Installation Engineering Handbook 59
Western Electric Company, Incorporated
Columbus Works

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ANI FUSING TESTS

CONTENTS

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1. GENERAL INFORMATION

1.1 Fusing tests shall be made on all job wired circuits and on shop wired circuits only where fuses have not been installed by the shop.

1.2 The circuits listed in this section are grouped according to the ANI frames on which they are located.

1.3 Precautions on Circuits Containing Electron Tubes

(a) Install all tubes before installing fuses.

(b) If fuses have been installed by the shop, remove the filament fuses before installing tubes and replace fuses after all tubes are installed.

(c) Fuse filament battery supplies (-48 volt) before fusing plate battery supplies (+130 volt).

2. RECORDS

2.1 The results of tests per this section shall be recorded on forms ID-1313 and ID-1315 as described in Handbook 50 Section 3.

3. TEST EQUIPMENT

1 R-9572 Test Receiver
1 ITE-4442 Volt-Ohmmeter

4. FUSING

4.1 20 Amp Distribution Fuses

4.11 Using a test receiver or volt-ohmmeter check each ANI frame 20A and 20AS fuse block for absence of foreign battery and ground.

4.12 Install the 20A and 20AS fuse and the associated PF and PFS fuses.

4.2 Circuit Fuses

4.21 24 Volt and 48 Volt Fuses

4.211 Using a test receiver or volt-ohmmeter, check each fuse post for absence of foreign battery or ground.

4.22 130 Volt, 110 Volt and 22 Volt AC Fuses

4.221 Using a volt-ohmmeter, check each fuse post for absence of foreign battery, or ground.

4.23 Using fuses of the type specified on circuit drawings and fuse panel designations, install the circuit fuses one at a time. As each fuse is installed check at the point indicated in the following tables that each fuse is associated with the proper equipment and is free from crosses with other unfused posts on the fuse panel.

Lines presented in Script indicate new or changed information.

ATTACHMENTS
Tables 1 thru 7 on Pages 2 thru 7.

Manager, Product Engineering
Control Center

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TABLE 1

IDENTIFIER FRAME

Circuit	Fuse Desig.	Potential	Capacity	Check Point
Identifier Ckt. SD-95810-01	A	-48	1 1/3	Bot. of Res. LP (OF)
	B	-48	1 1/3	L (PC1) Relay
	C	-48	1 1/3	L (OFEA) Relay
	D	-48	1 1/3	Terminal 2 T.S.B (Amp.-Det.)
	E	-48	1 1/3	L (UK) RElay
	F**	-48	3	Terminal 6 T.S.B (Amp.-Det.)
	G	-48	1 1/3	14 (P1) Relay
	H	-48	1 1/3	L (THS) Relay
	J	-48	1 1/3	L (HS) Relay
	K	-48	1 1/3	L (TS) Relay
	L	-48	1 1/3	L (US) Relay
	M	-48	1 1/3	L (TBL) Relay
	N	-48	1 1/3	L (OFK) Relay
	P	-48	1 1/3	14 (TSTA) Relay
	A	+130	1/2	Pin 2 (HTT) Tube
	B	+130	1/2	11 (THRO) Relay
	C	+130	1/2	11 (THR5) "
	D	+130	1/2	11 (HRO) "
	E	+130	1/2	11 (HR5) "
	F	+130	1/2	11 (TRO) "
	G	+130	1/2	11 (TR5) "
	H	+130	1/2	11 (URO) "
	J	+130	1/2	11 (UR5) "
	K	+130	1/2	11 (OFX1) "
	L	+130	1/2	Terminal 10 T.S.B (Amp.-Det.)
Identifier Ckt. 1C593-01	A	*-48V*	*1 1/3 Amp.*	*See HB 59, Section 115B for Fusing Tests*
	B	*-48*	"	
	C	-48	"	
	D	-48	"	
	E	-48	"	
	F	-48	"	
	A1	-48	"	
	B1	-48	"	
	C1	-48	"	
Identifier (O)	D1	-48	"	
Identifier (O)	E1	-48	"	
From CDA MISC. Ckt.	A2	-48	"	
For AMARC Remote Unit	B2	-48	"	
	MISC.	-48	"	
	A	+130	0.18	
Secondary Networks and Bus Connector SD-95814-01	A	-48	1 1/3	1L (TPO) Relay
	B	-48	1 1/3	1L (TP5) "
	C	-48	1 1/3	1L (TP10) "
	D	-48	1 1/3	1L (TP15) "
Miscellaneous Circuit SD095819-01	*MISC	-48	1 1/3	2L (FA) Relay
	*TBS	-48	1 1/3	-48V Test Post
	*TBS	+130	1/2	Tip(C) or (+130) Jack
Service Observing Network SD-95829-01	*SO	-48	1 1/3	1L (TPS) Relay

* Fused at the Miscellaneous Fuse Panel.
** This Voltage Decreases in Succeeding AMP DET Units.

TABLE 2

OUTPULSER FRAMES

Circuit	Fuse Desig.	Potential	Capacity	Check Point
Outpulser Circuit SD-95811-01	A%	-48	1 1/3	L (1TH) Relay
	B	-48	1 1/3	L (1TR) "
	C	-48	1 1/3	L (I2) "
	D	-48	1 1/3	L (AB) "
	E	-48	1 1/3	L (MBIO) "
	F	-48	1 1/3	L (UO) "
	G	-48	1 1/3	L (SO "
	H	-48	1 1/3	L IRLA) "
	J	-48	1 1/3	L (TAL) "
	K	-48	1 1/3	L (MF) "
	L	-48	1 1/3	L (I3) "
	**M	-48	1 1/3	Terminal 3 (M.F. Unit T.S.)
	N	-48	1 1/3	L STP
	P	-48	1 1/3	L CON
	R	-48	1 1/3	L H
	S	-48	1 1/3	L PS1
	T	-48	1 1/3	L SCC
	A%	-110	1/4	V2 Res.
	A%	-24	1/4	4 Make (PIK) Relay
	A	+130	1/4	TT1 Res.
Miscellaneous Circuit SD-95820-01	*MISC	-48		L (ATR) Relay
	*TBS	-48		48V Test Post
	*TBS	+130		Tip (C) or (+130) Jack

* Fused at Miscellaneous Fuse Panel.
** When M.F. Unit per J99235 AW is Provided on Outpulser Frame.
% Option.

TABLE 3

OUTPULSER - IDENTIFIER TRUNK TEST FRAME

Circuit	Fuse Desig.	Potential	Capacity	Check Point
Outpulser - Identifier Test Circuit SD-95815-01	A	-48	1 1/3	L (ON) Relay
	B	-48	1 1/3	L (ES1) "
	C	-48	1 1/3	L (ID) "
	D	-48	1 1/3	L (IO) "
	E	-48	1 1/3	L (THO) "
	F	-48	1 1/3	OIT Lamp
	G	-48	1 1/3	L (AS) Relay
	H	-48	1 1/3	OFOI Lamp
	J	-48	1 1/3	2L (UL) Relay
	K	-48	1 1/3	2L (IRL)
	L	-48	1 1/3	IO Lamp
	M	-48	1 1/3	IRL "
	N	-48	1 1/3	2L TGD1
	P	-48	1 1/3	TGD1 Lamp
	Q	-48	1 1/3	PSD Lamp
Automatic Trunk Test Circuit (Step by Step) SD-32315-01	A	-48	1 1/3	L (HA) Relay
	B	-48	1 1/3	HO Lamp
	C	-48	1 1/3	L (RN1) Relay
	D	-48	1 1/3	L (S) "
	E	-48	1 1/3	L (HB) "

TABLE 3 (Cont'd.)

Circuit	Fuse Desig.	Potential	Capacity	Check Point
Automatic Trunk Test Circuit (Step by Step) SD-32315-01 (Cont'd.)	F	-48	1 1/3	L (TCI) Relay
	G	-48	1 1/3	RB1 (RST) Register
	H	-48	1 1/3	L (STM2) Relay
	J	-48	1 1/3	L (STM1) "
	K	-48	1 1/3	L (WO) "
	L	-48	1 1/3	TP Lamp
	A	+130	1/2	Pin 2 (TM2) Tube
Automatic Trunk Test Circuit (Panel and No. 1 Crossbar) SD-95889-01	A	-48V	1 1/3 Amp.	L (STA) Relay
	B	"	"	L (HO) Hold Mag.
	C	"	"	L (H) Relay
	D	"	"	L (S) "
	E	"	"	L (LA) "
	F	"	"	L (TCI) "
	G	"	"	L (BTI) "
	H	"	"	L (CLXB)"
	J	"	"	L (CLPN)"
	K	"	"	L (TM) "
	L	"	"	B (A) Selector
	M	"	"	B (C) "
	N	"	"	L (MG) Relay
	P	"	"	L (OPT) "
	R	"	"	EPNO Resistor
	S	"	"	L (CTI) Relay
	T	"	"	1L (BLK) "
	U	"	"	L (STM1) "
	V	"	"	CTO Lamp
	W	"	"	AF "
	X	"	"	EC "
	Y	"	"	RB1 (RST) Register
	AA	"	"	AO Relay
	AB	"	"	E Selector
	AC	"	"	G Selector
	AD	"	"	L (EMT) Relay
	A	+130V	1/2 Amp.	Bot. (TM1E) Resistor
Oscillator Circuit SD-95827-01	A	-48	1/4 Amp.	Terminal 1 Unit T.S.
	B	-48	1 1/3Amp.	Terminal 2 Unit T.S.
Miscellaneous Circuit SD-95822-01	TBS	-48V	1 1/3 Amp.	-48V Test Post
	**MISC	-48V	"	FA Lamp
	*TBS	+130V	1/2 Amp.	Tip (C) or (+130) Jack

* Fused at Miscellaneous Fuse Panel.
** Step-by-Step Only, Fused at Miscellaneous Fuse Panel.

TABLE 4

TROUBLE TICKETER FRAME

Circuit	Fuse Desig.	Potential	Capacity	Check Point
Trouble Ticketer Circuit SD-95816-01	A	-48V	1 1/3 Amp.	2L (IDO) Relay
	B	"	"	2L (PTY) "
	C	"	"	L (THK) "
	D	"	"	2U (PK) "
	E	"	"	2L (RL) "

TABLE 4 (Cont'd.)

Circuit	Fuse Desig.	Potential	Capacity	Check Point
Trouble Ticketer Circuit SD-95816-01 (Cont'd.)	F	-48V	1 1/3 Amp.	2L (MUO) Relay
	G	"	"	L (PG) Selector
	H	"	"	L (DISC) Relay
	J	"	"	2L (P1) "
	K	"	"	2L (PK1) "
	L	"	"	2L (HT) "
	M	"	"	(P) Selector
	N	"	"	(HU) "
	*A	22V A.C.	5 Amp.	Check between terminals 47 and 37 for MISC T.S.
	*W	130V	1/2 Amp.	Pin 2 (AL) Tube
Miscellaneous Circuit SD-95823-01	A	-48	1 1/3 Amp.	L (BAT) Relay
	B	"	"	L (PA) "
	C	"	"	L (LTN) "
	D	"	"	(TKOO) Lamp
	E	"	"	L (AF) Relay (1 per ID)
	F	"	"	RB1 (OPF) Register
	G	"	"	L (IMBA) Relay
	TBS	"	"	(48V) Test Post
	*MISC	"	"	FA Lamp
	*MISC	+130V	1/2 Amp.	Pin 2 (TM) Tube
	*TBS	"	1/2 Amp.	Tip (+130) or (C) Jack
Permanent Signal Identification Circuit SD-95817-01	A	-48V	1 1/3 Amp.	L (GPA) Relay
	-	+130V	1/2 Amp.	Pin 2 (TO) Tube
Oscillator Circuit SD-95827-01	A	-48V	1/4 Amp.	Terminal 1 Unit T.S.
	B	"	1 1/3 Amp.	" 2 " "

* Fused at Miscellaneous Fuse Panels.

TABLE 5

ANI TRUNK FRAMES - PANEL AND NO. 1 CROSSBAR

Circuit	Fuse Desig.	Potential	Capacity	Check Point
Trunk Circuits SD-21972-01, SD-21974-01, SD-26209-01, SD-26210-01	A	-48V	1 1/3 Amp.	L (ID) Relay
Miscellaneous Circuit SD-95821-01	A	-48V	1 1/3 Amp.	L (FRO) Relay
	TBS	"	"	48V Test Post
Outpulser Connector Circuit SD-95890-01	AO	-48V	1 1/3 Amp.	L (TNK) Relay - 1st Trk Subgroup
	A1	"	"	L (TNK) Relay - 2nd Trk Subgroup
Oscillator Circuit SD-95827-01	AO	-48V	1/4 Amp.	Terminal 1 Unit T.S. (1st Osc.)
	A1	"	"	Terminal 1 Unit T.S. (2nd Osc.)
	BO	"	1 1/3 Amp.	Terminal 2 Unit T.S. (1st Osc.)
	B1	"	"	Terminal 2 Unit T.S. (2nd Osc.)

TABLE 6

ANI TRUNK FRAMES - STEP-BY-STEP
(FUSED AT MISC FUSE PANEL)

Circuit	Fuse Desig.	Potential	Capacity	Check Point
Trunk Circuits SD-32244-01, SD-32245-01	- - -	-48V +130V -110V	1 1/3 Amp. 1/2 Amp. 1/2 Amp.	L (TT1) Relay L (TM) " 12 Make (MB) Relay
Miscellaneous Circuit SD-32248-01	A TBS	-48V "	1 1/3 Amp. "	L (FRO) Relay 48V Test Post
Outpulser Connector SD-95890-01	A	-48V	1 1/3 Amp.	L (TKN) Relay
Oscillator Circuit SD-95827-01	A B	-48V "	1/4 Amp. 1 1/3 Amp.	Terminal 1 Unit T.S. Terminal 2 Unit T.S.

TABLE 7

OTHER ANI CIRCUITS
(FUSED AT MISCELLANEOUS FUSE PANELS)

Circuit	Fuse Desig.	Potential	Capacity	Check Point
Outpulser Connector Circuit SD-95890-01	BO	-48V	1 1/3 Amp.	Terminal 15 T.S.C (1st, 2nd trunk subgroup on unit) Unit OP
	B1	-48V	1 1/3 Amp.	Terminal 16 T.S.C (3rd, 4th, 5th trunk subgroup on unit on Unit
	BO	-48V	1 1/3 Amp.	Terminal 31 T.S.C (1st, 2nd trunk subgroup on unit) 2nd OP
	B1	-48V	1 1/3 Amp.	Terminal 32 T.S.C (3rd, 4th, 5th trunk subgroup on unit) on Unit
	CO	-48V	1 1/3 Amp.	Terminal 34 T.S.A (Outpulser Busy Unit
	C1	"	"	" 35 " " " "
	C2	"	"	" 36 " " " "
	C3	"	"	" 37 " " " "
	C4	"	"	" 38 " " " "
	C5	"	"	" 39 " " " "
	C6	"	"	" 40 " " " "
Oscillator Circuit SD-95827-01	A B	-48V -48V	1/4 Amp. 1 1/3 Amp.	Terminal 1 Unit T.S. Terminal 2 Unit T.S.
Miscellaneout Circuit for Number Network Frame SD-95825-01	TBS	-48V	1 1/3 Amp.	48V Test Post
Line Verification Circuit (SXS) SD-32246-01	A B C D *E H **F **G	-48V " " " " " +130V "	1 1/3 Amp. " " " " " 0.180 Amp. " "	2U (OF1) Relay 2L (U7) " L (ID) " 2L (RC2) " 2L (TT) " TTB Lamp (Control Positions) Pin 2 (TM) Tube 12B (BSY3) Relay

TABLE 7 (Cont'd.)

Circuit	Fuse Desig.	Potential	Capacity	Check Point
Line Verification Connector and Display Circuit (Panel and No. 1 Crossbar) SD-95828-01	A	-48V	1 1/3 Amp.	L (LO) Relay
	B	"	"	L (MP) "
	C	"	"	4M (OFO) "
	D	"	"	3 (LPO) "
	*E	"	"	4 (LPO) "
	G	+130V	0.180 Amp.	1M (LPO) "
	H	"	1/2 Amp.	Pin 2 (TM) Tube
Line Verification Circuit (Panel and No. 1 Crossbar) SD-95888-01	-	-48V	1 1/3 Amp.	A Resistor
Line Verification Trunk Circuit (Panel) SD-21973-01	-	-48V	1 1/3 Amp.	L (BT2) Relay

* Optional.
** Check for 5.1 ohm resistor connected in series with fuse.