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TECHNICAL MANUAL
for
AUXILIARY POWER PANEL
MODEL APP-4D



THE TECHNICAL MATERIEL CORPORATION
MAMARONECK, N. Y. OTTAWA, CANADA

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MODEL APP-4D



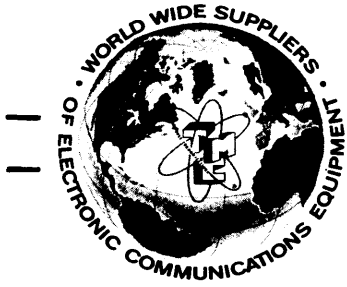
THE TECHNICAL MATERIEL CORPORATION
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NOTICE

THE CONTENTS AND INFORMATION CONTAINED IN THIS INSTRUCTION MANUAL IS PROPRIETARY TO THE TECHNICAL MATERIEL CORPORATION TO BE USED AS A GUIDE TO THE OPERATION AND MAINTENANCE OF THE EQUIPMENT FOR WHICH THE MANUAL IS ISSUED AND MAY NOT BE DUPLICATED EITHER IN WHOLE OR IN PART BY ANY MEANS WHATSOEVER WITHOUT THE WRITTEN CONSENT OF THE TECHNICAL MATERIEL CORPORATION.



THE TECHNICAL MATERIEL CORPORATION

COMMUNICATIONS ENGINEERS

700 FENIMORE ROAD

MAMARONECK, N. Y.

Warranty

The Technical Materiel Corporation, hereinafter referred to as TMC, warrants the equipment (except electron tubes,* fuses, lamps, batteries and articles made of glass or other fragile or other expendable materials) purchased hereunder to be free from defect in materials and workmanship under normal use and service, when used for the purposes for which the same is designed, for a period of one year from the date of delivery F.O.B. factory. TMC further warrants that the equipment will perform in a manner equal to or better than published technical specifications as amended by any additions or corrections thereto accompanying the formal equipment offer.

TMC will replace or repair any such defective items, F.O.B. factory, which may fail within the stated warranty period, PROVIDED:

1. That any claim of defect under this warranty is made within sixty (60) days after discovery thereof and that inspection by TMC, if required, indicates the validity of such claim to TMC's satisfaction.
2. That the defect is not the result of damage incurred in shipment from or to the factory.
3. That the equipment has not been altered in any way either as to design or use whether by replacement parts not supplied or approved by TMC, or otherwise.
4. That any equipment or accessories furnished but not manufactured by TMC, or not of TMC design shall be subject only to such adjustments as TMC may obtain from the supplier thereof.

Electron tubes* furnished by TMC, but manufactured by others, bear only the warranty given by such other manufacturers. Electron tube warranty claims should be made directly to the manufacturer of such tubes.

TMC's obligation under this warranty is limited to the repair or replacement of defective parts with the exceptions noted above.

At TMC's option any defective part or equipment which fails within the warranty period shall be returned to TMC's factory for inspection, properly packed with shipping charges prepaid. No parts or equipment shall be returned to TMC, unless a return authorization is issued by TMC.

No warranties, express or implied, other than those specifically set forth herein shall be applicable to any equipment manufactured or furnished by TMC and the foregoing warranty shall constitute the Buyers sole right and remedy. In no event does TMC assume any liability for consequential damages, or for loss, damage or expense directly or indirectly arising from the use of TMC Products, or any inability to use them either separately or in combination with other equipment or materials or from any other cause.

*Electron tubes also include semi-conductor devices.

PROCEDURE FOR RETURN OF MATERIAL OR EQUIPMENT

Should it be necessary to return equipment or material for repair or replacement, whether within warranty or otherwise, a return authorization must be obtained from TMC prior to shipment. The request for return authorization should include the following information:

1. Model Number of Equipment.
2. Serial Number of Equipment.
3. TMC Part Number.
4. Nature of defect or cause of failure.
5. The contract or purchase order under which equipment was delivered.

PROCEDURE FOR ORDERING REPLACEMENT PARTS

When ordering replacement parts, the following information must be included in the order as applicable:

1. Quantity Required.
2. TMC Part Number.
3. Equipment in which used by TMC or Military Model Number.
4. Brief Description of the Item.
5. The *Crystal Frequency* if the order includes crystals.

PROCEDURE IN THE EVENT OF DAMAGE INCURRED IN SHIPMENT

TMC's Warranty specifically excludes damage incurred in shipment to or from the factory. In the event equipment is received in damaged condition, the carrier should be notified immediately. Claims for such damage should be filed with the carrier involved and not with TMC.

All correspondence pertaining to Warranty Claims, return, repair, or replacement and all material or equipment returned for repair or replacement, within Warranty or otherwise, should be addressed as follows:

THE TECHNICAL MATERIEL CORPORATION
Engineering Services Department
700 Fenimore Road
Mamaroneck, New York

Auxiliary Power Panel

Model APP-4D

The APP-4D is similar to the APP-4; therefore the technical manual for APP-4 will apply as written with the following exceptions:

- a- Change all reference of APP-4 to APP-4D.
- b- Figure 2, change designation "SQUELCH INPUT" to "MMX-FSK".
- c- Figure 3, Connection Diagram, APP-4, change designation "RCVR AUDIO OUTPUT" to "MMX-FSK". E501 terminal #11 should be marked (-) and terminal #12 should be marked (+).
- d- Paragraph 3e, change as follows:
 - e. MMX-FSK INPUT - Terminals 11 and 12 are provided for FSK input MMX()2 exciter.
- e- Replace figure 4 with Schematic Diagram provided in this addendum.

UNLESS OTHERWISE SPECIFIED:

ALL CAPACITORS ARE IN MICRO-MICROFARADS.

ALL COILS ARE IN MILLIHENRIES.

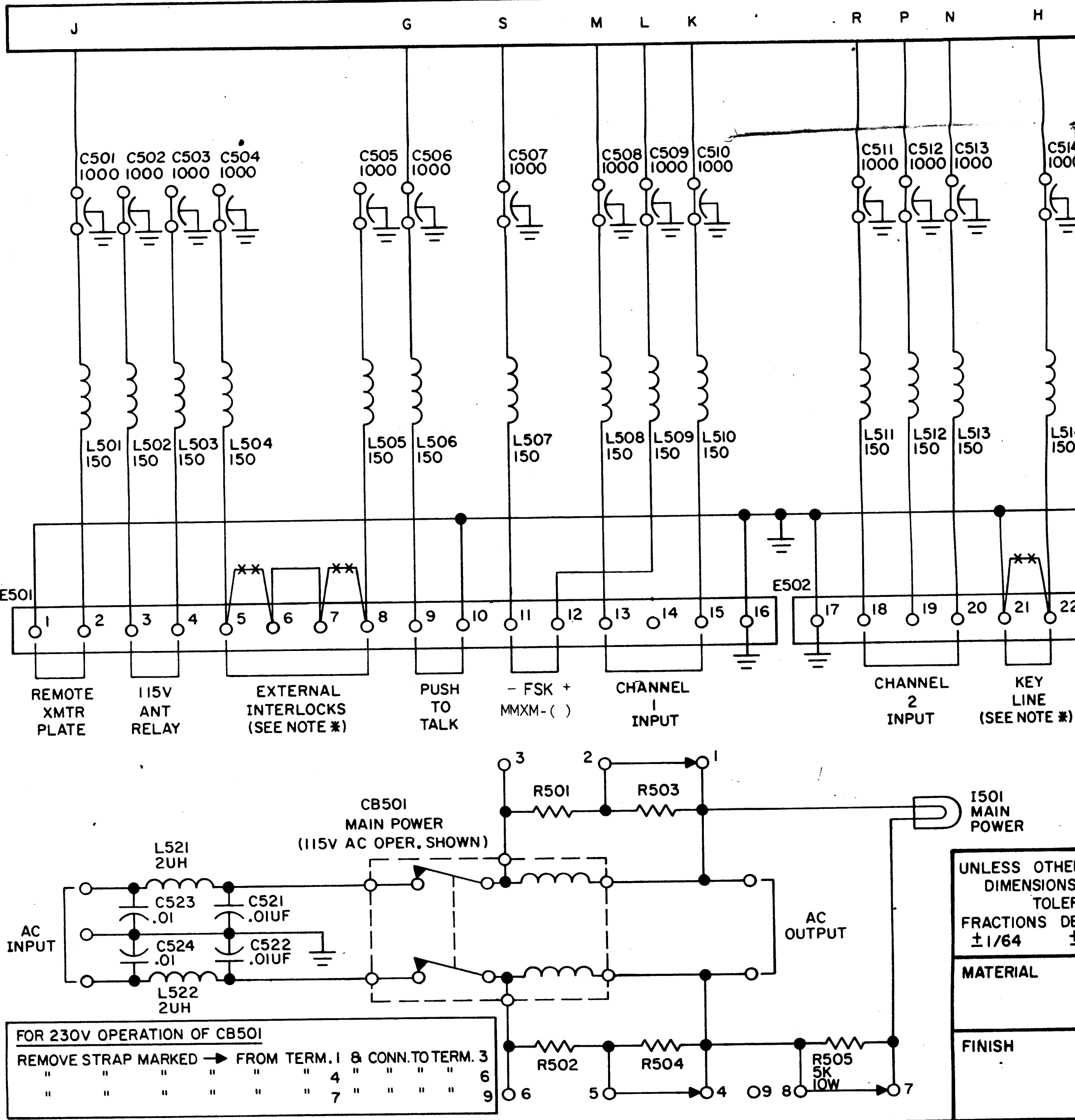
LAST SYMBOLS

- C524
- CB501
- E302
- I501
- J503
- L522
- R505

NOTE *

WHEN EXTERNAL INTERLOCKS AND/OR KEYLINE IS USED, REMOVE JUMPERS MARKED ** FROM TERMINALS 5 & 6, 7 & 8 AND 21 & 22.

J501



FOR 230V OPERATION OF CB501

REMOVE STRAP MARKED → FROM TERM. 1 & CONN. TO TERM. 3
" " " " " 4 " " " " 6
" " " " " 7 " " " " 9

UNLESS OTHERWISE SPECIFIED:
DIMENSIONS IN INCHES
TOLERANCES
FRACTIONS DECIMALS
± 1/64

MATERIAL

FINISH

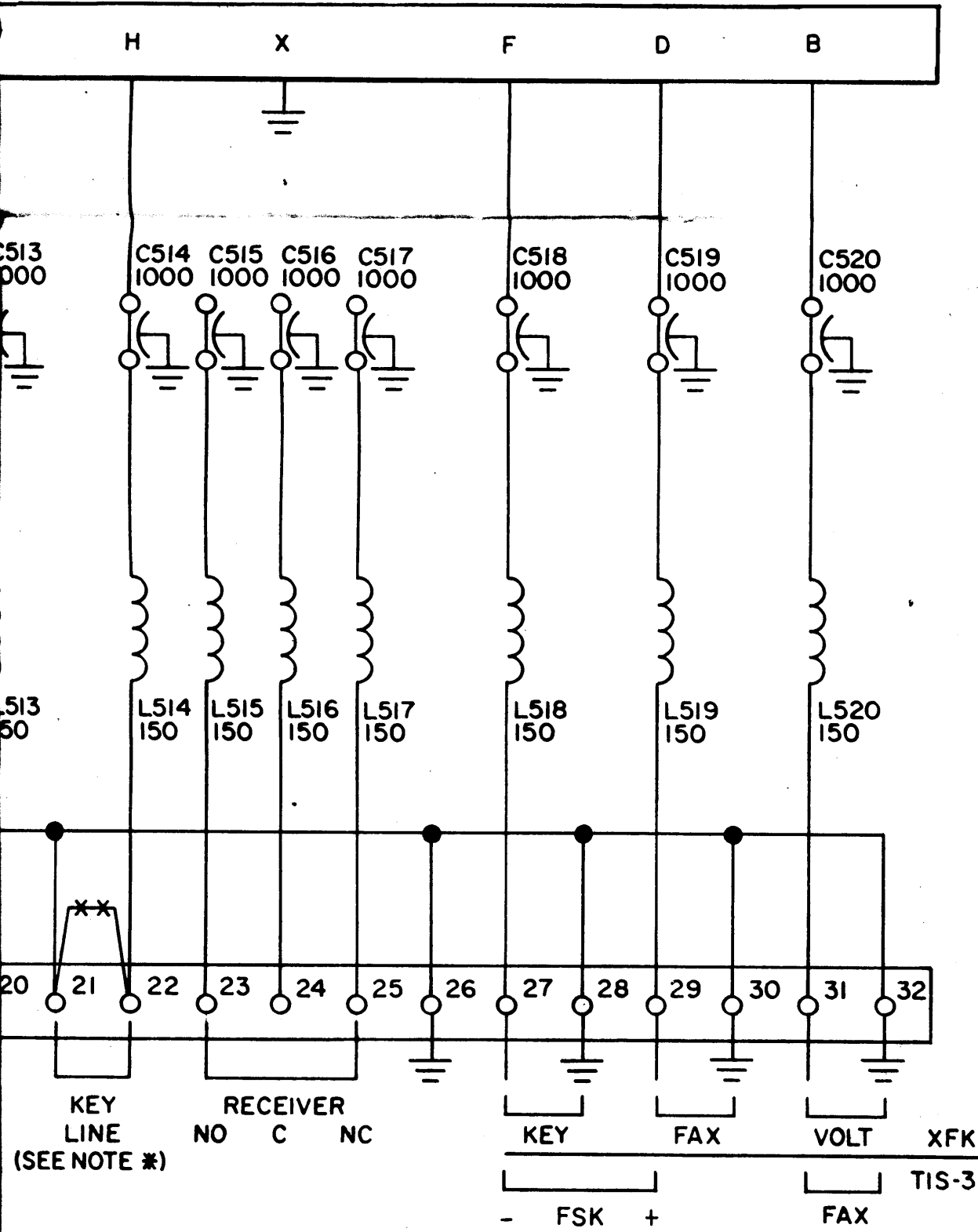
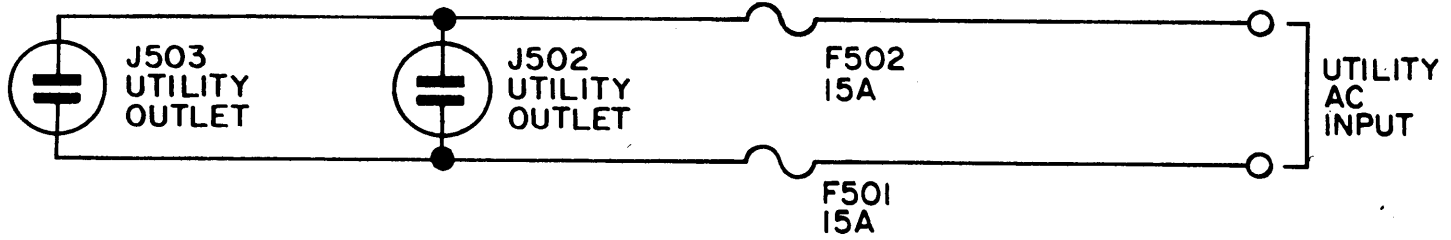
EXISTING SYMBOLS

C524
CB501
E302
I501
J503
L522
R505

MISSING SYMBOLS

REVISIONS

SYM	ZONE	DESCRIPTION	DATE	E.M.N.NO	DRAFT	CHKD	APPD
	X	EXPERIMENTAL RELEASE					
	Ø	FINAL RELEASE FOR PRODUCTION	3/16/70	~	J.A.	<i>[Signature]</i>	
	A	E503 DELETED. U/O WAS APP-4 ()	3/16/70	19738	CV	<i>[Signature]</i>	<i>[Signature]</i>



MODEL USED ON SBTM-1KJK

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES TOLERANCES ON FRACTIONS DECIMALS ANGLES ±1/64 ±.005 ±1/2°

FINISH

QTY REQ	ITEM	PART NO.	DESCRIPTION	SYMBOL
BUTLER BILL OF MATERIAL				
FINAL APPROVAL <i>[Signature]</i>			THE TECHNICAL MATERIEL CORP. MAMARONECK, NEW YORK DIAGRAM, SCHEMATIC APP-4D	
MECH. DES. DATE 3/16/70				
ELECT. DES. <i>[Signature]</i> DATE 3/16/70				
CHECKED <i>[Signature]</i> DATE 3/16/70				
DRAWN J. ANGER DATE 3/13/70				
APPROVED FOR _____			CODE 82679	SIZE C
CONTRACT NO. S.O. No. 31-0395A-129			DWG. NO. CK1769	ISSUE A
SCALE _____			SHEET / OF /	

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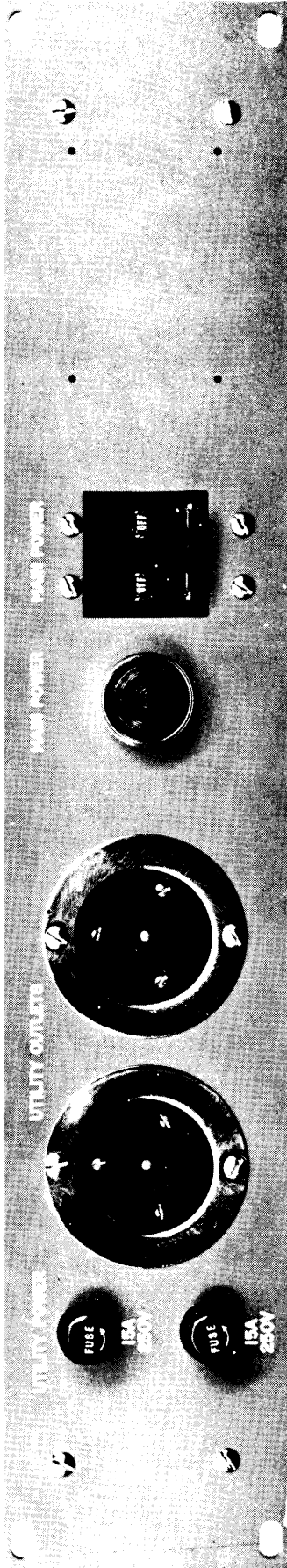


Figure 1. Auxiliary Power Panel, Model APP-4

1. DESCRIPTION

Auxiliary Power Panel, Model APP-4 (figure 1), is a line-voltage distributing device that provides connection for related equipment used in a transmitting system. Two individually-fused UTILITY OUTLETS (located on the front panel) provide 115- or 230-volts a-c, depending upon input power source, for external test equipment. A MAIN POWER indicating lamp and two MAIN POWER circuit breakers are also located on the front panel. Two terminal blocks (E501 and E502) and a jack (J501), located on the rear panel (refer to figure 2), provide wiring connections as required by the particular installation.

2. UNPACKING AND INSTALLATION

When provided as part of a system, the APP is normally installed in a rack at the factory; the rack (with associated equipment) is then shipped to the operating site. Whether received in this form or as an individual unit, uncrate the equipment carefully and inspect for damage that may have occurred during transit. Inspect all packing material for parts that may have been shipped as loose items. With respect to damage to the equipment for which the carrier is liable, The Technical Materiel Corporation will assist in describing methods of repair and the furnishing or replacement parts.

Each APP is tested at the factory before shipment, and is therefore ready for installation and operation. Preliminary adjustments are not necessary.

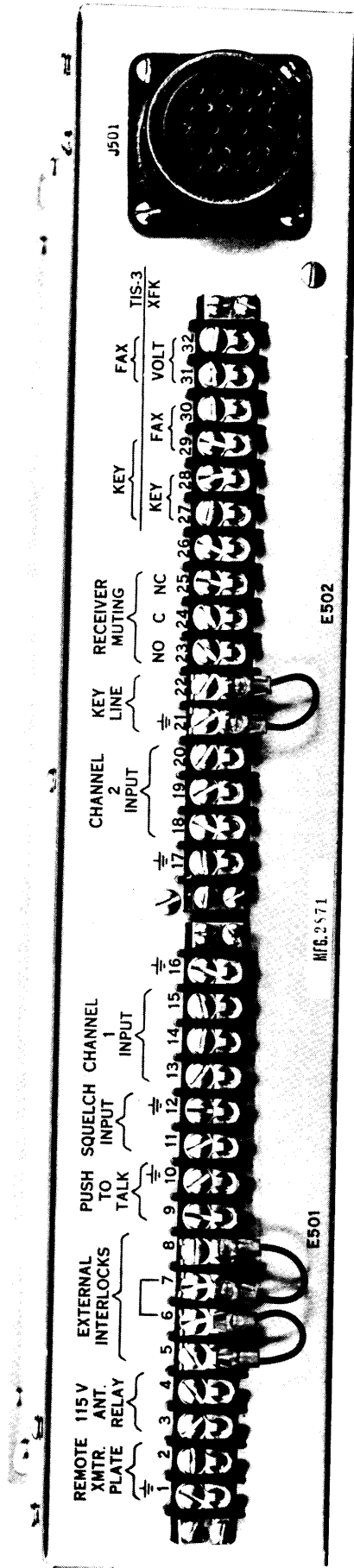


Figure 2. Rear Panel, APP-4

The APP is designed for installation in a 19-inch wide equipment rack; it is 3-1/2" high and 15-7/8" deep.

3. ELECTRICAL INSTALLATION

Electrical connection for the APP is dependent upon the system in which the unit is used; refer to the applicable system cabling diagram and make the necessary connections.

Terminal blocks E501 and E502, located on the rear panel, facilitate connection of external equipment to the associated transmitter; figure 3 and the following paragraphs illustrate the possible connections. Schematic diagram figure 4 should be used in conjunction with the schematic diagrams in the associated system and modular-unit manuals as an aid for tracing wiring.

a. REMOTE XMTR PLATE. - Terminals 1 and 2 are provided for attachment to the coil of a relay supplying plate voltage to an additional stage of ^RA-f amplification for the associated transmitter.

b. 115V ANT. RELAY. - Terminals 3 and 4 are provided for 115 volts a-c outlet.

c. EXTERNAL INTERLOCKS. - Terminals 5 through 8 are provided for additional safety interlocks external to the associated transmitter. Such additional interlocks will be in series with the transmitter interlocks and will form another link in the interlock circuit. When these terminals are not used, the jumpers remain in place.

LEGEND:
 ——— EXISTING WIRING
 - - - WIRING TO BE ADDED
 ——— JUMPER TO BE REMOVED WHEN EXTERNAL WIRING IS ADDED.
 * ———

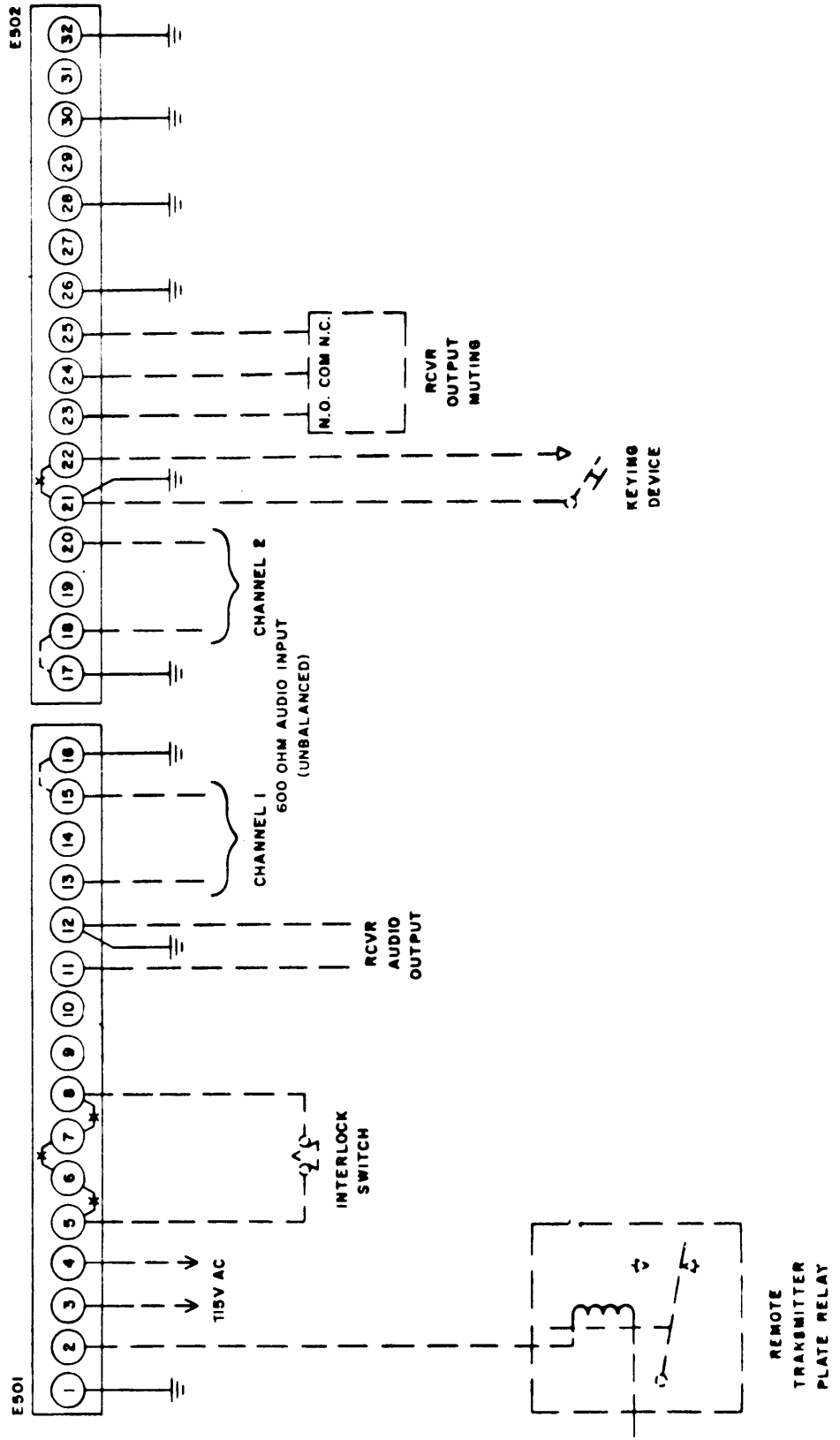
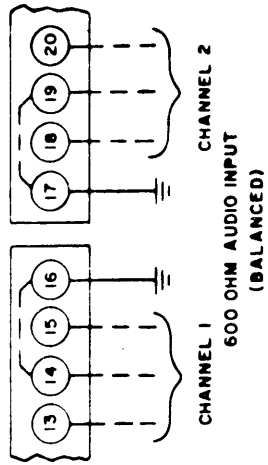


Figure 3. Connection Diagram, APP-4

d. PUSH TO TALK. - Terminals 9 and 10 are provided for a push-to-talk button attachment.

e. SQUELCH INPUT. - Terminals 11 and 12 are provided for the attachment to a receiver audio output, if receiver "squelch" is desired.

f. CHANNEL 1 INPUT -CHANNEL 2 INPUT. - Terminals 13 through 20 are provided for the attachment of two separate sources of intelligence in the form of 600-ohm audio.

g. KEY LINE. - Terminals 21 and 22 are provided for the attachment of a keying device in CW mode of transmission.

h. RECEIVER MUTING. - Terminals 23, 24, and 25 are provided for automatic disabling and enabling of a receiver when the transmitter is sending or in off or standby condition, respectively.

i. KEY-FAX-TIS-3/XFK. - Terminals 27 through 32 are provided for connection of equipment necessary for FSK (frequency shift keying) and FAX (facsimile) modes of transmission; mark and space pulses are extended to the first keyer circuit of an external tone intelligence unit.

4. MAINTENANCE

Check condition of wires and terminals to insure that charring or other deterioration has not set in. Check the fuses; lit fuse cap indicates fuse has blown. Check operation of MAIN POWER circuit breakers and indicating lamp.

PARTS LIST, APP-4

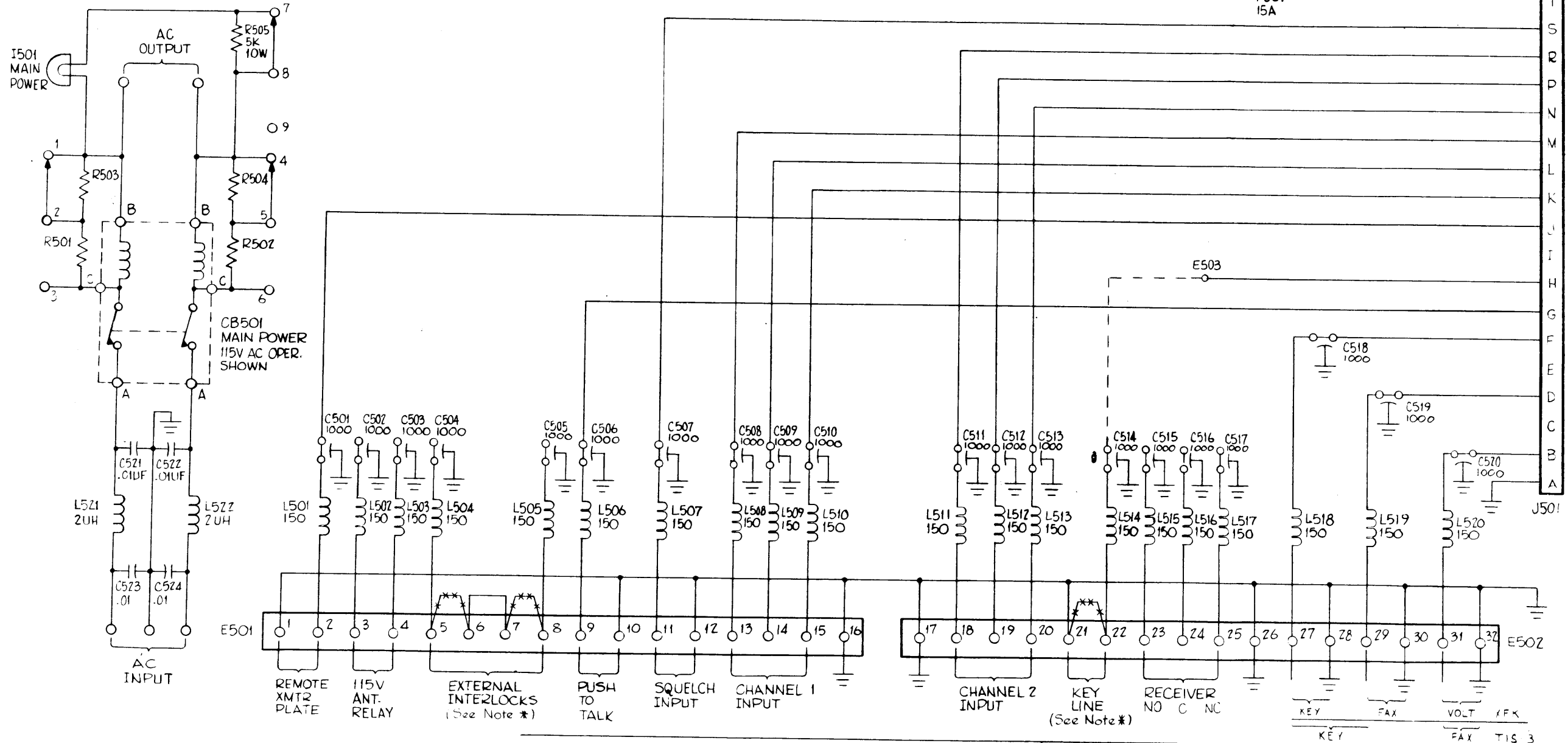
REF SYMBOL	DESCRIPTION	TMC PART NUMBER
C501	CAPACITOR, Feed-thru type: 1000 uuf, $\pm 20\%$, 500 wvdc, char. A.	CK70A102M
C502 thru C520	Same as C501.	
C521	CAPACITOR, fixed: mica; .01 uf, $\pm 10\%$, char. B 300 wvdc.	CM35B103K
C522	Same as C521.	
C523	Same as C521.	
C524	Same as C521.	
CB501	CIRCUIT BREAKER, dual, companion trip; 15 amp, curve 5, 230 VAC operation.	SW-261
E501	TERMINAL, strip: barrier lug type; 16 terminals; base material black bakelite.	TM-100-16
E502	FUSE, cartridge: hi-rating 250 v, 15 amps.	FU-103-15
F502	Same as F501.	
I501	LAMP, incandescent: double contact; 120 volts, 3 watts; bayonet base.	BI-102-3
J501	CONNECTOR, receptacle: AN socket; 22 contacts.	MS3102A-28-11S
J502	PLUG, receptacle: U-shape grounding type - 3 prongs.	JJ-173
J503	Same as J502.	
L501	COIL, R. F. : fixed; 2.5 mh.	CL-140-2
L502 thru L520	Same as L501.	

PARTS LIST, APP-4 (CONT)

REF SYMBOL	DESCRIPTION	TMC PART NUMBER
L521	COIL, 2 uf, ± 1 uh Q-200 at 7.9 mc.	CL-269
L522	Same as L521.	
R501	SHUNT ASSY., .0042 ohms, $+5\%$ -1% ; 20 amps at 115 VAC.	AR-132
R502	Same as R501.	
R503	SHUNT ASSY., .075 ohms, $\pm 10\%$, 5 amps at 115 VAC.	AR-133
R504	Same as R503.	
R505	RESISTOR, fixed: wire wound; 5000 ohms, $\pm 5\%$, 10 watts.	RW-109-32
XF501	FUSE, extractor post: end terminal is removable.	FH-100-1
XF502	Same as XF501.	
XI501	LIGHT, INDICATOR: bayonet base; w/red frosted lamp.	TS-124-1

FOR 230VAC OPERATION OF CB 501

- 1- REMOVE STRAP MARKED --- FROM TERMINAL 1, AND ATTACH TO TERMINAL 3.
- 2- " " " " " " 4, " " " " 6.
- 3- " " " " " " 7, " " " " 9.



LAST SYMBOLS

- C524
- CB501
- E502
- I501
- J503
- L522
- R505

MISSING SYMBOLS

UNLESS OTHERWISE SPECIFIED

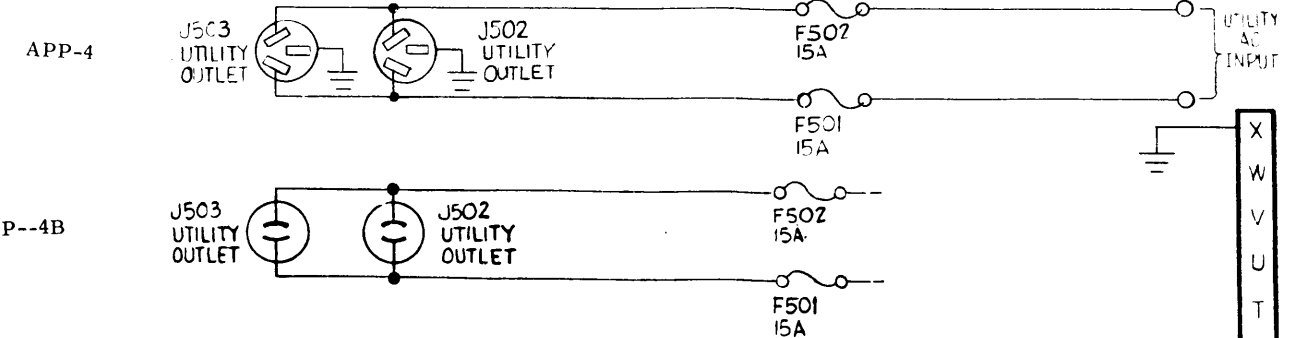
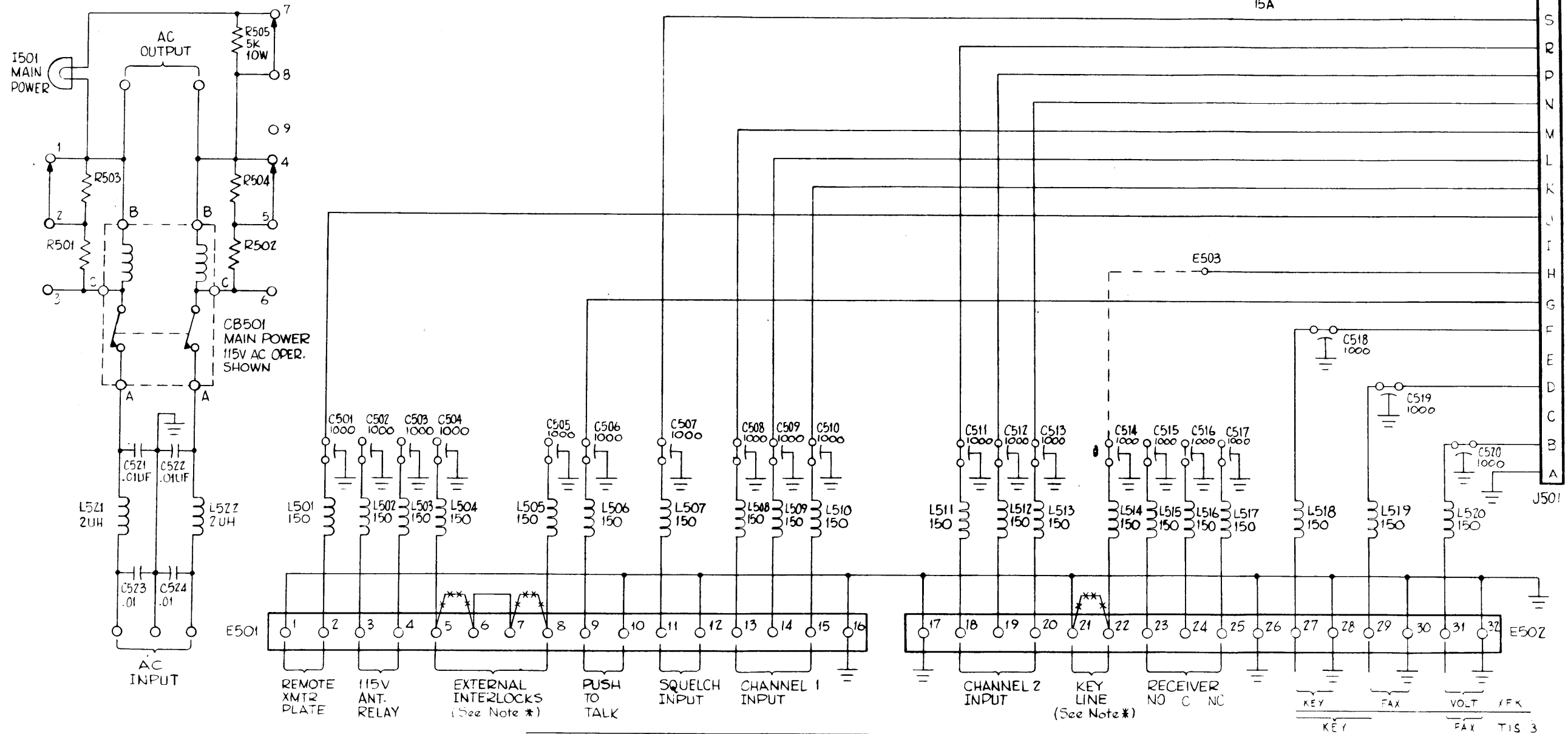
ALL CAPACITORS ARE IN MICRO-MICROFARADS.
 ALL COILS ARE IN MILLIHENRIES.

NOTE - WHEN EXTERNAL INTERLOCKS AND/OR KEYLINE IS USED REMOVE JUMPERS MARKED *** FROM TERMINALS 5 & 6, 7 & 8 AND 21 & 22

Figure 4. Schematic Diagram, APP-4.

FOR 230VAC OPERATION OF CB 501

- 1- REMOVE STRAP MARKED --- FROM TERMINAL 1, AND ATTACH TO TERMINAL 3.
- 2- " " " " " " " " 4, " " " " 6.
- 3- " " " " " " " " 7, " " " " 9.



LAST SYMBOLS

- C574
- CB501
- E502
- I501
- J503
- L522
- R505

MISSING SYMBOLS

UNLESS OTHERWISE SPECIFIED

ALL CAPACITORS ARE IN MICRO-MICRO-FARADS.
ALL COILS ARE IN MILLI-HENRIES

NOTE * WHEN EXTERNAL INTERLOCKS AND/OR KEYLINE IS USED REMOVE JUMPERS MARKED *** FROM TERMINALS 5 & 6, 7 & 8 AND 21 & 22

CK-467

Figure 4. Schematic Diagram, APP-4.