

AMARS
ANI B IDENTIFIER
OSCILLATOR, FUSE AND ALARM TESTS

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1. GENERAL INFORMATION

1.1 Description

1.11 This section describes the fusing and alarm tests performed on the Identifier Miscellaneous Circuit, SD-95819-01, and the CDA Miscellaneous Circuit, SD-32558-01, Oscillator Circuit, SD-95827-01, for new Identifier applications only.

1.12 This section also checks the power removal unit (J1C081H) and power transfer circuit contained within the Identifier, SD-1C593-01.

1.13 The circuits specified in Paragraph 1.11 may be mounted in more than one frame. In this case, the fuse for each unit will be located on the Fuse and Alarm unit at that frame.

1.2 Sequence of Operation

1.21 Before performing the operations per this section, the tests of the following sections of Handbook 59 shall have been performed:

Section 107 (ANI Fusing Tests - as required)

1.3 General Precautions

1.31 The circuits within each unit contain integrated circuit (IC) chips. Do not ground or apply any voltage to the terminals or bus bars unless specified in the documentation (Schematics, T- Drawings, Handbook Sections, BSP's, etc). All circuit packs within the

Identifier equipment are internally powered through the JW95 and JW96 power circuit packs which are powered by -48 volts.

1.32 Verify that all power circuit packs within the following units are disengaged (but not removed):

(a) Identifier Unit(s) - J1C081A

(b) Line ID Control and CDA Interface Unit - J1C081B

(c) Tone Multiplexer and Power Transfer Unit - J1C081C

1.33 Verify that battery and ground feeders comply with Circuit Notes 201-210 as shown in SD-1C593-01.

1.34 Verify the identifier under test is made busy at the Trouble Ticker Ckt.

2. RECORDS AND REQUIREMENTS

2.1 Records

2.11 Form SD-97-1391 ESS Trouble Report is required for recording the results of these tests.

2.2 Requirements

2.21 The tests of this section are based on the requirements specified in the drawings and circuit descriptions listed in Paragraph 1.11.

TABLE 1

UNIT	CIRCUIT PACK OR RELAY()	(MTG) LOCATION	TERMINAL		FUSE				
			-48V	+130V	CDA MISC CKT			IDENT MISC CKT	
					ID0 FRAME	ID1 FRAME	MISC FRAME	ID0 FRAME	ID1 FRAME
J1C081A	JW96 JW96 JW95 or 96 JW125 JW149, 132,133	1B4 1B1 2A14 2B8,2B9 2A1,2B10 2B12 1B9,1B16	16,17 16,17 16,17 103 103 103 103		A1 B1 C1 F1	A1 B1 C1		B C	B C
J1C081B	JW95 or 96 JW95 or 96	3B1 3A1	16,17 16,17		D1 E1				
J1C081C	JW96 JW96 (PT),(ACO)	POS 1 POS 8	16,17 16,17 (L),(L)		Miscellaneous Fuse A2 B2				
J1C081D	D42 (TPA),(TPB) (TPC),(TBL1) (ON3),(TBL) (MB1), (TST1-TST5)	+44 desig.	(L),(L) (L),(L) (1),(L) (L), (L)	1				A A F	A A F
J1C081E	(U(A-D) (TH(A-D) (H(A-D) (T(A-D)		(1) (1) (1) (1)					D E	D E
J1C081F	(TEST 1) through (TEST 16)		(15),(25),(35) (45),(15),(25) (35),(45),(15) (25),(35),(45) (15),(25),(35) (45)		Miscellaneous Fuse				
J1C081H	(IC0(A-C)) (IC1(A-C))		*(L) *(L)					C	C

*Cannot be verified until second identifier is installed.

3. TEST EQUIPMENT

3.1 Test Sets and Tools

3.11 The following equipment is required to perform the tests per this section and for the transition of the ANI-B identifier SD-1C593-01.

Amt	Code	Description
1	4442A	Volt-Ohmmeter
As Req.	9140	Cord
1	5221A	Oscilloscope
1	5632	Digital Voltmeter
T1	804A	Tool
T1	805A	Tool

NOTE: The 804A tool is required for the adjustments of the D-39 circuit pack as described on circuit notes of SD-95827-01. The 805A tool is required during the replacement of the ANI-B Identifier circuit SD-95810-01 with the new Identifier circuit SD-1C593-01. Refer to the ECP-1C593 which is part of DCS-1C593 for the installation procedure.

4. FUSING AND POWER TESTS

4.01 Verify that all circuit packs in the following units are disengaged but not removed.

T - Telephone Company Maintenance Equipment

- (a) Identifier Unit(s) - J1C081A-1
- (b) Line ID Control and CDA Interface Unit - J1C081B-1
- (c) Tone Multiplexer Unit - J1C081C-1
- (d) Tip Party Test and Make Busy Unit - J1C081D-1

NOTE: If the CDA is not active, verify the M1 leads are not connected at the J1C081C unit and grounds are present on the JW137 packs as described in CDA portion of Paragraph 6 in Section 115C.

4.02 If the units are mounted on more than one frame the fuses may be located on each unit or on more than one miscellaneous fuse panel. If the units are mounted on one frame the fuses will be located on the fuse panel. Verify that all -48 volt fuses are 1-1/3 amp of the 70A type and the one +130 volt fuse (A) is of the 70E type. The fuse designations are shown on Table 1.

4.03 In each CDA Miscellaneous Circuit (SD-32558-01) provided block operated the PWF relay and block non-operated the MJ relay. Also block relay ACO operated in Tone multiplexer unit.

4.04 Remove all fuses listed in Table 1. Using the ITE-4442A Volt-Ohmmeter, check each terminal shown in Table 1 for absence of battery. Using fuses of the correct type, as indicated in Paragraph 4.02, install the fuses one at a time and verify each fuse is installed and the correct voltage is present on the proper terminal, as indicated in Table 1, and is free from crosses with other unfused terminals. Remove all fuses listed in Table 1.

4.05 Identifier (A Unit)

4.051 Insert the JW96 circuit pack in position 1B4 of the Identifier unit and install the A1 fuse. The green lamp, (PWR ON), should light indicating normal operating condition. If the (WR OFF) red lamp lights, it indicates -48 volts is present but +5 or +12 volts potential is not functional. Verify that the terminals shown on steps 2 and 3 of Table 2 have the correct voltages. Remove fuse A1.

4.052 Insert the JW96 circuit pack in position 1B1 of the Identifier unit and install the B1 fuse. The green lamp (PWR ON) should light. Verify that the terminals of this circuit pack have the correct voltages as shown in Table 2. Also verify that +12 volts appears on terminal 5 and -12 volts appears on terminal 1 of the D44 circuit pack on the J1C081D unit. Remove fuse B1.

TABLE 2

JW-96 VOLTAGE VERIFICATION

STEP	TERMINAL	VOLTAGE
1	1, 2, 21, 22	+5 Volts
2	4, 5, 24, 25	-12 Volts
3	13, 14, 33, 34	+12 Volts

4.053 Insert the JW95 or 96 circuit pack in position 2A14 of the Identifier unit and install the C1 fuse. The green lamp (PWR ON) should light. If the red lamp (PWR OFF) lights, it indicates -48 volts is present but +5 volt potential is not functional. Verify that the terminals shown in Table 3, step 1 have the correct voltages. Remove fuse C1.

4.054 Block operated relay MB1.

TABLE 3

JW-95 VOLTAGE VERIFICATION

STEP	TERMINAL(s)	VOLTAGE
1	1, 2, 21, 22	+5

4.055 Engage all circuit packs in the Identifier unit and D44 on TP TST and Make Busy Unit. Replace fuses A1, B1 and C1 and verify that the green lamp (PWR ON) lights on both JW96 and the JW95 circuit packs. Also insert fuses B and C in Identifier Frame fuse panel.

CAUTION: DO NOT REMOVE OR INSERT A CIRCUIT PACK IN THE A UNIT WHILE FUSES A1, B1, C1 ARE INSTALLED.

4.06 Line Identification Control and CDA Interface Unit

4.061 Insert the JW95 or 96 circuit pack in position 3B1 of the Line ID Control and CDA Interface unit and install the D1 fuse. The green lamp (PWR ON) should light. Verify that the terminals of this circuit pack have the correct voltages as shown in Step 1 of Table 3. Remove fuse D1.

- 4.602 Insert the JW95 or 96 circuit pack in position 3A1 of the Line ID Control and CDA Interface unit and install the E1 fuse. The green lamp (PWR ON) should light. Verify that the terminals of this circuit pack have the correct voltages as shown in Step 1 of Table 3. Remove fuse E1.
- 4.063 Engage all circuit packs in the Line ID Control and CDA Interface unit. Replace fuses D1 and E1 and verify that the green lamp (PWR ON) lights on both JW95 or 96 circuit packs.
- CAUTION: DISENGAGE ALL JW93 PACKS IN THIS UNIT AFTER VERIFYING POWER. THE D1, E1 FUSES SHOULD NEVER BE REMOVED FOR REMOVAL OR INSERTION OF CIRCUIT PACKS IN THE B UNIT.
- 4.07 Tone Multiplexer and Power Transfer Unit
- 4.071 Insert the JW96 circuit pack in position 1 of the Tone Multiplexer and Power Transfer unit and install the A1 fuse. The green lamp (PWR ON) should light. Verify that the terminals of this circuit pack have the correct voltages as shown in Table 2. Remove fuse A2.
- 4.072 Insert the JW96 circuit pack in position 8 of the Tone Multiplexer and Power Transfer unit and install the B2 fuse. The green lamp (PWR ON) should light. Verify that the terminals of this circuit pack have the correct voltages as shown in Table 2. Remove fuse B2.
- 4.073 Engage all circuit packs in the Tone Multiplexer and Power Transfer unit. Replace fuses A2 and B2 and verify that the green lamp (PWR ON) lights on both JW96 circuit packs.
- CAUTION: THE A2, B2 FUSES SHOULD NEVER BE REMOVED FOR REMOVAL OR INSERTION OF A CIRCUIT PACK IN THE C UNIT.
- 4.074 Verify that +12V appears on terminal 102 loc 4, -12V appears on terminal 106 loc 4, and +5V appears on terminal 101 loc 4.
- 4.075 Block operated relay PT. Repeat 4.074.
- 4.076 Remove block from relay PT.
- 4.08 Tip Party Test and Make Busy Unit
- 4.081 Insert circuit pack designated 44V. Insert the +130 volt A fuse in the Identifier frame fuse panel. Verify that +44 volts is obtained on the following:
- (1) JW148 circuit pack location 1B7 (A unit) terminal 206
 - (2) JW134 circuit pack locations 2A6 and 2A7 (A unit) terminal 106.
- 4.082 Insert the -48 volt A and F fuses on the Identifier frame fuse panel.
- 4.083 Remove the block from relay MB1 and verify it remains operated.
- 4.09 Test Network Connector Unit
- 4.091 Insert the -48 volt D and E fuses on the Identifier frame fuse panel. Verify that no relays within the unit operate.
- 4.10 Tone Test Connector Unit
- 4.101 Insert the MISC fuse at MISC fuse panel associated with this unit. Verify that -48V is present on T.S. A pin 51.
- 4.11 Insert the TST fuse associated with each CDA Misc Ckt. Insert plug of T.R.S cord into TST jack and verify -48V and ground appear on the tip and sleeve.
5. ALARM TESTS
- 5.1 CDA Miscellaneous Circuit on Identifier Frame
- 5.11 Insert the MISC fuse at miscellaneous fuse panel.
- 5.12 Remove the block from relay PWF. Verify lamp PWF lights and the office audible and visual alarms operate. Momentarily remove make busy plug at trouble ticketer for the identifier under test and verify relay I-B remain operated. Install fuse AF and verify lamp PWF is extinguished and visual alarms are extinguished.

- 5.13 Insert a blown (operated) fuse in fuse position: A1 on the CDA unit. Verify that the FA lamp lights, and the audible and/or visual alarms operate. Momentarily remove make busy plug at trouble ticketer for the identifier under test. Relay I-B will remain operated. Replace the blown fuse with a good fuse. The FA lamp is extinguished and the office alarms are extinguished.
- 5.14 Remove the block from relay MJ and block it operated (if necessary), lamp MJ lights and the office audible and visual alarms operate. Momentarily remove make busy plug at trouble ticketer for the identifier under test and verify relay I-B remains operated. Momentarily operate the ACO key and verify the office audible alarm cease and the ACO lamp lights steadily. Remove the block from the MJ relay and block it normal, verify the MJ, ACO lamps and office visual alarms are extinguished.
- 5.15 Using the ITE-9140 cord (or equivalent) momentarily apply ground to terminal 1 of each circuit pack shown in Table 4. The green lamp on the circuit pack should be extinguished and the red lamp should light. Relay PWF should release, which causes the PWF lamp to light, and the audible and/or visual alarms to operate. After each test, immediately remove the ground and verify for normal operating condition of the circuit pack:
 - (a) Green lamp (PWR ON) lights.
 - (b) Red lamp (PWR OFF) extinguished.
 - (c) +5 volts on Terminal 1.

TABLE 4

UNIT	CIRCUIT PACK TYPE	MOUNT-ING LOC.	TERM.	NORMAL CONDITION
Identifier	JW96	1B4	1	+5
	JW96	1B1	1	+5
	JW95	2A14	1	+5
Line Id Control	JW95	3B1	1	+5
	JW95	3A1	1	+5

NOTE: Extreme caution should be exercised in performing this test. The ground should not be applied for greater than one minute.

- 5.2 CDA Miscellaneous Circuit for Remote Unit
- 5.21 Repeat Paragraph 5.11 to 5.14 with the following exceptions:
 - (a) Do not remove make busy plug and check I-B relay.
 - (b) For the fuse alarm tests of Paragraph 5.13 use a blown fuse at fuse position B2.
 - (c) Remove the block from relay MJ.
- 5.3 Remote Unit (J1C081C) Power Transfer Circuit
- 5.31 Insert the MISC fuse at miscellaneous fuse panel associated with the remotely mounted J1C081C unit. Verify lamps PFO, ACO and SPF light. Momentarily operate key PFR. The PFO and SPF lamps are extinguished.

NOTE: A faulty PW6 or PW7 power supply will provide a ground short to the P and SP relays preventing their operation.
- 5.32 Remove the blocking tool from relay ACO and then momentarily operate key ACO. Verify lamp ACO lights while the key is operated. No office audible or visual alarms should operate during this test.
- 5.33 Using the ITE-9140 cord momentarily apply ground to terminal 1 of circuit pack JW96 in position 1. Verify the JW96 red lamp lights, the green lamp may flash. Verify lamps PF and PT light. No office alarms operate.

CAUTION: EXTREME CAUTION SHOULD BE EXERCISED IN PERFORMING THIS TEST. THE GROUND SHOULD NOT BE APPLIED FOR GREATER THAN ONE MINUTE.
- 5.34 Using the ITE-9140 cord momentarily apply ground to terminal 1 of circuit pack JW96 in position 8. Verify the JW96 red lamp lights, the green lamp may flash. Verify lamp SP lights and lamp PT is extinguished. Verify office audible and visual alarms operate due to the release of the PWF relay.

5.35 Momentarily operate key ACO, the ACO lamp lights and the office audible and visual alarms are extinguished.

5.36 Momentarily operate key PFR. Verify lamps PF, SPF and ACO are extinguished.

5.37 Block relay TST1 operated in the identifier under test. Momentarily ground pin 12 of 2A1 (JW149-B22). Verify lamp PT lights while the ground is applied. Remove the block from relay TST1.

5.4 Identifier Miscellaneous Circuit

NOTE: This paragraph is only required where new identifier frames are provided.

5.41 Insert a blown fuse in fuse position A on the identifier frame. Observe lamp FA lights and the office audible and visual alarm operate. Momentarily remove make busy plug at trouble ticketer for the identifier under test and verify I-B remains operated.

5.42 Replace the blown fuse with a good fuse. Verify lamp FG lights and lamp FA and the office alarms are extinguished. Momentarily operate key AR, verify lamp FG is extinguished.

5.43 Insert a blown fuse in the PF fuse position and repeat 5.41 and 5.42 except for the removal of the make busy plug.

5.44 Insert a blown fuse in fuse position A of the +130V fuse and repeat 5.41 and 5.42 except for the removal of the make busy plug.

5.45 Insert a blown fuse in fuse position SN- A. Verify lamp FA lights and the office alarms operate.

5.46 Replace the blown fuse with a good fuse. Verify the FA lamp and office alarms are extinguished.

5.47 Repeat 5.45 and 5.46 with a blown fuse in position PFS.

6. IDENTIFIER POWER REMOVAL

6.1 Identifier 0 - Block operated relays ICOA, ICOB and ICOC in the Power Removal unit (J1C081H) and verify with the ITE-4442A Volt-Ohmmeter continuity between the circuit pack ground bus and the terminals shown in Table 5. Remove the blocks.

6.2 Identifier 1 - Block operated relays IC1A, IC1B and IC1C in the Power Removal unit (J1C081H) and verify with the ITE-4442A Volt-Ohmmeter continuity between the circuit pack ground bus and the terminals shown in Table 5. Remove the Blocks.

7. OSCILLATOR CHECK

7.1 Insert the A0 (for Identifier 0) or A1 (for Identifier 1) fuse in the CDA Misc. Circuit for the remote unit.

7.2 Adjust oscillator output: Insert plug of T, R, S cord into TST jack of oscillator and adjust V potentiometer to obtain 2.20 volts across Tip & Ring. Use ITE-5632 digital voltmeter on 10 volt A.C. Setting. Do not make oscillator busy.

TABLE 5

ICO - BLOCKED		IC1 - BLOCKED	
CKT PACK LOC	TERMINAL	CKT PACK LOC	TERMINAL
3B7	201,203,213	3B7	20,204,208
3B14	201,203,213	3B14	20,204,208
3B15	201,203,205, 207,19,17,15, 39,37	3B15	202,204,206 208. 20,18,16, 14,38
3B16	201,203,205, 207,19,17, 15,39,37,12, 30,9,1,3,5, 7,26,27	3B16	202,204,206 208,20,18, 16,14,38, 36,28,10,2, 4,6,8,25, 29

7.3 Using the ITE-5221A oscilloscope, verify that a 6 volt peak to peak sine wave of 5800 Hz is present at:

(1) JW124 pin 5 location 2A11 (A Unit)

(2) JW129 pin 26 location 4(ID0) and 7(ID1) (C Unit)

(3) D44 pin 4 (D Unit)

NOTE: Set scope for 2V/CM and .1MSEC CM. Wave form should repeat itself every .17MSEC.

- 7.4 In Identifier CDA Miscellaneous circuit remove the blocking tool from the MJ relay. Verify the MJ relay remains normal. Ground terminal 4 on D44. The MJ relay will operate, the MJ lamp will light, and the audible and/or visual alarms will operate.
- 7.5 Remove ground from terminal 4 on D44. The MJ relay releases, the MJ lamp extinguishes and the audible and/or visual alarms are extinguished.

Arrowed lines represent new or changed information.

Manager, Product Engineering
Control Center

Reason for Reissue:
To change Paragraph 3.1 and to add the note.