July 1992

70-7010 Addendum

The 70-7010 Addendum provides service information for configuring this option for use with external options. The 70-7010 Kit is used to access control and audio lines that are needed for remote, high power amplifier, antenna switch, and tone panel operation. **The Option Port 1 in the programming must be selected for this option.**

The circuitry on the board serves four functions. D1 and D2 are used for COS detection. When PTT is initiated Q1 is turned off, which in enables Q4 to turn on, providing a ground for the Antenna Relay. Also when PTT is initiated Q2 turns off enabling Q5 to turn on. Q6 then regulates a TX-9V source to an external Power Amplifier. The final function is providing a point to connect all the interface lines and to make them accessible to the external options.

The circuit board mounts in the radio on option plugs P124 and P125. It uses three separate cable assemblies to connect to all the points. The 70-7010 Kit is configured to the desired option. Table 1 list the jumper configuration for each individual option. Table 2 list the individual jumper identification. A schematic diagram is shown in Figure 1, and the board layouts are shown in Figure 2 and Figure 3. Figure 4 is a diagram for Duplex operation, of the molex connector at the rear of the radio with the pin out. Figure 5 is a diagram for Simplex operation, of the molex connector at the rear of the radio with the pin out. Figure 6 is the wiring diagram for Simplex operation. Figure 7 is the wiring diagram for Duplex operation.

If the station is setup with more than one option that requires the same line, the lead wires will be spliced, crimped, and inserted back into the molex plug at P505. However, if two or more options are required and they use the same lead from the interface board, but require different signals, hard wire jumpering will be done to interface the options.

Depending on the multiple options required will determine how the jumpering will be configured. The technician will use any unused jumpers first to make the signals accessible at J505. If the radio is used in the remote mode, and more than one option is used the two speaker wires on P111.6 and P111.9 will be used if necessary. However, a jumper wire will be installed between these two pins to provide local audio at the control head, if these leads are used for option signals.

When using an external power amplifier the TX-9V jumper will be selected and a special cable assembly will be used to control the power amplifier. If no other options are to be installed with this kit the TX-9V cable assembly will be connected to P505. This will only be required on the VHF and UHF stations. The center conductor of the shielded cable will be connected to P505.11 and the ground connection for the shield will be connected at P505.12

For the antenna switch the T/R Switch jumpers will be selected and the leads connected at P505. The red lead will be connected to P505.10 and the white lead will be connected to P0505.12.

When the remote termination board is installed and other options are used they will be interfaced to the remote termination interface cable. Also if more than one option is installed the common leads will be spliced together and any jumper modifications will be noted in Table 3 and in Figure 6. For complete interface wiring on the remote option refer to the literature provided with the remote interface.

The technician will note any modifications made in the jumpering in Table 3 and on the system wiring diagram in Figure 6. Also, the serial and model number are listed below Table 3 so that reference to the unit's configuration can easily be determined. **70-999889**

TABLE 1
70-7010 Jumper Configurations

Jumper	Remote	Option PA	T/R Switch	Tone Panel
JP1	B - C	A - B	X	X
JP2	A - B	X	X	A - B
JP3	X	X	B - C	A - C
JP4	B - C	B - C	B - C	A - B*
,l

*If the desired option installed requires COS, the option will need to have the ground line connected to chassis, power supply ground, or jumper JP4 C to JP1 B if JP1 is not used.
X-denotes that the jumper configuration is not needed for that option.

TABLE 2
70-7010 Jumper Designations

Jumper Number	Jumper Letter	Designation
JP1	A - B	TX-9V
JP1	B - C	RX-AF
JP2	A - C	Mic Input
JP2	B - C	Data Input
JP3	A - B	Sub-Tone In
JP3	B - C	T/R Switch
JP4	A - B	COS
JP4	B - C	Ground

TABLE 3
70-7010 Jumper Configuration
for Multiple Options

Option

Remote	PA	T/R Switch	Tone Panel

Model Number_____

Serial Number_____

1.   First determine the jumper selection from the twoytables. Then set the jumpers as required, and note them in Table 3.

2.   Take the control head and remove the three screws that fasten the CX-56 PCB to the control head. Turn the board over to access the solder side of P308, then solder the three pieces of wire to the following positions:P308.19, P308.21, P308.24. Loop the wires around to the other side of the board and make the following solder connections:P308.19 to P314.1, P308.21 to P315.4, and P308.24 to P314.2. Refer to Figure 6. Assemble the control head.

3.   Remove the CX-55 Logic Board. Turn the board over to the solder side and locate R1001, and solder the 10K chip resistor in this position. Replace the CX-55 board. Refer to Figure 8.

4.   Next, look at the order for the customer and determine if the radio is configured for a duplex or a simplex station. If the order is for a duplex radio follow step A of this instruction, and if it is for a simplex station follow step B.

A.   Connect the cable assembly, part number 70-034909 to J302 on the 70-7010. This cable will be routed between the PA and Radio Chassis and connected to the 70-2914 PCB when it is installed. When the Radio and PA chassis are assembled the six pin cable assembly coming from J505, the 12 pin Molex connector in the PA, will connect to J301 on the 70-7010 board. The 70-7010 will mount to P124 and P125 on the receiver board. Mount this board after the two chassis have been assembled and the cable from P505 connected to J301. Then take cable assembly 70-034920 and keep it with these instructions, which are to be shipped with the radio. Take cable assembly 70-034896 and return it to stock.

B.   Connect the cable assembly, part number 70-034896 to J302. This cable will be routed between the PA and Radio Chassis and the 8 pin plug will connect to J922 on the CX-55 PCB. Take the three flying leads from P302.1, P302.2, and P303.3 and connect them to the connector, part number 70-159478, to the following points:P302.1 to J923.3, P302.2 to J923.7, and P302.3 to J923.9. It will be necessary to locate P923 on the CX-55 PCB to determine the pin out. The silkscreen shows the correct pin out on the board. After finishing the connector, connect it to P923. Take the remaining flying lead from P302.5 and if the Data Radio is not beeing used cut the lead so that the bare wire is not exposed. When the PA and Radio chassis are assembled connect the six pin cable from P505 to J301 on the 70-7010 and mount the board to P124 and P125. Take the two cable assemblies 70-034909 and 70-034920 and return them to stock.

5.   If the radio has been configured previously for duplex operation, and is coming back for rework because an external Tone Panel is going to be used, cable assembly 70-034920 will be used. Disconnect the 70-2914 from the radio, take the eight pin cable assembly from the 70-7010 Interface and connect it to the eight pin jack. Then plug the eight pin plug into connector P922 on the the CX-55 PCB, and the 16 pin plug into P923 on the CX-55 PCB. IF the Data Radio is not used then cut the flying lead so that the bare wire is not exposed.

5.   Return to the 70-2950 Instructions.

PARTS LIST

| Part Number	Reference	
70-075691	Antenna/PA Interface PCB Assembly	
70-034894	CBL ASY P301,P111,J505	
70-034896	CBL ASY P302,P922,P923	
70-159478	CONNECTOR FOR P923	
70-034250	4" 30AWG Blue CBL ASY P320,PTT,UP/DN	
70-999889	6 pages INSTALLATION INSTRUCTIONS	
70-070456	Blank PCB	
70-135320	10uF Chip Cap	C1,C5
70-138170	1000pF Chip Cap	C2,C4,C6-C10
70-138249	.1uF Chip Cap	C3
70-085246	Dual Chip Diode Isolated	D2
70-085250	Dual Chip Diode common cathode	D1
70-159790	6 pin .1"C connector female	J124
70-159791	4 pin .1"C connector female	J125
70-159253	8 pin 2mm connector male	J302
70-159252	6 pin 2mm connector male	J301
70-080296	Dual NPN transistor SMT	Q1
70-076468	9V regulator	Q2
70-076390	5V regulator SMT	Q3
70-080458	NPN transistor SMT	Q4,Q5
70-145128	100K Chip resistor	R1
70-144159	2.7K Chip resistor	R2
70-145098	4.7K Chip resistor	R3,R4
70-150466	Shorting jumper	
98-159140	Test Pins (4 segments of 3 pins)	
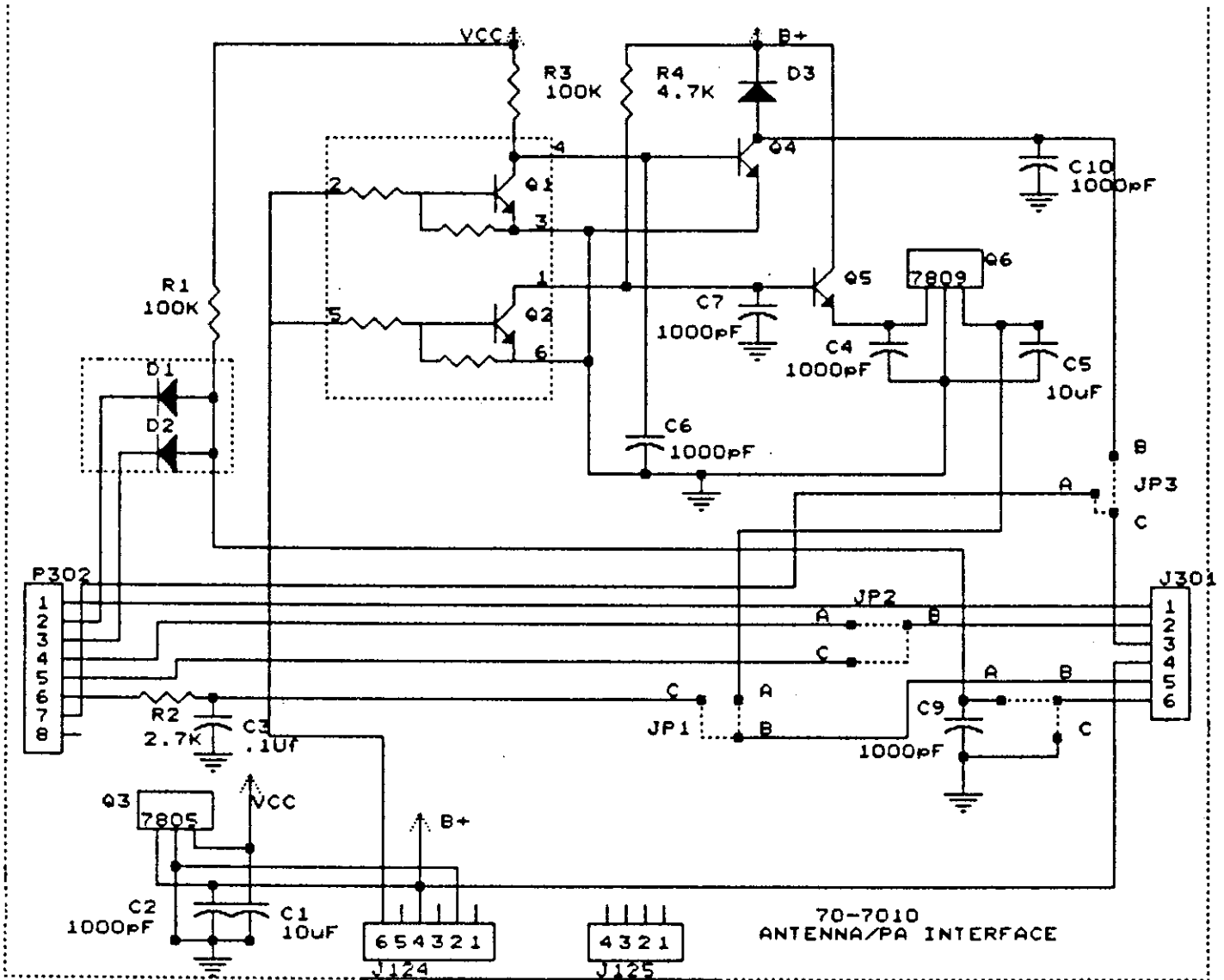
FIGURE 1

SILKSCREEN (TOP)
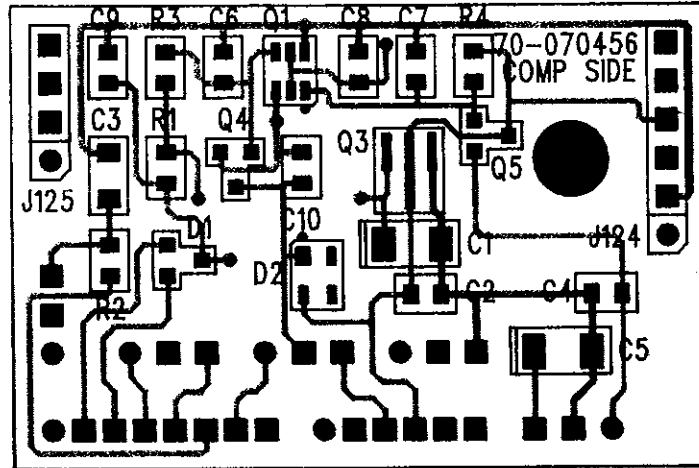
FIGURE 2
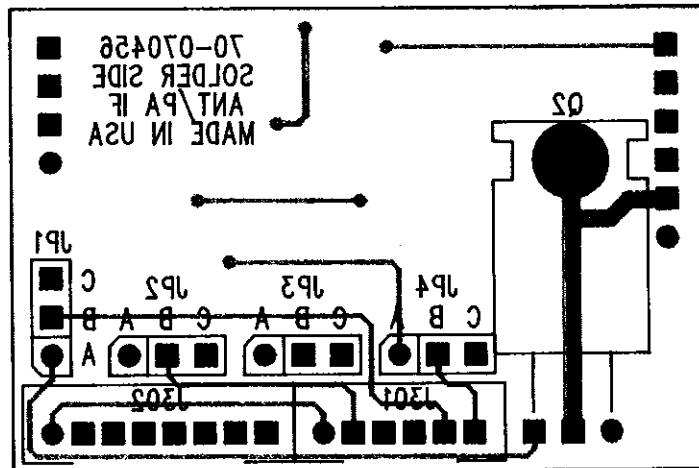TOP VIEW WITH SILKSCREEN

SILKSCREEN (BOTTOM)

FIGURE 3
BOTTOM VIEW WITH SILKSCREEN

Molex Connector

1   DN Channel Select

2   Discriminator

3   Monitor

4   Speaker 2

5   Mic/Data Input

6   Speaker 1

7   PTT

8   TX/RX Switch/Sub Tone In

9   UP Channel Select

10 13.8V

11 TX-9V/RX AF

12 COS/GND
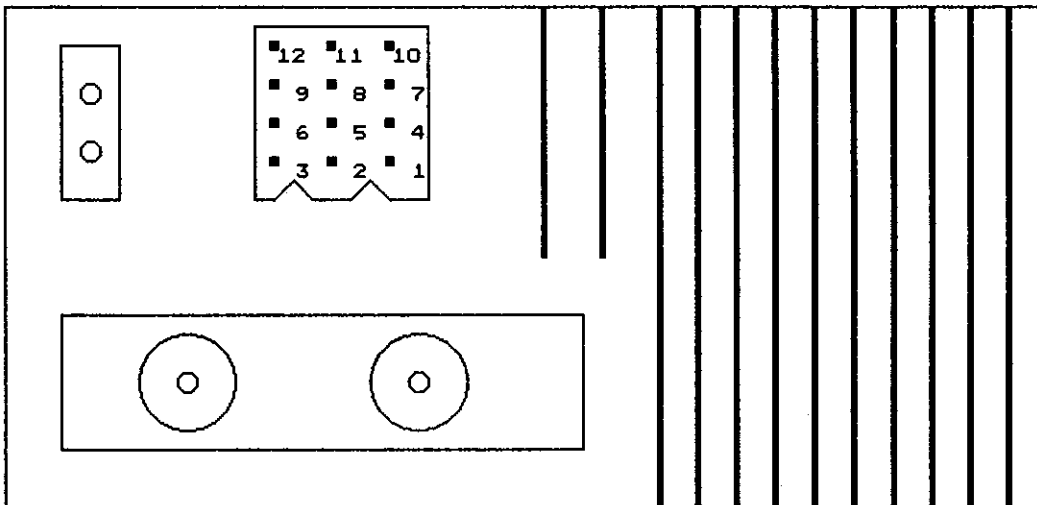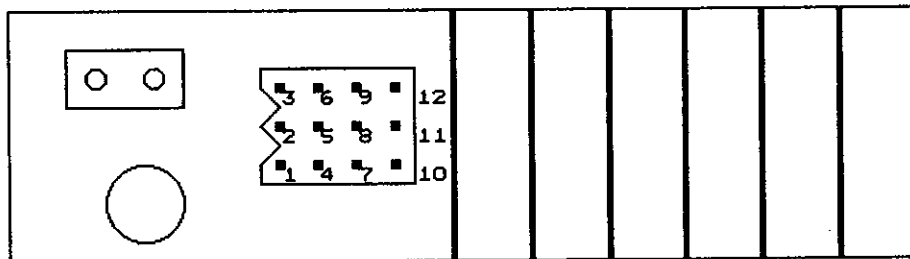
Figure 4
Back View of Radio

Molex Connector

1 DN Channel Select

2 Discriminator

3 Monitor

4 Speaker 1

5 Mic/Data Input

6 Speaker 2

7 PTT

8 TX/RX Switch/Sub Tone In

9 UP Channel Select

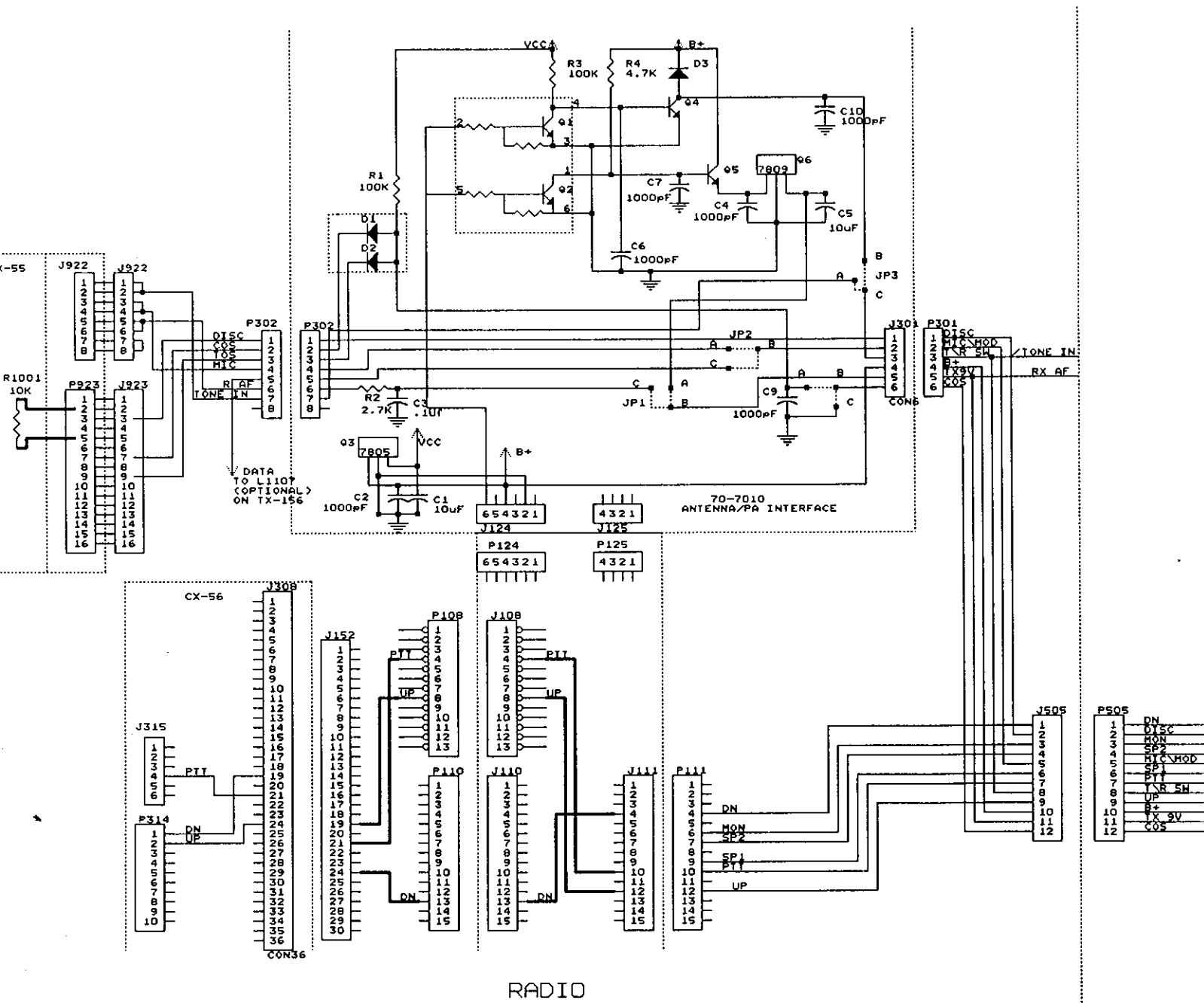10 13.8V

11 TX-9V/RX AF

12 COS/GND

FIGURE 5
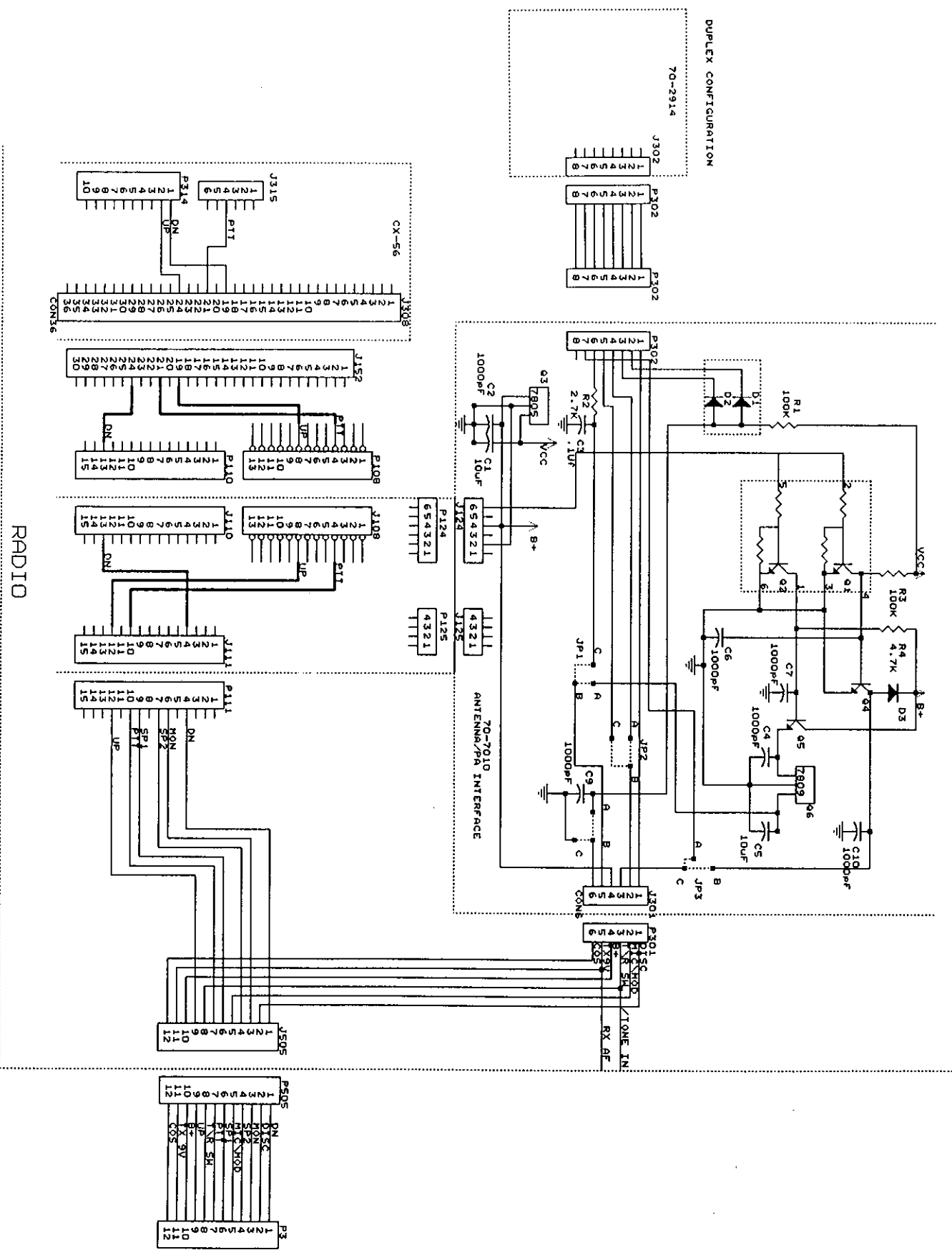# BACK VIEW OF RADIO

SYSTEM WIRING
FIGURE 6

FIGURE 7
DUPLEX WIRING DIAGRAM

FIGURE 8

CX-55   BOTTOM VIEW

ADD R1001 10K