

RCA

Service Manual
RCA Model 14T275
Concealed Chassis CB



**40-Channel
Concealed Chassis
Citizens Band Transceiver**

RCA CB Co-Pilot

RCA Model 14T275 Concealed Chassis CB

The transceiver uses electronic channel selection, digital channel indication and separate elements for microphone and speakers. A chassis-mounted speaker, activated with a switch on the mic. bracket, provides improved sound quality in some situations. The chassis includes a jack for connection of an external speaker.

CIRCUIT DESCRIPTION

Phase-Lock Loop Circuitry

The Model 14T275 uses a phase-lock loop (PLL) system of frequency synthesis to generate highly precise carrier and local-oscillator signals for the transmitter and receiver sections of the transceiver.

The PLL employs a free-running, voltage-controlled oscillator (VCO, part of IC-2, Location 5B in Fig. 1), a phase detector, a crystal-controlled reference oscillator (Loc. 8D in Fig. 1) and a programmable frequency divider IC1. (Loc. 2-6D Fig. 1)

The VCO operates at a frequency of 17.18 to 17.62 MHz, depending on channel selector setting, and produces two outputs: one at 37.66 to 38.1 MHz and another at 2.86 to 3.3 MHz. The crystal controlled reference oscillator (Loc. 8D in Fig. 1) operates at 10.24 MHz and feeds a bandpass filter/

doubler (BPF/DBLR Loc. 7C in Fig. 1). The 20.48 MHz output of the BPF/DBLR beats with the 17.18-17.62 MHz VCO signal to produce a 37.66-38.1 MHz result. This signal feeds two loads: the receiver first mixer and the transmitter oscillator/mixer/buffer stage (IC3, Loc. 7B in Fig. 1). The second mixer output signal, at 2.86-3.3 MHz, feeds the programmable divider in IC1, (Loc. 3D in Fig. 1).

Simultaneously, the 10.24 MHz output of the reference oscillator through a buffer amplifier (Loc. 7D in Fig. 1) goes to the 1/1024 divider in IC1. This produces a highly precise 10 kHz signal for VCO control via the phase detector (Loc. 4D in Fig. 1). The programmable divider (Loc. 3D, Fig. 1) divides the 2.86 to 3.3 MHz signal in 10 kHz steps, according to the program developed in the channel selector circuit to arrive at a signal in the 10 kHz region, harmonically related to the VCO frequency.

The phase detector develops a d-c voltage in proportion to the phase difference between the two 10 kHz signals. This alters the frequency of the VCO until the divided down signal matches the divided down reference oscillator signal. Once the VCO arrives at the proper frequency, it locks to the reference oscillator. Thus, at Ch. 20, the VCO operates at 17.42 MHz ($17.42 + 20.48 = 37.90$ MHz) for a carrier frequency of 27.205 MHz. See chart of Fig. 2 for the VCO, carrier and receiver local oscillator frequency for all 40 channels.

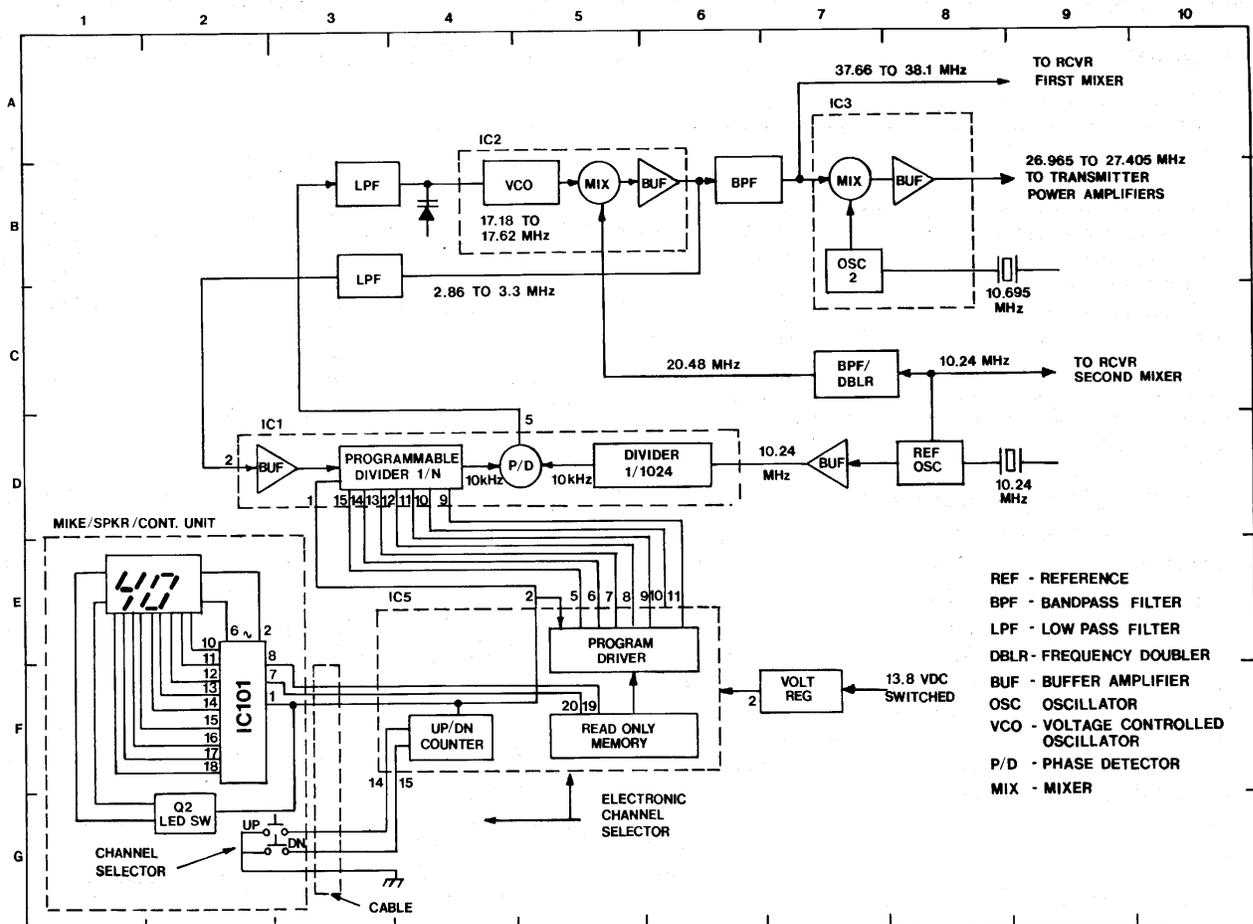


Figure 1. Block Diagram, Phase Locked Loop (PLL) and Electronic Channel Selector

ELECTRONIC CHANNEL SELECTOR

Since the operating controls are in the mic./speaker unit, the 14T275 uses a system of pushbutton electronic channel selection instead of the familiar rotary channel selection switch. Referring to Fig. 1, actual channel selection is the function of chip IC5 (Loc. 4 & 5E, Fig. 1). This chip includes three sub-functions: one, a read-only memory (ROM); two, a program driver, and three, an up/down counter. A driver for the LED channel number indicator is part of the hand-held control unit (IC101 in the control unit).

The ROM is programmed with the digital "N" codes (see chart of Fig. 2). When either the "UP" or "DN" pushbutton switches are closed, the UP/DN counter shifts operating channel at a one-per-second rate. If the pushbutton switch (either "UP" or "DOWN") is still closed after the one channel shift, the rate increases to about six channels per second. As the channel change takes place, the LED driver switches the sections of the display accordingly. When the pushbutton switch opens, the counter operation ceases. At this point, the proper "N" code goes to the programmable divider in IC1. The PLL then goes to work in adjusting VCO frequency to the needs of the system.

While a channel change takes place, both the receiver and the transmitter become inoperative. In the receiver, the bias in the 455 kHz IF amplifier (Q11, Q12) is lifted; removing the bias from the DC switch (Q22) renders the transmitter temporarily inoperative.

TRANSMITTER RF SYSTEM

Carrier frequency generation starts with a crystal controlled oscillator (in IC3, see Fig. 3) operating at 10.695 MHz. This signal, beat against the PLL generated 37 MHz signal in the mixer section of IC3, generates a 27 MHz carrier. This carrier signal goes through a buffer stage in the chip before going on to the first carrier amplifier (Q3) in the transmitter amplifier chain. This amplifier increases the power level slightly and isolates the modulated amplifiers that follow from the mixer stage. Through a shift in bias, this stage also serves as the on/off control of the transmitter. Transistors Q4 and Q5 are modulated amplifiers that raise carrier to the 4-watt output level. A low pass filter, in the output circuit attenuates out-of-band signals and matches antenna impedance to that of the final amplifier.

AUDIO AND MODULATOR SYSTEM

A preamplifier, built into the mic./speaker unit, raises the level of mike audio to offset the attenuation of the cable to the main chassis. In the main chassis, IC4 prepares the audio for modulating the collector power of the two modulated amplifiers in the RF chain (Q4 and Q5). An ALC circuit (Q14, 15) controls audio gain to prevent overmodulation.

RECEIVER SYSTEM

The receiver is a double conversion system with a grounded base RF amplifier and a two-stage 455 kHz IF amplifier. The first mixer (Q9) beats incoming RF against the 37 MHz signal generated in the PLL. This produces a 10.695 MHz result which feeds the second mixer (Q10). The second mixer beats the 10.695 MHz signal against that of the reference oscillator (Q1) operating at 10.24 MHz. This results in a 455 kHz inter-

mediate frequency. Cascaded, grounded emitter amplifiers (Q11, Q12) amplify the 455 kHz signal for the detector circuit. A three-pole ceramic filter (CF1), in the input circuit of the first 455 KHz IF amplifier (Q11) achieves amplifier selectivity.

A 1N60 diode (D9), demodulates the IF signal. The resulting audio goes through the volume control to the audio amplifier chip (IC4) and then to either the speaker in the mike/speaker unit or the chassis-mounted speaker, as determined by the position of a slide switch in the mike connector box.

Audio amplifier squelch voltage is developed in the Q13 circuit. At low or no signal RF levels, Q13 conducts heavily which, in turn, blocks the audio amplifier (IC4). As incoming RF level increases, Q13 unsaturates and opens the audio amplifier. The adjustment of the squelch control determines the signal level required to open the audio amplifier.

The receiver includes no Noise Blanker, PA or Delta-Tune features.

CH. NO.	CHAN. FREQ. MHz	"N" CODE	VCO FREQ.	SELECTOR SWITCH OUTPUT						REGR. LOC. OSC.	
				A	B	C	D	A	B		C
1	26.965	330	17.18	0	1	0	1	0	0	1	37.66
2	26.975	329	17.19	1	0	0	1	0	0	1	37.67
3	26.985	328	17.20	0	0	0	1	0	0	1	37.68
4	27.005	326	17.22	0	1	1	0	0	0	1	37.70
5	27.015	325	17.23	1	0	1	0	0	0	1	37.71
6	27.025	324	17.24	0	0	1	0	0	0	1	37.72
7	27.035	323	17.25	1	1	0	0	0	0	1	37.73
8	27.055	321	17.27	1	0	0	0	0	0	1	37.75
9	27.065	320	17.28	0	0	0	0	0	0	1	37.76
10	27.075	319	17.29	1	1	1	1	1	1	0	37.77
11	27.085	318	17.30	0	1	1	1	1	1	0	37.78
12	27.105	316	17.32	0	0	1	1	1	1	0	37.80
13	27.115	315	17.33	1	1	0	1	1	1	0	37.81
14	27.125	314	17.34	0	1	0	1	1	1	0	37.82
15	27.135	313	17.35	1	0	0	1	1	1	0	37.83
16	27.155	311	17.37	1	1	1	0	1	1	0	37.85
17	27.165	310	17.38	0	1	1	0	1	1	0	37.86
18	27.175	309	17.39	1	0	1	0	1	1	0	37.87
19	27.185	308	17.40	0	0	1	0	1	1	0	37.88
20	27.205	306	17.42	0	1	0	0	1	1	0	37.90
21	27.215	305	17.43	1	0	0	0	1	1	0	37.91
22	27.225	304	17.44	0	0	0	0	1	1	0	37.92
23	27.255	301	17.47	1	0	1	1	0	1	0	37.95
24	27.235	303	17.45	1	1	1	1	0	1	0	37.93
25	27.245	302	17.46	0	1	1	1	0	1	0	37.94
26	27.265	300	17.48	0	0	1	1	0	1	0	37.96
27	27.275	299	17.49	1	1	0	1	0	1	0	37.97
28	27.285	298	17.50	0	1	0	1	0	1	0	37.98
29	27.295	297	17.51	1	0	0	1	0	1	0	37.99
30	27.305	296	17.52	0	0	0	1	0	1	0	38.00
31	27.315	295	17.53	1	1	1	0	0	1	0	38.01
32	27.325	294	17.54	0	1	1	0	0	1	0	38.02
33	27.335	293	17.55	1	0	1	0	0	1	0	38.03
34	27.345	292	17.56	0	0	1	0	0	1	0	38.04
35	27.355	291	17.57	1	1	0	0	0	1	0	38.05
36	27.365	290	17.58	0	1	0	0	0	1	0	38.06
37	27.375	289	17.59	1	0	0	0	0	1	0	38.07
38	27.385	288	17.60	0	0	0	0	0	1	0	38.08
39	27.395	287	17.61	1	1	1	1	1	0	0	38.09
40	27.405	286	17.62	0	1	1	1	1	0	0	38.10

Figure 2. Channel Number vs. Frequency, "N" Code, VCO and Receiver Local Oscillator Frequency

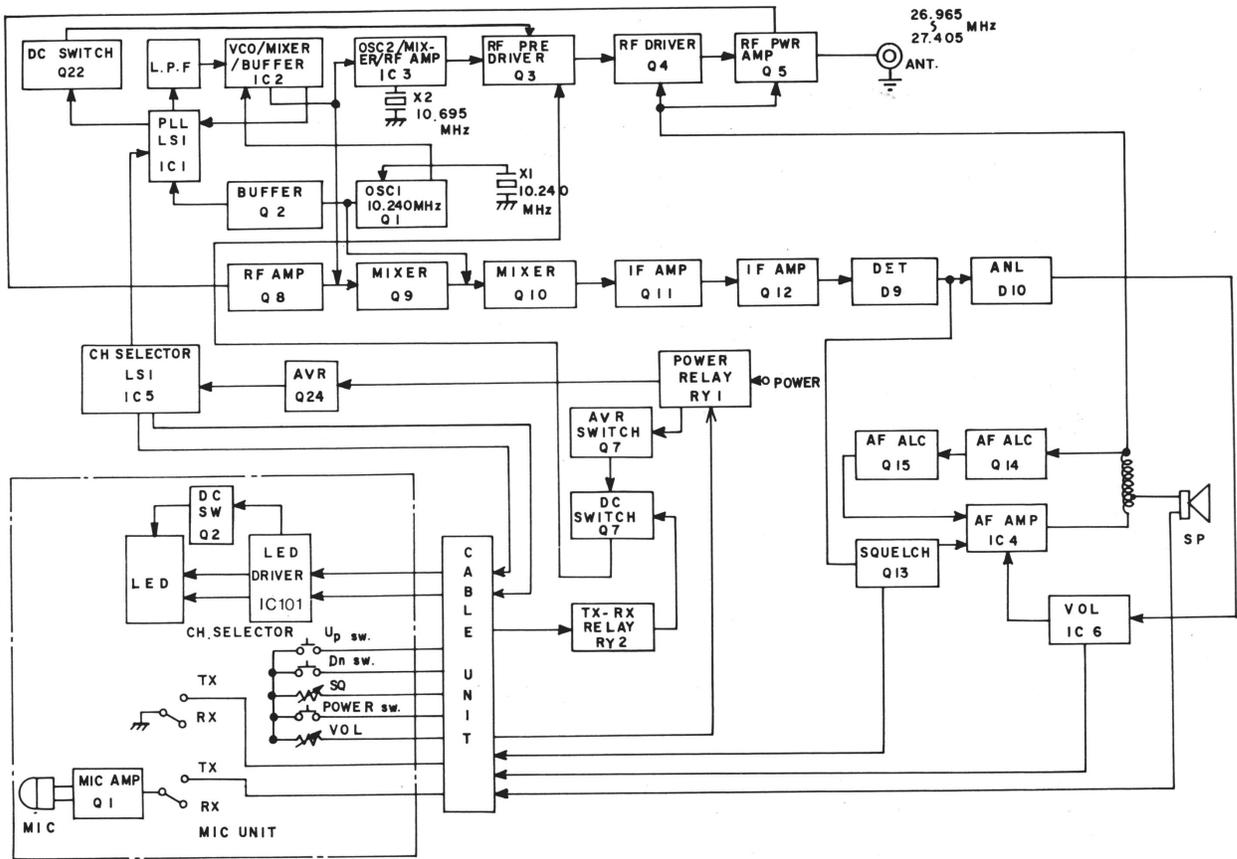


Figure 3. Overall Block Diagram, 14T275 CB Transceiver

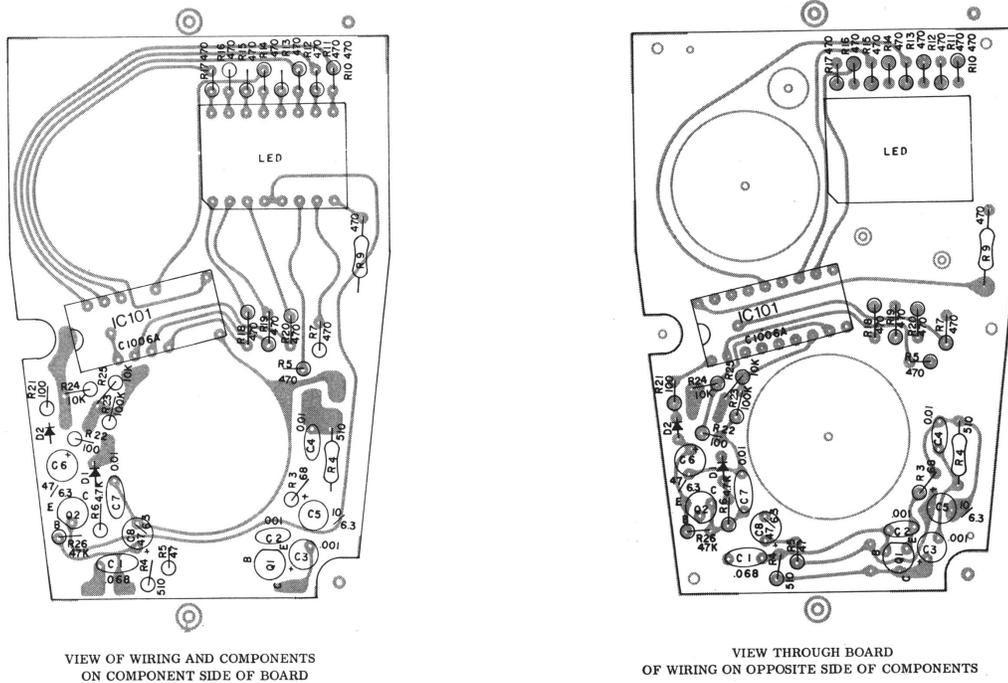
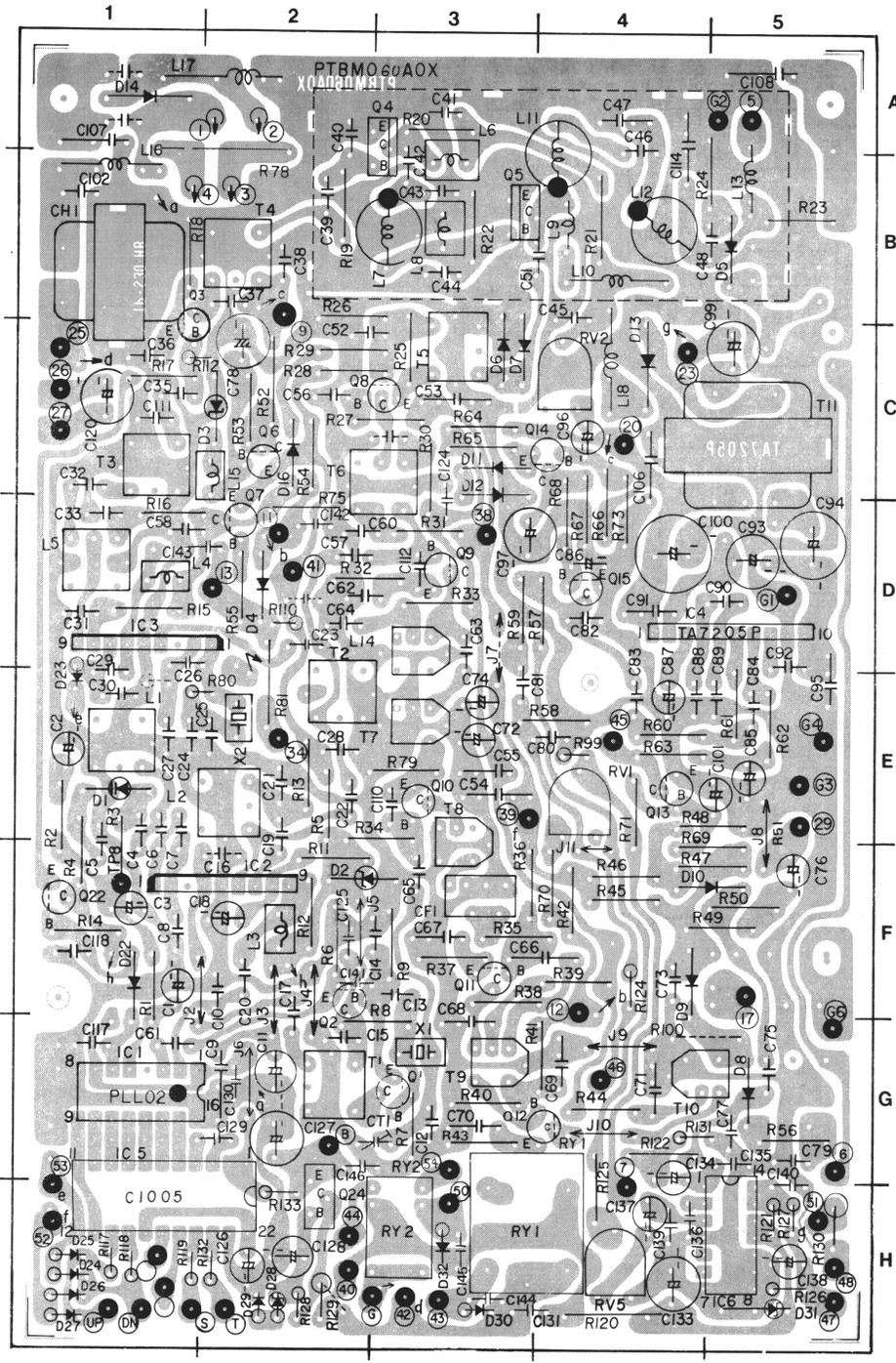


Figure 4. Mic/Spaker/Control Board (Foil on Both Sides)



MAIN BOARD
COMPONENT LOCATIONS

C	R	D
CC1	R1	D1
CC2	R2	D2
CC3	R3	D3
CC4	R4	D4
CC5	R5	D5
CC6	R6	D6
CC7	R7	D7
CC8	R8	D8
CC9	R9	D9
CC10	R10	D10
CC11	R11	D11
CC12	R12	D12
CC13	R13	D13
CC14	R14	D14
CC15	R15	D15
CC16	R16	D16
CC17	R17	D17
CC18	R18	D18
CC19	R19	D19
CC20	R20	D20
CC21	R21	D21
CC22	R22	D22
CC23	R23	D23
CC24	R24	D24
CC25	R25	D25
CC26	R26	D26
CC27	R27	D27
CC28	R28	D28
CC29	R29	D29
CC30	R30	D30
CC31	R31	D31
CC32	R32	D32
CC33	R33	D33
CC34	R34	D34
CC35	R35	D35
CC36	R36	D36
CC37	R37	D37
CC38	R38	D38
CC39	R39	D39
CC40	R40	D40
CC41	R41	D41
CC42	R42	D42
CC43	R43	D43
CC44	R44	D44
CC45	R45	D45
CC46	R46	D46
CC47	R47	D47
CC48	R48	D48
CC49	R49	D49
CC50	R50	D50
CC51	R51	D51
CC52	R52	D52
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CC66	R66	D66
CC67	R67	D67
CC68	R68	D68
CC69	R69	D69
CC70	R70	D70
CC71	R71	D71
CC72	R72	D72
CC73	R73	D73
CC74	R74	D74
CC75	R75	D75
CC76	R76	D76
CC77	R77	D77
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CC79	R79	D79
CC80	R80	D80
CC81	R81	D81
CC82	R82	D82
CC83	R83	D83
CC84	R84	D84
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CC88	R88	D88
CC89	R89	D89
CC90	R90	D90
CC91	R91	D91
CC92	R92	D92
CC93	R93	D93
CC94	R94	D94
CC95	R95	D95
CC96	R96	D96
CC97	R97	D97
CC98	R98	D98
CC99	R99	D99
CC100	R100	D100
CC101	R101	D101
CC102	R102	D102
CC103	R103	D103
CC104	R104	D104
CC105	R105	D105
CC106	R106	D106
CC107	R107	D107
CC108	R108	D108
CC109	R109	D109
CC110	R110	D110
CC111	R111	D111
CC112	R112	D112
CC113	R113	D113
CC114	R114	D114
CC115	R115	D115
CC116	R116	D116
CC117	R117	D117
CC118	R118	D118
CC119	R119	D119
CC120	R120	D120
CC121	R121	D121
CC122	R122	D122
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CC124	R124	D124
CC125	R125	D125
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CC127	R127	D127
CC128	R128	D128
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CC136	R136	D136
CC137	R137	D137
CC138	R138	D138
CC139	R139	D139
CC140	R140	D140
CC141	R141	D141
CC142	R142	D142
CC143	R143	D143
CC144	R144	D144
CC145	R145	D145
CC146	R146	D146
CC147	R147	D147
CC148	R148	D148
CC149	R149	D149
CC150	R150	D150
CC151	R151	D151
CC152	R152	D152

Figure 5. Main Board, Component Side

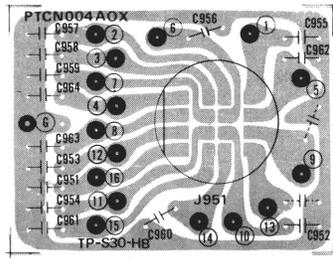


Figure 6. Connector Board, Component Side

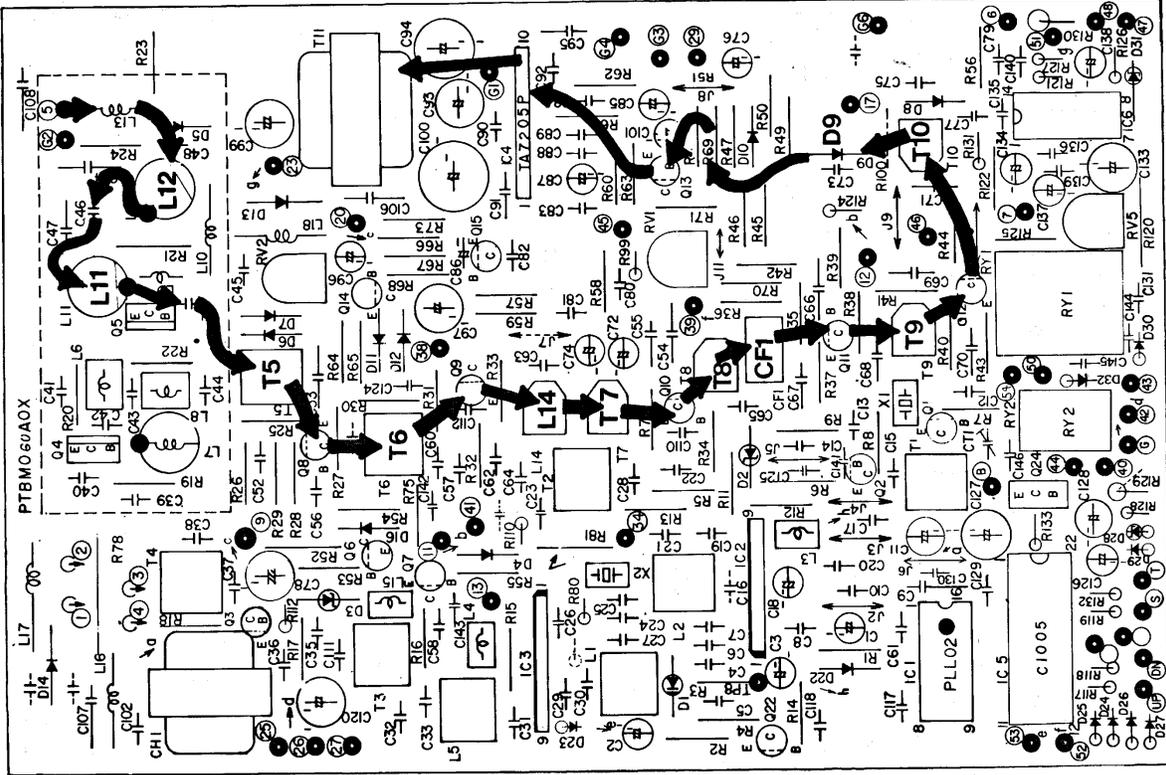


Figure 8. Receiver Signal Path, Main Board

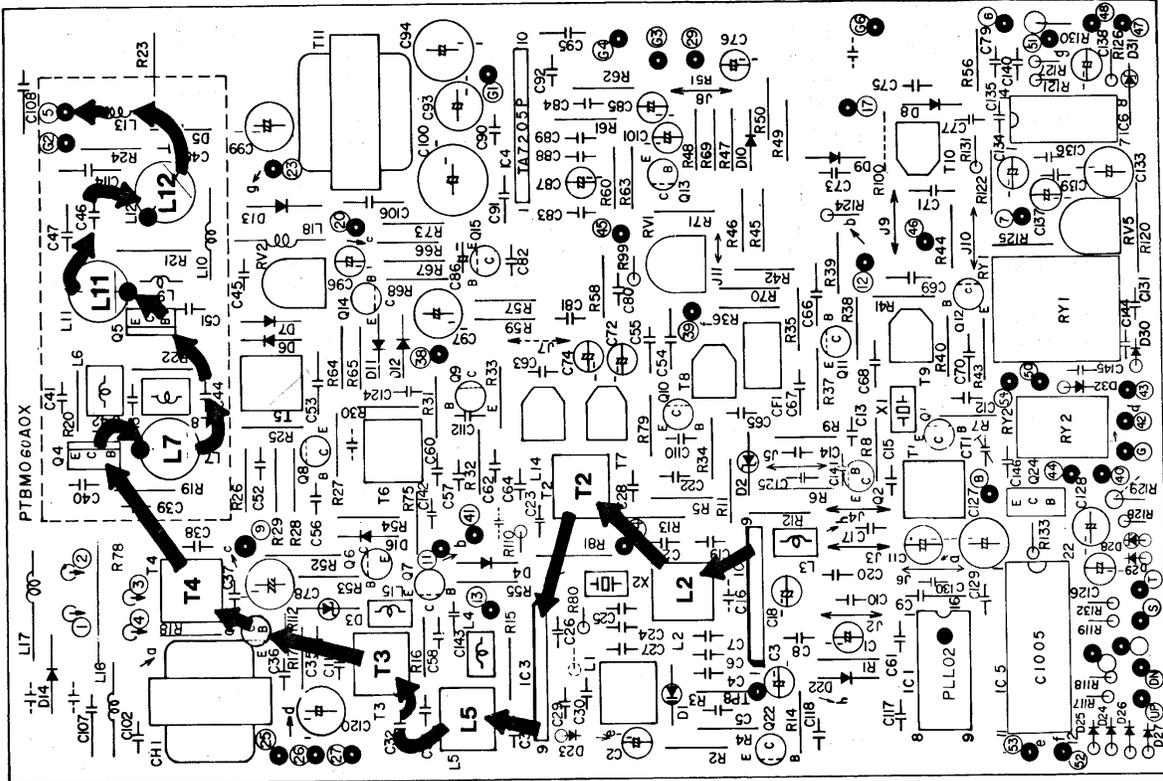
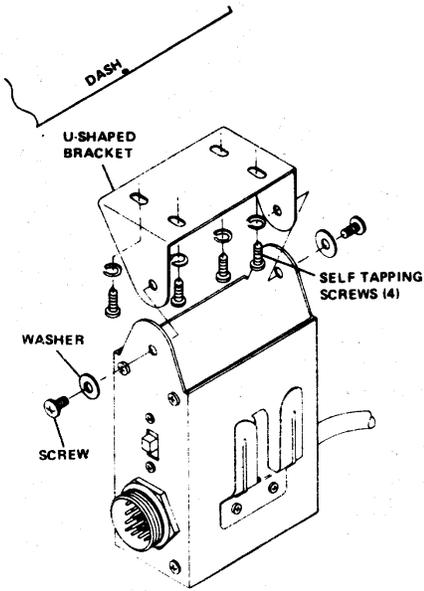
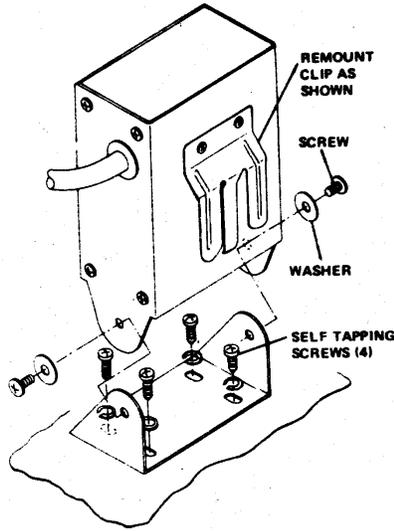


Figure 7. Transmitter Signal Path, Main Board

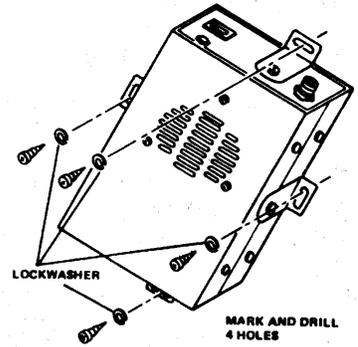
Installation



Installing Bracket Under Dash



Installing Bracket On Console



Installing Chassis

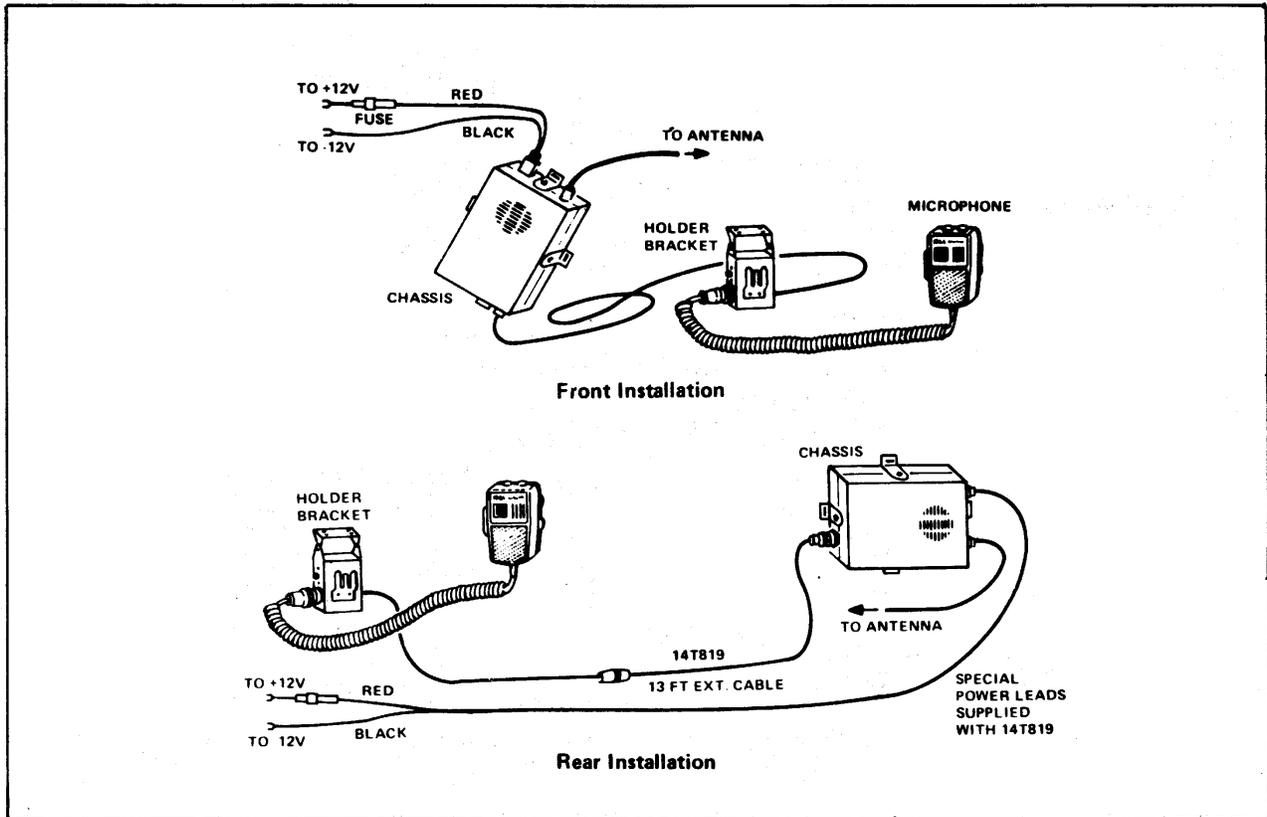


Figure 9. 14T275 Cable Interconnections

Service Notes

REPAIR OF UNIT

RCA Co-Pilot CB Transceivers are designed for high performance. This performance is strongly dependent on the high quality of the components used in fabrication. When you repair or otherwise service these transceivers, the way you perform the repair and the quality of the replacement part or parts you select has a definite bearing on transceiver performance. Consequently, you should use components of superior quality. The parts included in the lists printed at the rear of this manual are superior replacements.

RETUNING AND REALIGNMENT

The transceiver is carefully aligned during manufacture. Before readjusting the unit, visually recheck all external connections for looseness or broken wires. A check of operating voltages (see schematic and Fig. 11) often isolates a malfunction.

If realignment is in order, use procedure starting on page 11.

CRYSTALS SOLDERED IN PLACE

Frequency crystals are *not* plug-in units. What appears to be a crystal socket is a thermal isolator; crystals are soldered into the circuit.

EQUIPMENT REMOVAL

When removing unit from vehicle, it is unnecessary to remove either the dash unit or the extension cable connecting a trunk mounted unit to the dash unit. The mic. connector connects directly to the chassis receptacle for operation out-of-car. However, this arrangement disables the speaker in the hand-held mic. unit. (The slide switch in the connector box controls the speakers).

Caution

Since the operating controls are in the hand-held mic./speaker unit, operation of the transceiver with the hand-held unit disconnected is impossible. As a result, a dummy mic. connector cannot be used. This presents a serious danger to test equipment used in troubleshooting receiver circuitry in that inadvertent keying of the transmitter could damage the

test gear. *As a result, we recommend that you disable the push-to-talk switch while troubleshooting and/or aligning receiver circuits.* The easiest way is to remove, temporarily, the push-to-talk lever from the hand-held unit. See Fig. 21 (page 18) for assembly drawing of hand-held unit.

Recommended Test Equipment

1. *Antenna Dummy Load* – Power rating of at least 5 watts. Bird Model 8053 Coaxial Load Resistor or equivalent.
2. *RF Wattmeter* – Bird Model 43 "Thru-Line" Wattmeter with Bird Model 5A Element or equivalent.
3. *Frequency Counter* – Hewlett-Packard Model HP-5283A or equivalent (requires attenuator for connection to antenna output).
4. *High-Frequency Signal Generator* – Hewlett-Packard Model HP-606B, Wavetek Model 3000 or equivalent with a frequency range of 50 kHz to 65 MHz and accurate to within 1 percent.
5. *Oscilloscope* – Suitable instrument with vertical axis response to 30 MHz or higher for monitoring modulation envelope.
6. *Electronic Voltmeter* – RCA Model WV-500B or equivalent with high input impedance.
7. *Speaker Dummy Load* – Five watt, 8-ohm resistive load.
8. *Audio Signal Generator* – Range 10 Hz to 20 kHz with output level calibration.
9. *RF Voltmeter* – High input impedance with response to 30 MHz or higher (RCA WV-500B above plus WG-301A RF Probe or equivalent).
10. *Power Supply* – Regulated, 0-20 Vdc, 2A current capability.
11. *Ammeter* – 2A full scale.
12. *Multimeter* – 20,000 ohms/volt or greater sensitivity.

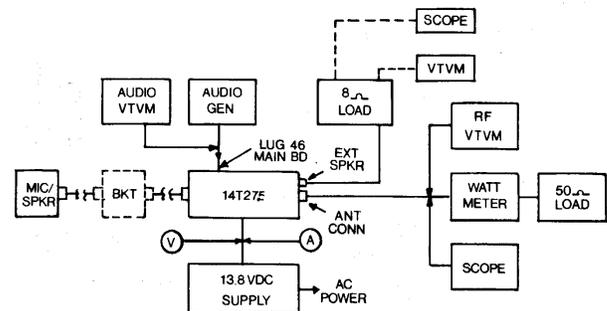
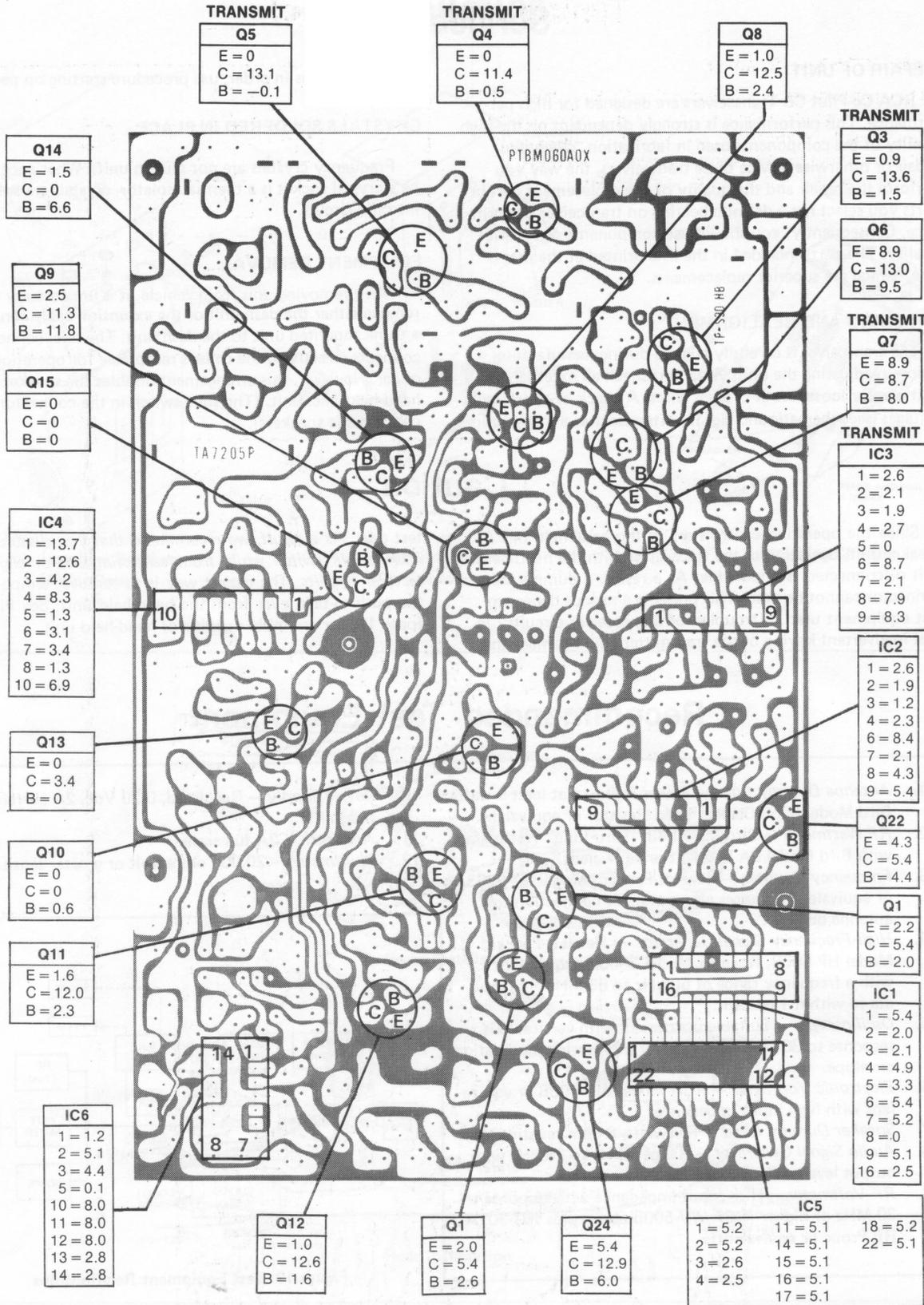


Figure 10. Test Equipment Relationships



All voltages measured from PC Board Ground with DC VTVM, No Signal, Unit Tuned to Ch. 9, 13.8V Power Supply. Voltages within $\pm 20\%$ are considered normal.

Figure 11

Tuning and Alignment

TRANSMITTER ALIGNMENT

The equipment setup is shown in Fig. 12. Since the 14T275 control center is part of the mic./speaker unit, operating the transceiver with a dummy mic. connector is impractical. As a result, precautions must be taken to prevent inadvertent transmitter keying while servicing. See Caution, page 9.

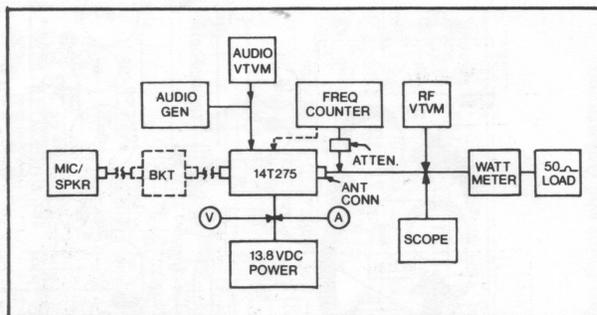


Figure 12. Equipment Setup, Transmitter Alignment

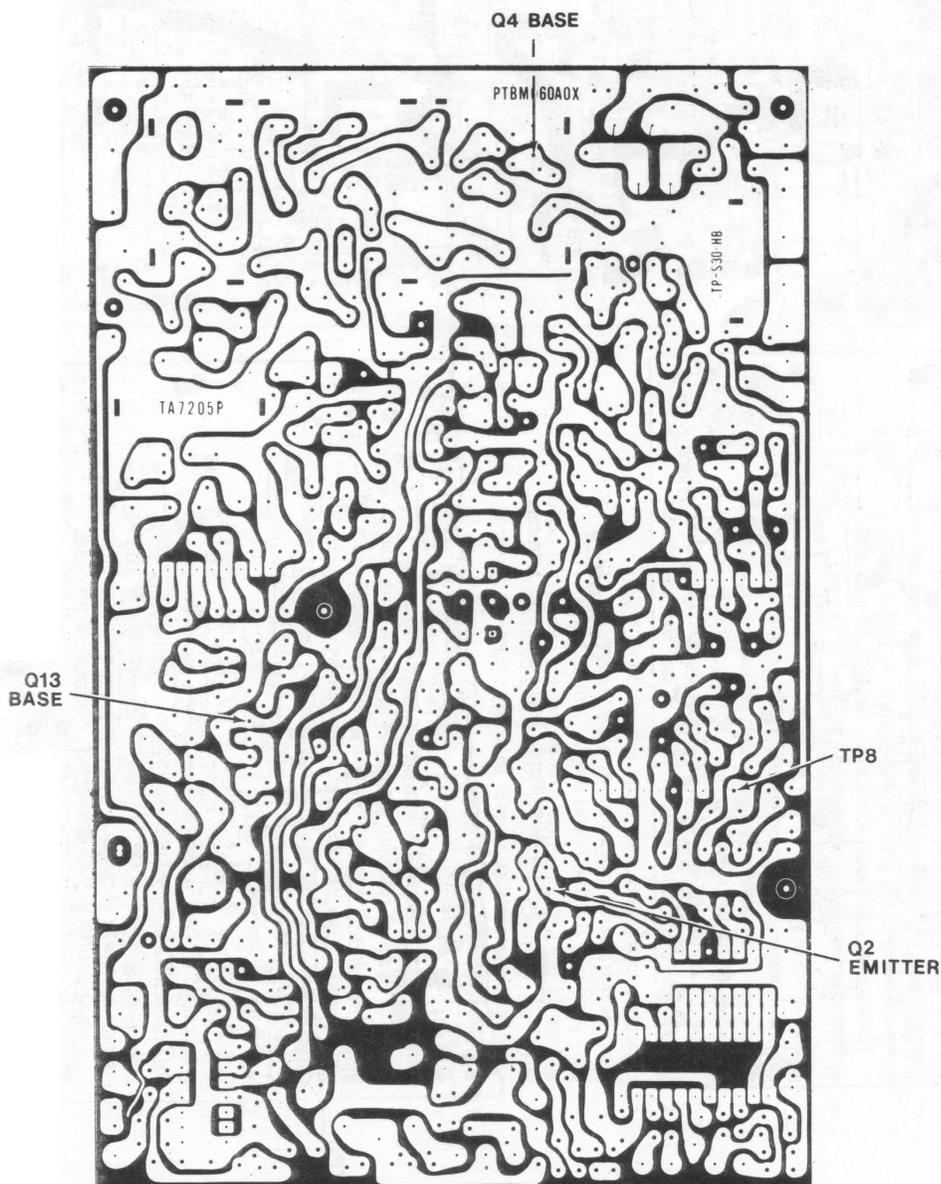


Figure 13. Transmitter Alignment Test Points, Foil Side

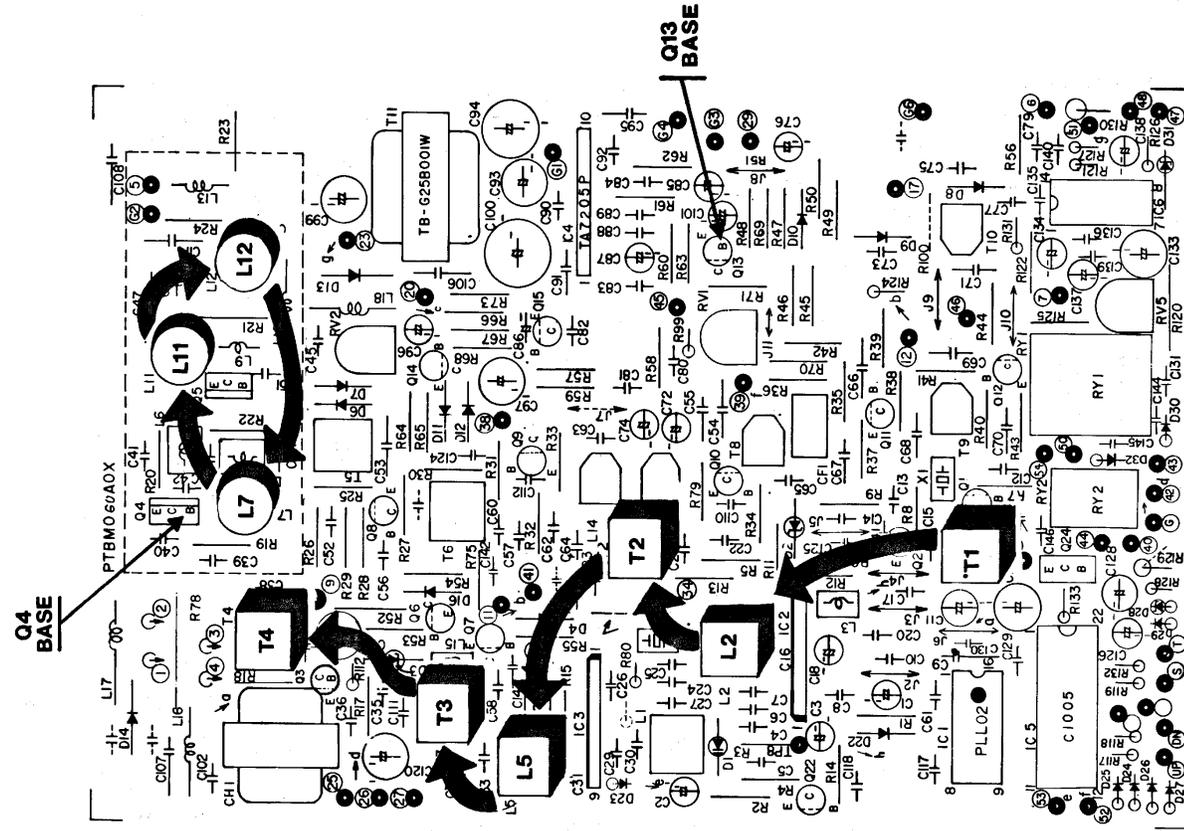


Figure 14. PLL Alignment, Test-Point and Trimmer

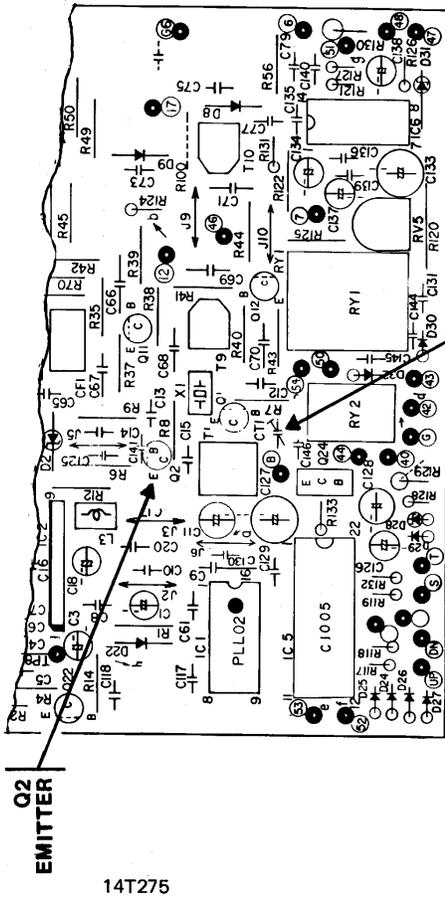


Figure 15. VCO Circuit Alignment, Test-Point and Adjustment

Figure 16. RF Driver and Power Amplifier Alignment

A. Phase-Lock Loop Alignment

Connect the frequency counter probe (100 pf capacitor in series) to the emitter of Q2 (near T1, see Fig. 14 for location). Adjust trimmer CT1 (between T1 and RY2, see Fig. 14) for a frequency readout of 10.24 MHz \pm 50 Hz. Other frequencies in the PLL are included in Fig. 2.

B. VCO Circuit Adjustment

Turn Channel Selector to Ch. 1. Connect an accurate 20,000 ohm/volt VOM or VTVM (5 Vdc range) to TP8 (see Fig. 15) and ground. Adjust L1 core for 3.6 \pm 0.1 Vdc on meter with core on top side of travel. Switch Channel Selector to Ch. 40. Meter reading should fall between 1.4 and 2.3V.

C. RF Driver Stage Alignment

Switch Channel Selector to Ch. 19. Connect scope to Q13 base and ground. Key transmitter and adjust T1, L2, T2, L5 and T3 for maximum amplitude of 27.185 MHz on scope. See Fig. 16. Reduce power supply voltage to 7V. Connect scope to base of Q4. Adjust T3 and T4 for maximum amplitude on scope with transmitter keyed. See Fig. 16.

D. RF Power Amplifier Alignment

Reset power supply voltage to 13.8V; Channel Selector at Ch. 19. Connect wattmeter to antenna connector. Adjust L7, L11 and L12 (in that order) for maximum power. Touch up L11 for maximum power. Adjust L7 core clockwise for wattmeter indication of 4.4W. Adjust L7 core counterclockwise for wattmeter indication of 3.8W.

E. Transmitter Frequency Check

Connect dummy load to antenna connector. Connect frequency meter to antenna connector through suitable attenuator. Key transmitter and read frequency of each channel. Each channel frequency should be within \pm 800 Hz of listing in Fig. 2.

F. Modulation Sensitivity Adjustment

Connect dummy load to antenna connector. Connect scope across dummy load. Apply 20 mV of 1 kHz sinusoidal tone to Terminal 46 (lavender color wire, see Fig. 17). Key transmitter and adjust RV2 (near modulation transformer) for 85% modulation as indicated on the scope.

Decrease 1 KHz amplitude to 6mV. Modulation percentage, as observed on the scope, should exceed 60%. This completes transmitter alignment.

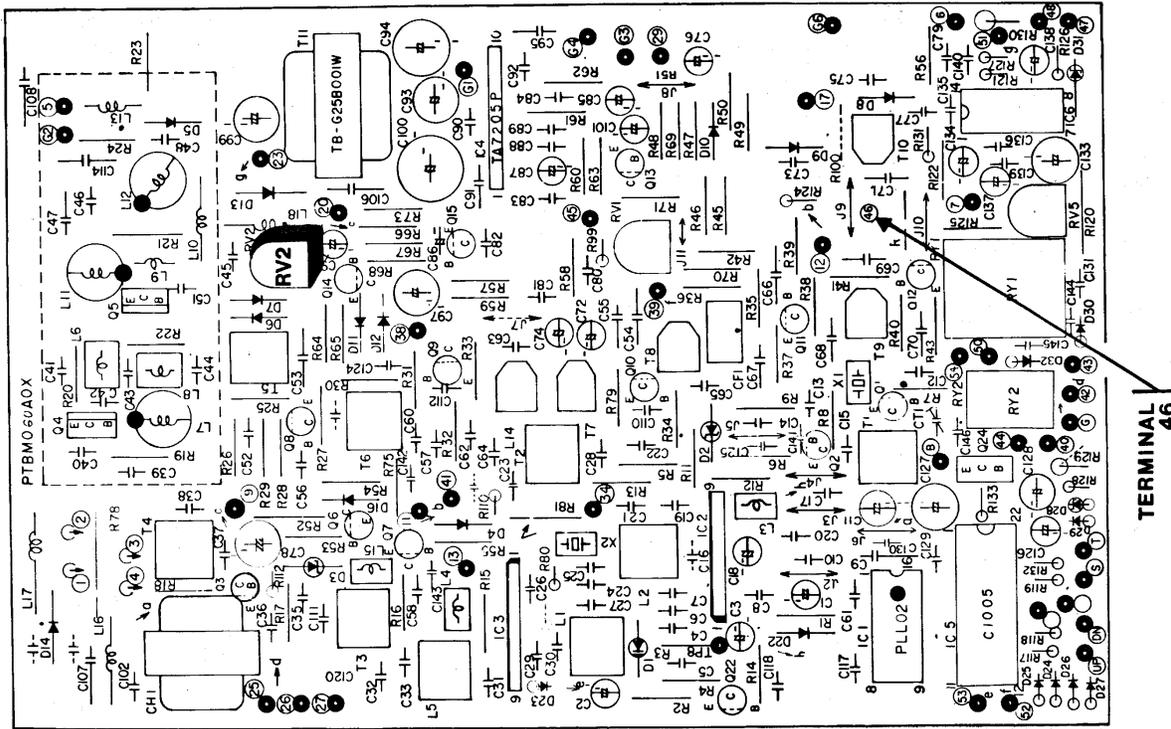


Figure 17. Modulation Sensitivity Test Point and Adjustment

TERMINAL 46

RECEIVER ALIGNMENT

A. Sensitivity Alignment

See equipment setup in Fig. 18. Set signal generator at 27.185 MHz with 30% AM at 1 kHz. Set transceiver on Ch. 19 with volume control fully clockwise. Keep generator output just high enough to get scope indication and minimize AGC action. Adjust T1, L2, T2, T5, T6, L14, T7, T8, T9 and T10 (in that order) for maximum audio output. See Fig. 19 for locations. Reduce generator output level as required to avoid AGC action. Readjust T5 core one turn clockwise.

B. Squelch Circuit Alignment

Set signal generator at 27.185 MHz with 30% AM at 1 kHz. Adjust generator output level to 100 uV. Set transceiver on Ch. 19. Rotate Squelch and Volume controls fully clockwise. Adjust RV1 (see Fig. 19 for location) for maximum audio output across 8-ohm load resistor. Take note of output level. Readjust RV1 to reduce audio output by 6dB.

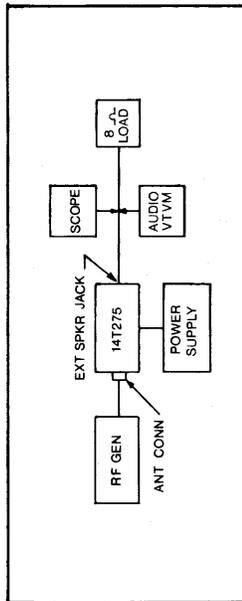


Figure 18. Equipment Setup, Sensitivity and Squelch Adjustment

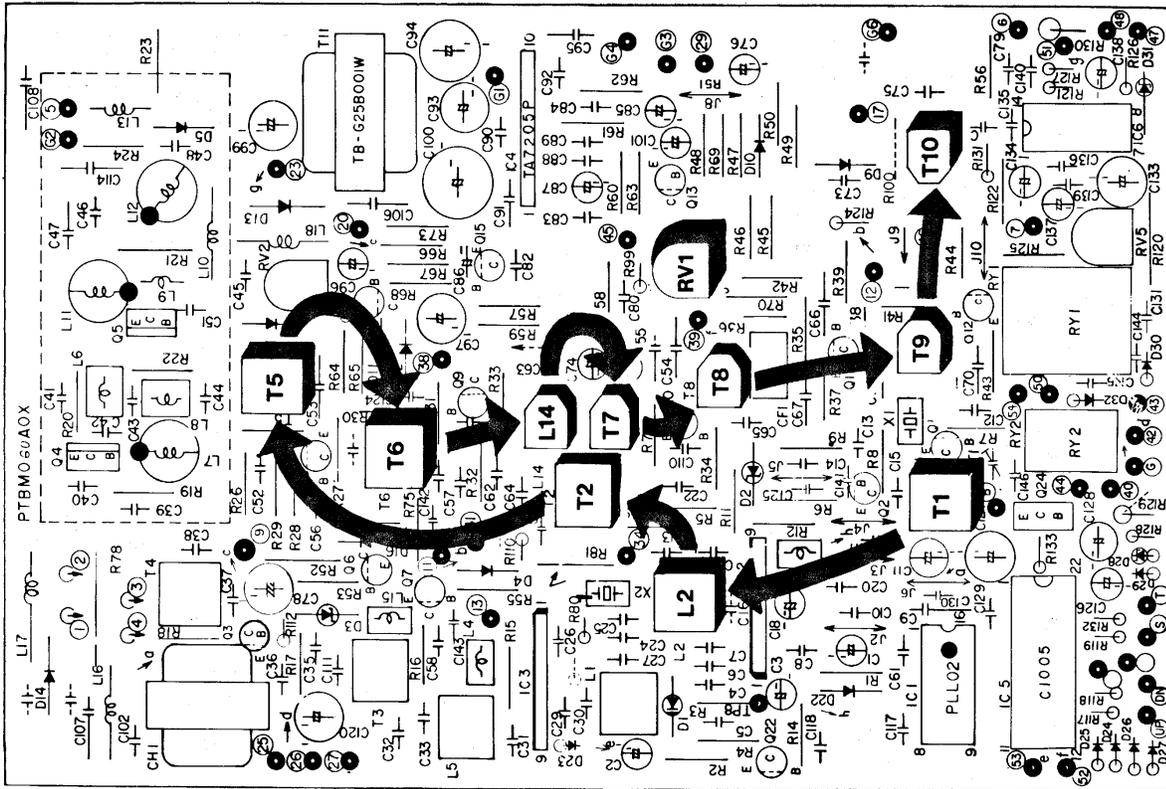


Figure 19. Receiver Sensitivity Alignment and Squelch Adjustment (RV1)

Replacement Parts

Symbol	Stock No.	Description	Symbol	Stock No.	Description
		MAIN CHASSIS ELECTRICAL PARTS			
C1	122522	.1 UF 10V ELECT	C96	742C74	3.3 UF 25V ELYT
C2	742072	10UF 16V ELYT	C97	742077	47UF 10V ELYT
C3	742553	0.22UF 10V AROX	C99	742081	47UF 25V ELYT
C4	741788	68PF 10% 50V CERAMIC	C100	742080	1000UF 16V ELYT
C5	742070	.01 UF 50V CER	C101	741794	33 UF 6.3V ELYT
C6	741807	22PF 10% 50V CERAMIC	C102	742070	.01 UF 50V CER
C7	423555	330 PF 50V CER	C106	741779	47000PF 10% 50V CER
C8	437385	150 PF 50V CER	C107	741779	47000PF 10% 50V CER
C9	741779	47000PF 10% 50V CER	C108	741779	47000PF 10% 50V CER
C10	742524	47PF 50V CER	C110	742570	18PF 50V CER
C11	742077	47UF 10V ELYT	C114	742927	390 PF 500V CER
C12	741807	22PF 10% 50V CERAMIC	C117	432515	4700 PF 50V CER
C13	741754	.001 UF 10% 50V FILM MYLAR	C118	742536	.022UF 50V CER
C14	741788	68PF 10% 50V CERAMIC	C124	742070	.01 UF 50V CER
C15	742070	.01 UF 50V CER	C125	742070	.01 UF 50V CER
C17	245245	47 PF 50V CER	C126	742535	.47UF 10V AROX
C18	742076	1UF 50V ELYT	C127	742928	100 UF 6.3V ELYT
C19	741754	.001 UF 10% 50V FILM MYLAR	C128	742077	47UF 10V ELYT
C20	741754	.001 UF 10% 50V FILM MYLAR	C129	742592	1200 PF 50V FILM (MYLAR)
C21	741754	.001 UF 10% 50V FILM MYLAR	C131	742070	.01 UF 50V CER
C22	423295	2 PF 5% 50V CER DISC	C133	742529	100 UF 10V ELYT
C23	742527	7PF 50V CER	C134	742076	1UF 50V ELYT
C24	741781	33PF 10% 50V CERAMIC	C135	423274	1000 PF 50V CER
C25	742528	4PF 50V CER	C136	742070	.01 UF 50V CER
C26	423555	330 PF 50V CER	C137	742076	1UF 50V ELYT
C27	742530	390PF 50V CER	C138	742082	4.7 UF 25V ELYT
C28	742070	.01 UF 50V CER	C139	742070	.01 UF 50V CER
C29	423291	68 PF 50V CER	C140	742070	.01 UF 50V CER
C30	742531	56PF 50V CER	C141	741787	100 PF 50V CER
C31	742070	.01 UF 50V CER	C142	432515	4700 PF 50V CER
C32	423295	2 PF 5% 50V CER DISC	C143	432515	4700 PF 50V CER
C33	742070	.01 UF 50V CER	C146	742070	.01 UF 50V CER
C35	423291	68 PF 50V CER	C201	422318	150 PF 10% 500V CER DISC
C36	742070	.01 UF 50V CER	C202	742087	.01UF 50V CER
C37	741763	100 PF 50V CER	C203	742087	.01UF 50V CER
C38	742070	.01 UF 50V CER	C204	742087	.01UF 50V CER
C39	741755	.01 UF 10% 50V FILM MYLAR	C205	742087	.01UF 50V CER
C40	426384	470 PF 50V CER	C206	742569	.047 UF 50V CER
C41	742070	.01 UF 50V CER	C207	742910	.0047 UF 50V CER
C42	426475	120 PF 50V CER	C208	742910	.0047 UF 50V CER
C43	437367	220 PF 50V CER	C951	742084	.0047UF 50V CER
C44	426475	120 PF 50V CER	C952	742084	.0047UF 50V CER
C45	742070	.01 UF 50V CER	C953	742084	.0047UF 50V CER
C46	426475	120 PF 50V CER	C954	742084	.0047UF 50V CER
C47	742926	270 PF 500V CER	C955	742084	.0047UF 50V CER
C51	437390	27PF 5% 50V CERAMIC	C956	742084	.0047UF 50V CER
C52	742070	.01 UF 50V CER	C957	742084	.0047UF 50V CER
C53	741779	47000PF 10% 50V CER	C958	742084	.0047UF 50V CER
C54	741779	47000PF 10% 50V CER	C959	742084	.0047UF 50V CER
C55	741780	.047UF 10% 50V FILM MYLAR	C960	423274	.001 UF 50V CER
C56	742070	.01 UF 50V CER	C961	742084	.0047 UF 50V CER
C57	742069	10PF 50V CER	C962	423274	.001 UF 50V CER
C58	742070	.01 UF 50V CER	C963	742532	330PF 50V CER
C59	742070	.01 UF 50V CER	C964	742084	.0047 UF 50V CER
C60	742070	.01 UF 50V CER	CF1	741812	FILTER, CER.
C61	742070	.01 UF 50V CER	CH1	742611	COIL-CHOKE
C62	742070	.01 UF 50V CER	CT1	741721	CAPACITOR TRIMMER
C63	423295	2 PF 5% 50V CER DISC	D1	741689	DIODE - TYPE ITT410
C64	742070	.01 UF 50V CER	D2	741738	DIODE - TYPE ZM2205
C65	742525	18PF 50V CER	D3	741739	DIODE - TYPE RD9.1E
C66	741782	2.2PF 10% 500V CERAMIC	D4	741741	DIODE - TYPE 1S1555
C67	741780	.047UF 10% 50V FILM MYLAR	D6	741741	DIODE - TYPE 1S1555
C68	741780	.047UF 10% 50V FILM MYLAR	D7	741741	DIODE - TYPE 1S1555
C69	741780	.047UF 10% 50V FILM MYLAR	D9	226344	DIODE - TYPE 1N60
C70	741780	.047UF 10% 50V FILM MYLAR	D10	741741	DIODE - TYPE 1S1555
C71	741780	.047UF 10% 50V FILM MYLAR	D11	741741	DIODE - TYPE 1S1555
C72	742068	10UF 16V ELYT	D12	741741	DIODE - TYPE 1S1555
C73	742534	6800PF 50V FILM MYLAR	D13	166593	DIODE - TYPE V06C
C74	742074	3.3 UF 25V ELYT	D14	741740	DIODE - TYPE 1S1885
C75	741669	4700 PF 50V FILM (MYLAR)	D16	741741	DIODE - TYPE 1S1555
C76	742076	1UF 50V ELYT	D22	741741	DIODE - TYPE 1S1555
C77	741787	100 PF 50V CER	D23	741741	DIODE - TYPE 1S1555
C78	742079	47UF 16V ELYT	D24	741741	DIODE - TYPE 1S1555
C80	742078	.0022UF 50V CER	D25	741741	DIODE - TYPE 1S1555
C81	741789	.022 UF 10% 50V FILM MYLAR	D26	741741	DIODE - TYPE 1S1555
C82	437367	220 PF 50V CER	D27	741741	DIODE - TYPE 1S1555
C83	741755	.01 UF 10% 50V FILM MYLAR	D28	741738	DIODE - TYPE ZM2205
C84	742078	.0022UF 50V CER	D29	741741	DIODE - TYPE 1S1555
C85	741793	3.9 UF 25V TANTALUM	D30	741740	DIODE - TYPE 1S1885
C86	742535	.47UF 10V AROX	D31	742922	DIODE - TYPE RD8.2F
C87	741794	33 UF 6.3V ELYT	D32	741741	DIODE - TYPE 1S1555
C88	423291	68 PF 50V CER	IC1	741686	I.C. - TYPE PLLO2A
C89	423291	68 PF 50V CER	IC2	742510	IC - TYPE TA7310P
C90	741787	100 PF 50V CER	IC3	742510	IC - TYPE TA7310P
C91	741795	.068 UF 10% 50V FILM MYLAR	IC4	741687	I.C. - TYPE TA7205P
C92	741787	100 PF 50V CER	IC5	742920	IC - TYPE C1005A
C93	742079	47UF 16V ELYT	IC6	742921	IC - TYPE AN8295
C94	741797	220 UF 16V ELYT			
C95	741795	.068 UF 10% 50V FILM MYLAR			

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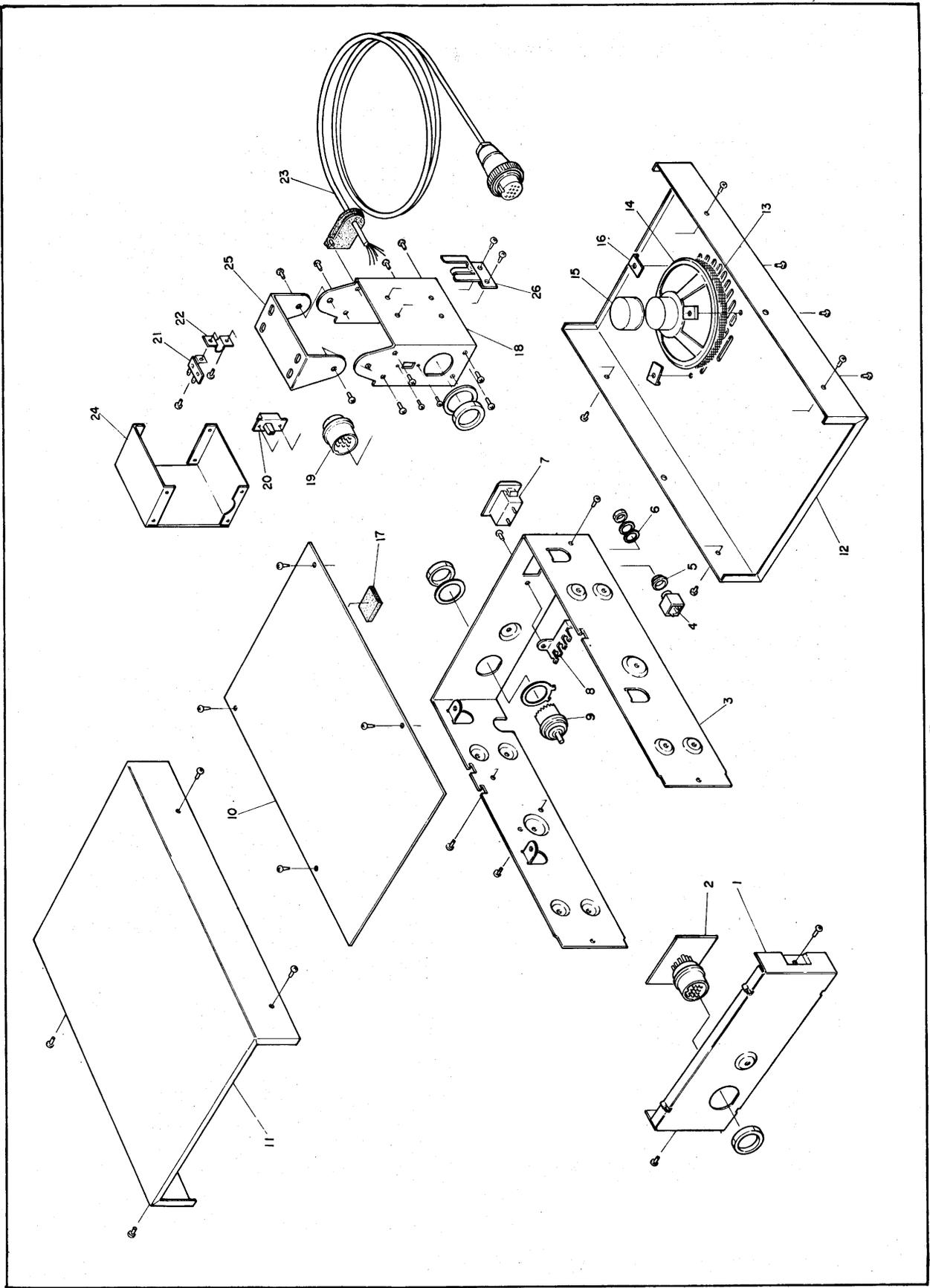


Figure 20. Assembly, Main Chassis and Mic Connector Box

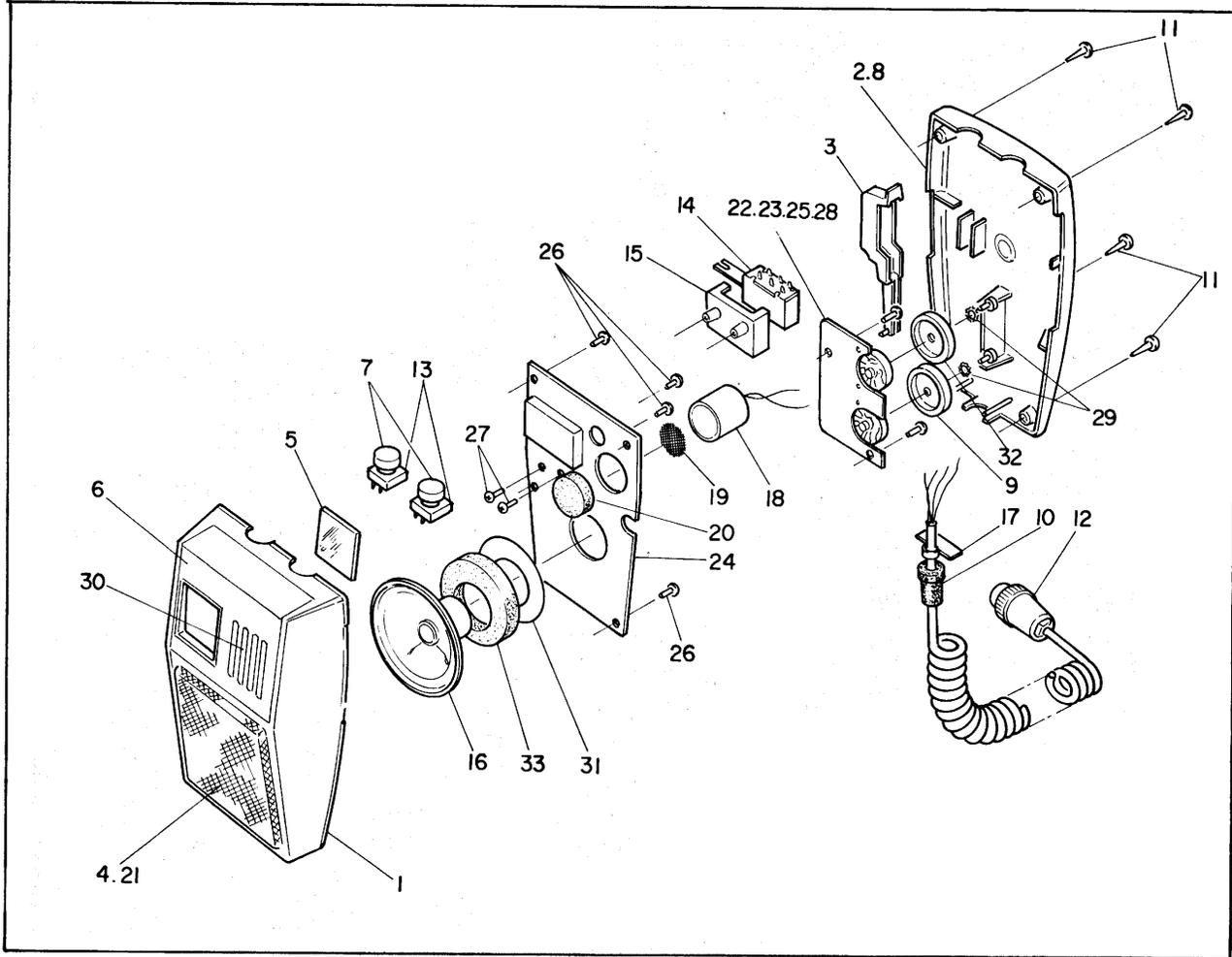
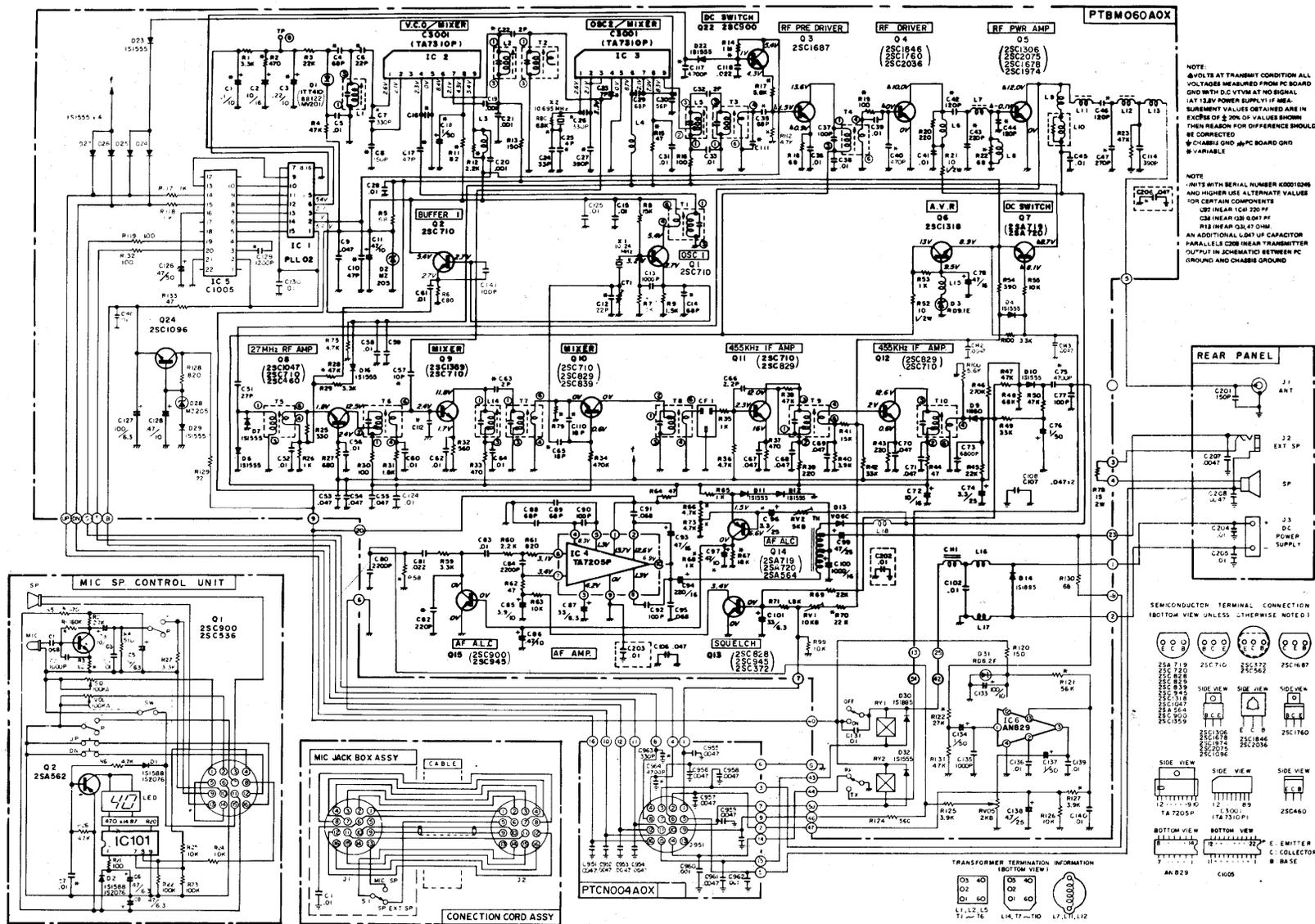


Figure 21. Assembly, Mic/Speaker/Control Unit

Replacement Parts (Continued)

Symbol	Stock No.	Description
MICROPHONE ASSEMBLY		
ELECTRICAL PARTS		
C1	741795	.068 UF 10% 50V CER
C2	423274	.001 UF 50V CER
C3	741467	10 UF 16V ELYT
C4	742087	.01 UF 50V CER
C5	741467	10 UF 16V ELYT
C6	740840	47 UF 10V ELYT
C7	742087	.01 UF 50V CER
C8	740840	47 UF 10V ELYT
D1	741051	DIODE - TYPE 1S1588
D2	741051	DIODE - TYPE 1S1588
IC1	742586	IC - TYPE C1006A
LED	742589	LED - TYPE TLR321
R1	420319	180 OHM 5% 1/4W FILM
R2	239457	2700 OHM 5% 1/4W FILM
R3	428106	68 OHM 5% 1/4W FILM
R4	239452	510 OHM 5% 1/4W FILM
R5	240580	470 OHM 5% 1/4W FILM
R6	243078	4700 OHM 5% 1/4W FILM
R7		
THRU		
R20	240580	470 OHM 5% 1/4W FILM
R21	249553	100 OHM 1% 1/4W FILM
R22	241593	100000 OHM 5% 1/4W FILM
R23	241593	100000 OHM 5% 1/4W FILM
R24	435515	10000 OHM 5% 1/4W FILM
R25	435515	10000 OHM 5% 1/4W FILM

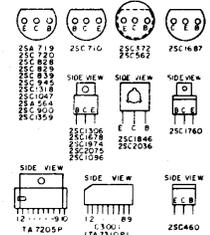
Symbol	Stock No.	Description
R26	239465	47000 OHM 5% 1/4W FILM
RES	742587	3300 OHM 5% 1/4W COMP
TR1	742591	TRANSISTOR - TYPE 2SC536F
TR2	742590	TRANSISTOR - TYPE 2SA562-0
MICROPHONE CONTROL UNIT		
MECHANICAL PARTS		
F-CASE	742572	CASE ASSEMBLY (FRONT) CONSISTS OF:
1		CASE-FRONT
4		NET COVER (FRONT CASE)
6		NAME PLATE
21		SHADE-MIKE ELEMENT
30		SHADE
R-CASE	742573	CASE ASSEMBLY (REAR) CONSISTS OF:
2		CASE-REAR
8		STUD-MIKE HANGER
3	742574	KNOB-ON/OFF
7	742575	BUTTON-CH
9	742576	KNOB-SQ
10	742577	BUSHING-CONNECTION CORD
12	742579	CORD ASSEM-CONNECTION
13	742580	SWITCH-CH
14	742581	SWITCH-ON/OFF
16	742582	SPEAKER
18	742583	ELEMENT-MIKE (300 OHM)
22	742584	100000 OHM LINEAR VAR W/SWITCH
23	742585	100000 OHM LINEAR VAR
32	742588	KNOB-VR



NOTE
 VOLTS AT TRANSISTOR CONDITION ALL VOLTAGES MEASURED FROM PC BOARD GND WITH D.C. VTM AT NO SIGNAL 1AT 12V POWER SUPPLY IF MEASUREMENT VALUES OBTAINED ARE IN EXCESS OF ±20% OF VALUES SHOWN THEN REASON FOR DIFFERENCE SHOULD BE CORRECTED
 ⊕ CHASSIS GND ⊕ PC BOARD GND ⊕ VARIABLE

NOTE
 *UNITS WITH SERIAL NUMBER 60001048 AND HIGHER USE ALTERNATE VALUES FOR CERTAIN COMPONENTS
 Q22 NEAR 10K 200 PF
 Q23 NEAR 10K 0.001 PF
 R18 NEAR 0.347 OHM
 AN ADDITIONAL LOAD UP CAPACITOR PARALLEL TO C208 NEAR TRANSMITTER OUTPUT IN SCHEMATIC BETWEEN PC GROUND AND CHASSIS GROUND

SEMICONDUCTOR TERMINAL CONNECTION (BOTTOM VIEW UNLESS OTHERWISE NOTED)



TRANSFORMER TERMINATION INFORMATION (BOTTOM VIEW)

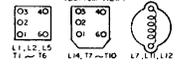


Figure 22. Overall Schematic, Model 14T275