

SHEET INDEX

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FIG. 1 FUSE ALARM FOR 105V ±, AC-DC AUD, ± AUD, SUP-AUD, SUP + AUD FIG. 2 FUSE ALARM FOR CC+, CC-, 60V MR, -TRP, +TRP, LT2, LT1 60 IPM BR2, LT1 60 IPM BR7, LT4 60 IPM BR4, LT5 60 IPM BR2, LT6 60 IPM BR2, LT1 120 IPM BR2, TT3 FIG. 3 GROUND FUSE ALARM FIG. 4 POSITION CLOCK FUSE ALARM FIG. 5 FUSE ALARM FOR HT2 FIG. 6 FUSE ALARM FOR 48V TA'K, 48V SIG, 24V TALK AND 4V SIG BATTERY AND BATTERY FILTER CAPACITOR FUSES FIG. 7 FUSE ALARM LAMP FIG. 8 FUSE ALARM RELAY FIG. 9 ALARMS BATTERY SUPPLY FUSE ALARM FOR POWER DISCHARGE FUSE AND OFFICE ALARM FRAME 48V ABS FUSES FIG. 10 FUSE ALARM FOR MR SUP-, MR SUP+, MR R1, MR R2 FIG. 11 AUXILIARY RELAY FIG. 12 ALARMS BATTERY SUPPLY FUSE ALARM FOR POWER DISCHARGE FUSE AND OFFICE ALARM FRAME 48V ABS FUSES FIG. 13 48V ABS FUSE LAMP FIG. 14 48V ABS FUSE LAMP IN 350A OFFICE FIG. 15 FUSE ALARM FOR 6V BATTERY FIG. 16 FUSE ALARM FOR 130V POTENTIALS FIG. 17 6V POWER ALARM CKT FIG. 18 FUSE PANEL AND FUSE ALARM CKT FOR NO-SUCH-NUMBER TONE	2
CIRCUIT REQUIREMENT TABLE FIG. 8-L, 8-K, 8-M, 9-L, 9-K, 9-H, & CAD 1	3
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CIRCUIT NOTES:

101. FURNISH ONE 1-1/3 AMP FUSE FROM 48V SIG BAT PER FIG. 8.
(R OPTION) OR FURNISH TWO 1-1/3 AMP FUSES (A) & (B) FROM 48V
SIG BAT. FOR EACH FIG. 9 (Q OPTION). SEE NOTE 114. FURNISH
ONE 1-1/3 AMP FUSE FROM 48V SIG BAT. FOR ALL FIG. 3. FURNISH
ONE 1-1/3 AMP FUSE FROM 24V SIG BAT. FOR ALL FIG. 4. FURNISH
ONE 1-1/3 AMP FUSE FROM 48V SIG BAT. FOR ALL FIG. 11.
102. SEPARATE FIG. 1, 2, & 10 SHALL BE FURNISHED FOR THE VARIOUS
ALARM BARS AS REQUIRED.
103. WHEN RINGING PANELS ARE SPLIT INTO DIVISIONS, ONE FOR EACH
RINGING MACHINE BRUSH, FURNISH SEPARATE FIG. 1 OR 10 FOR EACH
DIVISION.
104. FURNISH Y WIRING AND APPARATUS FOR FUSE ALARMS FROM LINE
(MFR DISC.) MESSAGE REGISTER FRAME AND TRAFFIC REGISTER RACK. FURNISH X
SEE NOTE 110 WIRING FOR ALL OTHER FUSE ALARMS.
105. RELAYS AND RESISTORS OF FIG. 1, 2, 4, 5, 6, 9, 10, 15 & 16 SHALL BE
LOCATED AS NEAR AS POSSIBLE TO THE ASSOCIATED ALARM BAR.
106. CONNECT TO FL LEAD FOR FUSES ON RELAY RACKS AND TRAFFIC
REGISTER RACKS, TO FL1 LEAD FOR FUSES ON OFFICE ALARM FRAME,
TO LR LEAD FOR FUSES ON LINE MESSAGE REGISTER FRAME OR TO
F LEAD FOR FUSES ON FIL SUP FRAME.
107. THE USE OF S WIRING AND APPARATUS IS DISCONTINUED ON ISSUE 30
(MFR DISC.) AND IS SUPERSEDED BY T WIRING AND APPARATUS. PRIOR TO ISSUE 30
SEE NOTE 111 T WIRING AND APPARATUS WAS NOT SHOWN AND S WIRING AND APPARATUS
WAS NOT DESIGNATED.
108. THE USE OF FIG. 5 IS RATED "A&M ONLY" ON ISSUE 50.
109. THE USE OF FIG. 1 FOR MACHINE RINGING IS RATED "MFR DISC." ON
ISSUE 60 AND IT IS SUPERSEDED BY FIG. 10 AND 11. PRIOR TO
ISSUE 60 FIG. 10 AND 11 WERE NOT SHOWN.
110. THE USE OF X AND Y WIRING AND APPARATUS AND FIG. 9 IS RATED
SEE NOTE 112 "MFR DISC." ON ISSUE 80 AND IS SUPERSEDED BY Z WIRING AND
APPARATUS AND FIG. 12, 13 AND 14. PRIOR TO ISSUE 80 Z WIRING
AND APPARATUS AND FIG. 12, 13 AND 14 WERE NOT SHOWN.
111. ON ISSUE 120 AND SUBSEQUENT ISSUES PROVIDE S OPTION IN FIG. 6
(MFR DISC.) WHEN USED AT TRAFFIC REGISTER RACK, OTHERWISE PROVIDE T OPTION.
SEE NOTE 117
112. FIG. 14 IS RATED "MFR DISC." FOR USE IN NO. 350A OFFICE AND
IS SUPERSEDED BY FIG. 13 ON ISSUE 120.
113. THE USE OF W OPTION IS RATED "MFR DISC." ON ISSUE 120,
(MFR DISC.) SUPERSEDED BY V OPTION. PRIOR TO ISSUE 120, V OPTION WAS NOT
SHOWN AND W OPTION WAS NOT SO DESIGNATED. SEE NOTE 118
114. PROVIDE Q OPTION IN FIG. 6 ASSOCIATED WITH THE FUSE PANEL
SEE NOTE 116 ON WHICH FUSE (A) FIG. 8 IS LOCATED, OTHERWISE PROVIDE R OPTION.
FUSES (A) & (B) OF FIG. 8 SHALL BE ON DIFFERENT FUSE PANELS. PRIOR
TO ISSUE 120, OPTION Q WAS NOT SHOWN AND R WAS NOT SO DESIGNATED.
115. FOR ADDITIONAL FUSE PANELS IN OFFICES WITH EARLIER FUSE ALARM
CIRCUITS, CONNECT F AND G LEADS OF FIG. 3 AND 11, E OF FIG. 7 OR
18 AND "A" LEADS OF FIG. 1, 2, 4, 5, 6, 15 AND 16 TO THE FUSE ALARM
REL ON THE EARLIER CKT INSTEAD OF TO FIG. 8 OF THIS DRAWING.
116. ON ISSUE 130 FIG. 6 AND Q OPTION ARE RATED "MFR DISC." FOR 48V
FUSE ALARMS, SUPERSEDED BY FIG. 7. ALSO, "EXCEPT FOR ADDITIONS"
WAS REMOVED FROM THE REPLACEMENT NOTE.
117. IN FIG. 6, ON ISSUE 130, S OPTION IS RATED "MFR DISC.".
118. THE RATING OF W OPTION IS CHANGED FROM "MFR DISC." TO "AT&TCO
STD". PROVIDE W OPTION FOR FIG. 8 WHEN ANY OF THE ASSOCIATED
FIG. 7 CONNECTS TO AN ALM BAR ON 48V OR PSB FUSE PANEL.
OTHERWISE PROVIDE V OPTION.
119. FIG. 17 WAS ADDED ON ISSUE 140.
120. THE USE OF RELAYS R1809, E568 AND E6208 IS RATED "MFR DISC."
AND SUPERSEDED BY RELAYS R1107, E1230 AND E1472 RESPECTIVELY
ON ISSUE 170. PRIOR TO ISSUE 170 RELAYS R1107, E1230 AND E1472
WERE NOT SHOWN.
121. USE M OPTION WHEN CONN TO THE FIL SUP CKT IS REQUIRED. PRIOR
TO ISSUE 190, M OPTION WAS NOT SHOWN AND N OPTION WAS PART OF
THE CIRCUIT.
122. FIG. 18 WAS ADDED ON ISSUE 210 FOR USE IN OFFICES EQUIPPED
(MFR DISC.) WITH ORIGINATING REGISTERS FOR COMMON CONTROL OR TOUCH-TONE
CALLING SIGNAL TO DIAL PULSE CONVERTERS.

CIRCUIT NOTES: (CONT)

123. FUSE (C) FIG. 18 SHALL BE LOCATED ON THE NEAREST 48V FUSE
PANEL.
124. PROVIDE L WIRING AND APPARATUS WHEN ALARM FOR TT-3 TONE
SUPPLY IS REQUIRED. PRIOR TO ISSUE 228, L OPTION WAS NOT
SHOWN.
125. WHEN FIG. 8 WITH N OPTION IS PROVIDED IN CONJUNCTION WITH
FIG. 7 FOR CONNECTION TO A +48 VOLT BATTERY FILTER SUPPLY,
A SEPARATE (A) RELAY AND (FA) LAMPS SHOULD BE PROVIDED TO
ELIMINATE THE POSSIBILITY OF TWO OPPOSING BATTERY POTENTIAL
FUSES BEING OPERATED AT THE SAME TIME.

SUPPORTING INFORMATION

CATEGORY	NO.
EQUIPMENT DRAWINGS	EU-30384-01 ED-30535-01 ED-30537-01 J33017AH-()
KEYSHEET DRAWINGS	SD-31359-01 SD-31364-01 SD-32230-01

OPTIONS USED		
FIG.	APP OR WIRING	
1	14	Z
2	15	Y
3	16	X
4	17	W
5	18	V
6		
7		T
8		S
9		R
10		Q
11		N
12		M
13		L



REPLACING SD-31035-01

SD-31613-01

1099

STEP-BY-STEP SYSTEMS
NO. 1 OR 350A
FUSE ALARM CIRCUIT

AT&TCO
STANDARD
A&M ONLY FOR 350A

FOR RELAY RACK, OFFICE ALARM FRAME,
TRAFFIC REGISTER RACK AND
LINE MESSAGE REGISTER FRAME FUSE PANELS
AND FOR ALARM BATTERY SUPPLY
POWER DISCHARGE FUSE

(2)
(FA)

SD-31613-01-1

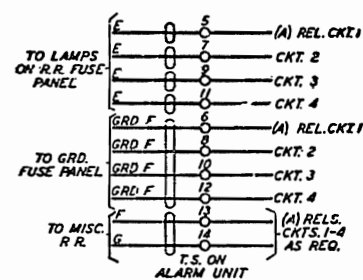
4 SHEETS

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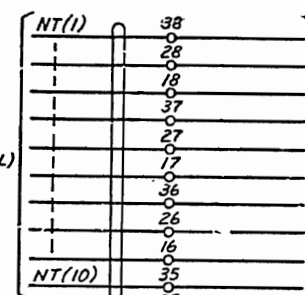
6S

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CAD. I (MFR DISC.)
FUSE PANEL AND ALARM CKT
FOR NO-SUCH-NUMBER TONE
(FOR FIG. 18)
SEE NOTES 115, 122, & 123

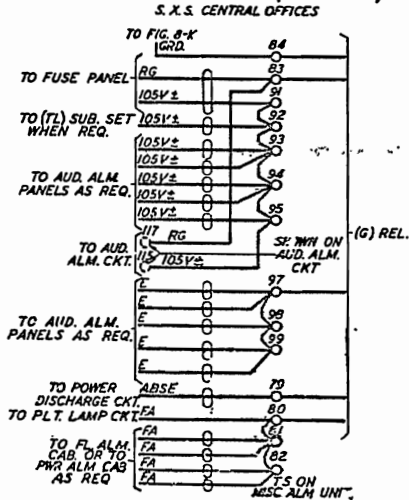


TO ORIGINATING
REGISTER CKT
FOR COMMON CONTROL)
OR TO TOUCH-TONE
CALLING SIGNAL
CALL TO DIAL PULSE
CONVERTER CKT

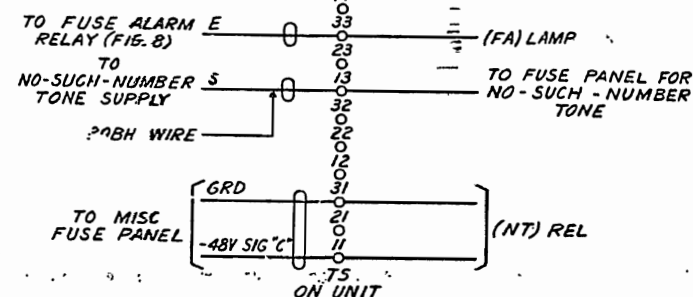


TO FUSE PANEL FOR
NO - SUCH - NUMBER
TONE

POWER . ABSF 1
 GE CKT. 1
 RING. RING G 4 (G) REL.
 PANEL
 FUSE GRD 2
 PANEL TS ON
 ALARM UNIT



TO PILOT LAMP CKT. D  (A) REL.



CIRCUIT REQUIREMENTS																		
APPARATUS				MECH REQ			CIRCUIT PREPARATION				TEST SET PREP	SEE TEST NOTE	DIRECT CURRENT FLOW REQ					REMARKS
DESIG	CODE	OPT.	FIG.	BSP FIG.	CONT PRES	ARM. TRVL.	BLOCK OR INSULATE	TEST CLIP DATA		TEST WDG			TEST FOR	AFTER SOAK MA	TEST MA	READJ MA		
RELAYS																		
6V	B272		17	1		.030		1M(6V)		BAT.		0		6.7	4.4			
								1M(6V)		BAT.		R		1	1.1			
A	B400		8	7		.035		1M(A)		BAT.		0		52	49			
								1M(A)		BAT.		R		8.5	9			
B	J20		1	1		.023					2	0		AC	AC	MIN ARMTR TENSION 5 GRAMS		
B	J20		10	1		.023					2	0		AC	AC	MIN ARMTR TENSION 5 GRAMS		
C	E6208 E1-72		2	1	L	.015		RB(C)		BAT.		0		5.4	5.1			
D	E568 11230		3	11/3	H	.020			RT(D)	GRD	3	0		16.5	15	RELAY WINDING ALONE		
												0		53	48			
E	11167		4	1/1	L	.015		RB(E)		BAT.		P	0	29.5	28	INSULATE 1B(E)		
								RB(E)	2B(E)	M	1	P/S	H	3.4	3.2			
F	B31		5	6		.030						0		1.9	1.8	REQ FOR RELAY ALONE		
												R		.5	.6			
												0		3.7	3.5	REQ FOR PAR. COMBINATION		
												R		.9	1	(F) REL AND (B) RES		
G	B336		9	7		.035		1M(G)		BAT.		0		24.5	23			
								1M(G)		BAT.		R		3.9	4			
G	B336		12	7		.035		1M(G)		BAT.		0		24.5	23			
								1M(G)		BAT.		R		3.9	4			
H	R1909 R1107		6	1	H	.015		RB(H)		BAT.		0		3.9	3.7			
I	R875		15	1	H	.015		RB(LV)		BAT.		0		15.5	14.5			
HT	AJ108		18	2			6M(HT)	L(HT)		BAT.	6	0		2.3	2.1			
P	B397		16	3	H	.020		RB(P)		+BAT.	5	0		6	5.5			
S	50		11	190/115	n	.025			T(S)	GRD	4	0	FS	18	17			
									T(S)	GRD	4	H	FS	2.5	2.3			
									T(S)	GRD	4	R	FS	.9	1.2			
TEST NOTES:																		
1. OPERATE B TEMPORARILY CONNECTING 24V BATTERY TO RB(E).																		
2. TEST AND READJUST THE (B) J20 RELAY FOR OPERATION ON AC IN CONJUNCTION WITH THE ASSOCIATED (A) RELAY BY CONNECTING RINGING CURRENT OF THE ASSOCIATED OPERATING VOLTAGE THROUGH THE PROPER NON-INDUCTIVE RESISTOR TO THE ASSOCIATED FUSE-ALARM BAR.																		
3. PARALLEL COMBINATION RELAY WINDING AND 1000 OHM RESISTOR (A) OF COIN TRUNK INTERRUPTER AND ALARM CKT.																		
4. ADJACENT RELAYS SHALL NOT BE ENERGIZED. SEE BSP.																		
5. USE 130V REPEATER PLATE BATTERY.																		
6. ARMATURE BACK TENSION MINIMUM 20 GRAMS READJUST, 15 GRAMS TEST.																		
VOLTS AC				RPM		VOLTS DC		TEST RESISTANCE										
60-90				1020-1380		45-52		600Ω										
64-80				1100-1200		42-46		3000Ω										
72-80				1100-1200		42-46		3000Ω										
80-88				1100-1200		46-52		3000Ω										
90-116				1100-1200				10,000Ω										
95-110				1100-1200				11,000Ω										
97-111				1100-1200				11,000Ω										
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DRAWING
ISSUE
230
240

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FUSE ALARM CIRCUIT

2

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