528 Receiver, 2 No. 360A Tools, 1 No. 365 Tool, and 1 No. 411A Tool. (No. 2W21A Cord with No. 528 receiver and Nos. 365 and 411A tools.)

2.03 Watch with second hand, as available.

2.04 KS-6320 Orange Stick.

2.05 W2W Cord, 6 Feet Long, equipped with 1 No. 110 Plug, 1 No. 360B Tool, 1 No. 360C Tool, and 1 No. 365 Tool. (No. 365 tool associated with tip conductor.) (No. 2W17A Cord with No. 365 tool.)

TABLE A
TEST APPARATUS

Apparatus	Test (A)	(B)	(C)	(D)	(E)	(F)	(G)	(H)	(I)	(J)	(K)
Receiver and Cord (2.02)	-	-	x	-	-	x	-	-	-	-	-
Watch (2.03)	-	x	-	-	-	-	-	-	-	-	-
Orange Stick (2.04)	-	-	-	x	-	-	-	-	-	-	-
No. 2W17A Cord (2.05)	-	-	-	-	-	-	x	-	-	-	-
No. 1W13A Cord (2.06a)	-	-	-	-	-	-	-	x	-	-	-
No. 1W13A Cord (2.06b)	-	-	-	-	-	-	-	-	-	-	x
No. 258C Plug (2.07)	-	-	-	-	-	-	-	-	-	x	-
Toothpick (2.08)	-	x	x	-	x	-	-	-	-	x	-

2.06 No. 1W13A Cord, (No. 893 Cord, 3 Feet Long, equipped with 2 No. 360A Tools) equipped as follows:

(a) For Test (H): 2 KS-6278 Connecting Clips equipped with No. 108 Cord Tips.

(b) For Test (K): 1 KS-6278 Connecting Clip equipped with a No. 108 Cord Tip; 1 No. 419A Tool.

2.07 No. 258C Plug, or equivalent.

2.08 Toothpick, Hard Wooden, Flat on One End and Pointed at the Other. (For blocking relays.)

Note: It is important that the toothpick be clean.

3. PREPARATION

Tests (B) and (C)

3.01 Operate the transfer switch of the common timing and alarm circuit as required to place in service the regular or emergency circuit, whichever is to be tested.

4. METHOD

(A) Rapid Check of Common Timing and Alarm Circuit Operation

4.01 While one or more senders are off normal, observe the CK lamp on the common timing and alarm unit. It should light and be extinguished at regular intervals.

(B) Check of Common Timing and Alarm Circuit Timing Cycle

4.02 Block operated the ST relay of the circuit under test, and note the durations of lighted and extinguished periods of the associated CK lamp throughout a complete timing cycle. The intervals should be approximately as follows:

(a) Interruptions from 166 Type Interrupter

Lighted 1 second, extinguished 14 seconds.

(b) Interruptions from Relay Timing Circuit (Panel Area)

Lighted 2 seconds, extinguished 16 seconds, lighted 2 seconds, extinguished 4 seconds.

(c) Interruptions from Relay Timing Circuit (SXS Area)

Lighted 2 seconds, extinguished 18 seconds, lighted 4 seconds, extinguished 6 seconds.

(d) Interruptions from SXS Office Common Timing Circuit

Lighted 12 seconds, extinguished 18 seconds. (The lamp may be extinguished momentarily at the end of the first 6 seconds of the lighted interval.)

4.03 Unblock the ST relay, unless test (C) is to be made.

(C) Common Timing and Alarm Circuit A and B Leads Ground Alarm Test

4.04 Block operated the ST relay of the circuit under test, unless this has already been done in connection with test (B).

4.05 At a time when the B and TA relays are operated, momentarily connect ground through the No. 528 receiver to the common timing and alarm unit terminal strip punching on which is terminated the A lead from links or senders from which the test is to be made. The AL lamp on the sender test frame should light, and all associated visible and audible signals should be actuated.

4.06 Operate and release the CT key on the sender test frame. The alarm should be retired.

4.07 At a time when the A and TB relays are operated, momentarily connect ground through the No. 528 receiver to the punching on which is terminated the B lead from links or senders from which the test is to be made. The AL lamp should again light, and associated visible and audible signals be actuated; the operation of pilot or annunciator lamps, however, need not be rechecked.

4.08 Operate and release the CT key to retire the alarm.

4.09 Unblock the ST relay.

(D) Common Timing and Alarm Circuit No Voltage Alarm Test

4.10 Open the machine ringing lead at the contacts of spring assembly S of the transfer switch, using the orange stick. The visible and audible signals associated with the no voltage alarm should be actuated.

4.11 Close the machine ringing lead through. The alarm should be retired.

(E) Sender Alarm Test

4.12 Make sure that there is no plug in the MB jack associated with the sender from which the test is to be made.

4.13 At a time when the sender is not busy, block operated its ON relay, then manually operate its TB relay. The TB relay will lock up under control of the ON relay, and the associated MB lamp on the sender test frame should light.

4.14 At the end of the time-out period the visible and audible signals associated with the sender alarm should be actuated.

4.15 Unblock the ON relay. The alarm should be retired.

(F) Link Circuit Test Lead Alarm Circuit Test

4.16 At the link frame with which the alarm circuit under test is associated, attach the No. 365 tool to the outside terminal of the A resistance of any convenient link circuit.

4.17 At an instant when neither the sender selector associated with the link used in 4.16 nor the sender selector of the link from which the test is to be made is in motion, touch the tip of the No. 411A tool momentarily to terminal 21 in the 6th row of bank contacts associated with the latter selector. The SS lamp of the link circuit test lead alarm circuit under test should light, and all other visible and audible signals associated with the link circuit test lead alarms should be actuated.

4.18 Operate and release the SS key. The alarm should be retired.

4.19 Disconnect the test apparatus.

(G) Link Multiple Chain Circuit Trouble Alarm Test

4.20 Connect the No. 365 tool to a convenient source of 48 volt battery and insert the No. 110 plug into the MB jack of an idle link in the group under test. The C lamp should light and all other visible and audible signals associated with the link multiple chain circuit trouble alarm should be actuated.

4.21 Disconnect the No. 365 tool from battery. The alarm should be retired.

4.22 Connect the No. 365 tool to ground. The C lamp should again be lighted. Other visible and audible signals associated with this alarm will also be actuated again, but need not be rechecked.

4.23 Disconnect the test apparatus. The alarm should be retired.

(H) Link Start Lead Ground Alarm Test

4.24 By means of the No. 893 cord, connect ground to trunk finder shelf jack spring 16 of the lowest numbered link in the group under test. Trunk finders of idle links, beginning with the highest numbered, will in turn step to overflow and release. After each idle finder has operated and released and the second cycle has commenced, disconnect the cord. The S lamp should be lighted and all other visible and audible signals associated with the link start lead ground alarm should be actuated.

4.25 Operate and release the AR key. The alarm should be retired.

(I) Link Release and Stuck Link Alarms Test

4.26 At a time when the link from which the test is to be made is idle, manually raise and hold its trunk finder shaft far enough to operate the vertical offnormal spring assembly. At the end of the time-out period the RLS and SL lamps should light and all other visible and audible signals associated with the link release and stuck link alarms should be actuated.

Link Groups Serving Only Local Type Trunks:

4.27 Restore the finder shaft to normal. The alarms should be retired.

Link Groups Serving Any Toll Type Trunks:

4.28 While the alarm is still actuated, manually operate and hold the D relay, then restore the finder shaft to normal. The release alarm should be retired, and the stuck link alarm should not be retired.

4.29 Release the D relay. The stuck link alarm should be retired.

4.30 If the link should be seized and cut through while the D relay is held operated it will give a reorder signal to the trunk. If the link should be seized while the D relay is operated, but the D relay be released before trunk hunting and sender selection have been completed, there will be no interference.

(J) Link Start Alarm Test

4.31 Insert the No. 258C plug into the MB jack associated with, and block unoperated the trunk finder A relay of the link from which the test is to be made.

4.32 Manually operate and hold the trunk finder B relay of the link from which the test is to be made. The sender selector will select an idle sender, but its rotation may be disregarded. At the end of the time-out period the ST lamp should light and all other visible and audible signals associated with the link start alarm should be actuated.

4.33 Release the B relay. The alarm should be retired.

4.34 Unblock the A relay, and remove the plug from the MB jack.

(K) Link Group Alarm Test

4.35 By means of the No. 893 cord, connect ground to upper spring No. 3 of a sub-group circuit G relay associated with the link group under test. At the end of the time-out period the G lamp should light and all other visible and audible signals associated with the link group alarm should be actuated.

4.36 WARNING: During the operations of paragraphs 4.37 and 4.38, stepping and release of trunk finders, rotation of sender selectors, and actuation of release, start, and stuck link alarms associated with the link group under test should be disregarded.

4.37 Manually operate and hold a sub-group circuit G relay associated with the link group under test. While the relay is still held operated, disconnect the No. 893 cord. The alarm should not be retired.

4.38 Manually operate and hold a second sub-group circuit G relay, then release the first, operate and hold a third, release the second, and so on to the last sub-group circuit G relay associated with the link group under test. The alarm should not be retired.

4.39 Release the last sub-group circuit G relay. The alarm should be retired.