

## ALIGNMENT-TRANSMITTER

### A. EQUIPMENT REQUIRED:

- a) RF Output Power meter (50 ohm, 5 watts)
- b) Frequency counter
- c) DC milli ampere meter (500/1000 mA)
- d) Power supply (DC 13.8V)
- e) Field strength meter.
- f) RF V. T. V. M.
- g) AF signal generator

### B. PROCEDURE:

Remarks: Warm up the sample and test equipments at least 15 minutes before starting alignment.

RF output meter or 50 ohm dummy load must be connected to antenna jack.

Coupling to frequency counter should be as loose as possible, to prevent frequency drift by connection.

STEP	SET CONDITION	CONNECTIONS	ADJUSTMENT	REMARKS
1.	Receiving Position (23 CH.)	RF V. T. V. M. to TP3 and TP2.	T5	Adjust for OSC. peak, then turn the slug CW, and fix at the point of 10% down from the OSC. peak.
2.	Transmitting no modulation (13 CH.)	RF V. T. V. M. to TP3 and TP2.	T11, T12 and T13.	Adjust for max. output.
3.	Same as Step 2.	RF output power meter to antenna (J1). jack	L4, L5 and L8.	Adjust for max. point.
4.	Same as Step 2.	DC milli ampere meter between TP4.	L8.	Adjust to obtain 5W of DC input power.
5.	Same as Step 2.	Field strength meter to ant. jack (J1).	L10.	Adjust for min. point to eliminate spurious radiation near 54MHz.
6.	Same as Step 2.	Same as Step 3.	VR2.	Adjust so that needle of meter on the unit advances a little bit into red zone and comes over "+" between 9 and 10 as calibrated on meter face.
7.	Repeat the above adjustments, in order to make sure that adjustments have been made correctly.			
8.	Transmitting no modulation all channels.	Frequency counter to ant. through a suitable load and attenuator.		Check frequency of all channels.

## ALIGNMENT-RECEIVER

### A. EQUIPMENT REQUIRED:

- a) Signal Generator: 27MHz Band.  
1.000Hz, 30% AM Modulation and  
Output Impedance 50 ohm.
- b) AF Output Meter (V. T. V. M.)
- c) Power supply (DC 13.8V)
- d) Dummy load (8 ohm, 5 watts, Resistive)

### B. PROCEDURE:

Remarks: Warm up the sample and test equipments at least 15 minutes before starting alignment.

Output level: Keep signal generator output low enough to prevent AGC overload.

(Below approx. 2 volts on output meter)

Step	SG Connection & Frequency	Set Condition	Output Meter Connection	Adjustment	Remarks
1.	To antenna jack (J1). Freq: 27.115MHz	SQ: Min. VOL: Max.	To EXT. SP. jack (J3).	T1, 2, 3, 4, 6, 7 and T8.	Adjust for max. point
2.	Same as Step 1. and output level: 0.5 $\mu$ V	Same as Step 1.	Same as Step 1.	VR 4.	Adjust for 2V AF output.
3.	Same as Step 1. and output level 300 $\mu$ V	SQ: Max. VOL: Max. ANL: OFF	Same as Step 1.	VR 4.	Adjust for a open squelch point.
4.	Same as Step 1. and output level: 100 $\mu$ V	Same as Step 1.	Same as Step 1.	VR 3.	Adjust for "S-9" on "S" meter of the unit.
5.	Repeat the above adjustments, in order to make sure that adjustments have been made correctly.				

## TRANSISTOR VOLTAGE CHART

TR No	Rx			Tx			PA		
	B	E	C	B	E	C	B	E	C
1	1.2	0.6	5.2	0.2	0.1	0.6	0.2	0	0.6
2	1.2	0.6	9.1	0.2	0	9.2	0.2	0	9.2
3	2.4	2.0	12.3	2.4	2.0	12.3	0	0	0
4	1.2	0.6	9.1	0	0	9.2	0	0	9.2
5	1.3	0.7	4.9	0.2	0	0.6	0.2	0	0.6
6	1.2	0.5	9.2	1.2	0.5	9.2	1.2	0.5	9.2
7	1.2	0.5	9.2	1.2	0.5	9.2	1.2	0.5	9.2
8	0.6	0	7.8	0.05	0	7.8	0.05	0	7.8
9	1.8	1.2	3.7	1.8	1.2	3.7	1.8	1.2	3.7
10	2.1	1.5	10.5	2.2	1.5	10.5	2.2	1.5	10.5
11	0.6	0.05	13.4	0.6	0.05	13.4	0.6	0.05	13.4
12	0.6	0.05	13.4	0.6	0.05	13.4	0.6	0.05	13.4
13	3.6	5.5	13.2	2.1	2.2	9.9	0	0	0
14	1.3	0.4	12.5	1.3	0.4	12.5	0	0	0
15	1.8	5.5	13.5	1.4	1.1	13.5	0	0	0
16		0	13.4		0	12.4		0	13.4
17		0	13.4		0	12.4		0	13.4
18		0	13.4		0	5.5		0	13.4

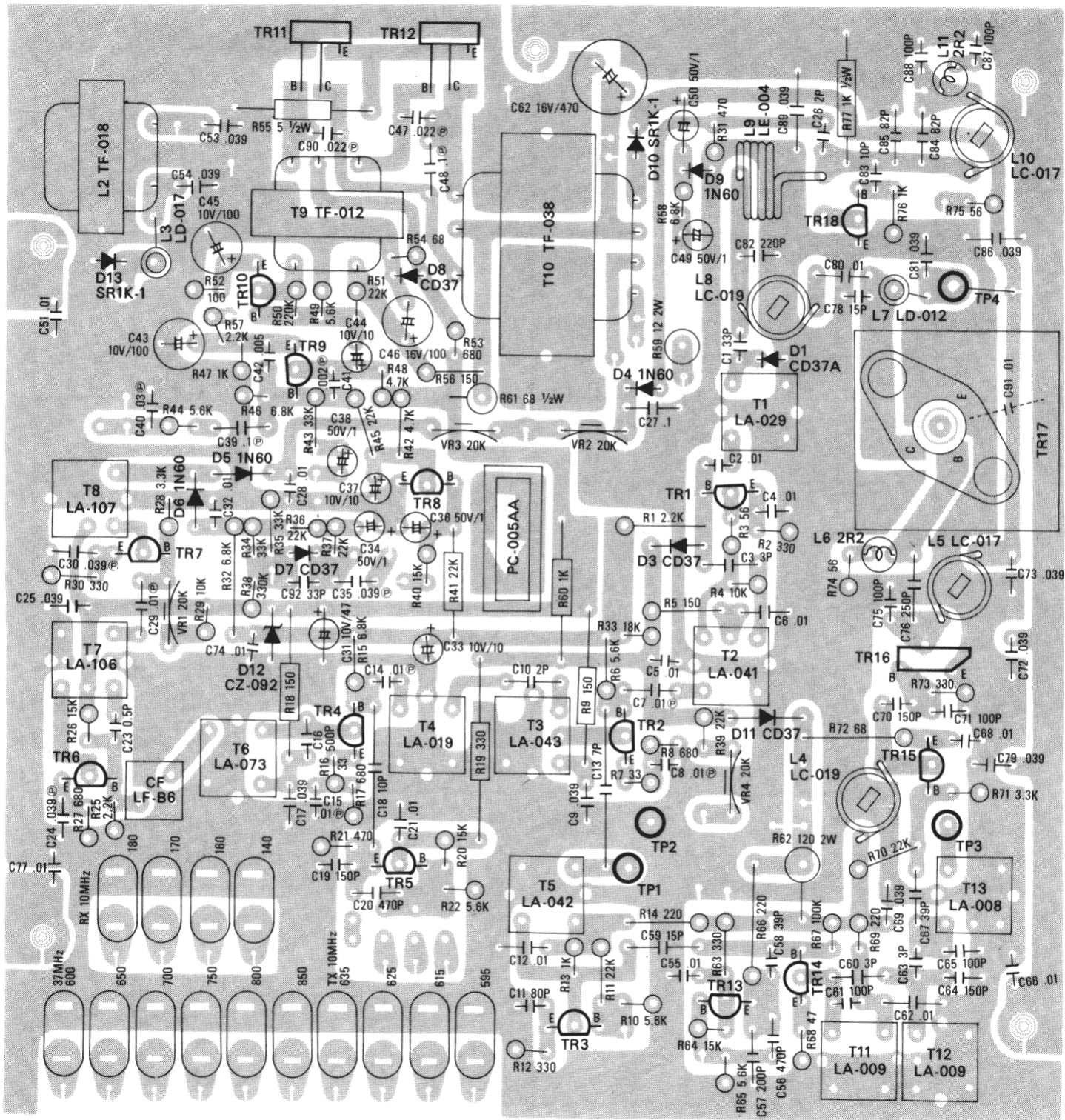
NOTE: 1. In PA mode the PTT switch should be depressed when making measurements.

2. B: Base E: Emitter C: Collector

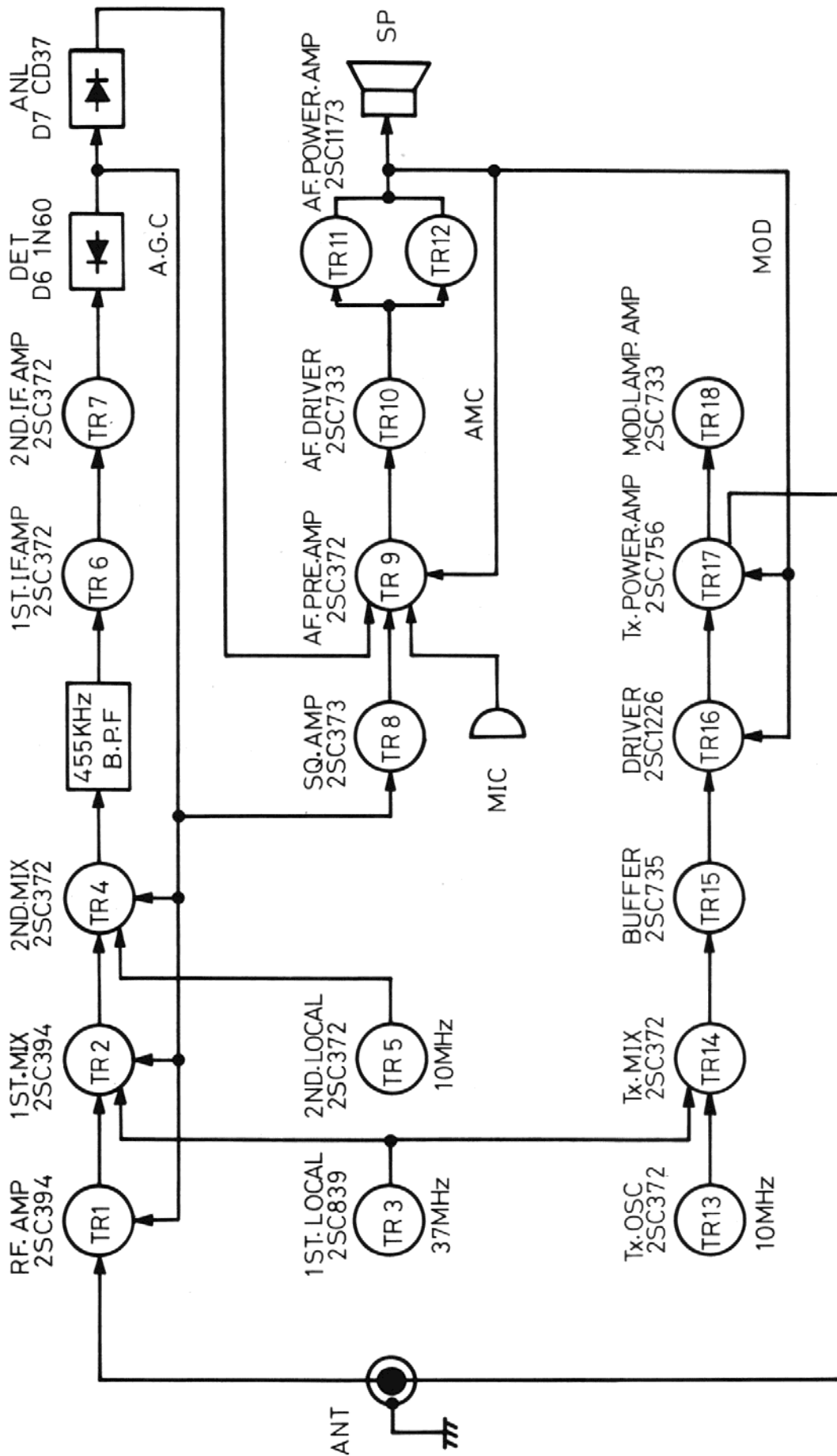
3. Operating Voltage: 13.8V

4. Unit: V

# PC BOARD DETAIL



# BLOCK DIAGRAM



## SECTION 5 REPLACEMENT PARTS

### CAPACITORS

SYMBOL	DESCRIPTION	PARTS NUMBER
C-1,92	33pF 50V, Ceramic	
C-2,4,5,6,12,21,28,32,51,55, 62,66,68,74,77,80,91	0.1 $\mu$ F 25V, Ceramic	
C-3,60,63	3pF 50V, Ceramic	
C-7,8,14,15,29	0.1 $\mu$ F 50V, Ceramic	
C-9,17,25,53,54,69,72,73,79, 81,86,89	0.039 $\mu$ F 25V, Ceramic	
C-10,26	2pF 50V, Ceramic	
C-11,84,85	82pF 50V, Ceramic	
C-13	7pF 50V, Ceramic	
C-16	500pF 50V, Ceramic	
C-18,83	10pF 50V, Ceramic	
C-19,64,70	150pF 50V, Ceramic	
C-20,56	470pF 50V, Ceramic	
C-23	0.5pF 50V, Ceramic	
C-24,30,35	0.039 $\mu$ F 50V, Mylar	
C-27	0.1 $\mu$ F 12V, Ceramic	
C-31	47 $\mu$ F 10V, Electrolytic	5018-031
C-33,37,44	10 $\mu$ F 10V, Electrolytic	5018-006
C-34,36,38,49,50	1 $\mu$ F 50V, Electrolytic	5018-035
C-39,48	0.1 $\mu$ F 50V, Mylar	
C-40	0.033 $\mu$ F 50V, Mylar	
C-41	0.0022 $\mu$ F 50V, Mylar	
C-42	0.0047 $\mu$ F 50V, Ceramic	
C-43,45	100 $\mu$ F 10V, Electrolytic	5018-022
C-46	100 $\mu$ F 16V, Electrolytic	5018-012
C-47,90	0.022 $\mu$ F 50V, Mylar	
C-52	470 $\mu$ F 16V, Electrolytic	5018-024
C-57	200pF 50V, Ceramic	
C-58,67	39pF 50V, Ceramic	
C-59,78	15pF 50V, Ceramic	
C-61,65,71,75,87,88	100pF 50V, Ceramic	
C-76	250pF 50V, Ceramic	
C-82	220pF 50V, Ceramic	

## REPLACEMENT PARTS

### RESISTORS

SYMBOL	DESCRIPTION	PARTS NUMBER
R-1,25,57	2.2K Ohm $\frac{1}{4}$ W, Carbon	
R-2,12,30,63,73	330 Ohm $\frac{1}{4}$ W, Carbon	
R-3,74,75	56 Ohm $\frac{1}{4}$ W, Carbon	
R-4,29	10K Ohm $\frac{1}{4}$ W, Carbon	
R-5,56	150 Ohm $\frac{1}{4}$ W, Carbon	
R-6,10,22,44,49,65	5.6K Ohm $\frac{1}{4}$ W, Carbon	
R-7,16	33 Ohm $\frac{1}{4}$ W, Carbon	
R-8,17,27,53	680 Ohm $\frac{1}{4}$ W, Carbon	
R-9,18	150 Ohm $\frac{1}{4}$ W, Carbon	
R-11,36,37,39,45,51,70	22K Ohm $\frac{1}{4}$ W, Carbon	
R-13,47,76	1K Ohm $\frac{1}{4}$ W, Carbon	
R-14,66,69	220 Ohm $\frac{1}{4}$ W, Carbon	
R-15,32,46,58	6.8K Ohm $\frac{1}{4}$ W, Carbon	
R-19	330 Ohm $\frac{1}{4}$ W, Carbon	
R-20,26,40,64	15K Ohm $\frac{1}{4}$ W, Carbon	
R-21,31	470 Ohm $\frac{1}{4}$ W, Carbon	
R-28,71	3.3K Ohm $\frac{1}{4}$ W, Carbon	
R-33	18K Ohm $\frac{1}{4}$ W, Carbon	
R-34,35,43	33K Ohm $\frac{1}{4}$ W, Carbon	
R-38	330K Ohm $\frac{1}{4}$ W, Carbon	
R-41	22K Ohm $\frac{1}{4}$ W, Carbon	
R-42,48	4.7K Ohm $\frac{1}{4}$ W, Carbon	
R-50	220K Ohm $\frac{1}{4}$ W, Carbon	
R-52	100 Ohm $\frac{1}{4}$ W, Carbon	
R-54,72	68 Ohm $\frac{1}{4}$ W, Carbon	
R-55	0.5 Ohm $\frac{1}{2}$ W, Metal-covered	5019-004
R-59	12 Ohm 2 W, Metal-covered	5019-011
R-60	1K Ohm $\frac{1}{4}$ W, Carbon	
R-61	68 Ohm $\frac{1}{2}$ W, Solid	
R-62	120 Ohm 2 W, Metal-covered	
R-67	100K Ohm $\frac{1}{4}$ W, Carbon	
R-68	47 Ohm $\frac{1}{4}$ W, Carbon	
R-77	1K Ohm $\frac{1}{2}$ W, Solid	

## REPLACEMENT PARTS

### TRANSISTORS

SYMBOL	DESCRIPTION	PARTS NUMBER
TR-1	2SC394 RF Amplifier	5001-032
TR-2	2SC394 1st Receiver Mixer	5001-032
TR-3	2SC839 37 MHz. 1st Local	5001-014
TR-4	2SC372 2nd Receiver Mixer	5001-020
TR-5	2SC372 10 MHz. 2nd Local	5001-020
TR-6	2SC372 455 KHz. IF Amplifier	5001-020
TR-7	2SC372 455 KHz. IF Amplifier	5001-020
TR-8	2SC373 Squelch Amplifier	5001-505
TR-9	2SC372 1st AF Amplifier	5001-020
TR-10	2SC733 2nd AF Amplifier	5001-072
TR-11	2SC1173 AF Power Amplifier	5001-053
TR-12	2SC1173 AF Power Amplifier	5001-053
TR-13	2SC372 Transmit Oscillator	5001-020
TR-14	2SC372 Transmit Mixer	5001-020
TR-15	2SC735 Transmit Buffer	5001-506
TR-16	2SC1226 Transmit Driver	5001-075
TR-17	2SC756 Transmit Final	5001-068
TR-18	2SC733 Modulation Lamp Amplifier	5001-072

### DIODES

SYMBOL	DESCRIPTION	PARTS NUMBER
D-1	CD37A Receiver AF Amplifier Protector	5001-144
D-3	CD37 Mode Switching	5001-145
D-4	1N60 Transmit Power Meter Detector	5001-080
D-5	1N60 S Meter Detector	5001-080
D-6	1N60 Detector	5001-080
D-7	CD37 ANL Gate	5001-145
D-8	CD37 Varistor	5001-145
D-9	1N60 AMC Detector	5001-080
D-10	SR1K-1 Modulation Stabilizer	5001-117
D-11	CD37 Mode Switching	5001-145
D-12	CZ-092 Receiver Voltage Regulator	5001-152
D-13	SR1K-1 Protector	5001-117

### INDUCTANCE

SYMBOL	DESCRIPTION	PARTS NUMBER
L-2	TF-018, Choke Transformer	5006-124



## REPLACEMENT PARTS

SYMBOL	DESCRIPTION	PARTS NUMBER
L-3	TC-71095, Coil (LD-017)	5006-205
L-4,8	TC-71025, Coil (LC-019)	5006-188
L-5,10	TC-71023, Coil (LC-017)	5006-121
L-6,11	2R2, Micro Inductor	5006-054
L-7	TC-71029, Coil (LD-012)	5006-122
L-9	TC-71031, Coil (LE-004)	5006-117
T-1	TKXN-22160BU, Coil (LA-029)	5006-118
T-2	TKXC-22534BU, Coil (LA-041)	5006-189
T-3	TKAC-22536, Coil (LA-043)	5006-191
T-4	TKAC-21165A, Coil (LA-019)	5006-112
T-5	TKXC-22535BM, Coil (LA-042)	5006-190
T-6	YEN-20844BM, Coil (LA-073)	5006-192
T-7	YOC-15001F, Coil (LA-106)	5006-240
T-8	YMC-15002A, Coil (LA-107)	5006-195
T-9	TF-012, Input Transformer	5007-015
T-10	TF-038, Output Transformer	5007-020
T-11,12	KXN-13638HM, Coil (LA-009)	5006-049
T-13	KXN-13636BM, Coil (LA-008)	5006-050

### VARIABLE RESISTORS

SYMBOL	DESCRIPTION	PARTS NUMBER
VR-1,2,3,4	20K Ohm, 2P 6BM, Semi-fixed	5008-008
VR-5	5K Ohm (B), Variable	
VR-6	10K Ohm (A), Variable with switch	5008-006

### CRYSTALS

SYMBOL	DESCRIPTION	PARTS NUMBER
X-1	QX-009 37.600 MHz	5003-001
X-2	QX-009 37.650 MHz	5003-002
X-3	QX-009 37.700 MHz	5003-003
X-4	QX-009 37.750 MHz	5003-004
X-5	QX-009 37.800 MHz	5003-005
X-6	QX-009 37.850 MHz	5003-006
X-7	QX-001 10.180 MHz	5003-014
X-8	QX-001 10.170 MHz	5003-013
X-9	QX-001 10.160 MHz	5003-012
X-10	QX-001 10.140 MHz	5003-011
X-11	QX-006 10.635 MHz	5003-010

## REPLACEMENT PARTS

SYMBOL	DESCRIPTION	PARTS NUMBER
X-12	QX-006 10.625 MHz	5003-009
X-13	QX-006 10.615 MHz	5003-008
X-14	QX-006 10.595 MHz	5003-007

## MISCELLANEOUS PARTS

	PARTS NUMBER
Ceramic Filter LF-B6	5023-001
Crystal Socket SK-001	5010-002
Slide Switch SW-023	5009-040
Rotary Switch SR-046	
Speaker SP-004	5012-003
S/RF Meter MT-018	
Antenna Connector M-R	5010-009
Microphone Plug SM-144	5010-019
Microphone Jack JK-001	5010-019
DC Power Cord Receptacle	5010-011
Inline Fuse Holder	5029-001
Fuse 2 Amp.	5028-001
Pilot Lamp 14V 50mA, Clear	5013-023
Pilot Lamp 8V 80mA, Yellow	
Pilot Lamp 4.5V 40mA, Red	
Microphone	
Front Panel, ABS	
Metal Cabinet	
Metal Chassis	
Mounting Cradle	5025-009
Channel Selector Knob	5022-003
Channel Number Disc	5022-003
Power On-Off/Volume Control Knob	5022-002
Squelch Control Knob	5022-002
Brand Plate, Woodgrain	
Front Plate, Silver Hairline Finish	
Microphone Plate	5027-008
FCC Plate	5027-080
Set Screw For Mounting Cradle	5026-011
Set Screw For Cabinet	
Styrofoam Box	

## **FACTORY WARRANTY POLICY**

This electronic equipment, manufactured by Pearce-Simpson, Inc., is warranted in accordance with the following terms and conditions —

**A. PEARCE-SIMPSON, INC. WILL:**

Replace any defective part of this equipment during the one year period following purchase.

Repair, at our factory, without charge, this equipment, if a defect develops during the first one year following purchase. (This repair service is free only at the factory. No reimbursements can be made for non-factory repair charges.)

**B. THE PURCHASER WILL:**

Return the warranty registration card within 10 days of purchase.

Pay all transportation charges involved when equipment is returned for factory repair, provide information regarding nature of failure, and accept freight collect shipment of repaired equipment.

The above is void if equipment is modified or repaired without authorization, subjected to misuse, abuse, accident, water damage or other neglect, or has its serial number defaced or removed, or if more than 18 months has elapsed since factory shipment date to dealer.

No obligation is assumed by Pearce-Simpson, Inc., to update previously manufactured equipment.

This warranty is in lieu of all other warranties expressed or implied and no representative or person is authorized to assume for us any other liability in connection with the sale of our products.

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