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## 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 unit 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)

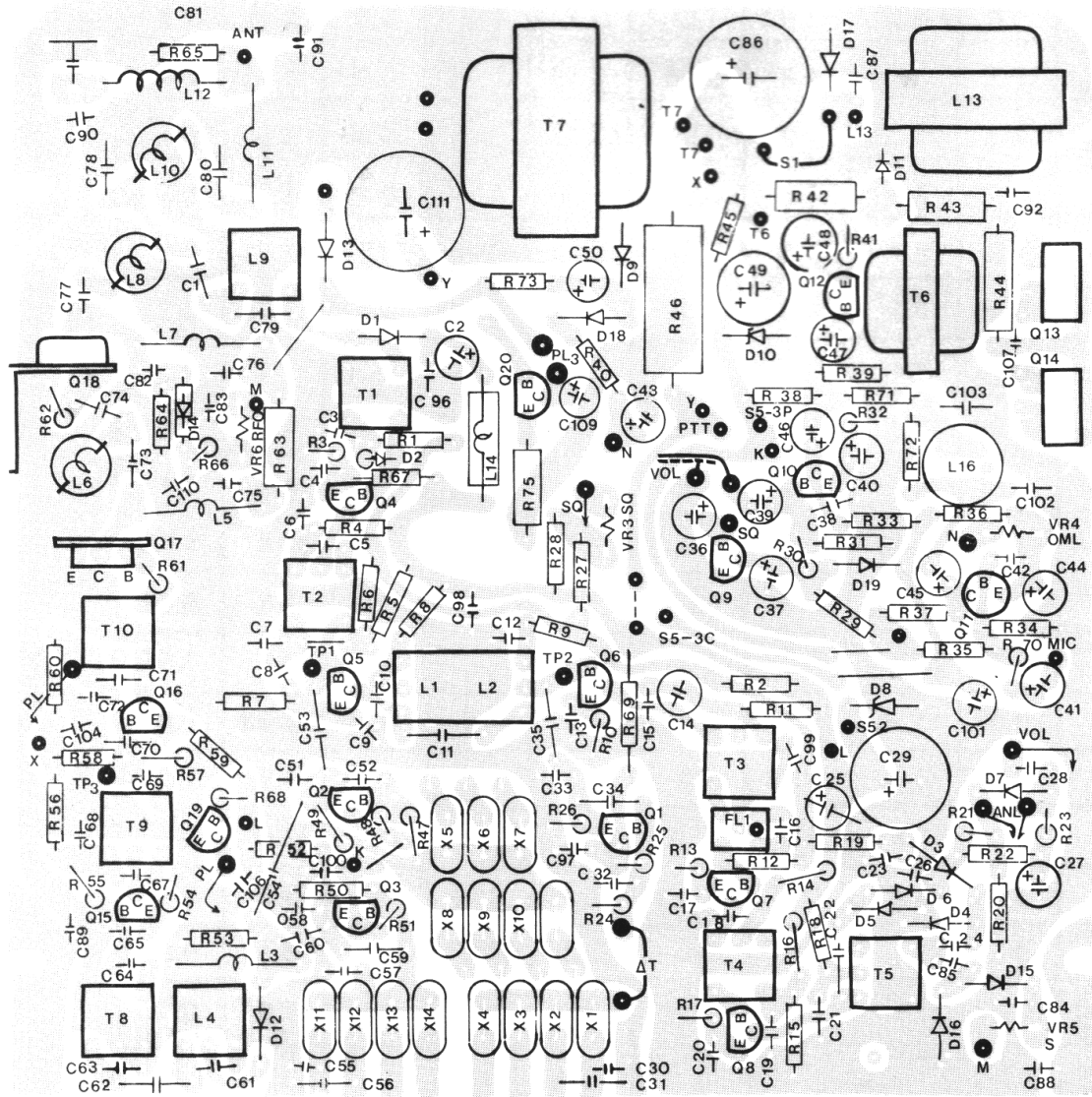
Step	SG Connection & Frequency	Set Condition	Output Meter Condition	Adjustment	Remarks
1.	To antenna jack (J1). Freq: 27.115MHz	SQ: Min. VOL: Max. DELTA TUNE: 0 ANL: OFF	To EXT. SP. jack (J3).	T1, T2, L1, L2, T3, T4, T5	Adjust for max. point
2.	Same as Step 1. and output level 300 $\mu$ V	SQ: Max. VOL: Max. ANL: OFF	Same as Step 1.	VR 3	Adjust for a open squelch point
3.	Same as Step 1. and output level: 100 $\mu$ V	Same as Step 1.	Same as Step 1.	VR 5	Adjust for "S-9" on "S" meter of the unit.
4.	Repeat the above adjustments, in order to make sure that adjustments have been made correctly.				

## TRANSISTOR VOLTAGE CHART

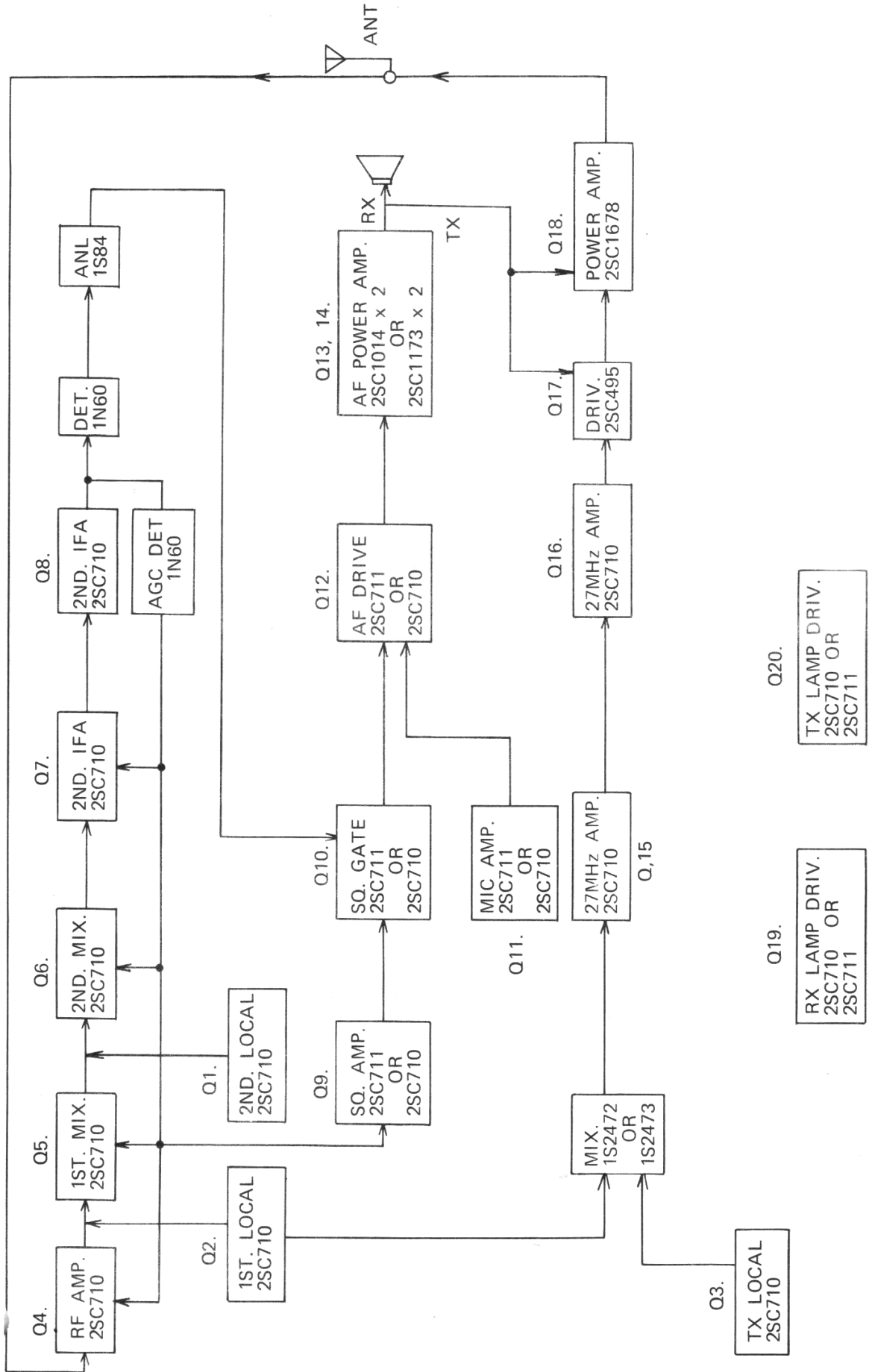
No.	Rx			Tx			PA		
	E	C	B	E	C	B	E	C	B
1	2.9	8.7	3.1	0.09	0.16	0.07	0.21	1.25	0.4
2	2.7	9.1	3.2	2.7	9.1	3.2	2.7	9.1	3.2
3	9.6	9.1	1.9	1.5	9.1	1.9	1.5	9.1	1.9
4	1.2	6.5	1.8	0.08	0.15	0.08	0.02	1.25	0.4
5	1.3	7.7	1.9	0.9	0.15	0.18	0.02	1.25	0.4
6	1.35	8.9	1.8	0.05	0.15	0.08	0.02	1.25	0.3
7	1.3	8.7	1.8	0.08	0.15	0.08	0.02	1.25	0.3
8	0.95	8.1	1.6	0.08	0.15	0.08	0.02	1.25	0.3
9	0	4.4	0	0	0.4	0.08	0	4.4	0
10	1.25	3.9	1.75	0.06	0.1	0.18	1.25	4.0	1.8
11	8.9	8.9	1.4	1.4	5.2	1.45	8.9	8.9	1.4
12	1.3	1.24	1.85	1.3	12.4	1.85	1.3	12.4	1.85
13	0.02	13.8	0.05	0.08	13.8	0.7	0.03	13.8	0.65
14	0.02	13.8	0.05	0.08	13.8	0.7	0.03	13.8	0.65
15	0.07	2.35	0.8	0.14	2.4	0.85	0.75	2.35	0.8
16	9.0	8.5	1.55	0.9	12.3	1.5	1.25	11.5	1.55
17	0	13.8	0	0	12.0	0	0	13.8	0
18	0	13.8	0	0	12.3	0.75	0	13.8	0
19	0	1.1	0.8	0	12.2	0.1	0	9.1	0.6
20	0.02	13.8	0	1.5	4.5	2.0	0	13.8	0

- 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



# BOBCAT 23D BLOCK DIAGRAM



## SECTION 5 REPLACEMENT PARTS

### CAPACITORS

SYMBOL	DESCRIPTION
C-24, 26, 64, 69, 77, 85, 87	0.001 $\mu$ F 50V, Ceramic
C-3, 4, 6, 7, 8, 9, 10, 12, 38, 42, 65, 68, 70, 72, 75, 76, 96, 97, 98, 99, 100, 104, 106, 107, 108, 110, 112	0.01 $\mu$ F 50V, Ceramic
C-83, 88, 89, 90, 91, 92, 93, 105	0.047 $\mu$ F 50V, Ceramic
C-11	1pF 50V, Mica
C-30, 31, 55, 56	2pF 50V, Mica
C-82	3pF 50V, Mica
C-53, 54	5pF 50V, Mica
C-35	5.6pF 50V, Mica
C-61	10pF 50V, Mica
C-60	20pF 50V, Mica
C-67, 73	24pF 50V, Mica
C-1, 5, 16, 63	30pF 50V, Mica
C-32, 33, 51, 57	35pF 50V, Mica
C-94	56pF 50V, Mica
C-81	75pF 50V, Mica
C-22, 58, 74	100pF 50V, Mica
C-80	130pF 50V, Mica
C-78	140pF 50V, Mica
C-71	150pF 50V, Mica
C-52	220pF 50V, Mica
C-79	300pF 50V, Mica
C-34, 59	500pF 50V, Mica
C-28	0.01 $\mu$ F 50V, Mylar
C-13, 15, 17, 18, 19, 20, 21, 23, 84	0.04 $\mu$ F 50V, Mylar
C-102	0.05 $\mu$ F 50V, Mylar
C-103	0.1 $\mu$ F 50V, Mylar
C-62	1pF 50V, Gimic
C-14	1500pF 50V, Plastic film

## REPLACEMENT PARTS

### CAPACITORS

SYMBOL	DESCRIPTION
C-27	0.22 $\mu$ F 50V, Electrolytic
C-41, 47	0.47 $\mu$ F 50V, Electrolytic
C-37, 39, 45, 46, 109	1 $\mu$ F 50V, Electrolytic
C-36, 43, 50	4.7 $\mu$ F 50V, Electrolytic
C-2, 25, 40, 44,	10 $\mu$ F 50V, Electrolytic
C-48	100 $\mu$ F 16V, Electrolytic
C-49, 101	220 $\mu$ F 16V, Electrolytic
C-29,	470 $\mu$ F 16V, Electrolytic
C-86, 111,	1000 $\mu$ F 16V, Electrolytic
VC-1	5016-020 13pF Max

### RESISTORS

SYMBOL	DESCRIPTION
R-44	5019-004 0.5 $\Omega$ Oxide Film
R-61	15 $\Omega$ 1/3W, Carbon
R-59	47 $\Omega$ 1/3W, Carbon
R-62	56 $\Omega$ 1/3W, Carbon
R-41, 45, 60, 69	100 $\Omega$ 1/3W, Carbon
R-3	200 $\Omega$ 1/3W, Carbon
R-52	330 $\Omega$ 1/3W, Carbon
R-4, 7, 8, 11, 14, 17, 18, 57, 64, 71	470 $\Omega$ 1/3W, Carbon
R-73	680 $\Omega$ 1/3W, Carbon
R-1, 6, 9, 12, 26, 27, 49, 53, 56	1K $\Omega$ 1/3W, Carbon
R-36, 66	1.5K $\Omega$ 1/3W, Carbon
R-13.	2.2K $\Omega$ 1/3W, Carbon
R-32	2.4K $\Omega$ 1/3W, Carbon
R-15	2.7K $\Omega$ 1/3W, Carbon
R-39, 50	3.3K $\Omega$ 1/3W, Carbon
R-58	3.9K $\Omega$ 1/3W, Carbon
R-31, 34, 37, 40, 54	4.7K $\Omega$ 1/3W, Carbon
R-19, 30, 74	6.8K $\Omega$ 1/3W, Carbon
R-33, 68, 72	10K $\Omega$ 1/3W, Carbon
R-16, 33, 51, 72	12K $\Omega$ 1/3W, Carbon
R-10, 55, 67, 70	15K $\Omega$ 1/3W, Carbon
R-24, 47, 65,	22K $\Omega$ 1/3W, Carbon
R-35	24K $\Omega$ 1/3W, Carbon
R-2, 25, 48	33K $\Omega$ 1/3W, Carbon

## REPLACEMENT PARTS

### RESISTORS (CONTINUED)

SYMBOL	DESCRIPTION
R-28	47K $\Omega$ 1/3W, Carbon
R-5, 20, 21, 22, 23	100K $\Omega$ 1/3W, Carbon
R-46	200 $\Omega$ 2W, Carbon
R-63	2.2 $\Omega$ 1/2W, Solid
R-75	22 $\Omega$ 1/2W, Solid
R-76	47 $\Omega$ 1/2W, Solid
R-77, 78	68 $\Omega$ 1/2W, Solid
R-43	100 $\Omega$ 1/2W, Solid
R-42	1.5K $\Omega$ 1/2W, Solid

### TRANSISTORS

SYMBOL	DESCRIPTION
Q-1, 2, 3, 4, 5, 6, 7, 8, 15, 16	5001-002 2SC710
Q-9, 10, 12	5001-043 2SC711
Q-11	5001-512 2SD77B
Q-13, 14	5001-010 2SC1014
Q-17	5001-513 2SC495T
Q-18	5001-514 2SC1678

### DIODES

SYMBOL	DESCRIPTION
D-13, 17	5001-163 1N4002
D-2, 3, 4, 5, 6, 9, 14, 15, 16, 19	5001-161 1N60FM
D-1	5001-107 WG1012 OR WG713
D-12	5001-128 1S2473
D-7	5001-164 1S84
D-18	5001-165 VD1211
D-11	5001-112 1S1211
D-8, 10	5001-125 BZ090

### INDUCTANCE

SYMBOL	DESCRIPTION
L-11	5006-284 0.22 $\mu$ H Choke Coil
L-7	5006-285 0.65 $\mu$ H Choke Coil



## REPLACEMENT PARTS

### INDUCTANCE (CONTINUED)

SYMBOL	DESCRIPTION		
L-12	5006-286	0.85 $\mu$ H	Choke Coil
L-5	5006-287	2.5 $\mu$ H	Choke Coil
L-3, 14	5006-288	22 $\mu$ HR	Choke Coil
L-16	5006-289	K-58	Choke Coil
L-13	5007-044	K-10	Choke Coil
L-15	5006-290	3.3 $\mu$ H	Choke Coil
L-10, 8	5006-295	S-18 White	HF Coil
L-6	5006-296	S-18 Violet	HF Coil
L-4	5006-297	507SY1	HF Coil
T-8	5006-298	507S3Y	HF Coil
T-9	5006-299	C305BD	HF Coil
T-2	5006-300	C377BD	HF Coil
T-1	5006-301	C294DD	HF Coil
L-9	5006-302	Z343QD	HF Coil
T-10	5006-303	CO42DD	HF Coil

### TRANSFORMERS

SYMBOL	DESCRIPTION		
L-1, 2	5006-291	42K-10	IF Transformer
T-5	5006-292	EIA 146D	IF Transformer
T-4	5006-293	EIA 227B	IF Transformer
T-3	5006-294	A086AD	IF Transformer
T-6	5007-045	A01A	Input Transformer
T-7	5007-046	E-52	Output Transformer

### VARIABLE RESISTORS

SYMBOL	DESCRIPTION		
VR-3, 4	5008-007	10K $\Omega$	2T Semi-fixed
VR-5	5008-032	50K $\Omega$	2T Semi-fixed
VR-6	5008-031	100K $\Omega$	2T Semi-fixed
VR-2	5008-088	10K $\Omega$	B type Variable
VR-1, S-1	5008-089	10K $\Omega$	D type Variable with switch

## REPLACEMENT PARTS

### CRYSTALS

SYMBOL	DESCRIPTION
X-1	5003-130 9.545MHz HC25/U
X-2	5003-131 9.555MHz HC25/U
X-3	5003-132 9.565MHz HC25/U
X-4	5003-133 9.585MHz HC25/U
X-11	5003-134 10.000MHz HC25/U
X-12	5003-135 10.010MHz HC25/U
X-13	5003-136 10.020MHz HC25/U
X-14	5003-137 10.040MHz HC25/U
X-5	5003-138 16.965MHz HC25/U
X-6	5003-139 17.015MHz HC25/U
X-7	5003-140 17.065MHz HC25/U
X-8	5003-141 17.115MHz HC25/U
X-9	5003-142 17.165MHz HC25/U
X-10	5003-143 17.215MHz HC25/U

### MISCELLANEOUS PARTS

5020-084	Front Panel Chassis
5020-085	Cabinet Bottom
5020-086	Cabinet Top
5025-019	Mounting Bracket Bracket for Meter
5022-066	Knob, Volume
5022-067	Knob, Channel Selector with Set Screws
5022-066	Knob, Squelch
5020-088	Escutcheon for Meter
5027-110	Name Plate Upper Side
5027-111	Name Plate Lower Side Nylon Rivet FNRP 3 $\phi$ x 4.5 Heat Sink for 2SC495 Heat Sink for 2SC1678 Coaxial Connector In Line Fuse Holder
5028-001	Fuse 2A
5009-060	Rotary Switch 24T
5009-061	Rotary Switch 3T
5009-062	Switch CS-003
5009-063	Switch CS-006
5010-012	Jack SJ296 Printed Circuit Board
5022-068	Channel Indicator

## REPLACEMENT PARTS

### MISCELLANEOUS PARTS (CONTINUED)

	Lamp Screen
5014-025	Meter A-39
5013-026	Lamp 16V 40mA
5013-028	Lamp 16V 40mA (amber)
5013-034	Lamp 6V 30mA (Red)
5027-008	Name Plate Microphone
	Washer for Jack
	Sponge for Meter
5012-018	Speaker 8 $\Omega$ 0.5W
	Bracket for Switch
	Rubber Ring for Mounting Bracket
	Screw 5 x 10
5004-015	Microphone
5010-019	Metal Connector 4P
	Nut Metal Connector
5010-011	Power Connector CN-3795
	Color Screw 3 x 6 (White)
	Color Screw 3 x 8 (White)
5031-039	Owners Manual
5030-060	Display Box
5030-061	Styrofoam Box
5023-016	Ceramic Filter 455B
5026-029	Mounting Cradle Screws
5027-115	Serial Tag
5015-004	Power Cable Assembly

## 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 90 day period following purchase.

Repair, at our factory, without charge, this equipment, if a defect develops during the first 90 days 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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