

D. M. de STEIGUER

TM-5024/5422

**OPERATION AND
MAINTENANCE MANUAL**

**TRANSCEIVER HF/SSB
SYNTHESIZED**

GSB-900A

**SUPPLEMENT TO GSB-900 MANUAL
TM-5024/0005**



sunair electronics, inc.

3101 S. W. 3rd Avenue,
Fort Lauderdale, Florida 33315 USA

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GD-7074



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**OPERATION AND
MAINTENANCE MANUAL**

GSB-900A

TRANSCEIVER HF/SSB

SYNTHESIZED

MODIFIED GSB-900 TO ACCEPT
LOW POWER RECEIVE ADAPTOR

FIRST EDITION 2 JANUARY 1977
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SECTION 1

GENERAL INFORMATION

1.1 SCOPE

This instruction manual contains only the information relative to changes made to the standard GSB-900 to allow it to be operated with a Low Power Receive Adaptor.

1.2 TRANSCEIVER DESCRIPTION

1.2.1 GENERAL

The standard GSB-900 has been modified to the GSB-900A as described in the following sections so that it may be operated with the L.P.R.A. Additionally the GSB-900A may be operated without the L.P.R.A. if the accessory jumper plug is installed in the rear panel. Operation may be with either d-c or a-c power in this condition. When operated with the L.P.R.A., only 12V d-c power may be applied.

With the L.P.R.A. connected and operating in the RECEIVE position the 12V current drain is reduced to below 250 ma during "no signal" conditions. This is accomplished by turning off the d-c converter and synthesizer in the GSB-900A and removing power from all circuitry, such as the SB generator, that is not required for receive only

operation. In this operating mode the r-f signal passes through the 900A filter module and then to the L.P.R.A. which contains the r-f amplifier, mixer, channel oscillator and third L.O. oscillator. The IF output of the L.P.R.A. (10.5 MHz) is then routed back to the GSB-900A IF Filter board, Audio board and Speaker Driver board.

When the L.P.R.A. is switched to the TRANSCEIVE position, power is applied to all modules in the GSB-900A and it operates as a standard GSB-900 synthesized transceiver.

1.3 TECHNICAL SPECIFICATIONS

All specifications are the same as the standard GSB-900 with the following exceptions.

- a - Selectivity: 3 db bandwidth 2.7 kHz
- b - Audio Power Output: 2 watts into 4 ohm speaker

1.3.1 OPERATING WITH THE LOW POWER RECEIVE ADAPTOR

- a - Power Input: +13VDC \pm 10% only
- b - Current, receive only: Less than 250 ma

SECTION 2

INSTALLATION

2.1 GENERAL

Refer to Section II of standard GSB-900 manual for installation instructions except as noted below.

2.2 CABLE CONNECTIONS

For operation it is necessary to connect the GSB-900A to the L.P.R.A. via cable PN 5024-5025 as shown in Figure 2.1 or install the jumper plug, wired in accordance with Figure 2.2, in the accessory connector 1A8J4. Additionally, since the transmit and receive audio is routed out of and

back into the GSB-900A via the rear panel mounted connector, 1A8J2, it is necessary to connect the external audio processing equipment or install the audio jumper plug wired as shown in Figure 2.3.

2.3 POWER REQUIREMENTS

When operating with the Low Power Receive Adaptor the GSB-900A can be connected to +12VDC power only. If the L.P.R.A. is removed and the jumper plug installed, the GSB-900A may be operated on d-c or a-c voltage.

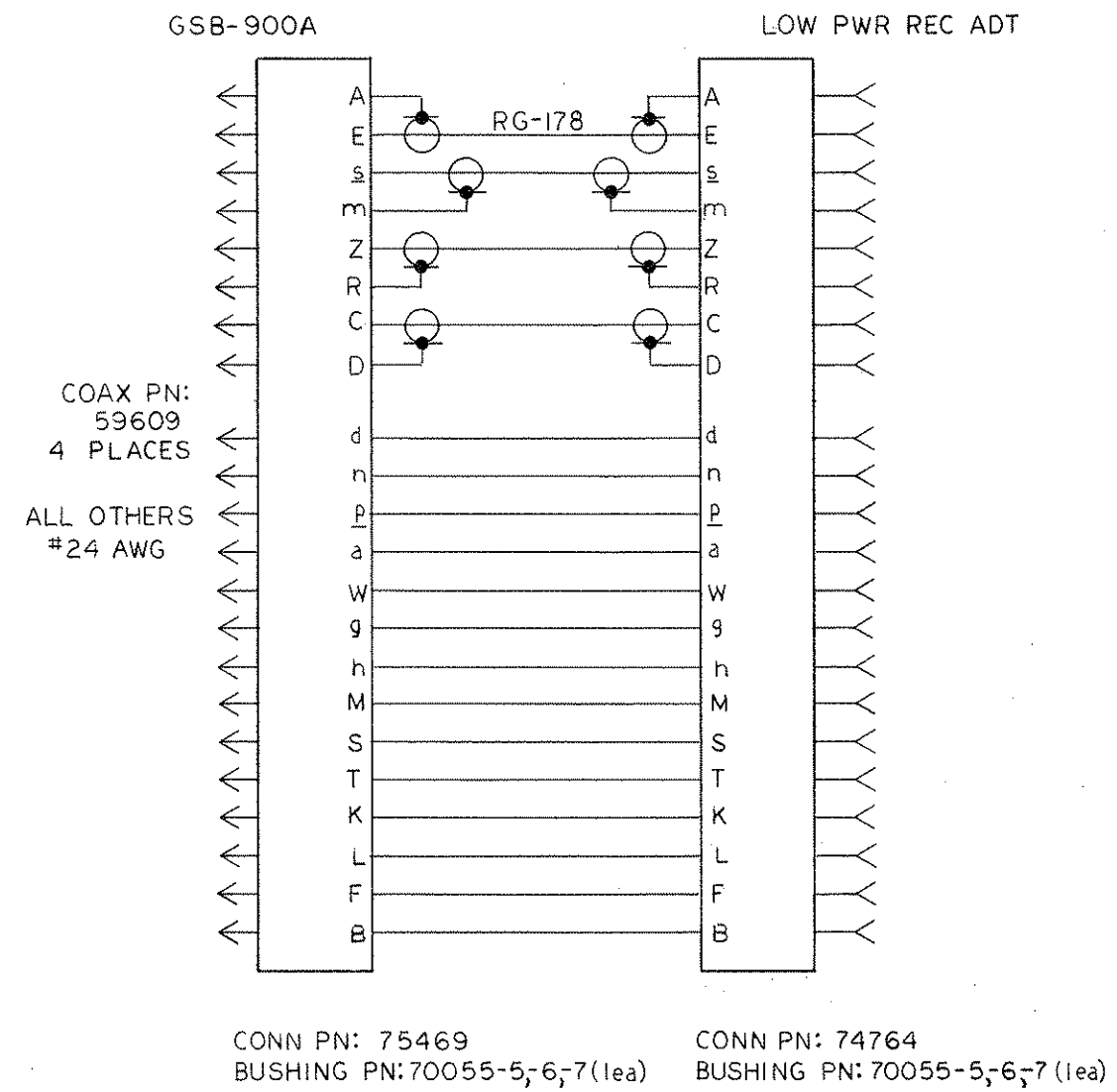


Figure 2.1 Interconnect Cable 900A
To Low Power Receive Adaptor

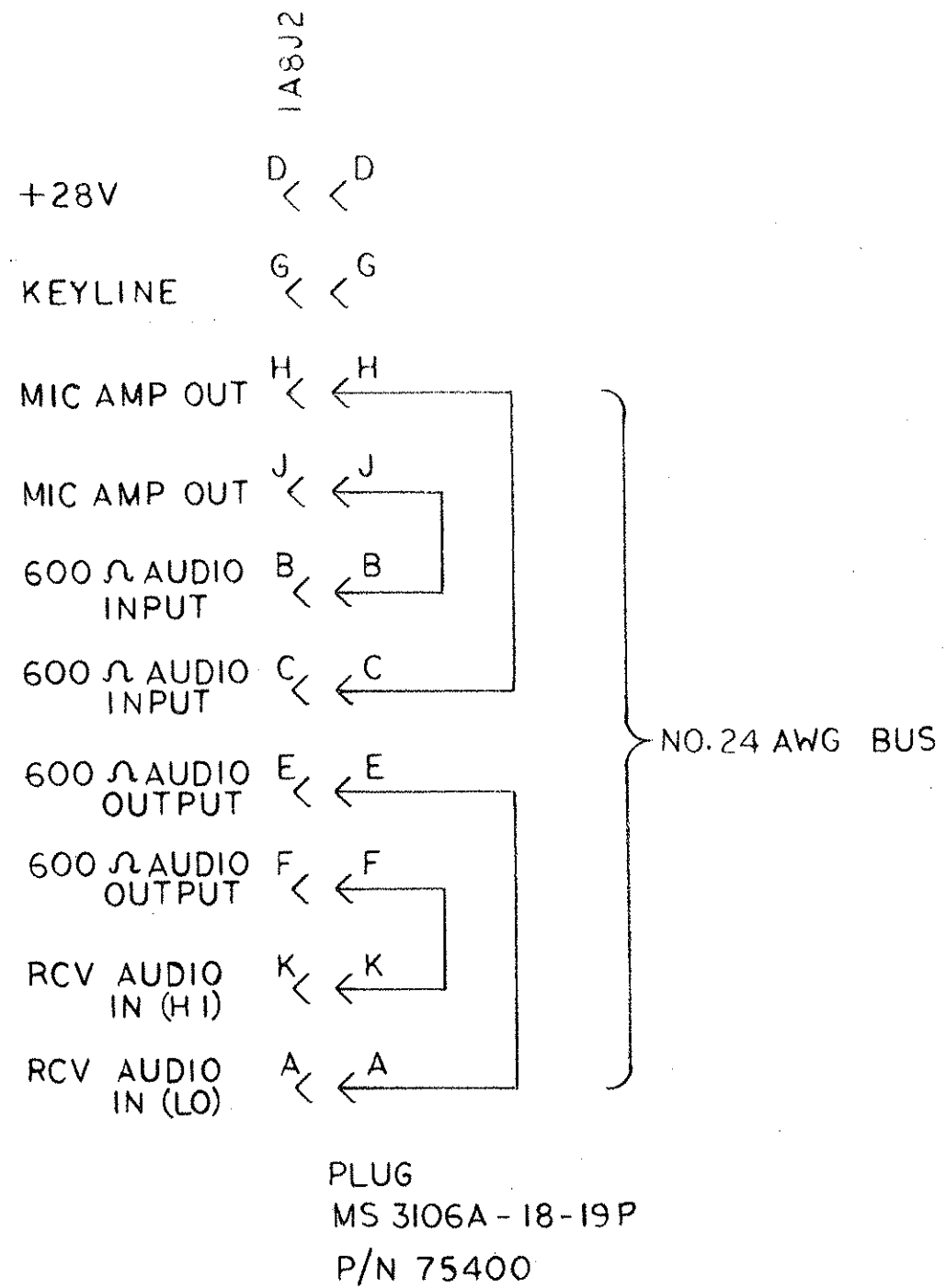
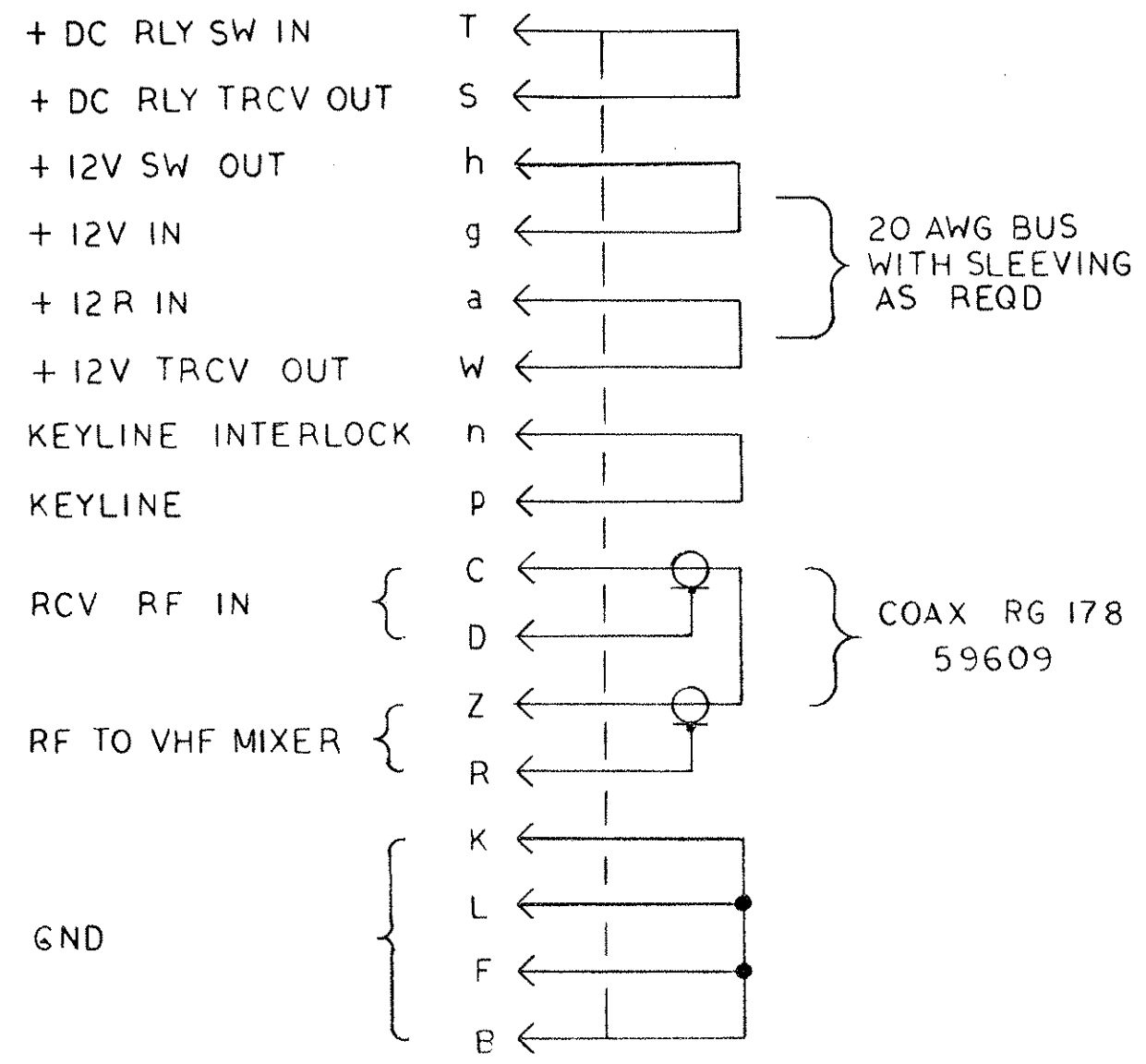


Figure 2.2 Jumper Plug Audio P.2 GSB-900A



CONNECTOR P/N 75469

Figure 2.3 Transceiver Jumper Plug P4

SECTION 3

OPERATION

3.1 GENERAL

The GSB-900A when operated without the Low Power Receive Adaptor is operated the same as a standard GSB-900.

3.2 OPERATING WITH LOW POWER RECEIVE ADAPTOR

If it is desired to maintain a listening watch only the L.P.R.A. is switched to the RECEIVE position and the channel selector switch set to the desired

channel frequency (1 of 6). Since the incoming r-f signal passes through the GSB-900A filter module the GSB-900A frequency dials must be set to the same frequency as the L.P.R.A. Although it is only necessary to set the MHz dials (2) to control the filter module, all dials should be set to the listening frequency so a call may be returned rapidly.

When it is desired to transmit, the L.P.R.A. must be set to the TRANSCEIVE position. The GSB-900A will then perform as the standard GSB-900 transceiver.

SPEAKER DRIVER ASSY, GSB-900A

REF. SYMBOL	DESCRIPTION	SUNAIR PART NO.
C1,4,9	Cap. 470 uf 50V, Elect.	28089
C2	Cap. 0.1 uf Cer Mono 50V	28161
C3	Cap. 22 uf Tant 15V	28169
C5	Cap. 1800 pf Dipped Mica 500V	29927
C6,8,10	Cap. 0.47 Mono. 50V	28337
C7	Cap. 68 uf Tant 15V	29654
U1	Audio Amp	44757
R1,2	R Carbon 1/4W 10% 100 ohms	17118
R3	R Carbon 1/2W 10% 1 ohm	19477
T1	Transformer Audio	49164
L1	Choke	65316
	Frame. For T1	49160

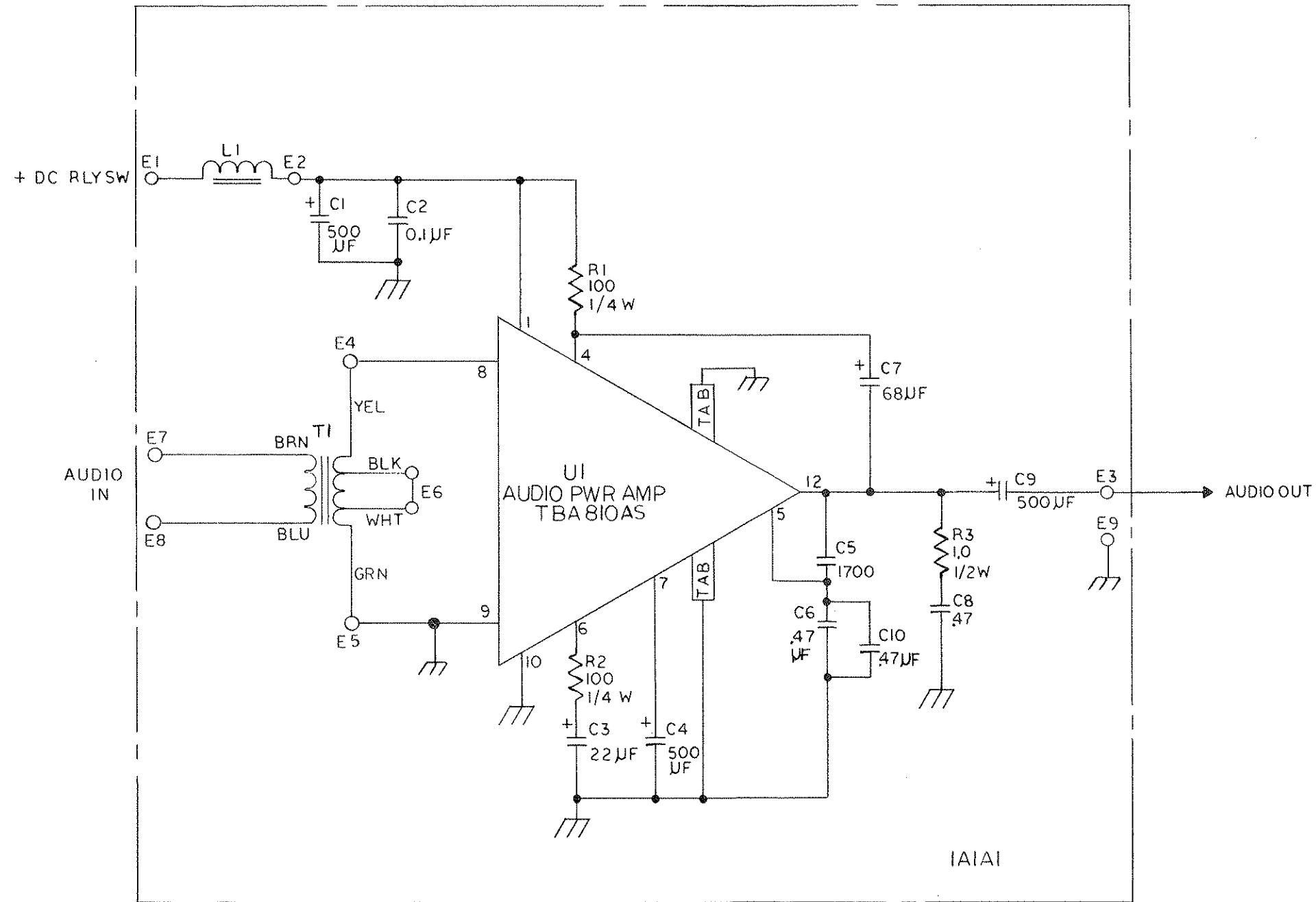
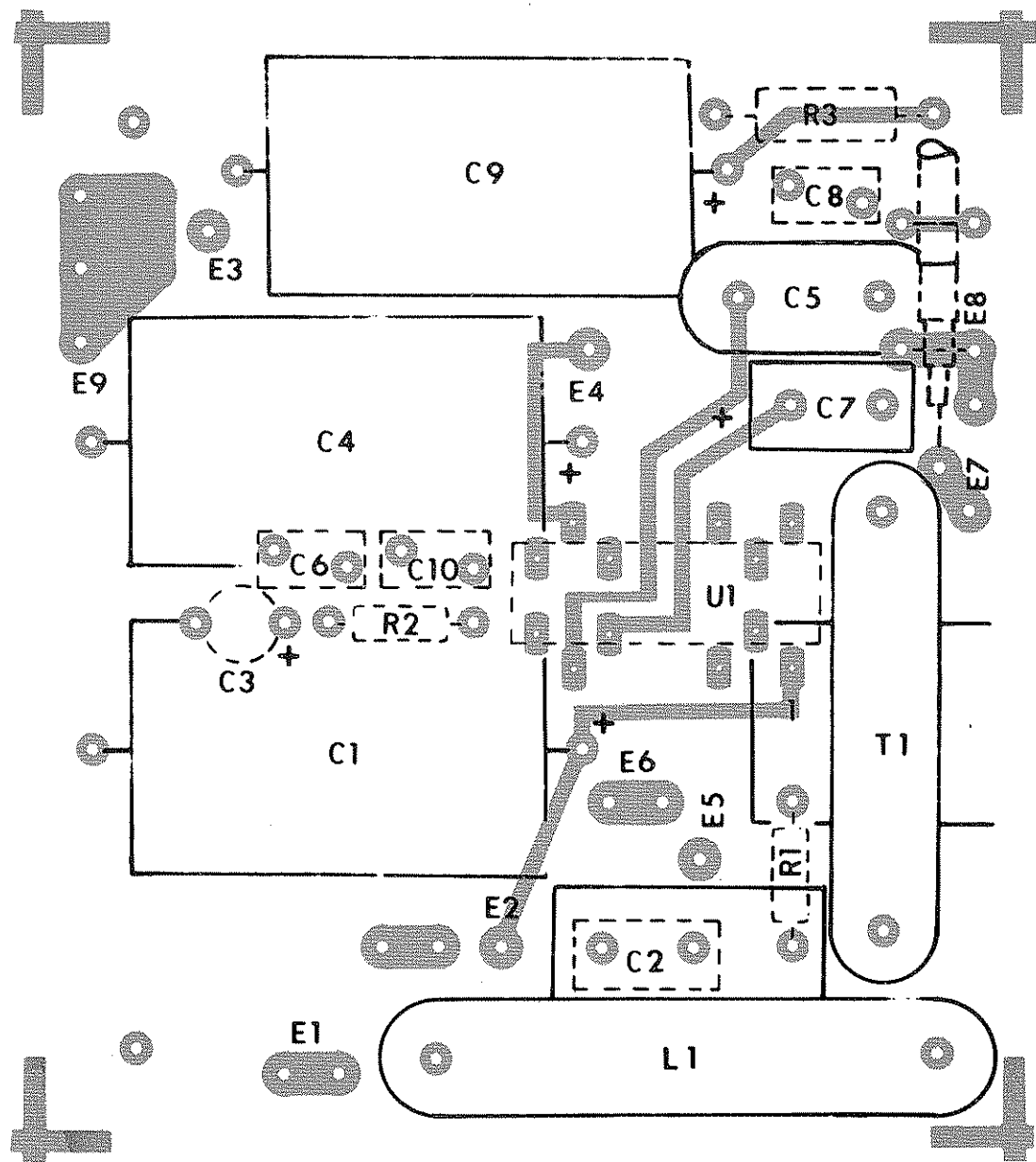
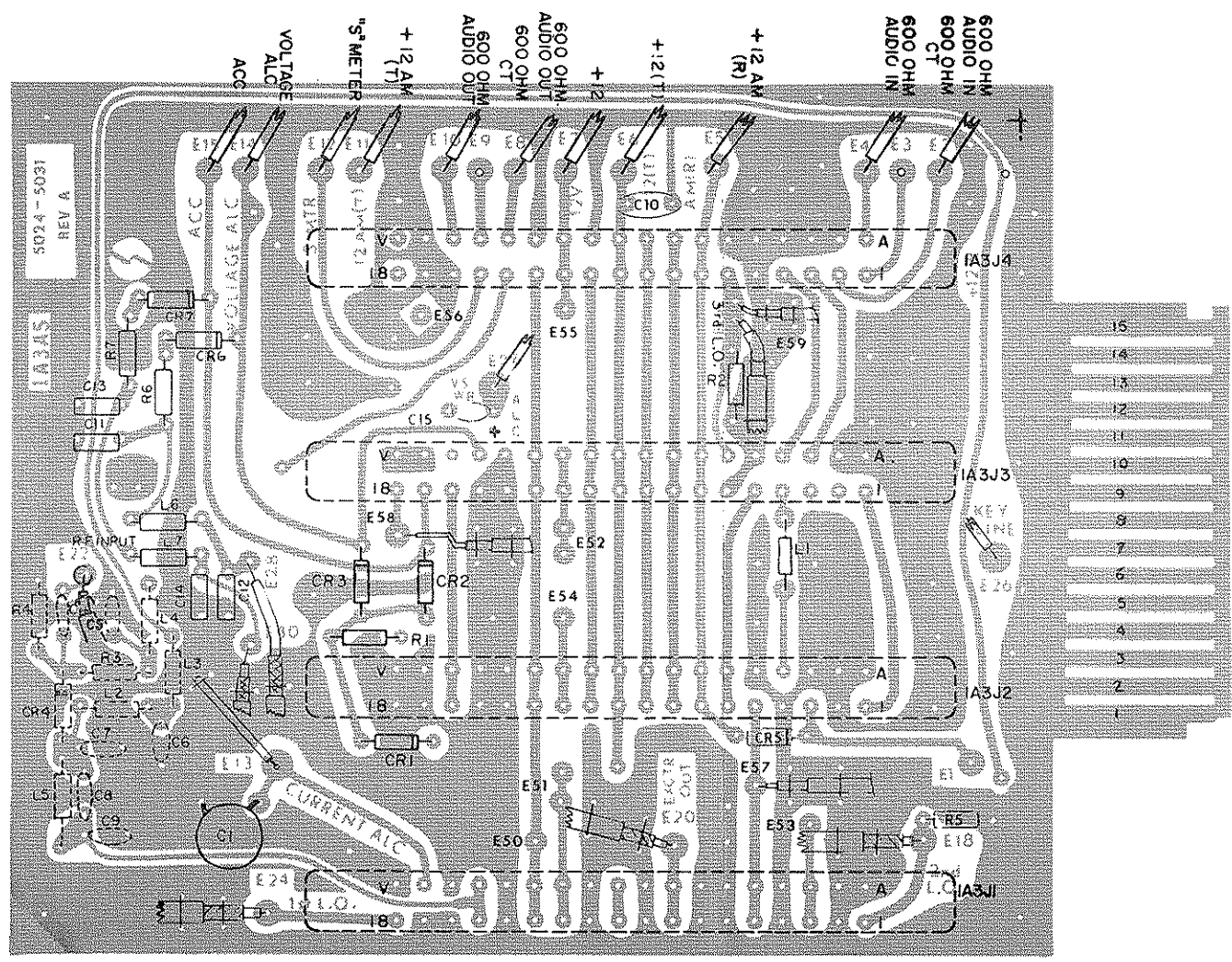


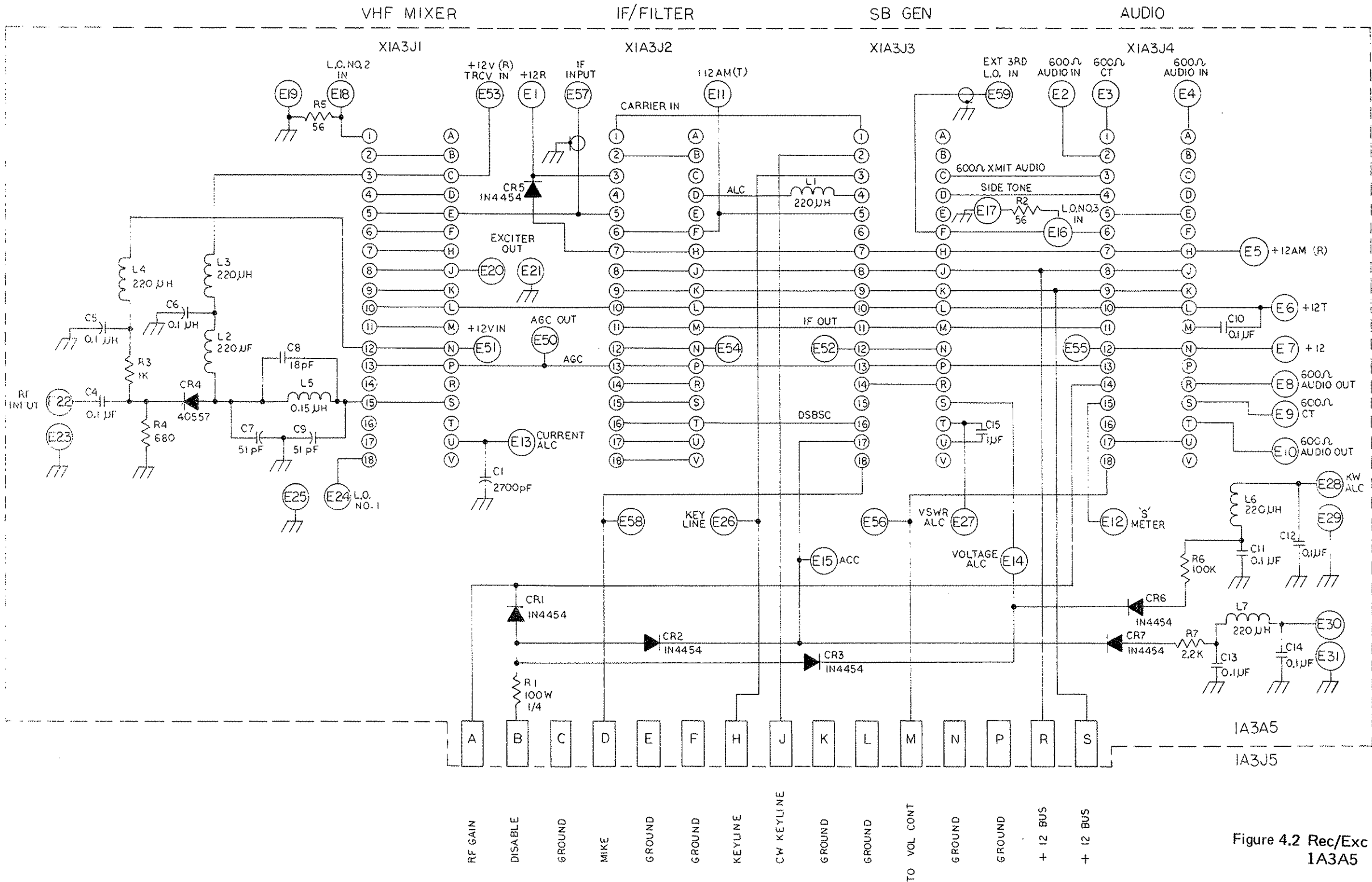
Figure 4-1 Speaker Driver (1A1A1) Schematic - 900A

SUNAIR GSB-900A

PARTS LIST, 1A3A5
Rec/Exc Mother Board



REF SYMBOL	DESCRIPTION	SUNAIR PART NO.
C1	Capacitor, Dipped Mica, 2700pf, 2%	28124
C4	Capacitor, Mono, 0.1 UF, 50V	28161
C5	Capacitor, Mono, 0.1 UF, 50V	28161
C6	Capacitor, Mono, 0.1 UF, 50V	28161
C7	Capacitor, Dipped Mica, 51pf, 500V	28135
C8	Capacitor, Dipped Mica, 18pf, 500V	28133
C9	Capacitor, Dipped Mica, 51pf, 500V	28135
C10	Capacitor, Mono, 0.1 UF, 50V	28161
C11	Capacitor, Mono, 0.1 UF, 50V	28161
C12	Capacitor, Mono, 0.1 UF, 50V	28161
C13	Capacitor, Mono, 0.1 UF, 50V	28161
C14	Capacitor, Mono, 0.1 UF, 50V	28161
C15	Capacitor, Tant, 1 UF, 35V	28166
CR1	Diode, Signal, 1N4454	40527
CR2	Diode, Signal, 1N4454	40527
CR3	Diode, Signal, 1N4454	40527
CR4	Diode, Pin	40557
CR5	Diode, Signal, 1N4454	40527
CR6	Diode, Signal, 1N4454	40527
CR7	Diode, Signal, 1N4454	40527
L1	Inductor, 220 UH, +10%	65050
L2	Inductor, 220 UH, +10%	65050
L3	Inductor, 220 UH, +10%	65050
L4	Inductor, 220 UH, +10%	65050
L5	Inductor, 0.15 UH, +10%	64862
L6	Inductor, 220 UH, +10%	65050
L7	Inductor, 220 UH, +10%	65050
R1	Resistor, Carbon, 100 OHM, 10%, 1/4W	17118
R2	Resistor, Carbon, 56 OHM, 10%, 1/4W	17429
R3	Resistor, Carbon, 1K, 10%, 1/4W	17156
R4	Resistor, Carbon, 680 OHM, 10%, 1/4W	17663
R5	Resistor, Carbon, 56 OHM, 10%, 1/4W	17429
R6	Resistor, Carbon, 100K, 10%, 1/4W	17039
R7	Resistor, Carbon, 2.2K, 10%, 1/4W	17807
X1A4A1	Connector, PC Edge, 18 Pin	75361
X1A4A2	Connector, PC Edge, 18 Pin	75361
X1A4A3	Connector, PC Edge, 18 Pin	75361
X1A4A4	Connector, PC Edge, 18 Pin	75361
	Key, Polarizing, PC Conn.	75362
	PC Board W/O Components	5024-5031



NOTE:
ALL UNUSED PINS ARE GROUNDED

Figure 4.2 Rec/Exc Mother Board 1A3A5

SUNAIR GSB-900A

PARTS LIST, 1A1

REF. SYMBOL	DESCRIPTION	SUNAIR PART NO.
1A1		
C1	Capacitor, Tantalum, 1 UF, 50 V	28091
C2	Capacitor, Disc. Ceramic, .01 UF, 25 V	28162
C3	Capacitor, Disc. Ceramic, .01 UF, 25 V	28162
C4	Capacitor, Disc. Ceramic, .01 UF, 25 V	28162
C5 & C7	Capacitor, Disc. Ceramic, .01 UF, 25 V	28162
C6	Capacitor, Tantalum, 68 UF, 15V	29654
CR1	Diode, IN4454	40527
DS1	Lamp Assembly, Red 14 V	84074
DS2	Lamp Assembly, Clear 14 V	84072
DS3	Lamp Assembly, Clear 14 V	84072
DS4	Lamp Assembly, Clear 14 V	84072
DS5	Lamp Assembly, Amber, 14 V	84087
J1	Connector, 5 Pin	75356
J2	Jack, 2 Wire	84085
J3	Jack, 2 Wire	84085
J4	Pin Jack, Red	75335
LS1	Speaker, 4 ohm	87773
P1	Connector, 24 Pin	75333
P2	Connector, 15 Pin	75334
P3	Connector, 15 Pin	75334
R1	Resistor, Precision, 604 ohm 1% 1/8 W	19398
R2	Resistor, Precision, 422 ohm 1% 1/8 W	19403
R3	Resistor, Precision, 422 ohm 1% 1/8 W	19403
R4	Resistor, Precision, 301 ohm 1% 1/8 W	19415
R5	Resistor, Precision, 340 ohm 1% 1/8 W	19491
R6	Resistor, Precision, 100 ohm 1% 1/8 W	19489
R7	Resistor, Precision, 200 ohm 1% 1/8 W	19427
R8	Resistor, Precision, 100 ohm 1% 1/8 W	19489
R9	Resistor, Precision, 200 ohm 1% 1/8 W	19427
R10	Resistor, Precision, 140 ohm 1% 1/8 W	19439
R11	Resistor, Precision, 140 ohm 1% 1/8 W	19439
R12	Resistor, Precision, 866 ohm 1% 1/8 W	19544
R13	Resistor, Precision, 140 ohm 1% 1/8 W	19439
R14	Resistor, Precision, 121 ohm 1% 1/8 W	19532
R15	Resistor, Precision, 100 ohm 1% 1/8 W	19489
R16	Resistor, Precision, 715 ohm 1% 1/8 W	19506
R17	Resistor, Precision, 60.4 ohm 1% 1/8 W	19518
R18	Resistor, Precision, 100 ohm 1% 1/8 W	19489
R19	Resistor, Precision, 60.4 ohm 1% 1/8 W	19518
R20	Resistor, Precision, 80.6 ohm 1% 1/8 W	19520
R21	Resistor, Precision, 80.6 ohm 1% 1/8 W	19520
R22	Resistor, Precision, 80.6 ohm 1% 1/8 W	19520
R23	Resistor, Carbon, 1.8 K, 10%, 1/4 W	17819
R24	Potentiometer, Linear, 5 K, 2W	34603
R25	Rheostat, 100 ohm, 12 1/2 W	34609
R26	Potentiometer, Log, 5 K, 2 W	34602
R27	Potentiometer, Linear, 5 K, 2 W, W/Switch	5024-0438-00
R28	Resistor, Carbon, 2.7 K, 10%, 1/4 W	18667
R29	Potentiometer, Log, 5 K, 2 W	34602
R30	Resistor, Carbon, 33 ohm 10% 1 W	16566
R31	Resistor, Carbon, 8.2 K, 10%, 1/2 W	18954
R32	Resistor, Carbon, 1.8 K, 10%, 1/4 W	17819
R33	Resistor, Carbon, 47 ohm 10% 2 W	16372
S1	Switch, Rotary, 10 MHz	5024-0411-00
S2	Switch, Rotary, 1 MHz	5024-0412-00
S3	Switch, Rotary, 100 kHz	5024-0413-00
S4	Switch, Rotary, 10 kHz	5024-0414-00
S5	Switch, Rotary, 1 kHz	5024-0415-00
S6	Switch, Rotary, 100 Hz	5024-0416-00
S7	Switch, Mode	5024-0416-00
S8	Switch, Toggle	33461
S9	Switch, Toggle	33461
	MISCELLANEOUS MECHANICAL PARTS	
	Disc., Numbered	5024-0406-00
	Knob, 0.90 DIA, Plain	34604
	Knob, 0.90 DIA, W/Dot	34605
	Knob, 0.70 DIA, W/Dot	34606
	Knob, 0.70 DIA, Dimmer, W/Dot	34607
	Jack Cover, Waterproof	84086

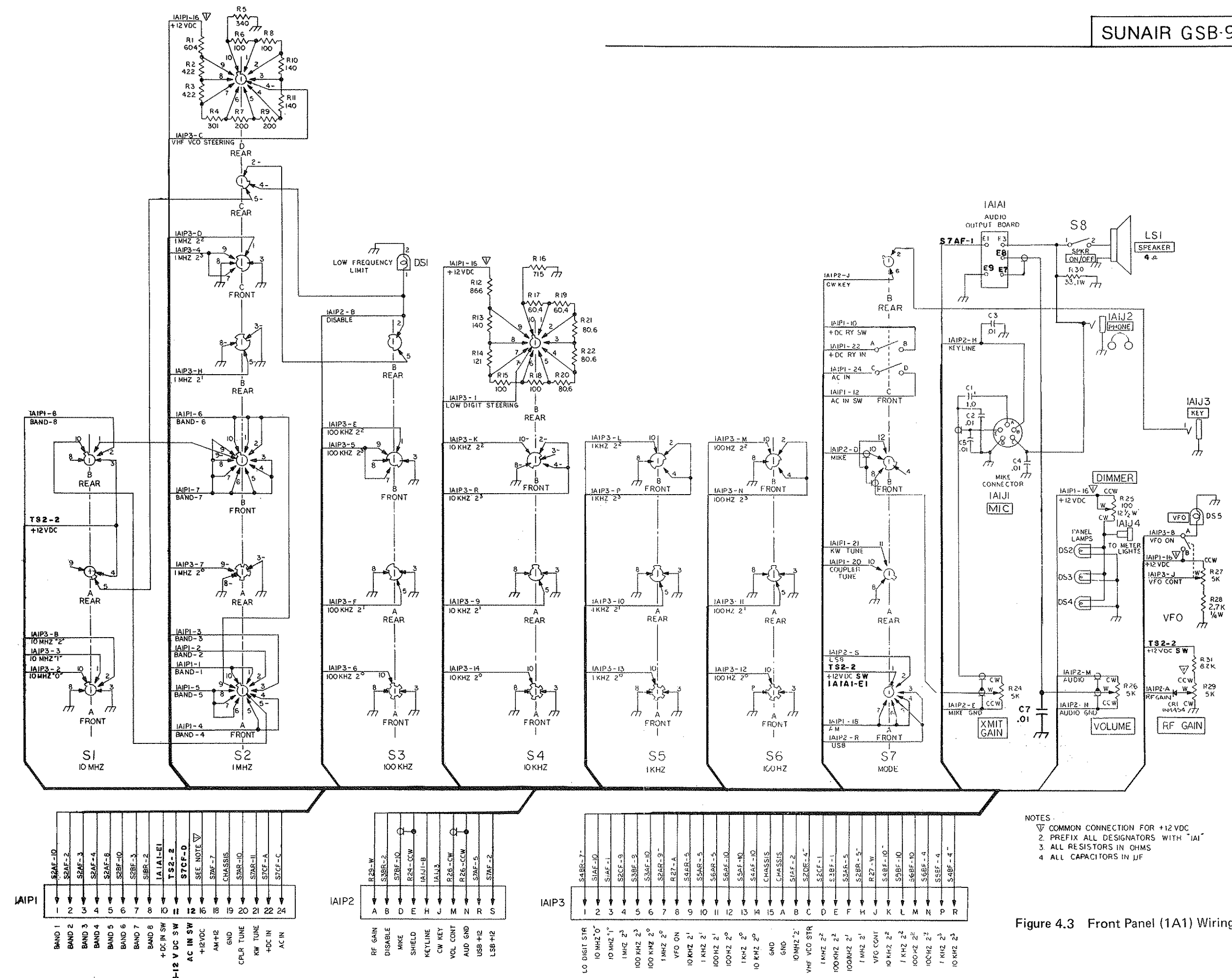
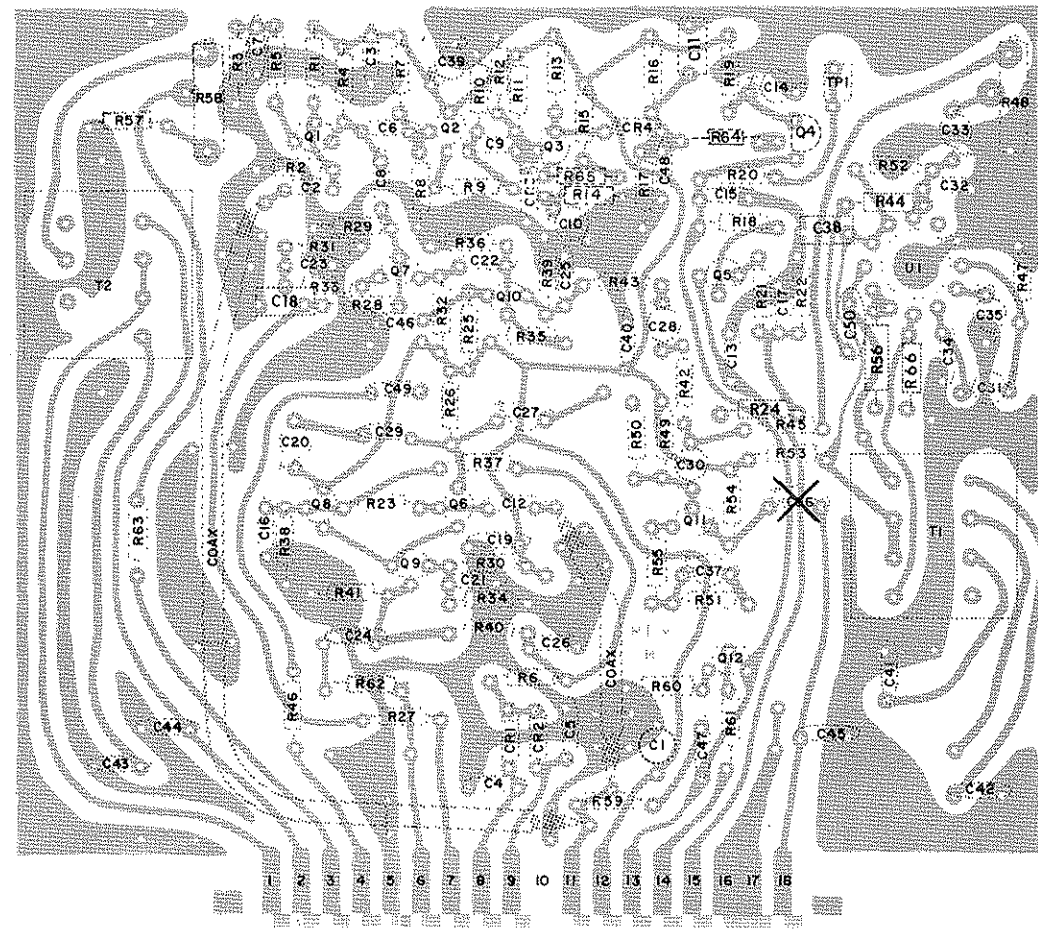
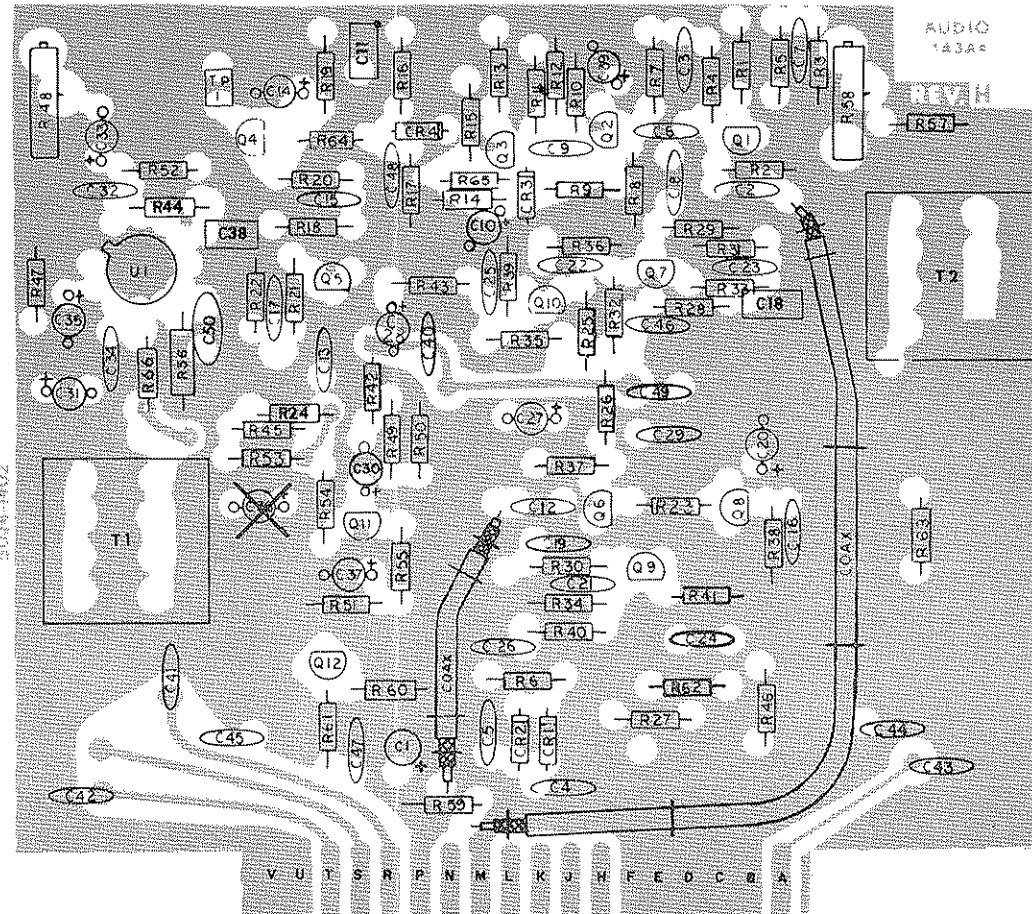


Figure 4.3 Front Panel (1A1) Wiring GSB-900A

SUNAIR GSB-900A

PARTS LIST, 1A3A4

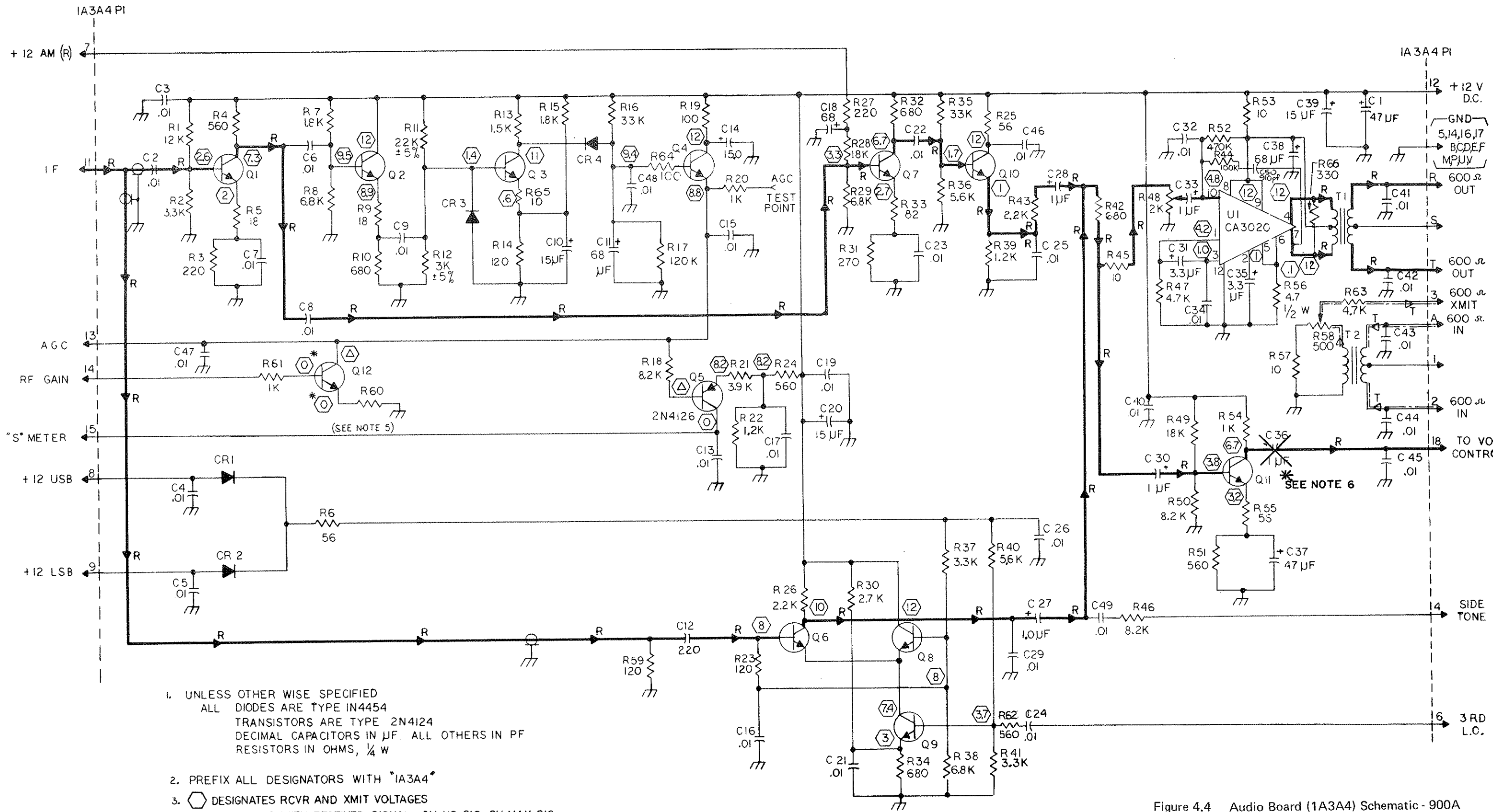


REF. SYMBOL	DESCRIPTION	SUNAIR PART NO.
C1	Capacitor, Tantalum, 47 UF, 20 V	28170
C2	Capacitor, Disc Ceramic, .01 UF, 25 V	28162
C3	Capacitor, Disc Ceramic, .01 UF, 25 V	28162
C4	Capacitor, Disc Ceramic, .01 UF, 25 V	28162
C5	Capacitor, Disc Ceramic, .01 UF, 25 V	28162
C6	Capacitor, Disc Ceramic, .01 UF, 25 V	28162
C7	Capacitor, Disc Ceramic, .01 UF, 25 V	28162
C8	Capacitor, Disc Ceramic, .01 UF, 25 V	28162
C9	Capacitor, Disc Ceramic, .01 UF, 25 V	28162
C10	Capacitor, Tantalum, 15 UF, 20 V	28092
C11	Capacitor, Tantalum, 68 UF, 28V	28215
C12	Capacitor, Mica, 220 PF 5%, 500 V	28595
C13	Capacitor, Disc Ceramic, .01 UF, 25 V	28162
C14	Capacitor, Tantalum, 15 UF, 20 V	28092
C15	Capacitor, Disc Ceramic, .01 UF, 25 V	28162
C16	Capacitor, Disc Ceramic, .01 UF, 25 V	28162
C17	Capacitor, Disc Ceramic, .01 UF, 25 V	28162
C18	Capacitor, Tantalum, 68 UF, 28V	28215
C19	Capacitor, Disc Ceramic, .01 UF, 25 V	28162
C20	Capacitor, Tantalum, 15 UF, 20 V	28092
C21	Capacitor, Disc Ceramic, .01 UF, 25 V	28162
C22	Capacitor, Disc Ceramic, .01 UF, 25 V	28162
C23	Capacitor, Disc Ceramic, .01 UF, 25 V	28162
C24	Capacitor, Disc Ceramic, .01 UF, 25 V	28162
C25	Capacitor, Disc Ceramic, .01 UF, 25 V	28162
C26	Capacitor, Disc Ceramic, .01 UF, 25 V	28162
C27	Capacitor, Tantalum, 1 UF, 50 V	28091
C28	Capacitor, Tantalum, 1 UF, 50 V	28091
C29	Capacitor, Disc Ceramic, .01 UF, 25 V	28162
C30	Capacitor, Tantalum, 1 UF, 50 V	28091
C31	Capacitor, Tantalum, 3.3 UF, 35 V	28159
C32	Capacitor, Disc Ceramic, .01 UF, 25 V	28162
C33	Capacitor, Tantalum, 1 UF, 50 V	28091
C34	Capacitor, Disc Ceramic, .01 UF, 25 V	28162
C35	Capacitor, Tantalum, 3.3 UF, 35 V	28159
C37	Capacitor, Tantalum, 47 UF, 20 V	28170
C38	Capacitor, Tantalum, 68 UF, 28V	28215
C39	Capacitor, Tantalum, 15 UF, 20 V	28092
C40	Capacitor, Disc Ceramic, .01 UF, 25 V	28162
C41	Capacitor, Disc Ceramic, .01 UF, 25 V	28162
C42	Capacitor, Disc Ceramic, .01 UF, 25 V	28162

REF. SYMBOL	DESCRIPTION	SUNAIR PART NO.
C43	Capacitor, Disc Ceramic, .01 UF, 25 V	28162
C44	Capacitor, Disc Ceramic, .01 UF, 25 V	28162
C45	Capacitor, Disc Ceramic, .01 UF, 25 V	28162
C46	Capacitor, Disc Ceramic, .01 UF, 25 V	28162
C47	Capacitor, Disc Ceramic, .01 UF, 25 V	28162
C48	Capacitor, Disc Ceramic, .01 UF, 25 V	28162
C49	Capacitor, Disc Ceramic, .01 UF, 25 V	28162
CR1	Diode, 1N4454	40527
CR2	Diode, 1N4454	40527
CR3	Diode, 1N4454	40527
CR4	Diode, 1N4454	40527
R1	Resistor, Carbon, 12 K 10%, 1/4 W	18318
R2	Resistor, Carbon, 3.3 K 10%, 1/4 W	17089
R3	Resistor, Carbon, 220 ohm 10%, 1/4 W	17132
R4	Resistor, Carbon, 560 ohm 10%, 1/4 W	18320
R5	Resistor, Carbon, 18 ohm 10%, 1/4 W	18459
R6	Resistor, Carbon, 56 ohm 10%, 1/4 W	17429
R7	Resistor, Carbon, 1.8 K 10%, 1/4 W	17819
R8	Resistor, Carbon, 6.8 K 10%, 1/4 W	17481
R9	Resistor, Carbon, 18 ohm 10%, 1/4 W	18459
R10	Resistor, Carbon, 680 ohm 10%, 1/4 W	17663
R11	Resistor, Carbon, 22 K 5%, 1/4 W	19271
R12	Resistor, Carbon, 3K 5%, 1/4 W	19718
R13	Resistor, Carbon, 1 K 10%, 1/4 W	17156
R14	Resistor, Carbon, 120 ohm 10%, 1/4 W	18655
R15	Resistor, Carbon, 1.8K 10%, 1/4 W	17819
R16	Resistor, Carbon, 3.3 K 10%, 1/4 W	17792
R17	Resistor, Carbon, 120 K 10%, 1/4 W	17510
R18	Resistor, Carbon, 8.2 K 10%, 1/4 W	18162
R19	Resistor, Carbon, 100 ohm 10%, 1/4 W	17118
R20	Resistor, Carbon, 1 K 10%, 1/4 W	17156
R21	Resistor, Carbon, 3.9 K 10%, 1/4 W	17883
R22	Resistor, Carbon, 1.2 K 10%, 1/4 W	18186
R23	Resistor, Carbon, 120 ohm 10%, 1/4 W	18655
R24	Resistor, Carbon, 560 ohm 10%, 1/4 W	18320
R25	Resistor, Carbon, 56 ohm 10%, 1/4 W	17429
R26	Resistor, Carbon, 2.2 K 10%, 1/4 W	17807
R27	Resistor, Carbon, 220 ohm 10%, 1/4 W	17132
R28	Resistor, Carbon, 18 K 10%, 1/4 W	17572
R29	Resistor, Carbon, 6.8 K 10%, 1/4 W	17481
R30	Resistor, Carbon, 2.7 K 10%, 1/4 W	18667
R31	Resistor, Carbon, 270 ohm 10%, 1/4 W	17845

REF. SYMBOL	DESCRIPTION	SUNAIR PART NO.
R32	Resistor, Carbon, 680 ohm 10%, 1/4 W	17663
R33	Resistor, Carbon, 82 ohm 10%, 1/4 W	18461
R34	Resistor, Carbon, 680 ohm 10%, 1/4 W	17663
R35	Resistor, Carbon, 33 K 10%, 1/4 W	17792
R36	Resistor, Carbon, 5.6K 10%, 1/4 W	18306
R37	Resistor, Carbon, 3.3 K 10%, 1/4 W	17089
R38	Resistor, Carbon, 6.8 K 10%, 1/4 W	17481
R39	Resistor, Carbon, 1.2 K 10%, 1/4 W	18186
R40	Resistor, Carbon, 5.6 K 10%, 1/4 W	18306
R41	Resistor, Carbon, 3.3 K 10%, 1/4 W	17089
R42	Resistor, Carbon, 220 ohm 10%, 1/4 W	17132
R43	Resistor, Carbon, 2.2 K 10%, 1/4 W	17807
R44		
R45	Resistor, Carbon, 10 ohm 10%, 1/4 W	17716
R46	Resistor, Carbon, 8.2 K 10%, 1/4 W	18162
R47	Resistor, Carbon, 4.7 K 10%, 1/4 W	17077
R48	Potentiometer, 15 Turn, 2 K, 1/2 W	34600
R49	Resistor, Carbon, 18 K 10%, 1/4 W	17572
R50	Resistor, Carbon, 8.2 K 10%, 1/4 W	18162
R51	Resistor, Carbon, 560 ohm 10%, 1/4 W	18320
R52	Resistor, Carbon, 470 K 10%, 1/4 W	18057
R53	Resistor, Carbon, 10 ohm 10%, 1/4 W	17716
R54	Resistor, Carbon, 1K 10%, 1/4 W	17156
R55	Resistor, Carbon, 56 ohm 10%, 1/4 W	17429
R56	Resistor, Carbon, 4.7ohm 10%, 1/4 W	19568
R57	Resistor, Carbon, 10 ohm 10%, 1/4 W	17716
R58	Potentiometer, 15 Turn, 500 ohm, 1/2 W	34596
R59	Resistor, Carbon, 120 ohm 10%, 1/4 W	18655
R60	Resistor, Carbon, 12 to 22 OHM 10% 1/4W*	
R61	Resistor, Carbon, 1 K 10%, 1/4 W	17156
R62	Resistor, Carbon, 560 ohm 10%, 1/4 W	18320
R63	Resistor, Carbon, 4.7 K 10%, 1/4 W	17077
R65	RESISTOR, 10 OHM, 10% 1/4W m: 600 ohm	17716
R66	RESISTOR, 330 OHM, 10% 1/4W m: 600 ohm	17091
T1	Transformer, Audio, 600 ohm: 600 ohm	49147
T2	Transformer, Audio, 150 ohm: 600 ohm	49159
Q1	Transistor, 2N4124	44801
Q2	Transistor, 2N4124	44801
Q3	Transistor, 2N4124	44801
Q4	Transistor, 2N4124	44801
Q5	Transistor, 2N4126	44802
Q6	Transistor, 2N4124	44801
Q7	Transistor, 2N4124	44801
Q8	Transistor, 2N4124	44801
Q9	Transistor, 2N4124	44801
Q10	Transistor, 2N4124	44801
Q11	Transistor, 2N2124	44801
Q12	Transistor, 2N2124	44801

*SELECTED VALUE



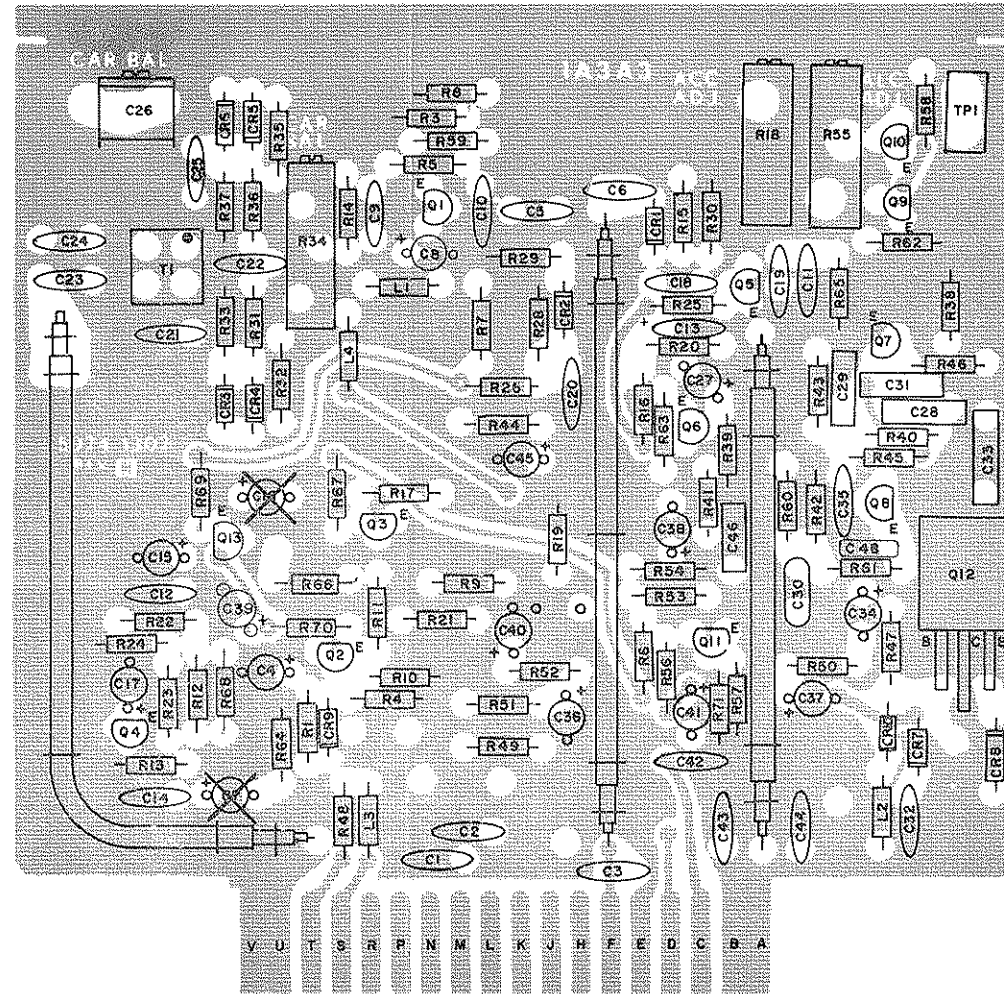
1. UNLESS OTHERWISE SPECIFIED
 ALL DIODES ARE TYPE IN4454
 TRANSISTORS ARE TYPE 2N4124
 DECIMAL CAPACITORS IN μF . ALL OTHERS IN PF
 RESISTORS IN OHMS, $\frac{1}{4}$ W

- 2. PREFIX ALL DESIGNATORS WITH "1A3A4"
- 3. ∇ DESIGNATES RCVR AND XMIT VOLTAGES
 Δ VARIES WITH RECEIVED SIGNAL: 8V NO SIG, 2V MAX SIG
- 4. * RF GAIN CONTROL FULLY CW
- 5. VALUE OF R60 SELECTED IN TEST: 12 TO 22 OHMS
- 6. C36 REMOVED. OUTPUT TAKEN FROM PINS R & T

Figure 4.4 Audio Board (1A3A4) Schematic - 900A

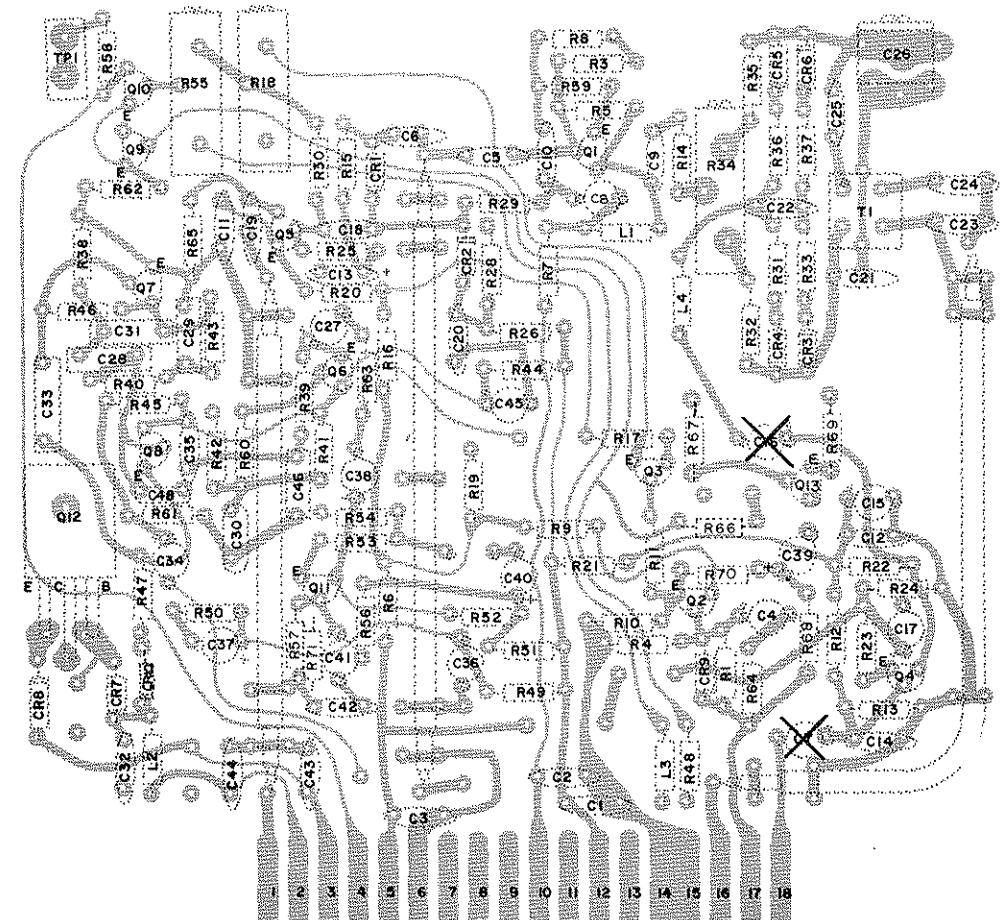
SUNAIR GSB-900 A

PARTS LIST, 1A3A3



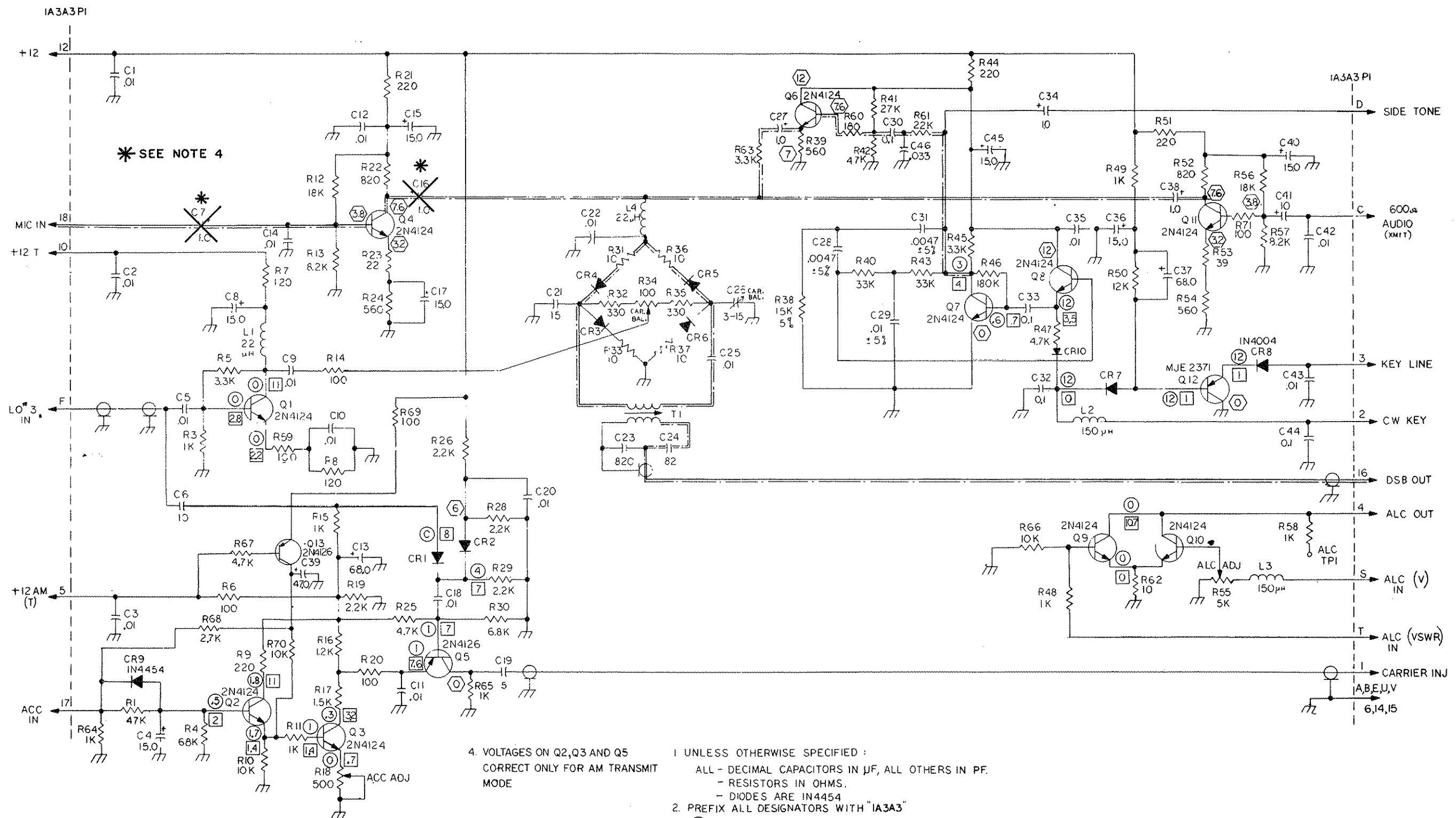
REF. SYMBOL	DESCRIPTION	SUNAIR PART NO.
C1	Capacitor, Disc Ceramic, .01 UF, 25 V	28162
C2	Capacitor, Disc Ceramic, .01 UF, 25 V	28162
C3	Capacitor, Disc Ceramic, .01 UF, 25 V	28162
C4	Capacitor, Tantalum, 15 UF, 20 V	28092
C5	Capacitor, Disc Ceramic, .01 UF, 25 V	28162
C6	Capacitor, Mica, 10 PF 5%, 500 V	25983
C8	Capacitor, Disc Ceramic, 15UF 20V	28092
C9	Capacitor, Disc Ceramic, .01 UF, 25 V	28162
C10	Capacitor, Disc Ceramic, .01 UF, 25 V	28162
C11	Capacitor, Disc Ceramic, .01 UF, 25 V	28162
C12	Capacitor, Disc Ceramic, .01 UF, 25 V	28162
C13	Capacitor, Tantalum, 68 UF, 15 V	29654
C14	Capacitor, Disc Ceramic, .01 UF, 25 V	28162
C15	Capacitor, Tantalum, 68 UF, 15 V	29654
C17	Capacitor, Tantalum, 15 UF, 20 V	28092
C18	Capacitor, Disc Ceramic, .01 UF, 25 V	28162
C19	Capacitor, Mica, 5 PF 1/2 PF, 500 V	26119
C20	Capacitor, Disc Ceramic, .01 UF, 25 V	28162
C21	Capacitor, Mica, 15 PF 5%, 500 V	28650
C22	Capacitor, MONOLITHIC, .01 UF, 50V	28173
C23	Capacitor, Mica, 820 PF 5%, 500 V	28875
C24	Capacitor, Mica, 82 PF 5%, 500 V	28997
C25	Capacitor, MONOLITHIC, .01 UF, 20V	28173
C26	Capacitor, Variable Ceramic, 2-8 PF	28430
C27	Capacitor, Tantalum, 1 UF, 50 V	28091
C28	Capacitor, Mylar, .0047 UF 5%, 50 V	28154
C29	Capacitor, Mylar, .01 UF 5%, 50 V	28156
C30	Capacitor, Monolithic, 0.1 UF, 50 V	28161
C31	Capacitor, Mylar, .0047 UF 5%, 50 V	28154
C32	Capacitor, Monolithic, 0.1 UF, 50 V	28161
C33	Capacitor, Mylar, 0.1 UF 5%, 50 V	28158
C34	Capacitor, Tantalum, 1 UF, 50 V	28091
C35	Capacitor, Disc Ceramic, .01 UF, 25 V	28162
C36	Capacitor, Tantalum, 15 UF, 20 V	28092
C37	Capacitor, Tantalum, 68 UF, 15 V	29654
C38	Capacitor, Tantalum, 1 UF, 50 V	28091
C39	Capacitor, Tantalum, 47 UF, 20 V	28170
C40	Capacitor, Tantalum, 68 UF, 15 V	29654
C41	Capacitor, Tantalum, 1 UF, 50 V	28091
C42	Capacitor, Disc Ceramic, .01 UF, 25 V	28162

REF. SYMBOL	DESCRIPTION	SUNAIR PART NO.
C43	Capacitor, Disc Ceramic, .01 UF, 25 V	28162
C44	Capacitor, Monolithic, 0.1 UF, 50 V	28161
C45	Capacitor, Tantalum, 68 UF, 15 V	29654
C46	Capacitor, Mylar, .033 UF 10%, 50 V	28177
C49		
CR1	Diode, 1N4454	40527
CR2	Diode, 1N4454	40527
CR3	Diode, 1N4454	40527
CR4	Diode, 1N4454	40527
CR5	Diode, 1N4454	40527
CR6	Diode, 1N4454	40527
CR7	Diode, 1N4454	40527
CR8	Diode, 1N4004	40518
CR9	Diode, 1N4454	40527
CR10	Diode, 1N4454	40527
L1	Inductor, 22 UH 5%	65000
L2	Inductor, 150 UH 10%	65919
L3	Inductor, 150 UH 10%	65919
L4	Inductor, 22 UH 5%	65000
Q1	Transistor, 2N4124	44801
Q2	Transistor, 2N4124	44801
Q3	Transistor, 2N4124	44801
Q4	Transistor, 2N4124	44801
Q5	Transistor, 2N4126	44802
Q6	Transistor, 2N4124	44801
Q7	Transistor, 2N4124	44801
Q8	Transistor, 2N4124	44801
Q9	Transistor, 2N4124	44801
Q10	Transistor, 2N4124	44801
Q11	Transistor, 2N4124	44801
Q12	Transistor, MJE2371	44820
Q13	Transistor, 2N4126	44802
R1	Resistor, Carbon, 47 K 10%, 1/4 W	17106
R3	Resistor, Carbon, 1 K 10%, 1/4 W	17156
R4	Resistor, Carbon, 68 K 10%, 1/4 W	17352
R5	Resistor, Carbon, 3.3 K 10%, 1/4 W	17089
R6	Resistor, Carbon, 100 ohm 10%, 1/4 W	17118
R7	Resistor, Carbon, 120 ohm 10%, 1/4 W	18655
R8	Resistor, Carbon, 120 ohm 10%, 1/4 W	18655
R9	Resistor, Carbon, 220 ohm 10%, 1/4 W	17132
R10	Resistor, Carbon, 10 K 10%, 1/4 W	17041
R11	Resistor, Carbon, 1 K 10%, 1/4 W	17156



REF. SYMBOL	DESCRIPTION	SUNAIR PART NO.
R12	Resistor, Carbon, 18 K 10%, 1/4 W	17572
R13	Resistor, Carbon, 8.2 K 10%, 1/4 W	18162
R14	Resistor, Carbon, 100 ohm 10%, 1/4 W	17118
R15	Resistor, Carbon, 1 K 10%, 1/4 W	17156
R16	Resistor, Carbon, 1.2 K 10%, 1/4 W	18186
R17	Resistor, Carbon, 1.5 K 10%, 1/4 W	17247
R18	Potentiometer, 15 Turn, 500 ohm, 1/2 W	34596
R19	Resistor, Carbon, 2.2 K 10%, 1/4 W	17807
R20	Resistor, Carbon, 100 ohm 10%, 1/4 W	17118
R21	Resistor, Carbon, 220 ohm 10%, 1/4 W	17132
R22	Resistor, Carbon, 820 ohm 10%, 1/4 W	17821
R23	Resistor, Carbon, 22 ohm 10%, 1/4 W	19685
R24	Resistor, Carbon, 560 ohm 10%, 1/4 W	18320
R25	Resistor, Carbon, 4.7 K 10%, 1/4 W	17077
R26	Resistor, Carbon, 2.2 K 10%, 1/4 W	17807
R28	Resistor, Carbon, 2.2 K 10%, 1/4 W	17807
R29	Resistor, Carbon, 2.2 K 10%, 1/4 W	17807
R30	Resistor, Carbon, 6.8 K 10%, 1/4 W	17481
R31	Resistor, Carbon, 10 ohm 10%, 1/4 W	17716
R32	Resistor, Carbon, 330 ohm 10%, 1/4 W	17091
R33	Resistor, Carbon, 10 ohm 10%, 1/4 W	17716
R34	Potentiometer, 15 Turn, 100 ohm, 1/2 W	34597
R35	Resistor, Carbon, 330 10%, 1/4 W	17091
R36	Resistor, Carbon, 10 ohm 10%, 1/4 W	17716
R37	Resistor, Carbon, 10 ohm 10%, 1/4 W	17716
R38	Resistor, Carbon, 15 K 5%, 1/4 W	19570
R39	Resistor, Carbon, 560 ohm 10%, 1/4 W	18320
R40	Resistor, Carbon, 33 K 5%, 1/4 W	19582
R41	Resistor, Carbon, 27 K 10%, 1/4 W	17120
R42	Resistor, Carbon, 47 K 10%, 1/4 W	17106
R43	Resistor, Carbon, 33 K 5%, 1/4 W	19582
R44	Resistor, Carbon, 220 ohm 10%, 1/4 W	17132
R45	Resistor, Carbon, 3.3 K 10%, 1/4 W	17089
R46	Resistor, Carbon, 180 K 10%, 1/4 W	17728
R47	Resistor, Carbon, 4.7 K 10%, 1/4 W	17077
R48	Resistor, Carbon, 1K 10%, 1/4 W	17156
R49	Resistor, Carbon, 1K 10%, 1/4 W	17156
R50	Resistor, Carbon, 12 K 10%, 1/4 W	18318
R51	Resistor, Carbon, 220 ohm 10%, 1/4 W	17132
R52	Resistor, Carbon, 820 ohm 10%, 1/4 W	17821
R53	Resistor, Carbon, 39 ohm 10%, 1/4 W	18289

REF. SYMBOL	DESCRIPTION	SUNAIR PART NO.
R54	Resistor, Carbon, 560 ohm 10%, 1/4 W	18320
R55	Potentiometer, 15 Turn, 5 K, 1/2 W	34599
R56	Resistor, Carbon, 18 K 10%, 1/4 W	17572
R57	Resistor, Carbon, 8.2 K 10%, 1/4 W	18162
R58	Resistor, Carbon, 1 K 10%, 1/4 W	17156
R59	Resistor, Carbon, 100 ohm 10%, 1/4 W	17118
R60	Resistor, Carbon, 180 ohm 10%, 1/4 W	17522
R61	Resistor, Carbon, 22 K 10%, 1/4 W	17223
R62	Resistor, Carbon, 10 ohm 10%, 1/4 W	17716
R63	Resistor, Carbon, 3.3 K 10%, 1/4 W	17089
R64	Resistor, Carbon, 1 K 10%, 1/4 W	17156
R65	Resistor, Carbon, 1 K 10%, 1/4 W	17156
R66	Resistor, Carbon, 10K 10% 1/4W	17041
R67	Resistor, Carbon, 4.7 K ±10%, 1/4W	17077
R68	Resistor, Carbon, 2.7 K 10%, 1/4 W	18667
R69	Resistor, Carbon, 100 ohm ±10%, 1/4W	17118
R70	Resistor, Carbon, 10K ±10%, 1/4W	17041
R71	Resistor, Carbon, 100 ohm ± 10%, 1/4W	17118
T1	Transformer, Balanced, Modulator	5024-1303-00

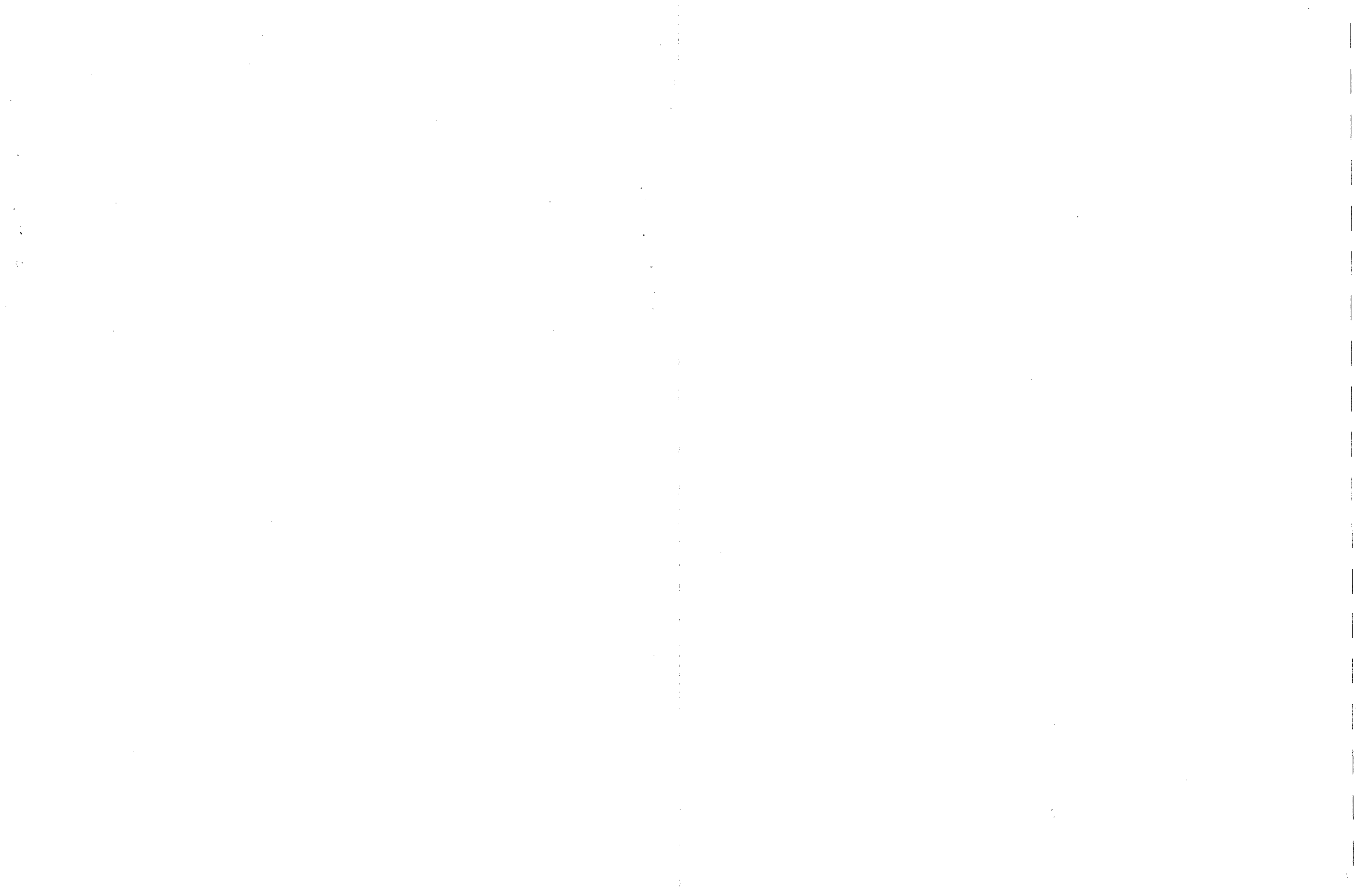


* SEE NOTE 4

4. VOLTAGES ON Q2, Q3 AND Q5
CORRECT ONLY FOR AM TRANSMIT
MODE

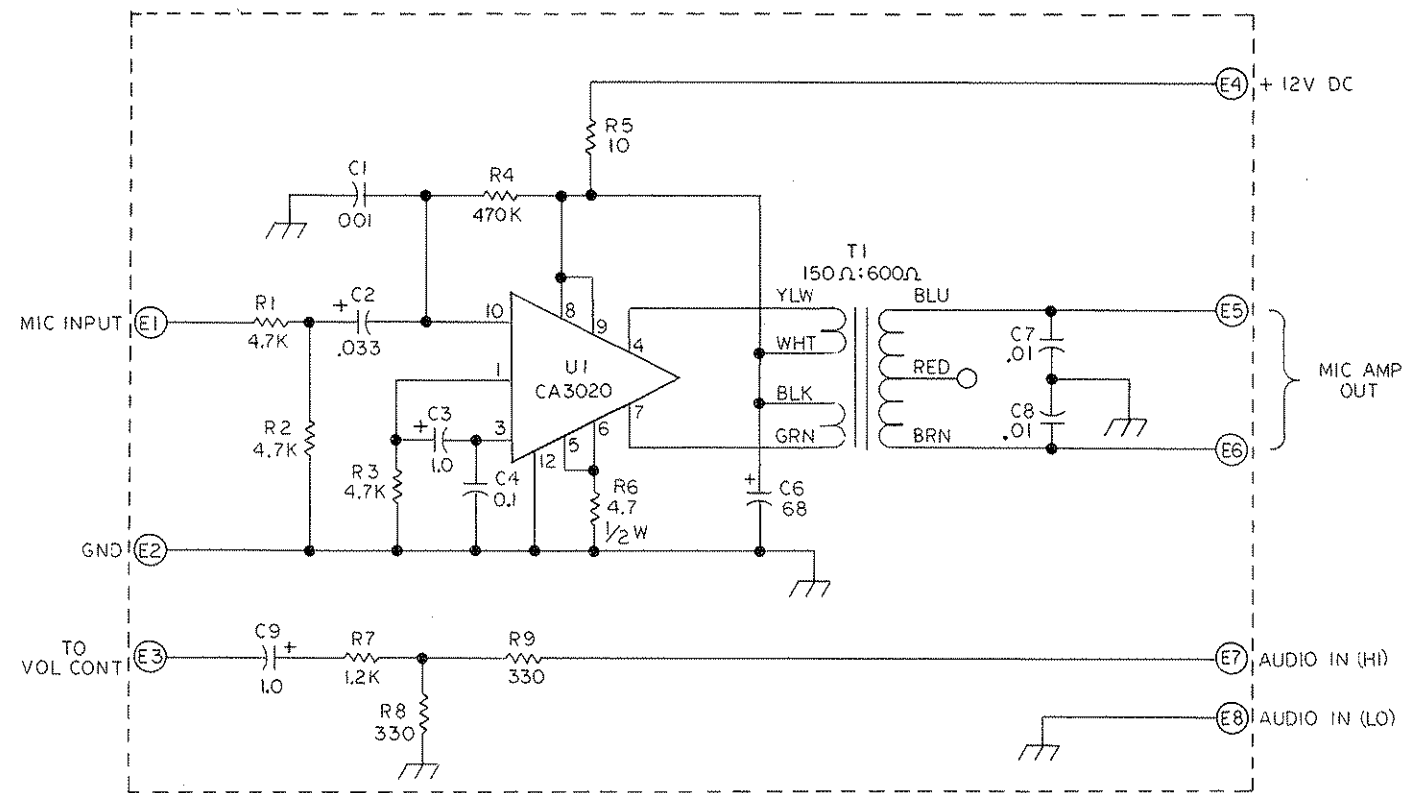
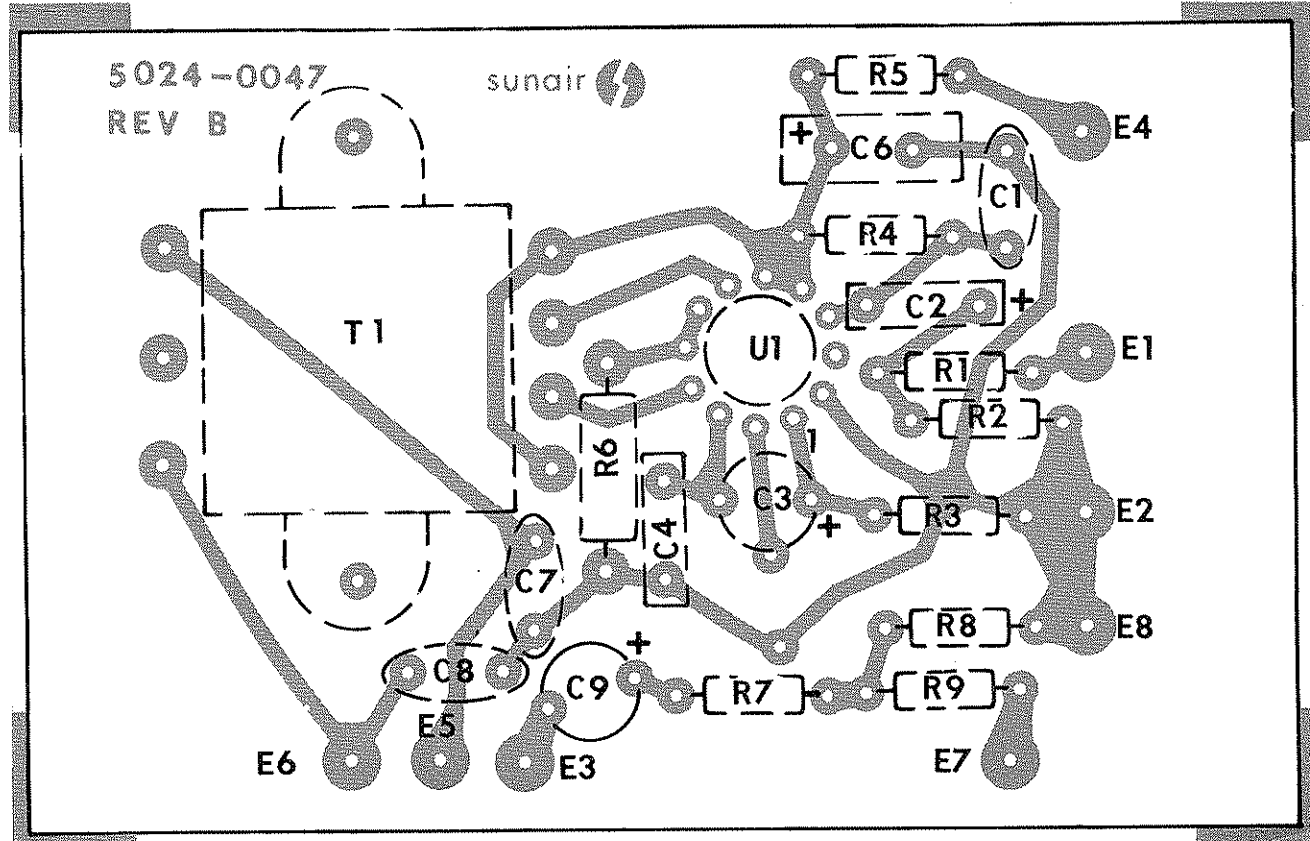
- 1 UNLESS OTHERWISE SPECIFIED :
ALL - DECIMAL CAPACITORS IN μF, ALL OTHERS IN PF.
- RESISTORS IN OHMS.
- DIODES ARE IN4454
- 2. PREFIX ALL DESIGNATORS WITH "1A3A3"
- 3. ○ DESIGNATES RECEIVE VOLTAGE
□ DESIGNATES TRANSMIT VOLTAGE
◇ DESIGNATES RCV & XMIT VOLTAGE
- 4. C7 & C16 REMOVED. AUDIO INPUT ON PIN C

Figure 4.5 Sideband Generator (1A3A3) Schematic - 900A



AUDIO INTERFACE BOARD

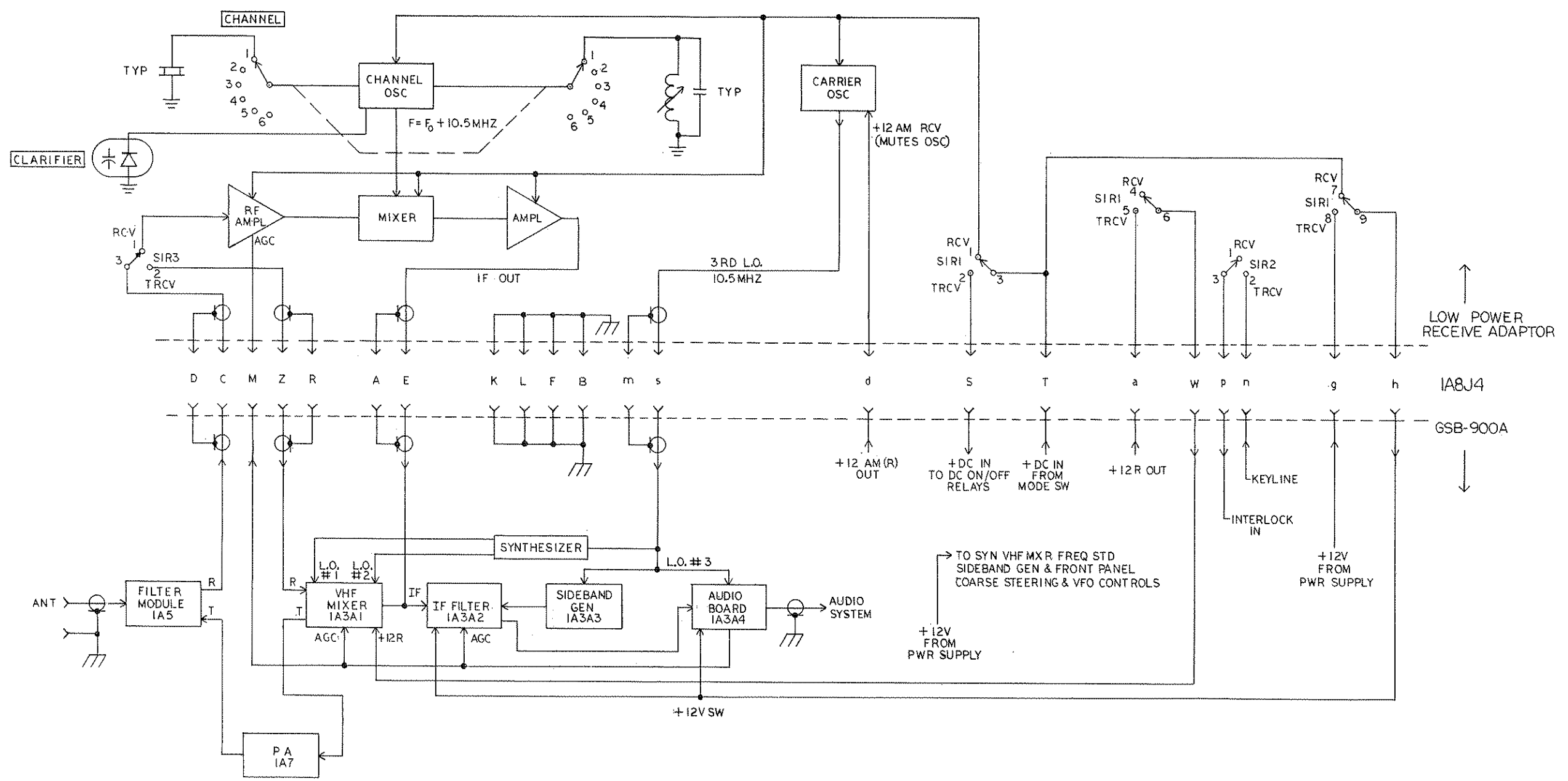
REF. SYMBOL	DESCRIPTION	SUNAIR PART NO.
C1	Capacitor, Disc, .001 uf	28626
C2	Capacitor, Mylar, .033 uf, 50V	28177
C3,9	Capacitor, Tant, 1.0 uf, 50V	28091
C4	Capacitor, Mono, 0.1 uf, 50V	28161
C6	Capacitor, Tant, 68 uf, 15V	29654
C7,8	Capacitor, Disc, .01 uf, 25V	28162
R1,2,3	Resistor, Carbon, 4.7K ±10%, 1/4W	17077
R4	Resistor, Carbon, 470K ±10%, 1/4W	18057
R5	Resistor, Carbon, 10 ohm ±10%, 1/4W	17716
R6	Resistor, Carbon, 4.7 ohm ±5%, 1/2W	19568
R7	Resistor, Carbon, 1.2K ±10%, 1/4W	18186
R8,9	Resistor, Carbon, 330 ohm ±10%, 1/4W	17091
T1	Transformer, 150 ohm CT to 600 ohm CT	49159
U1	Mounting Channel, XFMR	49160
	Integrated Circuit, CA3020	44460
	Terminal, Swage	52558



UNLESS OTHERWISE SPECIFIED:
 1. RESISTANCE IS IN OHMS
 2. CAPACITANCE IS IN MFD
 3. RESISTORS ARE 1/4 W

Figure 4.6 Audio Interface Board 1A8A2 Schematic - 900A





NOTES:
 1. RADIO WILL OPERATE ONLY ON +12VDC NEGATIVE GROUND SYSTEM (NO A.C. OPERATION) WHEN CONNECTED TO LPRA

Figure 4-7 Interface GSB - 900A / LPRA

PARTS LIST, MAIN FRAME

REF. SYMBOL	DESCRIPTION	SUNAIR PART NO.
1A8		
C1	Capacitor, Disc. Ceramic, .01 UF, 25 V	28162
C2	Capacitor, Disc. Ceramic, .01 UF, 25 V	28162
C3	Capacitor, Mylar, 2 UF 10%, 100 V	27242
C5	Capacitor, Disc. Ceramic, .01 UF, 1 KV	29604
C6	Capacitor, Disc. Ceramic, .01 UF, 1 KV	29604
C7	Capacitor, Disc. Ceramic, .01 UF, 25 V	28162
C8	Capacitor, Disc. Ceramic, .01 UF, 25 V	28162
C9	Capacitor, Disc. Ceramic, .01 UF, 25 V	28162
C10	Capacitor, Disc. Ceramic, .01 UF, 25 V	28162
CR1	Diode, IN4004	40518
CR2	Diode, IN4004	40518
CR3	Diode, IN4454	40527
CR4	Diode, IN4454	40527
CR5	Diode, IN4004	40518
CR6	Diode, IN4004	40518
J1	Connector, RF, UHF	75330
J2	Connector, 10 Pin	75399
J3	Connector, 9 Pin	75344
J4	Connector, 37 Pin	75343
J5	Connector, 11 Pin	75346
J6	Connector, 24 Pin	75351
J7	Connector, 36 Pin	75352
J8	Socket, 7 Pin	76437
K1	Relay, 4 PDT, 12 VDC	66664
K2	Relay, 3 PDT, 12 VDC	66676
L1	Inductor, 47 UH 5%	65268
Q1	Transistor, MJE2371	44820
R1	Resistor, Carbon, 3.9 ohm 5% 1/2 W	16827
R2	Resistor, Carbon, 2.2 K 10%, 1W	16451
U1	ICXO	5024-0127
1A8A2	Audio Interface MISCELLANEOUS MECHANICAL PARTS	5024-0045
J9	Socket, Relay (K1)	76700
J10	Socket, Relay (K2)	75433
P1	Connector, 7 Pin	75353
P2	Connector, 20 Pin	75355
P3	Connector, RF BNC	75371
P4	Connector, RF BNC	75371
P5	Connector, RF BNC	75371

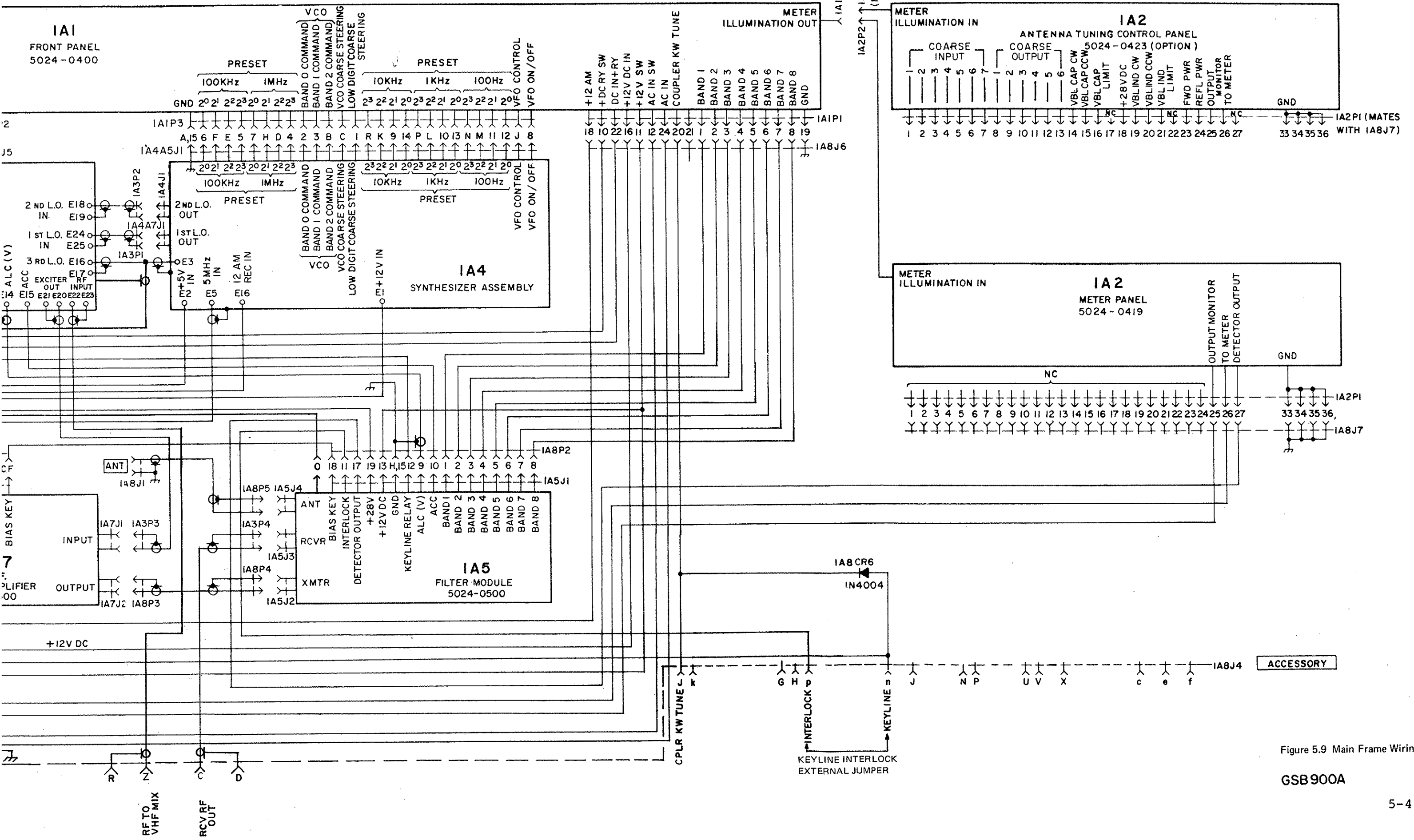


Figure 5.9 Main Frame Wiring
GSB 900A

NOTES:

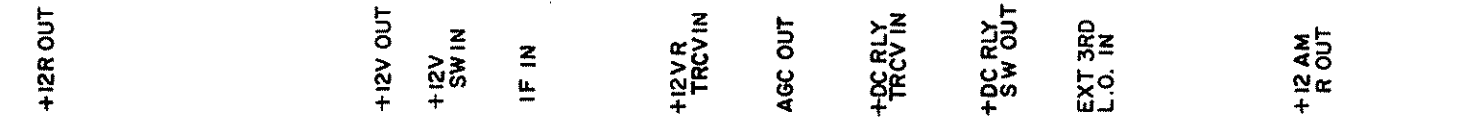
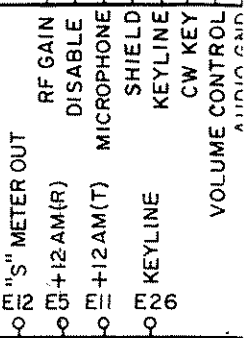
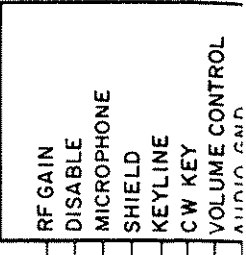
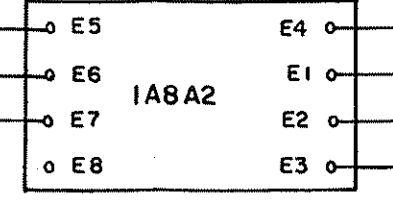
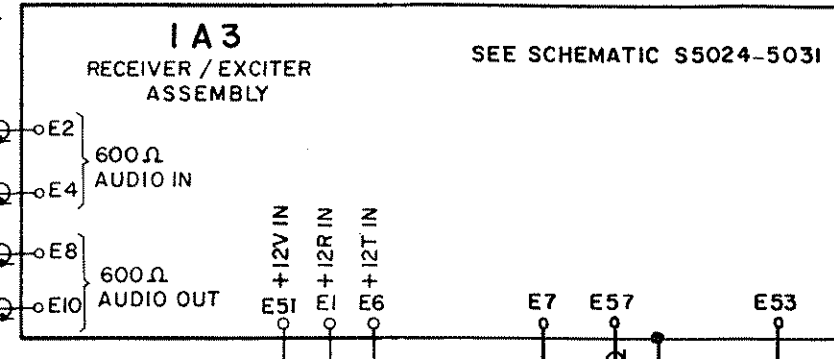
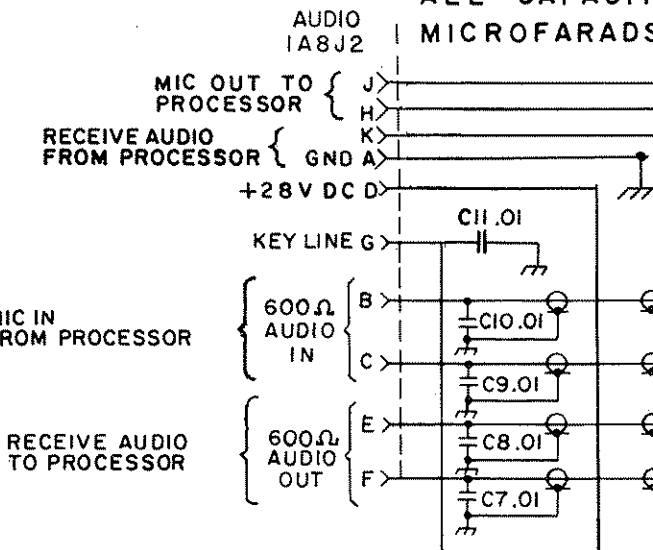
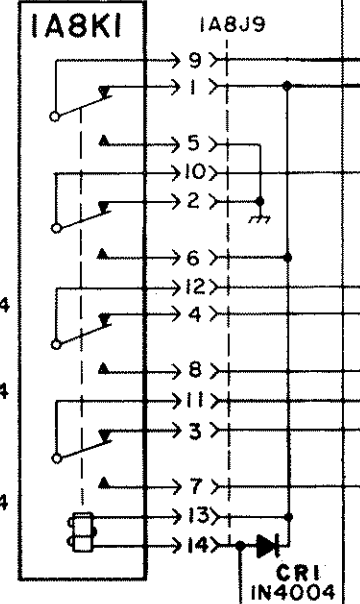
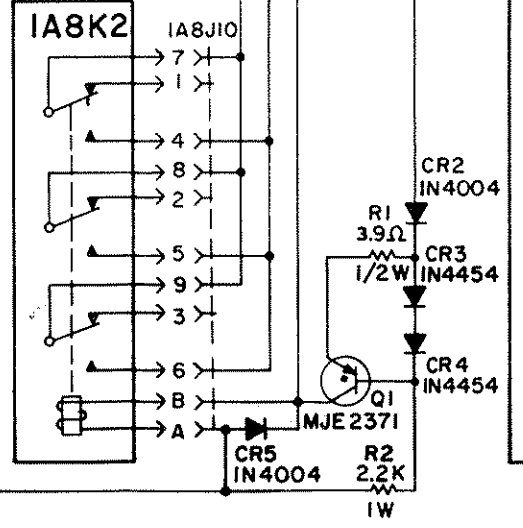
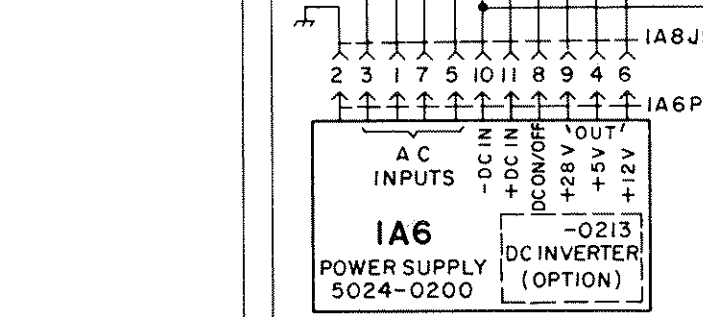
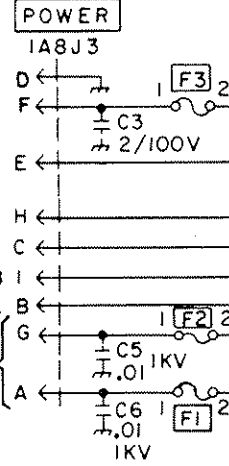
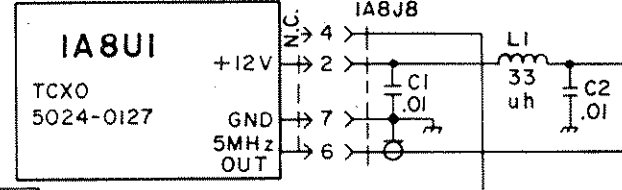
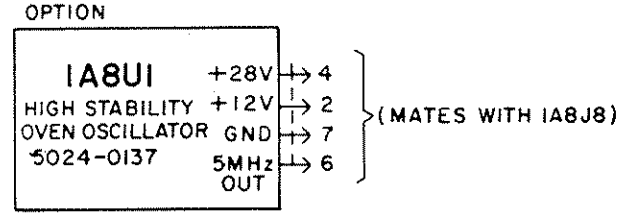
1. PREFIX ALL PARTIAL DESIGNATORS WITH "IA8."

2. UNLESS OTHERWISE SPECIFIED ALL CAPACITORS ARE IN MICROFARADS (uf).

D
F
E
H
C
I
B
G
A

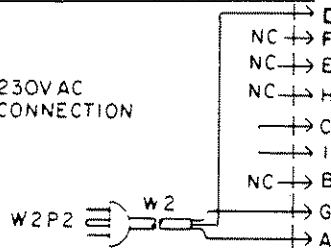
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 I
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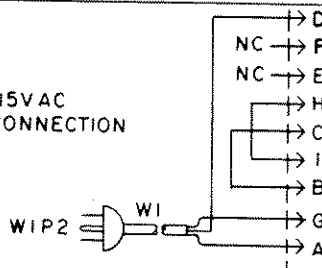
(MATES WITH IA8J3) W2PI

230V AC CONNECTION



(MATES WITH IA8J3) WIPI

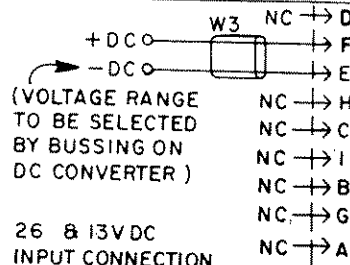
115V AC CONNECTION



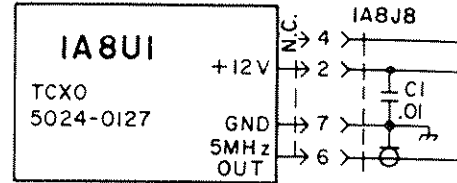
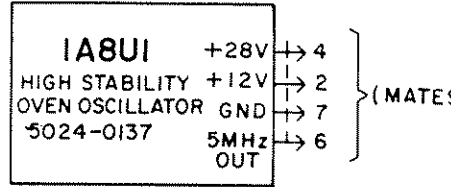
(MATES WITH IA8J3) W3PI

(VOLTAGE RANGE TO BE SELECTED BY BUSSING ON DC CONVERTER)

26 & 13VDC INPUT CONNECTION



OPTION



POWER

