

★  
UNCLASSIFIED

TECHNICAL MANUAL

*for*

RF SPECTRUM  
ANALYZER

MODEL PTE-3  
(AN/GRM-33A)

—  
PART V

APPENDIX

RACK & ACCESSORIES



THE TECHNICAL MATERIEL CORPORATION

MAMARONECK, N.Y.

OTTAWA, ONTARIO

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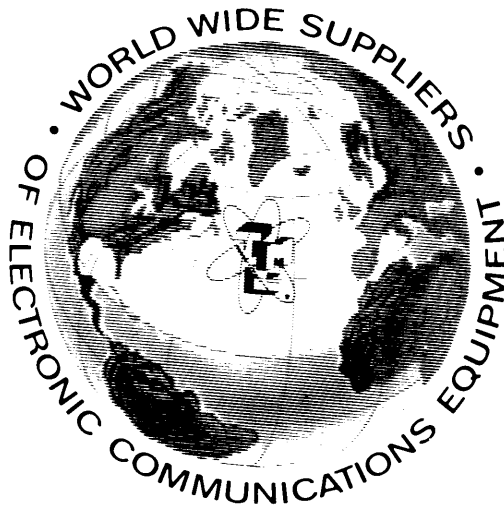
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## APPENDIX

### RACK AND ACCESSORIES

#### V-1. INTRODUCTION.

This part of the manual describes the rack and all accessory items included in the make-up of a complete PTE-3, not covered by Parts I, II, III and IV. 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 within a production run of a model. Unless otherwise noted, the following data applies to PTE-3, serial #136 and up.

#### V-2. PARTS BREAKDOWN.

The parts breakdown of the PTE-3 by major assemblies is described in TABLE A, which lists all parts (except fastening hardware) that go into the assembly of a PTE-3. Further breakdown of electrical parts are as follows

RAK-7B	See TABLE B of Part V
FSA-2	See Part II and TABLE A of Part V
VOX-5	See Part III and TABLE A of Part V
PVR-2	See TABLE C of Part V
TTG-2	See Part IV and TABLE A of Part V
CA-575-1	See TABLE A of Part V

Parts arriving in the shipment of the PTE-3 are described in TABLE D. When re-ordering any major units listed in TABLE A, reference to the proper parts list, as shown above, will describe all the electrical parts plus special cables and modifications peculiar to the PTE-3 that will be included in the shipment. In each case, when ordering, it should be specified that the part is to be for a PTE-3.

#### V-3. PTE-3 EQUIPMENT RACK.

a. GENERAL DESCRIPTION. Figure V-3 is a dimensional outline drawing of the RAK-7B equipment rack. The two back casters are rigid and the two in front are swivel-type. All units going into the rack

are panel supported and do not employ chassis slides. The rack is constructed with mounting flanges on both its front and back surfaces, so that modular units may be mounted on both of these surfaces. The front side is reserved for units with operating controls. In the back, the utility panel with blower and extra outlets is included as part of the RAK-7B rack assembly and is removable. Blank panels are included in the RAK-7B rack assembly to fill in unused areas at the mounting flanges.

b. INTERCONNECTING WIRING. Figure V-2 is a schematic diagram of interconnecting wiring in the PTE-3 rack resulting from the assembly and connection of all units. Indications at each cable show TMC part number, symbol number and major assembly of which the cable is a part. Figure V-2 and the schematic wiring diagrams from Parts II, III and IV, as indicated on figure V-2, make up the complete wiring schematic for the PTE-3. Figure V-1 shows a rear view of the PTE-3 assembled except for the installation of the PS-2 unit and a blank panel.

#### V-4. CABLE HOOK-UP.

To assemble PTE-3 cabling, make connections per figure V-2 using figure V-1 as a guide in locating items. RAK-7B is shipped with most of its cables and harnesses installed. It is generally only necessary to connect the loose ends of the cables to the proper equipment and install CA-432-2 cable between the SA-2 and PS-2 units. Cables CA-480-1-18.00, CA-480-4-120.00 and CA-130-6 are patch cords to be used at the front panel controls. Their use is described in Section 3 of Part I. Extra 3-prong female a-c power plug (TMC #PL-134-NG) mates with J109 for completing CA-575-1 power cable; the two extra 3-prong male a-c power plugs (TMC #PL-172) mate with J105 through J108 for a-c power extensions if required.

**TABLE A--LIST OF PARTS**

**R F SPECTRUM ANALYZER MODEL PTE-3**

QTY/UNIT	TMC PART NO.	TITLE	DESCRIPTION
1	RAK-7B	EQUIPMENT RACK	Consists of rack structure and electrical components listed in RAK-7B parts list (Table B).
1	FSA-2	FREQUENCY SPECTRUM ANALYZER	Consists of Model SA-2 Analyzer (modified for manual sweep) Model PS-2 Power Supply and CA-432-2 special cable, 53 inches long. CA-432-2 consists of wiring per figure V-2, MS3016B28-2S (P501) and MS3106B28-2P(P601).
1	VOX-5	VARIABLE FREQUENCY OSCILLATOR	Consists of VOX-5 unit including CA-569-2 cable (W201) and CA-435-3 special cable (W202). CA-569-2 consists of 6 inches (retracted) of coiled a-c cable and #PL-171 plug, 2-prong, male, twist lock (P201). CA-435-3 consists of 7 inches (retracted) of coiled a-c cable, #PL-100 plug, 2-prong, female twist-lock (P202) and #PL-171 plug (P203).
1	PVR-2	VOLTAGE REGULATOR PANEL	Consists of panel and electrical parts as listed in PVR-2 parts list (Table C).
1	TTG-2	TWO TONE GENERATOR	Consists of TTG-2 unit including CA-435-1 cable (W500). CA-435-1 consists of 1 foot (retracted) of coiled a-c cable, #PL-171 plug (P501) and #PL-100 plug (P500).
2	CA-575-1	POWER CABLE	Consists of 1 foot (retracted) of coiled a-c cable and #PL-171 plug.

**TABLE B**

**EQUIPMENT RACK MODEL RAK-7B, ELECTRICAL PARTS LIST (SERIES 100)**

SYM	DESCRIPTION	FUNCTION	TMC PART NO.
B101	FAN, axial: mounted in venturi block, without grille, 100 CFM free delivery, 115V, 50/60 CPS.	Cooling exhaust	BL-106-2
CP101	ADAPTER, connector: RF, coaxial, series N, bulkhead mounting.	RF TONE OUT	UG-30D/U
CP102	ADAPTER, connector: same as CP101.	VFO OUT	UG-30D/U
J101	JACK, telephone: 3-conductor, for 1/4 in. dia. plug.	AUDIO TONE OUT, red lead	JJ-116-2

**TABLE B—EQUIPMENT RACK MODEL RAK-7B,  
ELECTRICAL PARTS LIST (SERIES 100) (CONT)**

SYM	DESCRIPTION	FUNCTION	TMC PART NO.
J102	JACK, telephone: same as J101.	AUDIO TONE OUT, black lead	JJ-116-2
J103	JACK, telephone: same as J101.	AUDIO TONE OUT, red lead	JJ-116-2
J104	JACK, telephone: same as J101.	AUDIO TONE OUT, black lead	JJ-116-2
J105	CONNECTOR, receptacle: AC, 3 prong, female.	Auxiliary outlet	JJ-173
J106	CONNECTOR, receptacle: AC, 3 prong, female.	Auxiliary outlet	JJ-173
J107	CONNECTOR, receptacle: AC, 3 prong, female.	Auxiliary outlet	JJ-173
J108	CONNECTOR, receptacle: AC, 3 prong, female.	Auxiliary outlet	JJ-173
J109	CONNECTOR, receptacle: AC, 3 prong, male.	Main AC power input	PL-133-NG
J110	CONNECTOR, receptacle: AC, 2 prong, female, twist lock.	Outlet, AC power strip	JJ-170
J111	CONNECTOR, receptacle: same as J110.	Outlet, AC power strip	JJ-170
J112	CONNECTOR, receptacle: same as J110.	Outlet, AC power strip	JJ-170
J113	CONNECTOR, receptacle: same as J110.	Outlet, AC power strip	JJ-170
P101	CONNECTOR, plug: RF, coaxial, series N (P/O W101).	Mates with CP101	UG-603/U
P102	CONNECTOR, plug: RF coaxial, series BNC (P/O W101).	Mates with J501 on TTG-2 unit	UG-260/U
P103	CONNECTOR, plug: same as P101 (P/O W102).	Mates with CP102	UG-603/U
P104	CONNECTOR, plug: same as P102 (P/O W102).	Mates with J208 on VOX-5 unit	UG-260/U
P105	CONNECTOR, plug: AC, 2 prong, male, twist lock (P/O W104).	Mates with J110	PL-171



**TABLE B—EQUIPMENT RACK MODEL RAK-7B,  
ELECTRICAL PARTS LIST (SERIES 100) (C nt)**

SYM	DESCRIPTION	FUNCTION	TMC PART NO.
P106	CONNECTOR, plug: same as P101 (P/O W105).	See W105	UG-603/U
P107	CONNECTOR, plug: same as P104 (P/O W105).	See W105	UG-603/U
P108	CONNECTOR, plug: same as P101 (P/O W106).	See W106	UG-603/U
P109	CONNECTOR, plug: same as P101 (P/O W106).	See W106	UG-603/U
P110	CONNECTOR, plug: same as P101 (P/O W107).	Mates with J101 on SA-2 unit	UG-603/U
P111	CONNECTOR, plug: RF, coaxial, series UHF, male (P/O W107).	Mates with trans- mitter or exciter	PL-259A-TEF
—	ADAPTER, RF coaxial: series N to series UHF (P/O W107) .	Used with P111	UG-176/U
P112	CONNECTOR, plug: telephone, audio, twin prong, male (P/O W108).	See W108	PL-194
P113	CONNECTOR, plug: same as P112 (P/O W108).	See W108	PL-194
P114	NOT USED.		
P115	NOT USED.		
P116	NOT USED.		
P117	CONNECTOR, plug: same as P105 (P/O W104).	Mates with P3 on PVR-2	PL-171
P118	CONNECTOR, plug: Mil type MS3106B18-1P, male (P/O W110).	Mates with J402 on SA-2	MS3106B18-1P
—	CONNECTOR, plug: AC power, 3 prong, female.	Extra plug to mate with J109.	PL-134-NG
—	CONNECTOR, plug: AC power, 3 prong, male, with removable ground connections.	Extra plug to mate with J105, 6, 7, or 8.	PL-172

**TABLE B—EQUIPMENT RACK MODEL RAK-7B,  
ELECTRICAL PARTS LIST (SERIES 100) (Cont)**

SYM	DESCRIPTION	FUNCTION	TMC PART NO.
—	CONNECTOR, plug: AC power, 3 prong, male, with removable ground connection.	Extra plug to mate with J105, 6, 7 or 8.	PL-172
R101	RESISTOR, variable: 500K, 2w, linear taper.	MANUAL SWEEP horizontal sweep control.	RV4ATRD504A
R102	RESISTOR, fixed: composition, 1.5 MEG $\pm 10\%$ , 1/2 watt.	Voltage drop, MANUAL SWEEP.	RC20GF155K
R103	RESISTOR, fixed, composition, 270K $\pm 10\%$ , 1/2 watt.	Voltage drop, MANUAL SWEEP.	RC20GF274K
S101	SWITCH, toggle: DPDT, on-none-on.	MANUAL/AUTO sweep selector.	ST-22N
W101	CABLE, R. F. : consists of RG-59/U coaxial cable, P101 and P102, 42 inches long.	J501 on TTG-2 to CP101.	CA-480-2-42
W102	CABLE, R. F. : consists of RG-59/U coaxial cable, P103 and P104, 42 inches long.	J208 on VOX-5 to CP102.	CA-480-2-42
W103	NOT USED.		
W104	CABLE, AC power: consists of coiled a-c cable and P105.	J110 to J105	CA-575-4
W105*	CABLE, RF: consists of RG-59/U coaxial cable, P106 and P107, 18 inches long.	Patch cord from CP101 to J101 on SA-2.	CA-480-1-18
W106*	CABLE, RF: consists of RG-59/U coaxial cable, P108 and P109, 18 inches long.	Patch cord from CP102 to J104 on SA-2.	CA-480-1-18
W107	CABLE, RF: consists of RG-59/U coaxial cable, P110 and P111, UG-176/U adapter, 10 feet long.	Patch cord from transmitter or exciter output to J101 or SA-2.	CA-480-4-120
W108	CABLE, audio: consists of tinned copper 2-conductor stranded wire, shielded, P112 and P113, 10 feet long.	Patch cord from AUDIO TONE OUT (J101 and 2 or J103 and 4) to exciter audio input.	CA-130-6
*W105 and W106 are interchangeable.			

**TABLE B—EQUIPMENT RACK MODEL RAK-7B,  
ELECTRICAL PARTS LIST (SERIES 100) (C nt)**

.SYM	DESCRIPTION	FUNCTION	TMC PART NO.
W109	CABLE, AC power: consists of a-c cable and P117.	B101 to P3 on PVR-2	CA-569-2
W110	CABLE, harness: includes P102 and P118.	MANUAL SWEEP circuit and AUDIO TONE OUT connection from SA-2 and TTG-2 to control panel.	CA-611
—	JUMPER, grounding.	J109 to rack structure	CA-409-43-4.00

**TABLE C**

**50/60 CYCLE REGULATOR MODEL PVR-2, ELECTRICAL  
PARTS LIST (SYMBOL SERIES 1)**

SYM	DESCRIPTION	FUNCTION	TMC PART NO.
P1	CONNECTOR, plug: AC power, 2-prong, female.	Mates with AC power input receptacle on PS-2	PL-176
P2	CONNECTOR, plug: AC power, 2-prong, male, twist lock.	Mates with J112 on RAK-7B	PL-171
P3	CONNECTOR, plug: AC power, 2-prong, female, twist lock.	Mates with P117 on RAK-7B	PL-100
T1	TRANSFORMER, voltage regulator, primary 95-130VAC 50/60 CPS, secondary 118 VAC regulated to $\pm 1\%$ .	Voltage Regulator	TF-209
W1	CABLE, AC power: consists of AC cable and P1.	Regulated Voltage from T1 to PS-2	CA-555-2
W2	CABLE, AC power: consists of AC cable and P2.	95-130VAC to T1	CA-575-3
W3	CABLE, AC power: consists of AC cable and P3.	Regulated Voltage from T1 to B101 on RAK-7B	CA-605-2

**TABLE D**  
**SHIPPING LIST, PTE-3**

CRATE NO.	QTY	TMC PART NO.	DESCRIPTION
1	1	RAK-7B	EQUIPMENT RACK
	2	CA-575-1	POWER CABLE
	1	CA-432-2	INTERCONNECTING CABLE
	2	CA-480-1-18.00	PATCH CORD
	1	CA-480-4-120.00	PATCH CORD
	1	CA-130-6	PATCH CORD
	2	PL-172	PLUG
	1	PL-134-NG	PLUG
	2	IN-240	TECHNICAL MANUAL, PTE-3
	1	—	TEST DATA, PTE-3 (against serial number shipped)
2	1	TTG-2	TWO-TONE GENERATOR
3	1	SA-2 (P/O FSA-2)	SPECTRUM ANALYZER
	1	VOX-5	VARIABLE FREQUENCY OSCILLATOR
4	1	PS-2 (P/O FSA-2)	POWER SUPPLY
5	1	PVR-2	VOLTAGE REGULATOR

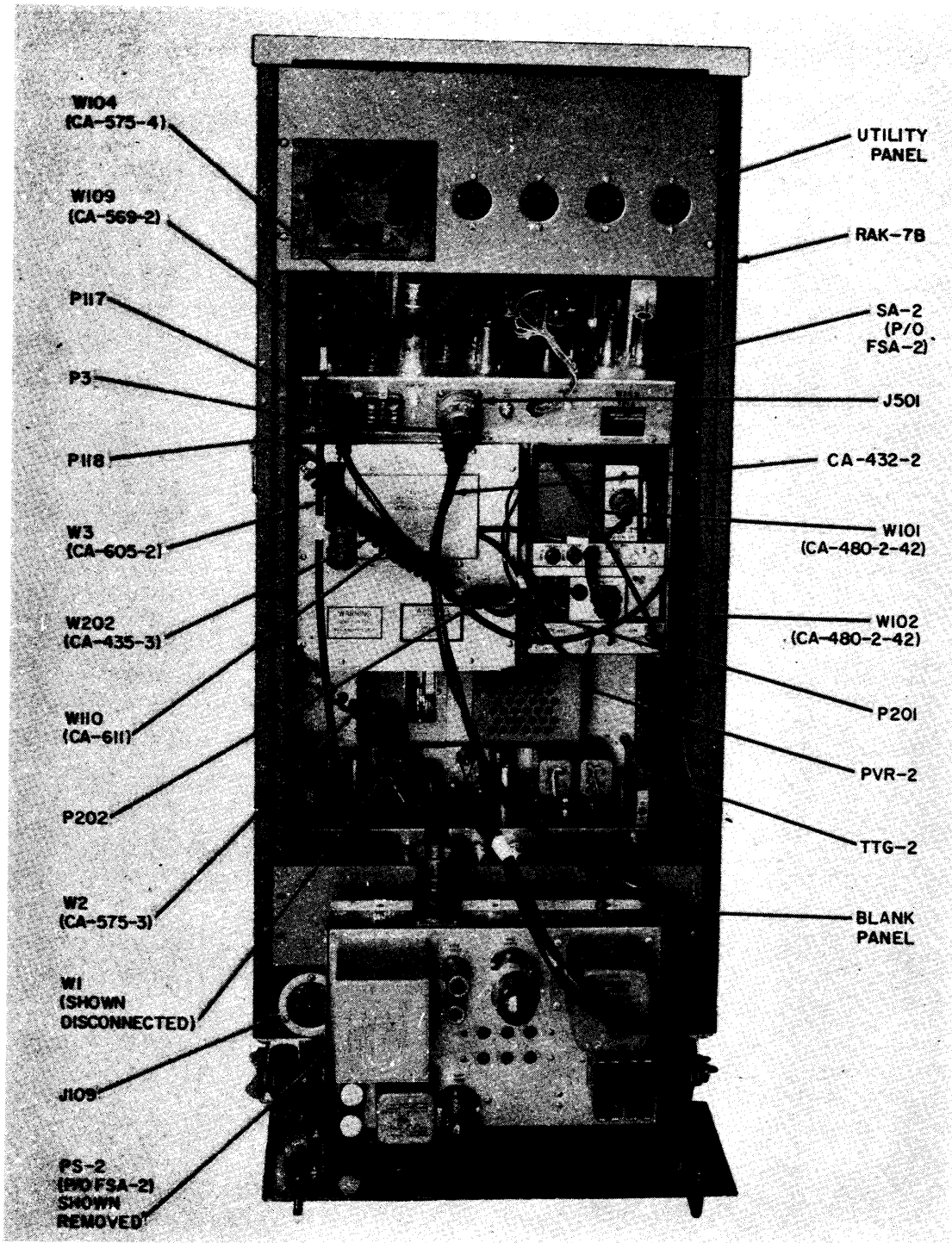
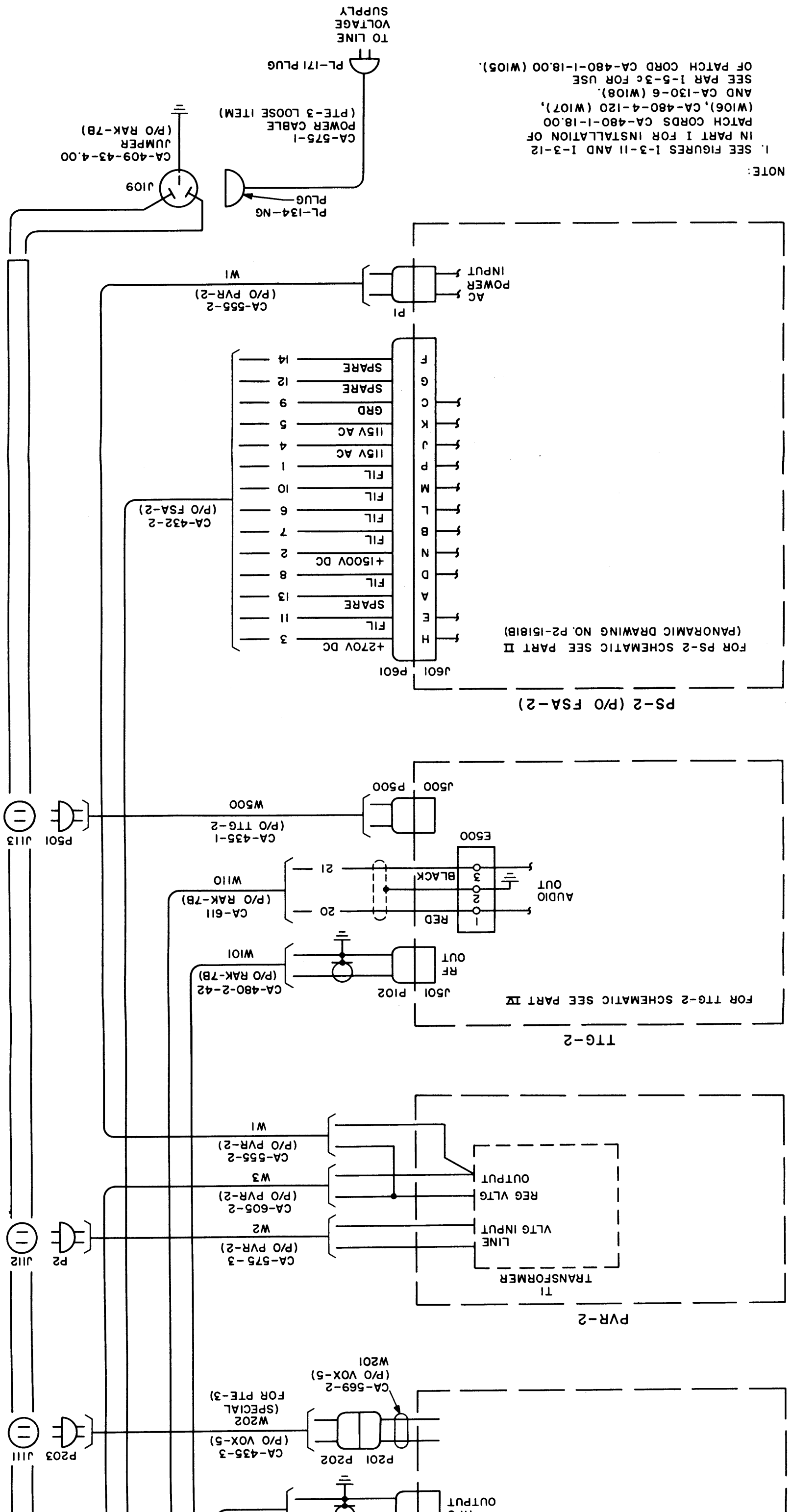


Figure V-1. Cable Location Diagram

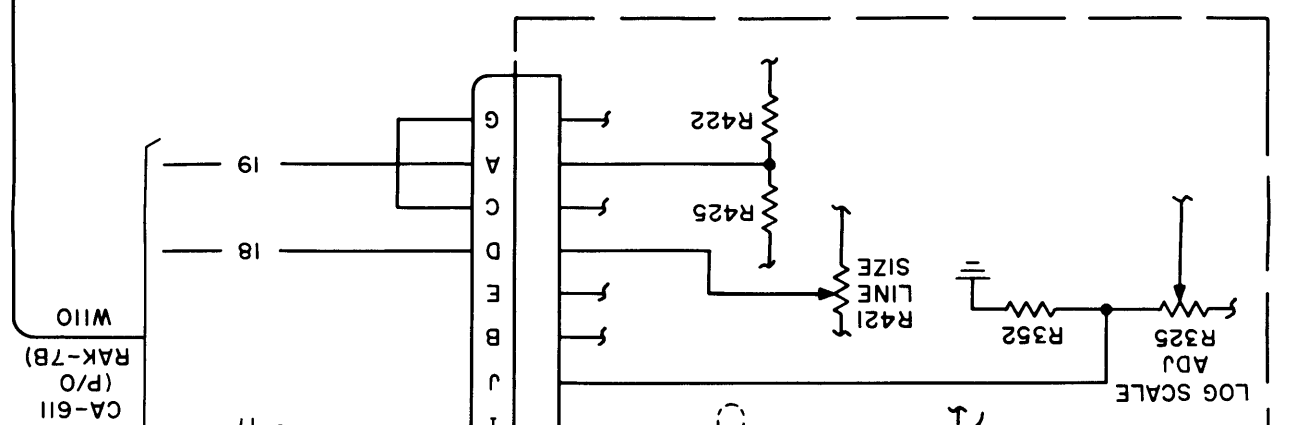
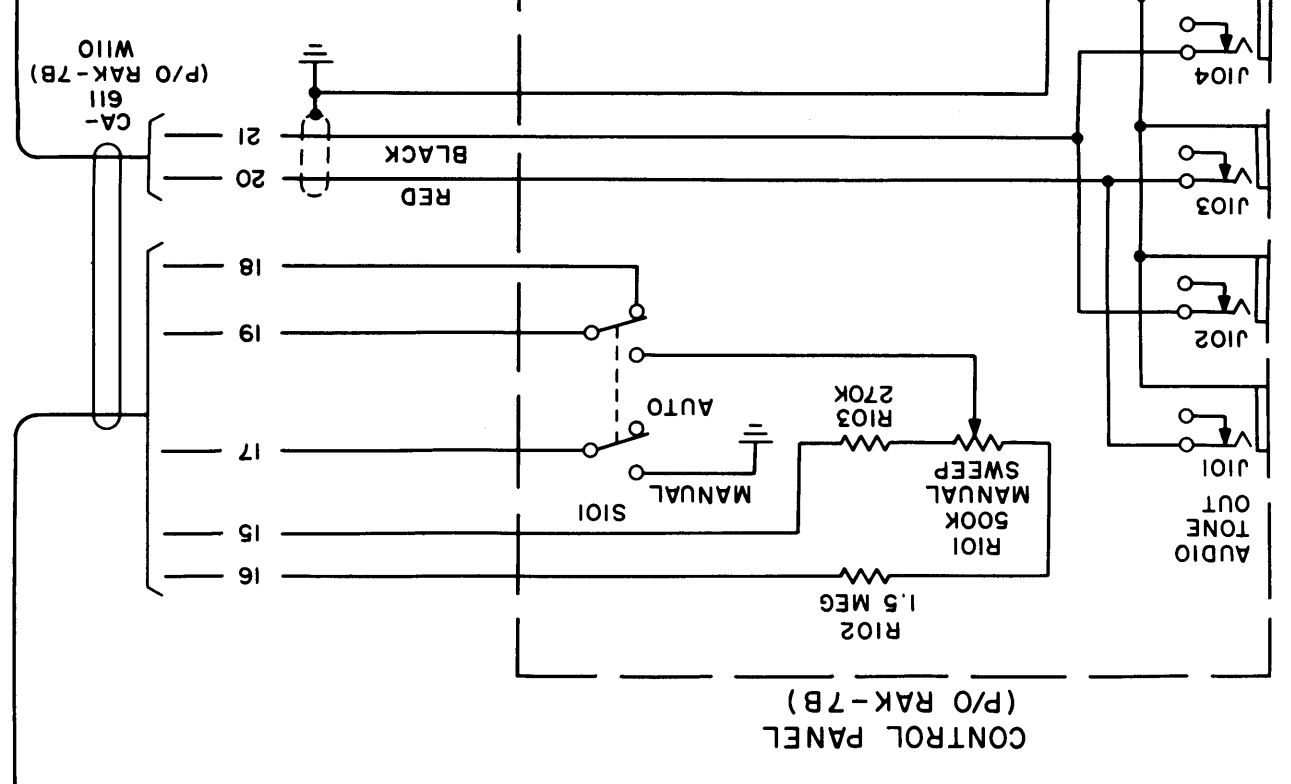
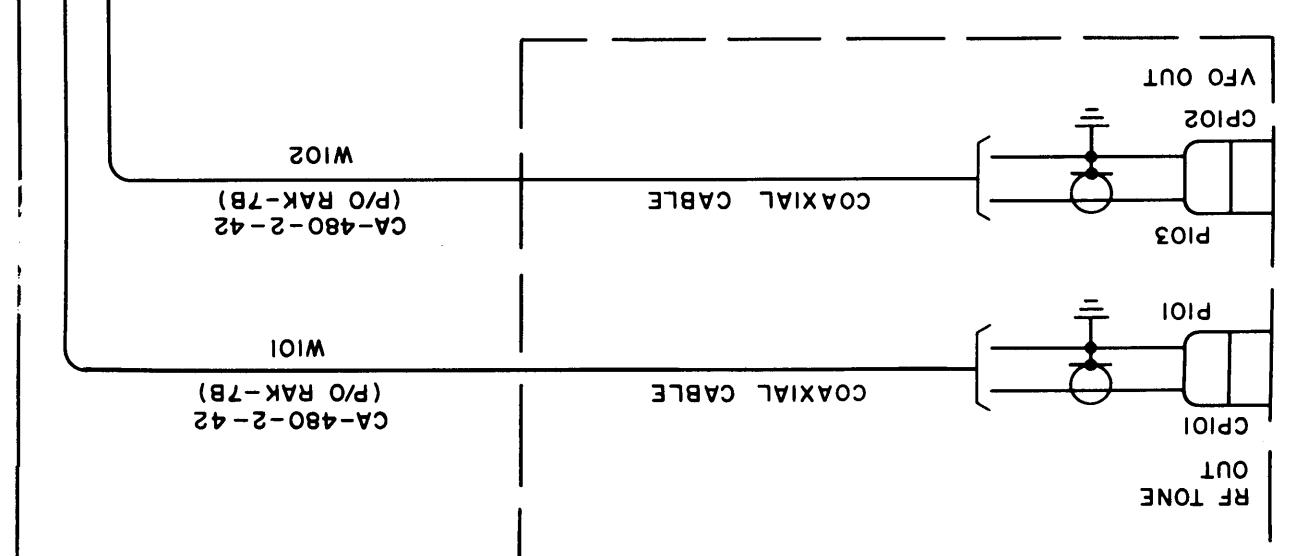
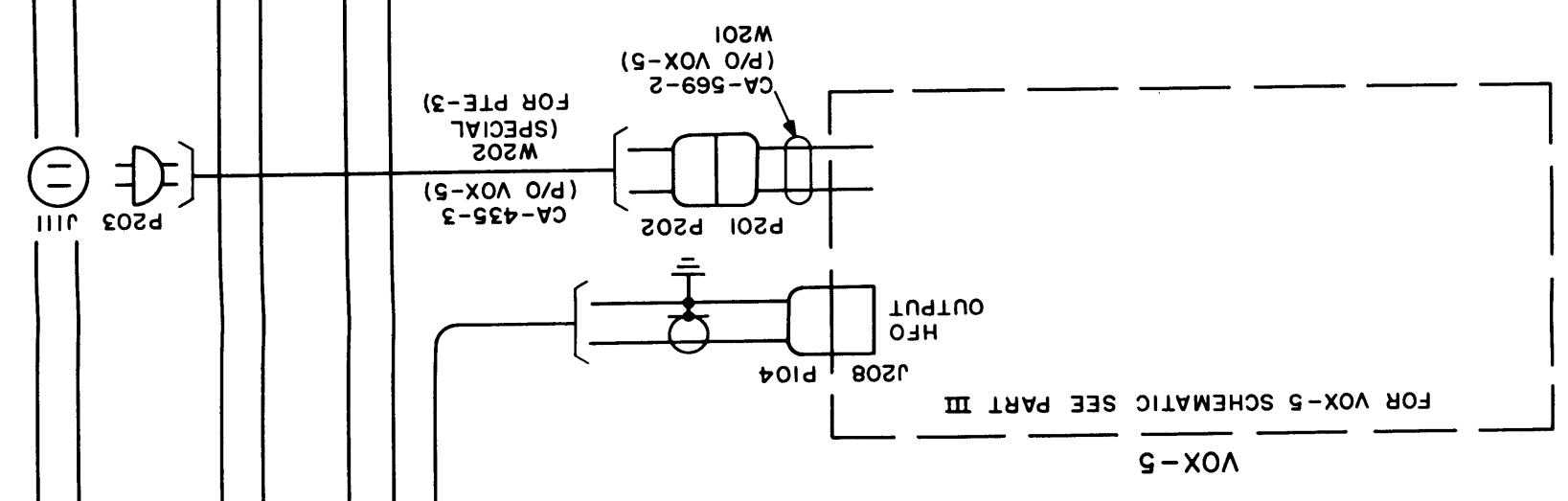
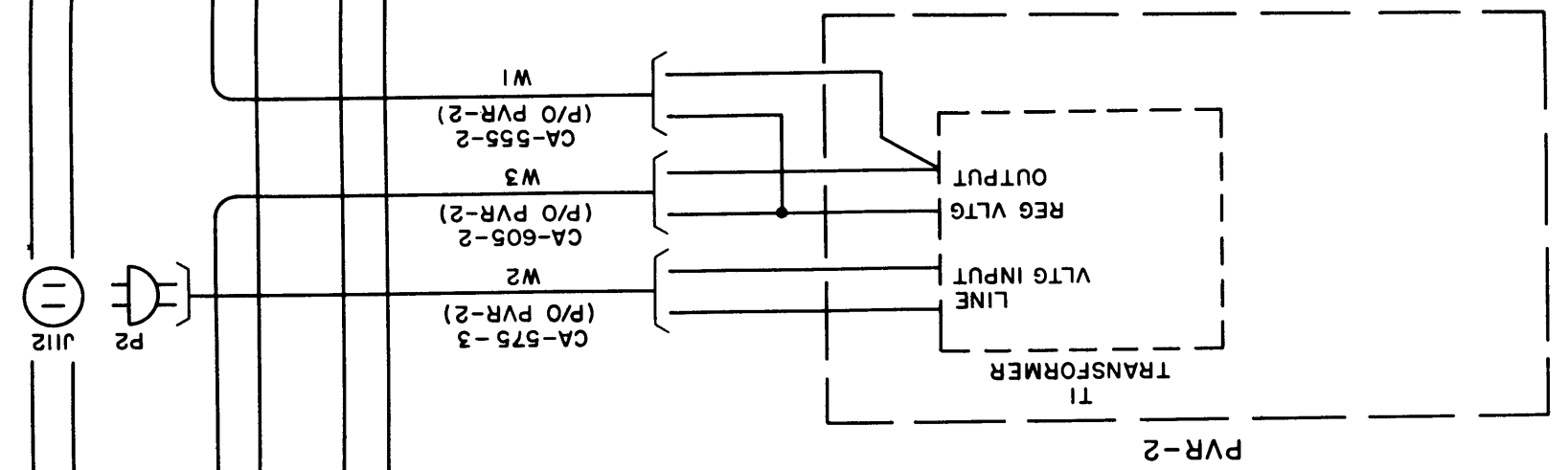
Figure V-2. Interconnecting Wiring Schematic, PTE-3 Rack



NOTE:  
 1. SEE FIGURES I-3-II AND I-3-12  
 IN PART I FOR INSTALLATION OF  
 PATCH CORDS CA-480-1-18.00  
 (W106), CA-480-4-120 (W107),  
 AND CA-130-6 (W108).  
 SEE PAR 1-5-3c FOR USE  
 OF PATCH CORD CA-480-1-18.00 (W105).

FOR PS-2 SCHEMATIC SEE PART II  
 (PANORAMIC DRAWING NO. P2-15181B)

FOR TTG-2 SCHEMATIC SEE PART IX







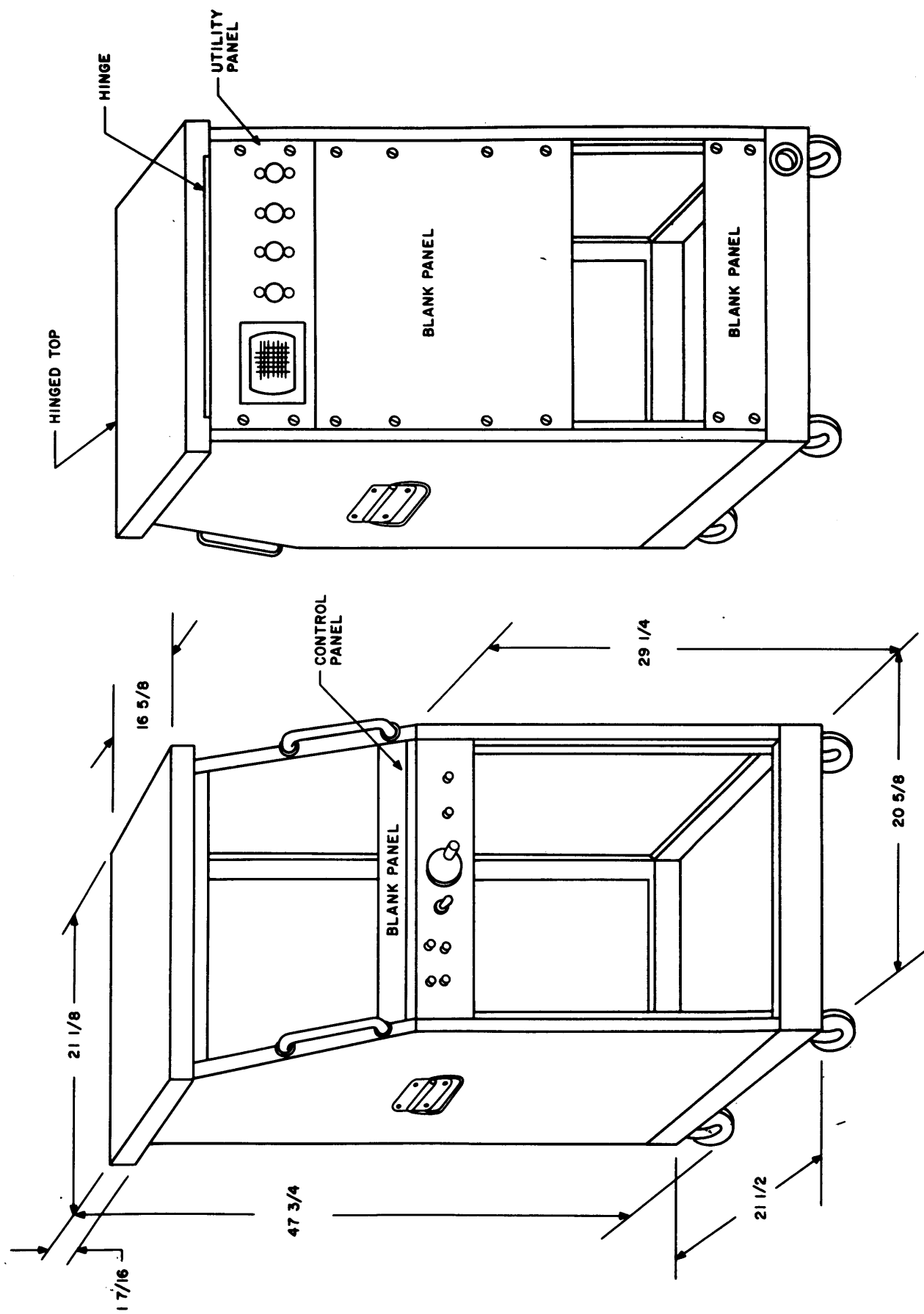


Figure V-3. Dimensional Outline of RAK-7B Rack