

SD 96619

DWG ISSUE	CD ISSUE	DATE ISSUED	DRG APPR	APP
1	1	8/9/74	GGT	EFT
2AR	APP 1AR	2-22-77	GGT	EFT

SHEET INDEX

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APPARATUS INDEX LEAD INDEX OPTION INDEX	A2	1	1																							
FS 1 MEAS CONT CKT	B1	1	1																							
FS 2 VF MEASURE AND SEND CKT	B2	1	2																							
FS 3 E & M MONITOR AND CONTROL CKT	B3	1	1																							
APP FIG. 1	C1	1	2																							
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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.

SUPPORTING INFORMATION

CATEGORY	NO.
EQUIPMENT DES. REQ.	J98622 (801-408-151)
EQUIPMENT DRAWINGS	ED-2C207 J986224U

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

ISSUE  
**2AR**

SD-96619-01 1N21  
COMMON SYSTEMS  
VOICE FREQUENCY TRANSMISSION  
SWITCHED MAINTENANCE ACCESS SYSTEM  
NO. 3A, 3B, 3C  
TYPE 2BX NONMETALLIC MANUAL ACCESS CIRCUIT

AT&TCO  
STANDARD

**SD-96619-01-A1**

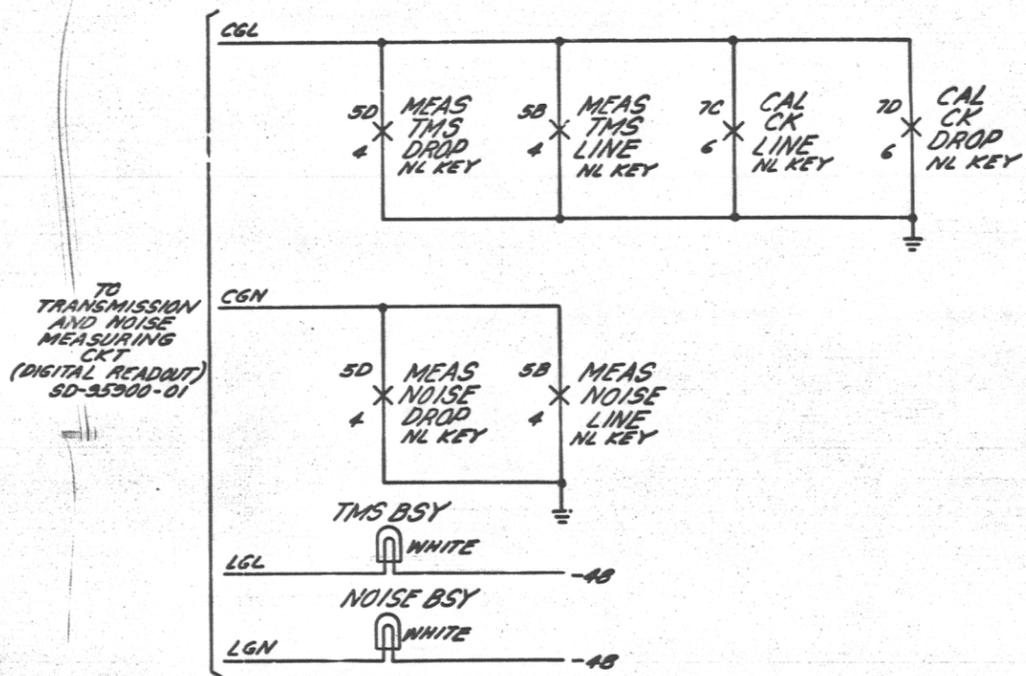
9 SHEETS

BELL TELEPHONE LABORATORIES  
INCORPORATED

2  
6S



**FS 1**  
MEAS CONT CKT



TYPE 2BX NONMETALLIC MANUAL ACCESS CIRCUIT

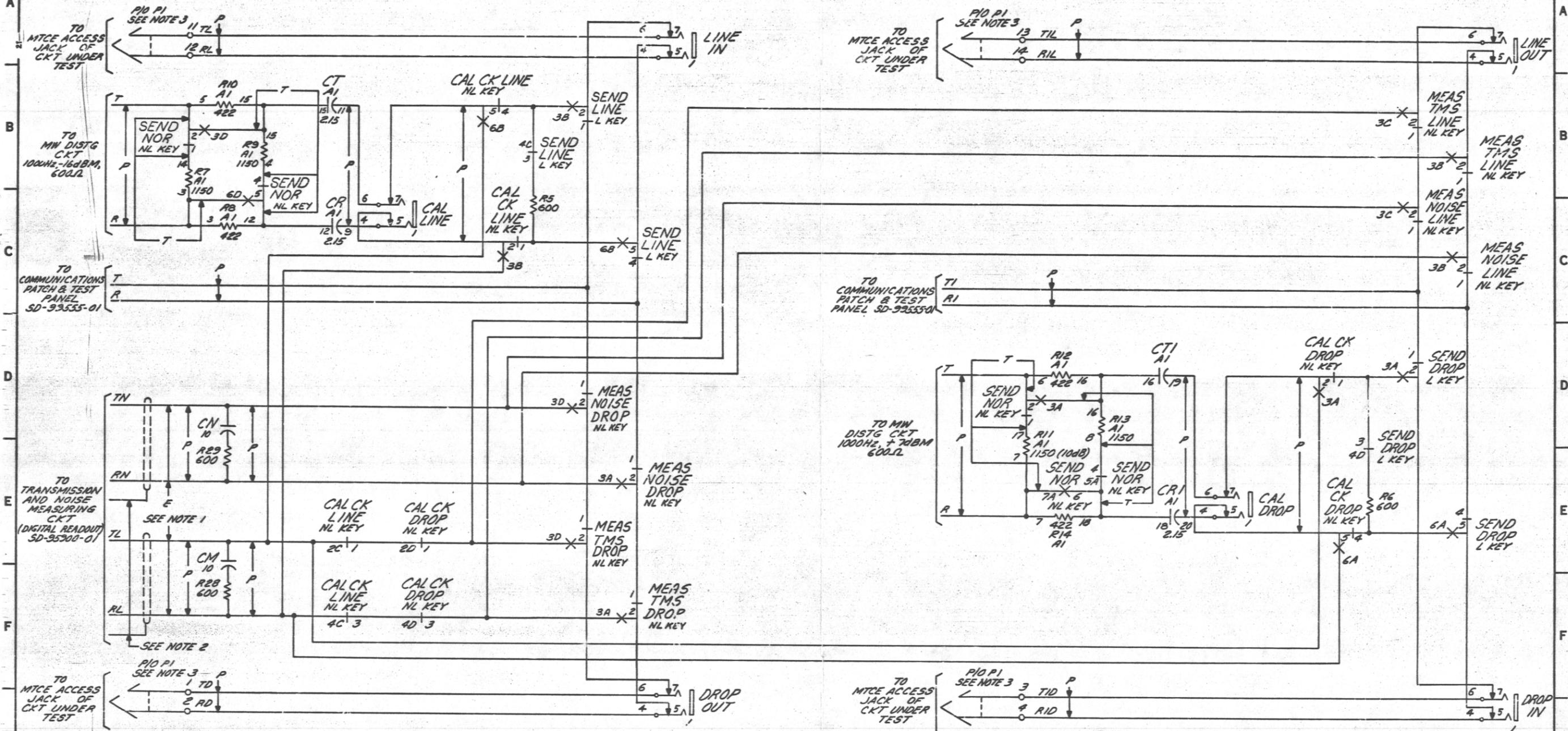
SD-96619-01-B1

BELL TELEPHONE LABORATORIES  
INCORPORATED

65

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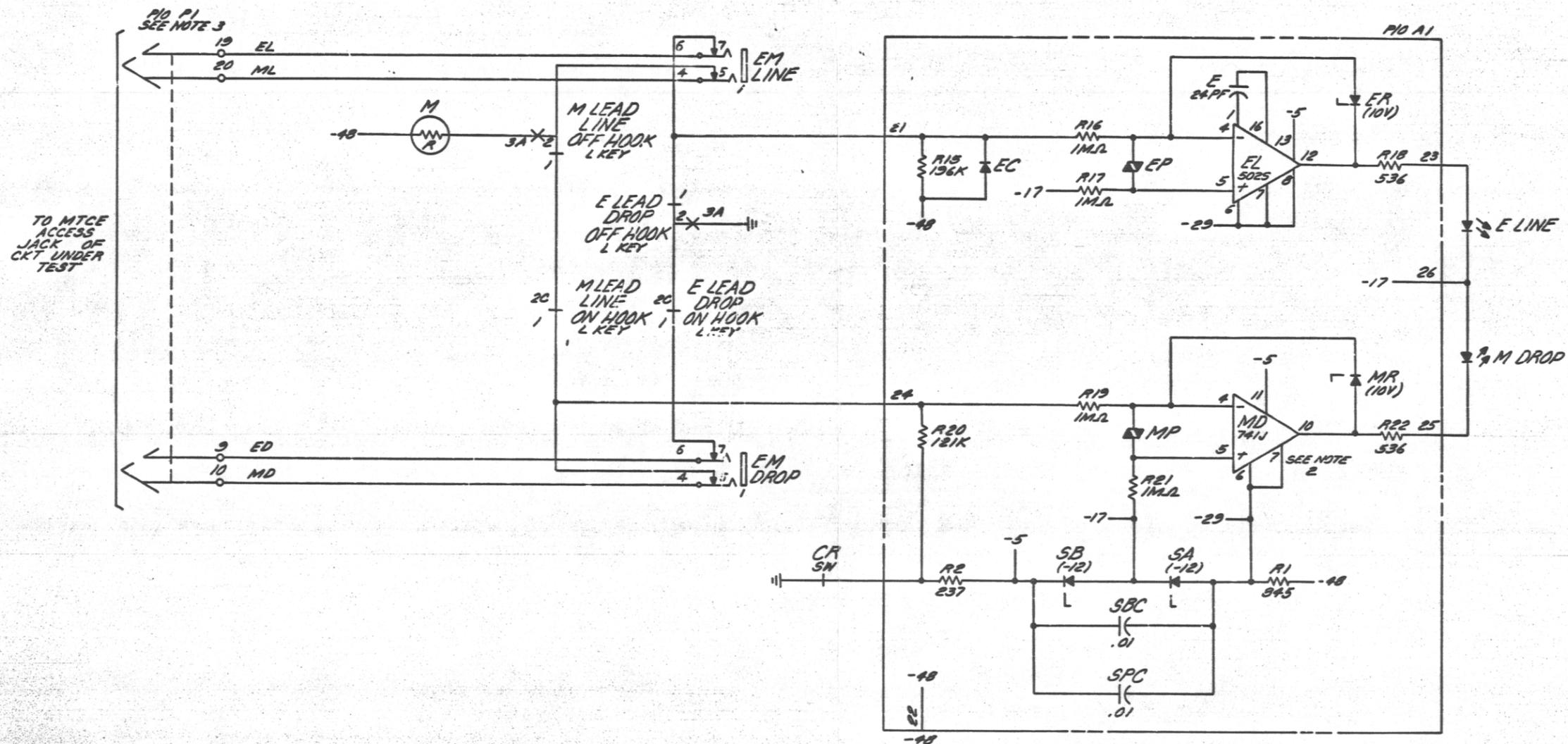
FS 2  
VF MEASURE AND SEND CKT  
(SEE NOTE 4)



- NOTES:
1. SEE CONNECTING CKT FOR LEAD LIMITS AND GROUNDING.
  2. SHIELD TERMINATES AND IS GROUNDING AT CONNECTING CKT.
  3. PLUGS SHOWN ARE TWO STAGE. STAC: ONE PROVIDES FOR MONITORING THE CKT AND STAGE TWO SPLITS THE CKT.
  4. ALL COMPONENTS DESIGNATED A1 ARE SHOWN WITH TERMINAL NOS. AND ARE PART OF PRINTED WIRING BOARD ASSEMBLY.

ISSUE  
2AR

**FS 3**  
E & M MONITOR AND CONTROL CKT  
(SEE NOTE 4)



**NOTES:**

1. EXTERNAL CONNECTIONS FOR E & M LEADS SHALL NOT BE PROVIDED TO 4-WIRE TANDEM PATCH CIRCUITS UNLESS OPEN CIRCUITED IN THE CONNECTING PATCH CIRCUIT. PROVIDE ONLY TO 6-WIRE TANDEM PATCH CIRCUITS.
2. CIRCUIT BOARD IS LAID OUT FOR 16 PIN DIP. NOTE THAT A 14 PIN DIP IS USED.
3. PLUGS SHOWN ARE TWO STAGE. STAGE ONE PROVIDES FOR MONITORING THE CIRCUIT AND STAGE TWO SPLITS THE CIRCUIT.
4. ALL COMPONENTS DESIGNATED A1 ARE SHOWN WITH TERMINAL NOS. AND ARE PART OF PRINTED WIRING BOARD ASSEMBLY.

TO MTCE  
ACCESS  
JACK OF  
CKT UNDER  
TEST

TYPE 2BX NONMETALLIC MANUAL ACCESS CIRCUIT

SD-96619-01-B3

BELL TELEPHONE LABORATORIES  
INCORPORATED

6S

PRINTED U.S.A.

APP FIG. 1

CAPACITOR		
DESIG	LOC	CODE
CM	2E1	513C
CN	2D1	513C

CONNECTOR	
242C (JACK)	

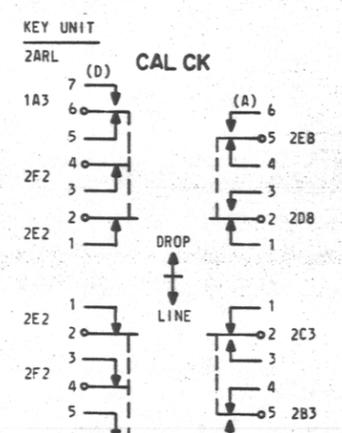
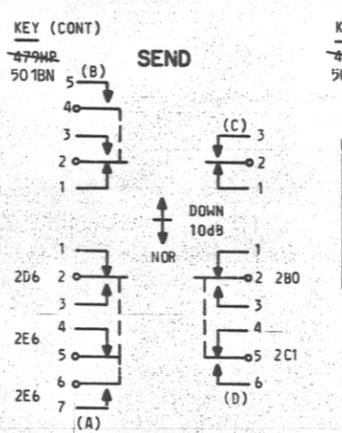
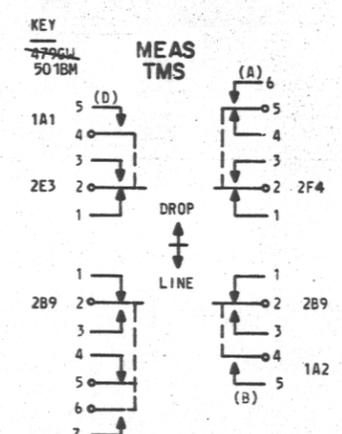
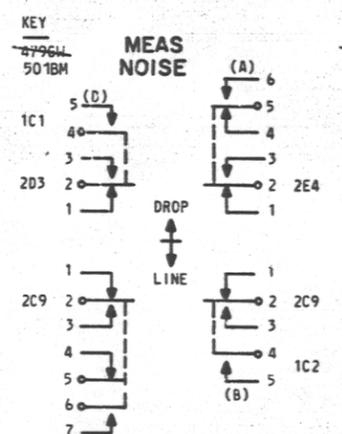
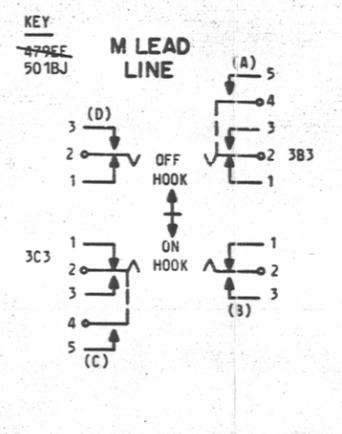
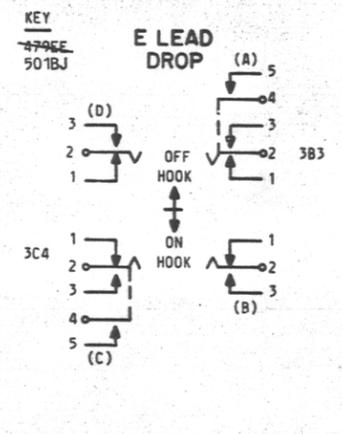
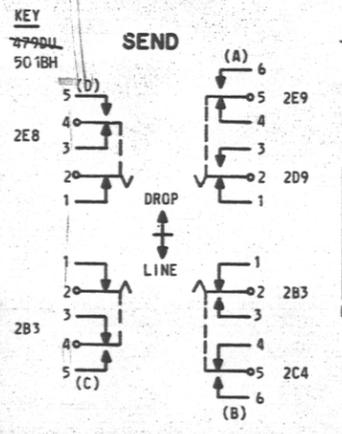
CAL DROP	CAL LINE	DROP IN	DROP OUT	EM DROP	EM LINE	LINE IN	LINE OUT
2E8	2C2	2G9	2G4	3D4	3A4	2A4	2A9
2E8	2C2	2G9	2G4	3D4	3A4	2A4	2A9

CONNECTOR		
DESIG	LOC	CODE
P1	2A0, 2A6, 2G0, 2G6, 3A1	473A (PLUG)

DIODE		
DESIG	LOC	CODE
E LINE	3B8	5082-4403
M DROP	3C8	5082-4403

HEWLETT-PACKARD  
1501 PAGE MILL RD  
PALO ALTO  
CA. 94304

JACK	
SEE CONNECTOR	



LAMP		
DESIG	LOC	CODE
M	3B2	13A (RES)
NOISE BSY	1D1	M1
TMS BSY	1C1	M1

RESISTOR		
DESIG	LOC	CODE
R5	2C3	257A, 600
R6	2E8	
R28	2F1	
R29	2E1	

SWITCH		
DESIG	LOC	CODE
CR	3E4	B2-2RL2-A2 MICRO-SWITCH DIVISION OF HONEYWELL 11 W. SPRING ST. FREEPORT, ILL. 61032

2AR

TYPE 2BX NONMETALLIC MANUAL ACCESS CIRCUIT	SD-96619-01-C1
BELL TELEPHONE LABORATORIES INCORPORATED	6S PRINTED IN U.S.A.

APP FIG. 2

PRINTED WIRING BOARD ASSEMBLY

DESIG	LOC	CODE
A1	2B1, 2B2, 2C1, 2C2, 2D6, 2D7, 2E6, 2E7, 3A8	ED-2C207-( )

E/W

CAPACITOR

DESIG	CODE
CR	5966, 2.15
CR1	
CT CT1	
E	KS-20676 L11, 24PF
SBC	KS-16048 L4, .01
SPC	KS-16048 L4, .01

DIODE

DESIG	CODE
EC	446F
ER	459G
MR	459G
SA	446AD
SB	446AD

INTEGRATED CIRCUIT

DESIG	CODE
EL	502S
MD	SN72741J TEXAS INSTRUMENT CO.

RESISTOR

DESIG	CODE
R1	KS-14603 L6C, 845
R2	KS-20810 L1A, 237
R7	254A, 1150
R8	254A, 422
R9	254A, 1150
R10	254A, 422
R11	254A, 1150
R12	254A, 422
R13	254A, 1150
R14	254A, 422
R15	KS-20516 L1A, 196K
R16	KS-20810 L1A, 1MΩ
R17	KS-20810 L1A, 1MΩ
R18	KS-20616 L1A, 536
R19	KS-20810 L1A, 1MΩ
R20	KS-20616 L1A, 121K
R21	KS-20810 L1A, 1MΩ
R22	KS-20616 L1A, 536

VARISTOR

DESIG	CODE
EP	100D
MP	10

SD-96619-01-C2

TYPE 2BX NONMETALLIC MANUAL ACCESS CIRCUIT	SD-96619-01-C2
BELL TELEPHONE LABORATORIES INCORPORATED	6S PRINTED IN U.S.A.

CIRCUIT NOTES:

101.	DESIG	FUSE AMP	POTENTIAL	ONE PER			
		3,4	-48	PER CKT			
BATTERY SYMBOL		VOLTAGE RANGE					
-48		43 - 53V					
CURRENT DRAIN							
FIG.	QUANTITY	NO. CKTS	TYPE CKT	L1* BAT.	IDLE BAT.	L2** BAT.	GRD
1,2	1	1-7	MTCE CONN	.020	0	.320	.160
* LIST 1 BUSY HOUR CURRENT DRAINS FOR BATTERY PLAN.							
** LIST 2 PEAK CURRENT DRAIN FOR DISTRIBUTION EQUIPMENT.							

CIRCUIT NOTES: (CONT)

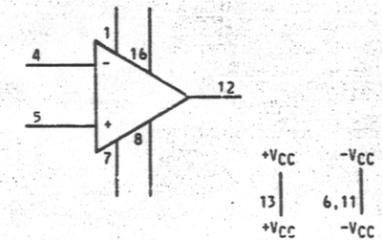
103. RECORD OF APP FIGURES, WIRING AND APPARATUS CHANGES						
CHANGED ON ISS	IF JOB REGRDS DO NOT SPECIFY	THIS OPTION WAS FURN	SEE NOTE	USE IN CIRCUIT		
				STD	A&M	MD

EQUIPMENT NOTES:

- 201. THE (P1) PLUG IS CONNECTED TO THE CORD REEL (TYPE NCR-60 10x2440, MOREY CORP. DOWNERS GROVE, ILL. 60515).
- 202. PRINTED WIRING ASSEMBLY (A1) MATES WITH A 928A CONNECTOR.

INFORMATION NOTES:

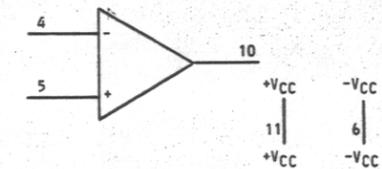
- 301. UNLESS OTHERWISE SPECIFIED: RESISTANCE VALUES ARE IN OHMS, CAPACITANCE VALUES ARE IN MICROFARADS, VALUES PRECEDED BY THE SYMBOL + (PLUS) OR - (MINUS) ARE IN VOLTS.
- 302. THE TERM "NONMETALLIC" REFERS TO A CKT THAT, AT POINT OF ACCESS, DOES NOT HAVE DC SIGNALING ON THE TRANSMISSION LEADS AND THAT CAN USE -16 TLP TEST LEVEL TOWARDS THE LINE ON THE T/R LEADS AND +7 TLP TEST LEVELS TOWARDS THE DROP ON THE T1/R1 LEADS
- 303. INTEGRATED CIRCUITS.
  - a) 502S, VOICE FREQUENCY AMPLIFIER.



INPUT/OUTPUT INFORMATION

CIRCUIT DESCRIPTION

- b) 741J, HIGH PERFORMANCE OPERATIONAL AMPLIFIER SN72741J - TEXAS INSTRUMENTS.



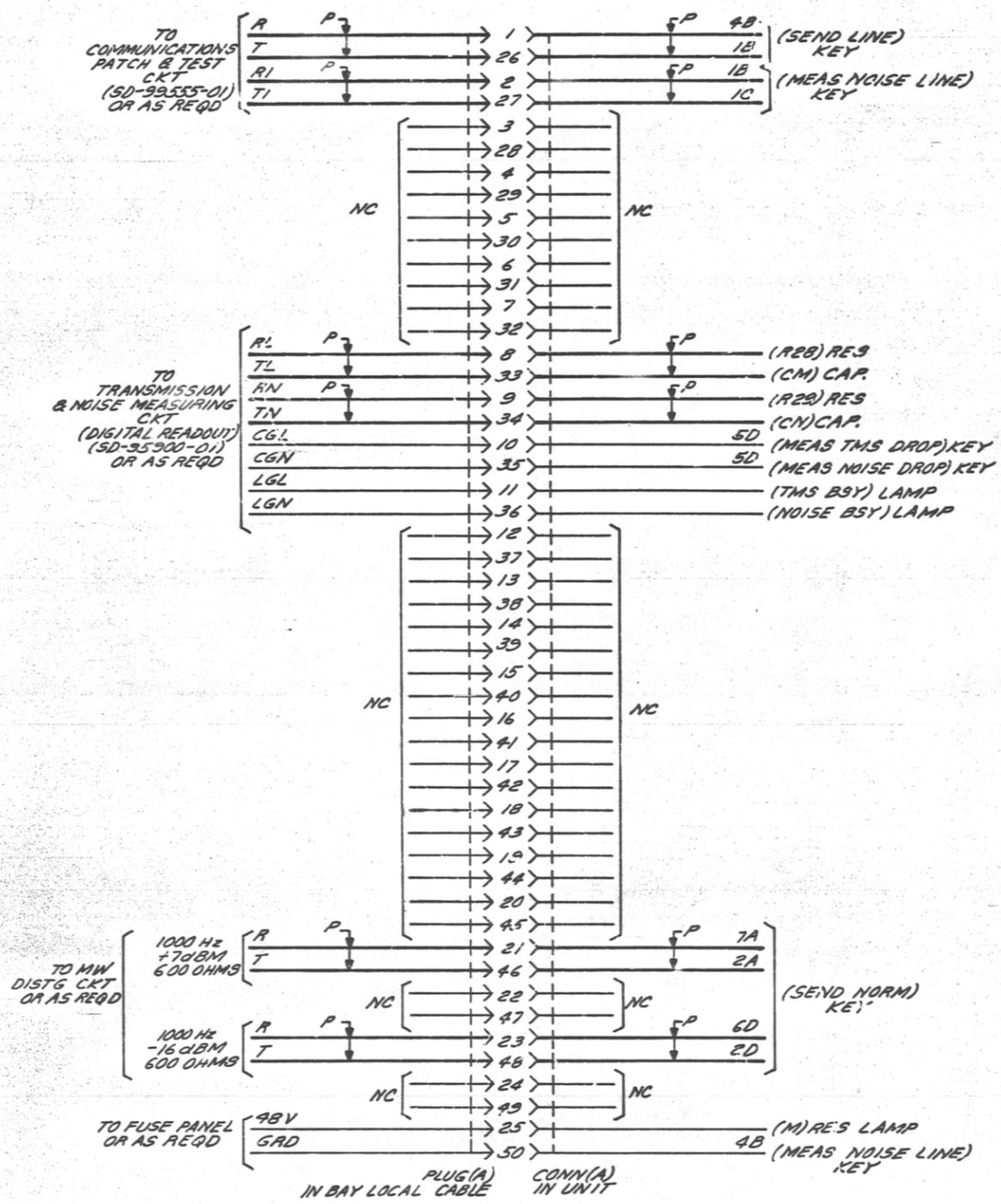
INPUT/OUTPUT INFORMATION

CIRCUIT DESCRIPTION

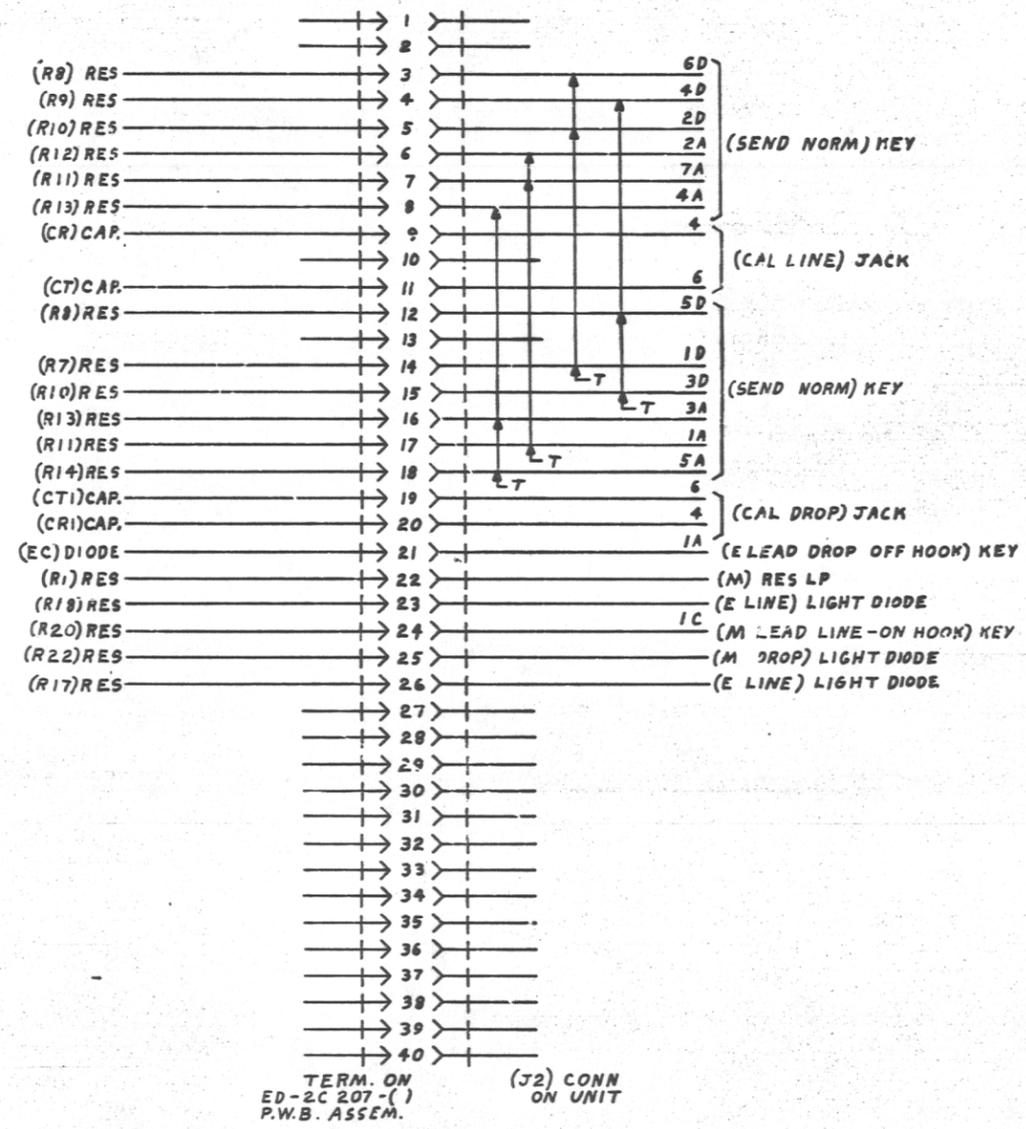
102.	FEATURE OR OPTION	PROVIDE	
		APP FIG.	QUANTITY
	NON-METALLIC, CORD ACCESS, CONNECTORIZED MANUAL ACCESS PANEL	1,2	1 OF EACH PER J98622AU UNIT

SD-96619-01-D1

**CAD 1**  
FOR APP FIG. 1  
(J98622AU)



**CAD 2**  
(J98622AU)



19-10-61996-015

TYPE 2BX NONMETALLIC MANUAL ACCESS CIRCUIT

BELL TELEPHONE LABORATORIES INCORPORATED

SD-96619-01-G1

6S