SHEET INDEX

CONTENTS	SHEET NO.	ISSUE NO. 2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21
SHEET INDEX SUPPORTING INFORMATION	A1	2	3	4	5	6	7														
OPTION INDEX	A2	2	3	3	3	6	6														
FS 1 CO OR PBX LINE CKT 400A AND 400B KEY TEL UNIT (MD)	B1	2	3	3	3	3	3														
FS 2 CO OR PBX LINE CKT 400C KEY TEL UNIT (MD)	B2	2	3	3	3	3	3														
FS 3 CO OR PBX LINE CKT 400D KEY TEL UNIT	B3		3	4	4	6	7														
APP FIG. 1 400A KEY TEL UNIT (MD)	C1	2	2	2	2	2	2														
APP FIG. 2 400B KEY TEL UNIT (MD)	C2	2	3	3	3	3	3														
APP FIG. 3 400C KEY TEL UNIT (MD)	C3	2	3	3	3	3	3														
APP FIG. 4 400D KEY TEL UNIT	C4		3	4	5	6	7														
CIRCUIT NOTES	D1	2	3	3	3	6	6														
INFORMATION NOTES WORKING LIMITS	D2		3	3	3	6	7														
CIRCUIT REQUIREMENTS	F1	2	3	3	3	6	7														

DWG ISS	CD ISS	DWG ISS	CD ISS	DWG ISS	CD ISS
1	1				

DWG ISSUE	CD ISSUE	DATE ISSUED	DWN	APPD
2D	2D	6-8-64	EFS DHC	MAE LAH MRM
3D	3D	9-1-65	MPK DHC	REB LAH ARM
4A	3D APP-1A	9-3-65	EFS DHC	REB LAH ARM
5A	4A	3-11-66	HBW KB	REB LAH DLV
6B	4A APP 1B	3-11-66	HBW KB	REB LAH DLV
7D	4A APP 2D	4-22-66	– DHC	REB LAH DLV

SUPPORTING INFORMATION

CATEGORY	NO.

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.

SD- 69513-01

STATION SYSTEMS

KEY TELEPHONE SYSTEM NO. 1A2
CO OR PBX LINE CIRCUIT

AT&TCo STANDARD

SD-69513-01-A1
12 SHEETS

BELL TELEPHONE LABORATORIES INCORPORATED

DWG SIZE 3S

PRINTED IN U.S.A.

OPTION INDEX

APP OR WRG	LOCATION
Z	1D4,2D4,3E2
Y	1E2,2E2,3F6
X	1F2,2F2,3F6
W	1G3,2G3,3A5
V	1G3,2G3,3B6
T	1G3,2G3,3B6
S	1G3,2G3,3A5
R	APP FIG. 4, 3E3,3F3
Q	APP FIG. 4, 3E3,3F3
N	APP FIG. 4, 3E2
M	APP FIG. 4, 3E2

DRAWING ISSUE

2D	EFS DRC
3D	MPR DWC
6B	KB DLY

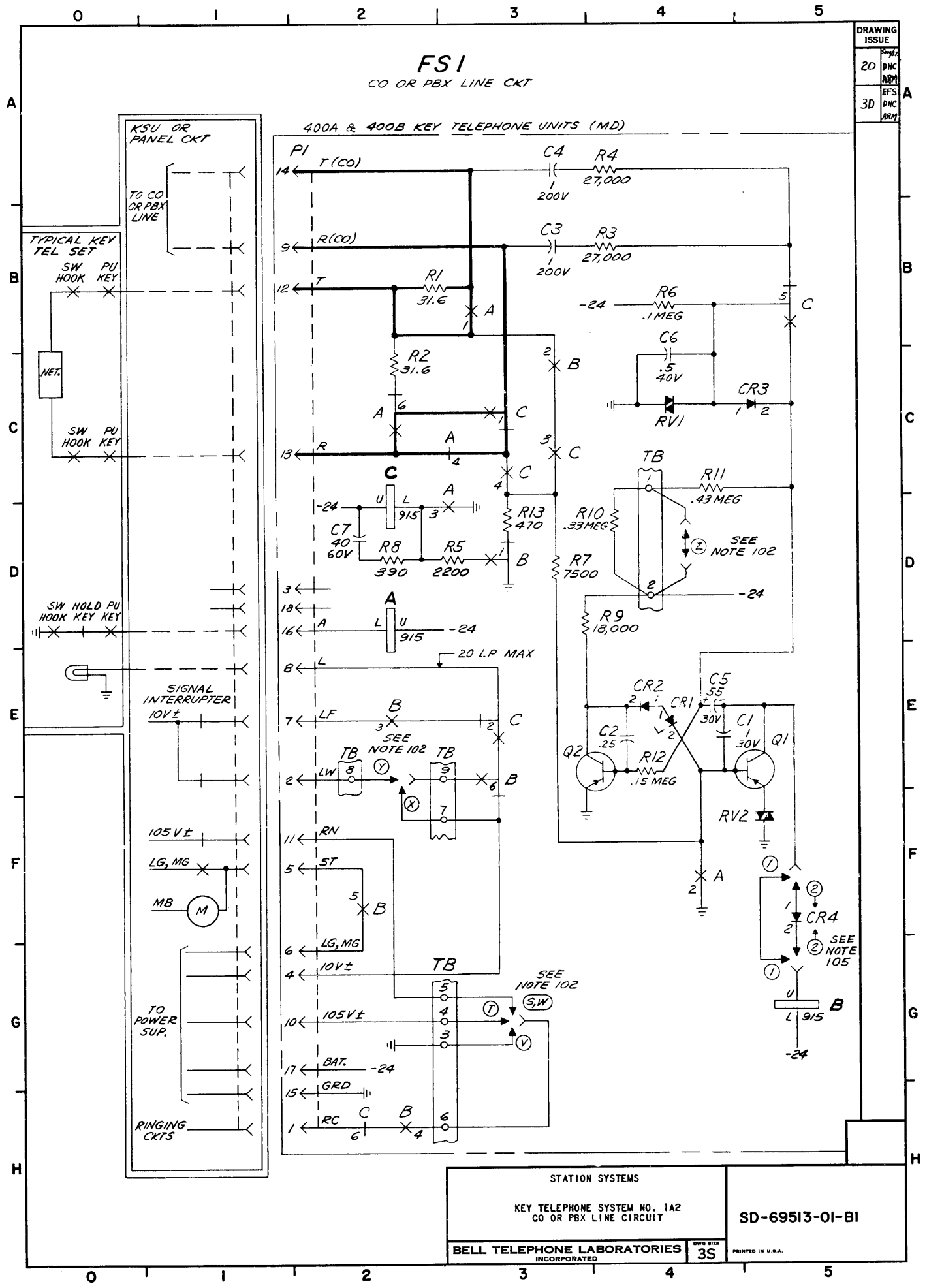
CO OR PBX LINE CIRCUIT

SD-69513-01-A2

BELL TELEPHONE LABORATORIES INCORPORATED

DWG SIZE 3S

PRINTED IN U.S.A.



DRAWING ISSUE

2D	DHC ARM
3D	EFS DHC ARM

STATION SYSTEMS

KEY TELEPHONE SYSTEM NO. 1A2
CO OR PBX LINE CIRCUIT

SD-69513-01-B1

BELL TELEPHONE LABORATORIES
INCORPORATED

DWG SIZE 3S

PRINTED IN U.S.A.

FS2
CO OR PBX LINE CKT

DRAWING ISSUE
2D DHC ARM
3D EFS DHC ARM

KSU OR PANEL CKT

TO CO OR PBX LINE

TYPICAL KEY TEL SET

SW HOOK PU KEY

NET.

SW PU HOOK KEY

SW HOLD PU HOOK KEY KEY

SIGNAL INTERRUPTER

10V±

105V±

LG, MG

MB

M

TO POWER SUP.

RINGING CKTS

400C KEY TELEPHONE UNIT (MD)

P1

T(CO)

R(CO)

T

R

RN

ST

LG, MG

10V±

105V±

BAT. -24

GRD

RC

LF

LW

R1 31.6

R2 31.6

R3 19,600

R4 19,600

R5 2200

R6 .1MEG

R7 7500

R8 390

R9 18,000

R10 .33MEG

R11 .43MEG

R12 .15MEG

R13 470

R14 680

R15 680

R16 .1MEG

C1 1 30V

C2 .25

C3 1 200V

C4 1 200V

C5 55 30V

C6 .01

C7 40 60V

RV1

RV2

RV3

RV4

RV5

RV6

Q1

Q2

Q3

Q4

CR1

CR2

CR3

CR4

TB

20 LP MAX

SEE NOTE 102

S,W

-24

STATION SYSTEMS

KEY TELEPHONE SYSTEM NO. 1A2
CO OR PBX LINE CIRCUIT

SD-69513-01-B2

BELL TELEPHONE LABORATORIES INCORPORATED

DWG SIZE 3S

PRINTED IN U.S.A.

FS3
CO OR PBX LINE CKT

DRAWING ISSUE	
3D	HBU DMC ARM
4A	EFS DMC ARM
6B	HBU KB DLV
7D	— DMC DLV

400D KEY TELEPHONE UNIT

KSU OR PANEL CKT

TO CO OR PBX LINE

TB
5 RN → 11
S,W T 6 ±105V → 10
V 4 -24 BAT. → 17
GRD → 15
8 B 2 C 3 RC → 1

9 R → R 13
14 T → T 12

RV1 A 3
L 1 3 P-55 6 C
6 4 S-755 2 C
C2 .5 200V
R18 22,000
R17 22,000
C5 .5 200V
R2 6800
C3 1 200V
3 B
R1 120

TB
R15 1500
RT1 N .47 MEG M .39 MEG
R6 1000
RT2 .75MEG
CT + 75 30V - C
B 1
Z
CR2 1 2 C1 .5 -24
R5 82,000
R7 R 5600 Q 5100
Q2 RQ CR7
U L 750 B
CR3 2 1
U L 750 C
R11 1560 4 A
-24
R4 36,000
Q1
R16 .22 MEG
5 L 2
B 6
R12 6800
R13 1800
R9 R 12,000 Q 3300
Q3
C4 .147
R14 4700
R10 22,000
C6 .5
CR6
C 4
CR8
-24
R3 1000
CR5 R8 16,000
CR4
-24
A U L 915
CR1 1 2

TB
10 LW → 2
B 5 LF → 7
C 1 L → 8
20 LP MAX
Y
X 7 A 1
9 ±10V → 4
LG,MG → 6
B 4
ST → 5
A → 16

KSU OR PANEL CKT
±105V
TO POWER SUPPLY
RINGING CKTS
±10V
TO POWER SUPPLY
M MB
LG,MG

TYPICAL TEL SET
PU KEY
SW HOOK
NET.
PU KEY
PU KEY
HOLD KEY
SW HOOK

CO OR PBX LINE CIRCUIT

SD-69513-01-B3

BELL TELEPHONE LABORATORIES INCORPORATED
DWG SIZE 6S
PRINTED IN U.S.A.

APP FIG. 1 (MD)

400A KEY TELEPHONE UNIT

DRAWING ISSUE	
2D	EFS DHC ARM

RELAY

DESIG	A		B		C					
CODE	MB6		MB2		MB3					
OPTION										
	CONT ARR	LOC	CONT ARR	LOC	CONT ARR	LOC	CONT ARR	LOC	CONT ARR	LOC
6	EMB	1C2	EBM	1E3	B	1H2				
5			M	1F2	EBM	1B5				
4	EB	1C3	M	1H2	M	1C3				
3	M	1C3	M	1E2	M	1C3				
2	M	1F4	M	1C3	EBM	1E3				
1	EMB	1B3	EBM	1D3	EMB	1C3				
COIL		1D2		1G5		1C2				

CAPACITOR

DESIG	LOC	CODE
C1	1E4	542N
C2	1E4	542C
C3	1B3	542N
C4	1A3	
C5	1E4	KS-16390 L17
C6	1B4	542M
C7	1D2	KS-16390 L8

CONNECTOR

DESIG	LOC	CODE
P1	1A2	906C

DIODE

DESIG	LOC	CODE
CR1	1E4	420A
CR2	1E4	400J
CR3	1C5	420D

RESISTOR

DESIG	LOC	CODE
R1	1B2	KS-14603 L1A, 31.6
R2	1C2	
R3	1B4	KS-13490 L1, 27,000
R4	1A4	
R5	1D3	KS-13490 L2, 2200
R6	1B4	KS-13490 L2, .1 MEG
R7	1D3	KS-13490 L2, 7500
R8	1D2	KS-13490 L2, 390
R9	1D4	KS-13490 L1, 18,000
R10	1D4	KS-13490 L1, .33 MEG
R11	1C4	KS-13490 L1, .43 MEG
R12	1E4	KS-13490 L1, .15 MEG
R13	1D3	KS-13490 L2, 470

TERMINAL BOARD

DESIG	TB
CODE	P-15C931
OPTION	
	LOC
9	1E3
8	1E2
7	1E3
6	1G3
5	1G3
4	1G3
3	1G3
2	1C4
1	1C4

TRANSISTOR

DESIG	LOC	CODE
Q1	1E5	12H
Q2	1E4	12G

VARISTOR

DESIG	LOC	CODE
RV1	1C4	312C
RV2	1F5	100A

STATION SYSTEMS

KEY TELEPHONE SYSTEM NO. 1A2
CO OR PBX LINE CIRCUIT

SD-69513-01-C1

BELL TELEPHONE LABORATORIES INCORPORATED

DWG SIZE 3S

PRINTED IN U.S.A.

APP FIG. 2 (MFR DISC.)

400B KEY TELEPHONE UNIT

DRAWING ISSUE	
2D	EFS DMC MM
3D	EFS DMC ARM

RELAY

DESIG	A		B		C					
CODE	MB6		MB2		MB3					
OPTION										
X	CONT ARR	LOC	CONT ARR	LOC	CONT ARR	LOC	CONT ARR	LOC	CONT ARR	LOC
6	EMB	1C2	EBM	1E3	B	1H2				
5			M	1F2	EBM	1B5				
4	EB	1C3	M	1H2	M	1C3				
3	M	1C3	M	1E2	M	1C3				
2	M	1F4	M	1C3	EBM	1E3				
1	EMB	1B3	EBM	1D3	EMB	1C3				
COIL	X	1D2	X	1G5	X	1C2	X		X	

CAPACITOR

DESIG	LOC	CODE
C1	1E4	542N
C2	1E4	542C
C3	1B3	542N
C4	1A3	
C5	1E4	KS-16390 L17
C6	1B4	542M
C7	1D2	KS-16390 L8

CONNECTOR

DESIG	LOC	CODE
P1	1A2	906C

DIODE

DESIG	LOC	CODE
CR1	1E4	420A
CR2	1E4	441J
CR3	1C5	420D
CR4	1F5	420G

RESISTOR

DESIG	LOC	CODE
R1	1B2	KS-14603 L1A, 31.6
R2	1C2	
R3	1B4	KS-13490 L1, 27,000
R4	1A4	
R5	1D3	KS-13490 L2, 2200
R6	1B4	KS-13490 L2, 0.1 MEG
R7	1D3	KS-13490 L2, 7500
R8	1D2	KS-13490 L2, 390
R9	1D4	KS-13490 L1, 18,000
R10	1D4	KS-13490 L1, 0.33 MEG
R11	1C4	KS-13490 L1, 0.43 MEG
R12	1E4	KS-13490 L1, 0.15 MEG
R13	1D3	KS-13490 L2, 470

TERMINAL BOARD

DESIG	TB
CODE	P-15C931
OPTION	
X	LOC
9	1E3
8	1E2
7	1E3
6	1G3
5	1G3
4	1G3
3	1G3
2	1C4
1	1C4

TRANSISTOR

DESIG	LOC	CODE
Q1	1E5	12H
Q2	1E4	12G

VARISTOR

DESIG	LOC	CODE
RV1	1C4	312C
RV2	1F5	100A

STATION SYSTEMS

KEY TELEPHONE SYSTEM NO. 1A2
CO OR PBX LINE CIRCUIT

SD-69513-01-C2

BELL TELEPHONE LABORATORIES INCORPORATED

DWG SIZE 3S

PRINTED IN U.S.A.

APP FIG. 3 (MFR DISC.)

400C KEY TELEPHONE UNIT

DRAWING ISSUE	
2D	EFS DHC ARM
3D	EFS DHC ARM

RELAY

DESIG	A		B		C					
CODE	MB6		MB2		MB3					
OPTION										
	CONT ARR	LOC	CONT ARR	LOC	CONT ARR	LOC	CONT ARR	LOC	CONT ARR	LOC
6	EMB	2C2	EBM	2E3	B	2H2				
5			M	2F2	EBM	2C5				
4	EB	2C3	M	2H2	M	2C3				
3	M	2C3	M	2E2	M	2C3				
2	M	2F4	M	2C3	EBM	2E3				
1	EMB	2B3	EBM	2D3	EMB	2C3				
COIL		2D2		2F5		2C2				

CAPACITOR

DESIG	LOC	CODE
C1	2E5	542N
C2	2E4	542C
C3	2B4	542N
C4	2A4	
C5	2E4	KS-16390 L17
C6	2B4	570DR
C7	2D2	KS-16390 L8

CONNECTOR

DESIG	LOC	CODE
P1	2A2	906C

DIODE

DESIG	LOC	CODE
CR1	2E4	420A
CR2	2E4	441J
CR3	2C5	420D
CR4	2F5	420G

RESISTOR

DESIG	LOC	CODE
R1	2B2	KS-14603 L1A, 31.6
R2	2C2	
R3	2B3	221A, 19 600
R4	2A3	
R5	2D3	KS-13490 L2, 2200
R6	2A4	KS-13490 L2, 0.1 MEG
R7	2D3	KS-13490 L2, 7500
R8	2D2	KS-13490 L2, 390
R9	2D4	KS-13490 L1, 18,000
R10	2D4	KS-13490 L1, 0.33 MEG
R11	2D4	KS-13490 L1, 0.43 MEG
R12	2E4	KS-13490 L1, 0.15 MEG
R13	2D3	KS-13490 L2, 470
R14	2B5	KS-13490 L1, 680
R15	2B4	
R16	2C4	KS-13490 L2, 0.1 MEG

TERMINAL BOARD

DESIG	TB
CODE	P-15C931
OPTION	
	LOC
9	2E3
8	2E2
7	2E3
6	2G3
5	2G3
4	2G3
3	2G3
2	2C4
1	2C4

TRANSISTOR

DESIG	LOC	CODE
Q1	2E5	12H
Q2	2E4	12G
Q3	2C4	12H
Q4	2C5	

VARISTOR

DESIG	LOC	CODE
RV1	2A5	317D
RV2	2F5	100A
RV3	2B5	100D
RV4	2B4	
RV5	2C5	
RV6	2C4	

STATION SYSTEMS

KEY TELEPHONE SYSTEM NO. 1A2
CO OR PBX LINE CIRCUIT

SD-69513-01-C3

BELL TELEPHONE LABORATORIES INCORPORATED

DWG SIZE 3S

PRINTED IN U.S.A.

APP FIG. 4

4000 KEY TELEPHONE UNIT

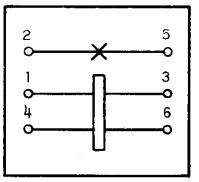
RELAY

DESIG	A		B		C					
CODE	MA19		MB16		MB17					
OPTION										
X	CONT ARR	LOC	CONT ARR	LOC	CONT ARR	LOC	CONT ARR	LOC	CONT ARR	LOC
6			EBM	3F3	EMB	3C4				
5			M	3E7	EBM	3F2				
4	EMB	3E5	M	3G6	EBM	3G1				
3	M	3B4	M	3C4	EBM	3B6				
2	M		M	3B6	EBM	3C4				
1	EBM	3F6	EBM	3F1	EMB	3E6				
COIL	X	3G5	X	3E4	X	3E5	X		X	

RELAY

L

327A



CAPACITOR

DESIG	LOC	CODE
C1	3E3	575B
C2	3C3	575B
C3	3D3	575C
C4	3F4	594G
C5	3D3	575B
C6	3G2	575B
CT	3F1	KS-16390 L12

CONNECTOR

DESIG	LOC	CODE
P1	3A7,3B1	906G

DIODE

DESIG	LOC	CODE
CR1	3H5	441J
CR2	3E3	
CR3	3E5	
CR4	3G2	420G
CR5	3G3	
CR6	3G2	
(R) CR7	3F3	446C
(Q) CR7	3F3	459E
CR8	3G1	420K

RESISTOR

DESIG	LOC	CODE
R1	3D4	KS-14603 L1A,120
R2	3C3	KS-13490 L2,6800
R3	3G2	KS-13490 L2,1000
R4	3F2	KS-13490 L1,36,000
R5	3E3	KS-13490 L2,82,000
R6	3E1	KS-13490 L3,1000
(R) R7	3E3	KS-13490 L2,5600
(Q) R7	3E3	KS-13490 L1,5100
R8	3G4	KS-13490 L1,16,000
(R) R9	3F3	KS-13490 L2,12,000
(Q) R9	3F3	KS-13490 L2,3300
R10	3G1	KS-13490 L2,22,000
R11	3E5	223A,1560
R12	3F3	KS-13490 L1,6800
R13	3F3	KS-13490 L1,1800
R14	3F1	KS-13490 L1,4700
R15	3E1	KS-13490 L1,1500
R16	3F2	KS-13490 L2,.22 MEG
R17	3D3	KS-13490 L2,22,000
R18	3C3	KS-13490 L2,22,000
(N) RT1	3E2	KS-13490 L1,.47 MEG
(M) RT1	3E2	KS-13490 L1,.39 MEG
RT2	3E2	KS-13490 L2,.75 MEG

TERMINAL BOARD

DESIG	TB
CODE	P-15C931
OPTION	
X	LOC
10	3E6
9	3E6
8	3A6
7	3E6
6	3A6
5	3A6
4	3A6
3	3E2
2	3E2
1	3E2

TRANSISTOR

DESIG	LOC	CODE
Q1	3F3	16G
Q2	3F3	
Q3	3F4	

VARISTOR

DESIG	LOC	CODE
RV1	3B3	317B

DRAWING ISSUE	
3D	MPX DHC ARM
4A	EFS DHC ARM
5A	MBW KB DLY
6B	MBW KB DLY
7D	DHC DLY

CO OR PBX LINE CIRCUIT

SD-69513-01-C4

BELL TELEPHONE LABORATORIES INCORPORATED

DWG SIZE 3S

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CIRCUIT NOTES:

101.

DESIG	FUSE AMP	POTENTIAL	ONE PER
		-24 SIG	FUSE PROVIDED ON ASSOC KSU OR PANEL CKT

BATTERY SYMBOL	VOLTAGE RANGE
-24	20-26V

102.

FEATURE OR OPTION				PROVIDE APP FIG.	PROVIDE APP OR WRG	PROVIDE QUANTITY
INDUCED VOLTAGE ON TIP AND RING	12V AC RMS MAX	TIME-OUT CONT	LONG TIME DELAY	2	*	1 PER LINE
			SHORT TIME DELAY		Z	
		VISUAL HOLD CKT	LAMP WINK		Y	
			LAMP STEADY		X	
		AUDIBLE SIG	INTERRUPTED RING		W	
			STEADY RING		T	
			COMMON WITH RELAY CONT		V	
			COMMON WITH DIODE MATRIX CONT		S	
	GREATER THAN 12V AC RMS SEE NOTE 302	TIME-OUT CONT	LONG TIME DELAY	3	*	1 PER LINE
			SHORT TIME DELAY		Z	
		VISUAL HOLD CKT	LAMP WINK		Y	
			LAMP STEADY		X	
		AUDIBLE SIG	INTERRUPTED RING		W	
			STEADY RING		T	
			COMMON WITH RELAY CONT		V	
			COMMON WITH DIODE MATRIX CONT		S	
TIME-OUT CONT			LONG-TIME DELAY	4	*	1 PER LINE
			SHORT-TIME DELAY		Z	
VISUAL HOLD CKT			LAMP WINK		Y	
			LAMP STEADY		X	
AUDIBLE SIG			INTERRUPTED RING		W	
			STEADY RING		T	
			COM WITH REL CONT		V	
			COM WITH DIODE MATRIX CONT		S	

* LONG TIME DELAY IS A FUNCTION OF THE PRINTED WIRING AND IS EFFECTIVE ONLY WHEN Z OPTION STRAP IS REMOVED.

103.

NETWORK VALUES			
NETWORK NO.	NETWORK CODE	RESISTANCE IN OHMS	CAPACITANCE IN UF

CIRCUIT NOTES: (CONT)

104.

RECORD OF APPARATUS FIGURES, WIRING, AND APPARATUS CHANGES							
CHANGED ON ISS	IF JOB RECORDS DO NOT SPECIFY	THIS OPTION WAS FURN	SEE NOTE	USE IN CIRCUIT STD	USE IN CIRCUIT A&M	USE IN CIRCUIT MD	
2D				FIG. 2		FIG. 1	
3D				FIG. 4		FIG. 2 & 3	
6B	R,Q	R		Q		R	
	N,M	N		M		N	

105. (CR4) DIODE CONNECTED FOR 400B LINE CIRCUIT. SHORT CONNECTED FOR 400A.

DRAWING ISSUE

2D	EFS DHC ARM
3D	MPK DHC ARM
6B	HBW KB DLY

CO OR PBX LINE CIRCUIT

SD-69513-01-D1

BELL TELEPHONE LABORATORIES INCORPORATED

DWG SIZE 3S

PRINTED IN U.S.A.

DRAWING ISSUE	
3D	EFS DMC ARM
6B	WBW KB DLV
7D	- DMC DLV

INFORMATION NOTES:

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

302. TRANSVERSE VOLTAGE UP TO APPROXIMATELY 24V RMS OR LONGITUDINAL VOLTAGE UP TO APPROXIMATELY 90V RMS.

303. THE TIMEOUT CAN BE REDUCED BY SHUNTING A RESISTOR OF PROPER VALUE ACROSS RT1 AT THE OPTION BLOCK. REMOVE Z'OPTION STRAP CONNECTING TERMINALS 1 AND 2 ON OPTION BLOCK. RESTRAP TERMINALS 1 AND 2 WITH ONE LEAD OF SHUNTING RESISTOR R AND CONNECT OTHER LEAD TO TERMINAL 3. THE TABLE BELOW GIVES THE RESISTANCE OF R REQUIRED TO REDUCE THE TIMEOUT T_o, TO SOME LOWER VALUE DESIRED TIME.

DESIRED TIME	R MEG Ω *
3/4 T_o	1.20
2/3 T_o	.75
1/2 T_o	.39
1/3 T_o	.20
1/4 T_o	.13

*KS-13490 L1 OR EQUIVALENT

NOTE:
WHERE THE DURATION OF MACHINE RINGING IS 1 SECOND, TIMEOUT SHALL NOT BE REDUCED BELOW 50% OF ORIGINAL TIMEOUT.

304. THE 400D LINE CIRCUIT SHALL BE USED WITH THE 235A AND 236A STATION LINE CONCENTRATORS, ONLY WHEN THE CONCENTRATORS HAVE BEEN MODIFIED AS SHOWN ON THE APPLICABLE ISSUES OF SD-69387-01, SD-69498-01, AND SD-69499-01.

WORKING LIMITS

RINGING RANGES:

APP FIG.	MINIMUM RINGING VOLTAGE	MINIMUM LEAKAGE RESISTANCE	MAXIMUM NO. RINGERS			
			0	1	2	3
			MAXIMUM RINGING RANGE (OHMS)			
2	72V RMS	15K	4446	1788	1119	814
	80V RMS	15K	6062	2438	1526	1110
	84V RMS	15K	6871	2763	1729	1258
	84V RMS	10K	5140	2434	1594	1185
3	72V RMS	15K	4060	1722	1093	800
	80V RMS	15K	5537	2349	1490	1091
	84V RMS	15K	6275	2662	1689	1237
	84V RMS	10K	4799	2354	1560	1166
4	72V RMS	15K	2408	1334	922	705
	80V RMS	15K	3284	1819	1258	961
	84V RMS	15K	3722	2062	1426	1090
	84V RMS	10K	3148	1873	1333	1034

FOR APP FIG. 4, NO LIMITATIONS FOR LONGITUDINAL VOLTAGES EXCEPT FOR FOLLOWING CONDITION: WHEN DIALING FROM A NON "A" LEAD STATION CONNECTED ACROSS THE T AND R, LONGITUDINAL VOLTAGE UP TO 35V RMS. THE STATION CONDUCTOR LOOP RESISTANCE SHALL NOT EXCEED 50 OHMS.

CO OR PBX LINE CIRCUIT	SD-69513-01-D2
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CIRCUIT REQUIREMENTS

KEY TELEPHONE SYSTEM NO. 1A2, CO OR PBX LINE CKT

APPARATUS					MECH REQT			CIRCUIT PREPARATION			TEST SET PREP	SEE TEST NOTE	DIRECT CURRENT FLOW REQT					REMARKS
DESIG	CODE	OPT.	APP FIG		BSP FIG.	CONT PRES	ARM. TRVL	BLOCK OR INSULATE	TEST CLIP DATA				TEST WDG	TEST FOR	AFTER SOAK	TEST	READJ	
									CONN BAT.	CONN GRD					MA	MA	MA	
MISC																		
400A	KTU																	
A	MB6		1		204					L	GRD	3		O		18.5	17.5	
B	MB2		1		201				U	L	B/G	1,2		O		19.0	18.0	
C	MB3		1		202					L	GRD	1,4		O		19.0	18.0	
										L	GRD	4		H		5.3	5.0	
										L	GRD	4		NO		10.0	10.5	
400B	KTU																	
A	MB6		2		204					L	GRD	3		O		18.5	17.5	
B	MB2		2		201				U	L	B/G	1,2		O		19.0	18.0	
C	MB3		2		202					L	GRD	1,4		O		19.0	18.0	
										L	GRD	4		H		5.3	5.0	
										L	GRD	4		NO		10.0	10.5	
400C	KTU																	
A	MB6		3		204					L	GRD	3		O		18.5	17.5	
B	MB2		3		201				U	L	B/G	1,2		O		19.0	18.0	
C	MB3		3		202					L	GRD	1,4		O		19.0	18.0	
										L	GRD	4		H		5.3	5.0	
										L	GRD	4		NO		10.0	10.5	
400D	KTU																	
A	MA19		4		105					L	GRD	3		O		17.0		
														R		1.1		
B	MB16		4		201				U	L	B/G	1,2		O		20.0		
									U	L	B/G	1,2		R		1.2		
C	MB17		4		203				U	L	B/G	1,2		O		21.0		
									U	L	B/G	1,2		H		7.5		
									U	L	B/G	1		NO		11.8		
L	327A		4						3	1	B/G	1	P	O		13.5		
									3	1	B/G	1	P	NO		7.4		
									3	1	B/G	1	P	R		1.40		
									1	6	B/G	1	P/S	O		4.7		CONNECT WIRE JUMPER BETWEEN 3(L) AND 4(L)

DRAWING ISSUE

/	RJT DHC ARM
2D	EFS DHC ARM
3D	MPK DHC ARM
6B	HBG KB DLV
7D	- DHC DLV

TEST NOTES:

1. THE CURRENT FLOW INFORMATION LISTED APPLIES ONLY WHEN THE RELAY TO BE TESTED IS REMOVED FROM THE PRINTED WIRING BOARD.
2. TO TEST RELAY ON AN IN-CIRCUIT BASIS CONTROL THE LOCAL DC CIRCUIT VOLTAGE -20V AND TEST RELAY OPERATION ON BUSY AND HOLD CONDITION. PROPER RELAY PERFORMANCE UNDER THIS CONDITION INDICATES SATISFACTORY RELAY ADJUSTMENT.
3. OPEN LEAD A TO TELEPHONE SETS.
4. OPEN T AND R LEADS OF CO.

CO OR PBX LINE CIRCUIT

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