

PHOTOFACT[®] with

CIRCUITRACE[®]

For Supplier Address See PHOTOFACT Index

NOTE

Repair or adjustment of transmitter circuits must be under supervision of a person with first-or second-class radiotelephone license.
(Refer to FCC Rules and Regulations Part 95, Subpart 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.



PAL MODEL ROADRUNNER 23

MODEL Roadrunner 23 (RR-23 , B)

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

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7CY555

ALIGNMENT INSTRUCTIONS

CAUTION: Use isolation transformer or observe polarity when connecting test equipment. Maintain line voltage at 120V AC. Allow a 15-minute warm-up period.
Adjustments made with 13.8-volt DC input.
Connect low sides of test equipment to ground unless specified otherwise.
Connect 50-ohm dummy load or antenna before keying transmitter.
Suggested Alignment Tools: GC ELECTRONICS:
L1, L9, L10, T3, T4, T5, T6, T14, T15 5009
L2, L3, L6, T1, T2, T10, T11, T12, T13 9440
L11 8282, 9440
C98 5000

SYNTHESIZER ALIGNMENT

TEST EQUIPMENT	TRANSCEIVER	ADJUST	REMARKS
Inputs of frequency counter and RF VTVM to TP1.	Ch. 13	L2	Adjust for maximum at 17.115MHz.
Input of frequency counter to TP1.	Ch. 17 Ch. 21 Ch. 1 Ch. 5 Ch. 9		Check for 17.165MHz. Check for 17.215MHz. Check for 16.965MHz. Check for 17.015MHz. Check for 17.065MHz.
Inputs of frequency counter and RF VTVM to TP2.	Ch. 13, Delta Tune-Center.	L3	Adjust for maximum at 9.545MHz.
Input of frequency counter to TP2.	Ch. 14, Delta Tune-Center. Ch. 15, Delta Tune-Center. Ch. 16, Delta Tune-Center.		Check for 9.555MHz. Check for 9.565MHz. Check for 9.585MHz.
Input of frequency counter to TP3.	Ch. 13, Xmit Ch. 14, Xmit Ch. 15, Xmit Ch. 16, Xmit		Check for 10.000MHz. Check for 10.010MHz. Check for 10.020MHz. Check for 10.040MHz.

RECEIVER ALIGNMENT

Connect an AC VTVM or AF wattmeter across speaker voice coil.
Adjust volume control to obtain a suitable indication.
Set generator output low enough to prevent AGC limiting.

TEST EQUIPMENT	TRANSCEIVER	ADJUST	REMARKS
Output of signal generator thru .01uF to TP4. 455kHz, 1000Hz @ 30% modulation.	Ch. 13	T6, T5, T4	Adjust for maximum output.
Output of signal generator thru .01uF to TP1. 10MHz, 1000Hz @ 30% modulation.	Ch. 13, Delta Tune-Center.	T3a, T3b	Adjust for maximum output.
Output of signal generator thru .01uF to antenna jack. 27.115MHz, 1000Hz @ 30% modulation.	Ch. 13, Delta Tune-Center.	T2, T1, L1	Adjust for maximum output.

RECEIVER ADJUSTMENTS

Connect an AC VTVM or AF wattmeter across speaker voice coil.
Adjust volume control to obtain a suitable indication.

TEST EQUIPMENT	TRANSCIEVER	ADJUST	REMARKS
Output of signal generator thru .01uF to antenna jack. 27.115MHz, 1000Hz @ 30% modulation. Output 50,000uV.	Ch. 13, Delta Tune-Center.	VR1	AGC Adjust volume VR4 to obtain 0db. Decrease generator to 50uV. Adjust VR1 so that audio signal does not drop more than 10db.
Output of signal generator thru .01uF to antenna jack. 27.115MHz, 1000Hz @ 30% modulation. Output 500uV.	Ch. 13, Delta Tune-Center.	VR5	SQUELCH RANGE Set squelch control VR6 fully clockwise. Adjust VR5 so that squelch just breaks.

TRANSMITTER ALIGNMENT

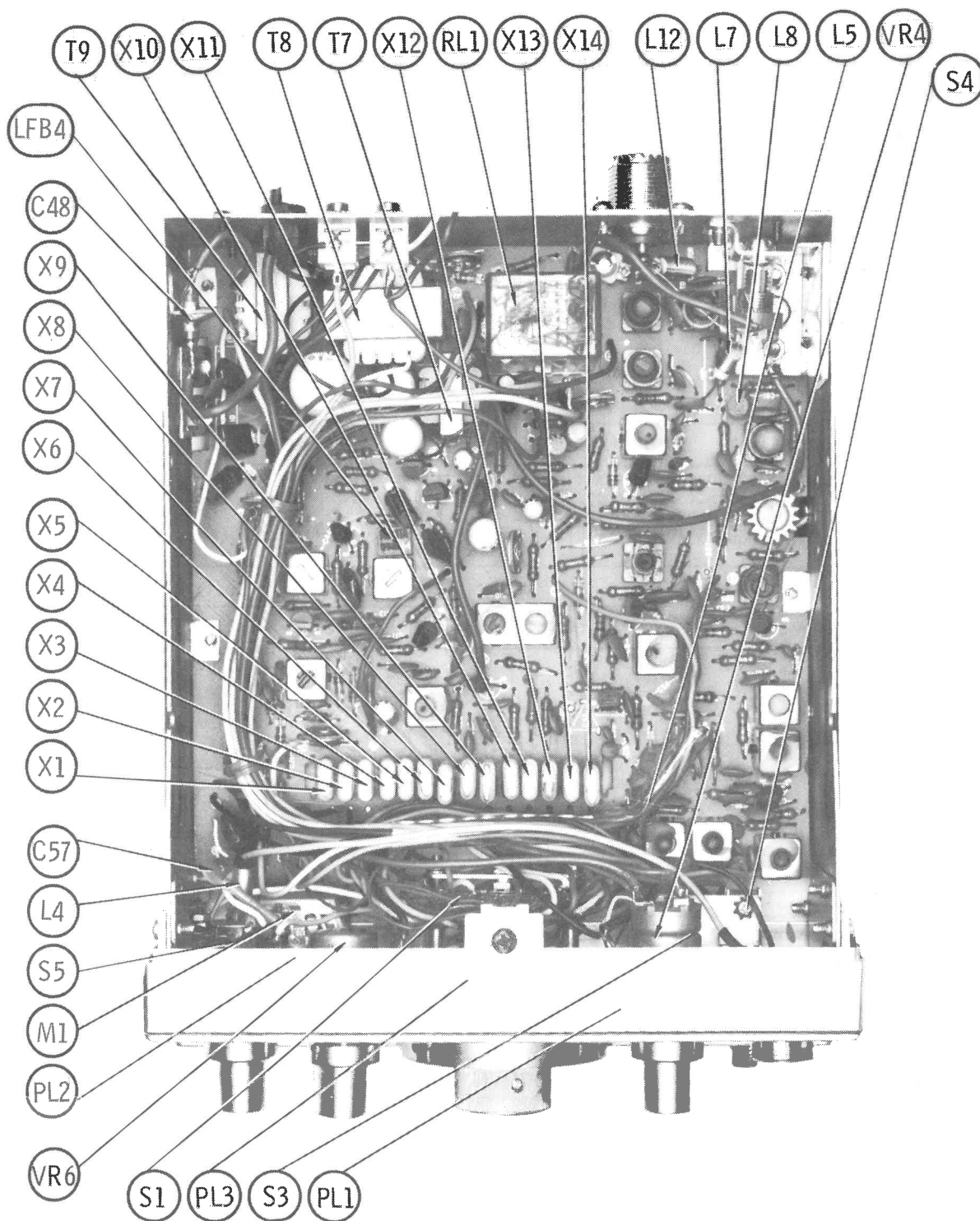
Connect an RF wattmeter and 50-ohm, 25-watt dummy load to antenna connector.
NOTE: Be sure to check transmit frequency and power on all active channels after alignment of transmitter.
See page 4 for channel frequencies.

TEST EQUIPMENT	TRANSCIEVER	ADJUST	REMARKS
Input of spectrum analyzer to antenna jack.	Ch. 13	T10,T11,T12, T13,L6,T14, T15,L9,L10, L11.	Adjust for maximum.
	Ch. 13	L11	Adjust for 4 watts maximum.
	Ch. 13	C98	Adjust for MINIMUM at 54MHz.

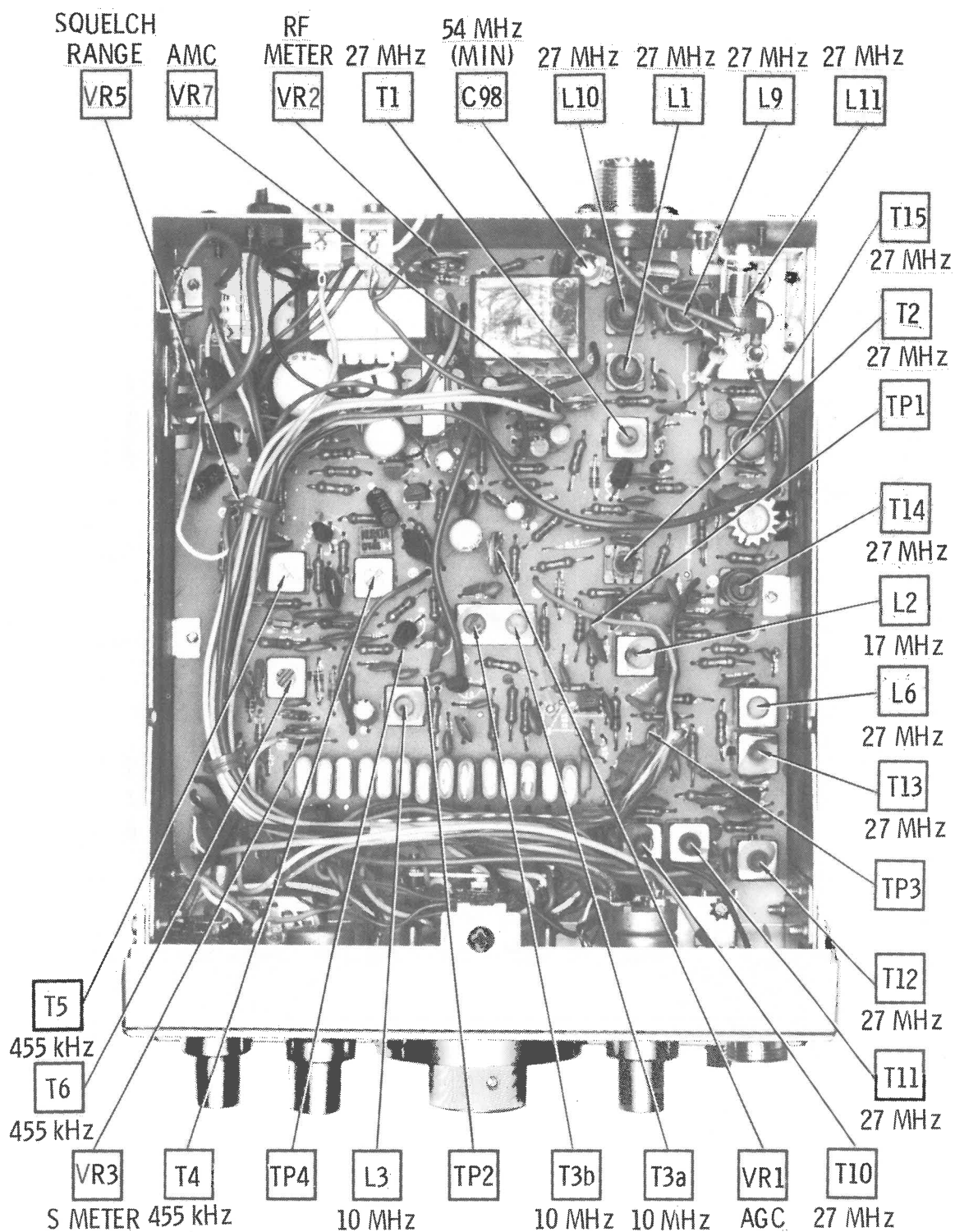
TRANSMITTER ADJUSTMENTS

Connect an RF wattmeter and 50-ohm, 25-watt dummy load to antenna connector.
NOTE: Be sure to check transmit frequency and power on all active channels after adjustment of transmitter.
See page 4 for channel frequencies.

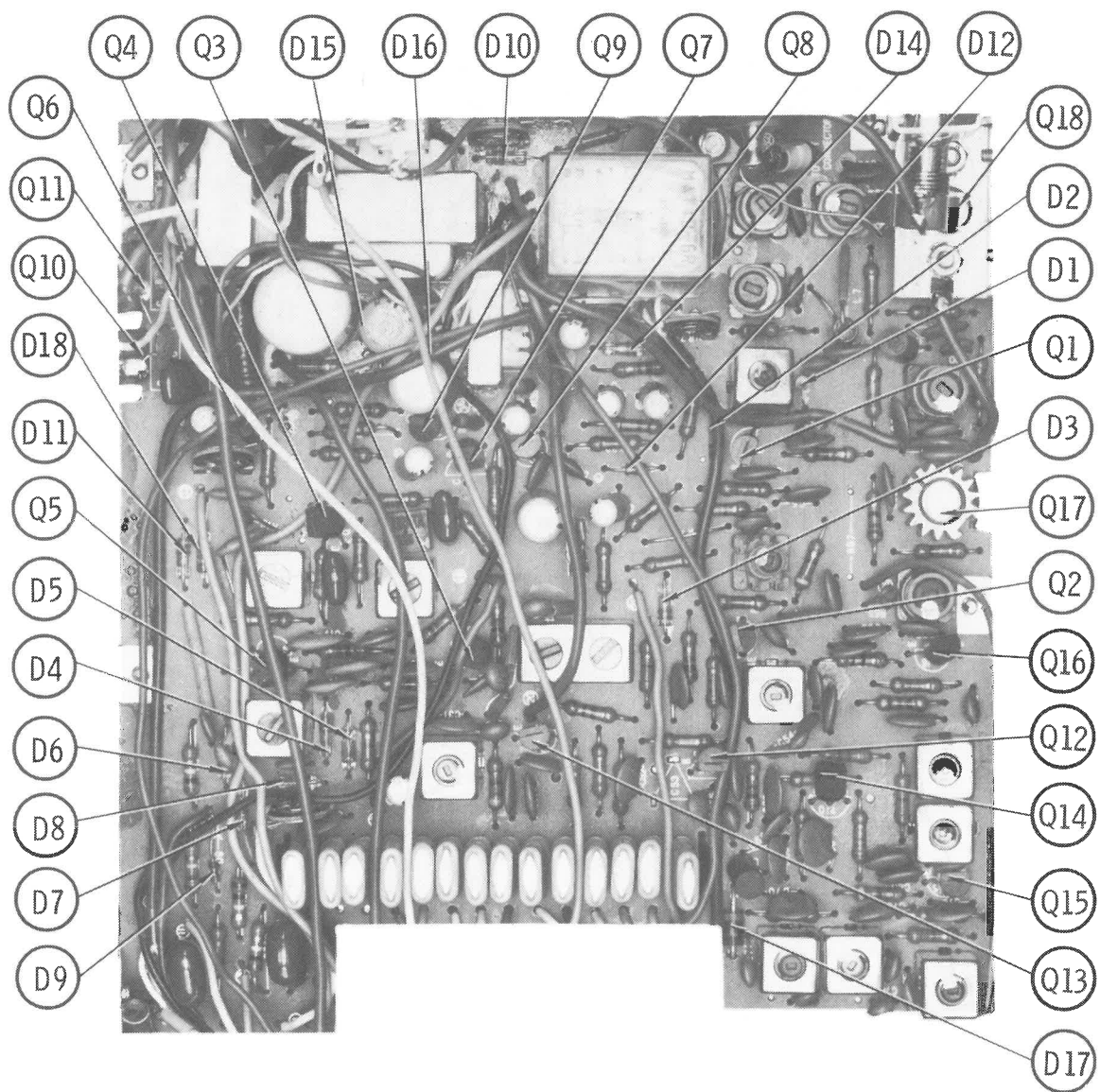
TEST EQUIPMENT	TRANSCIEVER	ADJUST	REMARKS
Modulation meter to antenna jack. Inject a 1000Hz signal at mic input.	Ch. 13	VR7	AMC Disconnect VR7 to disable AMC. Adjust signal for over-modulation. Restore AMC operation. Adjust VR7 for 100% modulation maximum.
	Ch. 13	VR2	RF PANEL METER Adjust VR2 so that RF panel meter agrees with RF wattmeter.



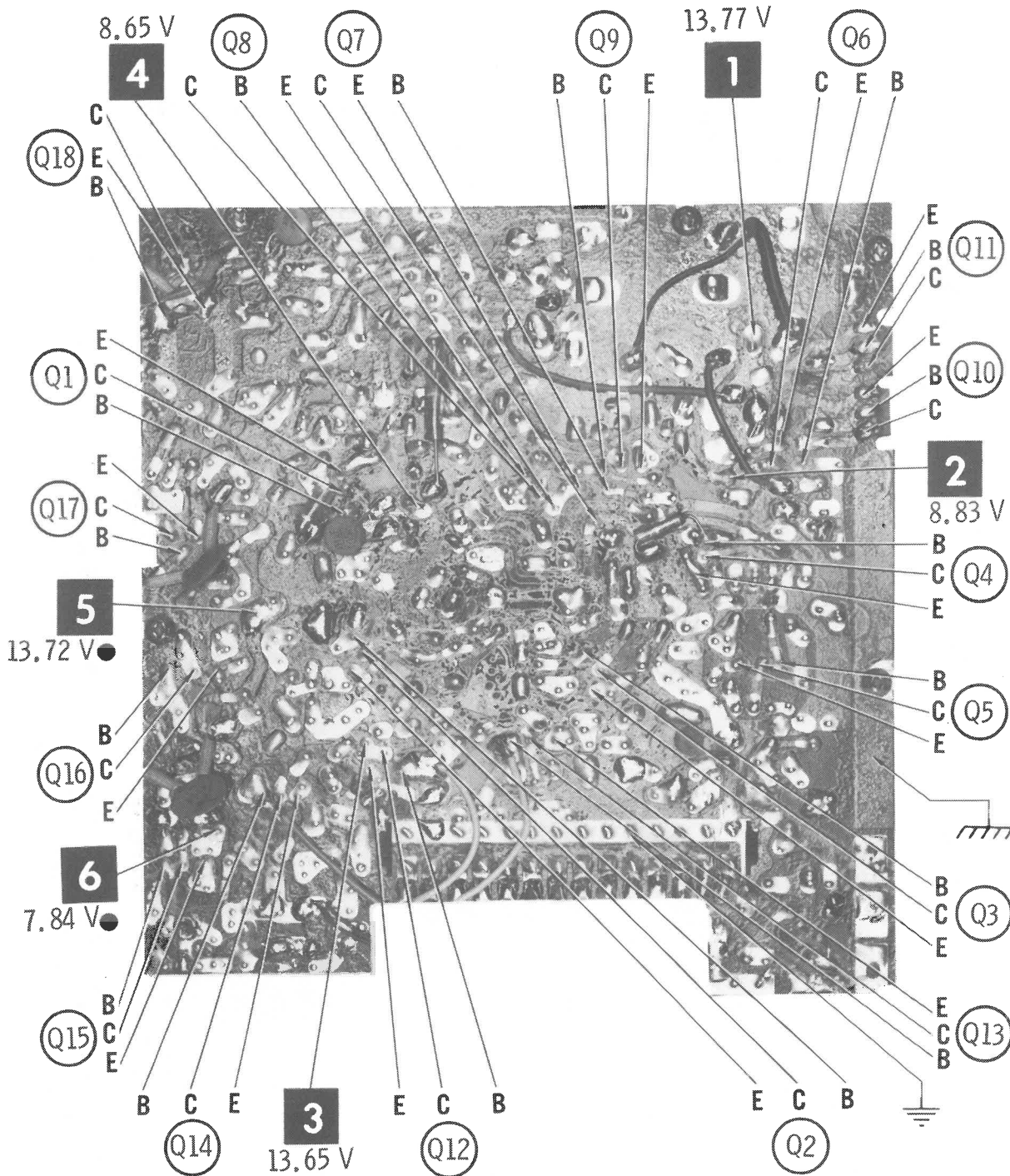
CHASSIS-BOTTOM



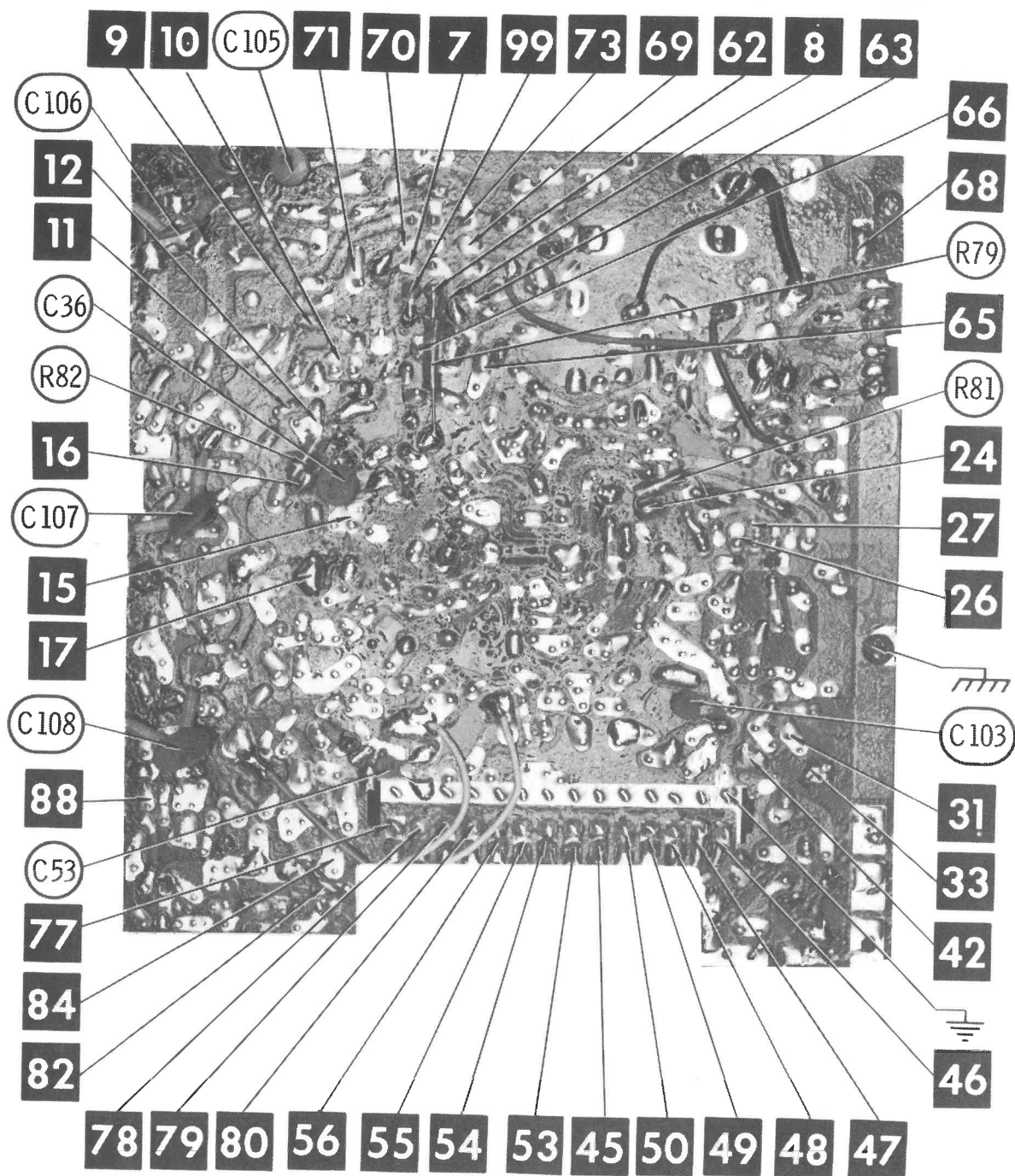
CHASSIS-BOTTOM



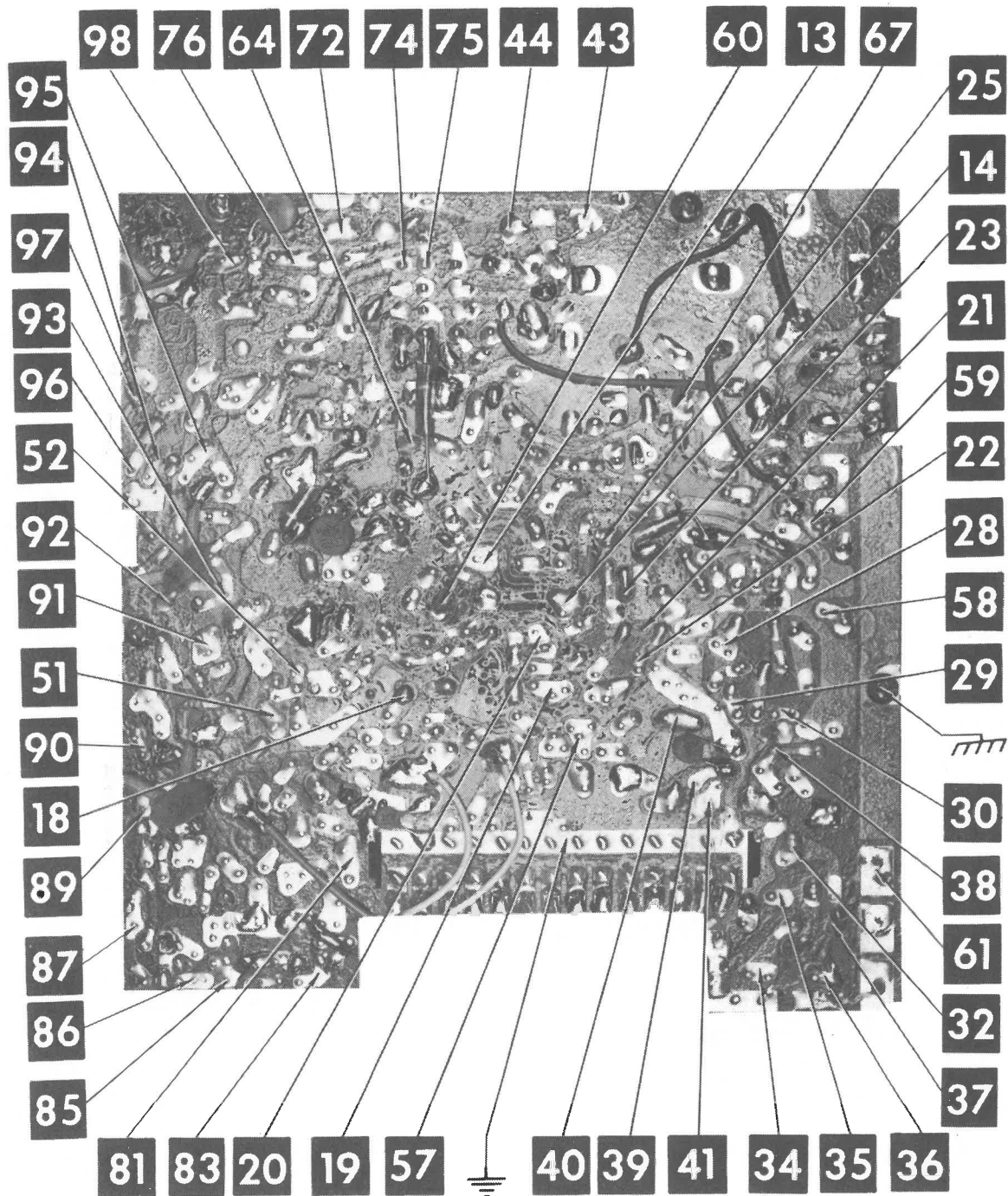
MAIN BOARD



MAIN BOARD

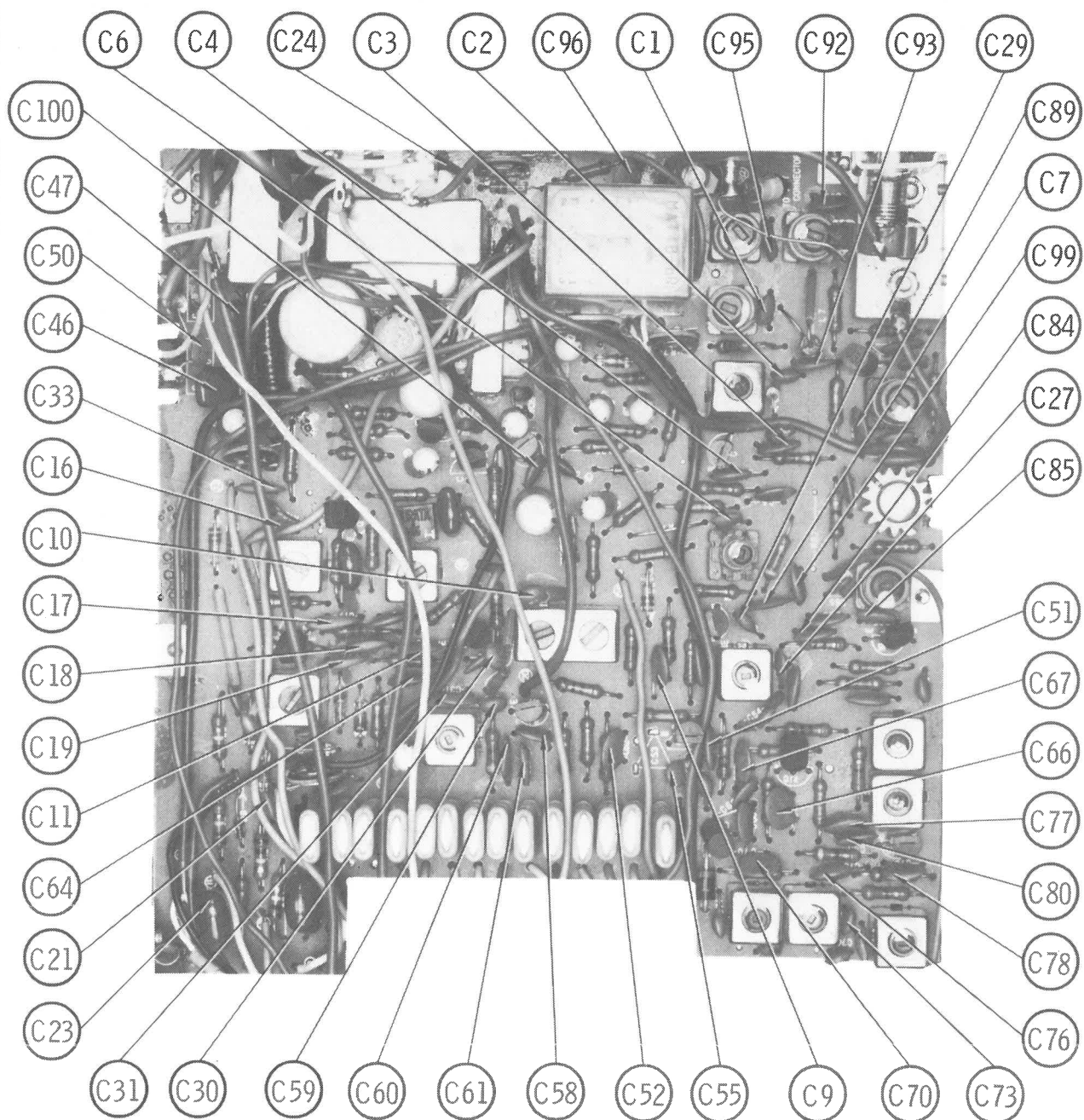


MAIN BOARD

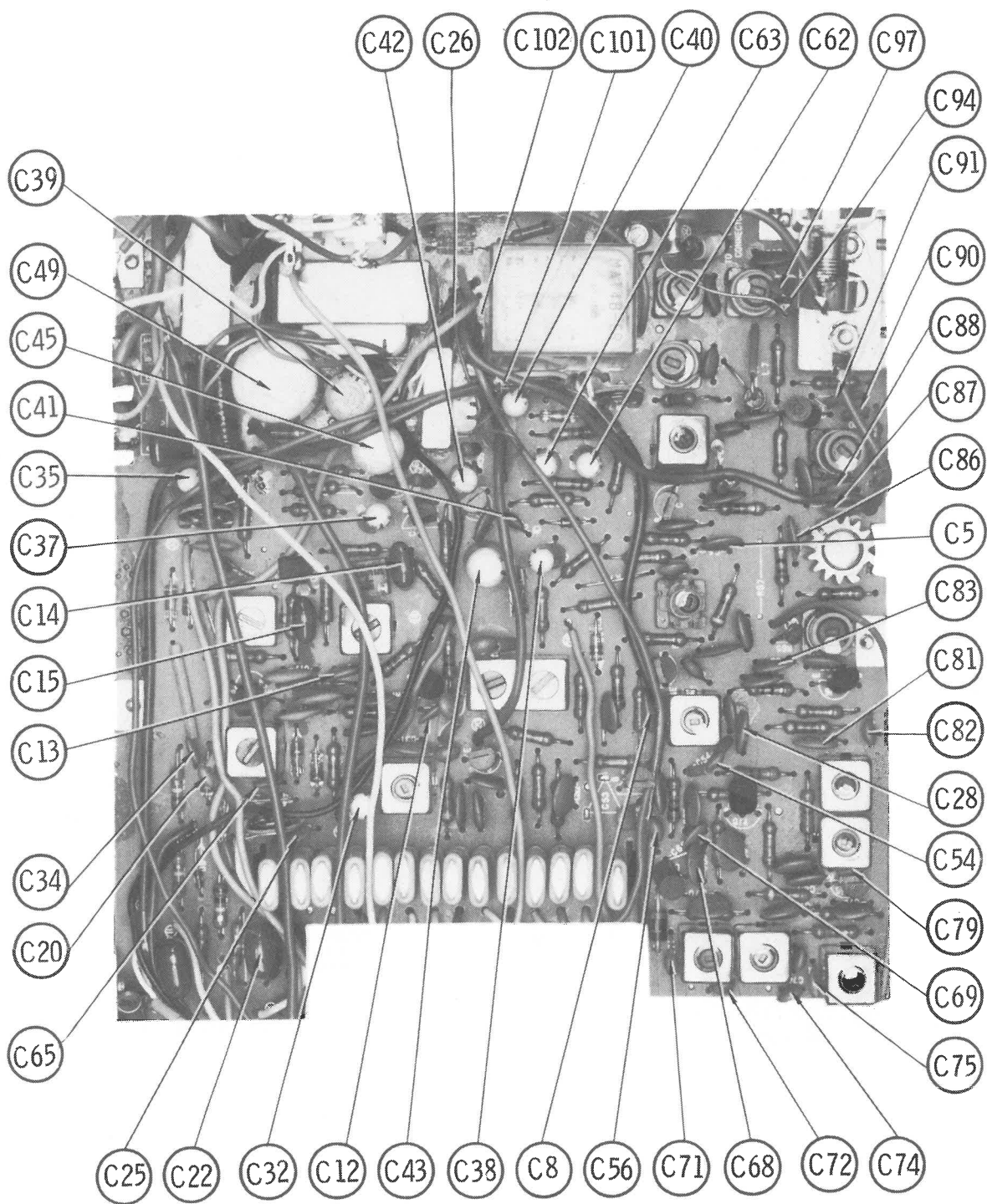


PAL MODEL ROADRUNNER 23

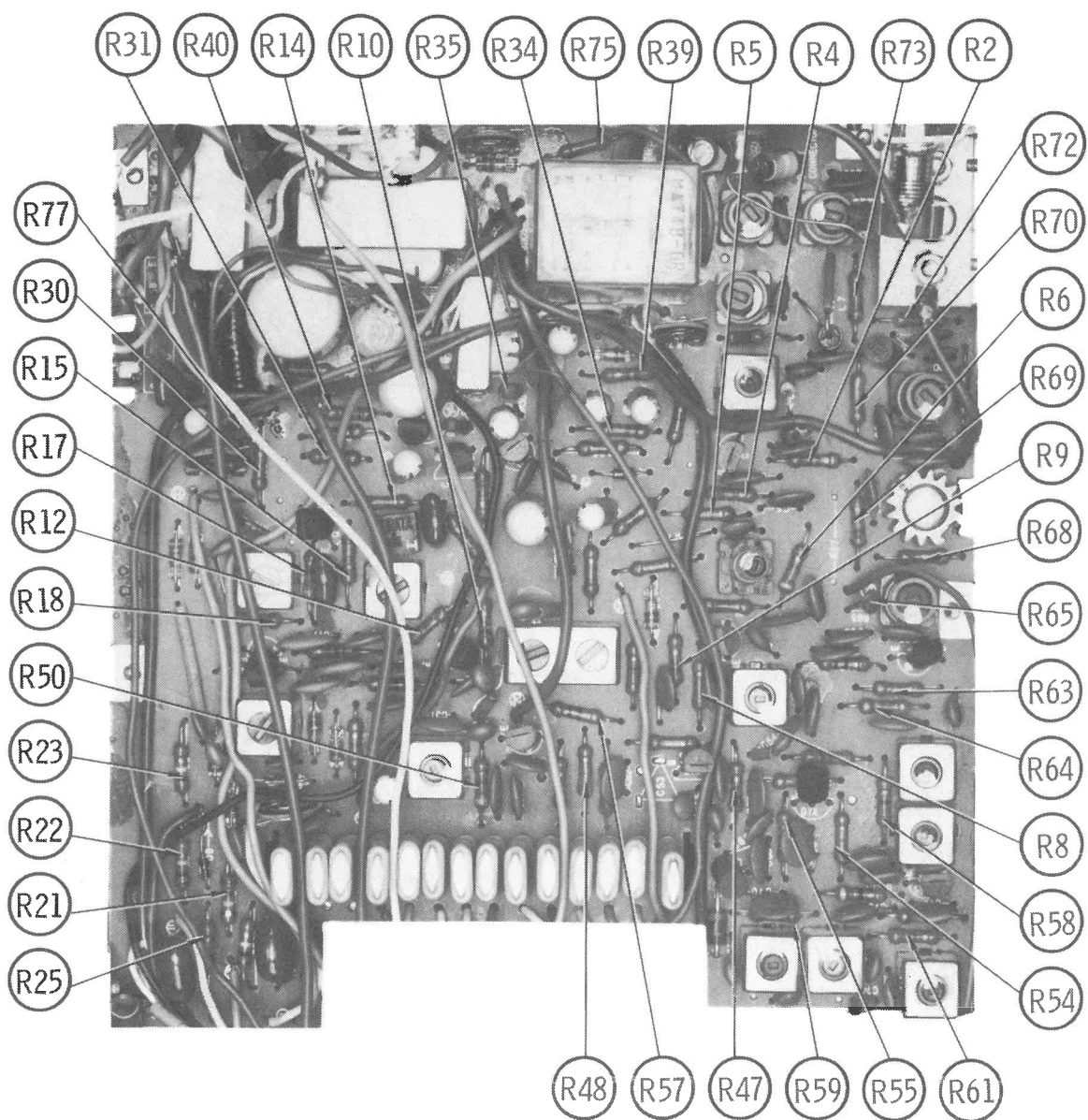
MAIN BOARD



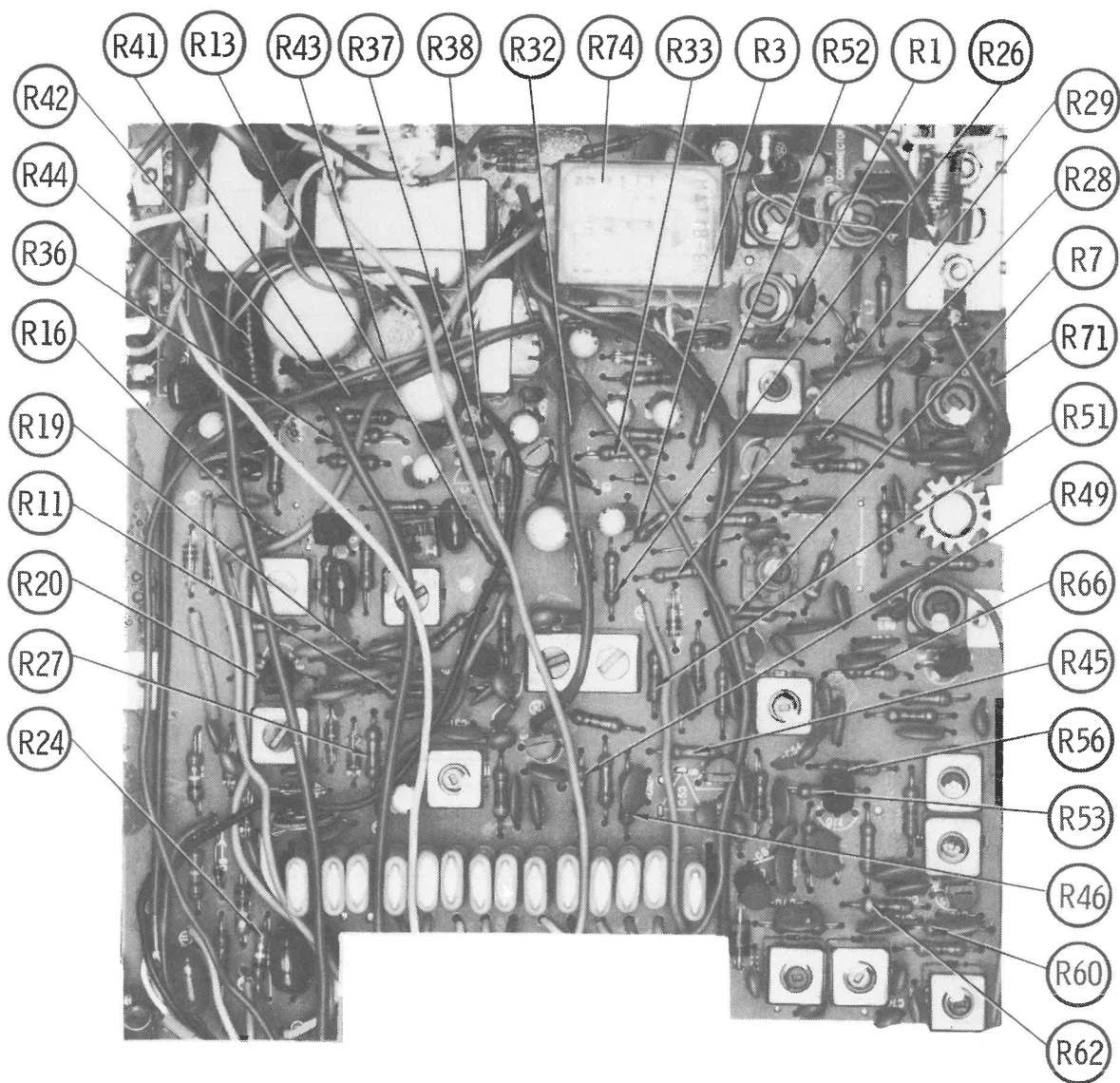
MAIN BOARD



MAIN BOARD



MAIN BOARD



MAIN BOARD



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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.	MFG. PART No.	REPLACEMENT DATA							
			GENERAL ELECTRIC PART No.	IR WORKMAN PART No.	MALLORY PART No.	MOTOROLA PART No.	RAYTHEON PART No.	RCA PART No.	SPRAGUE PART No.	SYLVANIA PART No.
D1	1N60		1N60	1N60	PTC206	HEPR9135	RE 47	SK3088	RT-263	ECG109
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	1N60		1N60	1N60	PTC206	HEPR9135	RE 47	SK3088	RT-263	ECG109
D5	1N60		1N60	1N60	PTC206	HEPR9135	RE 47	SK3088	RT-263	ECG109
D6	1N60		1N60	1N60	PTC206	HEPR9135	RE 47	SK3088	RT-263	ECG109
D7	1N60		1N60	1N60	PTC206	HEPR9135	RE 47	SK3088	RT-263	ECG109
D8	1N60		1N60	1N60	PTC206	HEPR9135	RE 47	SK3088	RT-263	ECG109
D9	1S1555		GE-300	D200	PTC214	HEPR0602	RE 52	SK3100	RT-218	ECG177
D10	1N60		1N60	1N60	PTC206	HEPR9135	RE 47	SK3088	RT-263	ECG109
D11	1N60		1N60	1N60	PTC206	HEPR9135	RE 47	SK3088	RT-263	ECG109
D12	CDZ-C9V		GEZD-9.1	Z1209	ZB9.1A	HEPZ0412	RE 114	SK3060	RT-240	ECG139
D14	1N60		1N60	1N60	PTC206	HEPR9135	RE 47	SK3088	RT-263	ECG109
D15	MV-3				PTC301					ECG604
D16	CDZ-C9V		GEZD-9.1	Z1209	ZB9.1A	HEPZ0412	RE 114	SK3060	RT-240	ECG139
D17	1S1941		GE-300	D200	PTC214	HEPR0602	RE 52	SK3100	RT-218	ECG177
D18	1N60		1N60	1N60	PTC206	HEPR9135	RE 47	SK3088	RT-263	ECG109
Q1	2SC710		GE-211 *	(IR)2SC710	PTC115	HEPS0016 *	RE 13 *	SK3018 *	RT-308 *	ECG123A *
Q2	2SC710		GE-211 *	(IR)2SC710	PTC115	HEPS0016 *	RE 13 *	SK3018 *	RT-308 *	ECG123A *
Q3	2SC710		GE-211 *	(IR)2SC710	PTC115	HEPS0016 *	RE 13 *	SK3018 *	RT-308 *	ECG123A *
Q4	2SC710		GE-211 *	(IR)2SC710	PTC115	HEPS0016 *	RE 13 *	SK3018 *	RT-308 *	ECG123A *
Q5	2SC710		GE-211 *	(IR)2SC710	PTC115	HEPS0016 *	RE 13 *	SK3018 *	RT-308 *	ECG123A *
Q6	2SC1312		GE-62	(IR)2SC372	PTC139 *	HEPS0015 *	RE 192	SK3122	RT-172 *	ECG199
Q7	2SC1312		GE-62	(IR)2SC372	PTC139 *	HEPS0015 *	RE 192	SK3122	RT-172 *	ECG199
Q8	2SC1312		GE-62	(IR)2SC372	PTC139 *	HEPS0015 *	RE 192	SK3122	RT-172 *	ECG199
Q9	2SC620		GE-20 *	(IR)2SC644	PTC125 *	HEPS0015 *	RE 13 *	SK3020 *	RT-107A *	ECG123A *
Q10	2SC1014		GE-273	WEP1014	PTC193		RE 213		RT-137	ECG300
Q11	2SC1014		GE-273	WEP1014	PTC193		RE 213		RT-137	ECG300
Q12	2SC710		GE-211 *	(IR)2SC710	PTC115	HEPS0016 *	RE 13 *	SK3018 *	RT-308 *	ECG123A *
Q13	2SC710		GE-211 *	(IR)2SC710	PTC115	HEPS0016 *	RE 13 *	SK3018 *	RT-308 *	ECG123A *
Q14	2SC710		GE-211 *	(IR)2SC710	PTC115	HEPS0016 *	RE 13 *	SK3018 *	RT-308 *	ECG123A *
Q15	2SC710		GE-211 *	(IR)2SC710	PTC115	HEPS0016 *	RE 13 *	SK3018 *	RT-308 *	ECG123A *
Q16	2SC620		GE-20 *	(IR)2SC644	PTC125 *	HEPS0015 *	RE 13 *	SK3020 *	RT-107A *	ECG123A *
Q17	2SC710 (1)		GE-211 *	(IR)2SC710	PTC115	HEPS0016 *	RE 13 *	SK3018 *	RT-308 *	ECG123A *
	2SC2034 (11)		GE-264							ECG282
	2SC696 (1)(12)		GE-46	WEP799	PTC176		RE 202	SK3049		ECG224
Q18	2SC2034 (11)		GE-264							ECG287
	2SC697 (1)(13)		GE-46	WEP799	PTC176		RE 202	SK3049		ECG224

* Lead configuration may vary from original.

(1) Used in some versions.

(11) 12 WATTS @ 2 AMPS

(12) 10 WATTS @ 3 AMPS

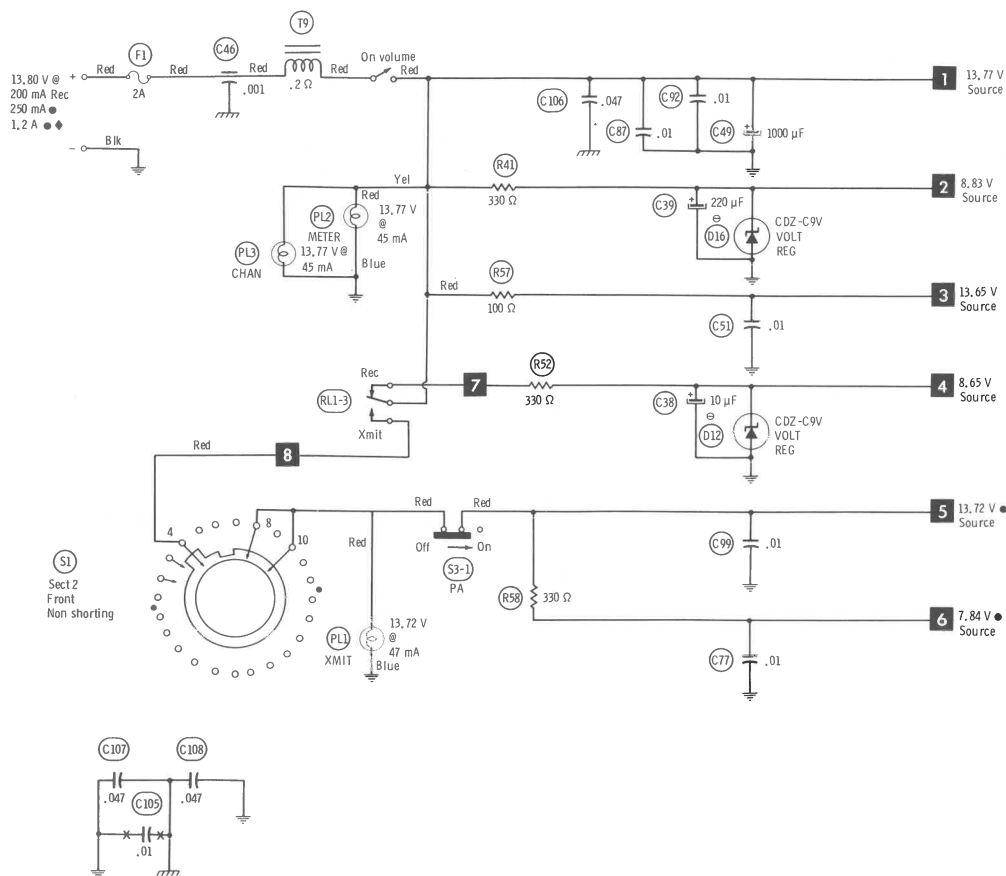
(13) 750 MW @ 3 AMPS

PAL MODEL ROADRUNNER 23

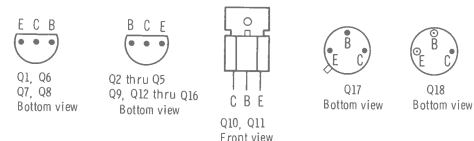
ELECTROLYTIC CAPACITORS

ITEM No.	RATING	REPLACEMENT DATA				
		MFG. PART No.	CORNELL-DUBILIER PART No.	MALLORY PART No.	SPRAGUE PART No.	
					Q-LINE	GENERAL LINE
C32	10 16V		PC10-25	VTT10B25	QV1-41	EV-1222
C35	1 16V		PC1-50	VTT1A50	QV1-9	EV-1315
C37	1 16V		PC1-50	VTT1A50	QV1-9	EV-1315
C38	10 16V		PC10-25	VTT10B25	QV1-41	EV-1222
C39	220 16V		PC250-25	VTT220H16	QV1-117	EV-1240
C40	1 16V		PC1-50	VTT1A50	QV1-9	EV-1315
C42	4.7 16V		PC5-50	VTT4R7B50	QV1-27	EV-1319
C43	47 16V		PC50-16	VTT47D16	QV1-73	EV-1226
C45	220 16V		PC250-25	VTT220H16	QV1-117	EV-1240
C49	1000 16V		PC1000-16	VTT1000L16	QV1-183	EV-1260
C62	10 16V		PC10-25	VTT10B25	QV1-41	EV-1222
	4.7 16V	(1)	PC5-50	VTT4R7B50	QV1-27	EV-1319
C63	10 16V		PC10-25	VTT10B25	QV1-41	EV-1222
	4.7 16V	(1)	PC5-50	VTT4R7B50	QV1-27	EV-1319

(1) Used in some versions.



Transistor Terminal Guides



- Circuitry not used in some versions
- - - Circuitry used in some versions
- ⊙ See parts list
- * Nominal value
- ⊕ Ground
- mtm Chassis

Measurements with switching as shown unless noted:
 ■ Squelch fully clockwise ◆ 100% modulation
 ● Transmit

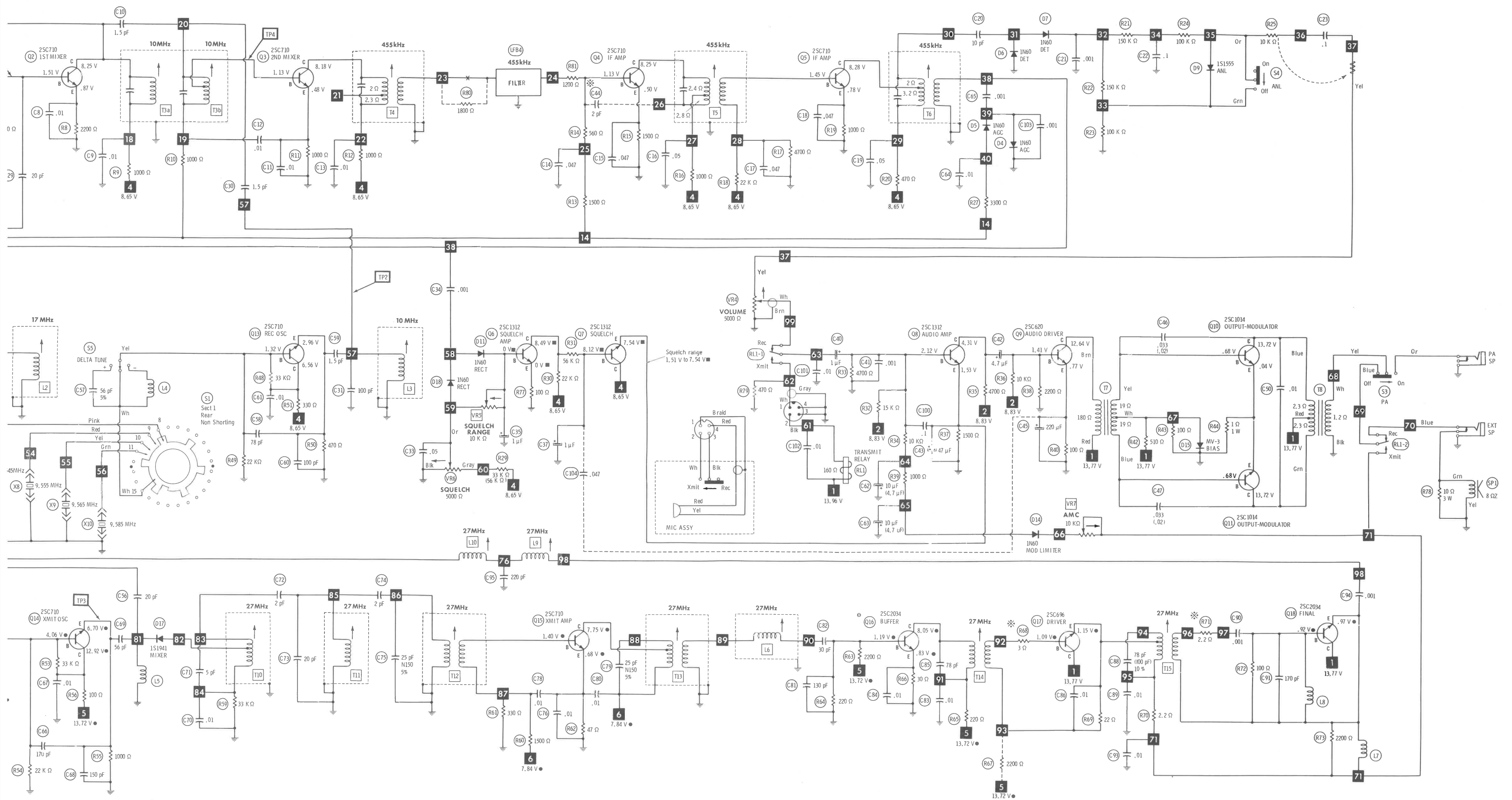
Supply voltage maintained as shown at input.
 Voltages measured with digital meter, no signal.
 Controls adjusted for normal operation.
 Arrow at control indicates direction of advance.
 Terminal identification may not be found on unit.
 Resistors are 1/2W or less, 5% unless noted.
 Value in () used in some versions.

A PHOTOFACIT STANDARD NOTATION SCHEMATIC

WITH CIRCUITRACE[®]

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Chan	Crystal Complement	Chan	Crystal Complement	Chan	Crystal Complement	Chan	Crystal Complement
1	X1, X7, X11	7	X2, X9, X13	13	X4, X7, X11	19	X5, X9, X13
2	X1, X8, X12	8	X2, X10, X14	14	X4, X8, X12	20	X5, X10, X14
3	X1, X9, X13	9	X3, X7, X11	15	X4, X9, X13	21	X6, X7, X11
4	X1, X10, X14	10	X3, X8, X12	16	X4, X10, X14	22	X6, X8, X12
5	X2, X7, X11	11	X3, X9, X13	17	X5, X7, X11		
6	X2, X8, X12	12	X3, X10, X14	18	X5, X8, X12	23	X6, X10, X14



PARTS LIST AND DESCRIPTION (CONTINUED)
(When ordering parts, state Model, Part Number, and Description.)

CAPACITORS

ITEM No.	RATING	MFGR. PART No.	REPLACEMENT DATA				
			CENTRALAB PART No.	CORNELL-DUBILIER PART No.	MALLORY PART No.	SPRAGUE PART No.	
						Q-LINE	GENERAL LINE
C1	600	166	DD-561		GP356		10TS-T56
C2	30	126	DTZ-33	NP033	CN0433		10TCC-Q33
C3	.01	196	DC-103	MGP01	TA110	QC2-141	TG-S10
C4	.01	196	DC-103	MGP01	TA110	QC2-141	TG-S10
C5	.01	196	DC-103	MGP01	TA110	QC2-141	TG-S10
C6	22 N150				*		10TCP-Q22
C7	.05	203	DC-503	MGP05	TA150	QC2-207	TG-S50
C8	.01	196	DC-103	MGP01	TA110	QC2-141	TG-S10
C9	.01	196	DC-103	MGP01	TA110	QC2-141	TG-S10
C10	1.5	103	DTZ-1R5	NP01P5	CN0515		10TCC-V15
C11	.01	196	DC-103	MGP01	TA110	QC2-141	TG-S10
C12	.01	196	DC-103	MGP01	TA110	QC2-141	TG-S10
C13	.01	196	DC-103	MGP01	TA110	QC2-141	TG-S10
C14	.047	244		DPMS2S47	EWFA1A147	QF1-171	1PB-S47
C15	.047	244		DPMS2S47	EWFA1A147	QF1-171	1PB-S47
C16	.047	511	UK25-503		MAG2515		HY-735
C17	.047	511	UK25-503		MAG2515		HY-735
C18	.047	511	UK25-503		MAG2515		HY-735
C19	.05	203	DC-503	MGP05	TA150	QC2-207	TG-S50
C20	10	110	DTZ-10	NP010	CN0410		10TCC-Q10
C21	.001	169	DD-102G	GP1000	GP210	QC2-81	5GA-D10
C22	.1	255		DPMS2P1	EWFA1A010	QF1-215	1PB-P10
C23	.1	255		DPMS2P1	EWFA1A010	QF1-215	1PB-P10
C24	.01	196	DC-103	MGP01	TA110	QC2-141	TG-S10
C25	.01	196	DC-103	MGP01	TA110	QC2-141	TG-S10
C26	.01	196	DC-103	MGP01	TA110	QC2-141	TG-S10
C27	22 N150				*		10TCP-Q22
C28	100	147	DD-101	GP100	GP310		10TS-T10
C29	20	118	DTZ-20	NP020	CN0420		10TCC-Q20
C30	1.5	103	DTZ-1R5	NP01P5	CN0515		10TCC-V15
C31	100	147	DD-101	GP100	GP310		10TS-T10
C33	.05	203	DC-503	MGP05	TA150	QC2-207	TG-S50
C34	.001	169	DD-102G	GP1000	GP210	QC2-81	5GA-D10
C36	.01	196	DC-103	MGP01	TA110	QC2-141	TG-S10
C41	.001	169	DD-102G	GP1000	GP210	QC2-81	5GA-D10
C44	2	104	DTZ-2R2	NP02P2	CN0522		10TCC-V22
C46	.033	244		DPMS2S47	EWFA1A147	QF1-171	1PB-S47
C47	.033	244		DPMS2S47	EWFA1A147	QF1-171	1PB-S47
C48	.001						
C50	.01	196	DC-103	MGP01	TA110	QC2-141	TG-S10
C51	.01	196	DC-103	MGP01	TA110	QC2-141	TG-S10
C52	150	152	DD-151		GP315		10TS-T15
C53	15	114	DTZ-15	NP015	CN0415		10TCC-Q15
C54	5	106	DTZ-4R7	NP04P7	CN0547		10TCC-V47
C55	20	118	DTZ-20	NP020	CN0420		10TCC-Q20
C56	20	118	DTZ-20	NP020	CN0420		10TCC-Q20
C57	56	136	DD-560		GP456		10TS-Q56
C58	78	140	DTZ-75	NP075	CN0475		10TCC-Q75
C59	1.5	103	DTZ-1R5	NP01P5	CN0515		10TCC-V15
C60	100	147	DD-101	GP100	GP310		10TS-T10
C61	.01	196	DC-103	MGP01	TA110	QC2-141	TG-S10
C64	.01	196	DC-103	MGP01	TA110	QC2-141	TG-S10
C65	.001	169	DD-102G	GP1000	GP210	QC2-81	5GA-D10
C66	170	153	DTZ-180				10TCC-T18
C67	.01	196	DC-103	MGP01	TA110	QC2-141	TG-S10
C68	150	152	DD-151		GP315		10TS-T15
C69	56	134			CN0456		10TCC-Q56
C70	.01	196	DC-103	MGP01	TA110	QC2-141	TG-S10
C71	5	106	DTZ-4R7	NP04P7	CN0547		10TCC-V47
C72	2	104	DTZ-2R2	NP02P2	CN0522		10TCC-V22
C73	20	118	DTZ-20	NP020	CN0420		10TCC-Q20
C74	2	104	DTZ-2R2	NP02P2	CN0522		10TCC-V22
C75	25 N150				*		10TCP-Q25
C76	.01	196	DC-103	MGP01	TA110	QC2-141	TG-S10
C77	.01	196	DC-103	MGP01	TA110	QC2-141	TG-S10
C78	.01	196	DC-103	MGP01	TA110	QC2-141	TG-S10
C79	25 N150				*		10TCP-Q25
C80	.01	196	DC-103	MGP01	TA110	QC2-141	TG-S10
C81	130	148	DTZ-120		CN0312		10TCC-T12
C82	30	126	DTZ-33	NP033	CN0433		10TCC-Q33
C83	.01	196	DC-103	MGP01	TA110	QC2-141	TG-S10
C84	.01	196	DC-103	MGP01	TA110	QC2-141	TG-S10
C85	78	142	DTZ-82	NP082	CN0482		10TCC-Q82
C86	.01	196	DC-103	MGP01	TA110	QC2-141	TG-S10
C87	.01	196	DC-103	MGP01	TA110	QC2-141	TG-S10
C88	78	142	DTZ-82	NP082	CN0482		10TCC-Q82
C89	.01	196	DC-103	MGP01	TA110	QC2-141	TG-S10
C90	.001	169	DD-102G	GP1000	GP210	QC2-81	5GA-D10
C91	170	153	DTZ-180				10TCC-T18
C92	.01	196	DC-103	MGP01	TA110	QC2-141	TG-S10
C93	.01	196	DC-103	MGP01	TA110	QC2-141	TG-S10
C94	.001	169	DD-102G	GP1000	GP210	QC2-81	5GA-D10
C95	220	158	DD-221		GP322		10TS-T22
C96	200	156	DD-201		GP320		10TS-T20
C97	65	137	DTZ-68	NP068	CN0468		10TCC-Q68

PARTS LIST AND DESCRIPTION (CONTINUED)
(When ordering parts, state Model, Part Number, and Description.)

CAPACITORS (cont)

ITEM No.	RATING	MFGR. PART No.	REPLACEMENT DATA				
			CENTRALAB PART No.	CORNELL-DUBILIER PART No.	MALLORY PART No.	SPRAGUE PART No.	
						Q-LINE	GENERAL LINE
C98	10						
C99	.01	196	DC-103	MGP01	TA110	QC2-141	TG-S10
C100	.1	204	DC-104	MGP1	TA010	QC2-233	TG-P10
C101	.01	196	DC-103	MGP01	TA110	QC2-141	TG-S10
C102	.01	196	DC-103	MGP01	TA110	QC2-141	TG-S10
C103	.001	169	DD-102G	GP1000	GP210	QC2-81	5GA-D10
C104	.047	511	UK25-503		MAG2515		HY-735
C105	.01	196	DC-103	MGP01	TA110	QC2-141	TG-S10
C106	.047	511	UK25-503		MAG2515		HY-735
C107	.047	511	UK25-503		MAG2515		HY-735
C108	.047	511	UK25-503		MAG2515		HY-735

* Not normally in distributor's stock. Available thru distributor on order to manufacturer.
(1) Used in some versions.

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

ITEM No.	FUNCTION	RESIST-ANCE	REPLACEMENT DATA				
			MFGR. PART No.	CENTRALAB PART No.	CLAROSTAT PART No.	MALLORY PART No.	TRW PART No.
VR1	AGC	20K			C-253 (2)	MTC24L1 (2)	X201R253B (2)
VR2	S Meter	50K		T-50K (2)	C-503 (2)	MTC54L1 (2)	X201R503B (2)
VR3	RF Meter	5000		T-5000 (2)	C-502 (2)	MTC53L1 (2)	X201R502B (2)
VR4	Volume/Switch	5000					
VR5	Squelch Range	10K		T-10K (2)	C-103 (2)	MTC14L1 (2)	X201R103B (2)
VR6	Squelch	5000					
VR7	AMC	10K		T-10K (2)	C-103 (2)	MTC14L1 (2)	X201R103B (2)

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

COILS (RF-IF)

ITEM No.	FUNCTION	REPLACEMENT DATA			REMARKS
		PART No.	OTHER IDENTIFICATION	MILLER PART No.	
L1	Rec Antenna (27MHz)				
L2	Synth Oscillator (17MHz)				
L3	Rec Oscillator (10MHz)				
L4	RF Choke (3.3uH)				
L5	RF Choke (22uH)				
L6	Bandpass (27MHz)				
L7	RF Choke (2.2uH)				
L8	RF Choke (33uH)				
L9	Final (27MHz)				
L10	Pi Filter (27MHz)				
L11	Ant Matching (27MHz)				
L12	TVI Trap (.85uH)				
T1	Rec Antenna (27MHz)				
T2	Rec RF (27MHz)				
T3	IF (10MHz)				
T4	IF (455kHz)				
T5	IF (455kHz)				
T6	IF (455kHz)				
T10	Xmit Oscillator (27MHz)				
T11	Harmonic Suppressor (27MHz)				
T12	Harmonic Suppressor (27MHz)				
T13	Xmit Amp (27MHz)				
T14	Xmit Buffer (27MHz)				
T15	Xmit Driver (27MHz)				

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.	
T9	1.2A	.2	2.2mH				

TRANSFORMER (Audio Output)

ITEM No.	IMPEDANCE		REPLACEMENT DATA			NOTES
	PRI.	SEC.	MFGR. PART No.	THORDARSON PART No.	TRIAD PART No.	
T8	18	8				

PARTS LIST AND
(When ordering parts, state

TRANSFORMER

ITEM No.	TURNS RATIO	
	PRI.	SEC. 1
T7	2	1

SPEAKER

ITEM No.	TYPE
SP	3" PM, 8 Ohms

FUSE DEVICES

ITEM No.	DESCRIPTION
F1	2 Amp

MICROPHONE

ITEM No.	MFGR. PART No.	P
MIC		

CRYSTALS

ITEM No.	CRYSTAL FREQUENCY IN MHz	MFG PART I
X1	16.965	
X2	17.015	
X3	17.065	
X4	17.115	
X5	17.165	
X6	17.215	
X7	9.545	

MISCELLANEOUS

ITEM No.	PART NAME
LFB4	Ceramic Filter
M1	Meter
RL1	Relay
S1	Switch
S3	Switch
S4	Switch
S5	Switch
PL1	Lamp
PL2	Lamp
PL3	Lamp

WIRING DATA

General-use Hook-up Wire (a
Shielded Hook-up Wire (spir
(brai
Speaker Cable (available in
Bonding Strap
AC Power Cord

PARTS LIST AND DESCRIPTION (CONTINUED)

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

CAPACITORS (cont)

ITEM No.	RATING	MFR. PART No.	REPLACEMENT DATA					
			CENTRALAB PART No.	CORNELL-DUBILIER PART No.	MALLORY PART No.	SPRAGUE PART No.		NOTES
						Q-LINE	GENERAL LINE	
C98	10							
C99	.01	196	DC-103	MGP01	TA110	QC2-141	TG-S10	
C100	.1	204	DC-104	MGP1	TA010	QC2-233	TG-P10	
C101	.01	196	DC-103	MGP01	TA110	QC2-141	TG-S10	
C102	.01	196	DC-103	MGP01	TA110	QC2-141	TG-S10	
C103	.001	169	DD-102G	GP1000	GP210	QC2-81	56A-D10	
C104	.047	511	UK25-503		MAG2515		HY-735	
C105	.01	196	DC-103	MGP01	TA110	QC2-141	TG-S10	
C106	.047	511	UK25-503		MAG2515		HY-735	
C107	.047	511	UK25-503		MAG2515		HY-735	
C108	.047	511	UK25-503		MAG2515		HY-735	

* Not normally in distributor's stock. Available thru distributor on order to manufacturer.
(1) Used in some versions.

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

ITEM No.	FUNCTION	RESIST-ANCE	REPLACEMENT DATA				
			MFR. PART No.	CENTRALAB PART No.	CLAROSTAT PART No.	MALLORY PART No.	TRW PART No.
VR1	AGC	20K		T-20K (2)	C-253 (2)	MTC24L1 (2)	X201R253B (2)
VR2	S Meter	50K		T-50K (2)	C-503 (2)	MTC54L1 (2)	X201R503B (2)
VR3	RF Meter	5000		T-5000 (2)	C-502 (2)	MTC53L1 (2)	X201R502B (2)
VR4	Volume/Switch	5000					
VR5	Squelch Range	10K		T-10K (2)	C-103 (2)	MTC14L1 (2)	X201R103B (2)
VR6	Squelch	5000					
VR7	AMC	10K		T-10K (2)	C-103 (2)	MTC14L1 (2)	X201R103B (2)

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

COILS (RF-IF)

ITEM No.	FUNCTION	REPLACEMENT DATA			REMARKS
		PART No.	OTHER IDENTIFICATION	MILLER PART No.	
L1	Rec Antenna (27MHz)				
L2	Synth Oscillator (17MHz)				
L3	Rec Oscillator (10MHz)				
L4	RF Choke (3.3uH)				
L5	RF Choke (22uH)				
L6	Bandpass (27MHz)				
L7	RF Choke (2.2uH)				
L8	RF Choke (33uH)				
L9	Final (27MHz)				
L10	Pi Filter (27MHz)				
L11	Ant Matching (27MHz)				
L12	TVI Trap (.85uH)				
T1	Rec Antenna (27MHz)				
T2	Rec RF (27MHz)				
T3	IF (10MHz)				
T4	IF (455kHz)				
T5	IF (455kHz)				
T6	IF (455kHz)				
T10	Xmit Oscillator (27MHz)				
T11	Harmonic Suppressor (27MHz)				
T12	Harmonic Suppressor (27MHz)				
T13	Xmit Amp (27MHz)				
T14	Xmit Buffer (27MHz)				
T15	Xmit Driver (27MHz)				

FILTER CHOKE

ITEM No.	RATINGS		REPLACEMENT DATA			NOTES
	CURRENT (Measured)	DC RES.	INDUCTANCE (0 CURRENT 1000~)	MFR. PART No.	THORDARSON PART No.	TRIAD PART No.
T9	1.2A	.2	2.2mH			

TRANSFORMER (Audio Output)

ITEM No.	IMPEDANCE		REPLACEMENT DATA			NOTES
	PRI.	SEC.	MFR. PART No.	THORDARSON PART No.	TRIAD PART No.	
T8	18	8				

PARTS LIST AND DESCRIPTION (CONTINUED)

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

TRANSFORMER (Driver)

ITEM No.	TURNS RATIO		REPLACEMENT DATA			NOTES
	PRI.	SEC. 1	SEC. 2	MFR. PART No.	THORDARSON PART No.	TRIAD PART No.
T7	2	1				

SPEAKER

ITEM No.	TYPE	REPLACEMENT DATA		NOTES
		MFR. PART No.	QUAM PART No.	
SP	3" PM, 8 Ohms		30A05Z8R	

FUSE DEVICES

ITEM No.	DESCRIPTION	REPLACEMENT DATA					
		PART No.		BUSS PART No.		LITTELFUSE PART No.	
		DEVICE	HOLDER	DEVICE	HOLDER	DEVICE	HOLDER
F1	2 Amp			AGC2	HDJ	312002	150145

MICROPHONE

ITEM No.	REPLACEMENT DATA				CONNECTION DATA					
	MFR. PART No.	GC PART No.	GC NOISE CANCEL	GC POWER	GC CONNECTOR	GC Red	GC Shield	GC Yellow	GC Blue	GC White
MIC		18-032	18-034	18-010	18-092	1	4	2	NC	NC

CRYSTALS

ITEM No.	CRYSTAL FREQUENCY IN MHz	MFR. PART No.	CTS KNIGHTS PART No.	CHANNEL	ITEM No.	CRYSTAL FREQUENCY IN MHz	MFR. PART No.	CTS KNIGHTS PART No.	CHANNEL
X1	16.965		SA20M16.965	1,2,3,4	X8	9.555		SC60M9.555	2,6,10,14,18,22
X2	17.015		SA20M17.015	5,6,7,8	X9	9.565		SC60M9.565	3,7,11,15,19
X3	17.065		SA20M17.065	9,10,11,12	X10	9.585		SC60M9.585	4,8,12,16,20,23
X4	17.115		SA20M17.115	13,14,15,16	X11	10.000		SB90M10.000	1,5,9,13,17,21
X5	17.165		SA20M17.165	17,18,19,20	X12	10.010		SB90M10.010	2,6,10,14,18,22
X6	17.215		SA20M17.215	21,22,23	X13	10.020		SB90M10.020	3,7,11,15,19
X7	9.545		SC60M9.545	1,5,9,13,17,21	X14	10.040		SB90M10.040	4,8,12,16,20,23

MISCELLANEOUS

ITEM No.	PART NAME	PART No.	NOTES
LFB4	Ceramic Filter		455kHz
M1	Meter		RF/S
RL1	Relay		Xmit/Rec
S1	Switch		Channel Selector
S3	Switch		PA/CB
S4	Switch		ANL
S5	Switch		Delta Tune
PL1	Lamp		TX (47mA @ 13.72V)
PL2	Lamp		Meter (45mA @ 13.77V)
PL3	Lamp		Channel Indicator (45mA @ 13.77V)

WIRING DATA

General-use Hook-up Wire (available in 5 colors)	BELDEN No. 8523	Coiled Microphone Cable	
Shielded Hook-up Wire (spiral wrapped)	BELDEN No. 8421	3-conductor (1 shielded)	23AWG BELDEN No. 9471 (5')
(braided)	BELDEN No. 8401		BELDEN No. 8497 (6')
Speaker Cable (available in 4 colors)	BELDEN No. 8782		BELDEN No. 9472 (7-1/2')
Bonding Strap	BELDEN No. 8672		28AWG BELDEN No. 9466 (6')
AC Power Cord	(6') BELDEN No. 17106		31AWG BELDEN No. 9468 (10')
	(9') BELDEN No. 17109		31AWG BELDEN No. 9468 (10')
		4-conductor (unshielded)	23AWG BELDEN No. 8415 (6')
		5-conductor (1 shielded)	28AWG BELDEN No. 9467 (6')
			BELDEN No. 9465 (7-1/2')