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Western Electric Company, Incorporated
Columbus Works

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PBX-AIOD A2 STATION IDENTIFICATION FRAME TEST PROCEDURES

CONTENTS

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1. GENERAL INFORMATION

1.1 Description

1.11 This section provides a method of testing the PBX AIOD-A2 (Automatic Identified Outward Dialing Type A2).

1.12 The circuits tested by this section are:

SD-1C233-01	Data Link Connector Circuit
SD-1C234-01	Station Identification Store and Control Circuit
SD-1C235-01	Station Identification Test Circuit
SD-1C236-01	Fuse, Alarm and Miscellaneous Circuit

1.13 The general description of PBX AIOD-A2 is given in Section 276, Handbook 59.

1.2 Sequence of Operation

1.21 Unless otherwise indicated, tests of this section are to be performed in the order in which they appear.

1.3 Test Of Associated Equipment

1.31 Tests of Section 277 are to be performed prior to the tests of this section.

1.32 Tests of Section 280 can be performed either before or after tests of this section.

1.33 Tests of Sections 277, 278 and 280 are to be performed before Short Loop Around and Long Loop Around Tests are performed from the Central Office Test Frame.

1.4 Cross Connections

1.41 Make the temporary cross connections of Table A before applying power to the system.

1.5 Cabling to Associate Equipment

1.51 Prior to performing tests per this section all switchboard cable between the AIOD-A2 frame and the associated C.O. equipment should be run, connected and verified. With the cable run not connected, noise problems may be encountered during testing.

1.6 General Precautions

PRECAUTION 1: TO PREVENT DAMAGE TO THE CIRCUIT PACKS IT IS EXTREMELY IMPORTANT THAT THE CP NUMBER AGREE WITH THE CP NUMBER OF THE TRAY LOCATION USED. ANY MISMATCH OF CARD AND CONNECTOR CAN CAUSE SERIOUS DAMAGE.

PRECAUTION 2: WHEN CARDS ARE REMOVED FOR ANY REASON, OR WHEN CARD EXTENDERS ARE USED, EXTREME CARE MUST BE USED IN REPLACING THE CARD TO ASSURE THAT THE CARD IS PROPERLY ALIGNED IN THE SUPPORT SLOTS OF THE TRAY MOUNTING AND IS NOT ANGLED TOWARD ADJACENT CONNECTOR. THE PROCEDURES OF REMOVING AND REPLACING CARDS SHOULD BE PRACTICED A FEW TIMES WITHOUT POWER TO OBTAIN SOME PROFICIENCY IN THIS TECHNIQUE. THE CONNECTING TERMINALS AT THE REAR OF EACH CARD ARE SOMEWHAT FRAGILE AND SHOULD NEVER BE FORCED INTO POSITON. IF THE CARD IS PROPERLY

ALIGNED IT WILL SLIDE SMOOTHLY INTO THE CONNECTOR WITH A PERCEPTIBLE TENSION AS THE CONNECTOR SPRINGS ARE ENGAGED. THE FACE OF THE CARD SHOULD REST SNUGLY AGAINST THE FRONT OF THE TRAY.

PRECAUTION 3: TO PREVENT DAMAGE TO THE CONVERTERS THE STEPS OF PARAGRAPH 5.01 (C) MUST BE FOLLOWED WHENVER THE CONVERTER IS STARTED.

NOTE: Verify that dummy plugs are inserted in all unassigned DT- jacks.

TABLE A

From Data Link No. D.N. T.S. Stamping			To Office Index O.I. T.S. Stamping		
Rear		Front	Rear		Front
AB-A	94	DN9 (5th Column)	AB-B	04	OI 9
AB-A	84	DN8 (5th Column)	AB-B	03	OI 8
AB-A	74	DN7 (5th Column)	AB-B	02	OI 7
AB-A	64	DN6 (5th Column)	AB-B	01	OI 6
AB-A	54	DN5 (5th Column)	AB-B	00	OI 5
AB-A	44	DN4 (5th Column)	AB-A	09	OI 4
AB-A	34	DN3 (5th Column)	AB-A	08	OI 3
AB-A	24	DN2 (5th Column)	AB-A	07	OI 2
AB-A	14	DN1 (5th Column)	AB-A	06	OI 1
AB-A	04	DN0 (5th Column)	AB-A	05	OI 0

2. RECORDS AND REQUIREMENTS

2.1 Records - The results of tests per this section shall be recorded on forms SD-97-1313 and SD-97-1315.

2.2 Requirements - Test of this section meet SD and CD requirements.

3. TEST EQUIPMENT

3.1 Primary Equipment

Amt	ITE	Description
1	4442A	Volt-Ohmmeter

Amt	Tool No.	Description
6	728B	Card Extender Board
2	731A	Package Extractor
6	729A	Special Test Lead
6	730A	Special Test Lead
6	736A	Special Test Lead
6	737A	Special Test Lead
6	738A	Special Test Lead
*1	3P7B	3' Cord e/w two 310 plugs

*Provided with the frame per List A.

3.2 Supplementary Equipment

NOTE: This equipment is used for detailed trouble location purposes, rather than for the verification procedure.

Amt	ITE	Description
1	4662	Tektronix Model 545B Oscilloscope
1	4664	Tektronix Type C-A Vertical Input Plug-In Unit
3	4668	Tektronix 10X Probe P-6006 (Part No. 010-148)
1		Trouble Locating Manual TLM-1C235

4. SETUP INFORMATION

4.1 Control Panel

4.11 The control panel provides the means for operational testing the Station Identification Store and Control

Circuit (SIS & C). In order to facilitate the use of the control panel, a general knowledge of the lamps and switches is needed.

4.12 Jacks and Switches

4.121 Table 1 lists the jacks and switches with a brief explanation of their functions.

4.13 Call Progress Lamps

4.131 These lamps provide a visual sequence chart of the progress of the test. Two modes are checked by these lamps. MODE A is a PBX simulation, a request to store information from the PBX. MODE B is a good NIR simulation (Central Office Request), a request for the stored information to be transmitted to the Central Office. Table 2 provides a list of the progress lamps, a brief explanation, and the Mode of use.

4.14 Trouble Lamps

4.141 A circuit failure will light only one or a small number of these lamps. Table 3 lists the trouble lamps and a brief explanation of their meaning.

TABLE 1
CONTROL PANEL SWITCHES AND JACKS

SWITCHES	EXPLANATION
AC	Alarm control, in the OFF position prevents major and minor alarms when performing tests.
CTR	Continuous Transmission - loops the Test Register to continuously feed data to the Central Register.
RT	Repeat Test - performs a simulated PBX Request every .5 Sec.
LCO	Inhibits registers of Test Circuit-Lamp Cut Off.
MCK	Memory Check Test, inhibits SIS Control Circuit timers.
MCK 1	MCK auxiliary.
ATTN	A -4db or a -16db loss in the output of the Data Transmitter.
NCH	Along with switch TST stores information for a Number Change.
NIR	Along with switch TST initiates seizure of the AIOD Translator Connector.
SWO	Premessage bit; simulated request for service.
SW1 to SW40	Sets Trunk Number and Station Number in a 2 out of 5 code.
PBX	Along with switch TST simulates a PBX Request.
TST	Connects the internal test circuit to the Station Identification Store (SIS).
CLR	Release trouble lamps after trouble has cleared.
SYD	System made busy to Central Office, and a dummy bridge is closed toward the PBX.
LD	Load Test Register.
MR	Erases Memory-Master Reset.
RES	Clears System Reset.
DLN	Controls Data Link Number during tests.
ACO	Alarm Cutoff-audible MNA.
RS	Retires a major or minor alarm at the SI Frame.
CRRS	Cancels Remote RS.

TABLE 1 (CONT.)
CONTROL PANEL SWITCHES AND JACKS

JACKS	EXPLANATION
DRO	Data Receiver Test - provides Data Link appearance from the Data Link connector for the Data Link assigned for test purposes.
DR1-9	Data Receiver - provides Data Link appearance from the Data Link Connector.
DRT	Data Receiver Test - provides means of bypassing the Data Link connector thus enabling testing on a system-down condition.
DT1-9	Data Trunk - provides Data Link appearance from the PBX.
TST	Test - provides Data Link appearance from the Test Circuit.

TABLE 2
CALL PROGRESS LAMPS

DESIGNATION	EXPLANATION	MODE
SYC	SIS & C Circuit restore to normal (System Cleared).	
PBX	PBX has seized system for service.	A
NIR	CO has seized system for service.	B
RC	Receiver Clock enabled (shift PBX data to C.R.).	A
CRF	Data to Central Register complete.	A,B
CRFA	End First Timing.	A,B
TN	Valid 2/5 check of Trunk Number.	A
DN	Valid 2/5 check of Data Number.	A
SN	Valid 2/5 check of Station Number.	A
LP	C.R. loop closed & clock to shift data enable.	A,B
WR	C.R. to Memory-write. or Memory to C.R. write.	A,B
WER	Write or Erase.	A,B
2/5 K	Valid 2/5 check on NIR Request.	B
TRL	Trouble release caused by 2/5 check failure.	B
NC	Number change detected on NIR.	B
NS	Number shift performed on NIR.	B

NOTE: Lamps A and A1 indicate MODE A operation. Lamps B and B1 indicate MODE B operation.

TABLE 3
TROUBLE LAMPS

LAMP	EXPLANATION
TH	Not Used
TL	Not Used
DKMA	Data Check failure after Memory Address.
DKF	Data Check failure prior to addressing Memory.
2 TM	Second stage time out, failure to release.
MBF	Failure to find a blank slot in the Memory.
MAF	Trunk Match failure on NIR Request.
MWF	Central Register to Memory data exchange failure.
MLF	Memory to Memory data failure.
CLKF	Failure of the Systems 1 Meg. HZ clock.
3 TM	Third stage time-out (NIR Request).
CLM	Memory Cleared.
MAPF	Major Alarm Interface circuitry has failed.
MJA	Major alarm.

4.2 Number Coding - Information is written into the memory and read out of the Memory in a 2 out of 5 code.

4.21 Table shows the "2 out of 5" coding of decimal numbers as used by the system.

TABLE 4

	2/5 CODE BIT POSITION VALUES				
DECIMAL DIGIT	"0" BIT	"1" BIT	"2" BIT	"4" BIT	"7" BIT
0	0	0	0	1	1
1	1	1	0	0	0
2	1	0	1	0	0
3	0	1	1	0	0
4	1	0	0	1	0
5	0	1	0	1	0
6	0	0	1	1	0
7	1	0	0	0	1
8	0	1	0	0	1
9	0	0	1	0	1

4.22 Table 5 illustrates 2/5 coding for sample Trunk Number or Station Number 8420 in a typical PBX message transmission. Table 5 also illustrates errors in the 2/5 coding.

TABLE 5

	THOUSANDS DIGIT	HUNDREDS DIGIT	TENS DIGIT	UNITS DIGIT
DECIMAL NUMBER	8	4	2	0
2/5 CODED NUMBER	01001	10010	10100	00011
3/5 ERROR (units digit)	01001	10010	10100	01011
1/5 ERROR (units digit)	01001	10010	10100	00001

4.23 Table 6 illustrates the 3/8 Office Index coding (1/3 tens and 2/5 units). This is read in MODE B only.

TABLE 6

	TENS DIGIT	UNITS DIGIT
DECIMAL NUMBER	1	5
3/8 CODE	010	01010

5. TESTS

5.01 Fusing and Power

(A) The circuit packs should be disengaged from their connectors. With the exception of the FE and MISC AF fuses, all fuses should be removed from the AIOD panels. Remove the ED-1C015-( ) G2 Amplas circuit pack from the J-1C037 B-1 unit, (SD-1C233-01).

(B) One at a time, insert an operated fuse in -48V MISC E, F, G and H holders; verify that the FA lamp lights. Remove the operated fuse, the FA lamp is extinquished. Do not install the good E, F, G and H fuses until instructed.

(C) Start the Converter as follows:

a) Operate the ON OFF-RESTART switch to the ON position.

b) Observe that all trouble indicating lamps on the converter are extinquished.

NOTE: If the J-87416A converter ever has to be restarted or shut down and restrarted for any reason; operate the ON OFF-RESTART switch to the OFF-RESTART position, wait 10 seconds before returning the switch to the ON position.

(D) Insert an operated fuse in +6V Store A holder, verify that +6V is present at -48V MISC E center post. Remove the operated fuse and verify that the voltage drops to 0.

(E) Insert an operated fuse in +12V MISC J holder, verify that +12V is present at -48V MISC F center post. Remove the operated fuse and verify that the voltage drops to 0.

(F) Insert an operated fuse in the +24V Test A holder, verify that +24V is present at -48V MISC G center post. Remove the operated fuse and verify that the voltage drops to 0.

(G) Insert the Miscellaneous -48V B fuse. Insert an operate fuse in the -12V Test A holder, verify that -12V is present at -48V MISC H center post. Remove the operated fuse and verify that the voltage drops to 0. Remove the Miscellaneous -48V B fuse.

(H) Insert the Miscellaneous -48V A fuse. Insert an operated fuse in the -48V Store A holder, verify that the FA lamp lights. Remove the operated fuse, the FA lamp is extinquished. Remove the Miscellaneous -48V A fuse.

(I) Insert the -48V MISC E, F, G and H fuses.

(J) Engage CP 74 location 01A07 (J-1C037 E-1), (SD-1C235-01).

(K) Using the ITE-4442A, test each unfused post for the absence of battery and ground. Then install each fuse one at a time and as each fuse is installed, verify (a) that all unfused posts are free of battery and (b) that the proper potential is present at the Test Point designated per the Fuse Table.

(L) Shut down the Converter. Operate the ON OFF-RESTART switch to the OFF-RESTART position.

(M) Insert all circuit packs. Verify that the CP number of each equipped circuit pack agrees with the CP Number shown for that position on the horizontal designation strip at the top of each tray in the SI Frame.

(N) Start the Converter according to Paragraph 5.01(C).

(O) Operate and hold operated the RES switch; insert the ED-1C015-( )G2 Amplas circuit pack; Release the RES switch. Also, verify that relays DT and STR (top of frame) are non-operated.

(P) Simultaneously depress switches MR and RES. Momentarily operate switch CLR. Momentarily operate switch RS; SYC lamps should be the only lamp lit.

NOTE: Operate switch LCO to the ON Position and verify that switch AC is in the OFF position, leave these switches in their respective positions until otherwise instructed. Lamps SYC will normally stay lit when the LCO switch is in the ON position.

FUSE TABLE

FUSE	UNIT	TEST POINT	POTENTIAL
FE			-48
MISC AF	Fig. D	L(ACO) relay	-48
Test A	J-1C037E-1	01A22-17	+6
Test B	"	01B22-13	+6
Test C	"	01D16-13	+6
Test D	"	09A07-13	+6
Test E	"	09A16-13	+6
Test F	"	09B01-13	+6
Test G	"	09B10-13	+6
Test H	"	09B19-13	+6
Test J	"	09C04-13	+6
Test K	"	09C13-13	+6
Test L	"	13C04-13	+6
Test M	"	13C07-13	+6
Test N	"	13C16-13	+6
Test P	"	13C19-13	+6
Test R	J-1C037F-1	6F (RC) relay	+6

FUSE TABLE (CONT.)

FUSE	UNIT	TEST POINT	POTENTIAL
Conn A	J-1C037B-1	3 (AC) Connector	+6
Misc K	Fig. D	3 F (AR) Relay	+6
Misc L	Fig. D	(TKRI) (TKB) Registor Center	+6
Store A	J-1C037D-1	01A22-13	+6
Store B	"	01B07-13	+6
Store C	"	01B16-13	+6
Store D	"	01B22-13	+6
Store E	"	01C07-13	+6
Store F	"	01D13-13	+6
Store G	"	05A10-13	+6
Store H	"	05A22-13	+6
Store J	"	05B10-13	+6
Store K	"	05B22-13	+6
Store L	"	05C10-13	+6
Store M	"	05C22-13	+6
Store N	"	09A10-13	+6
Store P	"	09A22-13	+6
Store R	"	09C10-6	+6
Store S	"	09C22-13	+6
Store T	"	13A01-13	+6
Store U	"	13B16-13	+6
Store V	"	13C13-13	+6
Store W	"	13C19-21	+6
Store X	"	13D16-13	+6
Store Y	"	17B13-13	+6
Store Z	"	17D13-21	+6
Store AA	"	17D07-13	+6
Store AB	R76	17B22-13	+6
Store AC	J-1C037D-1	09B13-13	+6
Store AD	J-1C037D-1	17D13-13	+6
Test A	J-1C037E-1	01D19-27 and 01D16-03	+12
Test B	"	13B13-27 and 13B13-03	+12
Test C	"	13C01-27	+12
Test D	"	05A07-27	+12
Test E	"	09C13-3 and 09C13-27	+12
Store A	J-1C037D-1	01A04-27	+12
Store B	"	09A01-27	+12
Store C	"	17A16-27	+12
Misc J	Fig. D	6 (C) Connector	+12
Test A	J-1C037E-1	01B10-17	+24
Store A	J-1C037D-1	17A07-27	+24
Test A	J-1C037E-1	05A16-17	-12
Store A	R76	17B22-24	-12
Misc A*	Fig. D	1 of (L1) Inductor	-48
Misc B	Fig. D	bottom (R1) resistor	-48
Conn A	J-1C037B-1	1 (AC) Connector	-48
Conn B0	J-1C037C-1	2U (H4) Relay	-48
Conn B1	J-1C037C-1	(List 2) 2U (H9) Relay	-48
Test A #	Fig. G	202A Term at lamp 14	-48
Test B	"	202A Term at lamp 20	-48
Test C	"	202A Term at lamp 40	-48
Test D	"	202A Term at lamp DLN7	-48
Test E	"	" MJA	-48
Test F	"	L(FS) relay	-48
Test G	J-1C037F-1	L(LCO) Relay	-48
Test H	Fig. G	Bottom (SYD) Lamp	-48
Store A	J-1C037D-1	17A10-17	-48
Misc C	Fig. D	12 (C) Connector	-48

* Capacitor is discharge through 1,000 ohm resistor.
# Operate LCO switch and leave o erated for remaini-

5.02 Memory Check

NOTE: If trouble is encountered in this test refer to Section 276 and perform the tests of Paragraph 9, Continuous Transmission Test, then perform the tests of Paragraph 10, Section 276, Memory Check.

STEP	OPERATION	OBSERVATION
1	Operate switch SYD.	SYD lamp lights
2	Patch Jack TST to Jack DRT.	
3	Operate switch SWO to 1 position.	
4	2/5 Code the Trunk Number 7888 (Refer to Table 4 for setting switches SW1 to SW20).	
5	2/5 Code the Station Number 8888 (Refer to Table 4 for switch settings SW21 to SW40).	
6	Set DLN switch to digit 8.	
7	Operate switches MCK & MCK1	
8	Momentarily operate switch LD.	Lamp PLB lights, lamps associated with switches SW1 through SW40 light in a 2/5 (2-out-of-5) code corresponding to the switch settings.
9	Operate switch PBX.	
10	Operate switch TST.	Lamps A, A1, RC, PBX, CRF, CRFA, LP and MLF light.
11	Release switches TST & PBX.	
12	Momentarily operate switch CLR.	Lamps RC and MLF are extinquished.
13	Release switch MCK & MCK1.	Lamp CLM and MJA light. Disregard other lamps that light.
14	Momentarily operate RES and MR simultaneously.	
15	Momentarily operate switch CLR.	
16	At Misc. Circuit operate switch RS.	All lamps except SYD and SYC extinquished.
17	Remove patch cord from TST and DRT jacks.	
18	Return the SYD switch to the OFF position	Lamp SYD extinquished.

5.03 PBX Simulated Request - Perform this test several times to become acquainted with the steps to be followed for a simulated PBX Request. Two PBX Requests are performed by the following steps, one with each operation of the PBX switch.

STEP	OPERATION	OBSERVATION
1	Set DLN to "0" position.	
2	Set SW0 to "1" position.	
3	2/5 code the Trunk Number 8420 (switches SW1 to SW20 are set according to Table 5).	
4	2/5 code the Station Number 8420 (switches 21 to SW40).	
5	Momentarily operate switch LD.	Lamp PLB lights. Lamps associated with switches in a 2/5 code corresponding to switch settings.
6	Operate switch TST.	Lamps A & A1 light.
7	Operate switch PBX.	Lamps A, A1, SYC, PBX, RC, CRF, CRFA, LP, WR and WER light.
8	Release switch TST & PBX.	Lamps A & A1 extinquish.
9	Momentarily operate switch CLR.	All lamps except SYC are extinquished.
10	Momentarily operate switch LD.	Lamp PLB lights. Lamps associated with switches SW1 through SW40 light in a 2/5 code corresponding to switch settings.
11	Operate switches TST & PBX.	Lamps of Step 7 light and lamps TN, DN, and SN light. The 2/5 coded Trunk Number, the 2/5 coded Station Number and the 2/5 DLN are displayed.
12	Release switches TST & PBX.	Lamps A & A1 extinquish.
13	Momentarily operate switch CLR.	All lamps except SYC are extinquished.
14	Release all SW- switches.	

NOTE: If trouble is encountered in performing PBX Requests verify the trouble by:

1. Release all switches.
2. Simultaneously operate MR and RES.
3. Operate switch CLR and RS (SYC should be only lamp lit).
4. Perform the test again.
5. If trouble persists refer to Section 276 or TLM-1C235 for trouble corresponding to the lamp display.

5.04 Simulated NIR Request - Perform this test several times to become acquainted with the steps to be followed for a simulated NIR Request. A PBX Request must be performed between each NIR Request. For a NIR Request, a Trunk Number, Station Number and Data Number must be in Memory. If trouble is encountered, and the Station Number and Data Number are removed from Memory. Before initiating a NIR Request, perform a PBX Request to put the Station Number and Data Number into Memory. See Section 276 for typical lamp displays on a NIR Request.

STEP	OPERATION	OBSERVATION
1	2/5 Code the Trunk Number 8420 on switches SW1 through SW20.	
2	Momentarily operate switch LD.	Check lamps for accuracy of 2/5 code.
3	Momentarily operate switch CLR.	Lamps associated with switches SW1 through SW20 extinquished.
4	Operate switch NIR.	
5	Operate switch TST.	Lamps B, B1, SYC, NIR, CRF, CRFA, LP, WR, WER and 2/5K light. 3/8 Office Index is Displayed and 2/5 Station Number is displayed.
6	Release switches NIR & TST.	Lamps B & B1 extinquish.
7	Momentarily operate switch CLR.	All lamps except SYC extinquish.
8	Release all SW- switches.	

NOTE: Disregard lamps A, A1, B and B1 for the remaining tests.

5.05 Data Link Connector and SIS Control Circuit Test

5.051 To test Data Links (other than 0) the following steps must be followed:

a) Patch DR1 through DR9 one at a time to TST jack.
b) Set DLN switch to associated Data Link Number.

5.052 Perform a simulate PBX Request using Table 7 for Trunk Number, Station Number, Data Link Number and following the steps of 5.051.

TABLE 7

TRUNK NUMBER SW1 THROUGH SW20	STATION NUMBER SW21 THROUGH SW40	DATA LINK NUMBER DLN SWITCH
6666	1111	1
7777	2222	2
8888	3333	3
9999	4444	4
1111	6666	6
2222	7777	7
3333	8888	8
4444	9999	9
1121	1121	5
1211	1211	0

5.053 Perform a sinulated NIR Request, using each Trunk Number listed in Table 7. Check that the Office Index and corresponding Station Number is displayed for each Trunk Number of Table 7.

NOTE: The Office Index is the same decimal number as the Data Link Number.

5.06 Trap Function Tests - System will trap on the Trunk Number, or the Data Link Number, if the other is in error.

5.061 Perform a simulated PBX Request for each of the Trunk Numbers of Table 8 and set the Station Number and Data Link Number accordingly.

TABLE 8

TRUNK NUMBER SW1 THROUGH SW20	STATION NUMBER SW21 THROUGH SW40	DATA LINK NUMBER DLN SWITCH
1222	2111	1
2333	3222	1
3444	4333	1
4555	5444	1
5666	6555	1
6777	7666	1
7888	8777	1
8999	9888	1
9000	0999	1
0111	1000	1
5555	5555	2
0000	0000	3

NOTE: For simulated PBX Request refer to Paragraph 5.03 changing only Trunk Number, Station Number and Data Link Number as indicated.

5.062 Perform a simulated Request and observe that the proper lamps light as indicated in the following table. For a simulated NIR Request refer to Paragraph 5.04 changing only the Trunk Number as indicated.

OPERATION				OBSERVATION	
PERFORM A SIMULATED REQUEST	TRUNK NUMBER	STATION NUMBER	DATA LINK NUMBER	CHECK LAMPS LIT	CHECK LAMPS ARE NOT LIT
PBX	8420 with a 1/5 error in units digit (See Table 5)	8420	1	DKF, PBX, RC, CRF, CRFA, DN, SN, LP, WER, and SYC. Trunk Number 8420 with a 1/5 error in the units digit, Station Number 8420, Data Link Number 1.	TN
NIR	First 10 numbers of Table 8.			DKMA,NIR,CRF,CRFA,TN,DN,LP,WR, WER,TRL, and SYC. Trunk Numbers 2/5 code. Data Link Number 2/5 Code.	SN, 2/5K Station Number 2/5 Code.
PBX	5555	4444	OFF	DKF,PBX,RC,CRF,CRFA,TN,SN,LP,WER, and SYC. Trunk Number 5555, Station Number 4444.	DN, Data Link Number 2/5 code
NIR	5555			DKMA,NIR, CRF,CRFA,TN,LP,WR,WER, TRL, and SYC. Trunk Number 2/5 code.	DN,SN and 2/5K Data Link Number & Station Number 2/5 code.
PBX	0000	8420 with 1/5 error in the units digit (See Table 5).	3	DKF,PBX,RC,CRF,CRFA,LP,DN,TN,WR, WER, and SYC. Trunk Number 0000, Station Number 8420 with a 1/5 error in the units digit, Data Link Number 3.	SN

OPERATION				OBSERVATION	
PERFORM A SIMULATED REQUEST	TRUNK NUMBER	STATION NUMBER	DATA LINK NUMBER	CHECK LAMPS LIT	CHECK LAMPS ARE NOT LIT
NIR	0000			DKMA,NIR,CRF,CRFA,LP,WR,WER DN, TN, TRL, and SYC. Trunk Number 0000 Data Link Number 3.	SN and 2/5K
PBX	8420 with a 1/5 error in the units digit (See Table 5)		OFF	DKF,PBX,RC,CRF,CRFA,CLM, and SYC. SN may or may not light. Trunk Number 8420 with a 1/5 error in the units digit, Station Number lamps light corresponding to switch settings.	TN,DN Data Link Number 2/5 code.
NIR	0000			DKMA,NIR,CRF,CRFA,LP,MAF, TRL,SYC and TN. 3TM may or may not light. Trunk Number 0000.	SN,DN and 2/5K Station Number 2/5 code. Data Link Number 2/5 code.

NOTE: The tests specified per the above table utilize the information written into Memory per Paragraph 5.061. Therefore, if trouble is encountered in obtaining the observation as specified, the operations per Paragraph 5.061 must be repeated prior to performing the operations per the above table.

5.07 Number Change - See Section 276 Paragraph 4.2 for a description of the following Test.

STEP	OPERATION	OBSERVATION
1	Set SW0 to 1 position. Set Trunk Number to 6666. Set Station Number to 4444.	
2	Momentarily operate switch LD.	Check lamps associated with switches SW1 to SW40 for accuracy of the 2/5 code.
3	Operate switches TST and NCH.	Lamps SYC, PBX, RC, CRF, CPFA, LP, WR, and WER light. TN and SN may or may not light.
4	Release switches TST and NCH.	
5	Momentarily operate switch CLR.	All lamps except SYC are extinquished.
6	Momentarily operate switch LD.	
7	Operate switches TST and NCH.	Lamps SYC, PBX, RC, CRF, CRFA, LP, WR, WER TN, and SN light. 2/5 code Trunk Number 6666 and 2/5 coded Station Number 4444 are displayed. All lamps in Data Link position are lit.
8	Release switches TST and NCH.	
9	Momentarily operate switch CLR.	All lamps except SYC are extinquished.
10	Perform a simulate PBX Request with Trunk Number 4444, Station Number 2222 and Data Link Number 0.	
11	Perform a simulated NIR Request with Trunk Number 6666.	Lamps SYC,NIR,CRF,CRFA,LP,WR,WER,2/5K, NC and NS light. Station Number 2222 & Office Index 00 are displayed.

5.08 Repeat Test

STEP	OPERATION	OBSERVATION
1	Block REP2 relay normal. Set switches SW1 through SW40 for digit 7 in the 2/5 code.	
2	Set DLN to 0. Set SW0 to 1 position.	
3	Momentarily operate switches CLR than LD.	Observe lamps associated with SW1 through SW40 for accuracy of the 2/5 code.
4	Operate switch TST.	
5	Operate switch RT.	A simulate PBX Request is transmitted every 1/2 second as long as trouble is not encountered.
6	If trouble is encountered (A) momentarily operate switch CLR (B) momentarily release switch RT.	
7	Allow this test to run for 1/2 hour.	Maximum failure rate is 1 error every 400 to 500 transmissions (i.e. 3.33 to 4.17 minutes)
8	Release switches RT & TST. Unblock relay REP2.	

5.09 Office Index Translation Test - Remove the strap previously connected to pchg. 04 of T.S. AB-A. Connect the punchings of Table 9 on a one at a time basis to pchg. 04 of T.S. AB-A (DLN-0). Perform a simulated PBX Request and then perform a simulated NIR Request checking that the correct Office Index is displayed as indicated in Table 9.

TABLE 9

OFFICE INDEX	
	TS (AB-A)
Office Index	Pchg.
15	55
16	56
17	57
18	58
19	59
	TS (AB-B)
10	05
11	06
12	07
13	08
14	09
20	50
21	51
22	52
23	53
24	54
25	55
26	56
27	57
28	58
29	59

5.10 Clock Circuit Failure Operation - This test checks for proper alarm indications if a failure occurs in the clock circuit.

STEP	OPERATION	OBSERVATION
1	Momentarily operate switch CLR.	Check CLKF, MFA & CLM lamps are not lit.
2	Remove and reinsert CP74 at location 13C01 (J-1C037D), (SD-1C234-01).	Check that MJA, CLKF, and CLM lamps are lit. Disregard other lamps that light.
3	Momentarily operate switch CLR.	CLKF & CLM lamps are extinquished.
4	Momentarily operate switch RS.	MJA lamps is extinquished.

5.11 Match Blank Failure - This test checks for proper indications if there is a failure to find a blank slot in Memory.

STEP	OPERATION	OBSERVATION
1	Using 737A tool (patch cord) connect from 17D01-13 to 17D01-17 of the SIS circuit.	
2	Perform a simulate PBX Request.	Lamps DKMA, MBF, CLM, SYC, PBX, RC, CRF, CRFA, TN, DN, SN, and LP light.
3	Momentarily operate CLR and then switch RS.	All lamps except SYC extinquished.
4	Remove the 737A tool.	
5	Perform a simulated PBX Request.	Same indications as Step 2.
6	Momentarily operate switch CLR and switch RS.	All lamps except SYC are extinquished.
7	Perform a simulated PBX Request.	Lamps SYC,PBX,RC,CRF,CRFA,LP,WR, and WER light.
8	Momentarily operate switch CLR, release all other switches.	All lamps except SYC extinquished.

5.12 Timing Failure

STEP	OPERATION	OBSERVATION
1	Using 737A tool ground 13D07-7 of the SIS Circuit	
2	Using 737A tool connect from 09A16-23 to 09A16-13 of the SIS & C Circuit.	
3	Perform a NIR Request.	Check that lamps DKMA, 2TM and 3TM light. Disregard other lamps.
4	Remove the 737A tools.	
5	Momentarily operate switches CLR and RS.	All lamps except SYC are extinquished.

5.13 SYD Testing - The following steps check the ability to test using the control panel on a system-down condition.

STEP	OPERATION	OBSERVATION
1	Operate switch SYD.	Lamp SYD lights.
2	Patch jack TST to jack DRT.	
3	Perform a simulated PBX Request using Trunk Number 1110, Station Number 0101 and DLN 1.	Lamps SYC,PBX,RC,CRF,CRFA,LP,WR and WER light. Lamps TN, DN, and SN may or may not light.
4	Remove the patch cord from jacks TST and DRT.	
5	Perform a simulated NIR Request using Trunk Number 1110.	Verify that Station Number 0101 and Office Index 01 are displayed.
6	Return switch SYD to the OFF position.	Lamp SYD is extinquished.

5.14 ATTN Check - The following steps check the ability of the SIS circuit to recognize attenuated data signals and function correctly.

STEP	OPERATION	OBSERVATION
1	Operate switch ATTN to the ON position.	
2	Perform a simulate PBX Request use Trunk Number 1111, Station Number 1111 and DLN 1.	Verify no TBL lamps light. Lamps SYC, PBX, RC, CRF, CRFA, LP, WR, and WER light. TN, DN and SN may or may not light.
3	Perform a simulated NIR Request using Trunk Number 1111.	Verify that Station Number 1111 and Office Index 01 are displayed.
4	Return switch ATTN to the OFF position.	

5.15 CTR Test - This loops the Test Register to continuously feed data to the SIS Circuit.

STEP	OPERATION	OBSERVATION
1	Operate switch SYD.	Lamp SYD lights.
2	Using the PC cord patch jack TST to jack DRT.	
3	Operate switches MCK and CTR.	
4	Perform a simulated PBX Request using Trunk Number 5555, Station Number 8888 and DLN 5.	Lamps PBX and RC light. Trunk Number and Station Number lamps are dimly lit. Lamp SYC is extinquished.
5	Return switches TST, PBX, CTR and MCK to the OFF position.	Disregard the lamp display.
6	Momentarily operate switches MR and RES simultaneously.	Lamp CLM is lit.
7	Momentarily operate switch CLR and then switch RS.	Lamps SYC and SYD should be the only lamps lit.
8	Release the SYD switch	Lamp SYD extinquishes.
9	Remove the PC cord from jacks TST and DRT.	

5.16 Alarm Indications

5.161 Alarm Control - The tests checks that both major and minor alarms can be inhibited during tests from the Control Panel.

STEP	OPERATION	OBSERVATION
1	Operate switch AC to the ON position.	
2	Perform a simulated PBX Request using Trunk Number 2222, DLNO and a 1/5 error code in Station Number 2222.	Lamps DKF,SYC,PBX,RC,CRF,CRFA,TN,DN,WR,LP, WER, and MNA (green) light. 2/5 code DLN lamps light.
3	Momentarily operate switch CLR.	All lamps except SYC and MNA are extinquished.
4	Momentarily operate switch RS.	Lamp MNA is extinquished.
5	Perform a Simulated PBX Request with a 1/5 error in Trunk Number 2222, set DLN to OFF position, and use Station Number 2222.	Lamps DKF,CLM,MJA,SYC,PBX,RC,CRF,CRFA and MJA (red) light. Lamp SN may or may not light.
6	Momentarily operate switches CLR.	All lamps except SYC and both MJA lamps are extinquished.
7	Momentarily operate switch RS.	Both MJA lamps are extinquished.
8	Restore switch AC to the OFF position.	
9	Repeat Steps 2 thru 7.	Verify that lamps MNA (Step 2) and MJA (Step 5) do not light.

5.162 Remote Alarm Release - This test checks that major and minor alarms can be released from the Maintenance Center.

STEP	OPERATION	OBSERVATION
1	Operate the AC switch to the ON position.	
2	Clear memory by momentarily operating switches RES and MR simultaneously.	Lamps CLM and MJA light.
3	Momentarily operate switch CLR and switch RS.	Lamp SYC is only lamp lit.
4	Perform an NIR Request using Trunk Number 1234.	Lamps DKMA,MAF,MJA,SYC,NIR,CRF,CRFA,TN,LP and TRL light. Trunk Number 1234 is displayed on the Data Register lamps.
5	Momentarily operate switch RS.	The Control Panel lamps (except lamp SYC) are extinquished and the major alarm is retired.
6	Repeat the operations per Step 4.	Same observations as per Step 4.
7	Momentarily operate the RS-AIOD key (located at the Maintenance Center).	The Control Panel lamps (except lamp SYC) are extinquished and the major alarm is retired.
8	Restore the AC switch to the OFF position.	
9	Repeat the operations as per Step 4.	With the exception of lamp MJA, the lamps per Step 4 light.
10	Momentarily operate switch CLR.	The Control Panel lamps (except lamp SYC) are extinquished.

5.163 This test is to be applied after all alarms are connected.

STEP	MOMENTARILY OPERATE RELAY	LAMPS LIGHT ON FRAME
1	FA	FA
2	MJA	MJA
3	FFSA (to its non-operated position)	PWF
4	MNA	MNA

5.164 Check for remote visual and/or audible alarms at remote location with the operation of each relay.

5.17 Disconnect temporary cross connections made in Paragraph 1.41. make the permanent cross connection(s) on T.S.'s AB-A and AB-B.

No changes are indicated due
to extensive revision.

Manager, Product Engineering
Control Center

Reason for Reissue
To incorporate design changes
on the power converter. Eliminate
tests of the J-87332A power converter.
Test points are no longer provided on
the faceplate of the CP74 circuit pack.