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GENERAL PURPOSE
RADIO TRANSMITTER
MODEL SBT-350V(A)

PART VI
APPENDIX-RACK, AND ACCESSORIES



TMC (CANADA) LIMITED
Ottawa, Ontario

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TMC (Canada) LTD
OTTAWA ONTARIO

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APPENDIX
RACK AND ACCESSORIES

VI-1. INTRODUCTION.

This part of the manual describes the rack and all accessory items included in the make-up of a complete SBT-350V(A) transmitter, not covered by Parts I through V. In addition, it is intended that this appendix and its revisions will serve to illustrate such items as minor wiring and component rating variations occurring in successive production runs of model SBT-350V(A) transmitters.

VI-2. PARTS BREAKDOWN.

The parts breakdown of the SBT-350V(A) (by major sub-assemblies) is described in Table VI-A, which lists all parts (except fastening hardware) that go into the assembly of an SBT-350V(A). Parts arriving in the shipment of the disassembled SBT-350V(A) are described in Table VI-D. When re-ordering any major units (SWR-1K, PAL-350, etc.), reference to Table VI-A will describe all the electrical parts plus special cables and modifications peculiar to the SBT-350V(A) that will be included in the shipment of the unit. In each case, when re-ordering, it should be specified that the unit is to be for an SBT-350V(A).

VI-3. SBT-350V(A) EQUIPMENT RACK.

Model RAL-19G is a standard type of rack for 19 inch components. It has a hinged rear door and comes equipped with 3 sets of drawer slides for mounting the RFA-1, SBE-8 and PSP-350 units.

Figure VI-1 is an outline drawing of RAK-19G and includes overall dimensions. There are two types of racks, for the base mounted and shock mounted transmitters. The base mounted rack consists of the basic RAK-19 rack plus an MS-1901 base. The shock-mounted rack consists of the basic RAK-19 with 4 shock mounts installed in the two bottom channels and 2 shock mounts in the rear rack wall near the upper edge. The main rack structure is of 13 gauge steel, finished with TMC RCAF blue-grey smooth enamel.

A reel-mounted spring (see figure VI-2) is provided for retracting the SBE-8 wiring cable to prevent its cable snagging when the SBE-8 is drawn in and out on its drawer slides.

Two exhaust blowers for the rack forced-air cooling system are installed on the lower part of the rear door. A removable air filter (TMC No. AD-103-9) is inserted in front of the blower. Air intake is in the ceiling of the rack (see figure VI-1) through a removable air filter. (TMC No. AD-103-5).

Four large holes with cover plates are supplied at the bottom of the rack structure (one on either side, one in back, and one in the bottom) for passing out external wiring. Four 5/8 inch diameter knockout holes are located near the top of the rack for bringing the antenna cable out of the rack.

An ac power strip is located on the right inside rack wall for distribution of line voltage to the components.

VI-4. INTERCONNECTING CABLE INSTALLATION.

To assemble the SBT-350V(A) cabling, make connections as shown in figures VI-2 and VI-3. Refer to table VI-D for parts included in the shipment as "loose items". This table includes the function of each loose item in the "description" column.

TABLE VI-A. LIST OF MAJOR PARTS, SBT-350V(A).

Qty. per Unit.	TMC Part Number	Title	Description.
1	RAK-19G	Rack	Consists of rack structure and components listed in RAK-19G parts list (Table VI-B).
1	SWR-1K	Standing Wave Ratio Indicator	Consists of unit and parts as described in Part II (SWR-1K Manual), with C302 and C305 capacitors trimmed for 50 ohm transmission lines.
1	PAL-350	Linear Power Amplifier	Consists of RFA-1 Amplifier and PSP-350 power supply units and parts as described in Part III (PAL-350 Manual). Includes loose items as described for PAL-350 in Table VI-D.
1	SBE-8	Transmitting Mode Selector	Consists of an exciter and power supply and parts as described in Part IV (SBE-8 Manual). Includes loose items as described for SBE-8 in table VI-D.
1	MS-157-6S	Blank Panel	10 - 15/32 X 19 inches.
1	MS-157-2S	Blank Panel	3 - 15/32 X 19 inches.
1	MS-157-3S	Blank Panel	5 - 7/32 X 19 inches.

TABLE VI-B. PARTS LIST, RAK-19G EQUIPMENT RACK.

SYM	DESCRIPTION	FUNCTION	TMC PART NUMBER
B701	BLOWER, Axial: 100CFM, 115vac, 60 cycle, single phase.	Rack Cooling	BL-106-2
B702	Same as B701	Rack Cooling	
E701	TERMINAL BLOCK: Barrier type, 4- terminal, 4#6-32 binder head screws, bakelite body.	B701 and B702 blower connections.	TM-102-4
E702	FANNING STRIP: 6 terminal, right angle, right end feed (P/O W705).	E101 (PSP-350) connection	TM-105-6-AR
E703	FANNING STRIP: 14 terminal, right angle, right end feed (P/O W710)	E101 (SBE-8) connection	TM-105-14-AR
J701	CONNECTOR, receptacle: ac, male, 3 - prong (P/O W701)	SBT-350 line voltage input	PL-133-NG
J702	CONNECTOR, receptacle: ac, male, 2 prong.	SBT-350 utility line voltage input	JJ-100
J703	CONNECTOR, receptacle: ac, female, 2 prong w/bracket	Rack ac strip outlet	JJ-170
J704	Same as J703	Rack ac strip outlet	
J705	Same as J703	Rack ac strip outlet	
J706	Same as J703	Rack ac strip outlet	
J707	Same as J703	Rack ac strip outlet	
MP701	FILTER, air: forced air cooling system	Rack exhaust air filter	AD-103--9
MP702	FILTER, air: forced air cooling system	Rack intake air filter	AD-103-5
P703	CONNECTOR, plug: rf coaxial, BNC series (P/O W703)	Mates with CP703 and J203 (RFA-1)	UG-260/U

TABLE VI-B. PARTS LIST, RAK-19G EQUIPMENT RACK. (Cont'd)

SYM	DESCRIPTION	FUNCTION	TMC PART NUMBER
P704	Same as P703	Mates with J103 (SBE-8)	
P705	CONNECTOR, plug: MIL type MS3106B28-11P, male. (P/O W710)	Mates with J105 (APP-5)	MS3106B28-11P
P706	See table VI-D		
P707	CONNECTOR, plug: rf coaxial, UHF series, teflon dielectric (P/O W707)	Mates with CP702 and J205 (RFA-1)	PL-259A-TEF
P708	CONNECTOR, plug: rf coaxial, QDS series, teflon dielectric (P/O W707)	Mates with J304 (SWR-1K)	PL-149
P709	CONNECTOR, plug: male, 2 prong (P/O W702)	Mates with J706. line voltage to blowers	PL-171
S701	SWITCH, micro: push-pull type	Safety interlock link. Works from rack door.	SW-230
W701	CABLE, ac power: consists of 3 conductor power wire, 30 inches long with 3 terminal lugs.	J701 (rack) to APP-5 ac input.	CA-604
W702	CABLE, ac power: consists of 2 conductor coiled power wire, 1 foot long retracted, P709 and 2 terminal lugs.	J706 (power strip) to E701 (blower)	CA-575-2
W703	CABLE, rf: consists of RG-59/U coaxial cable, 120 inches long, P703 and P704	J103 (SBE-8) to J203 (RFA-1)	CA-480-6-120
W704	Not used.		
W705	CABLE, harness: consists of wiring as shown in figure VI-8, E702 and terminal lugs.	Interconnections, PSP-350, APP-5, S701 and J702.	CA-736
W706	Not used.		
W707	CABLE, rf: consists of RF-8/U coaxial cable, 36 inches long, P707 and P708	J205 (RFA-1) to J304 (SWR-1K)	CA-512-6

TABLE VI-B. PARTS LIST, RAK-19G EQUIPMENT RACK. (Cont'd)

SYM	DESCRIPTION	FUNCTION	TMC PART NUMBER
W70S-9	Not used.		
W710	Not used.		

TABLE VI-C. PARTS LIST, APP-5 AUXILLARY POWER PANEL.

SYM	DESCRIPTION	FUNCTION	TMC PART NUMBER
C501	CAPACITOR, fixed: ceramic dielectric, 1000uuf \pm 20%, char. A.	rf bypass	CK70A102M
C502 THRU C520	Same as C501	rf bypass	
C521	CAPACITOR, fixed: mica dielectric, 0.01uf \pm 10%, char. B.	rf bypass	CM35B103K
C522	Same as C521	rf bypass	
C523	Same as C521		
C524	Same as C521		
CB501	CIRCUIT BREAKER: dual type, calibrating tap, 15 amps, 60 cycle, 230vac.	SBT-350V(A) MAIN POWER switch	SW-283
E501	TERMINAL BLOCK: Barrier type, 16 terminals, 16#6-32 binder head screws.	SBT-350V(A) external connections	TM-100-16
E502	Same as E501		
F501	FUSE, cartridge: hi-rating, 15 amps, 250 max. voltage, medium blow time.	UTILITY POWER fuse	FU-103-15
F502	Same as F501		
I501	LAMP, incandescent: 120 volts, 3 watts, S-6 clear bulb, bayonet base.	MAIN POWER indicator	BI-102-3
J501	CONNECTOR, receptacle: MIL type MS3102A28-22S, female	Main APP-5 connector	MS3102A28-11S
J502	CONNECTOR, receptacle: ac power, grounding type.	UTILITY OUTLET	JJ-173
J503	Same as J502		
L501	COIL, fixed: rf 150uh \pm 10%, 100ma	Choke, rf	CL-140-2

TABLE VI-C. PARTS LIST, APP-5 AUXILLARY POWER PANEL. (Cont'd)

SYM	DESCRIPTION	FUNCTION	TMC PART NUMBER
L502 THRU L520	Same as C501		
L521	COIL, fixed: rf, $2\mu\text{h} \pm 0.1\mu\text{h}$, Q 200 or more at 7.9MHz.	Choke, rf	CL-269
L522	Same as L521		
R501	SHUNT ASSEMBLY: consists of shunt, 0.011 ohm $\pm 5\%$ - 1% , max. current 10 amps, and fixed resistor, TMC # RW- 109-28, W.W. 2K, 10W.	115 to 230v conversion	AR-134
R502	Same as R501		
R503	RESISTOR, fixed: wire-wound, 5K, 10 watts	Voltage dropping	RW-109-32
XF501	HOLDER, fuse: extractor post, for 1/4 inch by 1 1/4 inch fuse cartridge	F501 socket	FH-100-1
XF502	Same as XF501	F502 socket	
XI501	SOCKET, lamp: for S-6 bayonet base bulb, with red lens.	I501 socket	TS-124-1

TABLE VI-D. SHIPPING LIST. SBE-350V(A).

NOTE - In some shipments, small items may arrive pre-assembled together.

CRATE NO.	QTY	TRC PART NUMBER	DESCRIPTION
1	1	RAK-19G	Equipment rack with CA-604, CA-736, CA-575-2 and CA-588-1 cables, BL-106-2 blowers and TM-102-4 terminal block installed.
	1	CA-10136-72 (P/O PAL-350)	Cable assembly, J102 (PSP-350) to J201 (RF4-1), multiple conductor cable, 72 inches long, with PL-160-P (P101) and PL-160-S (P102) plugs. (See figure VI-5).
	1	CA-435-3 (P/O PAL-350)	Cable assembly, 2 conductor power cable for PSP-350, coiled, 7 inches long retracted, with PL-100 (P104) and PL-171 (P103) plugs.
	1	CA-346-8-9 (P/O SBE-8)	Cable assembly, J402 to J109, multiple conductor cable, 8 feet 9 inches long, with MS-3106B20-27P (P101) and MS-3106-B20-27S (P102) plugs.
	1	CA-480-6-120 (P/O RAK-19G)	Cable assembly, J103 (SBE-8) to CP703 at J203 (RF4-1), consists of RG-59/U cable, 120 inches long, with UG-260/U (P703) and UG-260/U (P704) plugs.
	1	CA-507-3 (P/O RAK-19G)	Cable interconnecting, SBE-8 to APP-5.
	1	CA-736 (P/O RAK-19G)	Harness assembly, E101 (PSP-350) utility ac input and E501 (APP-5), S701 and J702 (RAK-19G).
	1	CA-605-1 (P/O SBE-8)	Cable assembly, 2 conductor power cable, 30 inches long, with PL-100 plug (P401) and terminal lugs. From J401 to ac output terminals on APP-5.
	1	PL-132-3 (P/O SBE-8)	Connector, plug, for MIKE jack J101 on control panel.

TABLE VI-D. SHIPPING LIST, SBT-350V(A). (Cont'd).

CRANE NO.	QTY	TWO PART NUMBER	DESCRIPTION
	1	CA-512-6 (P/O RAK-19G)	Cable assembly, CP-702 at J205 (RFA-1) to J304 (SWR-K). Consists of RG-8/U cable, 36 inches long, with PL-259A-TEF (P707) and PL-149 (P708) plugs.
1	1	PL-149 (P708, P/O SBT-350V(A)).	Connector, plug, rf, for J305 ANTENNA output on SWR-1K. Series QDS, male, universal.
	1	UG-646/U (CP702, P/O SBT-350V(A)).	Right angle adapter, series UHF, J205 (RFA-1) to PL-259A-TEF (P707) on CA-512-6 cable.
	1	UG-646/U (CP703, P/O SBT-350V(A)).	Right angle adapter, series UHF, J203 (RFA-1) to UG-260/U (P703) on CA-480-6-120 cable.
	1	PL-134-NG (P701, P/O SBT-350V(A)).	Connector, plug, for J701 ac input receptacle, female, 3 prong.
	1	PL-100 (P702, P/O SBT-350V(A)).	Connector, plug, for J702 ac utility input receptacle, female, 2 prong.
	1	MS-157-2S (P/O SBT-350V(A)).	Blank panel, 3 1/2 X 19 inches.
	1	MS-157-6S (P/O SBT-350V(A)).	Blank panel, 10 1/2 X 19 inches.
	1	MS-157-3S (P/O SBT-350V(A)).	Blank panel, 5 1/4 X 19 inches.

APPENDIX D. SHIPPING LIST, SBT-350V(A). (Cont'd).

CRATE NO.	QTY	TMC PART NUMBER	DESCRIPTION
	4	SC-142-C (P/O SBT-350 V(A)).	Eyebolt - for hoisting transmitter.
	24	SCDP1032BN3 (P/O SBT-350 V(A)).	Machine screw - attachment of components.
	24	WA-101-11 (P/O SBT-350 V(A)).	Washer, flat, fiber - attachment of components.
2	1	RPA-1 (P/O PAL-350)	Linear Power Amplifier Unit.
	1	A-1397 (P/O SBE-8)	Transmitting Mode Selector Power Supply Unit.
3	1	PSP-350 (P/O PAL-350)	Linear Power Amplifier Power Supply Unit.
	1	A-1516 (P/O SBE-8)	Transmitting Mode Selector Exciter Unit.
4	1	SWR-1K	Standing Wave Ratio Indicator Unit.

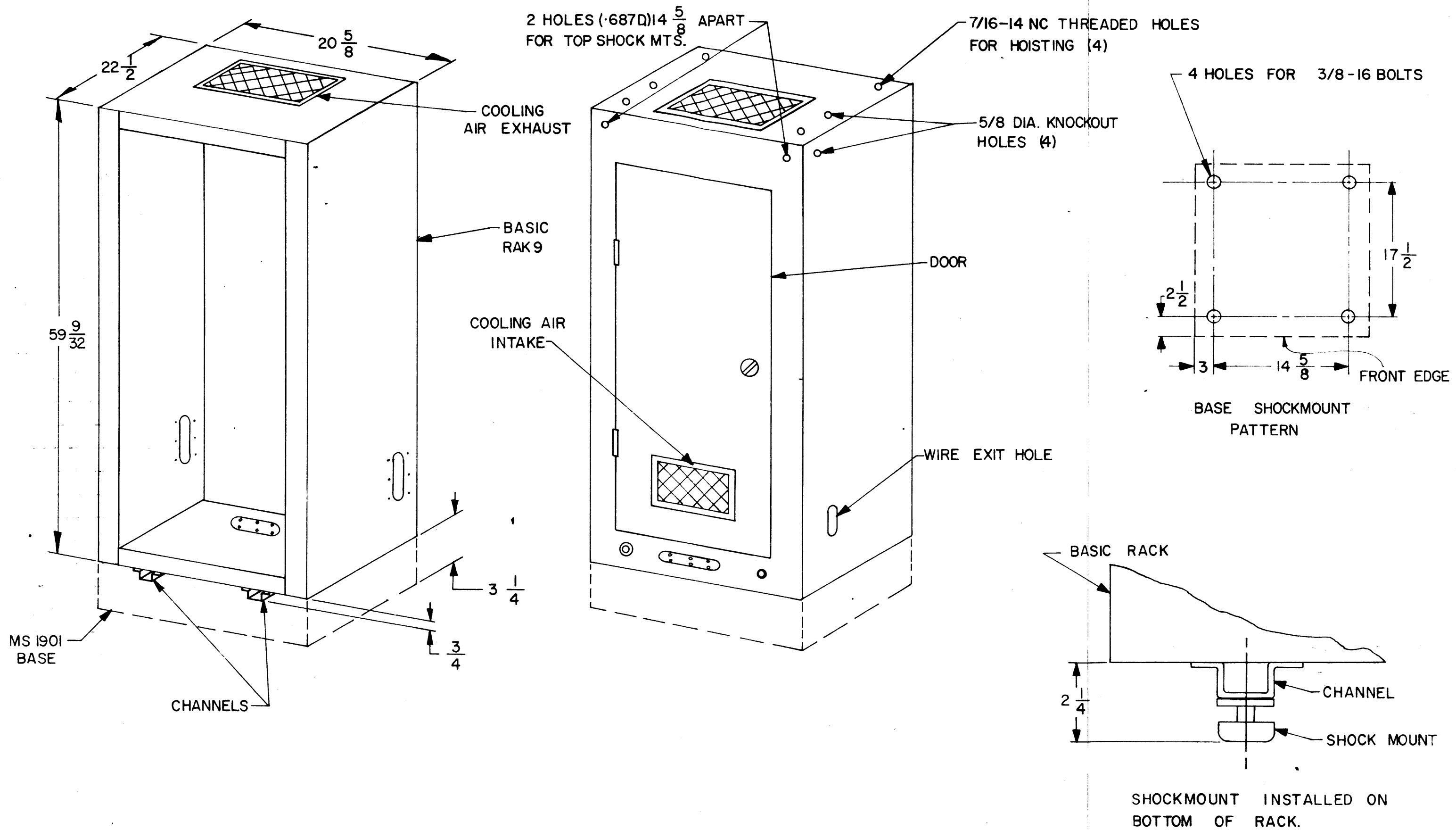


FIGURE VI-1. SBT-350 V(A) EQUIPMENT RACK, MODEL RAK-19G

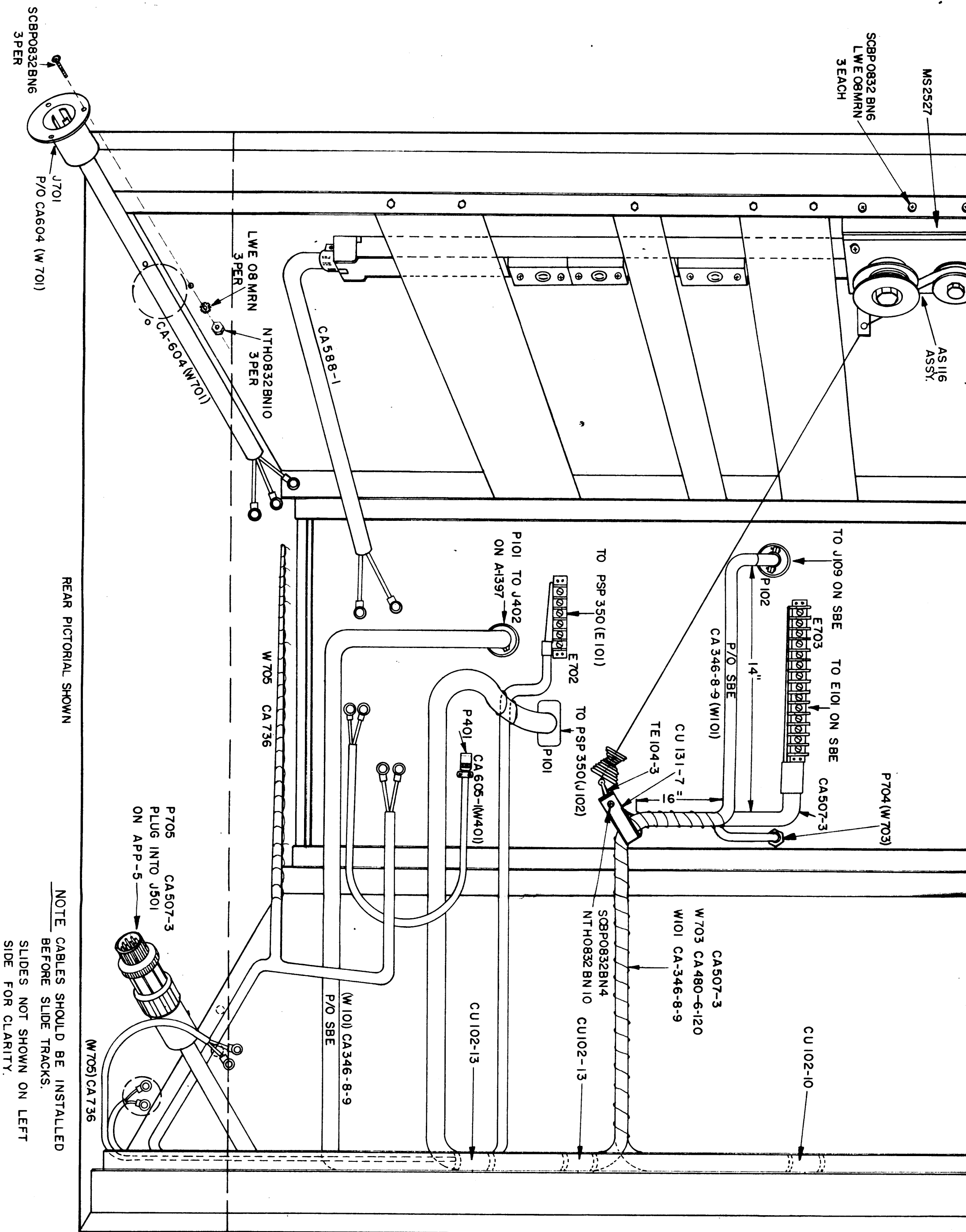
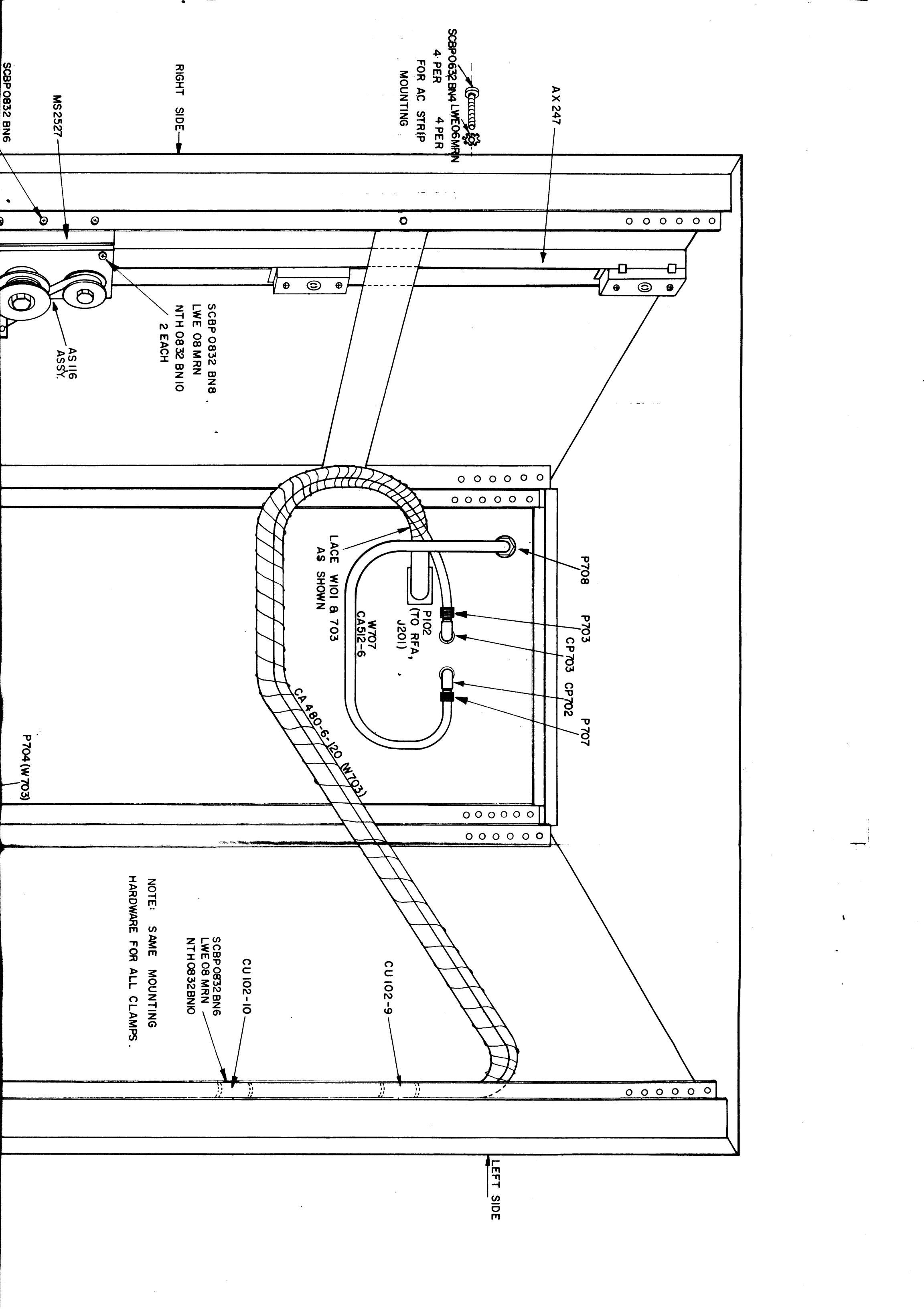
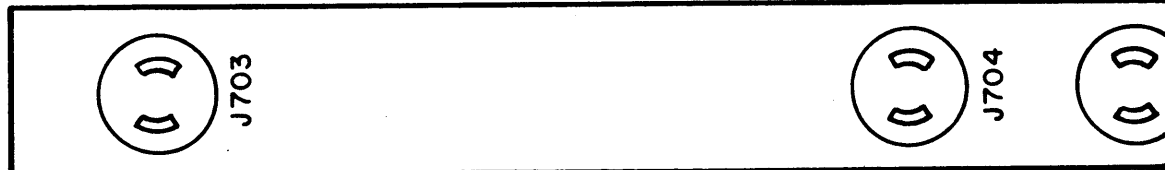


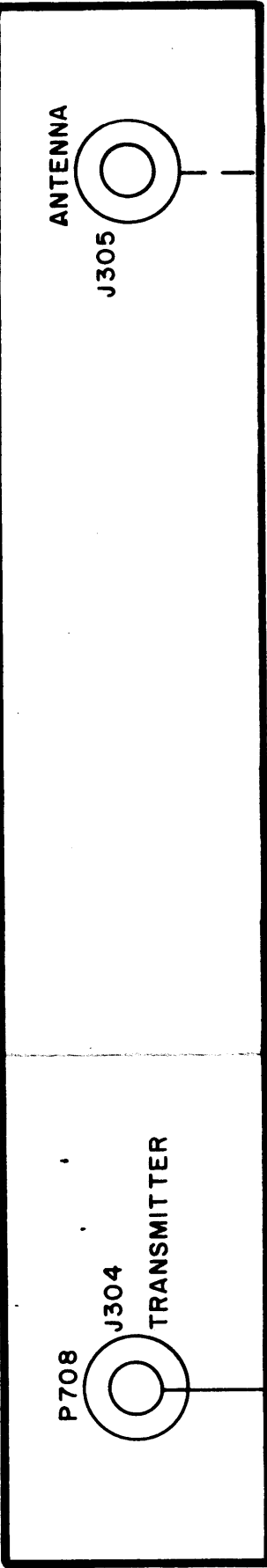
FIGURE VI-2 CABLING INSTALLATION PICTORIAL



AX-247



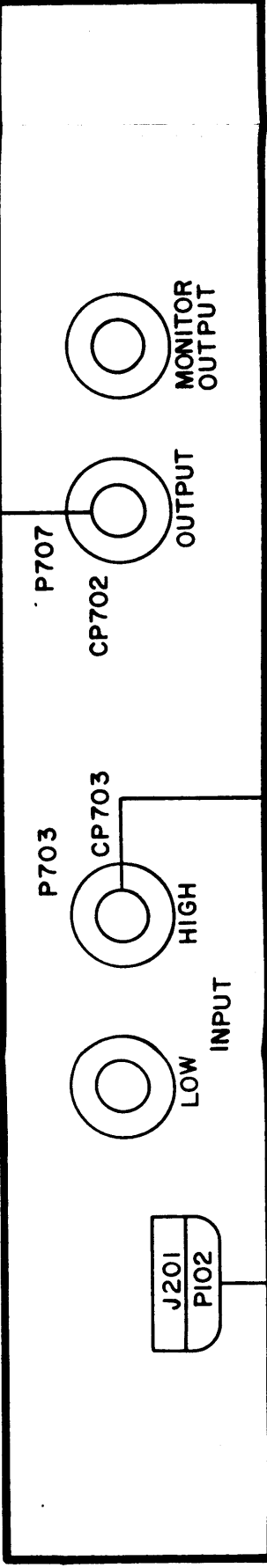
SWR-1K



W707 (CA 512-6)

P706 (PL149)
SUPPLIED AS
LOOSE ITEM

RFA-1



W101

W703 (CA 480-6-120)

SBE-8

RF MONITOR



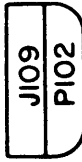
J704



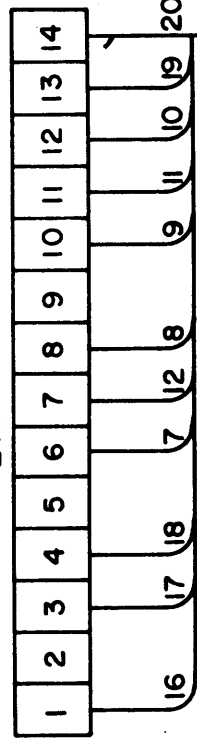
J705

W703 (CA 480-6-120)

SBE-8

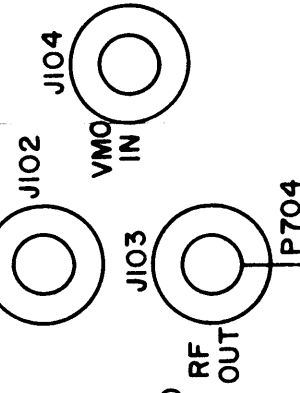


E101



E703

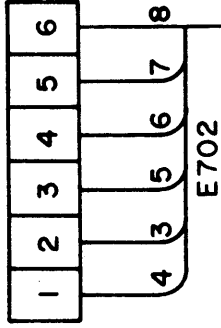
RF MONITOR



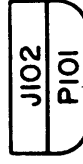
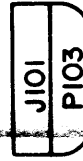
W703 (CA 480-6-120)

W101 (CA 346-8-9 P/O SBE)

PSP-350



E702



W101 (CA10136-110 - P/O PSP-350)

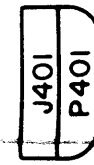
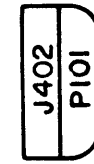
W101

W705 (CA-736)

W102 (CA435-3 - P/O PSP-350)

W102

P/O SBE-8



W101 (CA 346-8-9) P/O SBE

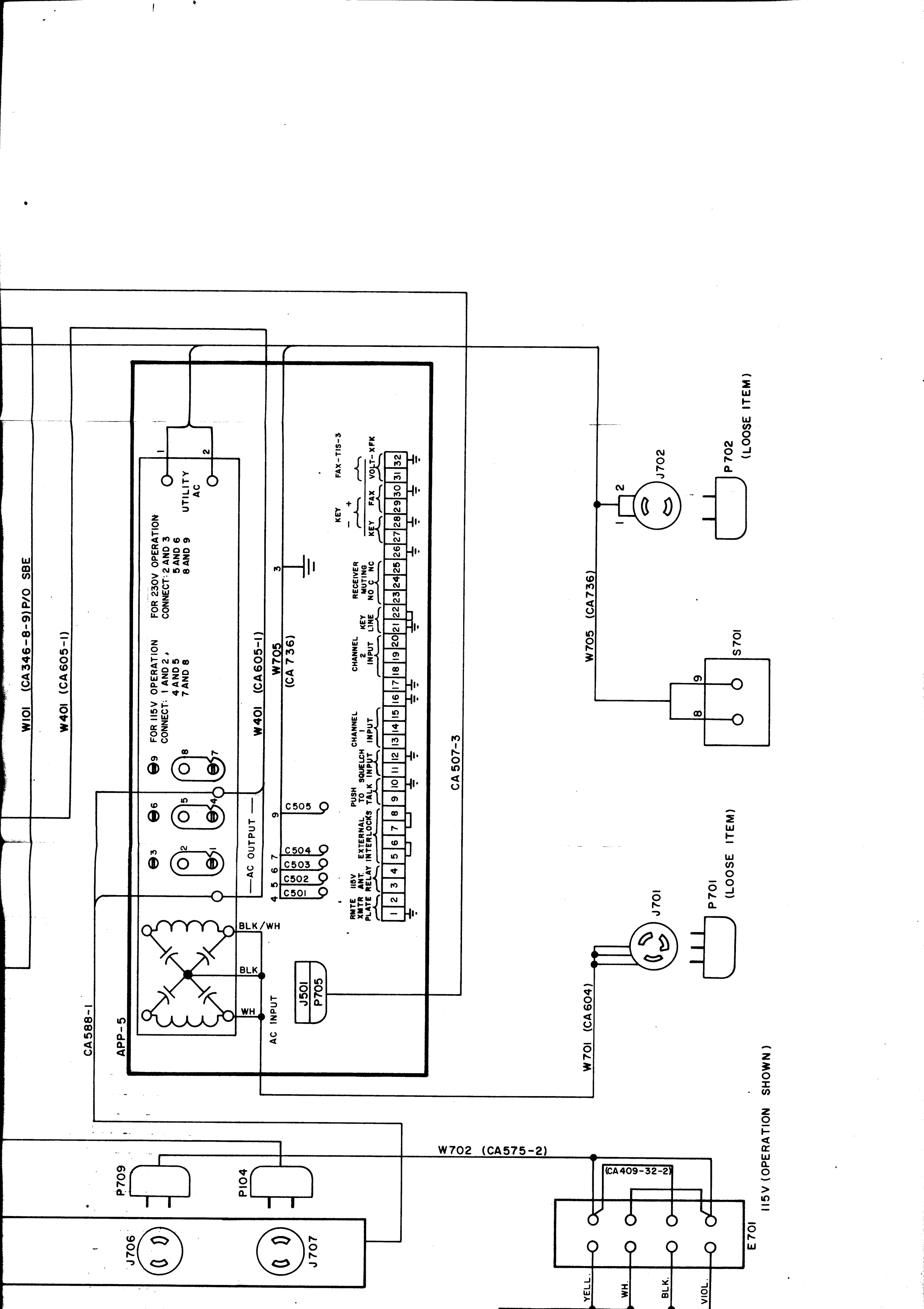
W401 (CA 605-1)

CA588-1

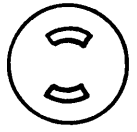
APP-5

P709

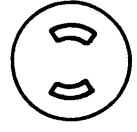
J706



AX-247



J703



J704



SWR-1K



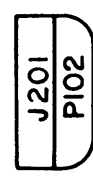
P708

J304

TRANSMITTER

W707 (CA 512-6)

RFA-1



J201

P102

LOW

W101

SBE-8

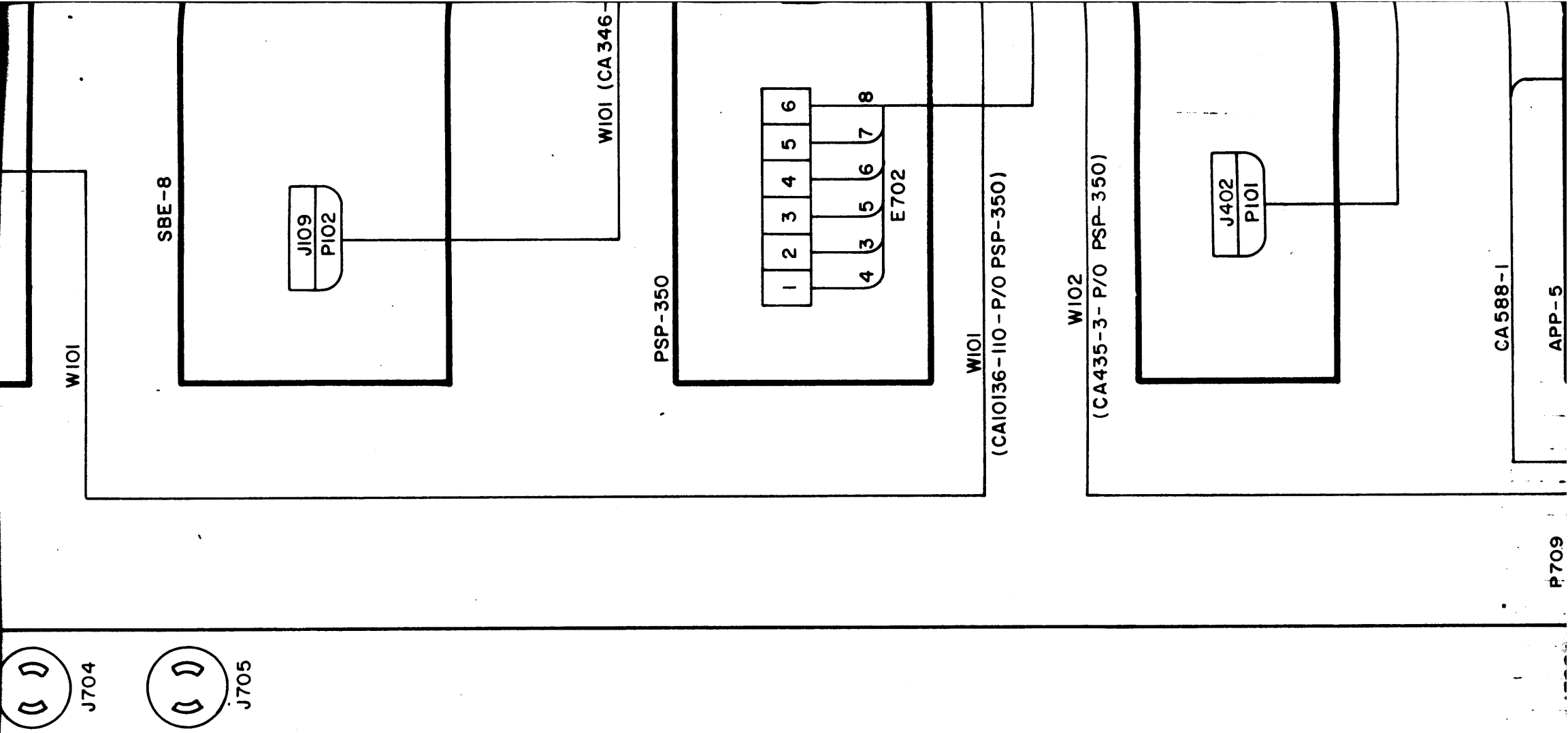
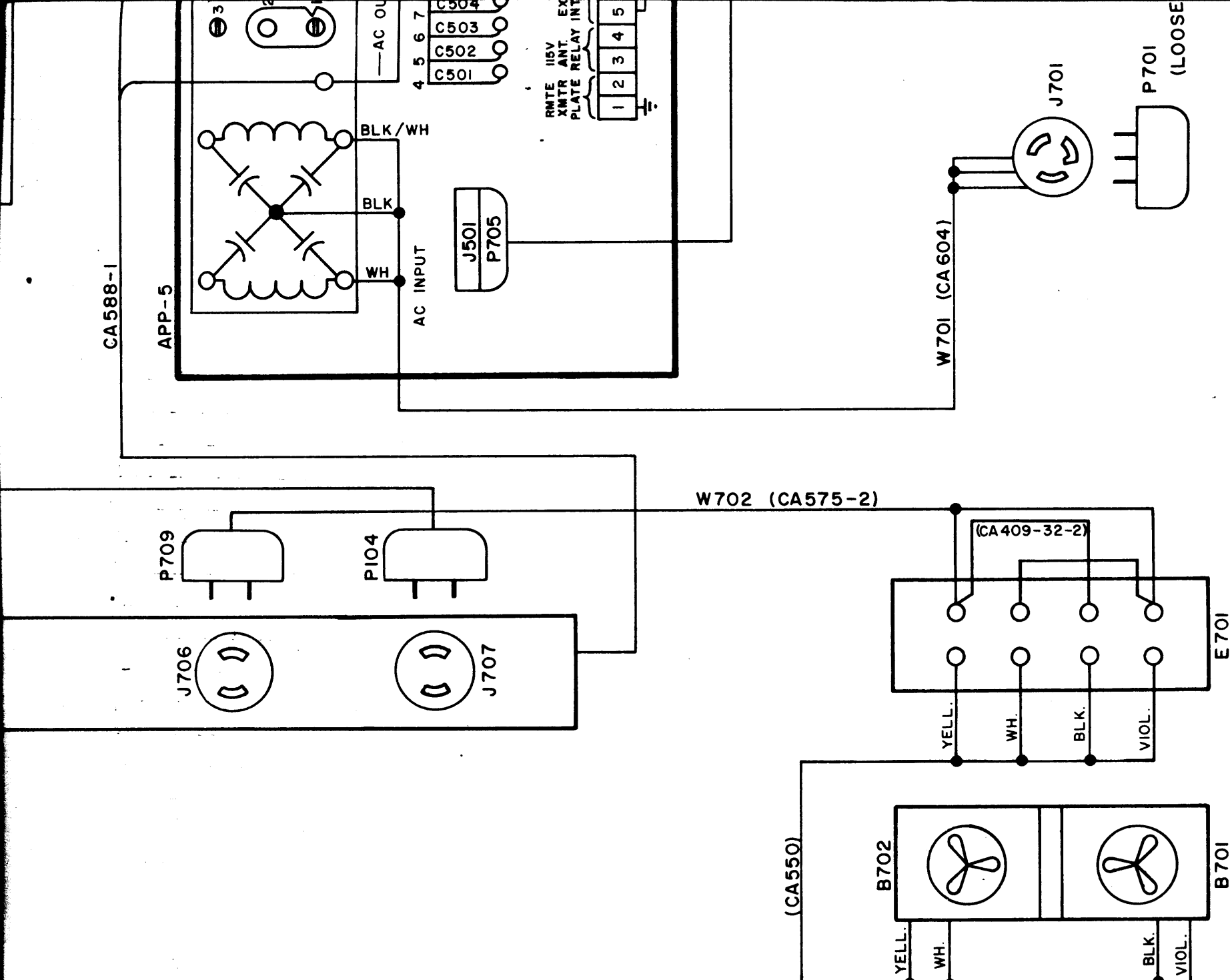


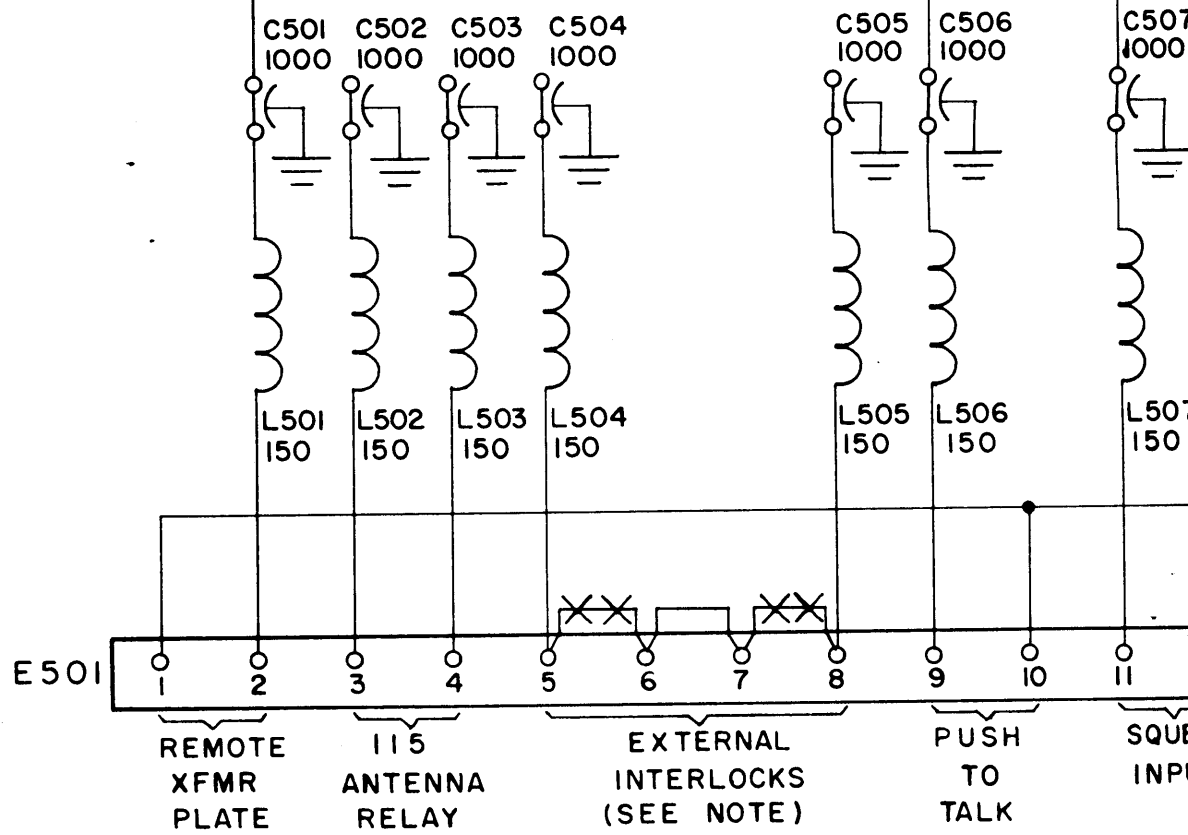
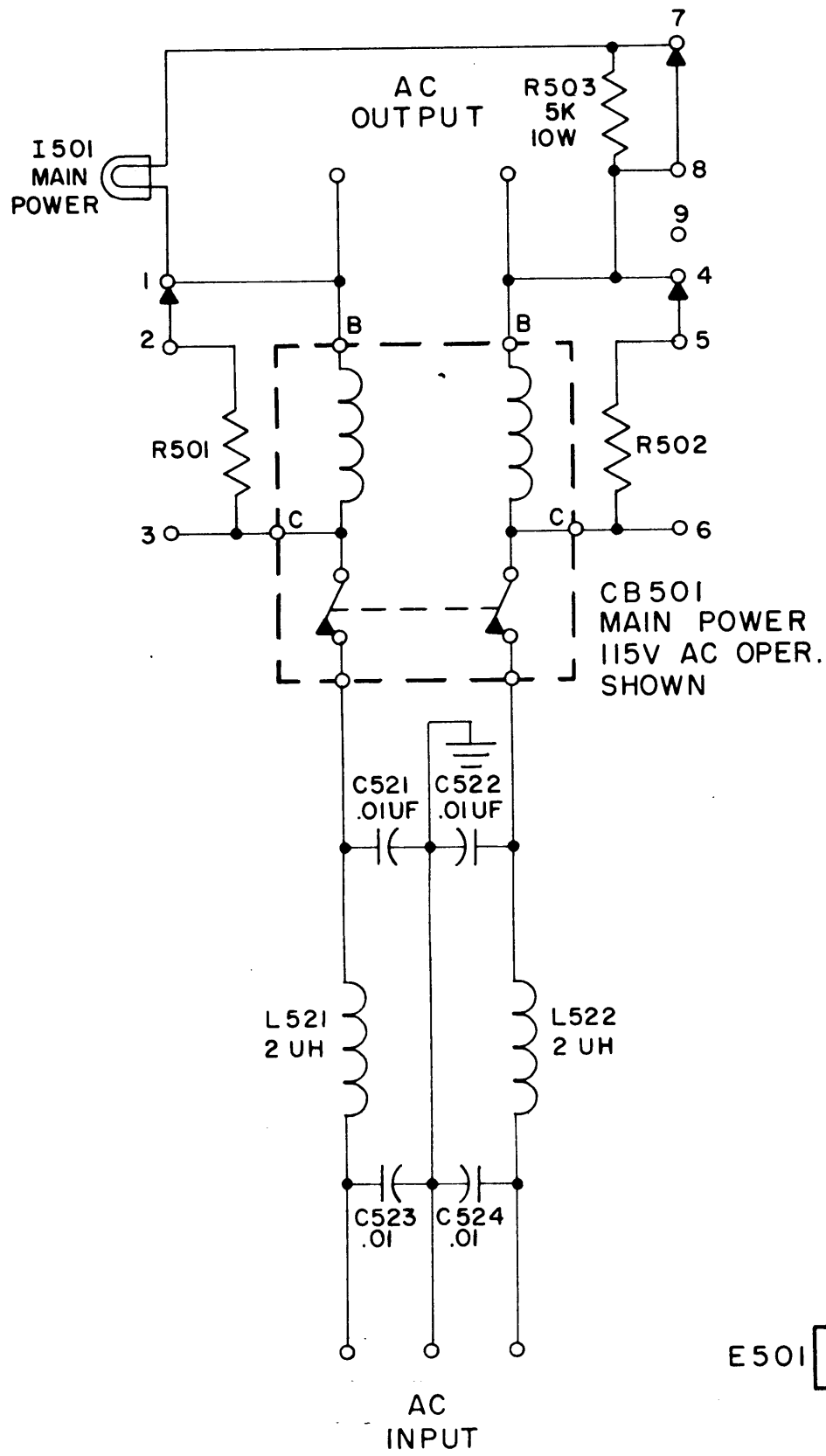
FIGURE VI-3 SBT-350V(A) CABLE INSTALLATION DIAGRAM



115V (OPERATION SHOWN)

FOR 230V AC OPERATION OF CB 501

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



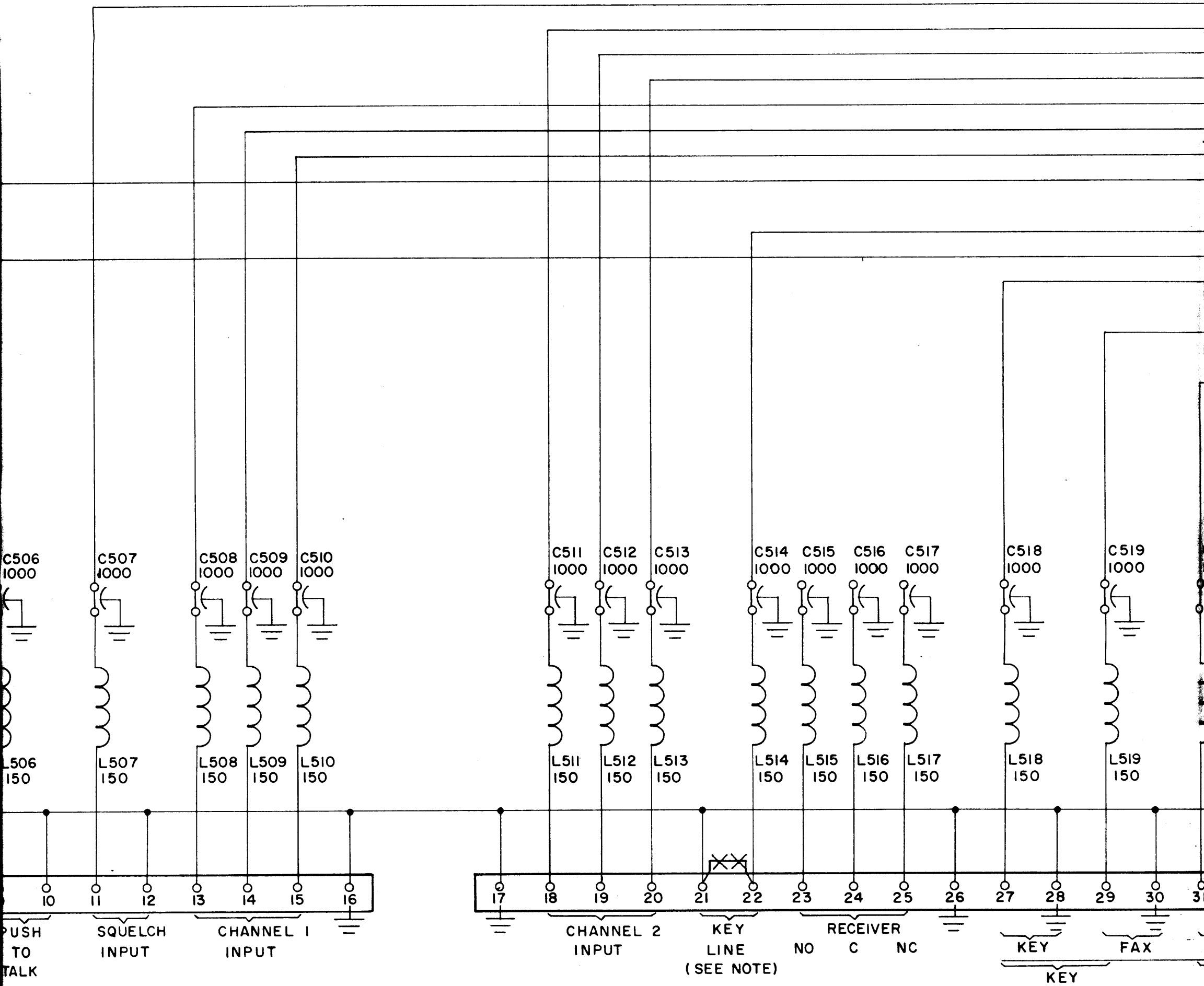
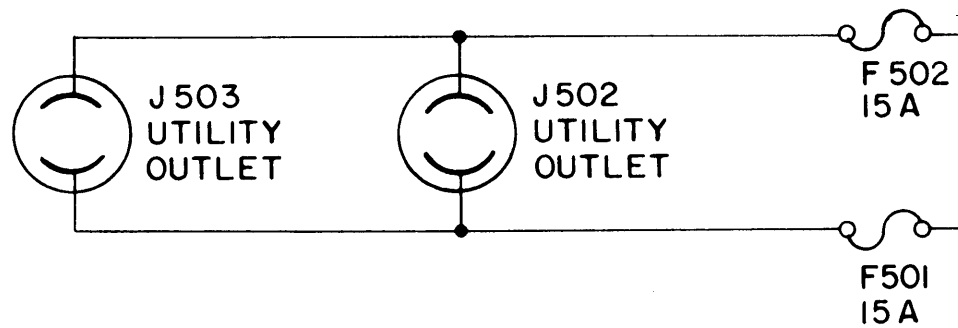
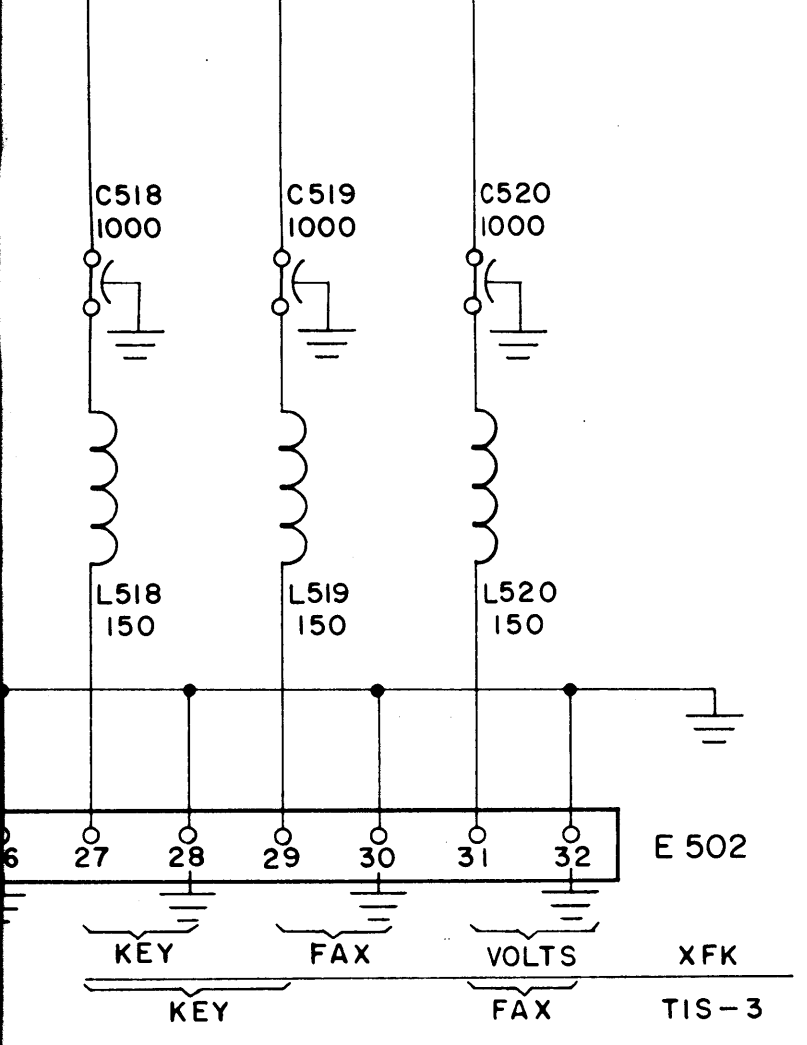
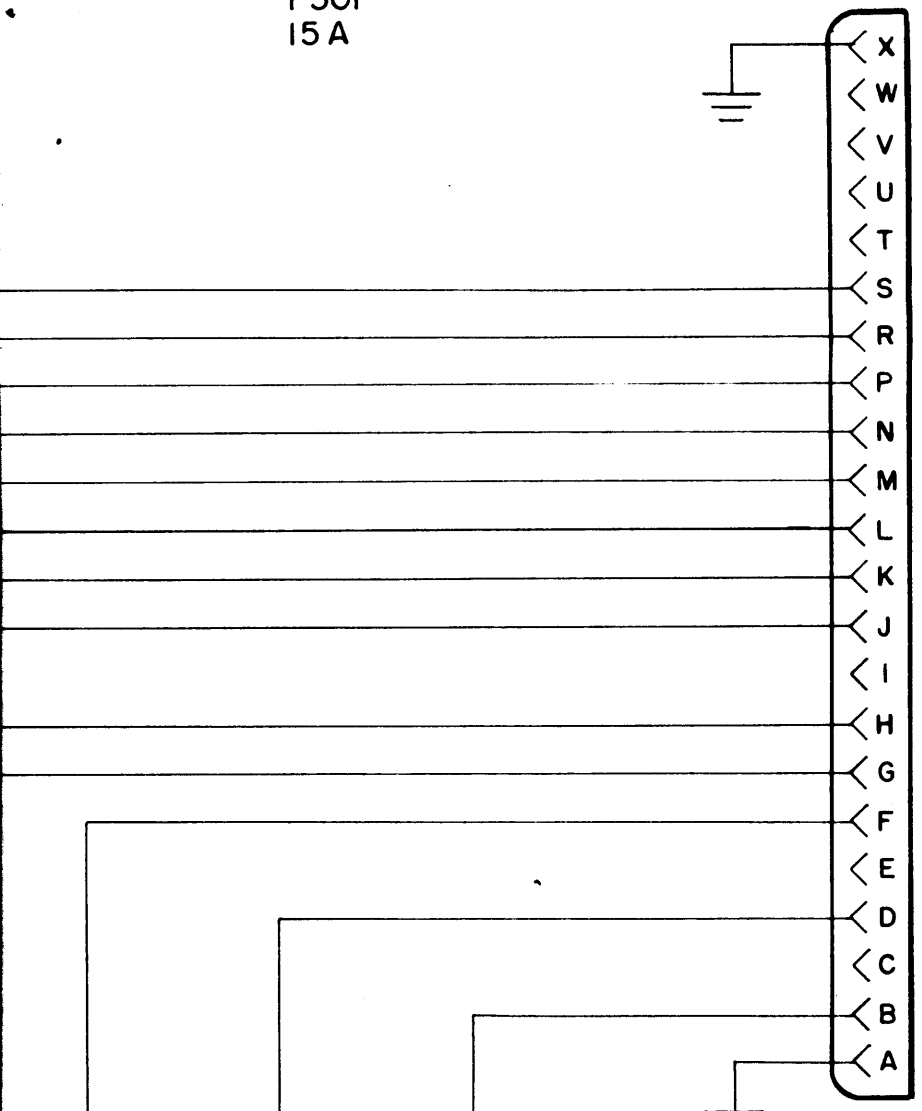
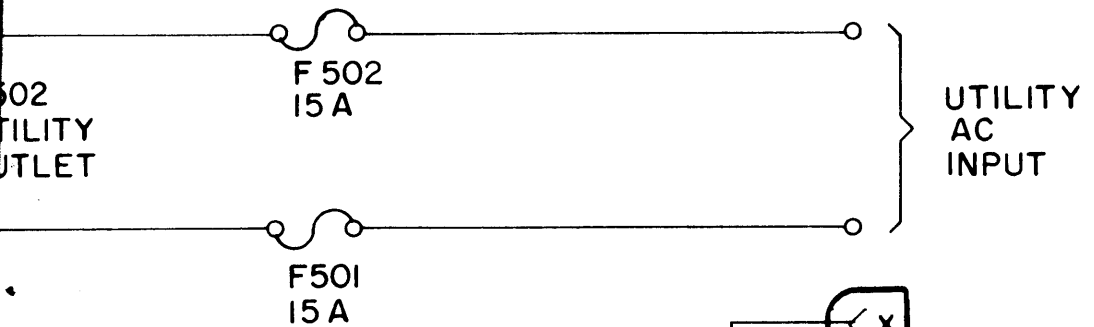


FIGURE VI-4 APP-5 SCHEMATIC WIRING

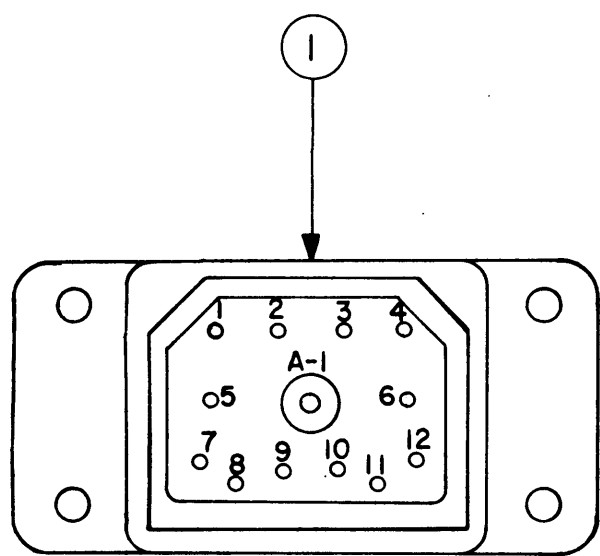


NOTE

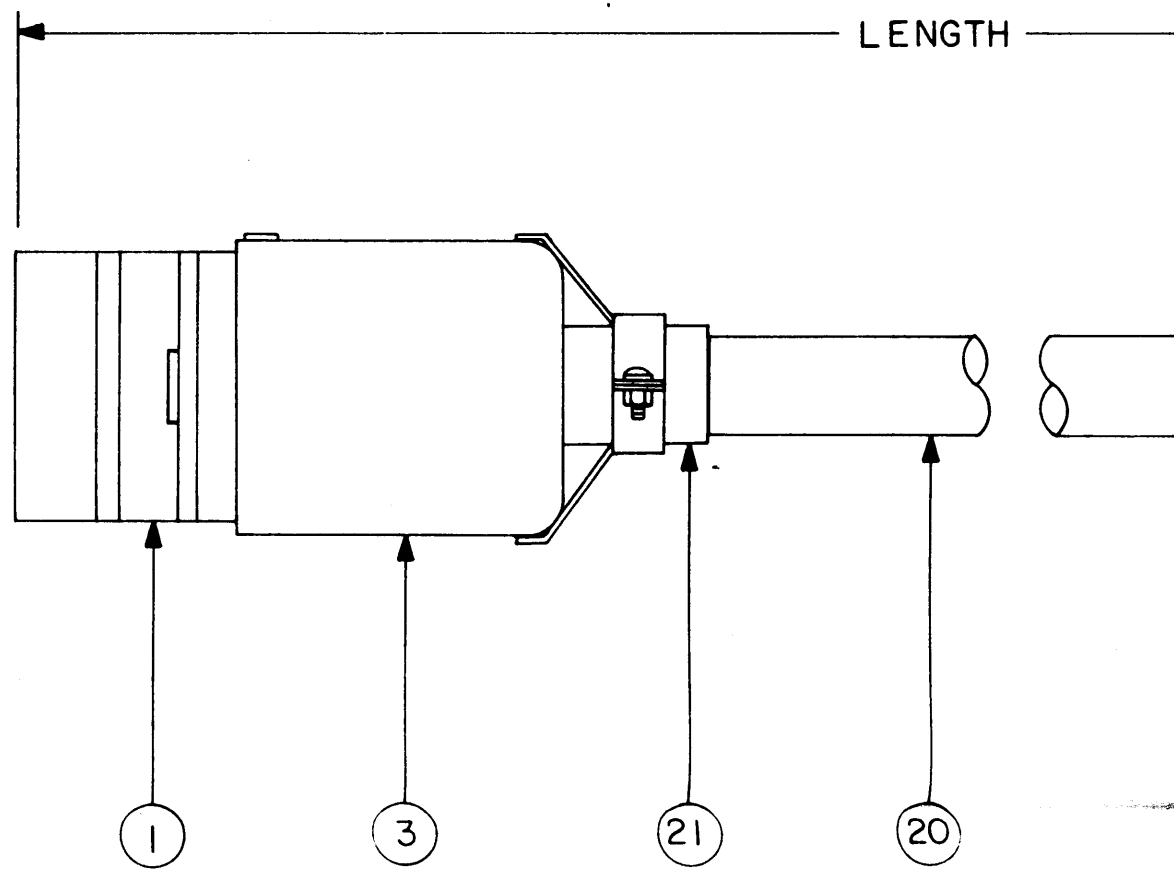
WHEN EXTERNAL INTERLOCKS AND/OR KEYLINE IS USED. REMOVE JUMPERS MARKED ~~XX~~ FROM TERMINALS 5 & 6 7 & 8 AND 21 & 22.

UNLESS OTHERWISE SPECIFIED

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

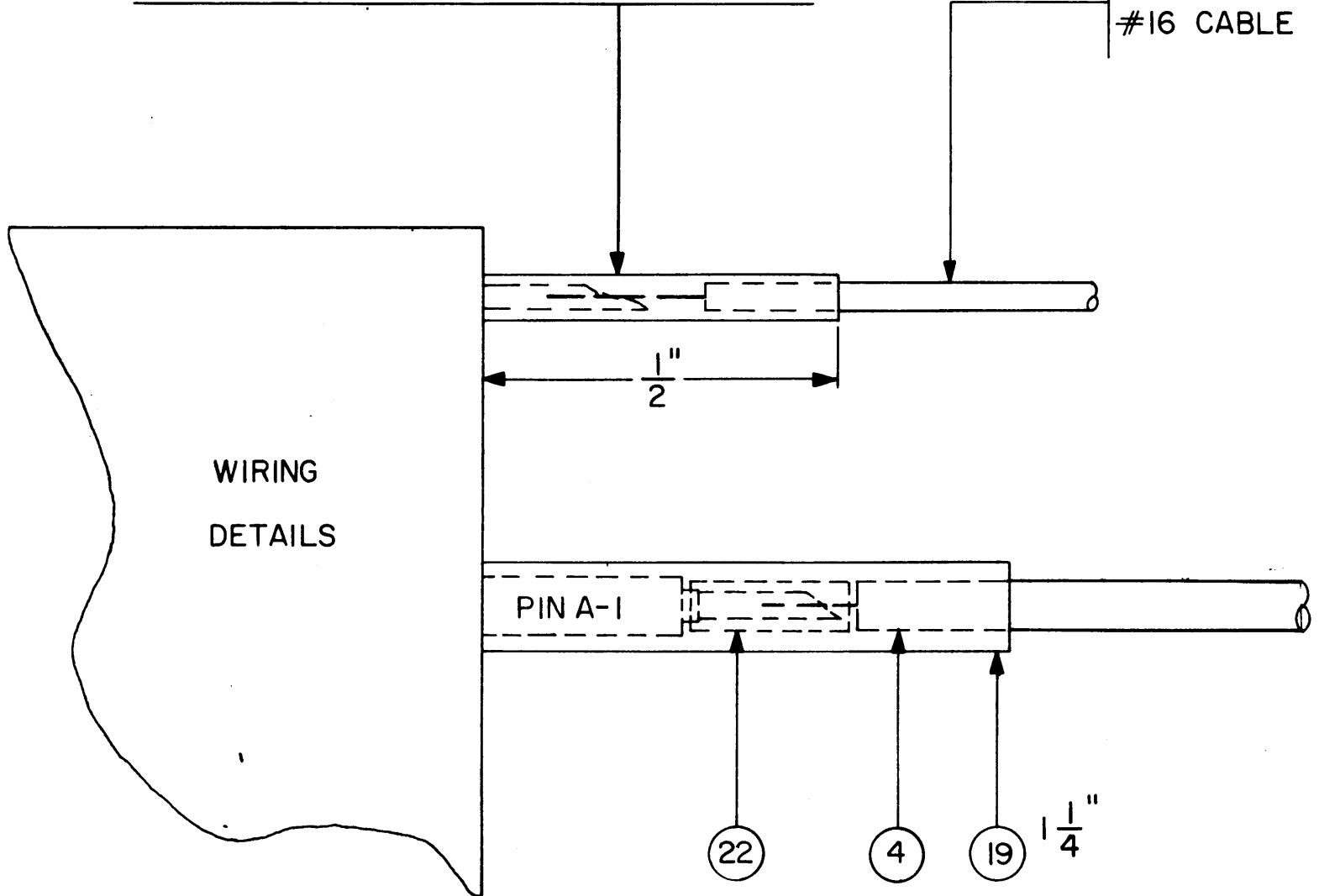


CONTACT CODE
 ○ SOCKET (FEMALE)
 ● PIN (MALE)



ITEM# 18 SLEEVING FOR ALL #22 CABLE
 ITEM# 18 SLEEVING FOR ALL #16 CABLE

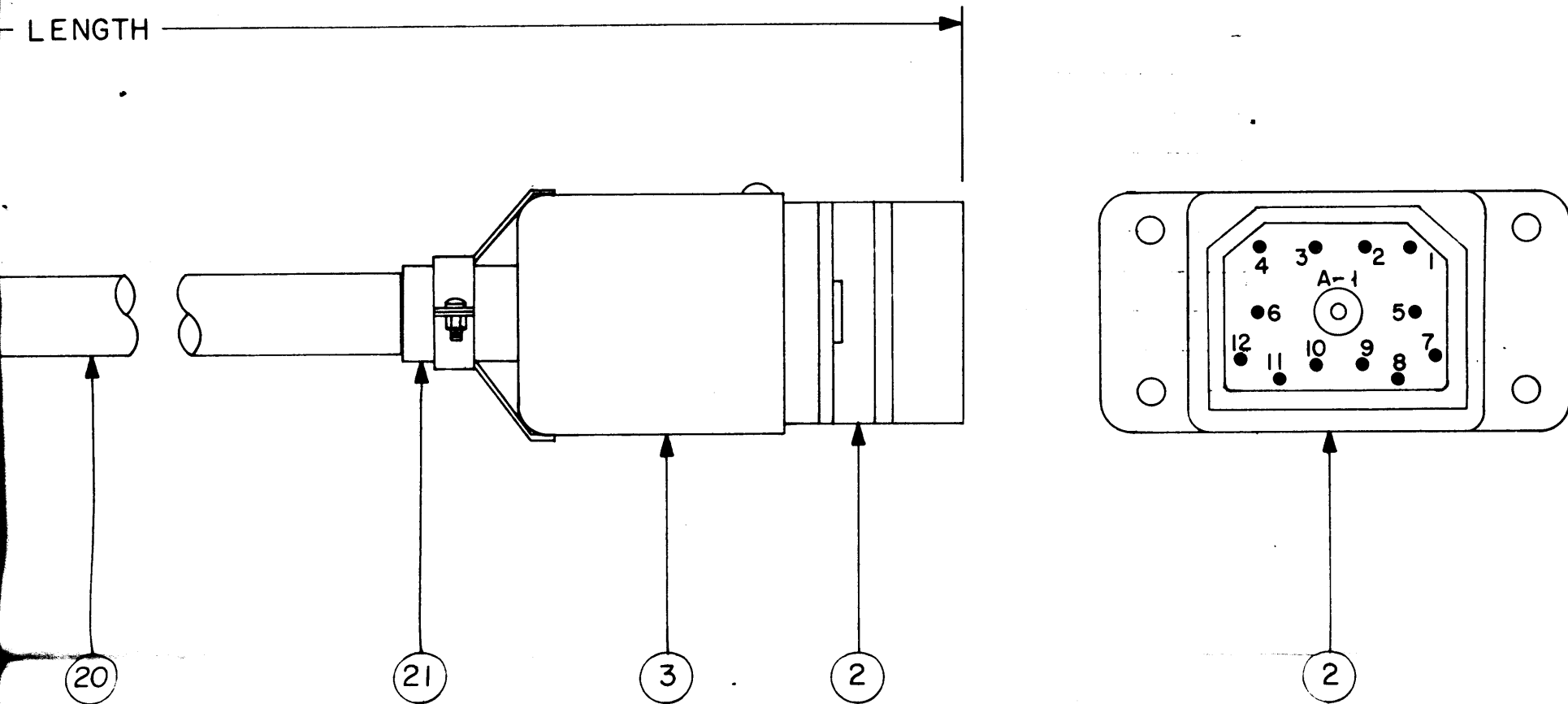
#22 CABLE (AS PER CHAP
 FOR PINS 1,3,4,5,6,8,9,
 #16 CABLE FOR PINS 2,8



NOTE AFTER SOLDERING, WIND THREE TURNS OF TAPE (ITEM 22)
 AROUND CONNECTION, THEN SLIP SLEEVING (ITEM 19) ON
 AS SHOWN. (PIN A-1 ONLY)
 AFTER TAPING, THERE WILL BE NO BARE WIRE SHOWING.

FIGURE VI-5. DWG. CA 10136, CABLE W

LENGTH



CABLE (AS PER CHART)
 PINS 1,3,4,5,6,8,9,10,11,12.

RECEPTACLE FOR PINS 2 & 7.

WIRING CHART	
ITEM NO.	CONNECT PINS
4	A-1 TO A-1
5	1 TO 1
6	2 TO 2
7	3 TO 3
8	4 TO 4
9	5 TO 5
10	6 TO 6
11	7 TO 7
12	8 TO 8
13	9 TO 9
14	10 TO 10
15	11 TO 11
16	12 TO 12

TYPE DESIGNATION TO BE AS FOLLOWS

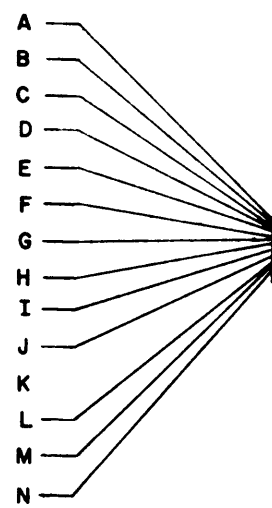
CA 10136-72

T M C DRAWING NO.

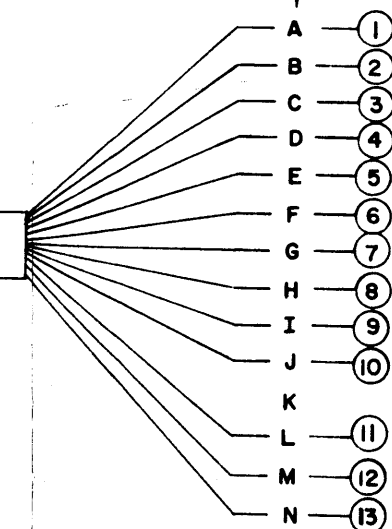
REQD. LENGTH (INCHES)

(LENGTH WILL ALWAYS BE EXPRESSED
 TO THE NEAREST INCH)

①⑥
AN3106B20-27P
PIN NO'S

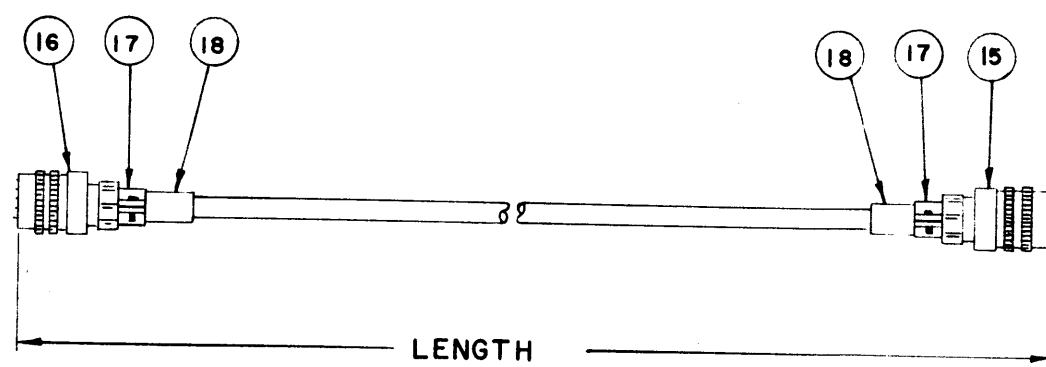


①⑤
AN3106B20-27S
PIN NO'S



①④

NOTE:
BLANK WIRE LENGTH (INCLUDING STRIPPING)
SHOULD BE 2" SHORTER THAN TOTAL
LENGTH REQUIRED (END TO END)



CA - 346 - 3-9
TMC BASIC NO. LENGTH IN FEET & INCHES
EX: 3-9 = 3 FEET & 9 INCHES

FIGURE VI-6. DWG-346, CABLE WIRING DIAGRAM

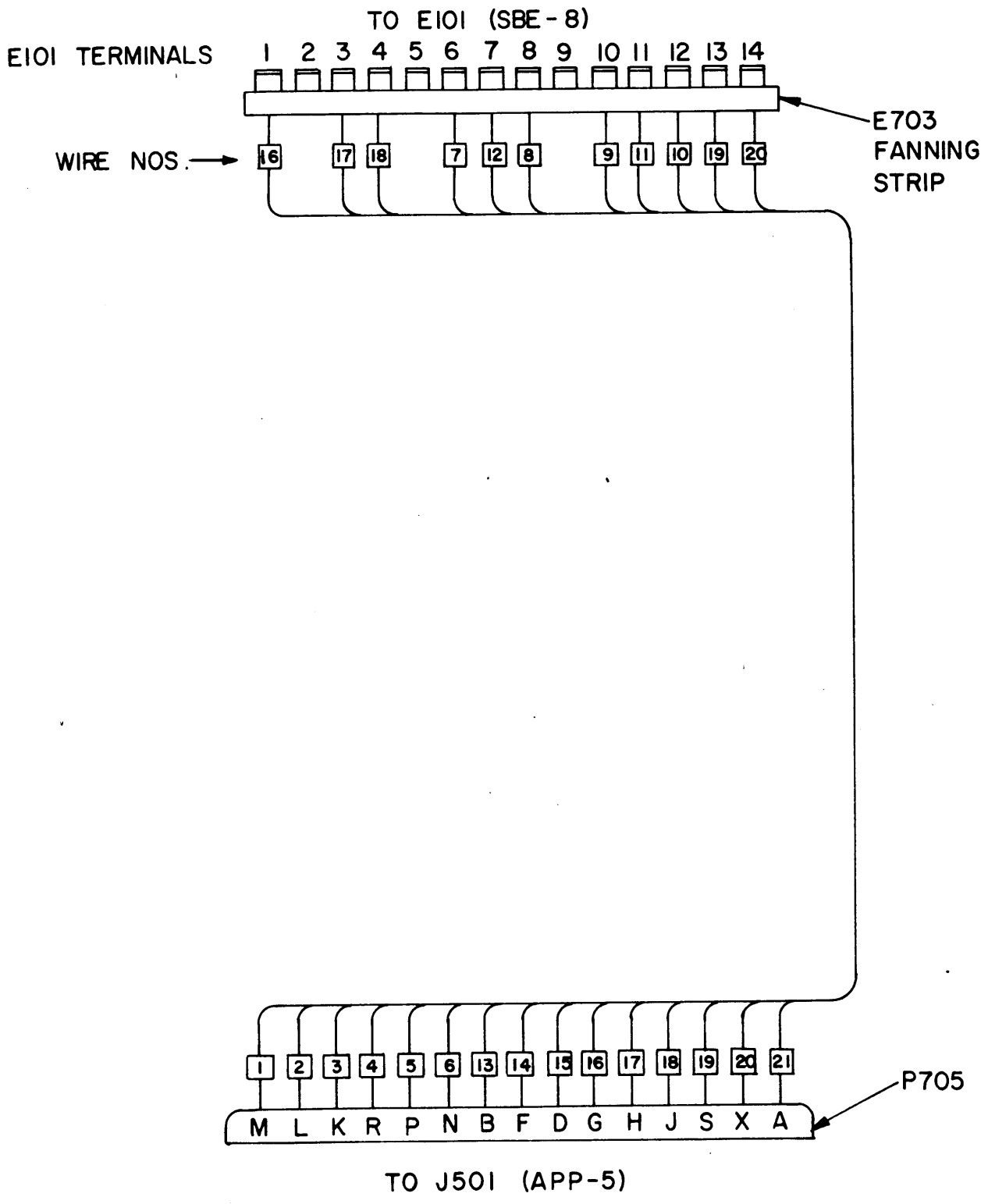


FIGURE VI-7. CA-507-3 CABLE WIRING DIAGRAM

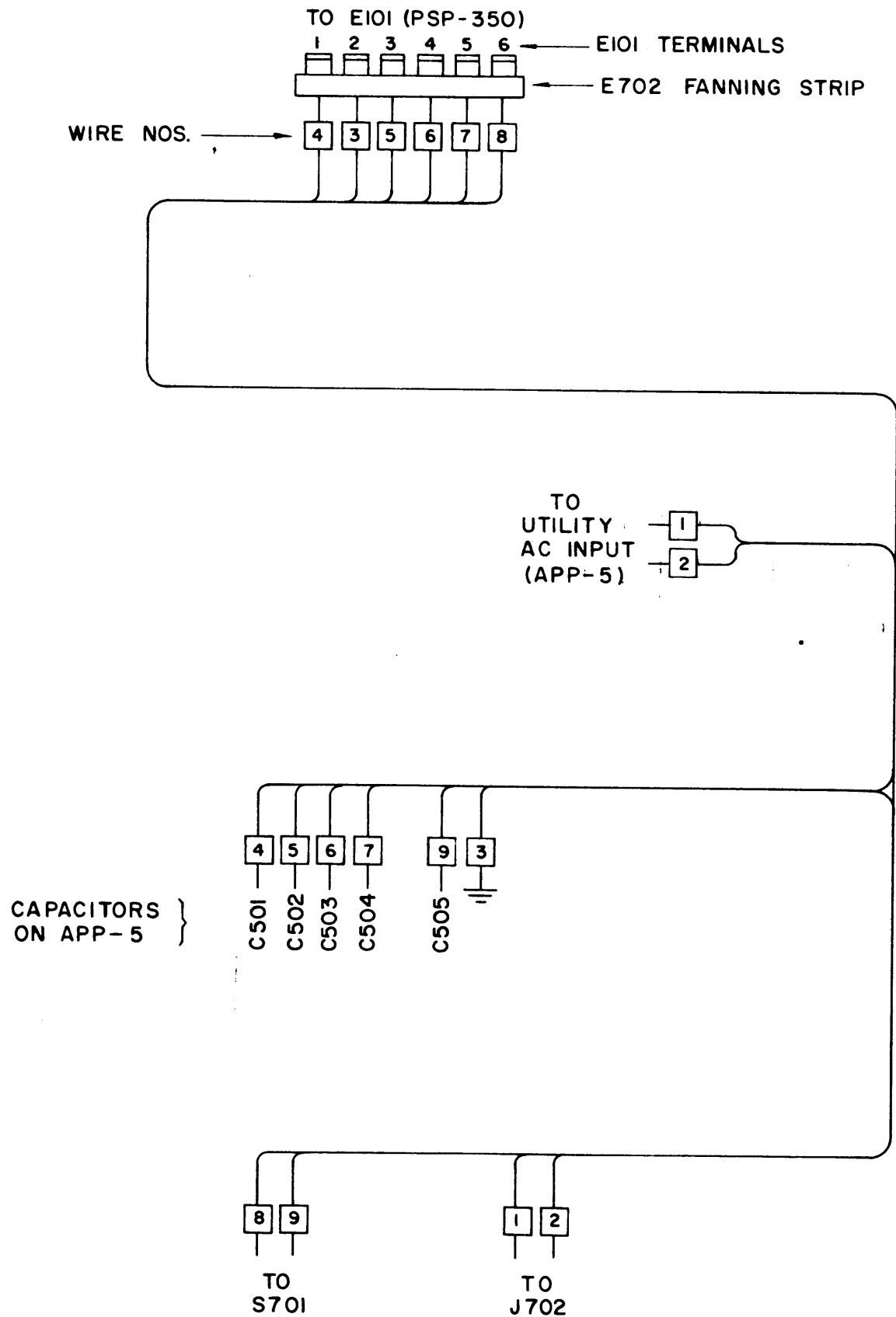


FIGURE VI-8. CA-736 CABLE WIRING DIAGRAM