

PHOTOFACT[®] with CIRCUITRACE[®]

For Supplier Address See PHOTOFACT Index

NOTE

ONLY THOSE PERSONS PROPERLY LICENSED ARE PERMITTED TO MAKE REPAIRS OR ADJUSTMENTS WHICH MAY RESULT IN ILLEGAL OPERATION. (REFER TO FCC RULES AND REGULATIONS PART 95, SUBPARTS C & D.)

The frequency of the transmitter should be checked periodically with a secondary frequency standard to insure proper and legal operation.

Best results will be obtained when adjusting the final RF output circuit if the antenna normally used is connected and the chassis is as nearly in the cabinet as possible.

Connect either 50-ohm dummy load or the normally used antenna system.



MODEL 1-600B

ALIGNMENT INSTRUCTIONS

Suggested Alignment Tools: GC ELECTRONICS
L5, L19 5000, 8290
ALL Others 9440

RECEIVER

Connect an AC VTVM or AF Wattmeter across speaker voice coil.
Adjustments made with 14-volt DC input.
Adjust volume control to obtain suitable reading.

SIGNAL GENERATOR	GEN FREQ	CHANNEL	ADJUST	REMARKS
High side thru .01uF to base of TR3, low side to ground.	455kHz, 1000Hz @ 30% modulation, output 1.0V.	Any	L5, L19	Adjust for maximum.
High side thru .01uF to antenna jack, low side to ground.	27.115MHz, 1000Hz @30% modulation, output 1uV.	13	L1, L2, L3, L4, L6	Adjust for maximum.

RECEIVER ADJUSTMENTS

Connect an AC VTVM or AF Wattmeter across speaker voice coil.
These adjustment made with 14-volt DC input.
Adjust volume control to obtain a suitable reading.

SIGNAL GENERATOR	GEN FREQ	CHANNEL	ADJUST	REMARKS
SQUELCH RANGE High side thru .01uF to antenna jack, low side to ground.	27.115MHz, 1000Hz @ 30% modulation, output 500uV.	13	VR3	Set squelch control fully clockwise. Adjust so that squelch just breaks.
"S" METER High side thru .01uF to antenna jack, low side to ground.	27.115MHz, 1000Hz @ 30% modulation, output 100uV.	13	VR4	Adjust for "S" 9 reading on panel meter.

HOWARD W. SAMS & CO., INC. Indianapolis, Indiana 46206

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ROYCE MODEL 1-600B

TRANSMITTER

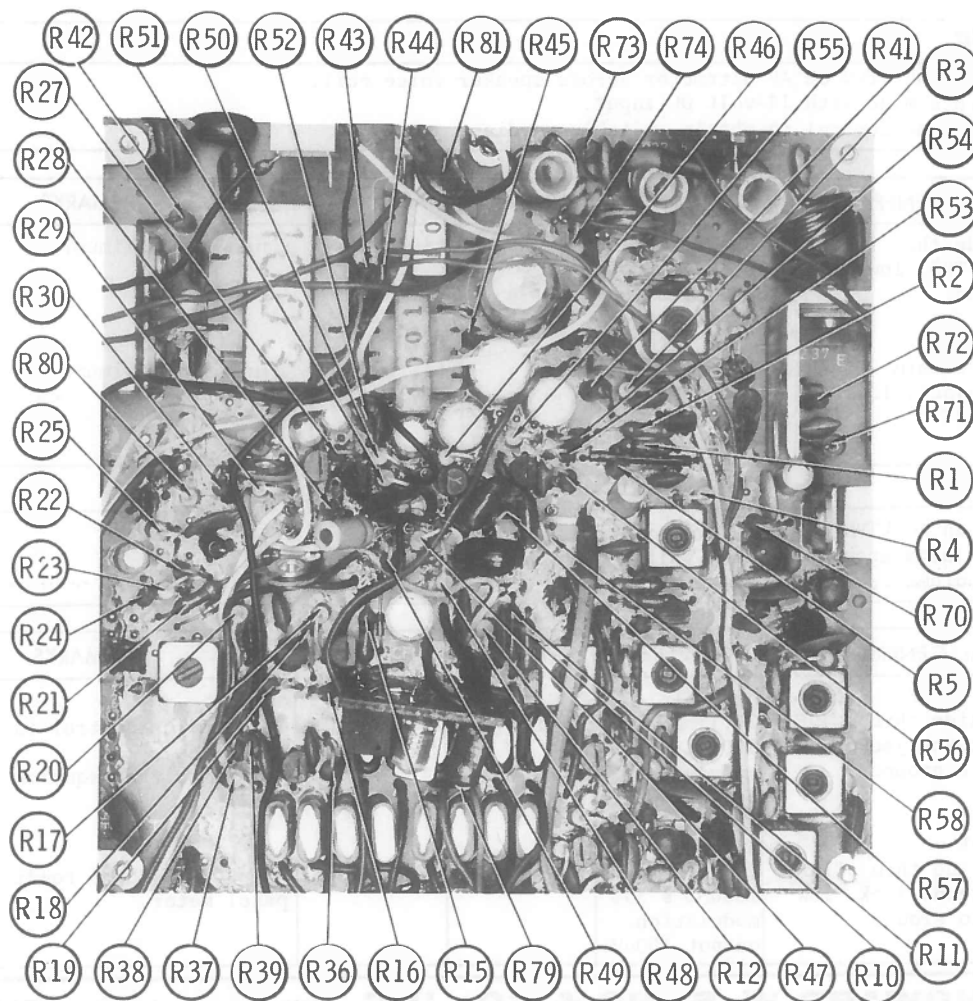
Connect an RF Wattmeter or 50-ohm, 25-watt dummy load to antenna connector.
Adjustments made with 14-volt DC input.

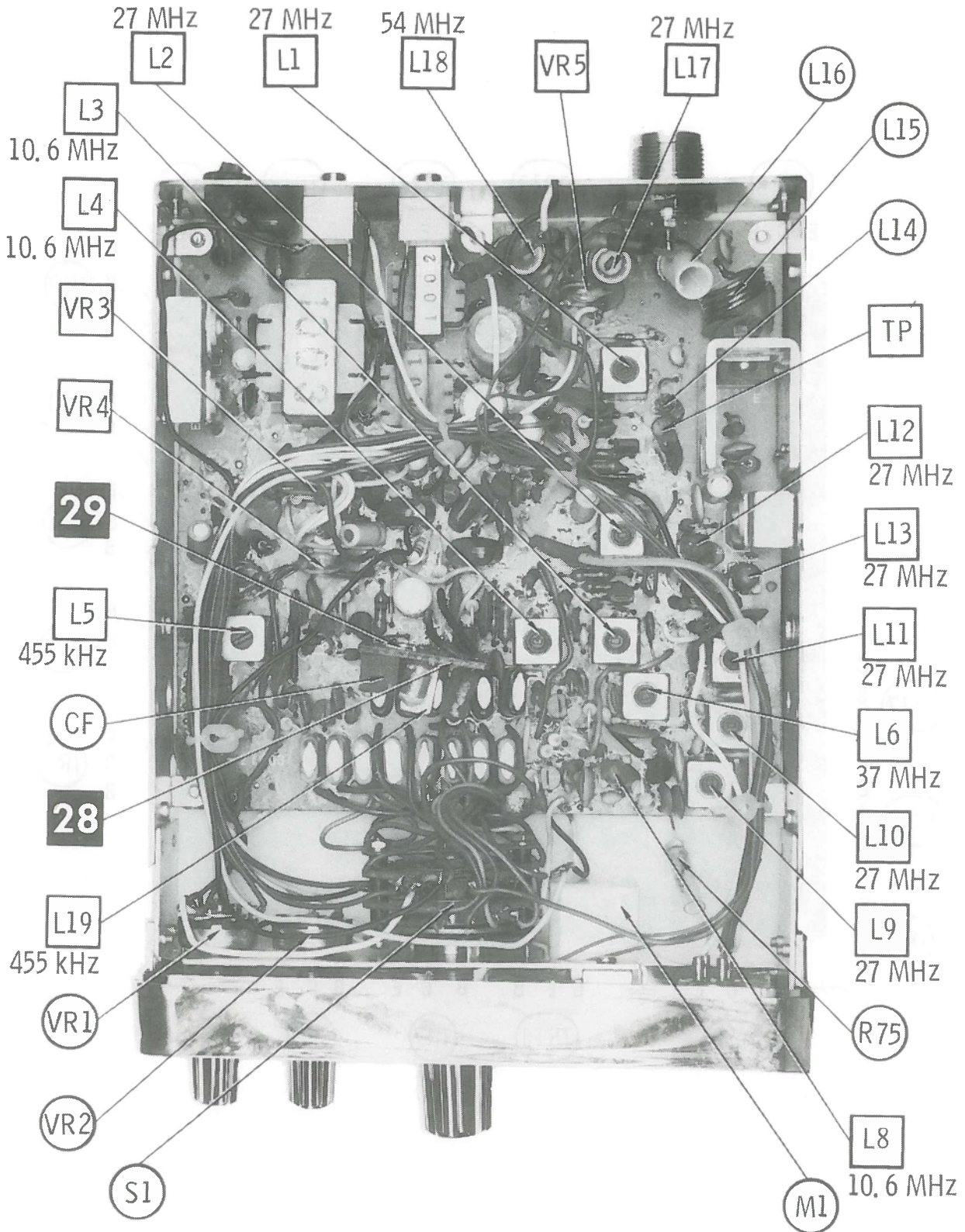
INDICATOR	ADJUST	REMARKS
OSCILLATOR, MIXER, BUFFER, DRIVER, FINAL RF Wattmeter	L8, L9, L10, L11, L12	Channel selector to 13. Key transmitter. Adjust for maximum.
OUTPUT POWER RF Wattmeter	L13	Key transmitter. Adjust for 3 watts output.
TVI TRAP TV (Ch.2)	L18	Key transmitter. Adjust for MINIMUM interference on TV.
FINAL INPUT POWER Remove jumper at TP and connect 0 - 1A DC milliammeter between L14 and C67.	L17	Adjust for 5 watts maximum.

TRANSMITTER ADJUSTMENTS

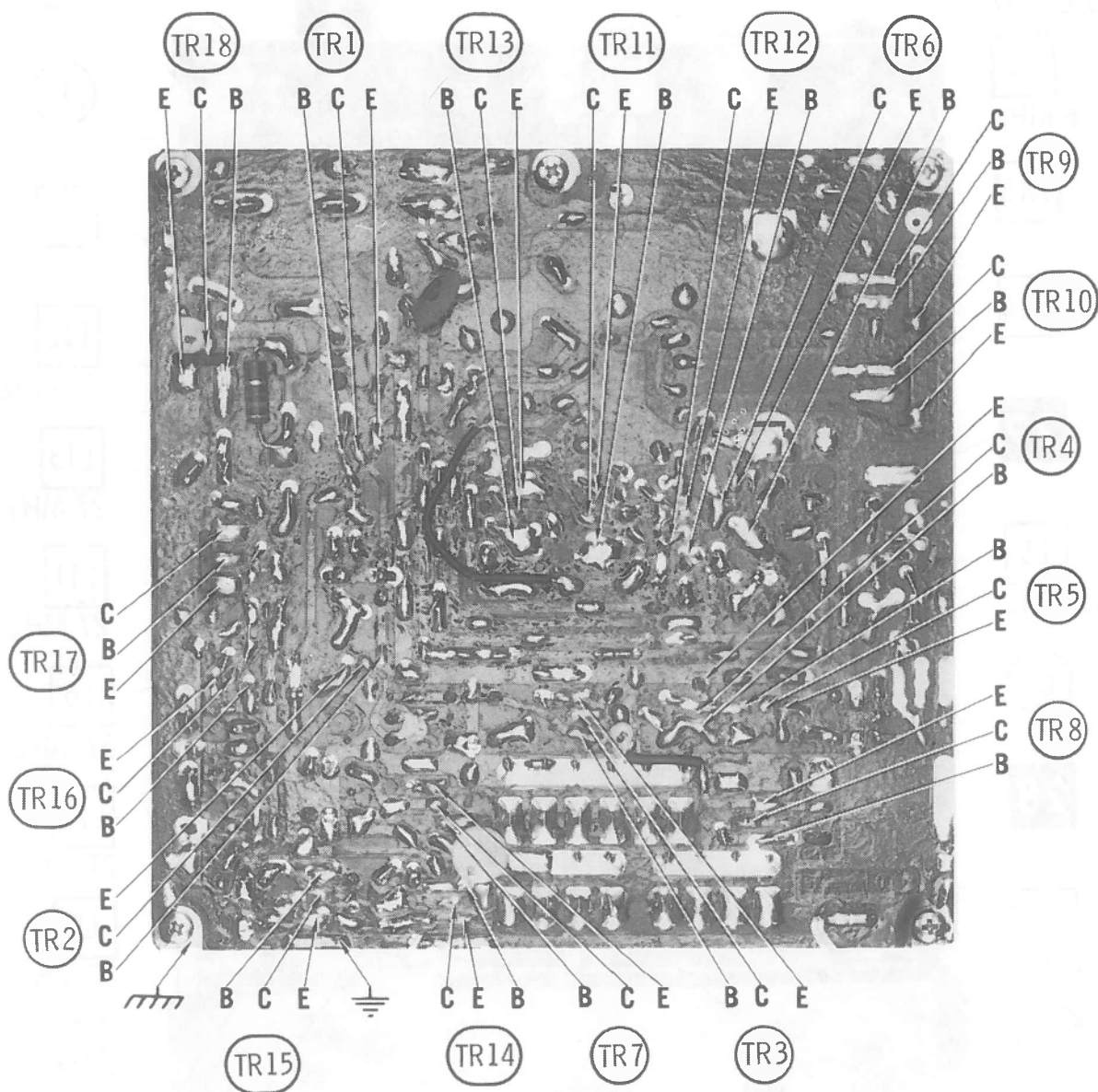
Connect an RF Wattmeter or 50-ohm, 25-watt dummy load to antenna connector.
Adjustments made with 14-volt DC input.

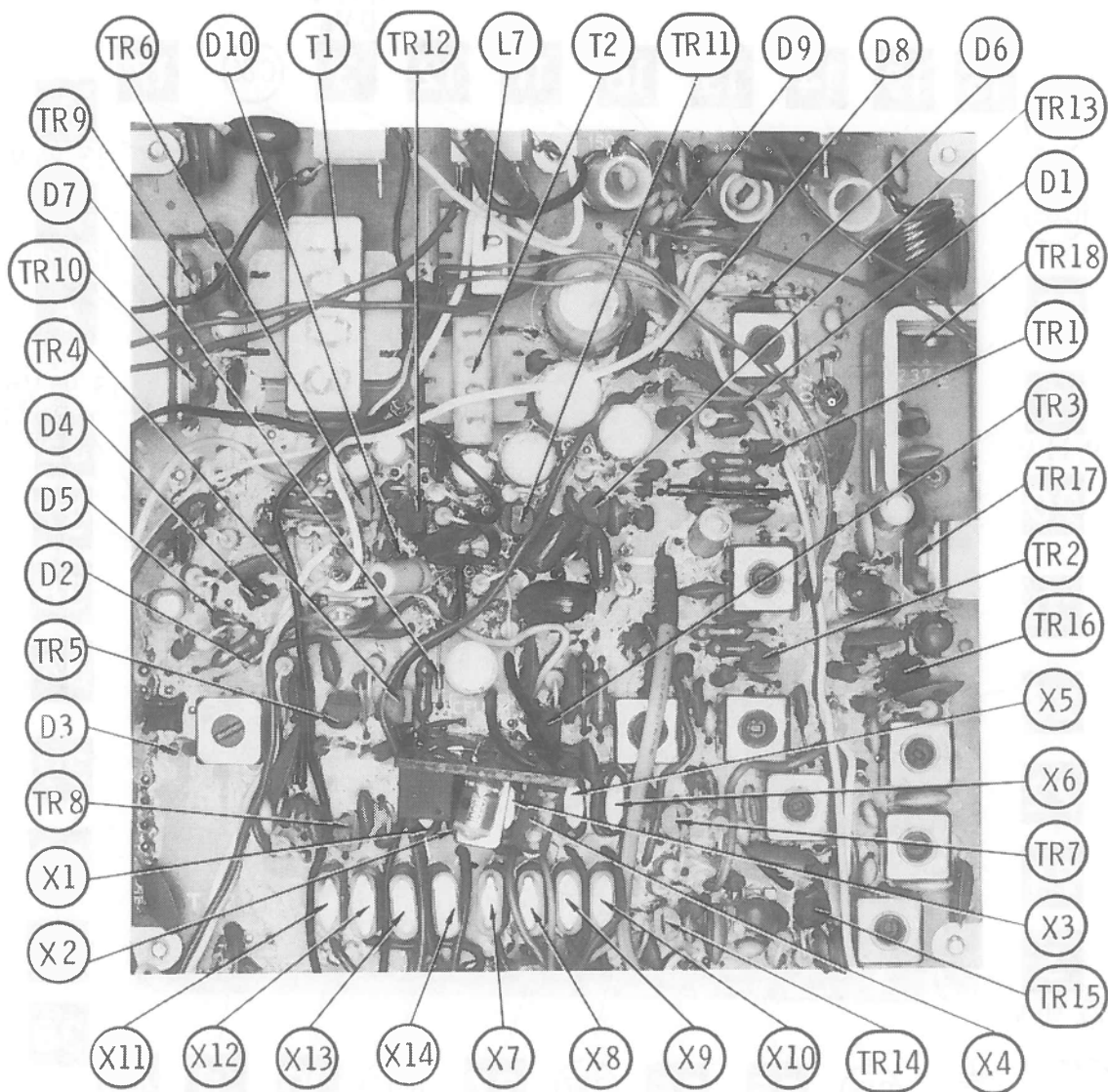
INDICATOR	ADJUST	REMARKS
RF PANEL METER RF Wattmeter to antenna jack.	VR5	Key transmitter. Adjust so that panel RF meter agrees with RF wattmeter.

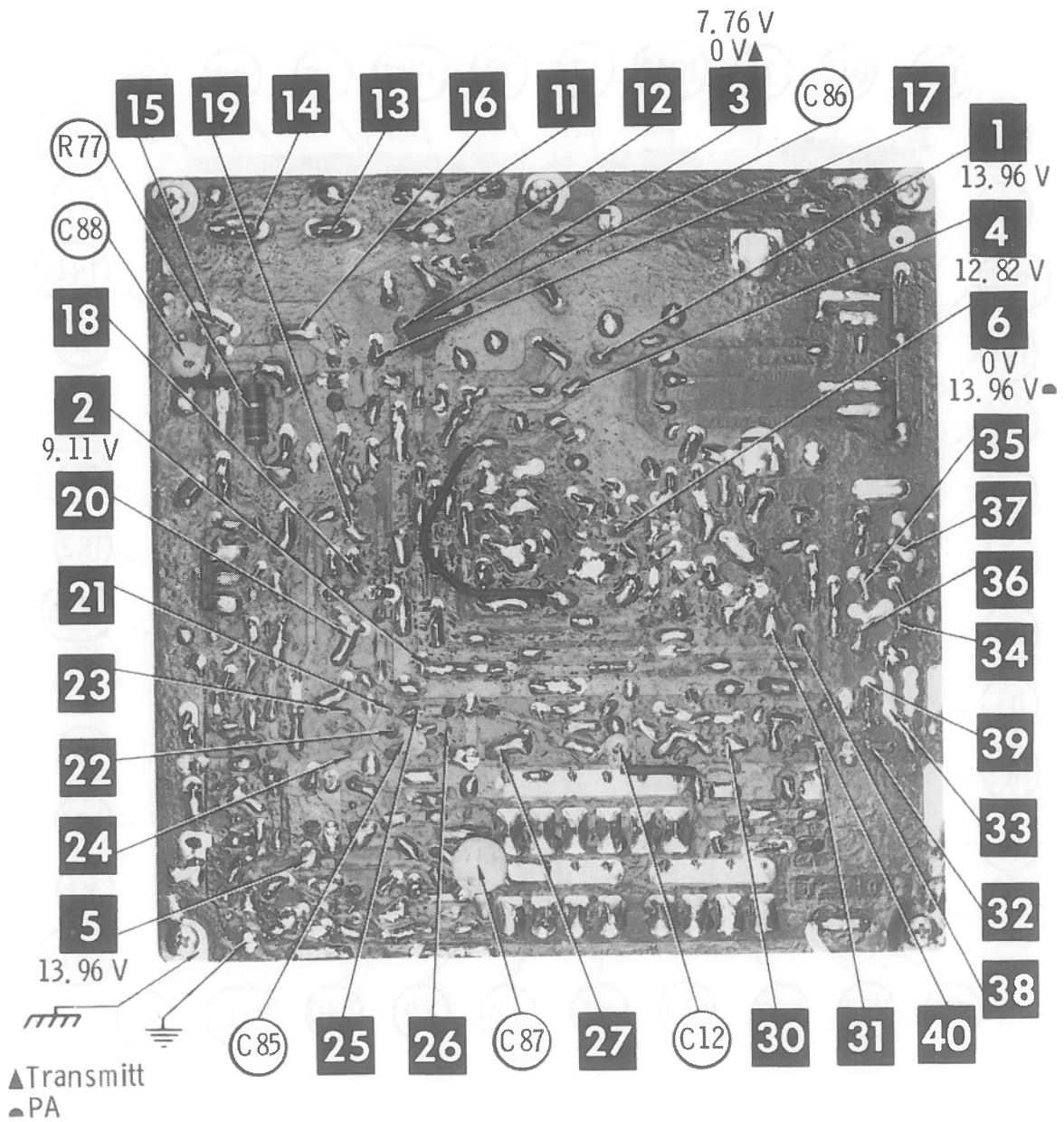


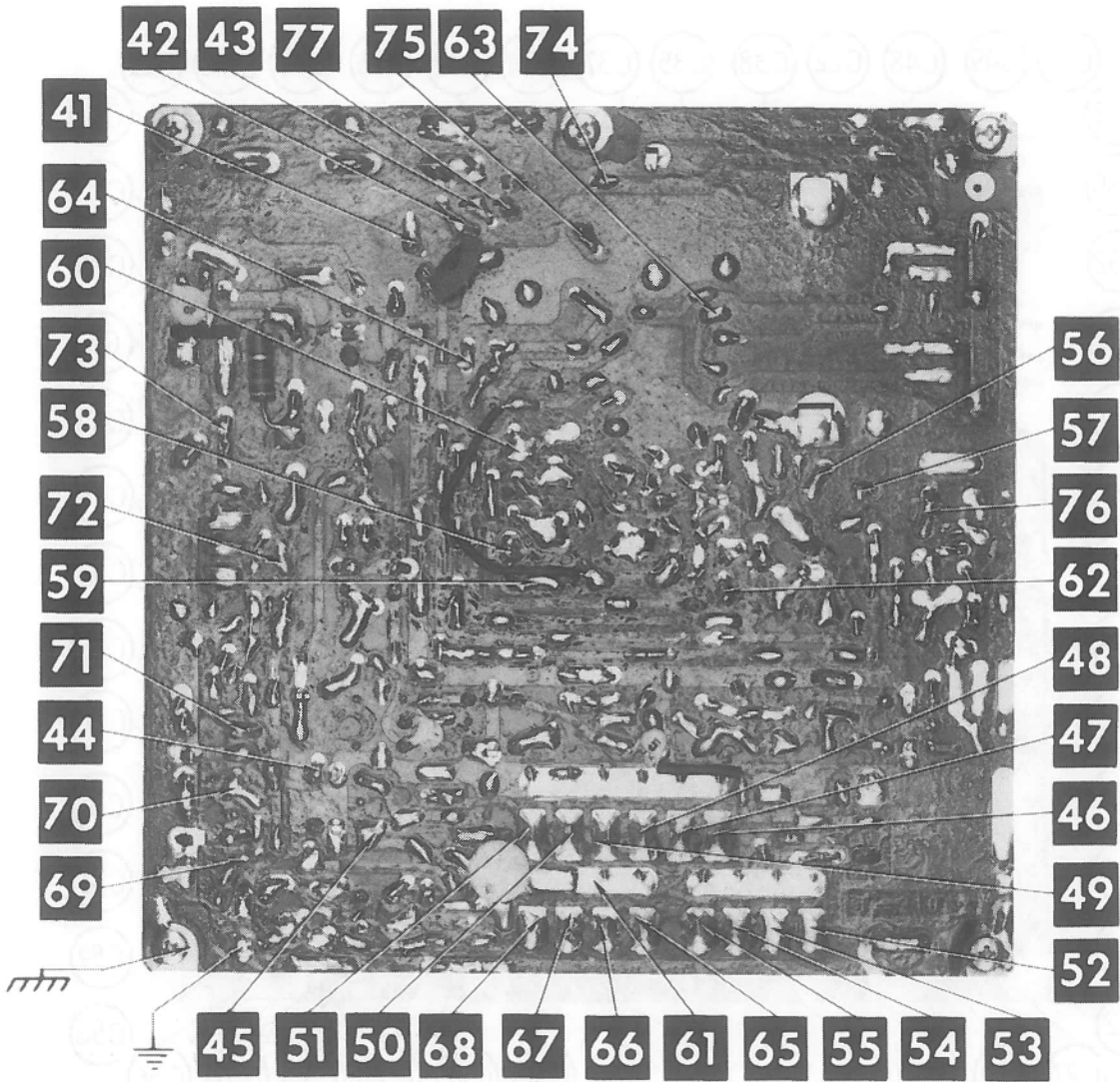


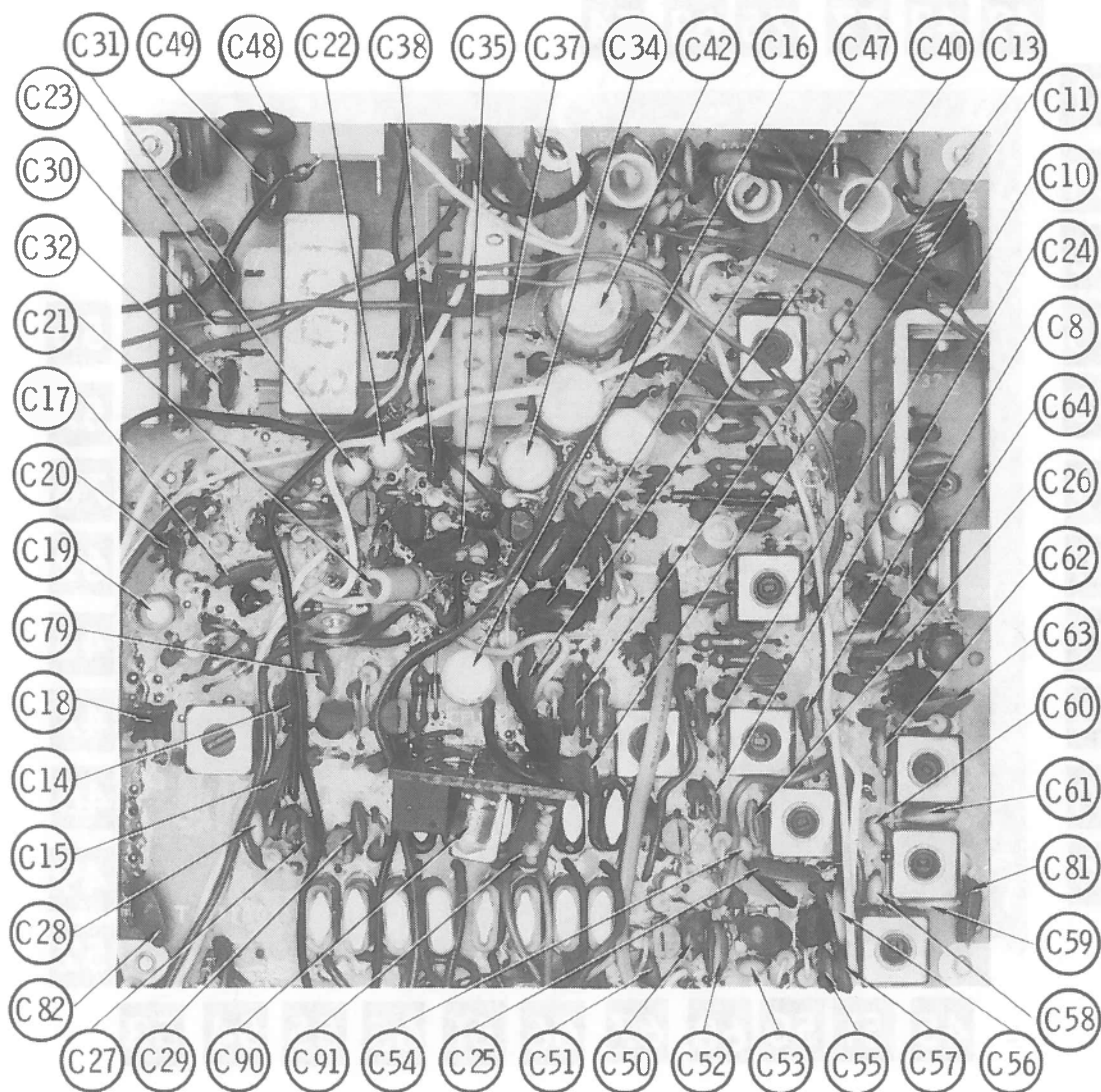
ROYCE MODEL 1-600B

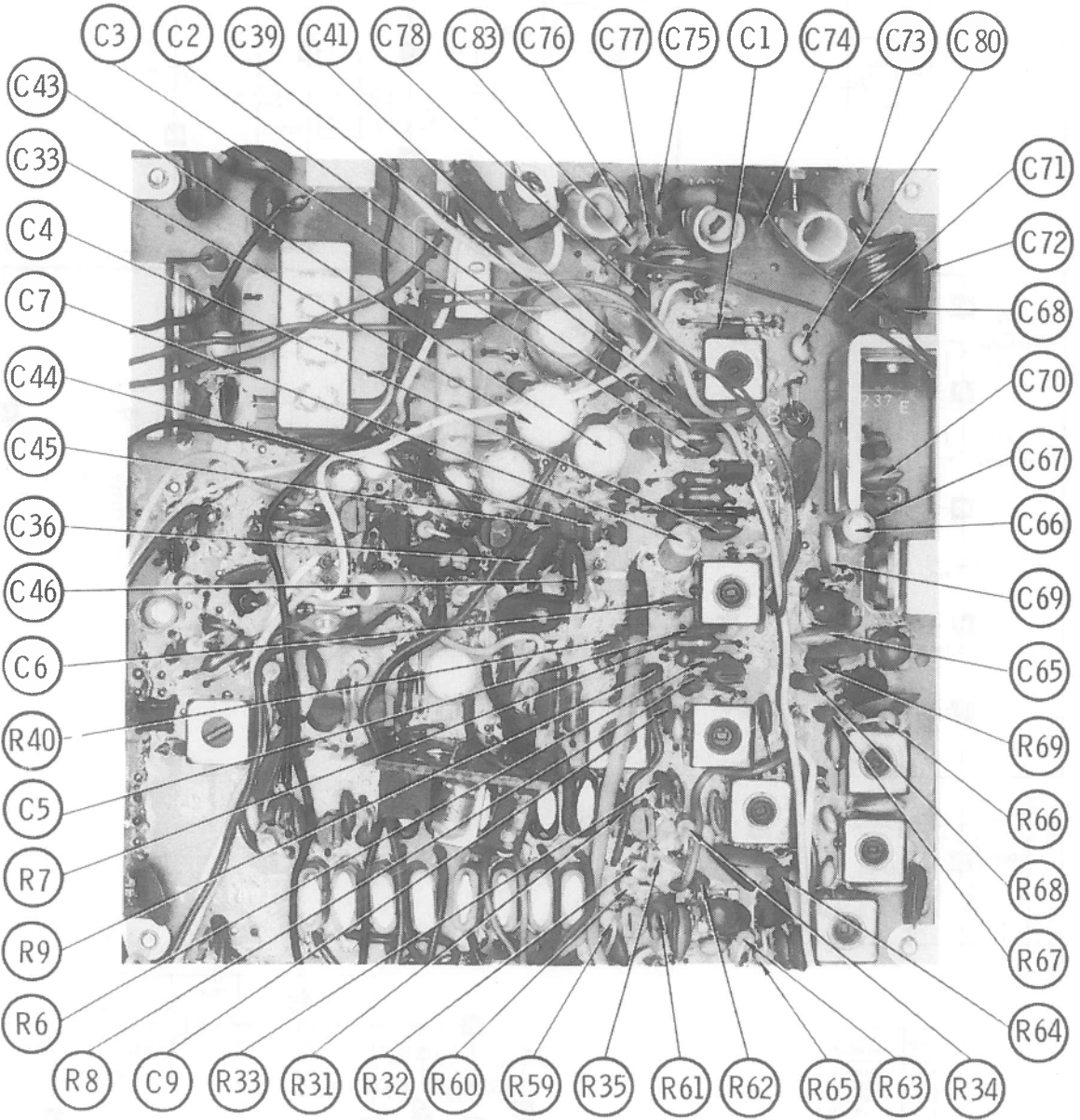




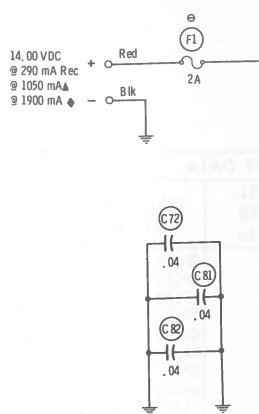
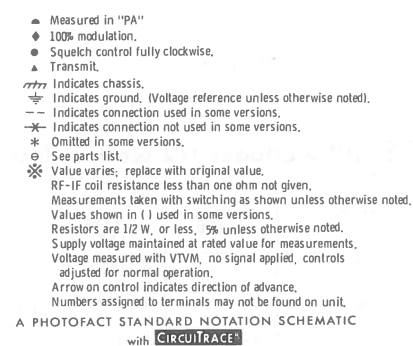


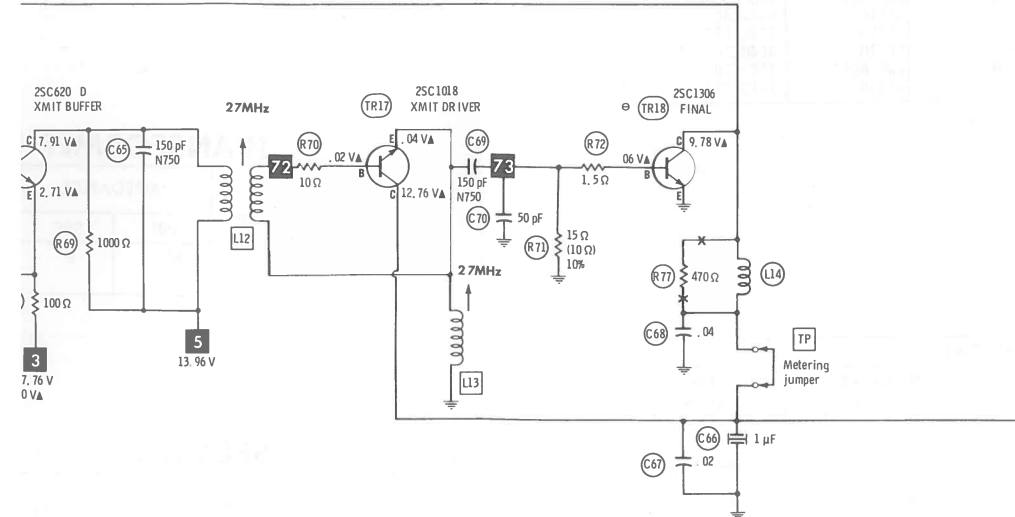
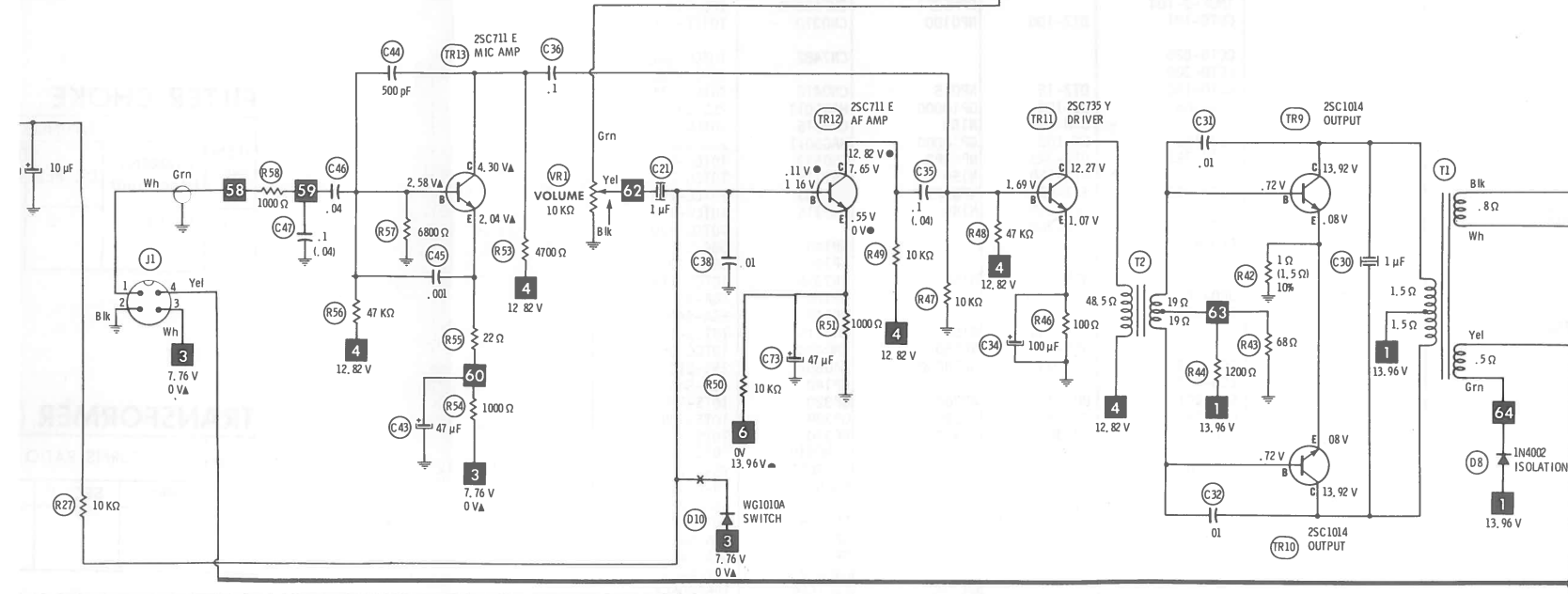
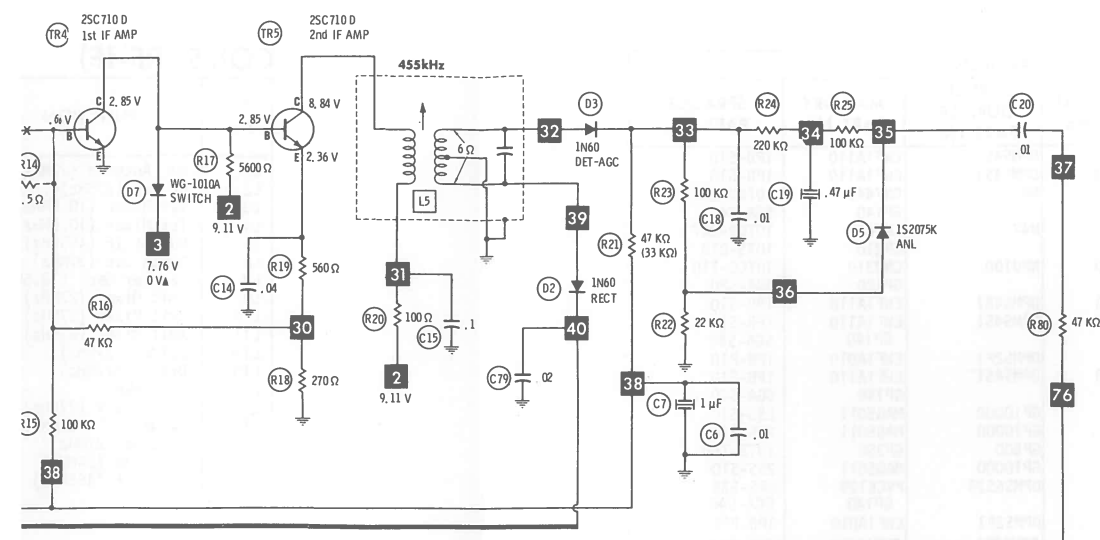




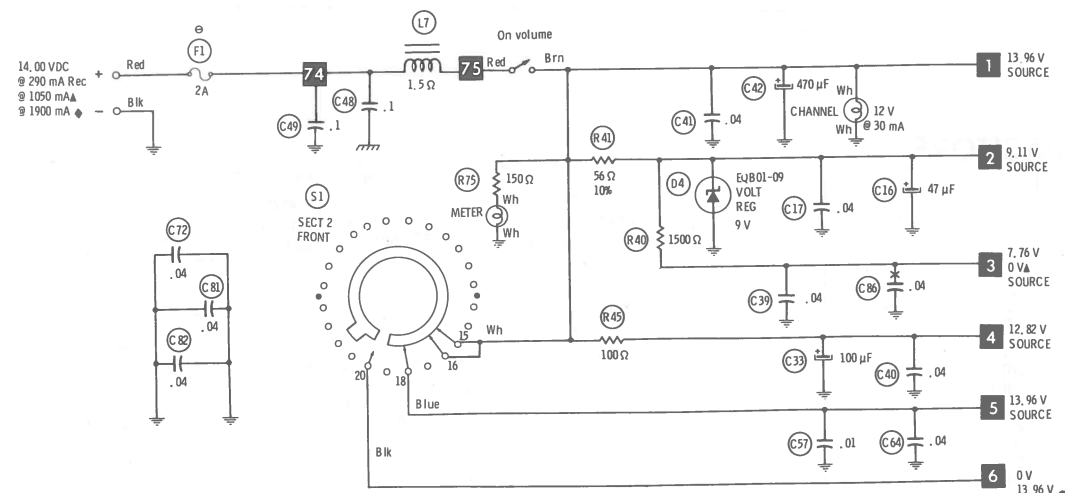
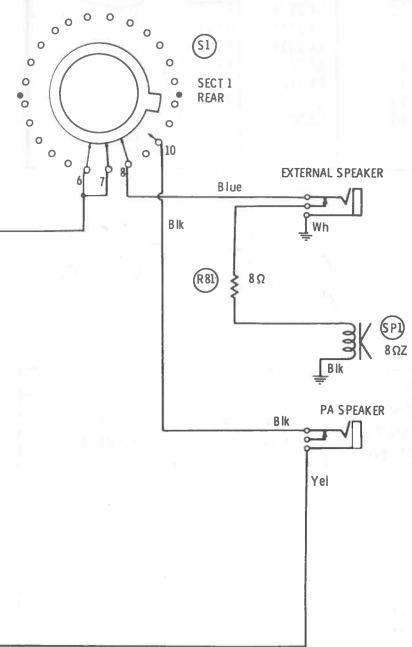
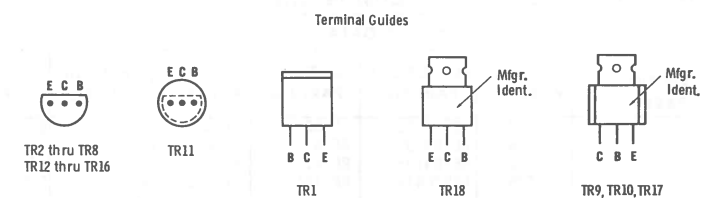








▲ Measured in "PA"
 ♦ 100% modulation.
 ● Squelch control fully clockwise.
 ▲ Transmit.
 --- Indicates chassis.
 --- Indicates ground. (Voltage reference unless otherwise noted).
 --- Indicates connection used in some versions.
 --- Indicates connection not used in some versions.
 * Omitted in some versions.
 * See parts list.
 * Value varies; replace with original value.
 RF—If coil resistance less than one ohm not given.
 Measurements taken with switching as shown unless otherwise noted.
 Values shown in () used in some versions.
 Resistors are 1/2 W, or less, 5% unless otherwise noted.
 Supply voltage maintained at rated value for measurements.
 Voltage measured with VTVM, no signal applied, controls adjusted for normal operation.
 Arrow on control indicates direction of advance.
 Numbers assigned to terminals may not be found on unit.
 A PHOTOFAC STANDARD NOTATION SCHEMATIC
 with **CIRCUITRACE**
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PARTS LIST AND DESCRIPTION

(When ordering parts, state Model, Part Number, and Description.)

SEMICONDUCTORS (Select replacement transistor for best results)

ITEM No.	TYPE No.	MFR. PART No.	REPLACEMENT DATA							
			GENERAL ELECTRIC PART No.	INTERNATIONAL RECTIFIER PART No.	MALLORY PART No.	MOTOROLA PART No.	RAYTHEON PART No.	RCA PART No.	SPRAGUE PART No.	SYLVANIA PART No.
D1	WG1010A		GE-300	D200	PTC214	HEPR0602	RE 52	SK3100	RT-218	ECG177
D2	1N60		1N60	1N60	PTC206	HEPR9135	RE 47	SK3088	RT-263	ECG109
D3	1N60		1N60	1N60	PTC206	HEPR9135	RE 47	SK3088	RT-263	ECG109
D4	EQB01-09		GEZD-9.1	Z1210	PTC505	HEPZ0412	RE 114	SK3060	RT-240	ECG139
D5	1S2075K		1N60	1N60	PTC206	HEPR9135	RE 47	SK3088	RT-263	ECG109
D6	WG1010A		GE-300	D200	PTC214	HEPR0602	RE 52	SK3100	RT-218	ECG177
D7	WG1010A		GE-300	D200	PTC214	HEPR0602	RE 52	SK3100	RT-218	ECG177
D8	1N4002		GE-504A	8D4	PTC201	HEPR0052	RE 49	SK3030	RT-213	ECG116
D9	1N60		1N60	1N60	PTC206	HEPR9135	RE 47	SK3088	RT-263	ECG109
D10	WG1010A		1N60	1N60	PTC206	HEPR9135	RE 47	SK3088	RT-263	ECG109
TR1	2SC535B		GE-20	(1R)2SC535B	PTC136	HEPS0016	RE 9	SK3018	RT-108	ECG107
TR2	2SC710C		GE-17	TR-24	PTC121	HEPS0016	RE 9	SK3018	RT-108	ECG107
TR3	2SC710C		GE-17	TR-24	PTC121	HEPS0016	RE 9	SK3018	RT-108	ECG107
TR4	2SC710D		GE-62	TR-21	PTC123	HEPS0015	RE 13	SK3122	RT-105	ECG123A
TR5	2SC710D		GE-62	TR-21	PTC123	HEPS0015	RE 13	SK3122	RT-105	ECG123A
TR6	2SC711E		GE-62	TR-21	PTC123	HEPS0033	RE 13	SK3018	RT-105	ECG199
TR7	2SC710B		GE-10	TR-24	PTC126	HEPS0015	RE 9	SK3018	RT-107	ECG107
TR8	2SC710B		GE-10	TR-24	PTC126	HEPS0015	RE 9	SK3018	RT-107	ECG107
TR9	2SC1014	(1)	GE-28	TR-21	PTC116	HEPS0020	RE 42	SK3041	RT-154	ECG186
TR10	2SC1014	(1)	GE-28	TR-21	PTC116	HEPS0020	RE 42	SK3041	RT-154	ECG186
TR11	2SC735Y		GE-63	TR-21	PTC123	HEPS0014	RE 13	SK3124	RT-102	ECG123A
TR12	2SC711E		GE-62	TR-21	PTC123	HEPS0033	RE 13	SK3018	RT-105	ECG199
TR13	2SC711E		GE-62	TR-21	PTC123	HEPS0033	RE 13	SK3018	RT-105	ECG199
TR14	2SC710B		GE-10	TR-24	PTC126	HEPS0015	RE 9	SK3018	RT-107	ECG107
TR15	2SC710D		GE-62	TR-21	PTC123	HEPS0015	RE 13	SK3122	RT-105	ECG123A
TR16	2SC620D		GE-20	TR-24	PTC136	HEPS0014	RE 13	SK3122	RT-102	ECG123A
TR17	2SC1018	(2)			PTC110	HEPS3020	RE 80	SK3054		ECG210
TR18	2SC1306/1678	(3)	GE-66	TR-55	PTC110					ECG235

- (1) Rating 7 watts @ 1.5 amps.
(2) Rating 4 watts @ 1 amp.
(3) Rating 12 watts @ 3 amps.

GE-273 WEPR1014
GE-273 WEPR1014
RE 213 RE 213
RT-137 ECG300
RT-137 ECG300

ELECTROLYTIC CAPACITORS

ITEM No.	RATING	REPLACEMENT DATA					
		MFR. PART No.	ARCO PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	MALLORY PART No.	SPRAGUE PART No.
C7	1 NP 50V			EN50-105	WNP1-50	TCN501A	
C16	47 16V		RME-E-E-050	EP15-50	PC50-16	MTV50CB15	EV-1226
C19	.47 NP 50V			EN50-105	WNP1-50	TCN501A	
C21	1 NP 50V		RME-B-E-010	EP15-10	PC10-25	VTT10A25	EV-1222
C22	10 16V		RME-A-D-010	EP15-10	PC10-25	VTT10A25	EV-1222
C23	10 10V			EN50-105	WNP1-50	TCN501A	
C30	1 NP 50V			EP15-100	PC100-16	MTV100CD15	EV-1230
C33	100 16V		RME-E-E-100	EP15-100	PC100-16	MTV100CD15	EV-1230
C34	100 16V		RME-E-E-100	EP15-100	PC100-16	MTV100CD15	EV-1230
C37	47 6.3V		RMC-C-B-050	EP6-50	PC50-10	MTV500DN15	EV-1250
C42	470 16V		RME-L-E-500	EP15-500	PC500-16	VTT47A6	EV-1026
C43	47 6.3V		RME-C-B-050	EP6-50	PC50-10	VTT47A6	EV-1026
C66	1 NP 50V			EN50-105	WNP1-50	TCN501A	

CAPACITORS

ITEM No.	RATING	MFR. PART No.	REPLACEMENT DATA				
			ARCO/ELMENDO PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	MALLORY PART No.	SPRAGUE PART No.
C1	.02		CCD-203			GP120	5GA-S20
C2	.02		CCD-203			GP120	5GA-S20
C3	.02		CCD-203			GP120	5GA-S20
C4	.02		CCD-203			GP120	5GA-S20
C5	.02		CCD-203			GP120	5GA-S20
C6	.01		CCD-103	DC-103	GP10000	MAG5011	2SS-S10
C8	.001		CCD-102	DD-102		GP210	10TS-D10
C9	.02		CCD-203			GP120	5GA-S20
C10	2		CCTO-2R2	DTZ-2R2	NP02P2	CNO522	10TCC-V22
C11	.02		CCD-203			GP120	5GA-S20
C12	5		CCTO-050			GP140	10TCC-V50
C13	.04		CCD-403			GP140	5GA-S40
C14	.04		CCD-403			MAG5001	5GA-S40
C15	.1			DC-104	MGP1	GP140	TG-P10
C17	.04		CCD-403			GP140	5GA-S40

PARTS LIST AND DESCRIPTION (CONTINUED)

(When ordering parts, state Model, Part Number, and Description.)

CAPACITORS (cont)

ITEM No.	RATING	MFR. PART No.	REPLACEMENT DATA				
			ARCO/ELMENDO PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	MALLORY PART No.	SPRAGUE PART No.
C18	.01		TMDF-1-103	CPJ-103	DPMS4S1	EWFA1A110	1PB-S10
C20	.01		TMDF-1-103	CPJ-103	DPMS4S1	EWFA1A110	1PB-S10
C24	50 N750		CCTN-470	DTN-47	N47	CN7447	10TCU-Q47
C25	.04		CCD-403			GP140	5GA-S40
C26	50 N750		CCTN-470	DTN-47	N47	CN7447	10TCU-Q47
C27	.001		CCD-102	DD-102		GP210	10TS-D10
C28	100			DTZ-100	NP0100	CNO310	10TCC-T10
C29	.02		CCD-203			GP120	5GA-S20
C31	.01		TMDF-1-103	CPJ-103	DPMS4S1	EWFA1A110	1PB-S10
C32	.01		TMDF-1-103	CPJ-103	DPMS4S1	EWFA1A110	1PB-S10
C35	.04		CCD-403			GP140	5GA-S40
C36	.1		TMDF-3-104		DPMS2P1	EWFA010	1PB-P10
C38	.01		TMDF-1-103	CPJ-103	DPMS4S1	EWFA1A110	1PB-S10
C39	.04		CCD-403			GP140	5GA-S40
C40	.01		CCD-103	DC-103	GP10000	MAG5011	2SS-S10
C41	.01		CCD-103	DC-103	GP10000	MAG5011	2SS-S10
C44	500		CCD-501	DD-501	GP500	GP350	10TS-T50
C45	.01		CCD-103	DC-103	GP10000	MAG5011	2SS-S10
C46	.04		6DP-3-393		DPMS6S39	PVC6139	6PS-S39
C47	.04		CCD-403			GP140	5GA-S40
C48	.1		TMDF-3-104		DPMS2P1	EWFA010	1PB-P10
C49	.1		TMDF-3-104		DPMS2P1	EWFA010	1PB-P10
C50	100		CCTO-101	DTZ-100	NP0100	CNO310	10TCC-T10
C51	500						
C52	80 N750		CCTN-820			CN7482	10TCU-Q82
C53	30		CCTO-300				10TCC-Q30
C54	15		CCTO-150				10TCC-Q15
C55	.01		CCD-103	DTZ-15	NP015	CNO415	10TCU-T15
C56	150 N750		CCD-103	DTN-150	NP015	GP10000	2SS-S10
C57	.01		CCD-103	DTN-150	NP015	GP10000	2SS-S10
C58	3		CCTO-3R3	DTN-150	NP03P3	CNO533	10TCC-V33
C59	150 N750			DTN-150	NP03P3	CNO533	10TCU-T15
C60	3		CCTO-3R3	DTN-150	NP03P3	CNO533	10TCC-V33
C61	150 N750			DTN-150	NP03P3	CNO533	10TCU-T15
C62	200 N750		CCTN-201				10TCU-T20
C63	.04		CCD-403			GP140	5GA-S40
C64	.04		CCD-403			GP140	5GA-S40
C65	150 N750			DTN-150	N150	CN7315	10TCU-T15
C67	.02		CCD-203			GP120	5GA-S20
C68	.04		CCD-403			GP140	5GA-S40
C69	150 N750			DTN-150	N150	CN7315	10TCU-T15
C70	50			DTZ-50	NP050	CNO450	10TCC-Q50
C71	.01		CCD-103	DC-103	NP050	GP10000	2SS-S10
C72	.04		CCD-403			GP140	5GA-S40
C73	200		CCD-201	DD-201	GP200	GP320	10TS-T20
C74	350		CCD-391	DD-391	GP390	GP339	10TS-T39
C75	300		CCD-301	DD-301	GP300	GP330	10TS-T30
C76	1					CNO510	10TCC-V10
C77	.01		CCD-103	DC-103	GP10000	MAG5011	2SS-S10
C78	.1			DC-104	MGP1	MAG5001	TG-P10
C79	.02		CCD-203			GP120	5GA-S20
C80	15		CCTO-150	DTZ-15	NP015	CNO415	10TCC-Q15
C81	.04		CCD-403			GP140	5GA-S40
C82	.04		CCD-403			GP140	5GA-S40
C83	13					CNO412	10TCC-Q12
C85	2				WMF1W2	EWFA1A20	156P20504
C86	.04		CCD-403			GP140	5GA-S40
C88	.001		CCD-102	DD-102		GP210	10TS-D10
C90	.001 10%		DM19-102J	CPR-1000J	CD19FD102J03	SX210	424ME1001J501
C91	.01		TMDF-3-104		DPMS2P1	EWFA010	1PB-P10
C93	500		CCD-501	DD-501	GP500	GP350	10TS-T50

CONTROLS (All wattages 1/2 watt, or less, unless listed)

ITEM No.	FUNCTION	RESISTANCE	REPLACEMENT DATA			
			MFR. PART No.	CENTRALAB PART No.	CLAROSTAT PART No.	TRW PART No.
VR1	Volume/Switch	10K	4-0002			
VR2	Squelch	10K	4-0022			
VR3	Squelch Range	30K	4-0107	TSV-50K (2) or T-50K (2)	C-503 (2)	MTC54L1 (2)
VR4	"S" Meter	30K	4-0107	TSV-50K (2) or T-50K (2)	C-503 (2)	MTC54L1 (2)
VR5	RF Panel	30K	4-0107	TSV-50K (2) or T-50K (2)	C-503 (2)	MTC54L1 (2)

(2) Cut off one of the end terminals and bend to fit PC board.

PARTS LIST AND DESCRIPTION (CONTINUED)

(When ordering parts, state Model, Part Number, and Description.)

COILS (RF-IF)

ITEM No.	FUNCTION	REPLACEMENT DATA			REMARKS
		PART No.	OTHER IDENTIFICATION	MILLER PART No.	
L1	Rec Antenna (27MHz)	2-0049	ETC15089		
L2	RF Amp (27MHz)	2-0045	ETC15061		
L3	1st Mixer (10.6MHz)	2-0046	ETC15062		
L4	1st Mixer (10.6MHz)	2-0046	ETC15062		
L5	Output IF (455kHz)	2-0050	ETC15090		
L6	Synth Osc (37MHz)	2-0047	ETC15063		
L8	Carrier Osc. (10.6MHz)	2-0040	ETC1034		
L9	Xmit Mixer (27MHz)	2-0048	ETC15064		
L10	Xmit Mixer (27MHz)	2-0048	ETC15064		
L11	Xmit Mixer (27MHz)	2-0047	ETC15063		
L12	Buffer (27MHz)	2-0035	ETC1016		
L13	Driver (27MHz)	2-0036	ETC1017		
L14	RF Choke	2-0038	ETC1032		
L15	Final Tank (27MHz)	2-0037	ETC1031		
L16	Pi Network (27MHz)	2-0041	ETC1037		
L17	Antenna (27MHz)	2-0041A	ETC1037		
L18	TVI Trap (54MHz)	2-0042	ETC15091		
L19	Input IF (455kHz)				

FILTER CHOKE

ITEM No.	RATINGS			REPLACEMENT DATA			NOTES
	CURRENT (Measured)	DC RES.	INDUCTANCE (0 CURRENT 1000~)	MFGR. PART No.	THORDARSON PART No.	TRIAD PART No.	
L7	1900mA	1.5	.8mH	2-0030 1002 (1)			(1) Number on unit.

TRANSFORMER (Driver)

ITEM No.	TURNS RATIO			REPLACEMENT DATA			NOTES
	PRI.	SEC. 1	SEC. 2	MFGR. PART No.	THORDARSON PART No.	TRIAD PART No.	
T2	1.6	1		2-0033 1001 (1)			(1) Number on unit.

TRANSFORMER (Audio Output)

ITEM No.	IMPEDANCE		REPLACEMENT DATA			NOTES
	PRI.	SEC.	MFGR. PART No.	THORDARSON PART No.	TRIAD PART No.	
T1	32	8	2-0032 1003 (1)			(1) Number on unit.

SPEAKER

ITEM No.	TYPE	REPLACEMENT DATA		NOTES
		MFGR. PART No.	QUAM PART No.	
SP1	2 1/2" PM, 8 Ohms	5-0136		

PARTS LIST AND DESCRIPTION (CONTINUED)

(When ordering parts, state Model, Part Number, and Description.)

FUSE DEVICES

ITEM No.	DESCRIPTION	REPLACEMENT DATA						
		PART No.		BUSS PART No.		LITTELFUSE PART No.		WORKMAN PART No.
		DEVICE	HOLDER	DEVICE	HOLDER	DEVICE	HOLDER	DEVICE
F1	2 Amp 1.5 Amp (1)	5-0160		AGC2	HDJ	312002	150145	FG2-2

(1) Used in some versions.

MISCELLANEOUS

ITEM No.	PART NAME	PART No.	NOTES
CF	Filter	5-0164	Ceramic (455kHz)
M1	Meter	5-0134	"S"/RF
S1	Switch		Channel Selector
X1	Crystal		37.600MHz
X2	Crystal		37.650MHz
X3	Crystal		37.700MHz
X4	Crystal		37.750MHz
X5	Crystal		37.800MHz
X6	Crystal		37.850MHz
X7	Crystal		10.635MHz
X8	Crystal		10.625MHz
X9	Crystal		10.615MHz
X10	Crystal		10.595MHz
X11	Crystal		10.180MHz
X12	Crystal		10.170MHz
X13	Crystal		10.160MHz
X14	Crystal		10.140MHz
	PC Board		Main Board
	PC Board		IF Board

ROYCE MODEL 1-600B

CABINETS & CABINET PARTS (When ordering specify model, chassis & color)

ITEM	PART No.	ITEM	PART No.
Metal Case	3-0002	Channel Disc	3-0327
Front Panel	3-0037	Mobile Mounting Bracket	3-0207
Knob, Volume/Squelch	3-0102	Microphone Hanger	3-0220

ACCESSORIES

ITEM	MFGR. PART No.	REMARKS
Microphone, Complete	5-1200	
DC Power Cord	5-0152	

WIRING DATA

General-use Hook-up Wire	Use BELDEN No. 8530 (Solid) Available in 12 Colors
Shielded Antenna Lead	8524 (Stranded) Available in 12 Colors
	Use BELDEN No. 8214 Lowest-loss (RG-8/U Type)
	8237 Low-loss (RG-8/U)
	8240 (Solid) Miniature (RG-58/U)
	8259 (Stranded) Miniature (RG-58A/U)
Coiled Microphone Cable	Use BELDEN No. 8497 3-Conductor (1 shielded for Press-to-Talk) Neoprene
	8491 4-Conductor (2 shielded, 2 unshielded) Neoprene
Ignition Noise Suppression	Use BELDEN No. 7300-Series Spark-Plug Sets
Bonding Strap	Use BELDEN No. 8661 (3/8 inch)