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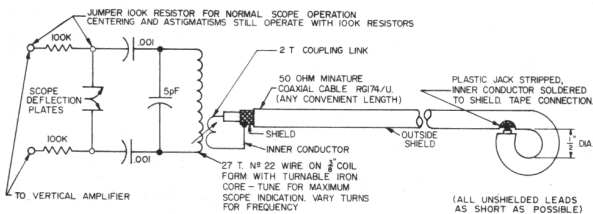
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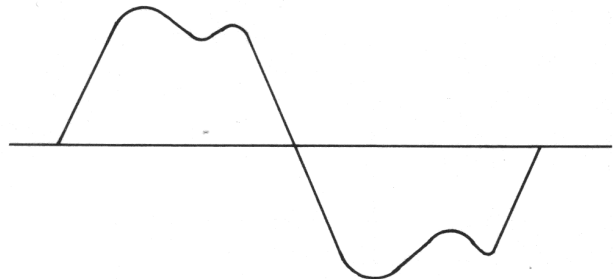
## 8.2 TRANSMITTER ALIGNMENT CHART

ALIGNMENT	CONNECTIONS AND SETTINGS	ADJUSTMENTS
Preliminary Crystal Oscillator	<p>50 ohm resistive dummy antenna with 0 - 500 mA RF milliammeter connected to antenna jack. To read Power Amplifier DC grid voltage, connect DC-VTVM to junction of L2, R42 (see Bottom View Figure 10).</p> <p>Connect DC voltmeter across R46 (positive to junction R46 and R72) to read P/A plate current. Each volt will represent 10 mA P/A plate current.</p> <p>Connect frequency counter in parallel with RF ammeter (see Figure 5). Key transmitter.</p>	<p>Zero beat approximately the transmitter oscillator against the frequency meter by adjusting L5. This will be precisely adjusted after the power amplifier is adjusted.</p> <p>Adjust L7 for maximum negative P/A grid voltage (-18 volts typical).</p>
Preliminary Power Amplifier Adjustments	As above except disconnect frequency counter.	Adjust Pi-L network for maximum RF current to dummy antenna while maintaining 32 mA plate current or a lesser value, whichever gives greatest output, by simultaneously adjusting L9 and C49 for desired P/A plate current at the plate current dip. Last adjustment must be L9 for dip in P/A plate current.
Power Amplifier Neutralization (normally requires checking only when V8 is replaced or when frequency is changed considerably)	As above in Preliminary P/A Adjustments.	<p>Note rectified DC grid voltage on P/A as L9 is tuned through resonance.</p> <p>If P/A grid voltage increases in magnitude when core of L9 is backed out of coil, value of C44 is too low. Increase C44 capacity gradually (one-half turn clockwise at a time) and repeat test above.</p> <p>If P/A grid voltage increases in magnitude when core of L9 is turned into the coil, value of C44 is too high. Decrease C44 capacity one-half counterclockwise turn at a time and repeat test above.</p> <p>At the correct setting, grid voltage will rise equally -- but only slightly or not at all -- on each side of resonance.</p>
Final Power Amplifier Adjustment	As above in Preliminary P/A Adjustments.	Re-adjust P/A tuning and coupling as in Preliminary Power Amplifier Adjustment above, but make last adjustment detuning

ALIGNMENT	CONNECTIONS AND SETTINGS	ADJUSTMENTS
<p>Final Crystal Oscillator Adjustment</p> <p>Plate</p> <p>Grid</p> <p>Modulation Check</p>	<p>DC-VTVM to junction of L2 and R42.</p> <p>As above. Preliminary crystal oscillator alignment modulation off.</p> <p>Audio oscillator to pin 2 of microphone connector. Connect 50 ohm dummy antenna and RF milliammeter. Lightly couple RF output directly to vertical plates of oscilloscope (not through scope amplifier). See Figure 7. Place loop near L10.</p> <p>Disconnect audio oscillator.</p>	<p>L9 slightly counterclockwise (core out) for maximum RF output while keeping P/A plate current at desired value. RF line current: 330 mA typical 300 mA minimum</p> <p>Adjust L7 for maximum rectified grid voltage on the Power Amplifier. Minimum: -13 volts Typical: -18 volts</p> <p>Zero beat (<math>\pm 10</math> Hz) the transmitter oscillator crystal against the frequency meter by adjusting L5. 50% modulation should be achieved with 15 millivolt or less signal at 1000 Hz.</p> <p>Observe output waveform. Threshold of limiting will occur at about 80% modulation. RF line current will increase about 15 -20% with modulation.</p> <p>With voice, approximately 100% modulation will occur on negative peaks.</p>

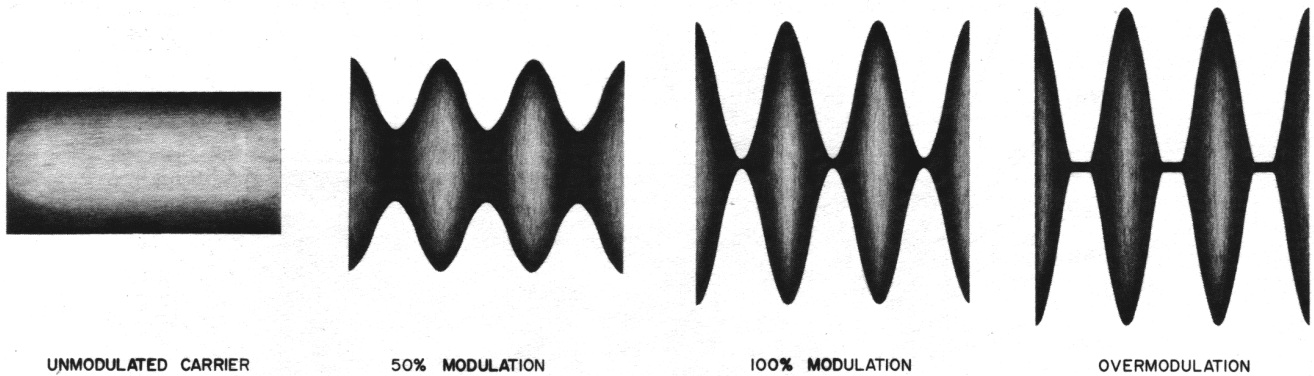


OSCILLOSCOPE RF PICK-UP LOOP AND METHOD OF CONNECTION  
FIGURE 7



CLIPPED AUDIO WAVEFORM

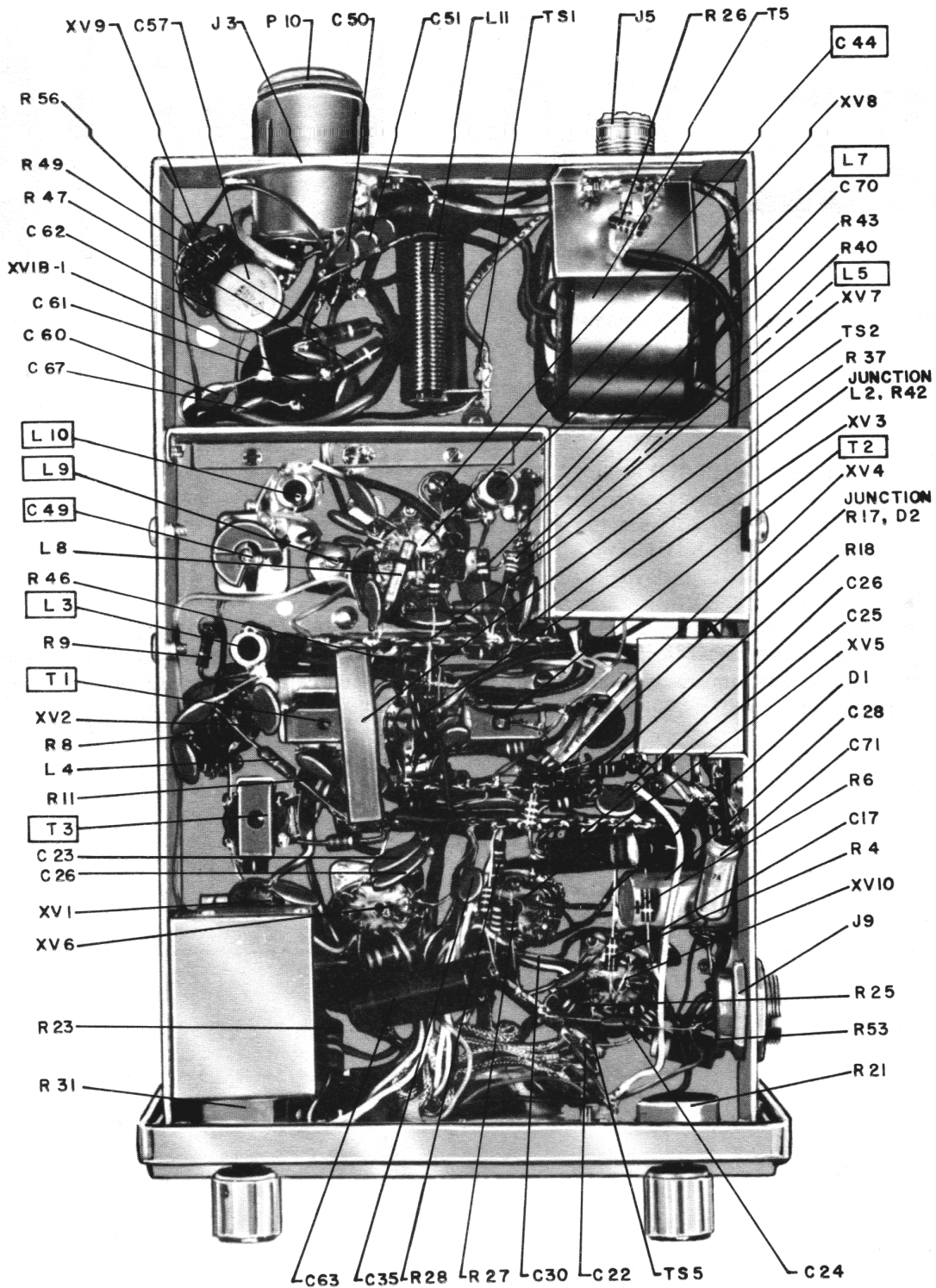
FIGURE 8



**TRANSMITTER WAVEFORMS  
FIGURE 9**

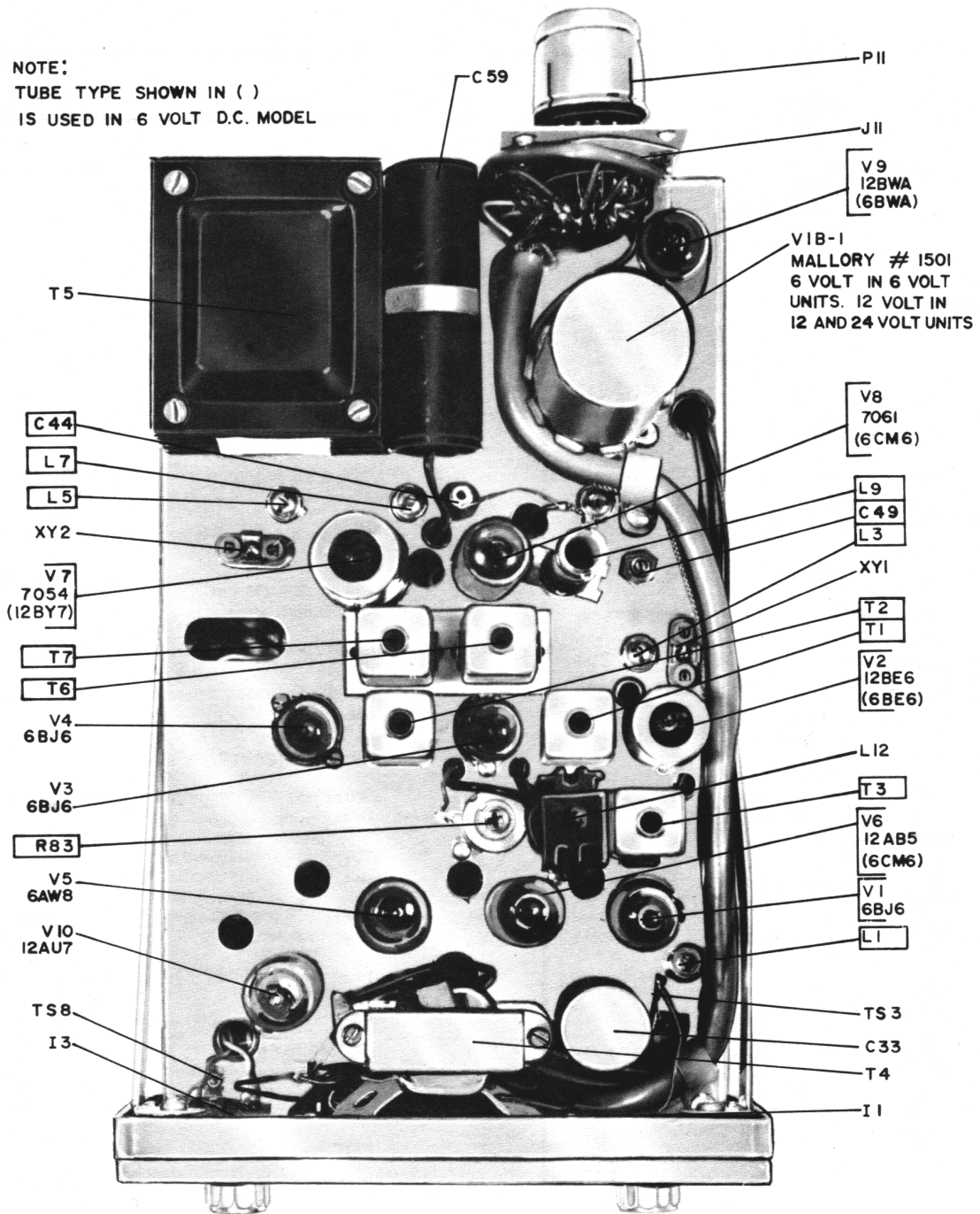
**NOTE:**

Figure 9 shows output waveforms without modulation, at 50%, 100% and over 100% modulation. In this equipment, intentional audio peak clipping (see Figure 8) will limit the crests and valleys to about 90% modulation with sine wave input. With voice modulation, the valleys will be modulated to approximately 100%.



**BOTTOM VIEW**  
**MESSENGER 202**  
**FIGURE 10**

NOTE:  
TUBE TYPE SHOWN IN ( )  
IS USED IN 6 VOLT D.C. MODEL



TOP VIEW  
MESSENGER 202  
FIGURE II

## SECTION 9 PARTS LIST

SCHEMATIC SYMBOL NO.	DESCRIPTION	PART NO.	SCHEMATIC SYMBOL NO.	DESCRIPTION	PART NO.
	MODEL 242-0328-001/005 BASIC SUBASSEMBLY, LESS FREQUENCY DETERMINING ELEMENTS		C33	15/10/10 $\mu$ F 300/150/25 VW electrolytic	022-1541-001
			C34, 63	0.1 $\mu$ F $\pm$ 20% 400 VW paper	510-9005-001
			C40	10 pF $\pm$ 5% 1000 VW, N1500 temperature compensating ceramic disc	510-3041-100
	<b>BRACKETS</b>		C41	220 pF $\pm$ 10% 500 VW dipped mica	510-0005-221
BKT 1	IF bracket assembly	023-1620-001	C44	Variable, 1-7.5 pF tubular ceramic - less hardware	512-1002-004
BKT 3	Panel support, R.H.	017-1121-001	C45, 47, 48	.001 $\mu$ F $\pm$ 20% 1500 VW ceramic disc	510-3158-103
BKT 4	Panel support, L.H.	017-1121-002	C49	Variable, 4.5-100 pF type S special	148-0006-003
BKT 5	Connector mtg.	017-1195-001	C51, 52	.002 $\mu$ F $\pm$ 20% 125 VAC ceramic disc	510-3001-202
BKT 6	Relay mtg.	017-1356-001	C56	0.5 $\mu$ F $\pm$ 20% 200 VW paper	022-1409-001
	<b>CAPACITORS</b>		C57	.003 $\mu$ F $\pm$ 20% 4000 VW ceramic disc	022-1738-001
C3, 5, 6, 9, 11, 13, 15, 16, 18, 19, 27, 30, 32, 42, 46, 53, 54, 64, 74, 101, 103	.01 $\mu$ F +80% -20% 500 VW ceramic disc	022-1097-001	C71	8 $\mu$ F 150 VW electrolytic	022-1833-001
C4, 39, 43	.001 $\mu$ F $\pm$ 20% 600 VW ceramic disc	022-1184-001	C72	2700 pF $\pm$ 5% 1000 VW dipped mica	022-4360-054
C8, 37	330 pF $\pm$ 5% 1000 VW, N1500 temperature compensating ceramic disc	510-3041-331	C73	1800 pF $\pm$ 5% 1000 VW dipped mica	022-4356-054
C14	100 pF $\pm$ 10% 500 VW dipped mica	510-0005-101	C100	0.56 $\mu$ F $\pm$ 5% 500 VW com- position tubular	510-9002-568
C17	470 pF $\pm$ 10% 500 VW dipped mica	510-0006-471	C102	.01 $\mu$ F +80% -20% 50 VW ceramic disc	510-3003-103
C20	.003 pF $\pm$ 20% 600 VW ceramic disc	022-1645-001		<b>CABINET HARDWARE</b>	
C21	150 pF $\pm$ 10% 500 VW dipped mica	510-0005-151	CH1	Riveted chassis assembly, complete	023-1610-004
C22, 26, 104	.02 $\mu$ F +80% -20% 50 VW ceramic disc	510-3003-203	CH2	Front panel	023-1569-001
C23, 36	.0033 $\mu$ F $\pm$ 10% 1000 VW ceramic disc	022-1542-001	CH3	Cabinet assembly	023-1380-021
C24, 31, 35, 50, 55, 60, 61, 62, 65, 67, 112	.005 $\mu$ F, GMV 600 VW ceramic disc	510-3157-502	CH4	Speaker grille, no paint	017-1097-001
C25	.047 $\mu$ F 200 VW paper tubular	510-9004-001	CH5	Recessed socket mtg. shell	515-6003-002
C28	4 $\mu$ F 350 VW electrolytic	022-1654-001		<b>CRYSTALS</b>	
			Y1	Receiver (specify frequency)	022-1858-501
			Y2	Transmitter	022-1858-001

## PARTS LIST (cont'd)

SCHEMATIC SYMBOL NO.	DESCRIPTION	PART NO.	SCHEMATIC SYMBOL NO.	DESCRIPTION	PART NO.
<b>DIODES</b>			<b>JACKS (cont'd)</b>		
D1	Silicon, type 1138	523-0011-001	J11	Socket, 11 pin M. I. P.	515-1009-011
D2	Silicon, type 1N881	523-1000-881	J12	Tip jack, red	105-0602-003
D3	Germanium, type 1N294A	523-1000-295	J13	Tip jack, blue	105-0610-003
<b>ELECTRON TUBES</b>			<b>KNOBS</b>		
V1, 3, 4	6BJ6	022-1562-001	K4, 5	Aluminum knob, less 8-32 x 3/16 slotted headless setscrew	013-1052-001
V2	12BE6	022-1563-001	<b>LAMPS</b>		
V5	6AW8	022-1565-001	I1, 3	Neon lamp NE2H	549-3003-001
V6	12AB5	022-1566-001	<b>MECHANICAL PARTS</b>		
V7	8077/7054	022-1619-001	MP5	Transmitter identification card FCC form 452-C	022-1598-005
V8	7061	022-1568-001	MP7	Cable clamp, 1/2 inch dia.	572-0001-007
V9	12BW4	022-1569-001	MP9	Mounting clip for IF transformer	572-1004-001
V10	12AU7	022-0916-001	MP10	Clip, crystal mounting	016-1518-001
<b>FEET</b>			<b>MICROPHONE</b>		
	Feet	574-1005-001	M1	Ceramic Hi-Z, PTT switch, with 022-1482-003 connector	023-1572-002
<b>FUSES</b>			M2	Microphone holder. Packaged with hardware and spare fuses	537-9004-002
F1, 2	2 amp. medium lag fuse Buss type AGC-2 (spare) Package with M2	534-0003-024	<b>PLUGS</b>		
F3	9 amp. medium lag fuse Buss type SFE-9	534-0004-090	P9	4 pin, male, cable mounting, part of 023-1572-001 microphone	022-1482-003
<b>INDUCTORS</b>			P10	Jumper plug assembly, 12 pin, male	023-1575-001
L2, 4, 6	RF choke, 6.8 microhy	022-1832-001	Includes:		
L8	RF choke, 20 microhy $\pm 10\%$	022-1549-001	C91	Capacitor, 470 $\mu\text{F}$	510-0006-471
L11	RF choke assembly, 28 microhy 10 amp.	023-1539-001	C94	Capacitor, 330 $\mu\text{F}$	510-0005-331
L12	Audio inductor, 0.5 hy. $\pm 5\%$	022-1856-001	C95	Capacitor, 680 $\mu\text{F}$	510-0005-681
<b>JACKS</b>				Plug cap	515-6002-006
J3	9-pin connector, male	515-0005-109	P10	Plug, 12 pin	022-1369-029
J5	Antenna jack SO 239	515-3003-001	P11	Jumper plug assembly, 11 pin, male	023-1577-002
J9	Receptacle, 4 pin female, chassis mtg.	515-1019-001	Includes:		
J10	Socket, 12 pin M. I. P.	515-1009-008		Plug cap	515-6002-006



**PARTS LIST (cont'd)**

<b>SCHEMATIC SYMBOL NO.</b>	<b>DESCRIPTION</b>	<b>PART NO.</b>	<b>SCHEMATIC SYMBOL NO.</b>	<b>DESCRIPTION</b>	<b>PART NO.</b>
	<b>PLUGS (cont'd)</b>			<b>RESISTORS (cont'd)</b>	
	P11 Plug, 11 pin	515-0005-011	R32	12,000 ohm $\pm 10\%$ 2 watt carbon	569-1008-123
	Shield coil	016-1691-001	R33	100,000 ohm $\pm 10\%$ 1/2 watt carbon	569-1004-104
	<b>RELAY</b>		R36	330 ohm $\pm 10\%$ 1 watt carbon	569-1006-331
RY1	DPDT, DC coil 300 ohms	567-0006-001	R37	6200 ohm $\pm 5\%$ 10 watt W. W.	569-2009-622
	<b>RESISTORS</b>		R39	470 ohm $\pm 10\%$ 1/2 watt carbon	569-1004-471
R1, 6, 16, 42	1 megohm $\pm 10\%$ 1/2 watt carbon	569-1004-105	R40	390,000 ohm $\pm 10\%$ 1/2 watt carbon	569-1004-394
R2, 4, 25, 27, 41, 43, 38, 81	10,000 ohm $\pm 10\%$ 1/2 watt carbon	569-1004-103	R46	100 ohm $\pm 5\%$ 1/2 watt W. W.	569-2002-101
R3, 13, 82	150 ohm $\pm 10\%$ 1/2 watt carbon	569-1004-151	R47, 49	150 ohm $\pm 10\%$ 1 watt carbon	569-1006-151
R5, 12, 14, 15, 80	2200 ohm $\pm 10\%$ 1/2 watt carbon	569-1004-222	R53	43 ohm $\pm 5\%$ 2 watt carbon	569-1007-430
R8, 72	22,000 ohm $\pm 10\%$ 1/2 watt carbon	569-1004-223	R83	Potentiometer	562-0017-001
R9	680 ohm $\pm 10\%$ 1/2 watt carbon	569-1004-681	R84	68,000 ohm $\pm 10\%$ 1/2 watt carbon	569-1004-683
R10	820 ohm $\pm 10\%$ 1/2 watt carbon	569-1004-821		<b>SHIELDS</b>	
R11	22,000 ohm $\pm 10\%$ 1 watt carbon	569-1006-223	SH1	Power supply	017-1122-001
R17	330,000 ohm $\pm 10\%$ 1/2 watt carbon	569-1004-334	SH2	Oscillator	017-1179-001
R18	270,000 ohm $\pm 10\%$ 1/2 watt carbon	569-1004-274	SH3, 5	Contact shield, 7 pin socket	016-1461-001
R19, 28, 34, 35, 61	470,000 ohm $\pm 10\%$ 1/2 watt carbon	569-1004-474	SH4	Contact shield, 9 pin socket	016-1579-001
R20	820,000 ohm $\pm 10\%$ 1/2 watt carbon	569-1004-824	SH6	RF	017-1268-001
R21	Potentiometer, 1 megohm $\pm 30\%$ 1/8 watt log taper A	022-1647-001	SH7	Antenna	016-1568-001
R22	4.7 megohm $\pm 10\%$ 1/2 watt carbon	569-1004-475		<b>SOCKETS</b>	
R24, 56	220,000 ohm $\pm 10\%$ 1/2 watt carbon	569-1004-224	XV1, 2, 3, 4	7 pin miniature, mica filled, shielded	515-1020-007
R26, 29, 57, 71	47,000 ohm $\pm 10\%$ 1/2 watt carbon	569-1004-473	XV5, 6, 8, 9, 10	9 pin miniature	022-0976-001
R31	Potentiometer, 15,000 ohm $\pm 10\%$ 2 watt W. W. linear with switch, 10A 15 VDC	022-1932-001	XV7	9 pin miniature, mica filled, shielded	022-1207-001
			XV1B1	4 pin vibrator	022-1571-001
				Ground cup, for XV1B1	022-1544-001
			XY1, 2	Crystal	515-5201-001
				<b>SPEAKER</b>	
			LS1	3-1/2", 3.2 ohm VC, Xformer bracket, humi-gard cone	589-1004-001

## PARTS LIST (cont'd)

SCHEMATIC SYMBOL NO.	DESCRIPTION	PART NO.	SCHEMATIC SYMBOL NO.	DESCRIPTION	PART NO.
<b>TERMINAL STRIPS</b>			<b>FREQUENCY DETERMINING ELEMENTS</b>		
TS1	2 Terminal Strip	586-1004-002	<b>25 - 30 MHz</b>		
TS2, 5	9 Terminal Strip	586-1004-009			
TS3	2 Terminal Strip	586-1001-018			
TS4	11 Terminal Strip	586-1004-011			
TS6	3 Terminal Strip	586-1001-020	C1	Capacitor, .001 pF $\pm 20\%$ 600 VW ceramic disc	022-1184-001
TS7	2 Terminal Strip	022-1690-002	C2	Capacitor, 22 pF $\pm 5\%$ 500 VW dipped mica	510-0004-220
TS8	4 Terminal Strip	586-1001-023	C10	Capacitor, 10 pF $\pm 10\%$ 500 VW dipped mica	510-0005-100
TS9	5 Terminal Strip	586-1004-005	C38	Capacitor, 22 pF $\pm 5\%$ 1000 VW N1500 disc ceramic	510-3041-220
<b>TRANSFORMERS</b>			C70	Capacitor, 10 pF $\pm 5\%$ 500 VW dipped mica	510-0004-100
T1	455 kHz IF	592-5019-001	C75	None	
T2	455 kHz IF	592-5019-002	L1	Coil assembly	023-1700-021
T4	Modulation and output	022-1616-001	L3	Coil assembly	023-1700-043
T5	Universal vibrator	022-1560-001	L5	Coil assembly	023-1700-044
T6, 7	455 kHz IF	592-5019-003	L7	Coil assembly	023-1700-045
<b>TUBE SHIELDS</b>			L9	Coil assembly	023-1700-042
E1	7 pin medium snap-on	022-1218-002	L10	Coil assembly	023-1700-623
E2	9 pin 2-1/16" snap-on	022-1218-004	T3	RF transformer 25-30 MHz	022-1623-001
E6	Socket bottom shield (7 pin socket)	133-0280-001	<b>30 - 35 MHz</b>		
<b>VIBRATOR</b>			C1	None	
VIB1	Full wave, interrupting, 12.6 V 5A mallory 1501	022-1687-001	C2	Capacitor, 10 pF $\pm 5\%$ 500 VW dipped mica	510-0004-100
<b>WIRING</b>			C10	Capacitor, 5.1 pF $\pm 5\%$ 500 VW dipped mica	510-0004-519
W1	Harness, 11 conductor (4 in separate shields) overall shield and vinyl jacket	023-1576-001	C38	Capacitor, 15 pF $\pm 5\%$ 1000 VW N1500 disc ceramic	510-3041-150
W18	115 VAC line cord assembly	023-1391-001	C70	Capacitor, 5.1 pF $\pm 5\%$ 500 VW dipped mica	510-0004-519
W19	12 VDC battery cable assembly	023-1393-001	C75	Capacitor, 47 pF $\pm 5\%$ 500 VW dipped mica	510-0004-470

PARTS LIST (cont'd)

SCHEMATIC SYMBOL NO.	DESCRIPTION	PART NO.	SCHEMATIC SYMBOL NO.	DESCRIPTION	PART NO.
L1	Coil assembly	023-1700-025	C38	Capacitor, 15 $\mu$ F $\pm$ 5% 1000 VW N1500 disc ceramic	510-3041-150
L3	Coil assembly	023-1700-049	C70	None	
L5	Coil assembly	023-1700-033	C75	Capacitor, 68 $\mu$ F $\pm$ 5% 500 VW dipped mica	510-0005-680
L7	Coil assembly	023-1700-050	L1, 7	Coil assembly	023-1700-338
L9	Coil assembly	023-1700-051	L3	Coil assembly	023-1700-336
L10	Coil assembly	023-1700-623	L5	Coil assembly	023-1700-337
T3	RF transformer, 30-35 MHz	022-1623-002	L9	Coil assembly	023-1700-339
	<b>35 - 40 MHz</b>		L10	Coil assembly	023-1700-637
			T3	RF transformer 40-45 MHz	022-1623-004
				<b>45 - 50 MHz</b>	
C2	Capacitor, 10 pF $\pm$ 5% 500 VW dipped mica	510-0004-100	C2	Capacitor, 10 pF $\pm$ 5% 500 VW dipped mica	510-0004-100
C10	Capacitor, 5.1 pF $\pm$ 5% 500 VW dipped mica	510-0004-519	C38	Capacitor, 15 pF $\pm$ 5% 1000 VW N1500 disc ceramic	510-3041-150
C38	Capacitor, 10 pF $\pm$ 5% 1000 VW N1500 disc ceramic	510-3041-100	C70	None	
C70	None		C75	Capacitor, 47 pF $\pm$ 5% 500 VW dipped mica	510-0004-470
C75	Capacitor, 47 pF $\pm$ 5% 500 VW dipped mica	510-0004-470	C76	Capacitor, 0.56 pF $\pm$ 5% 500 VW composition Tubular	510-9002-568
L1	Coil assembly	023-1700-353	L1	Coil assembly	023-1700-346
L3	Coil assembly	023-1700-333	L3	Coil assembly	023-1700-334
L5	Coil assembly	023-1700-334	L5, 7	Coil assembly	023-1700-347
L7	Coil assembly	023-1700-350	L9	Coil assembly	023-1700-348
L9	Coil assembly	023-1700-335	L10	Coil assembly	023-1700-646
L10	Coil assembly	023-1700-625	T3	RF transformer 45-50 MHz	022-1623-005
T3	RF transformer, 35-40 MHz	022-1623-003			
	<b>40 - 45 MHz</b>			<b>SUPPLEMENT TO PARTS LIST</b>	
				<b>OTHER MESSENGER 202 MODELS</b>	
				NOTE:	
C2	Capacitor, 10 $\mu$ F $\pm$ 5% 500 VW dipped mica	510-0004-100		All Messenger 202 models are derived from Model No. 242-0328-xxx. The following parts lists indicate parts added to or substituted in Model No. 242-0328-xxx to make each model. Model No. 242-	

**PARTS LIST (cont'd)**

<b>SCHEMATIC SYMBOL NO.</b>	<b>DESCRIPTION</b>	<b>PART NO.</b>	<b>SCHEMATIC SYMBOL NO.</b>	<b>DESCRIPTION</b>	<b>PART NO.</b>
0328-801/805 indicated parts deleted to show the differences between it and Model No. 242-0328-xxx. All models use the frequency determining components listed for each frequency range.			FH24	Fuseholder for 24 VDC battery cable	534-1004-001
Model No. 242-0326-xxx (117 VAC only)			R47, 49	Resistor, 330 ohm ±10% 2 watt carbon	022-7037-010
CH6	Plate, line cord	017-1141-001	R59	Resistor, 68 ohm ±10% 2 watt carbon	569-1008-680
E9	Strain relief bushing	574-0003-001	R60	Resistor, 10,000 ohm ±10% 1/2 watt carbon	569-1004-103
T5	Power transformer, 115 VAC	022-1661-001	T5	Universal vibrator transformer, 115 VAC, 24 VDC	022-1662-001
TS8	Two terminal strip	586-1001-018	W19	24 VDC battery cable assembly	023-1394-001
W21	115 VAC line cord assembly	023-1416-001	Model No. 242-0338-xxx (117 VAC, 234 VAC, 12 VDC)		
Model No. 242-0327-xxx (117 VAC, 6 VDC)			F4	Fuse, 1 Ampere medium lag, (230 VAC operation)	022-1440-001
C41	Capacitor, 150 pF ±10% dipped mica	510-0005-151	J3	11 pin male jack	515-0005-011
F3	Fuse, 20 ampere, medium lag, Buss type SFE-20	534-0004-200		Mounting ring for 515-0005-011	515-0004-001
FH6	Fuseholder for 6 VDC battery cable	534-1004-005	P6, 7, 8	Plug, 11 pin female	515-1005-111
R40	Resistor, 270,000 ohms ±10%, 1/2 watt carbon	569-1004-274		Mounting ring for 515-1005-111	515-0004-001
T5	Universal vibrator transformer, 6 VDC, 115 VAC	022-1620-001		Shell for 515-1005-111	515-6003-002
V2	Electron tube, type 6BE6	022-1204-001	T5	Universal vibrator transformer, 115 VAC, 230 VAC, and 12 VDC	022-1663-001
V6, 8	Electron tube, type 6CM6	022-1621-001	W18	230 VAC line cord assembly (11 pin plug)	023-1425-001
V7	Electron tube, type 12BY7	022-1567-001	W18	115 VAC line cord assembly (11 pin plug)	023-1430-001
V9	Electron tube, type 6BW4	022-1622-001	W19	12 VDC battery cable assembly (11 pin plug)	023-1424-001
VIB1	Vibrator, full wave, interrupting, 6V, 7 Amp. Mallory 1501	022-1687-002		Adapter, Continental to American plug	022-1679-001
W19	6 VDC battery cable assembly	023-1392-001		Retainer ring	515-0004-001
Model No. 242-0329-xxx (117 VAC, 24 VDC)			Model No. 242-0328-801/805 (117 VAC only)		
C58	Capacitor, .003 μF ±20% 4 kWV ceramic disc	022-1738-001	VIB1	Vibrator, full wave, interrupting, deleted	022-1687-001
C66	Capacitor, 1 μF +30% -20% 200 VW tubular paper	510-1004-105	W19	12 VDC battery cable deleted	023-1393-001
F3	Fuse, 4 ampere medium lag, Buss type SFE-4 (24 VDC operation)	534-0004-040			

PARTS LIST (cont'd)

SCHEMATIC SYMBOL NO.	DESCRIPTION	PART NO.	SCHEMATIC SYMBOL NO.	DESCRIPTION	PART NO.
	Model No. 242-0328-501/505 (117 VAC, 12 VDC) Canadian Messenger 202, 3 Watts Output			1/2 watt carbon	569-1004-563
R48	Resistor, 3900 ohm $\pm 5\%$ , 7 watts wire wound	569-2007-392	R72	Resistor, 10,000 ohm $\pm 10\%$ , 1/2 watt carbon	569-1004-103
R69	Resistor, 820,000 ohm $\pm 10\%$ , 1/2 watt carbon	569-1004-824	TS11	Two terminal strip	586-1001-019
R71	Resistor, 56,000 ohm $\pm 10\%$ ,			CSA nameplate	559-0005-001
			W18	117 VAC line cord assembly	023-1391-003