

SHEET INDEX																					
CONTENTS	SHEET NO.	ISSUE NO.																			
		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
SHEET INDEX	A1	1	2	3	4	5	6	7	8	9	10										
SUPPORTING INFORMATION																					
LEAD INDEX	A2	1	1	3	4	4	4	7	7	7	7										
OPTION INDEX																					
FS 1 AMPLIFIER, BAND SEPARATION & LIMITER CIRCUIT (426A KTU)	B1	1	2	3	3	3	3	3	8	8	8										
FS 2 FREQUENCY RECOGNITION & TRANSLATION CIRCUIT (427A KTU)	B2	1	1	1	4	4	4	4	4	4	4										
FS 3 FREQUENCY RECOGNITION & TRANSLATION CIRCUIT(427B KTU)	B3				4	4	6	7	7	7	7										
FS 4 FREQUENCY RECOGNITION & TRANSLATION CIRCUIT(427C KTU)	B4							7	8	8	8										
APP FIG. 1	C1	1	2	3	3	3	3	3	8	9	10										
APP FIG. 2	C2	1	1	1	4	4	4	4	4	4	4										
APP FIG. 3	C3				4	4	6	7	7	7	7										
APP FIG. 4	C4							7	8	8	10										
CIRCUIT NOTES																					
INFORMATION NOTES 301-304	D1	1	1	3	4	5	5	7	7	7	7										
INFORMATION NOTE 305	D2	1	1	3	4	4	4	7	8	8	8										
CIRCUIT REQUIREMENTS	F1	1	1	1	4	4	4	7	7	7											
BD 1	H1	1	1	1	4	4	4	4	4	4											

- SHEET INDEX NOTES
1. WHEN CHANGES ARE MADE IN THIS DRAWING, ONLY THOSE SHEETS AFFECTED WILL BE REISSUED.

2. THIS SHEET INDEX WILL BE REISSUED AND BROUGHT UP TO DATE EACH TIME ANY SHEET OF THE DRAWING IS REISSUED, OR A NEW SHEET IS ADDED.

3. THE ISSUE NUMBER ASSIGNED TO A CHANGED OR NEW SHEET WILL BE THE SAME ISSUE NUMBER AS THAT OF THE SHEET INDEX.

4. SHEETS THAT ARE NOT CHANGED WILL RETAIN THEIR EXISTING ISSUE NUMBER.

5. THE LAST ISSUE NUMBER OF THE SHEET INDEX IS RECOGNIZED AS THE LATEST ISSUE NUMBER OF THE DRAWING AS A WHOLE.

EARLY TT ADAPTOR
KTU'S
426A
427A

SUPPORTING INFORMATION	
CATEGORY	NO.

NOTICE
NOT FOR USE OR
DISCLOSURE OUTSIDE
THE BELL SYSTEM
EXCEPT UNDER
WRITTEN AGREEMENT

SD-69595-01

1K03

STATION SYSTEMS

KEY TELEPHONE SYSTEM NO. 1A2
TOUCH-TONE ADAPTER CIRCUIT

TYPE D3

BELL TELEPHONE LABORATORIES
INCORPORATED

AT&T
STANDARD

SD-69595-01-A1
14 SHEETS

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ISSUE
10D

3S

DWG	CD	DATE	CHG	APPD
1	1	6-21-67	304	WHA
2D	2D	10-24-67	WHT	WHA
3B	2D APP 1B	4-3-68	WDP	WHA
4B	2D APP 2B	8-9-68	ADG	WHA
5A	2D APP 3A	11-5-68	WDP	WHA
6A	2D APP 4A	7-9-70	WDP	WHA
7B	2D APP 5B	7-9-70	WDP	WHA
8D	2D APP 6D	11-20-72	WDP	WHA
9B	2D APPX 7B	7-15-76	WDP	WHA
10D	2D APPX 7B	7-13-77	WDP	WHA

SD-69595-01-A1

LEAD INDEX

RESIG	LOCATION	
	FS	CAD
DIAL SELECTIVE INTERCOMMUNICATING LINE CKT		
CG	2A8,3A8,4A8	
R	1B1	
RH	2C8,3C8,4C8	
RS1	2B8,3B8,4B8	
T	1C1	
TTG	1D1,2F0,3F0,4F0	
Y1	2D8,3F8,4G8	
Y2	2D8,3F8,4F8	
Y3	2D8,3F8,4F8	
Y4	2E8,3D8,4D8	
Y5	2D8,3E8,4E8	

OPTION INDEX

APP OR WRG	LOCATION
Z	FS1, APP FIG. 1
Y	FS1, APP FIG. 1
X	FS1

DRAWING ISSUE
1
3B
4B
7B

14 3/4

SD-69595-01-A2

6

TOUCH-TONE ADAPTER CIRCUIT

SD-69595-01-A2

BELL TELEPHONE LABORATORIES INCORPORATED

35

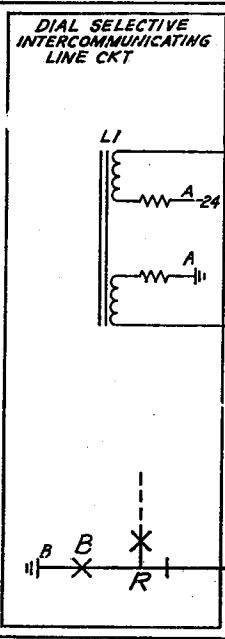
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SD-69595-01-A2

OSILITE, INC. AGEPROOF 12W-3

E-7424-B 5-62

FS /



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MAKING PAPER

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65

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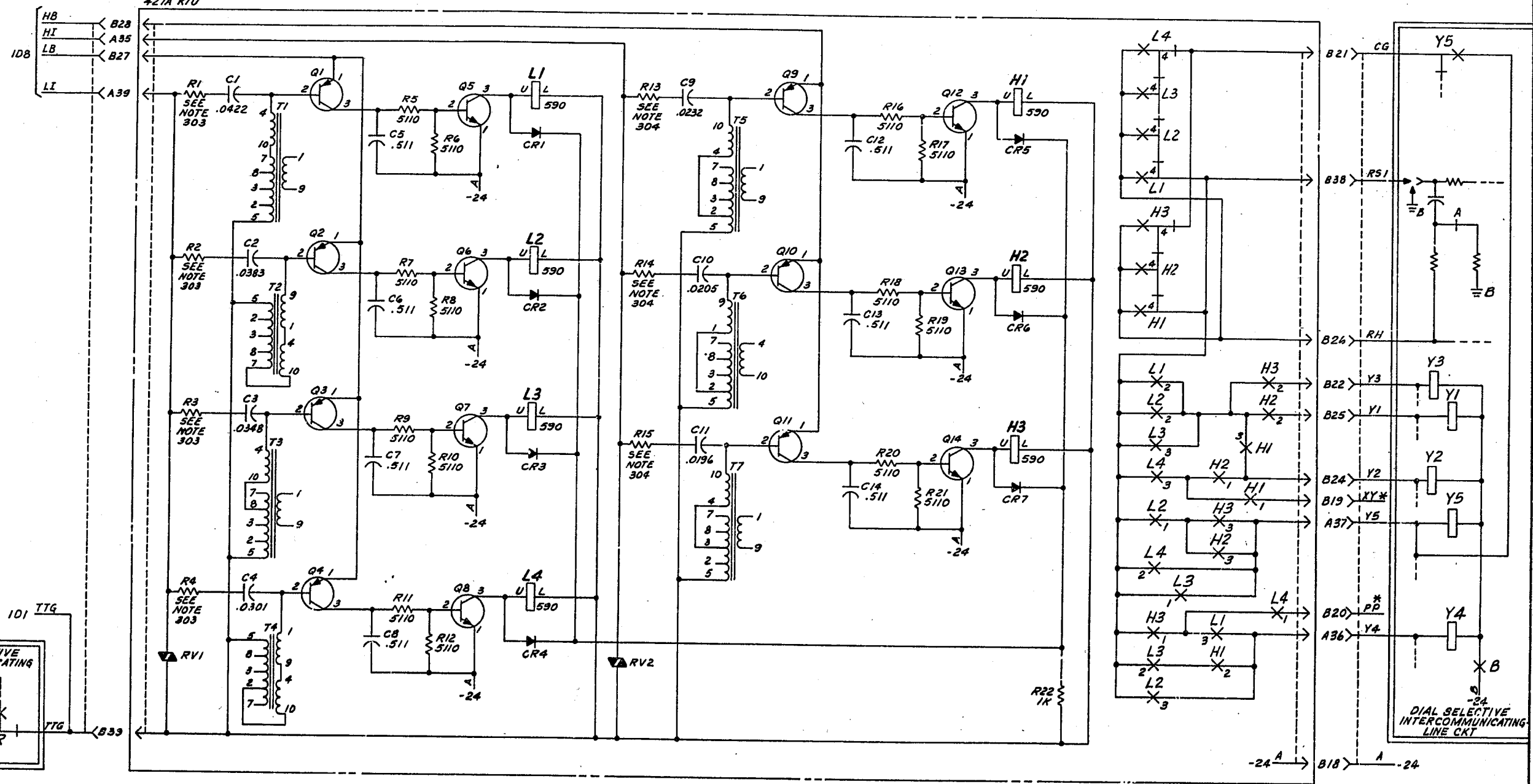
ISSUE
8D

FS 2 (MFR DISC) FREQUENCY RECOGNITION AND TRANSLATION CKT

DRAWING
ISSUE
1
REV
4B

A
B
C
D
E
F
G
H

A
B
C
D
E
F
G
H

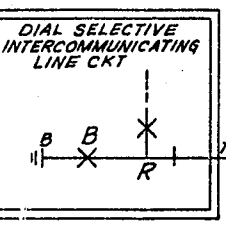
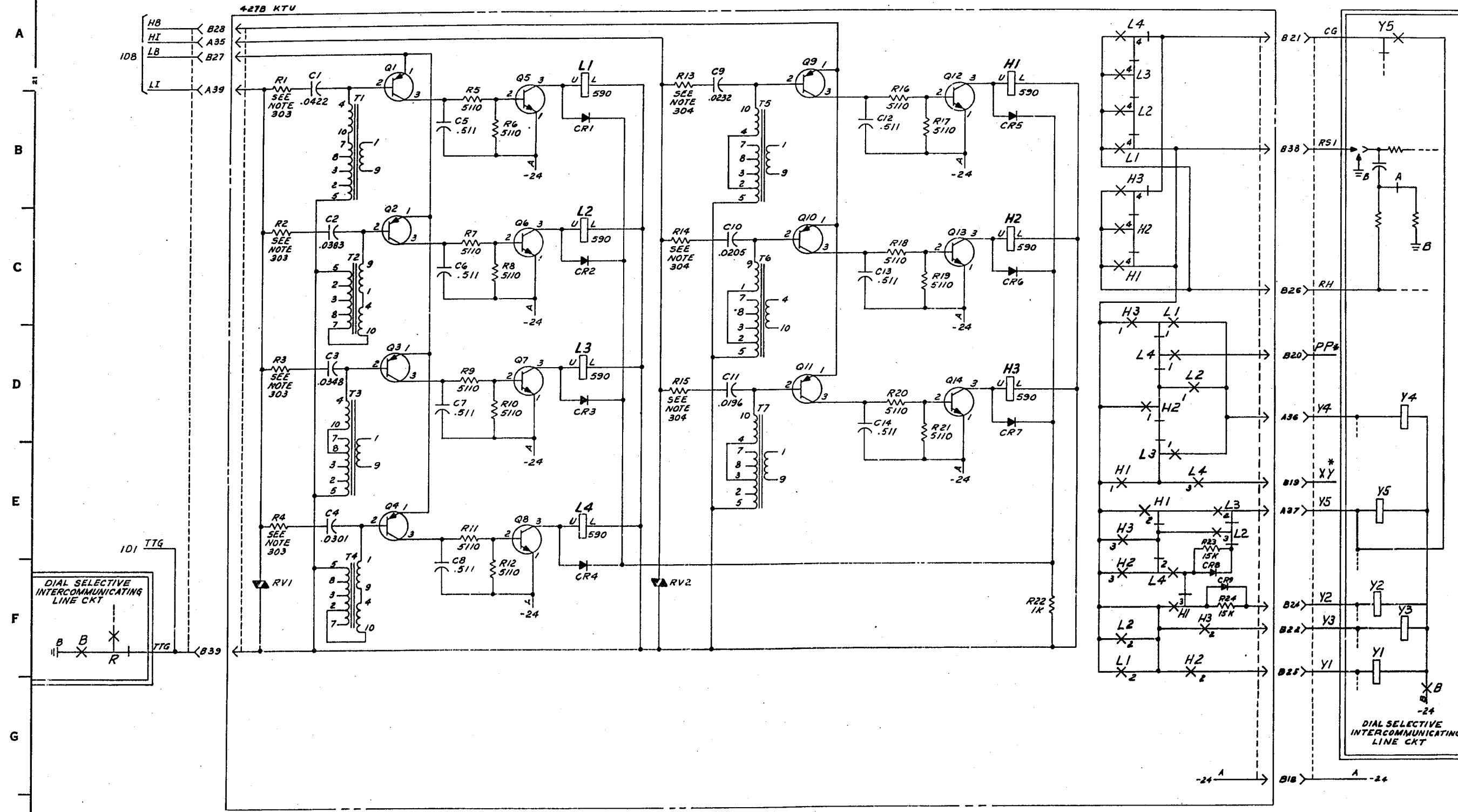


* CONNECT AS REQUIRED

SD-69595-01-B2

FS 3 (MFR DISC)
FREQUENCY RECOGNITION AND TRANSLATION CKT

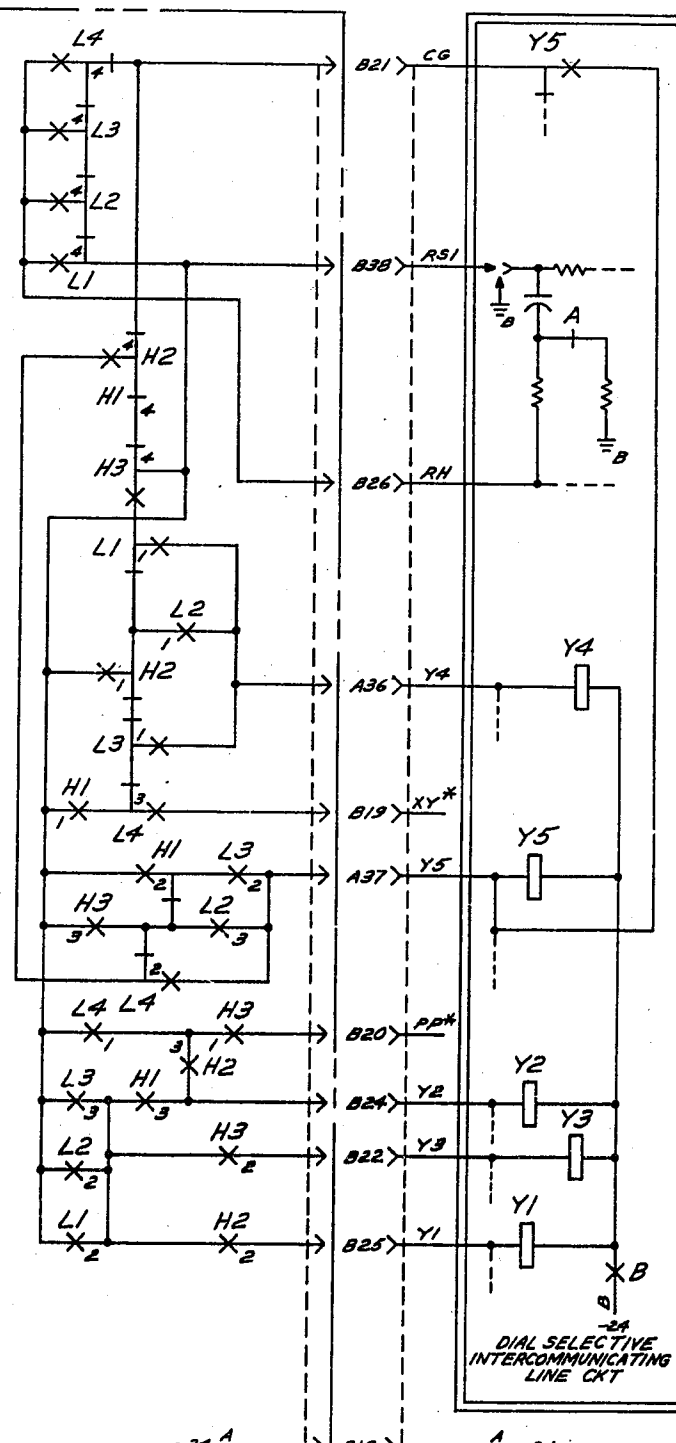
DRAWING
ISSUE
4B
6A
7B



* CONNECT AS REQUIRED

SD-69595-01-B3

FREQUENCY RECOGNITION AND TRANSLATION CK7



*** CONNECT AS REQUIRED**

TOUCH-TONE ADAPTER CIRCUIT

BELL TELEPHONE LABORATORIES
INCORPORATED

SD-69595-01-B4

②

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APP FIG. 1

426A KTU

CAPACITOR

DESIG	LOC	CODE
C1	1C2	570GP
C2	1C3	575B 702C, 0.511
C3	1B4	601B
C4	1C4	KS-19866 L1 , KS-20977 L4, .022
C5	1C4	535GS
C6	1B5	535GR
C7	1B5	535GT
C8	1C5	535CJ
C9	1D5	535GS
C10	1B6	601A
C11	1B7	KS-19866 L1 , KS-20977 L4, 3300PF
C12	1C7	602C
C13	1C7	601B
C14	1B7	601A
C15	1D7	601A

DIODE

DESIG	LOC	CODE
CR1	1F5	446B OR 808B
CR2	1E6	449A
CR3	1F6	449A

INDUCTOR

DESIG	LOC	CODE
L1	1B4	1592C, .0392
L2	1B5	1592C, .0248
L3	1C5	1592C, .0242

RESISTOR

DESIG	LOC	CODE
R1	1B2	208A , KS-20810 L1A, 5110
R2	1C2	208A , KS-20810 L1A, 5110
R3	1B3	208A , KS-20810 L1A, 1020
R4	1D3	208A , KS-20810 L1A, 2210
R5	1B3	208A , KS-20810 L1A, 681
R6	1C3	208A , KS-20810 L1A, 56.2
R7	1D3	208A , KS-20810 L1A, 750
R8	1B4	KS-19151 L1 , 560, KS-20289 L6C, 562
R9	1B4	208A , KS-20810 L1A, 200
R10	1A6	221A , KS-20810 L1A, 562
R11	1B6	221A , KS-20810 L1A, 562
R12	1C6	221A , KS-20810 L1A, 562
R14	1D6	221A , KS-20810 L1A, 562
R15	1A7	208A , KS-20810 L1A, 750
R16	1B7	221A , KS-20810 L1A, 715
R17	1C7	221A , KS-20810 L1A, 715
R18	1D7	208A , KS-20810 L1A, 750
R19, R20	1C7	208A , KS-20810 L1A, 1620
R21	1E7	(Z) 256A , KS-20810 L1A, 442
		(Y) 257A , KS-20810 L1A, 154
R22	1F7	(Z) 256A , KS-20810 L1A, 442
		(Y) 257A , KS-20810 L1A, 110
R23, R24	1F7	221A , KS-20810 L1A, SEE NOTE 302
R25	1E6	(Y) 257A , KS-20810 L1A, 402
R26	1F6	(Y) 257A-492 , KS-20810 L1A, 499

TRANSFORMER

DESIG	LOC	CODE
T1	1B2	2564W

VARISTOR

DESIG	LOC	CODE
RV1	1B3	100A
RV2	1B7	100D
RV3	1B7	100D

THERMISTOR

DESIG	LOC	CODE
(Y) RT1	1F6	17A
(Y) RT2	1F6	17A

TRANSISTOR

DESIG	LOC	CODE
Q1, Q2	1C4	14E 66F
Q3	1B6	14E 66F
Q4	1D6	14E 66F

DRAWING
ISSUE

1
ANS
DLV

2D

3B

ISSUE
10D

TOUCH-TONE ADAPTER CIRCUIT

(2)

SD-69595-01-C1

BELL TELEPHONE LABORATORIES
INCORPORATED

3S

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SD-69595-01-C1

APP FIG. 2 (MFR DISC.)

RELAY

427A KTU

DESIG	H1	H2	H3	L1	L2	L3	L4	DESIG
CODE	MA9	MA9	MA9	MA9	MA9	MA9	MA9	CODE
OPTION	CONT	LOC	CONT	LOC	CONT	LOC	CONT	LOC
6	ARR		ARR		ARR		ARR	
5								6
4	EMB	2C7	EMB	2C7	EMB	2B7	EMB	2B7
3	EBM	2D8	EBM	2E7	EBM	2E7	EBM	2D7
2	EBM	2F7	EBM	2D8	EBM	2D8	EBM	2F7
1	EBM	2D8	EBM	2D7	EBM	2E7	EBM	2E7
COIL	2A6	2C6	2D6	2A3	2C3	2D3	2E3	COIL

FIELD ADJUSTMENT OF RELAY CONTACTS IS NOT RECOMMENDED.

CAPACITOR

DESIG	LOC	CODE
C1	2A1	570GS
C2	2C1	570GW
C3	2D1	570LE
C4	2E1	570HF
C5	2B2	
C6	2C2	575B
C7	2D2	
C8	2F2	
C9	2A4	570PF
C10	2C4	570KR
C11	2D4	570HM
C12	2B5	
C13	2C5	575B
C14	2D5	

DIODE

DESIG	LOC	CODE
CR1	2B3	
CR2	2C3	
CR3	2D3	
CR4	2F3	
CR5	2B6	400J
CR6	2C6	
CR7	2D6	

RESISTOR

DESIG	LOC	CODE
R1	2A1	
R2	2C1	238A, SEE NOTE 303
R3	2D1	
R4	2E1	
R5	2B2	
R6	2B3	
R7	2C2	
R8	2C3	238A, 5110
R9	2D2	
R10	2D3	
R11	2E2	
R12	2F3	
R13	2A4	238A, SEE NOTE 304
R14	2C4	
R15	2D4	
R16	2B5	
R17	2B6	
R18	2C5	238A, 5110
R19	2C6	
R20	2D5	
R21	2D6	
R22	2F6	238A, 1K

TRANSFORMER

DESIG	LOC	CODE
T1	2B2	
T2	2C2	
T3	2D2	
T4	2E2	2597A
T5	2B4	
T6	2C4	
T7	2D4	

TRANSISTOR

DESIG	LOC	CODE
Q1	2A2	
Q2	2C2	12G
Q3	2D2	
Q4	2E2	
Q5	2A3	
Q6	2C3	16G
Q7	2D3	
Q8	2E3	
Q9	2A5	
Q10	2C5	12G
Q11	2D5	
Q12	2A6	
Q13	2C6	16G
Q14	2D6	

VARISTOR

DESIG	LOC	CODE
RV1	2F1	100D
RV2	2F4	100D

DRAWING

ISSUE

1

4B

4

TOUCH-TONE ADAPTER CIRCUIT

SD-69595-01-C2

BELL TELEPHONE LABORATORIES
INCORPORATED

3S

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SD-69595-01-C2

APP FIG. 3 (MFR DISC)

427B KTU

RELAY

DESIG	H1	H2	H3	L1	L2	L3	L4	DESIG
CODE	MA9	MA9	MA9	MA9	MA9	MA9	MA9	CODE
OPTION	CONT	LOC	CONT	LOC	CONT	LOC	CONT	LOC
OPTION	ARR		ARR		ARR		ARR	
6								6
5								5
4	EMB	3C7	EMB	3C7	EMB	3B7	EMB	3A7
3	EBM	3F7	EBM	3F7	EBM	3E8	EBM	3F7
2	EBM	3E7	EBM	3F8	EBM	3F7	EBM	3E8
1	EBM	3E7	EBM	3D7	EBM	3D7	EBM	3D7
COIL	3A6	3C6	3D6	3A3	3C3	3D3	3E3	COIL

FIELD ADJUSTMENT OF RELAY CONTACTS IS NOT RECOMMENDED.

CAPACITOR

DESIG	LOC	CODE
C1	3A1	570GS
C2	3C1	570GW
C3	3D1	570LE
C4	3E1	570HF
C5	3B2	575B
C6	3C2	
C7	3D2	
C8	3F2	
C9	3A4	570PF
C10	3C4	570KR
C11	3D4	570HM
C12	3B5	575B
C13	3C5	
C14	3D5	

DIODE

DESIG	LOC	CODE
CR1	3B3	400J
CR2	3C3	
CR3	3D3	
CR4	3F3	
CR5	3B6	446K
CR6	3C6	
CR7	3D6	
CR8	3F8	
CR9	3F8	446K

RESISTOR

DESIG	LOC	CODE
R1	3A1	238A, SEE NOTE 303
R2	3C1	
R3	3D1	
R4	3E1	
R5	3B2	238A, 5110
R6	3B3	
R7	3C2	
R8	3C3	
R9	3D2	238A, SEE NOTE 304
R10	3D3	
R11	3E2	
R12	3F3	
R13	3A4	238A, 5110
R14	3C4	
R15	3D4	
R16	3B5	
R17	3B6	238A, 1K
R18	3C5	
R19	3C6	
R20	3D5	
R21	3D6	KS-19150, L3, 15K
R22	3F6	
R23	3F8	
R24	3F8	

TRANSFORMER

DESIG	LOC	CODE
T1	3B2	2597A
T2	3C2	
T3	3D2	
T4	3E2	
T5	3B4	
T6	3C4	
T7	3D4	

TRANSISTOR

DESIG	LOC	CODE
Q1	3A2	12G
Q2	3C2	
Q3	3D2	
Q4	3E2	
Q5	3A3	16G
Q6	3C3	
Q7	3D3	
Q8	3E3	
Q9	3A5	12G
Q10	3C5	
Q11	3D5	
Q12	3A6	
Q13	3C6	16G
Q14	3D6	

VARIATOR

DESIG	LOC	CODE
RV1	3F1	100D
RV2	3F4	100D

SD-69595-01-C3

TOUCH-TONE ADAPTER CIRCUIT

2

SD-69595-01-C3

BELL TELEPHONE LABORATORIES
INCORPORATED

3S

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(6)

APP FIG. 4

427C KTU																		
RELAY	H1		H2		H3				L1		L2		L3		L4			DESIG
CODE	MA9		MA9		MA9				MA9		MA9		MA9		MA9			CODE
OPTION																		OPTION
☒	CONT	LOC	CONT	LOC	CONT	LOC	CONT	LOC	CONT	LOC	CONT	LOC	CONT	LOC	CONT	LOC	CONT	LOC
6																		☒
5																		6
4	EMB	4C7	EMB	4B7	EMB	4C7			EMB	4B7	EMB	4B7	EMB	4A7	EMB	4A7		5
3	EBM	4F7	EBM	4F8	EBM	4E7			EBM		EBM	4E8	EBM	4F7	EBM	4E7		4
2	EBM	4E7	EBM	4F8	EBM	4F8			EBM	4F7	EBM	4F7	EBM	4E8	EBM	4E7		3
1	EBM	4E7	EBM	4D7	EBM	4F8			EBM	4C7	EBM	4D7	EBM	4D7	EBM	4E7		2
COIL	☒	4A6	☒	4C6	☒	4D6	☒		☒	4A3	☒	4C3	☒	4D3	☒	4E3	☒	COIL

FIELD ADJUSTMENT OF RELAY CONTACTS IS NOT RECOMMENDED.

CAPACITOR

DESIG	LOC	CODE
C1	4A1	570GS
C2	4C1	570GW
C3	4D1	570LE
C4	4E1	570HF
C5	4B2	575B 702C, 0.511
C6	4C2	
C7	4D2	
C8	4F2	
C9	4A4	570PF
C10	4C4	570KR
C11	4D4	570HM
C12	4B5	575B 702C, 0.511
C13	4C5	
C14	4D5	

DIODE

DESIG	LOC	CODE
CR1	4B3	400J
CR2	4C3	
CR3	4D3	
CR4	4F3	
CR5	4B6	400J
CR6	4C6	
CR7	4D6	

RESISTOR

DESIG	LOC	CODE
R1	4A1	238A KS-20810 L1A, SEE NOTE 303
R2	4C1	
R3	4D1	
R4	4E1	
R5	4B2	238A KS-20810 L1A, 5110
R6	4B3	
R7	4C2	
R8	4C3	
R9	4D2	238A KS-20810 L1A, SEE NOTE 304
R10	4D3	
R11	4E2	
R12	4F3	
R13	4A4	238A KS-20810 L1A, 5110
R14	4C4	
R15	4D4	
R16	4B5	
R17	4B6	238A KS-20810 L1A, 5110
R18	4C5	
R19	4C6	
R20	4D5	
R21	4D6	238A KS-20810 L1A, 1K
R22	4F6	

TRANSFORMER

DESIG	LOC	CODE
T1	4B2	2597A
T2	4C2	
T3	4D2	
T4	4E2	
T5	4B4	2597A
T6	4C4	
T7	4D4	

TRANSISTOR

DESIG	LOC	CODE
Q1	4A2	12G
Q2	4C2	
Q3	4D2	
Q4	4E2	
Q5	4A3	16G 66G
Q6	4C3	
Q7	4D3	
Q8	4E3	
Q9	4A5	12G
Q10	4C5	
Q11	4D5	
Q12	4A6	
Q13	4C6	16G 66G
Q14	4D6	

VARIATOR

DESIG	LOC	CODE
RV1	4F1	100D
RV2	4F4	100D

DRAWING
ISSUE

7B

HQ

ISSUE
10D

HQ

TOUCH-TONE ADAPTER CIRCUIT

SD-69595 - 01 - C4

BELL TELEPHONE LABORATORIES
INCORPORATED

2

3S

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SD-69595-01-C4

B-7424-1 (5-61)

CIRCUIT NOTES:

101.	DESIG	FUSE AMP	POTENTIAL	ONE PER
	A		-24V TALK	FUSE PROVIDED ON ASSOC KSU OR PANEL CIRCUIT
<u>BATTERY SYMBOL</u>			<u>VOLTAGE RANGE</u>	
-24A			13 - 26	

[illegible]

RECORD OF APP FIGURES, WIRING AND APPARATUS CHANGES							
CHANGED ON ISS	IF JOB RECORDS DO NOT SPECIFY	THIS OPTION WAS FURN	SEE NOTE	USE IN CIRCUIT			
				STD	ASH	ND	
3B	Y OR Z	Z		Y		Z	
3B	X	NONE		X			
4B	FIG.2 OR 3	FIG.2		FIG.3		FIG.2	
5A	FIG.2 OR 3	FIG.2	105	FIG.3		FIG.2	
7B	FIG.3 OR 4	FIG.3		FIG.4		FIG.3	

105. 427A KTU (APP FIG.2) MAY BE USED FOR BTL FIELD TRIAL PURPOSES ONLY. ALL UNITS MUST BE RETURNED UPON COMPLETION OF THE FIELD TRIAL.

INFORMATION NOTES:

301. UNLESS OTHERWISE SPECIFIED:
RESISTANCE VALUES ARE IN OHMS,
CAPACITANCE VALUES ARE IN MICROFARADS,
INDUCTANCE VALUES ARE IN HENRIES,
VALUES PRECEDED BY THE SYMBOL + (PLUS)
OR - (MINUS) ARE IN VOLTS.

302. THE VALUES OF RESISTORS R23 AND R24 SHOULD BE SELECTED FROM THE FOLLOWING LIST TO PROVIDE REQUIRED BIAS:

DIODE VOLTAGE CR1	RESISTANCE VALUE	
	R23	R24
5.8V TO 6.0V	3120	4020
6.0V TO 6.3V	3650	4310
6.3V TO 6.6V	4430	6120

303. TO PROVIDE THE REQUIRED CHANNEL CIRCUIT BANDWIDTH, THE VALUES OF RESISTORS R1-R4 SHOULD BE SELECTED FROM THE FOLLOWING LIST:

14.7, 31.6, 48.7, 64.9, 80.6, 95.3, 110, 124,
140, 156, 172, 187, 203, 213, 234

304. TO PROVIDE THE REQUIRED CHANNEL CIRCUIT BANDWIDTH, THE VALUES OF RESISTORS R13-R15 SHOULD BE SELECTED FROM THE FOLLOWING LIST:

80.6, 95.3, 110, 124, 140, 156, 172, 187, 203,
219, 234, 249, 267, 284, 301, 316, 332, 348.

**DRAWING
ISSUE**

1	SUM
	ANS
	DLV

7

TOUCH-TONE ADAPTER CIRCUIT

SD-69595-01-D1

BELL TELEPHONE LABORATORIES
INCORPORATED

DWE SIZE
3S

PRINTED IN U.S.A.

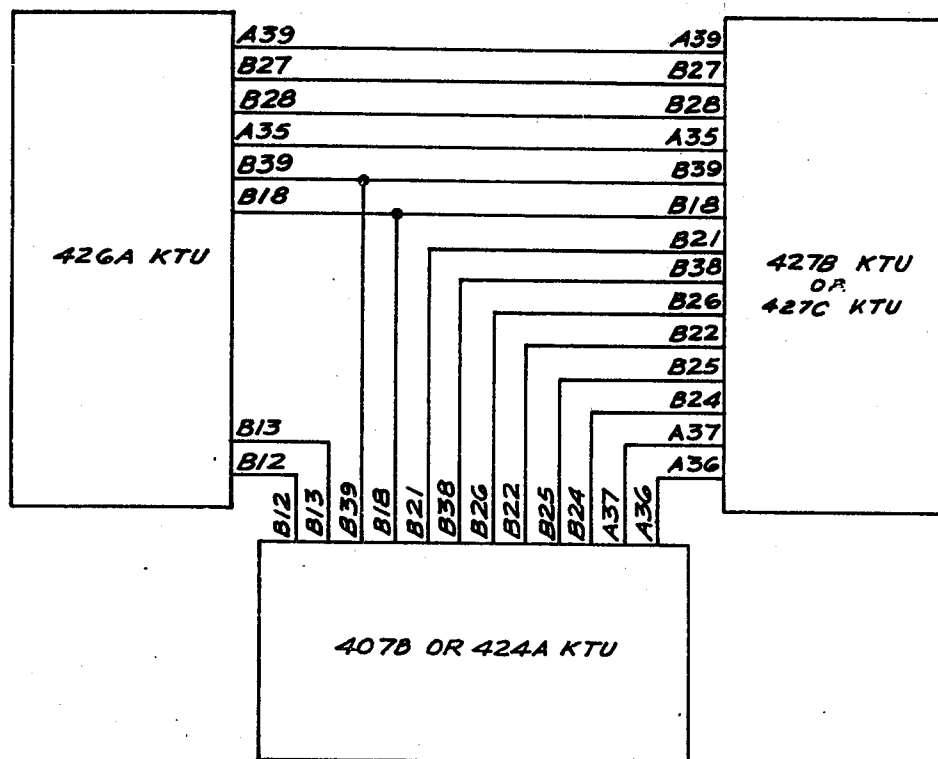
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14 3/4

INFORMATION NOTES: (CONT)

305. TOUCH-TONE ADAPTER CIRCUIT, TYPE D3



306. TEST POINTS USED IN MANUFACTURING TESTS.

DRAWING
ISSUE

1

3B

4B

7B

ISSUE
8D

TOUCH-TONE ADAPTER CIRCUIT

2

SD-69595-01-D2

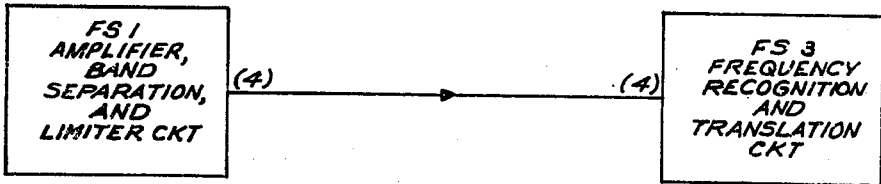
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3S

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SD-69595-01-D2

BD 1
 FS BLOCK DIAGRAM
 TOUCH-TONE ADAPTER CKT, TYPE D3
 SEE NOTE 1



NOTES:

1. NUMBER IN PARENTHESIS () INDICATES NUMBER OF INTERCONNECTING LEADS.

DRAWING	ISSUE
1	1
4B	2

SD-69595-01-H1

TOUCH-TONE ADAPTER CIRCUIT

SD-69595-01-H1

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DWG SIZE
 3S

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