AIR-TRAK 90
AIR-TRAK 100
SERIES AUDIO
CONSOLES MANUAL

597-6000-001
AUGUST, 1997

IMPORTANT INFORMATION

EQUIPMENT LOST OR DAMAGED IN TRANSIT

When delivering the equipment to you, the truck driver or carrier's agent will present a receipt for your signature. Do not sign it until you have (a) inspected the containers for visible signs of damage and (b) counted the containers and compared with the amount shown on the shipping papers. If a shortage or evidence of damage is noted, insist that notation to that effect be made on the shipping papers before you sign them.

Further, after receiving the equipment, unpack it and inspect thoroughly for concealed damage. If concealed damage is discovered, immediately notify the carrier, confirming the notification in writing, and secure an inspection report. This item should be unpacked and inspected for damage WITHIN 15 DAYS after receipt. Claims for loss or damage will not be honored without proper notification of inspection by the carrier.

TECHNICAL ASSISTANCE AND REPAIR SERVICE

Technical assistance is available from Broadcast Electronics by letter or prepaid telephone or telegram. Equipment requiring repair or overhaul should be sent by common carrier, prepaid, insured and well protected. Do not mail equipment. We can assume no liability for inbound damage, and necessary repairs become the obligation of the shipper. Prior arrangement is necessary. Contact Customer Service Department for a Return Authorization.

FOR TECHNICAL ASSISTANCE DURING 8:00 AM TO 5:00 PM CENTRAL TIME

Digital Product Customer Service – Phone (217) 224–9600

RF/Studio Product Customer Service – Phone (217) 224–9617

FOR TECHNICAL ASSISTANCE DURING NON–BUSINESS HOURS

Phone (217) 224–9600 Customer Service

FOR DIGITAL PRODUCTS BULLETIN BOARD SERVICE

Phone (217) 224–1926

WARRANTY ADJUSTMENT

Broadcast Electronics, Inc. warranty is included in the Terms and Conditions of Sale. In the event of a warranty claim, replacement or repair parts will be supplied F.O.B. factory. At the discretion of Broadcast Electronics, the customer may be required to return the defective part or equipment to Broadcast Electronics, Inc. F.O.B. Quincy, Illinois. Warranty replacements of defective merchandise will be billed to your account. This billing will be cleared by a credit issued upon return of the defective item.

RETURN, REPAIR AND EXCHANGES

Do not return any merchandise without our written approval and Return Authorization. We will provide special shipping instructions and a code number that will assure proper handling and prompt issuance of credit. Please furnish complete details as to circumstances and reasons when requesting return of merchandise. All returned merchandise must be sent freight prepaid and properly insured by the customer.

REPLACEMENT PARTS

Emergency and Warranty Replacement Parts may be ordered from the address below. Be sure to include equipment model and serial number and part description and part number. Non–Emergency Replacement Parts may be ordered directly from the Broadcast Electronics stock room by Fax at the number shown below.

EMERGENCY AND WARRANTY REPLACEMENT PARTS
Broadcast Electronics, Inc.
4100 N. 24th St. P.O. BOX 3606
Quincy, Illinois 62305
Tel: (217) 224–9600 Digital Products (8 AM to 5 PM Central Time)
Tel: (217) 224–9617 RF/Studio Products (8 AM to 5 PM Central Time)
Tel: (217) 224–9600 (Non–Business Hours)
Telex: 25–0142
Fax: (217) 224–9607

NON–EMERGENCY REPLACEMENT PARTS
FAX (217) 224–9609

PROPRIETARY NOTICE

MODIFICATIONS

Broadcast Electronics, Inc. reserves the right to modify the design and specifications of the equipment in this manual without notice. Any modification shall not adversely affect performance of the equipment so modified.

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GENERAL INFORMATION

1–1. INTRODUCTION.

1–2. Information presented by this section provides a general description of the Broadcast Electronics Air Trak–90/100 Series Audio Consoles and lists equipment specifications.

1–3. EQUIPMENT DESCRIPTION.

1–4. The Broadcast Electronics Air Trak–90/100 series audio consoles are professional state–of–the–art consoles designed for continuous on–air operation (refer to Figure 1–1). The consoles are designed to provide the operator with advanced operating and performance features. Standard consoles include 6 channel, 8 channel, 12 channel, 18 channel, and 24 channel assemblies.

1–5. The AT–100 series consoles provide additional configuration options by allowing the installation of modular accessory components from the Broadcast Electronics MT–90 series audio consoles. Specific MT–90 accessory modules available for installation into AT–100 consoles include: 1) input expander module, 2) cart source remote switch module, 3) tape source remote switch module, 4) stereo equalization module, 5) parametric equalizer module, and 6) microphone processor remote control module. The console is assembled with the desired accessory modules when shipped from the factory. The following text presents a description of the Air–Trak 90/100 series audio consoles.

1–6. ELECTRICAL DESCRIPTION.

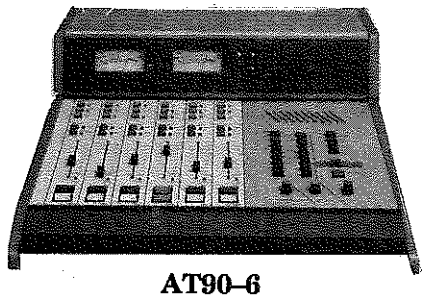
1–7. **INPUT CIRCUIT BOARD.** The AT–90/100 input circuit board is a six channel assembly designed to accept line, consumer, or microphone level audio. Each channel will accept audio from 3 stereophonic sources. Programmable attenuator networks allow the assignment of audio sources at different input levels. Line level audio sources may be assigned to any input. Microphone level sources can be applied only to input A of any channel. Output routing to the console program or audition bus is accomplished by electronic switching. A cue bus system is incorporated into the circuitry for the previewing of audio source material.

1–8. Precision control of each channel audio source level is provided by a voltage–controlled–amplifier (VCA) and a Penny/Giles slide–action fader. On/off commands for activating a channel are generated by hall–effect switch/indicators. These commands are also available for starting and stopping external equipment. An internal patch point system is provided for external audio processing equipment applications.

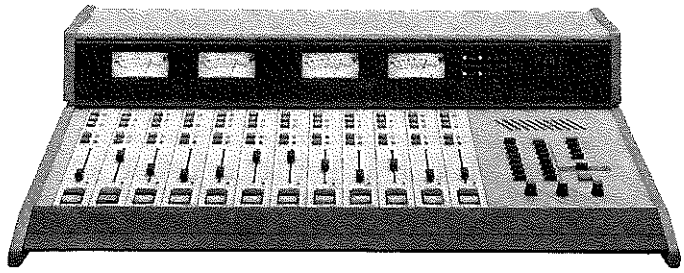
1–9. **CHANNEL CONTROL CIRCUIT BOARD.** A channel control circuit board features hybrid logic circuitry for generating all the audio input/output switching signals used on the input circuit board. A cue sensing circuit determines when the fader is operated to the cue position and configures the selected channel to the cue mode.

1–10. **OUTPUT CIRCUIT BOARD.** Control room monitoring, studio monitoring, cue operations, and headphone operations are accomplished by the output circuit board. Stereophonic program and audition output amplifier networks provide line level program and audition signals. The circuit board also contains monophonic audio and talkback amplifier networks.

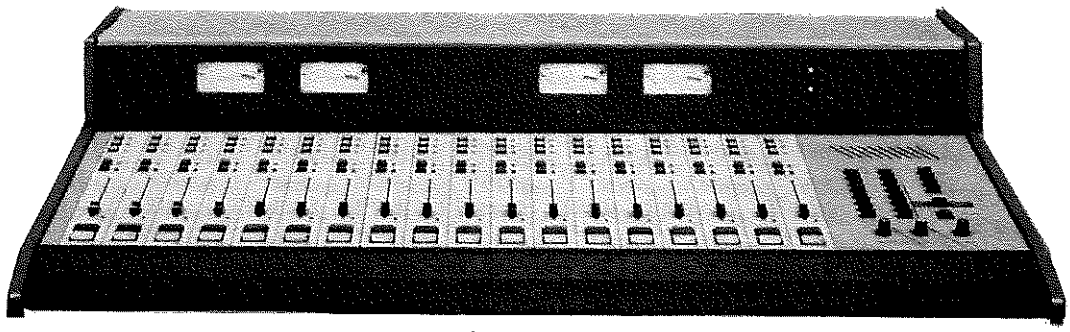
1–11. **Program/Audition Output Amplifier.** Stereophonic program and audition output networks amplify the program and audition signals to a line level. The networks also provide signals for application to the metering circuitry.



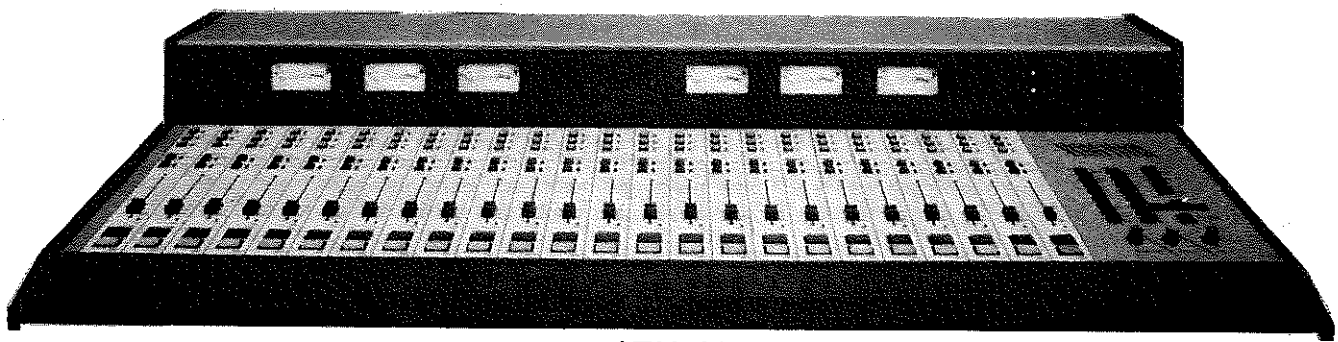
AT90–6



AT90–12



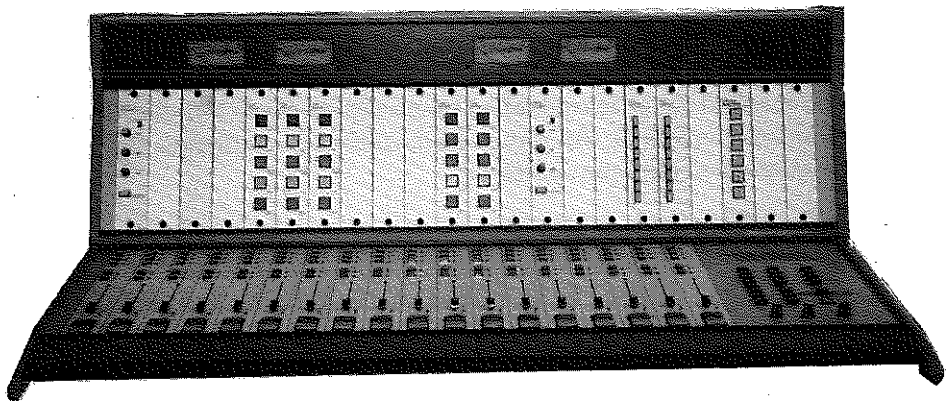
AT90–18



AT90–24

597–6000–100

FIGURE 1–1. AT–90 CONSOLES (SHEET 1 OF 2)



AT–100–18

FIGURE1–1. AT–100 CONSOLES (SHEET 2 OF 2) 597–6000–100A

1–12. **Control Room Monitor Circuitry.** The control room monitor circuitry is designed to monitor five external audio sources and three internal audio sources. Monitor input selection is accomplished by eight color–coded switches. Control room monitor speaker volume control is provided by a VCA and a monitor level control network. A solid–state muting system provides muting of the control room speakers.

1–13. The monitor circuitry features a dim circuit which automatically reduces the control room speaker volume during a cue operation. The volume reduction is adjusted by a cue dim level control.

1–14. **Studio Monitor Circuitry.** The studio monitor circuitry is designed into the control room monitor circuitry. Input selection is controlled by the control room monitor switches. A studio monitor amplifier network provides amplified studio audio for application to an external power amplifier and speaker system. A solid–state muting system provides muting of the studio speakers.

1–15. **Headphone Circuitry.** The headphone circuitry is designed to monitor five external audio sources and three internal audio sources. Input selection is accomplished by eight color–coded switches. Headphone volume control is provided by a VCA and a monitor level control network.

1–16. **Cue Monitor Circuitry.** Cue channel audio monitoring is provided by the cue monitor circuit. The circuit consists of a volume control network and a power amplifier for driving an internal speaker.

1–17. **Monophonic Output Circuitry.** A monophonic output signal from the console stereophonic output network is generated by the monophonic output circuitry. Monophonic output circuitry is provided for both the program and audition output busses.

1–18. **Talkback Circuitry.** A talkback circuit provides communication between the console operator and studio. The circuit consists of an amplifier and push button switch. Access to the talkback circuitry is provided by patch point input and output connections.

1–19. **CLOCK/TIMER ASSEMBLY.** The clock/timer assembly consists of individual clock and timer sections for convenient operator access to time related information. A crystal controlled six–digit LED clock display presents the time information in a 12 or 24 hour format. The clock circuit design also incorporates an automatic synchronization feature. This feature eliminates drift by synchronizing clock operation to network audio or a logic signal.

1–20. The timer section presents elapsed time information on a five–digit LED display and is equipped with two individual timers: 1) an automatic timer and 2) a manual timer. The automatic timer is controlled by the: 1) A, B, and C inputs and 2) program /audition output buses. The manual timer is controlled manually by three switch/indicators to provide stop, start, and reset operations. An auto switch/indicator configures the display between the automatic timer and the manual timer.

1–21. **METERING.** All Air Trak–90/100 series consoles are designed with analog metering systems. The 6 channel console is equipped with two meters and a two position color–coded switch to allow the monitoring of either program or audition audio. 12 channel and 18 channel consoles are equipped with two program meters and two audition meters. The 24 channel console is equipped with two program meters, two audition meters, a mono program meter, and a mono audition meter.

1–22. **INDICATORS.** LED displays are used to indicate the presence of audio on the monophonic program bus, monophonic audition bus, and mix–minus bus. In addition, two–color LED displays are used to indicate the phase of the program and audition monophonic audio signals.

1–23. **POWER SUPPLY.** All AT–90/100 operating potentials are generated by a self–contained power supply designed for installation in a standard 19 inch EIA rack assembly. The supply contains conventional ac power conversion and dc rectification circuitry. The supply generates both regulated and unregulated potentials for application to the console.

1–24. **RELAY INTERFACE OPTION.** A relay interface circuit board is available for each channel to provide remote on control of three audio sources. In addition, the circuit board allows the remote control of the console on/off switch/indicators.

1–25. MECHANICAL DESCRIPTION.

1–26. The Air Trak–90/100 series audio consoles are ergonomically designed for optimum operator comfort and convenience. The AT–90/100 series consoles feature a low–profile design. Each console is constructed with modular circuit board and ribbon cable assemblies for ease of service. The console chassis is designed to be surface–mounted to a studio desk or table.

1–27. CONSOLE CONFIGURATIONS.

1–28. The Air Trak–90/100 series audio consoles are designed to meet any station installation requirement. The following text presents ordering information for the Air Trak–90/100 series consoles.

MODEL NO.	PART NUMBER	DESCRIPTION
AT90–6	901–6006–001	Air–Trak 90 6 channel console, Penny & Giles conductive plastic fader, 117V ac 50/60 Hz operation.
	901–6006–301	Air–Trak 90 6 channel console, Penny & Giles conductive plastic fader, 220VAC 50 Hz operation.
	901–6006–011	Air–Trak 90 6 channel console, Sellmark conductive plastic fader, 117V ac 50/60 Hz operation.
	901–6006–311	Air–Trak 90 6 channel console, Sellmark conductive plastic fader, 220VAC 50 Hz operation.

No.	DESCRIPTION	QTY.
1.	Monitor Select Circuit Board Assembly.	1
2.	Monitor Distribution Circuit Board Assembly.	1
3.	Headphone Select Circuit Board Assembly.	1
4.	Timer Reset Circuit Board Assembly.	1
5.	6 Channel Input Circuit Board Assembly	1
6.	Output Circuit Board Assembly.	1
7.	6 Channel Control Circuit Board Assembly.	1
8.	VU Meter Distribution Circuit Board Assembly.	1
9.	VU Meter Assembly.	2
10.	Clock/Timer Assembly.	1
11.	Installation Kit and Instruction Manual.	1
12.	Headphone/Control Room/Cue Gain Circuit Board	1
13.	Power Supply Assembly.	1
14.	Relay Interface Circuit Board Assembly.	3

MODEL NO.	PART NUMBER	DESCRIPTION
AT90–8	901–6008–001	Air–Trak 90 8 channel console, Penny & Giles conductive plastic fader, 117V ac 50/60 Hz operation.
	901–6008–301	Air–Trak 90 8 channel console, Penny & Giles conductive plastic fader, 220VAC 50 Hz operation.
	901–6008–011	Air–Trak 90 8 channel console, Sellmark conductive plastic fader, 117V ac 50/60 Hz operation.
	901–6008–311	Air–Trak 90 8 channel console, Sellmark conductive plastic fader, 220V ac 50 Hz operation.

No.	DESCRIPTION	QTY.
1.	Monitor Select Circuit Board Assembly.	1
2.	Monitor Distribution Circuit Board Assembly.	1
3.	Headphone Select Circuit Board Assembly.	1
4.	Timer Reset Circuit Board Assembly.	1
5.	6 Channel Input Circuit Board Assembly	1
6.	Output Circuit Board Assembly.	1
7.	6 Channel Control Circuit Board Assembly.	1
8.	VU Meter Distribution Circuit Board Assembly.	1
9.	VU Meter Assembly.	4
10.	Clock/Timer Assembly.	1
11.	Installation Kit and Instruction Manual.	1

AT90–8 (Cont'd)

No.	DESCRIPTION	QTY.
12.	Headphone/Control Room/Cue Gain Circuit Board	1
13.	Power Supply Assembly.	1
14.	Relay Interface Circuit Board Assembly.	6
15.	2 Channel Input Circuit Board Assembly	1
16.	2 Channel Control Circuit Board Assembly	1

MODEL NO.	PART NUMBER	DESCRIPTION
AT90–12	901–6012–001	Air–Trak 90 12 channel console, Penny & Giles conductive plastic fader, 117V ac 50/60 Hz operation.
	901–6012–301	Air–Trak 90 12 channel console, Penny & Giles conductive plastic fader, 220VAC 50 Hz operation.
	901–6012–011	Air–Trak 90 12 channel console, Sellmark conductive plastic fader, 117V ac 50/60 Hz operation.
	901–6012–311	Air–Trak 90 12 channel console, Sellmark conductive plastic fader, 220VAC 50 Hz operation.

MODEL NO.	PART NUMBER	No.	DESCRIPTION	QTY.
AT90–12	901–6012–001 901–6012–302 901–6012–011	1.	Monitor Select Circuit Board Assembly.	1
		2.	Monitor Distribution Circuit Board Assembly.	1
		3.	Headphone Select Circuit Board Assembly.	1
		4.	Timer Reset Circuit Board Assembly.	1
		5.	6 Channel Input Circuit Board Assembly.	2
		6.	Output Circuit Board Assembly.	1
		7.	6 Channel Control Circuit Board Assembly.	2
		8.	VU Meter Distribution Circuit Board Assembly.	1
		9.	VU Meter Assembly.	4
		10.	Clock/Timer Assembly.	1
		11.	Installation Kit and Instruction Manual.	1
		12.	Headphone/Control Room/Cue Gain Circuit Board.	1
		13.	Power Supply Assembly.	1
		14.	Relay Interface Circuit Board Assembly.	6

MODEL NO.	PART NUMBER	DESCRIPTION
AT90–18	901–6018–001	Air–Trak 90 18 channel console, Penny & Giles conductive plastic fader, 117V ac 50/60 Hz operation.
	901–6018–301	Air–Trak 90 18 channel console, Penny & Giles conductive plastic fader, 220VAC 50 Hz operation.

	901–6018–011	Air–Trak 90 18 channel console, Sellmark conductive plastic fader, 117V ac 60/60 Hz operation.
	901–6018–311	Air–Trak 90 18 channel console, Sellmark conductive plastic fader, 220VAC 50 Hz operation.

No.	DESCRIPTION	QTY.
1.	Monitor Select Circuit Board Assembly.	1
2.	Monitor Distribution Circuit Board Assembly.	1
3.	Headphone Select Circuit Board Assembly.	1
4.	Timer Reset Circuit Board Assembly.	1
5.	6 Channel Input Circuit Board Assembly	3
6.	Output Circuit Board Assembly.	1
7.	6 Channel Control Circuit Board Assembly.	3
8.	VU Meter Distribution Circuit Board Assembly.	1
9.	VU Meter Assembly.	4
10.	Clock/Timer Assembly.	1
11.	Installation Kit and Instruction Manual.	1
12.	Headphone/Control Room/Cue Gain Circuit Board.	1
13.	Power Supply Assembly.	1
14.	Relay Interface Circuit Board Assembly.	9

AT90–24	901–6024–001	Air–Trak 90 24 channel console, Penny & Giles conductive plastic fader, 117V ac 50/60 Hz operation.
	901–6024–301	Air–Trak 90 24 channel console, Penny & Giles conductive plastic fader, 220VAC 50 Hz operation.
	901–6024–011	Air–Trak 90 24 channel console, Sellmark conductive plastic fader, 117V ac 50/60 Hz operation.
	901–6024–311	Air–Trak 90 24 channel console, Sellmark conductive plastic fader, 220VAC 50 Hz operation.

No.	DESCRIPTION	QTY.
1.	Monitor Select Circuit Board Assembly.	1
2.	Monitor Distribution Circuit Board Assembly.	1
3.	Headphone Select Circuit Board Assembly.	1
4.	Timer Reset Circuit Board Assembly.	1
5.	6 Channel Input Circuit Board Assembly.	4
6.	Output Circuit Board Assembly.	1
7.	6 Channel Control Circuit Board Assembly.	4

AT90–24 (Cont'd)

No.	DESCRIPTION	QTY.
8.	VU Meter Distribution Circuit Board Assembly.	1
9.	VU Meter Assembly.	6
10.	Clock/Timer Assembly	1
11.	Installation Kit and Instruction Manual.	1
12.	Headphone/Control Room/Cue Gain Circuit Board.	1
13.	Power Supply Assembly.	1
14.	Relay Interface Circuit Board Assembly.	12

MODEL NO.	PART NUMBER	DESCRIPTION
AT100–6	901–6106	Air–Trak 100 6 channel console, configured for the installation of MT–90 series console accessory modules, Penny & Giles conductive plastic fader, 117V ac 50/60 Hz operation. The console consists of the components contained in the AT–90 6 channel console.
	901–6106–010	Air–Trak 100 6 channel console, configured for the installation of MT–90 series console accessory modules, original equipment conductive plastic fader, 117V ac 50/60 Hz operation. The console consists of the components contained in the AT–90 6 channel console.
AT100–12	901–6112	Air–Trak 100 12 channel console, configured for the installation of MT–90 series console accessory modules, Penny & Giles conductive plastic fader, 117V ac 50/60 Hz operation. The console consists of the components contained in the AT–90 12 channel console.
	901–6112–010	Air–Trak 100 12 channel console, configured for the installation of MT–90 series console accessory modules, original equipment conductive plastic fader, 117V ac 50/60 Hz operation. The console consists of the components contained in the AT–90 12 channel console.
AT100–18	901–6118	Air–Trak 100 18 channel console, configured for the installation of MT–90 series console accessory modules, Penny & Giles conductive plastic fader, 117V ac 50/60 Hz operation. The console consists of the components contained in the AT–90 18 channel console.
	901–6118–010	Air–Trak 100 18 channel console, configured for the installation of MT–90 series console accessory modules, original equipment conductive plastic fader, 117V ac 50/60 Hz operation. The console consists of the components contained in the AT–90 18 channel console.

AT100-24	901-6124	Air-Trak 100 24 channel console, configured for the installation of MT-90 series console accessory modules, Penny & Giles conductive plastic fader, 117V ac 50/60 Hz operation. The console consists of the components contained in the AT-90 24 channel console.
	901-6124-010	Air-Trak 100 24 channel console, configured for the installation of MT-90 series console accessory modules, original equipment conductive plastic fader, 117V ac 50/60 Hz operation. The console consists of the components contained in the AT-90 24 channel console.

AT-100 ACCESSORY MODULE OPTIONS

951-0018	Input Expander Accessory Module.
951-0019	Cart Source Remote Switch Accessory Module.
951-0017	Tape Source Remote Switch Accessory Module.
951-0026/-400	Stereo Equalizer Accessory Module.
951-0033	Parametric Equalizer Accessory Module.
951-0040	Microphone Processor Remote Control Accessory Module.

SPARE PARTS KITS

PART NUMBER	DESCRIPTION
971-0050	Spare Parts Kit. Includes Semiconductors, Regulators, Relays, Lamps, Etc.

AT-90/100 OPTIONS AND ACCESSORIES

PART NUMBER	DESCRIPTION
951-6021-001	Relay Interface Circuit Board Assembly (for Controlling Equipment External to the Console).
951-0036	Utility Relay.
951-0042	Automatic Power Supply Switcher Panel

1-29. EQUIPMENT SPECIFICATIONS.

1-30. Refer to Table 1-1 for the nominal electrical specifications and Table 1-2 for the physical specifications of the Broadcast Electronics Air-Trak 90/100 series audio consoles.

TABLE 1–1. AIR–TRAK 90/100 SERIES AUDIO CONSOLE NOMINAL ELECTRICAL SPECIFICATIONS (Sheet 1 of 4)

PARAMETER	SPECIFICATION
OVERALL CONSOLE	
MICROPHONE, CONSUMER, OR LINE INPUT TO PROGRAM OR AUDITION OUTPUT CHANNEL	
INPUT HEADROOM	Greater than 25 dB above nominal input level.
TOTAL HARMONIC DISTORTION	
Microphone	Less than 0.05%, 20 Hz to 20 kHz. –60 dBu nominal input level. +10 dBu to 0 dBu output level. Fader at 0 position.
Consumer	Less than 0.05%, 20 Hz to 20 kHz. –10 dBu nominal input level. +10 dBu to 0 dBu output level. Fader at 0 position.
Line	Less than 0.05%, 20 Hz to 20 kHz. +4 dBu nominal input level. +10 dBu to 0 dBu output level. Fader at 0 position.
SMPTE INTERMODULATION DISTORTION	
Microphone	Less than 0.05%, 60 Hz/7 kHz. 4:1 amplitude ratio. –60 dBu input level. +10 dBu to 0 dBu output level. Fader at 0 position.
Consumer	Less than 0.05%, 60 Hz/7 kHz. 4:1 amplitude ratio. –10 dBu input level. +10 dBu to 0 dBu output level. Fader at 0 position.
Line	Less than 0.05%, 60 Hz/7 kHz. 4:1 amplitude ratio. +4 dBu input level. +10 dBu to 0 dBu output level. Fader at 0 position.
FREQUENCY RESPONSE	
Microphone	+0.05 dB –0.25 dB, 20 Hz to 20 kHz. 1 kHz reference. –60 dBu input level. +10 dBu to 0 dBu output level. 150 Ohm source impedance.
Consumer	+0.05 dB –0.25 dB, 20 Hz to 20 kHz. 1 kHz reference. –10 dBu input level. +10 dBu to 0 dBu output level. 600 Ohm source impedance.
Line	+0.05 dB –0.25 dB, 20 Hz to 20 kHz. 1 kHz reference. +4 dBu input level. +10 dBu to 0 dBu output level. 600 Ohm source impedance.

TABLE 1–1. AIR–TRAK 90/100 SERIES AUDIO CONSOLE NOMINAL ELECTRICAL SPECIFICATIONS (Sheet 2 of 4)

PARAMETER	SPECIFICATION
SIGNAL–TO–NOISE RATIO	
Microphone (Program/Audition Output)	Greater than 67 dB, –60 dB input level, 150 Ohm source impedance. 22 Hz to 22 kHz. Fader at 0 position. +10 dBu to 0 dBu output level. Single channel selected to the output.
Consumer (Program/Audition Output)	Greater than 85 dB, –10 dB input level, 600 Ohm source impedance. 22 Hz to 22 kHz. Fader at 0 position. +10 dBu to 0 dBu output level. Single channel selected to the output.
Line	
Program Output	Greater than 88 dB, +4 dB input level, 600 Ohm source impedance. 22 Hz to 22 kHz. Fader at 0 position. +10 dBu to 0 dBu output level. Single channel selected to the output.
Audition Output	Greater than 80 dB, +4 dB input level, 600 Ohm source impedance. 22 Hz to 22 kHz. Fader at 0 position. +10 dBu to 0 dBu output level. Single channel selected to the output.
MICROPHONE SOURCE IMPEDANCE	150 Ohms.
LINE SOURCE IMPEDANCE	600 Ohms.
CONSUMER SOURCE IMPEDANCE	2 k Ohms.
FADER GAIN	10 dB minimum from 0 position.
PROGRAM AND AUDITION OUTPUT SPECIFICATIONS.	
NOMINAL OUTPUT LEVEL	Continuously variable from 0 dBm to +10 dBm.
OUTPUT HEADROOM	24 dB above a 0 dBm output level. 16 dB above a +8 dBm output level.
MAXIMUM OUTPUT LEVEL	+24 dBu into a 600 Ohm load.
OUTPUT IMPEDANCE	600 Ohms maximum, electronically balanced, resistive or 300 Ohms maximum, unbalanced, resistive.
LOAD IMPEDANCE	Minimum 600 Ohms.
OUTPUT NOISE	Greater than 95 dB below a 0 dBu output level. All inputs disabled.

TABLE 1–1. AIR–TRAK 90/100 SERIES AUDIO CONSOLE NOMINAL ELECTRICAL SPECIFICATIONS (Sheet 3 of 4)

PARAMETER	SPECIFICATION
CROSSTALK (Program to Audition, Audition to Program. Auxiliary to Program, or Auxiliary to Audition)	Greater than 70 dB below a 0 dBu output level, 20 Hz to 20 kHz. Any input position to selected output, all inputs enabled. Typically better than 90 dB at 1 kHz for +4 dBu input level.
SEPARATION (Program Left into Program Right, Program Right into Program Left Audition Left into Audition Right, or Audition Right into Audition Left)	Greater than 70 dB below a 0 dB output level, 20 Hz to 20 kHz. Any input position. Typically better than 100 dB at 1 kHz for +4 dBu input level.
PATCH POINT SPECIFICATIONS	
OUTPUT LEVEL	–5 dBu nominal.
OUTPUT IMPEDANCE	600 Ohms.
INPUT IMPEDANCE	20 k Ohms minimum.
MAXIMUM OUTPUT LEVEL	+20 dBm into a 600 Ohm load. +22 dBu into a high impedance load.
MICROPHONE INPUT SPECIFICATIONS	
NOMINAL BUS OUTPUT LEVEL	–5 dBu.
NOMINAL INPUT LEVEL	–60 dBu.
EQUIVALENT INPUT NOISE	Greater than –127 dBu with a 150 Ohm input source. 22 Hz to 22 kHz bandwidth. No weighting. Fader at 0 position. Single channel selected to output.
COMMON MODE REJECTION RATIO	Greater than 70 dB, dc to 1 kHz. Typically 100 dB at low frequencies.
INPUT IMPEDANCE	Greater than 1500 Ohms.
MICROPHONE AMPLIFIER GAIN	55 dB, ±5 dB.
FREQUENCY RESPONSE	+0.05 dB –.25 dB, 20 Hz to 20 kHz, 1 kHz reference.
OUTPUT ASSIGNMENT AND ON/OFF SWITCH NOISE	–70 dB.

TABLE 1–1. AIR–TRAK 90/100 SERIES AUDIO CONSOLE NOMINAL ELECTRICAL SPECIFICATIONS (Sheet 4 of 4)

PARAMETER	SPECIFICATION
CONSUMER INPUT SPECIFICATIONS	
NOMINAL BUS OUTPUT LEVEL	–5 dBu.
NOMINAL INPUT LEVELS	–10 dBu.
INPUT IMPEDANCE	Greater than 20 k Ohms, balanced bridging.
CONSUMER AMPLIFIER GAIN	17 dB, ±5 dB.
FREQUENCY RESPONSE	+0.05 dB –0.25 dB, 20 Hz to 20 kHz. 1 kHz reference.
OUTPUT ASSIGNMENT AND ON/OFF SWITCH NOISE	–70 dB.
LINE INPUT SPECIFICATIONS	
NOMINAL BUS OUTPUT LEVEL	–5 dBu.
NOMINAL INPUT LEVEL	+4dBu.
INPUT IMPEDANCE	Greater than 20 k Ohms, balanced bridging.
LINE AMPLIFIER GAIN	3 dB, ±5 dB.
FREQUENCY RESPONSE	+0.05 dB –0.25 dB, 20 Hz to 20 kHz. 1 kHz reference.
OUTPUT ASSIGNMENT AND ON/OFF SWITCH NOISE	–70 dB.
CONTROL ROOM MONITOR AND STUDIO MONITOR SPECIFICATIONS	
OUTPUT IMPEDANCE	60 Ohms unbalanced.
NOMINAL OUTPUT LEVEL	0 dBm.
MAXIMUM OUTPUT LEVEL	+20 dBm into a 600 Ohm load. +22 dBu into a high impedance load.
SIGNAL–TO–NOISE RATIO	Greater than 85 dB below 0 dBm output level. Terminated external input.
HEADPHONE SPECIFICATIONS	
MINIMUM LOAD IMPEDANCE	35 Ohms.
OUTPUT IMPEDANCE	Approximately 10 Ohms.
NOMINAL OPERATING LEVEL	2.8 Volts per channel into a 100 Ohm load.
STEREO VCA TRACKING	Less than 0.5 dB over a 60 dB range.
AC POWER REQUIREMENTS	103V to 127V ac 50/60 Hz or 207V to 253V ac 50/60 Hz.

TABLE 1–2. AIR–TRAK 90/100 SERIES AUDIO CONSOLE PHYSICAL SPECIFICATIONS
(Sheet 1 of 2)

PARAMETER	SPECIFICATION
PHYSICAL SPECIFICATIONS	
DIMENSIONS	
AT90–6	Depth: 28.69 Inches (72.87 cm). Width: 23.50 Inches (60.70 cm). Height: 9.15 Inches (23.24 cm).
AT90–12/AT90–8	Depth: 28.69 Inches (72.87 cm). Width: 35.50 Inches (90.17 cm). Height: 9.15 Inches (23.24 cm).
AT90–18	Depth: 28.69 Inches (72.87 cm). Width: 47.50 Inches (120.65 cm). Height: 9.15 Inches (23.24 cm).
AT90–24	Depth: 28.69 Inches (72.87 cm). Width: 59.50 Inches (151.13 cm). Height: 9.15 Inches (23.24 cm).
AT100–6	Depth: 28.69 Inches (72.87 cm). Width: 23.50 Inches (60.70 cm). Height: 18.78 Inches (47.7cm).
AT100–12	Depth: 28.69 Inches (72.87 cm). Width: 35.50 Inches (60.70 cm). Height: 18.78 Inches (47.7 cm).
AT100–18	Depth: 28.69 Inches (72.87 cm). Width: 47.50 Inches (60.70 cm). Height: 18.78 Inches (47.7 cm).
AT100–24	Depth: 28.69 Inches (72.87 cm). Width: 59.50 Inches (60.70 cm). Height: 18.78 Inches (47.7 cm).

TABLE 1–2. AIR–TRAK 90/100 SERIES AUDIO CONSOLE PHYSICAL SPECIFICATIONS
(Sheet 2 of 2)

PARAMETER	SPECIFICATION
WEIGHT	
AT90–6 Excluding Power Supply	35 Pounds (15.9 kg)
AT90–12/AT90–8 Excluding Power Supply	50 Pounds (22.7 kg)
AT90–18 Excluding Power Supply	65 Pounds (29.5 kg)
AT90–24 Excluding Power Supply	80 Pounds (36.3 kg)
AT100–6 Excluding Power Supply	40 Pounds (18.1 kg)
AT100–12 Excluding Power Supply	55 Pounds (24.9 kg)
AT100–18 Excluding Power Supply	70 Pounds (31.7 kg)
AT100–24 Excluding Power Supply	85 Pounds (38.5 kg)

SECTION II
INSTALLATION

2–1. INTRODUCTION.

2–2. This section contains information for the installation of the Broadcast Electronics Air–Trak 90/100 series audio consoles.

2–3. UNPACKING.

2–4. The equipment becomes the property of the customer when the equipment is delivered to the carrier. Carefully unpack the console and power supply module. Perform a visual inspection to determine that no apparent damage has been incurred during shipment. All shipping materials should be retained until it is determined that the unit has not been damaged. Claims for damaged equipment must be promptly filed with the carrier or the carrier may not accept the claim.

2–5. The contents of the shipment should be as indicated on the packing list. If the contents are incomplete, or if the unit is damaged electrically or mechanically, notify both the carrier and Broadcast Electronics, Inc.

2–6. INSTALLATION.

2–7. Each Air–Trak 90/100 console is assembled, operated, tested, and inspected at the factory prior to shipment and is ready for installation when received. Prior to installation, this publication should be studied to obtain an understanding of the console circuitry, nomenclature, and installation requirements. Installation is accomplished as follows: 1) equipment placement, 2) assignment of input sources, 3) circuit board programming, 4) console system wiring, and 5) installation adjustments.

2–8. EQUIPMENT PLACEMENT.

WARNING ***ENSURE ALL PRIMARY POWER IS DISCONNECTED FROM THE CONSOLE BEFORE PROCEEDING.***

WARNING

2–9. **CONSOLE.** The AT–90/100 console is designed to be surface mounted to a studio desk or table. The selected furniture must be capable of supporting the weight presented in the following text. To install the console, refer to Figure 2–1 and perform the following procedures.

CONSOLE	WEIGHT (POUNDS)
AT90–6	35
AT90–12/AT90–8	50
AT90–18	65
AT90–24	80
AT100–6	40
AT100–12	55
AT100–18	70
AT100–24	85

2–10. Select the furniture for console installation. As a minimum requirement, the selected furniture must be of sufficient size and capable of supporting the total weight of the console.

2–11. Evaluate the operator physical comfort parameters and access to the console controls and determine the position of the console. If the console rear–panel is placed against a wall or similar obstruction, a minimum of 2 inches (5.08 cm) for AT–90 consoles and 10.5 inches (26.67 cm) for AT–100 consoles must be maintained between the wall and console to assure access to the console circuit boards.

2–12. Once the position of the console is established, refer to Figure 2–1 for the console mounting and cable access hole dimensions. After determining the dimensions, scribe and drill the holes in the studio furniture.

2–13. Place and position the console on the studio furniture. Secure the console to the furniture using wood or sheet–metal screws as determined by the mounting surface of the furniture.

2–14. **CONSOLE POWER SUPPLY.** The console power supply requires 7 inches (17.78 cm) of a 19 inch (48.3 cm) cabinet. It is recommended an additional 1.75 inches (4.4 cm) of cabinet space above and below the unit is provided for adequate ventilation.

2–15. Place the power supply in any convenient location. 10 feet (3.05 m) of power supply cable is provided with the power supply. If a longer cable is required, construct the cable using Belden 8466 18 gauge 12 conductor cable or equivalent. The power supply should not be mounted directly above or below any heat generating equipment, otherwise no additional special requirements need be observed.

2–16. **Main/Alternate Power Supply Systems.** For consoles equipped with a main/alternate power supply system, the automatic power supply switcher panel requires 1.75 inches of a 19 inch cabinet. The unit may be placed in any convenient location within reach of the two console power supplies. The power supplies require 7 inches (17.78 cm) of a 19 inch cabinet.

2–17. **ASSIGNMENT OF INPUT SOURCES.**

2–18. Assignment of audio input sources is determined by the level and type of audio source. The following is a list of available types of audio sources.

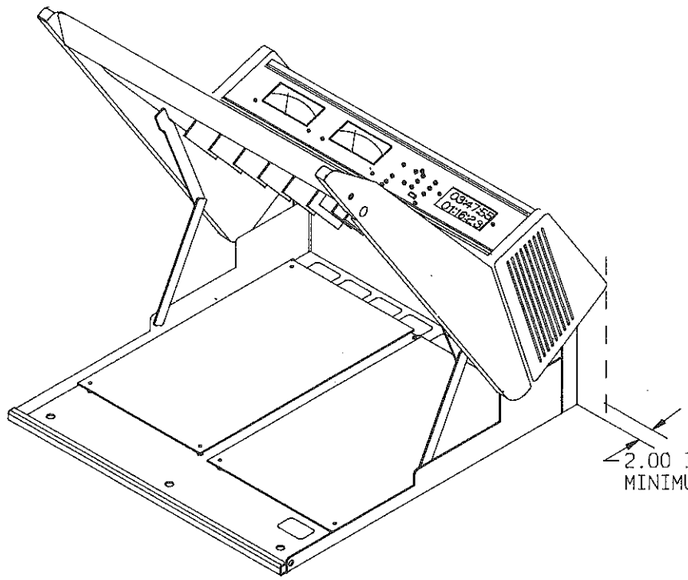
TYPE	NOMINAL LEVEL
Microphone	–60 dBu
Consumer	–10 dBu
Line	+4 dBu

2–19. Each channel of the AT–90/100 console is equipped with three audio source inputs. The following information is a list of inputs and applications for a typical channel.

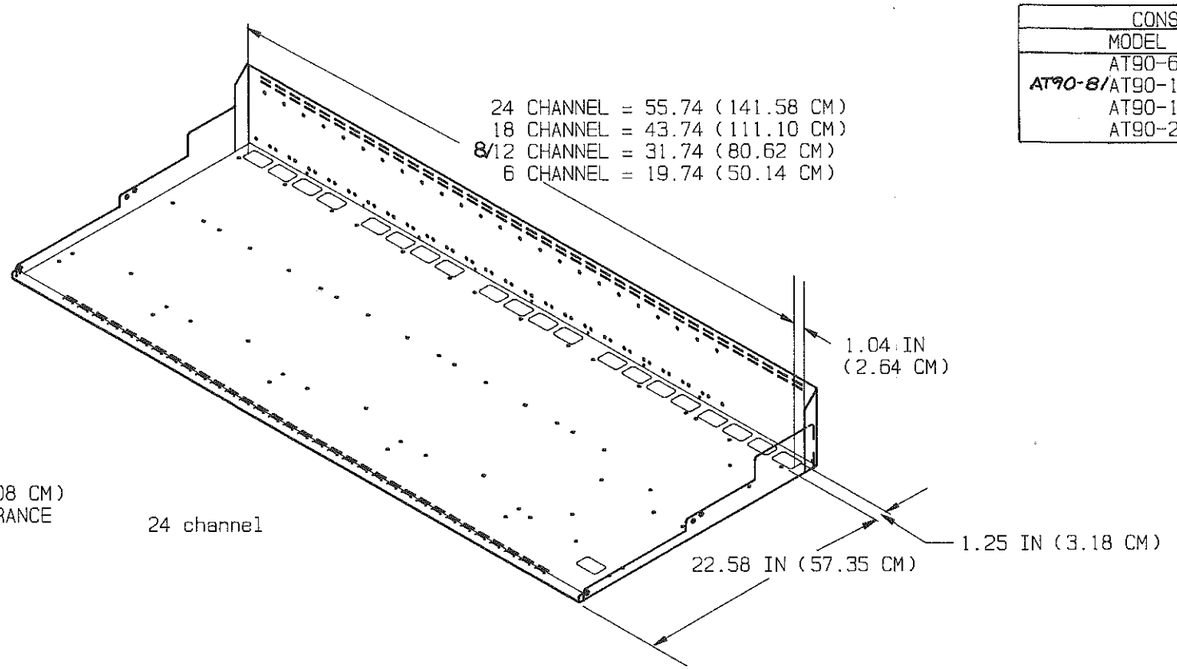
INPUT	APPLICATIONS
A	Microphone, Consumer, Line
B	Consumer, Line
C	Consumer, Line

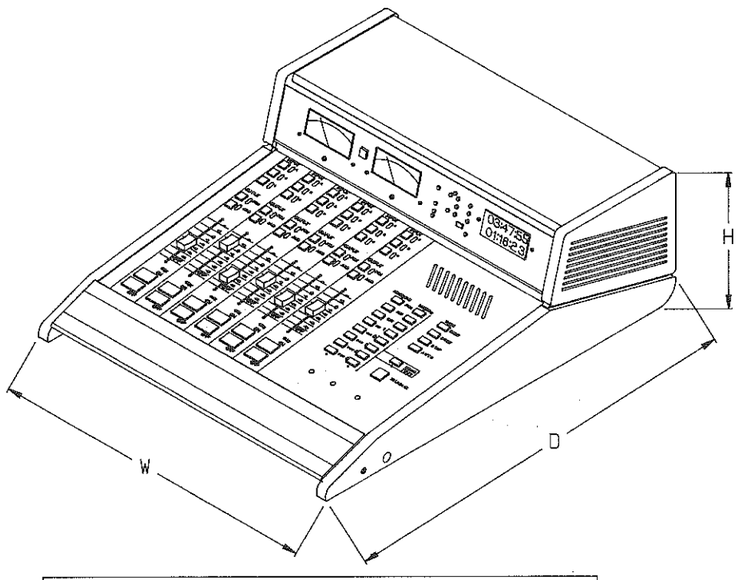
2–20. Microphone level sources can only be assigned to input A. Line level and consumer level sources can be assigned to inputs A, B, or C. For optimum signal–to–noise performance, it is recommended that sources with comparable levels be assigned to the same channel. However, each channel will accept sources at different signal levels with proper attenuator programming. AT–90/100 consoles will accept either stereophonic or monophonic audio input sources. Monophonic sources must be connected to both the left and right channel input terminals.

2–21. Assignment of audio input sources is also determined by the use of each source. Normally, audio sources such as turntables, cartridge machines, and reel–to–reel machines are assigned to separate channels so that music/commercials may be sequenced easily. A network input line and a reel–to–reel playback source are rarely used together. Therefore, the reel–to–reel and the network input may be assigned to the same channel. The assignment of input sources will vary depending on individual control room or studio requirements.

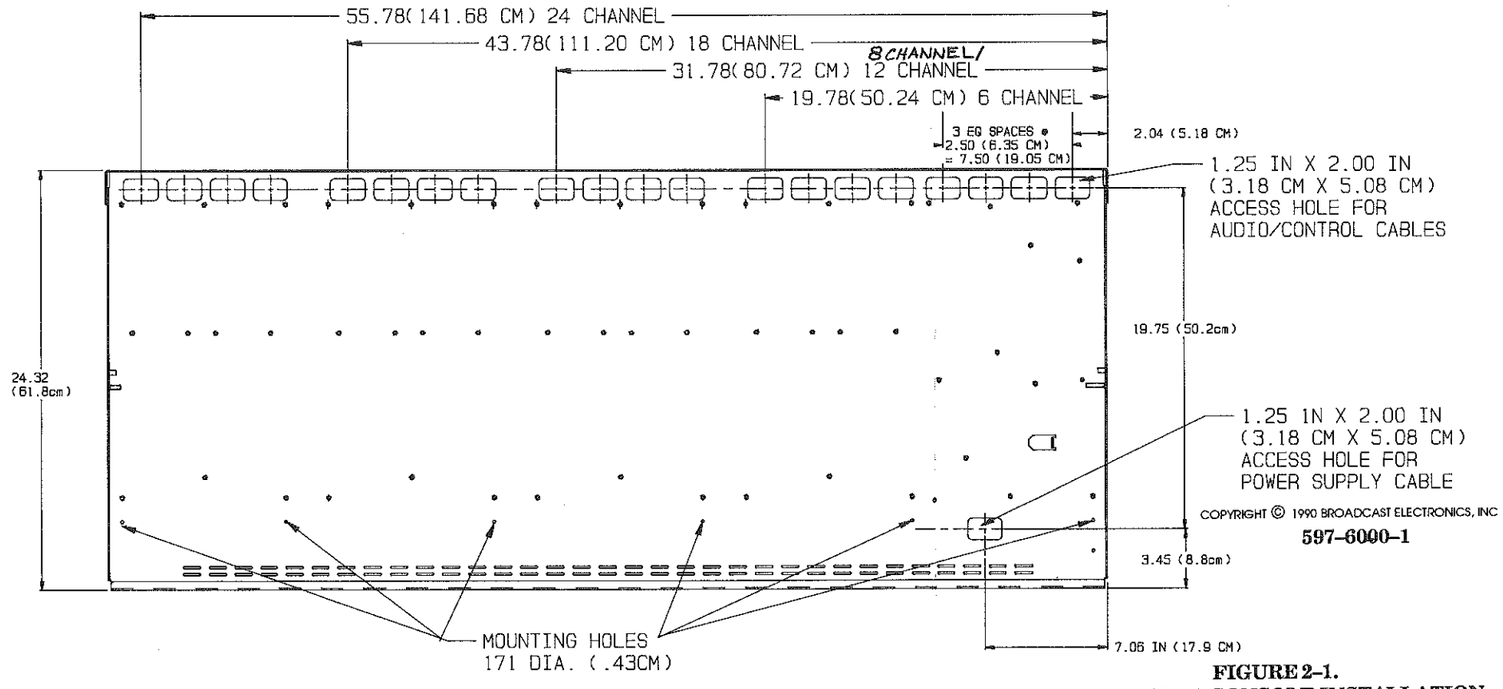


CONSOLE WEIGHT	
MODEL	
AT90-6	35 LBS (15.9 KG)
AT90-8/AT90-12	50 LBS (22.7 KG)
AT90-18	65 LBS (29.5 KG)
AT90-24	80 LBS (36.3 KG)



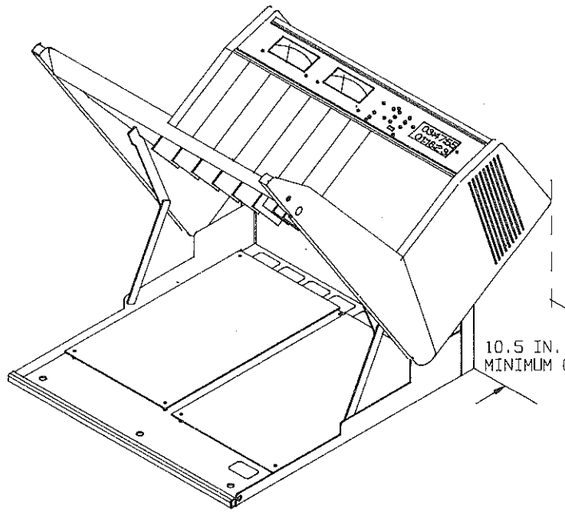


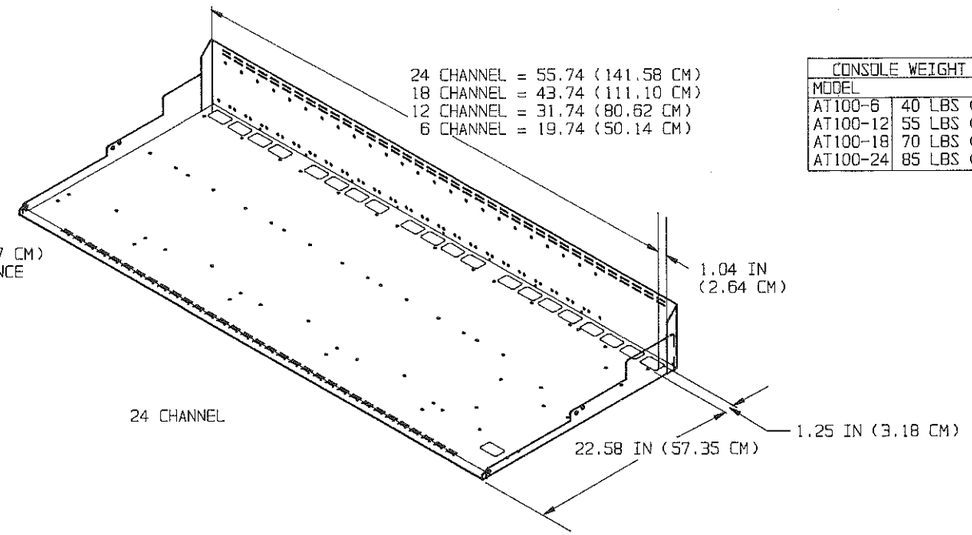
CONSOLE DIMENSIONS			
MODEL	H	W	D
AT90-6	9.15 IN. (23.24 CM)	23.50 IN. (59.69 CM)	28.69 IN. (72.87 CM)
AT90-12/ AT90-8	9.15 IN. (23.24 CM)	35.50 IN. (90.17 CM)	28.69 IN. (72.87 CM)
AT90-18	9.15 IN. (23.24 CM)	47.50 IN. (120.65 CM)	28.69 IN. (72.87 CM)
AT90-24	9.15 IN. (23.24 CM)	59.50 IN. (151.13 CM)	28.69 IN. (72.87 CM)



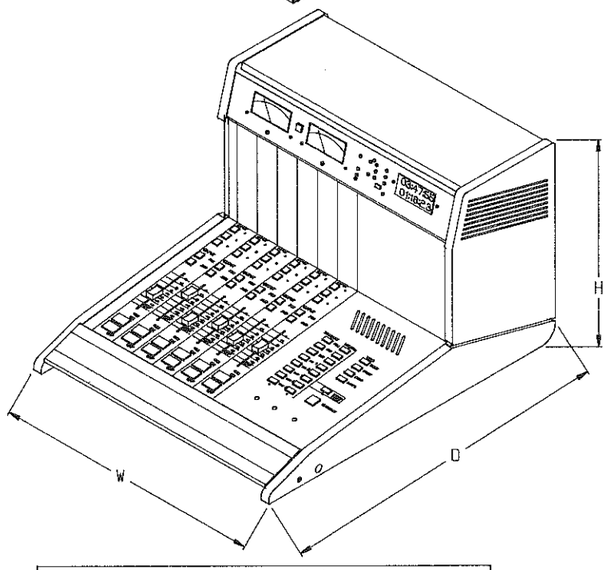
597-6090-1

FIGURE 2-1.
AIR-TRAK 90 CONSOLE INSTALLATION
(SHEET 1 OF 2)





CONSOLE WEIGHT	
MODEL	
AT100-6	40 LBS (18.1 KG)
AT100-12	55 LBS (24.9 KG)
AT100-18	70 LBS (31.7 KG)
AT100-24	85 LBS (38.5 KG)



CONSOLE DIMENSIONS			
MODEL	H	W	D
AT100-6	18.78 IN. (47.7 CM)	23.50 IN. (59.69 CM)	28.69 IN. (72.87 CM)
AT100-12	18.78 IN. (47.7 CM)	35.50 IN. (90.17 CM)	28.69 IN. (72.87 CM)
AT100-18	18.78 IN. 47.7 CM)	47.50 IN. (120.65 CM)	28.69 IN. (72.87 CM)
AT100-24	18.78 IN. (47.7 CM)	59.50 IN. (151.13 CM)	28.69 IN. (72.87 CM)

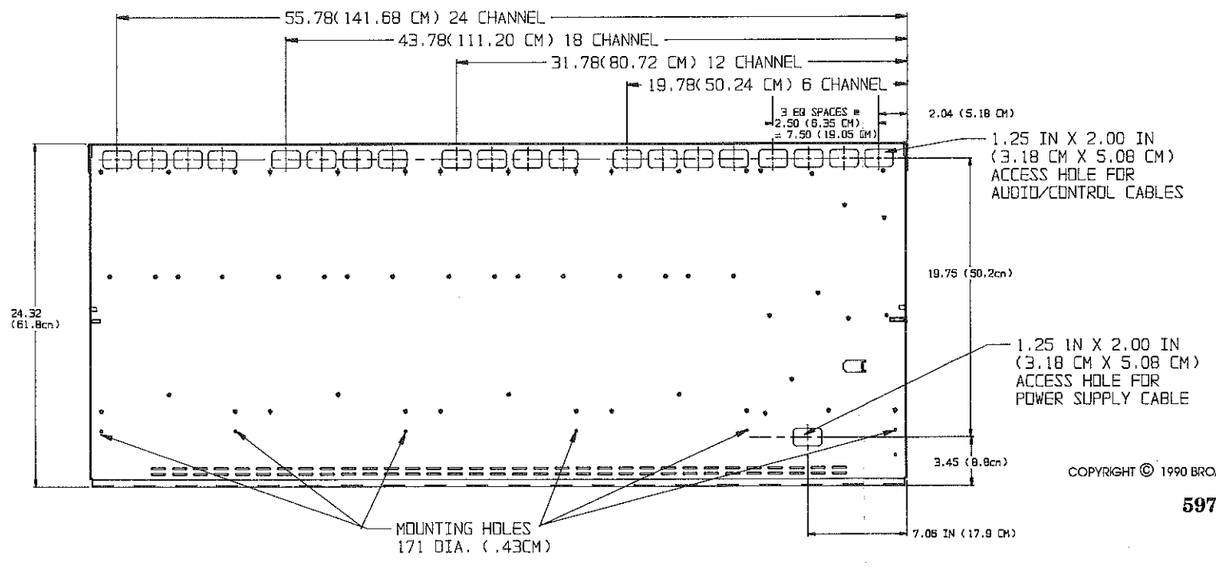


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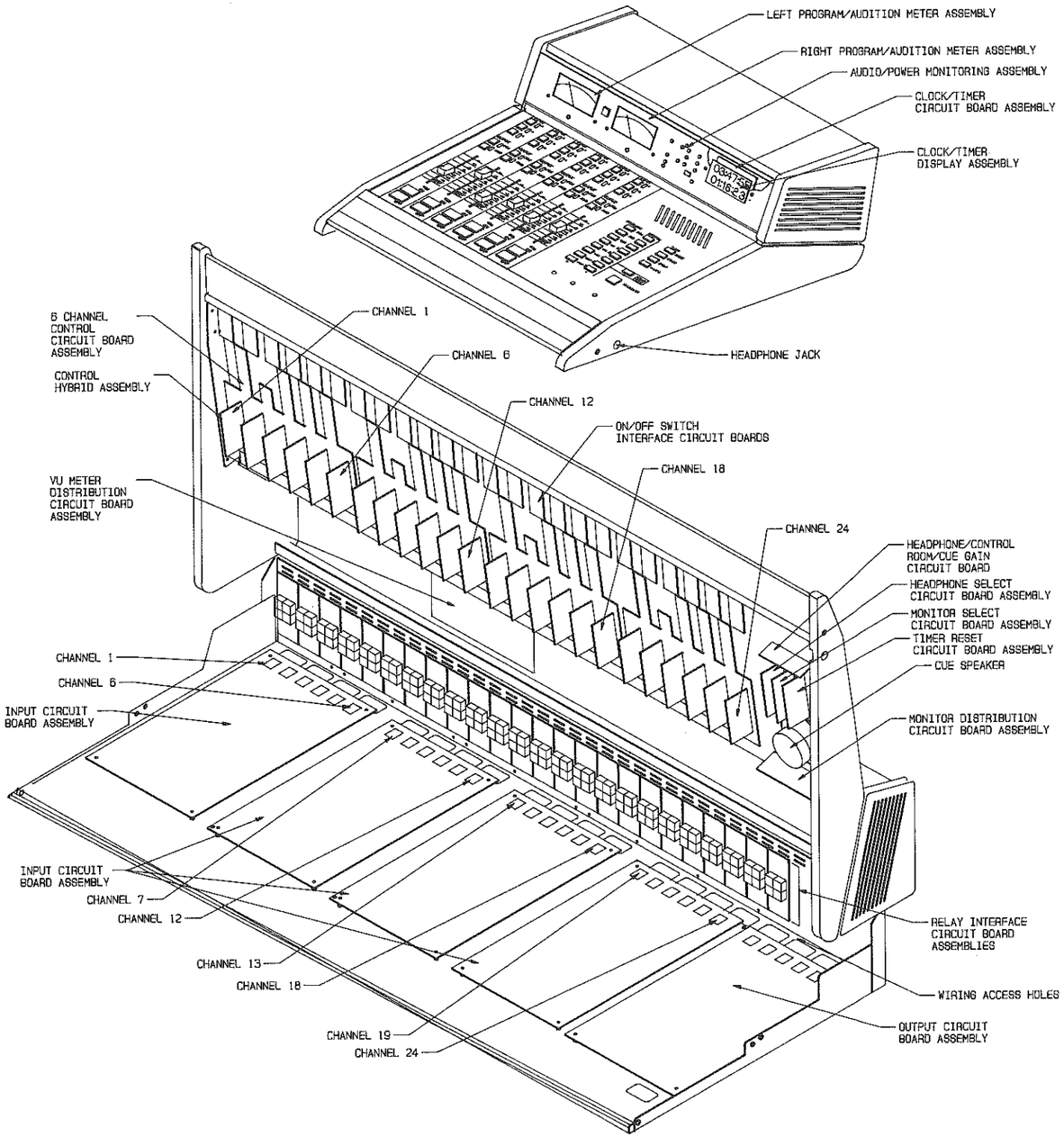
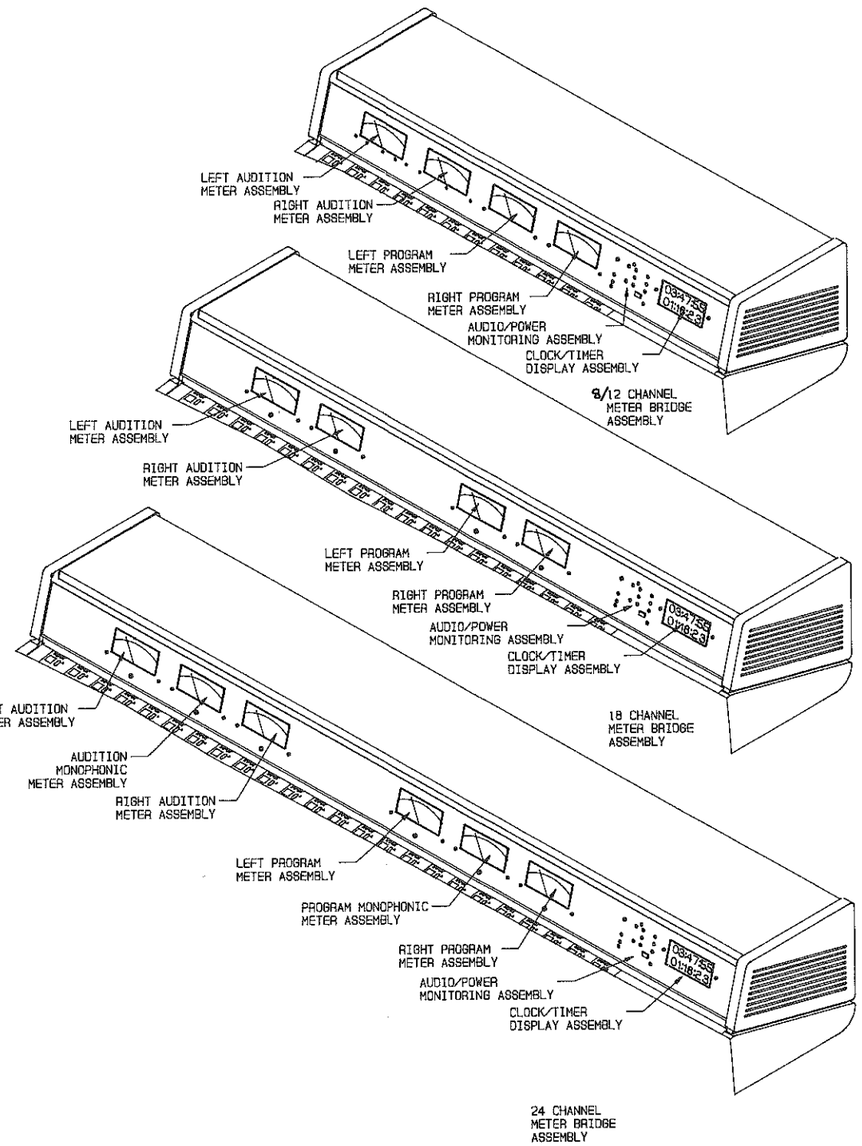
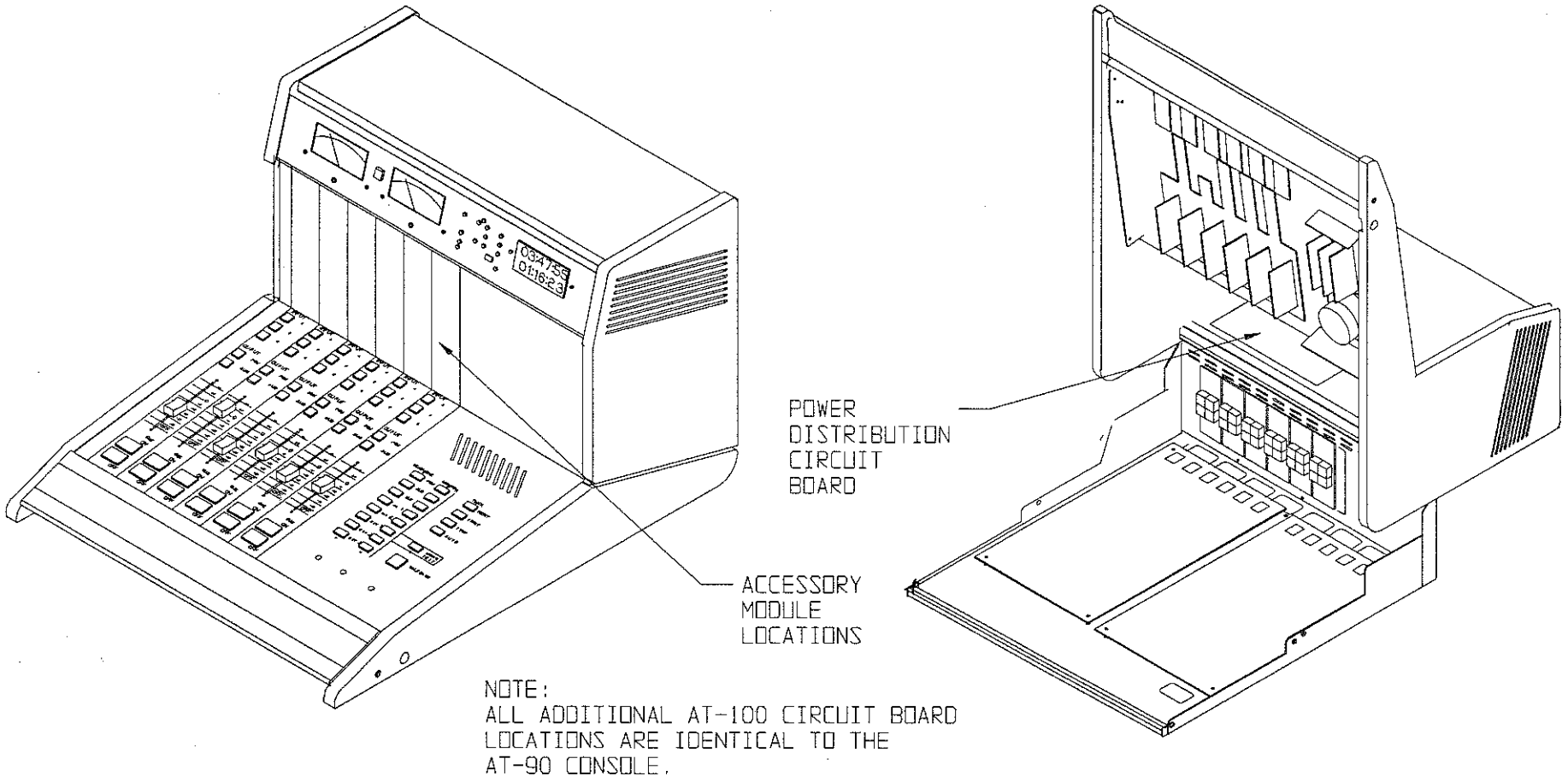
FIGURE 2–1. AIR–TRAK 100 CONSOLE INSTALLATION (SHEET 2 OF 2)





597-6000-2

FIGURE 2–2. AIR–TRAK 90 CIRCUIT BOARD LOCATIONS



597-6000-2A

FIGURE 2-2. AIR-TRAK 100 CONSOLE CIRCUIT BOARD LOCATIONS (SHEET 2 OF 2)

2–22. **CIRCUIT BOARD PROGRAMMING.**

2–23. The input, channel control, VU meter distribution, and clock/timer circuit boards are equipped with programmable operating characteristics to meet any installation requirements. Figure 2–2 presents the locations of the various AT–90/100 circuit boards. Refer to Figure 2–2 as required and perform the following circuit programming procedures for the desired operating or control parameters.

2–24. **INPUT CIRCUIT BOARD PROGRAMMING.** The 6 channel and 2 channel input circuit boards are equipped with programmable jumpers for selecting the gain of each channel, appropriate attenuation for inputs A, B, and C, and enabling a mix minus bus (refer to Figure 2–3). To program the input circuit boards, perform the following procedures as required.

2–25. **Gain Programming.** Each channel is equipped with an amplifier designed with: 1) a microphone gain position and 2) a consumer/line gain position. Headers J608 and J609 select the gain for channel 1. The programming of J608 and J609 is determined by the type and level of the audio source assigned to input A. Only input A is designed to accept a microphone level source. The circuit board is shipped from the factory with the J608 and J609 jumpers programmed for consumer/line gain. Determine if a microphone source is applied to channel 1. Refer to the channel 1 input programming chart in Figure 2–3 and program J608 and J609 in: 1) position 1–2 if a microphone source is applied to the channel or 2) position 2–3 if a microphone source is not applied to the channel.

2–26. **Attenuation Programming.** Programmable headers J601 and J602: 1) bypasses in–line attenuation if a microphone is applied to input A or 2) selects in–line attenuation if a consumer or line source is applied to input A. The circuit board is shipped from the factory with the J601 and J602 jumpers configured for a consumer or line source applied to input A. Determine if a microphone source is assigned to channel lA. Refer to the channel 1 input programming chart in Figure 2–3 and install J601 and J602 as shown if a microphone source is assigned to channel 1.

2–27. Programmable header J603 selects the appropriate shunt attenuation for the left and right channels of inputs 1A, 1B, and 1C. The circuit board is shipped from the factory with J603 programmed for the attenuation required when the channel is programmed for consumer/line gain. Refer to the channel 1 input programming chart in Figure 2–3 and program J603 as shown for input 1A. Once channel 1A is configured, program the attenuation for channels 1B and 1C.

2–28. **Programming Channels 2 Through 6.** The headers for channels 2 through 6 are programmed as described for channel 1. Therefore, refer to the programmable header chart in Figure 2–3 to determine the headers associated with the desired channel and program the headers as required.

2–29. **MIX MINUS BUS OPERATION.** A typical mix minus bus configuration is presented in Figure 2–4. Headers J107 through J607 on the audio input circuit board enable/disable the mix minus bus for channels 1 through 6 (refer to Figure 2–3). Examine the information presented in Figure 2–4 and determine the desired mix minus bus configuration. Once the configuration is determined, refer to Figures 2–3 and 2–4 and program the mix minus bus jumpers as required. The circuit board is shipped from the factory with the jumpers in the disabled position.

2–30. **CHANNEL CONTROL CIRCUIT BOARD PROGRAMMING.** The 6 channel and 2 channel control circuit boards are equipped with programmable headers for: 1) selecting a source enable command, 2) enabling studio and control room muting, 3) selecting console timer reset control, 4) enabling fader start control, and 5) selecting cue disable. To program the channel control circuit board, perform the following procedures as required.

2-31. **Source Enable Command.** Programmable headers J2, J3, and J4 select a momentary or continuous LOW source enable command for equipment connected to inputs 1A, 1B, and 1C respectively (refer to Figure 2-5). The circuit board is shipped from the factory with the jumpers programmed in position 1-2. Refer to Figure 2-5 and program J2, J3, and J4 as required.

2-32. **Studio Muting.** Programmable header J58 enables/disables studio muting for channel 1A. The circuit board is shipped from the factory with J58 programmed in the disabled position. Refer to Figure 2-5 and program J58 as required.

2-33. **Control Room Muting.** Programmable header J57 enables/disables control room muting for channel 1A. The circuit board is shipped from the factory with J57 programmed in the disabled position. Refer to Figure 2-5 and program J57 as required.

2-34. **Timer Reset Control.** Programmable headers J76, J77 and J78 select timer reset control operations. The headers select the program or audition output for timer reset operations. Header J76 selects program/audition timer reset control for channel 1A. Header J77 selects program/audition timer reset control for channel 1B. Header J78 selects program/audition timer reset control for channel 1C. The circuit board is shipped from the factory with channels 1A, 1B, and 1C configured for program output timer control. Refer to Figure 2-5 and program J76, J77, and J78 as required.

2-35. **Fader Start Control.** Programmable header J69 configures the channel for fader start operation. Fader start is designed to enable the channel when the fader is operated from the off position. The channel is disabled by depressing the OFF switch. The circuit board is shipped from the factory with the circuit configured for fader start operation. Refer to Figure 2-5 and program J69 as required.

2-36. **Cue Disable.** Programmable header J94 disables the channel cue operation. Cue operation is required to be disabled only when the channel is assigned a control room microphone. If the channel is assigned a control room microphone, refer to Figure 2-5 and program J94 to disable cue operation.

2-37. **Programming Channels 2 Through 6.** The headers for channels 2 through 6 are programmed as described for channel 1. Therefore, refer to the programmable header chart in Figure 2-5 to determine the headers associated with the desired channel and program the jumpers as required.

2-38. **VU METER CIRCUIT BOARD PROGRAMMING.** The VU meter circuit board is programmed during final test. To assure the circuit board jumpers have not become dislodged or changed during shipment, refer to Figure 2-6 and ensure headers J8 through J11 are programmed as indicated.

2-39. **CLOCK/TIMER MODULE CIRCUIT BOARD PROGRAMMING.** The clock/timer module is equipped with programmable circuitry for selecting operating parameters. To program the clock/timer module, perform the following procedures.

2-40. **Reset.** Programmable header J3 resets the clock/timer module microprocessor. If the module microprocessor is to be reset, refer to Figure 2-7 and momentarily short the terminals of header J3.

2-41. **Clock Display.** The clock/timer module clock display may be programmed to display information in a 12 or 24 hour format. Refer to Figure 2-7 and program header J7 for a 12 or 24 hour format. The module is shipped from the factory for a 12 hour format.

2-42. **Clock Synchronization.** The clock/timer module is equipped with an automatic synchronization feature. The feature synchronizes the clock circuitry to network audio or a logic signal to eliminate drift. If clock synchronization is desired, proceed as follows:

1. Refer to Figure 2-7 and program header J11 for network audio or a logic signal as required by the type of synchronization signal.
2. For network audio synchronization, refer to Figure 2-7 and connect the network audio + signal to J1-1 and the audio - signal to J1-2. A 9-pin connector and pins are provided for the connections.

3. For logic signal synchronization, refer to Figure 2–7 and connect the logic signal to the clock/timer module as shown. A 9–pin connector and pins are provided for the connections.

2–43. **Master/Slave Operation.** The clock/timer modules in a multiple console installation can be connected in a master/slave configuration if desired. Master /slave operation is when clock/timer information from a selected master clock/timer module is used to drive additional clock/timer modules. Any clock/timer module can be selected as the master. This will allow information presented on the master clock to be viewed by additional clock/timer modules. The clock/timer module can be configured for the following: 1) clock operation or 2) clock and timer operation.

1. Select a clock/timer module for master operation.
2. Refer to Figure 2–7 and program the master clock/timer module by removing jumpers P9 and P10.
3. Refer to Figure 2–7 and program the slave clock/timer module as follows:
   A. For slave clock operation, install jumper P10.
   B. For slave clock and timer operation, install jumpers P9 and P10.
4. Refer to Figure 2–7 and connect transmit data port J1–5 on the master clock/timer module to receive data port J1–4 on the slave clock/timer module.
5. Refer to Figure 2–7 and connect a +12 volt dc 1 ampere power source (Archer 273–1653A) to J1–8 (ground) and J1–9 (+12 V dc) for slave clock/timer modules not installed in a console.

2–44. **Battery Backup.** The clock/timer module is equipped with a battery backup system to maintain clock operation in the event of a power failure. The backup system operates from two AAA Alkaline batteries. The batteries will maintain clock operation for several months. To maintain optimum operation, it is recommended the batteries be replaced approximately once a year.

2–45. **CONSOLE SYSTEM WIRING.**

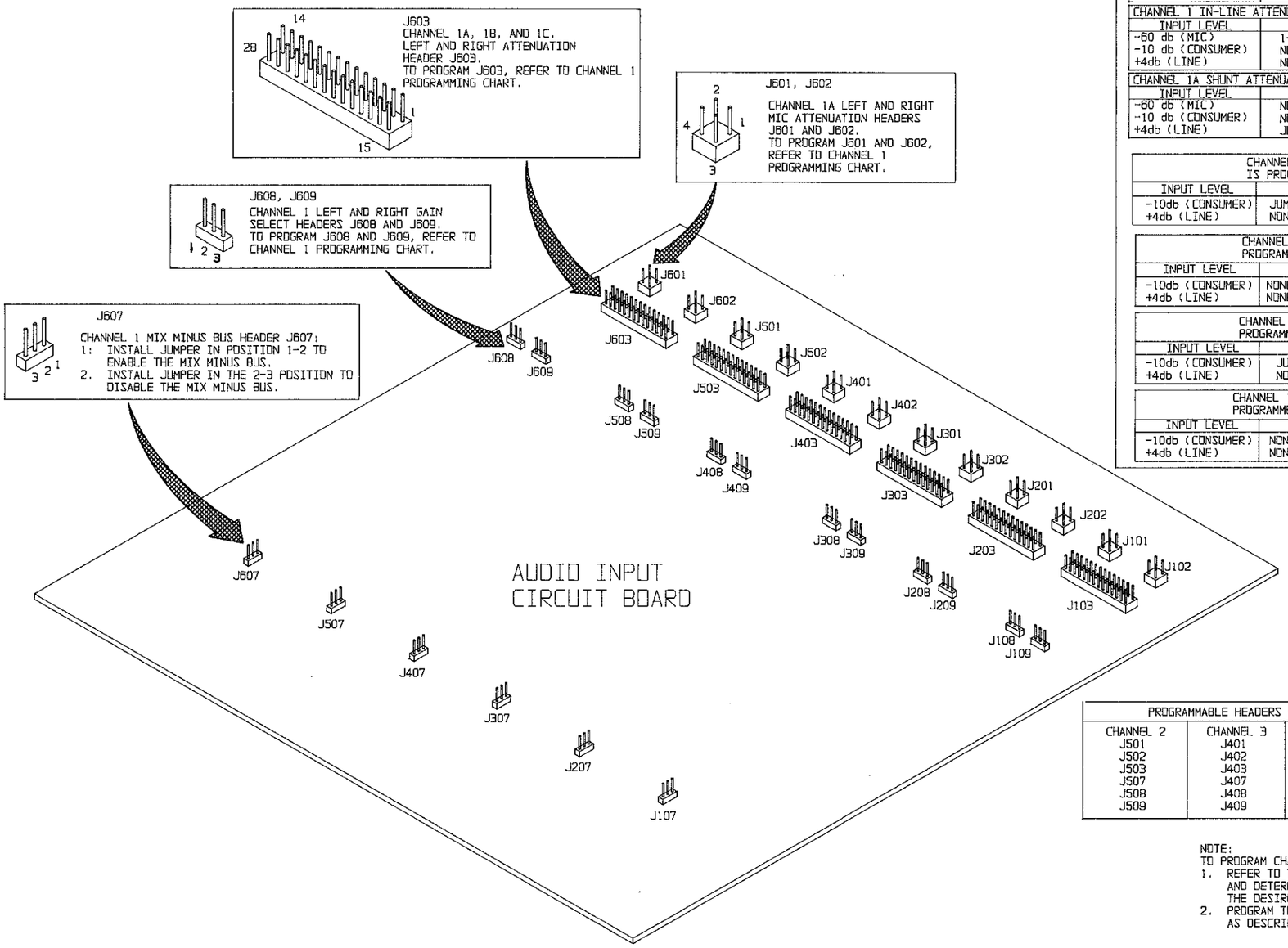
2–46. **GENERAL.** The Air–Trak 90/100 series audio consoles are equipped with a wiring kit which includes a wiring tool, mating connectors, and connector pins. Access holes for interfacing cables are located on the bottom–panel of the console chassis (refer to Figure 2–2).

2–47. **Wiring Tool.** A wiring tool is supplied in the console installation kit for connector pin crimping operations (refer to Figure 2–8). The tool must be used in an appropriate manner to obtain high–quality connections. Use the tool to assemble all console interfacing cables.

2–48. **GROUNDING.** To obtain optimum noise performance from the AT–90/100 console, the console and the various audio source interconnections must be properly grounded and shielded. The following text presents console and audio source interconnection grounding information. Additional grounding information is presented in a CONSOLE GROUNDING instruction sheet which is located in the accessory kit.

2–49. **Console Grounding System.** The AT–90/100 console is equipped with a programmable ground system. The system consists of: 1) a chassis ground terminal on the console mainframe and 2) a chassis ground terminal and power supply circuit ground on the power supply unit (refer to Figure 2–9). The system is designed to distribute and isolate ground circuits as required for optimum performance.

2–50. **RFI Ground Configuration (Recommended).** If grounding for RFI conditions is required, an earth ground must be connected to the power supply chassis and the console. Connect an earth ground to the power supply unit **CHASSIS** and **P.S. CIRCUIT** ground terminals. Also, connect an earth ground to the console ground terminal.



CHANNEL 1 GAIN AND ATTENUATION PROGRAMMING
(HEADERS J601,J602,J603,J608, AND J609)

CHANNEL 1 GAIN PROGRAMMING		
INPUT LEVEL	J608	J609
-60 db (MIC)	1-2	1-2
-10 db (CONSUMER)	2-3	2-3
+4db (LINE)	2-3	2-3

CHANNEL 1 IN-LINE ATTENUATION PROGRAMMING		
INPUT LEVEL	J601	J602
-60 db (MIC)	1-3,2-4	1-3,2-4
-10 db (CONSUMER)	NONE	NONE
+4db (LINE)	NONE	NONE

CHANNEL 1A SHUNT ATTENUATION PROGRAMMING	
INPUT LEVEL	J603
-60 db (MIC)	NONE ON 14-28,7-21
-10 db (CONSUMER)	NONE ON 14-28,7-21
+4db (LINE)	JUMPER 14-28,7-21

CHANNEL 1B ATTENUATION PROGRAMMING WHEN THE CHANNEL IS PROGRAMMED FOR MICROPHONE GAIN (J608/J609 IN 1-2)			
INPUT LEVEL	J603		
-10db (CONSUMER)	JUMPER 11-25,4-18	NONE ON 12-26,5-19	NONE ON 13-27, 6-20
+4db (LINE)	NONE ON 11-25,4-18	JUMPER 12-26,5-19	NONE ON 13-27, 6-20

CHANNEL 1B ATTENUATION PROGRAMMING WHEN THE CHANNEL IS PROGRAMMED FOR CONSUMER/LINE GAIN (J608/J609 IN 2-3)			
INPUT LEVEL	J603		
-10db (CONSUMER)	NONE ON 11-25,4-18	NONE ON 12-26,5-19	NONE ON 13-27, 6-20
+4db (LINE)	NONE ON 11-25,4-18	NONE ON 12-26,5-19	JUMPER 13-27, 6-20

CHANNEL 1C ATTENUATION PROGRAMMING WHEN THEW CHANNEL IS PROGRAMMED FOR MICROPHONE GAIN (J608/J609 IN 1-2)			
INPUT LEVEL	J603		
-10db (CONSUMER)	JUMPER 8-22,1-15	NONE ON 9-23,2-16	NONE ON 10-24,3-17
+4db (LINE)	NONE ON 8-22,1-15	JUMPER 9-23,2-16	NONE ON 10-24,3-17

CHANNEL 1C ATTENUATION PROGRAMMING WHEN THE CHANNEL IS PROGRAMMED FOR CONSUMER/LINE GAIN (J608/J609 IN 2-3)			
INPUT LEVEL	J603		
-10db (CONSUMER)	NONE ON 8-22,1-15	NONE ON 9-23,2-16	NONE ON 10-24,3-17
+4db (LINE)	NONE ON 8-22,1-15	NONE ON 9-23,2-16	JUMPER 10-24,3-17

PROGRAMMABLE HEADERS ASSOCIATED WITH CHANNELS 2 THROUGH 6				
CHANNEL 2	CHANNEL 3	CHANNEL 4	CHANNEL 5	CHANNEL 6
J501	J401	J301	J201	J101
J502	J402	J302	J202	J102
J503	J403	J303	J203	J103
J507	J407	J307	J207	J107
J508	J408	J308	J208	J108
J509	J409	J309	J209	J109

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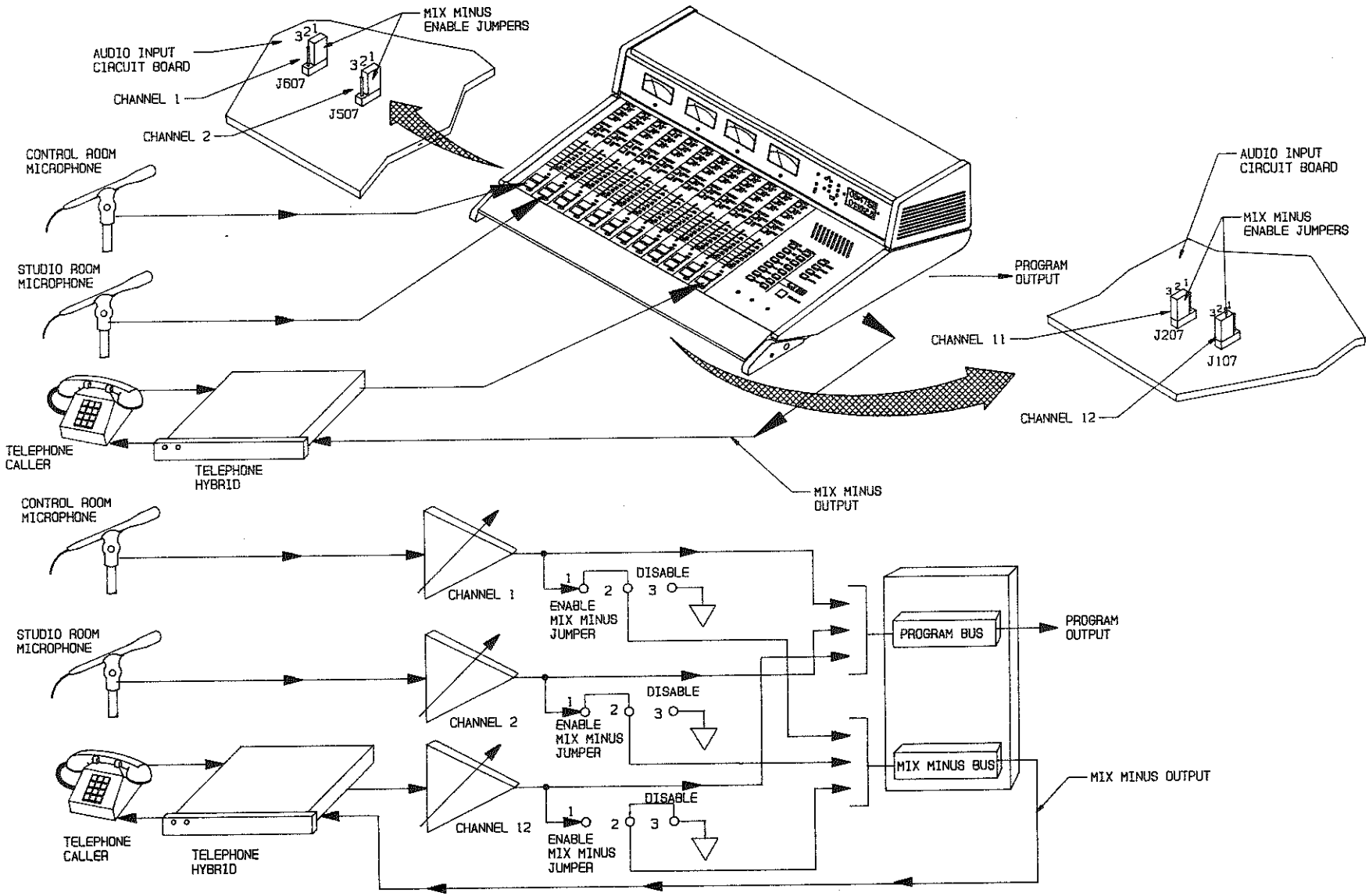
NOTE:
TO PROGRAM CHANNELS 2 THROUGH 6:
1. REFER TO THE PROGRAMMABLE HEADER CHART AND DETERMINE THE HEADERS ASSOCIATED WITH THE DESIRED CHANNEL.
2. PROGRAM THE HEADERS FOR THE DESIRED CHANNEL AS DESCRIBED FOR CHANNEL 1.

FIGURE 2-3.
INPUT CIRCUIT BOARD PROGRAMMING



597-6000-38

FIGURE 2–4. TYPICAL MIX MINUS BUS CONFIGURATION

CHANNEL 1C AUDIO SOURCE ENABLE COMMAND HEADER J4:
1. INSTALL JUMPER P4 IN POSITION 1-2 FOR A MOMENTARY SOURCE ENABLE COMMAND.
2. INSTALL JUMPER P4 IN POSITION 2-3 FOR A CONTINUOUS SOURCE ENABLE COMMAND.

CHANNEL 1A STUDIO MUTE HEADER J58:
1. INSTALL JUMPER P58 TO ENABLE STUDIO MUTING.
2. REMOVE P58 TO DISABLE STUDIO MUTING.

CHANNEL 1A CONTROL ROOM MUTE HEADER J57:
1. INSTALL P57 TO ENABLE CONTROL ROOM MUTING.
2. REMOVE P57 TO DISABLE CONTROL ROOM MUTING.

CHANNEL 1B AUDIO SOURCE ENABLE COMMAND HEADER J3:
1. INSTALL JUMPER P3 IN POSITION 1-2 FOR A MOMENTARY SOURCE ENABLE COMMAND.
2. INSTALL JUMPER P3 IN POSITION 2-3 FOR A CONTINUOUS SOURCE ENABLE COMMAND.

CHANNEL 1 MIC/CUE DISABLE HEADER J94:
1. INSTALL JUMPER P94 TO ENABLE CUE OPERATION
2. REMOVE JUMPER P94 TO DISABLE CUE OPERATION. THE JUMPER IS TO BE REMOVED IF THE CHANNEL IS ASSIGNED A CONTROL ROOM MICROPHONE.

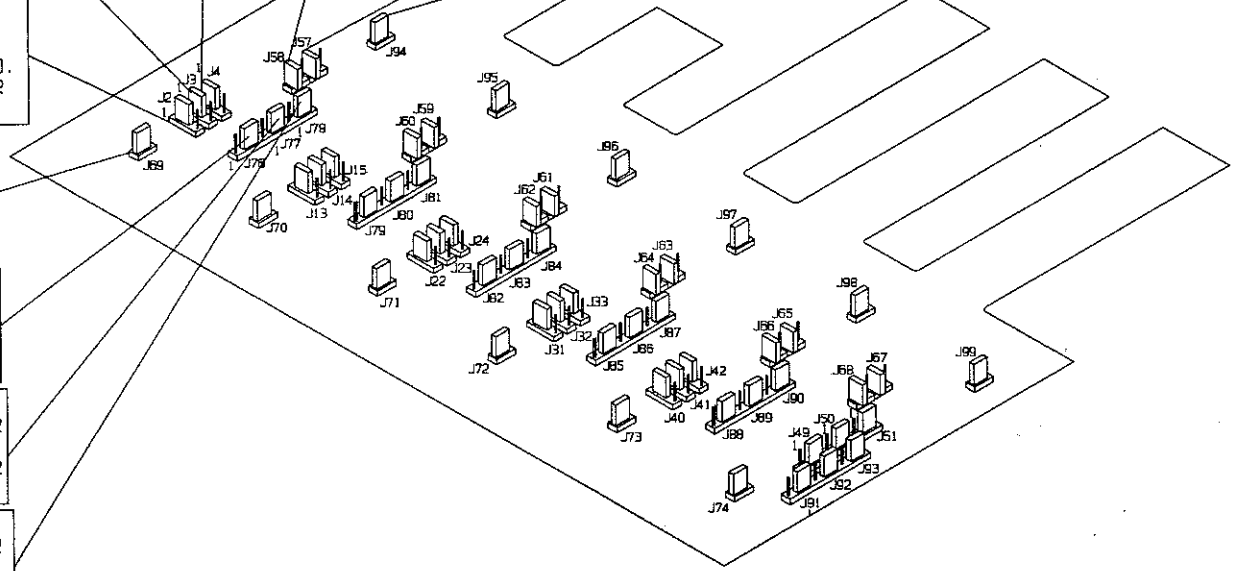
CHANNEL 1A AUDIO SOURCE ENABLE COMMAND HEADER J2:
1. INSTALL JUMPER P2 IN POSITION 1-2 FOR A MOMENTARY SOURCE ENABLE COMMAND.
2. INSTALL JUMPER P2 IN POSITION 2-3 FOR A CONTINUOUS SOURCE ENABLE COMMAND.

CHANNEL 1 FADER START HEADER J69:
1. INSTALL JUMPER P69 TO ENABLE THE CHANNEL WHEN THE FADER IS OPERATED FROM THE OFF POSITION.
2. REMOVE JUMPER P69 FOR NORMAL CHANNEL ON/OFF CONTROL.

CHANNEL 1A TIMER RESET CONTROL HEADER J76:
1. INSTALL JUMPER P76 IN POSITION 1-2 FOR AUDITION OUTPUT TIMER RESET COINTROL.
2. INSTALL JUMPER P76 IN POSITION 2-3 FOR PROGRAM OUTPUT TIMER RESET CONTROL.

CHANNEL 1B TIMER RESET CONTROL HEADER J77:
1. INSTALL JUMPER P77 IN POSITION 1-2 FOR AUDITION OUTPUT TIMER RESET CONTROL.
2. INSTALL JUMPER P77 IN POSITION 2-3 FOR PROGRAM OUTPUT TIMER RESET CONTROL.

CHANNEL 1C TIMER RESET CONTROL HEADER J78:
1. INSTALL JUMPER P78 IN POSITION 1-2 FOR AUDITION OUTPUT TIMER RESET CONTROL.
2. INSTALL JUMPER P78 IN POSITION 2-3 FOR PROGRAM OUTPUT TIMER RESET CONTROL.



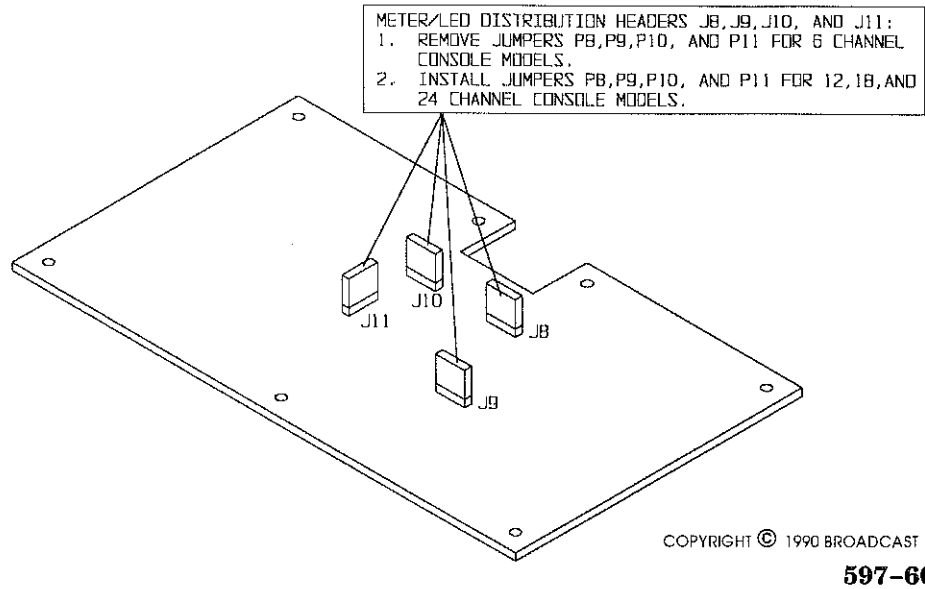
NOTE
TO PROGRAM CHANNELS 2 THROUGH 6:
1. REFER TO THE PROGRAMMABLE HEADER CHART AND DETERMINE THE JUMPERS ASSOCIATED WITH THE DESIRED CHANNEL.
2. PROGRAM THE HEADERS FOR THE DESIRED CHANNEL AS DESCRIBED FOR CHANNEL 1.

PROGRAMMABLE HEADERS ASSOCIATED WITH CHANNELS 2 THROUGH 6

CHANNEL 2	CHANNEL 3	CHANNEL 4	CHANNEL 5	CHANNEL 6
J70	J71	J72	J73	J74
J13	J22	J31	J40	J49
J14	J23	J32	J41	J50
J15	J24	J33	J42	J51
J79	J82	J85	J88	J91
J80	J83	J86	J89	J92
J81	J84	J87	J90	J93
J60	J62	J64	J66	J68
J59	J61	J63	J65	J67
J95	J96	J97	J98	J99

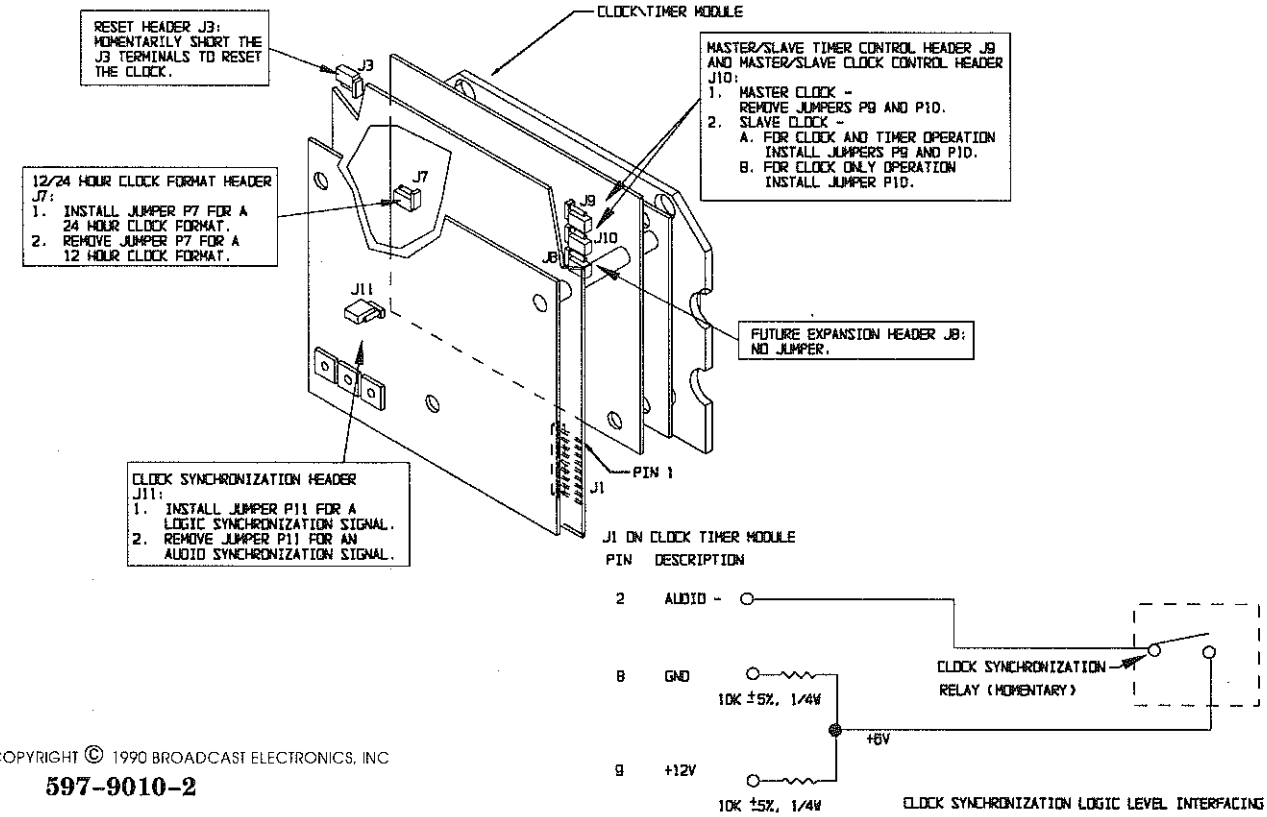
597-6000-5

FIGURE 2–5. CHANNEL CONTROL CIRCUIT BOARD PROGRAMMING



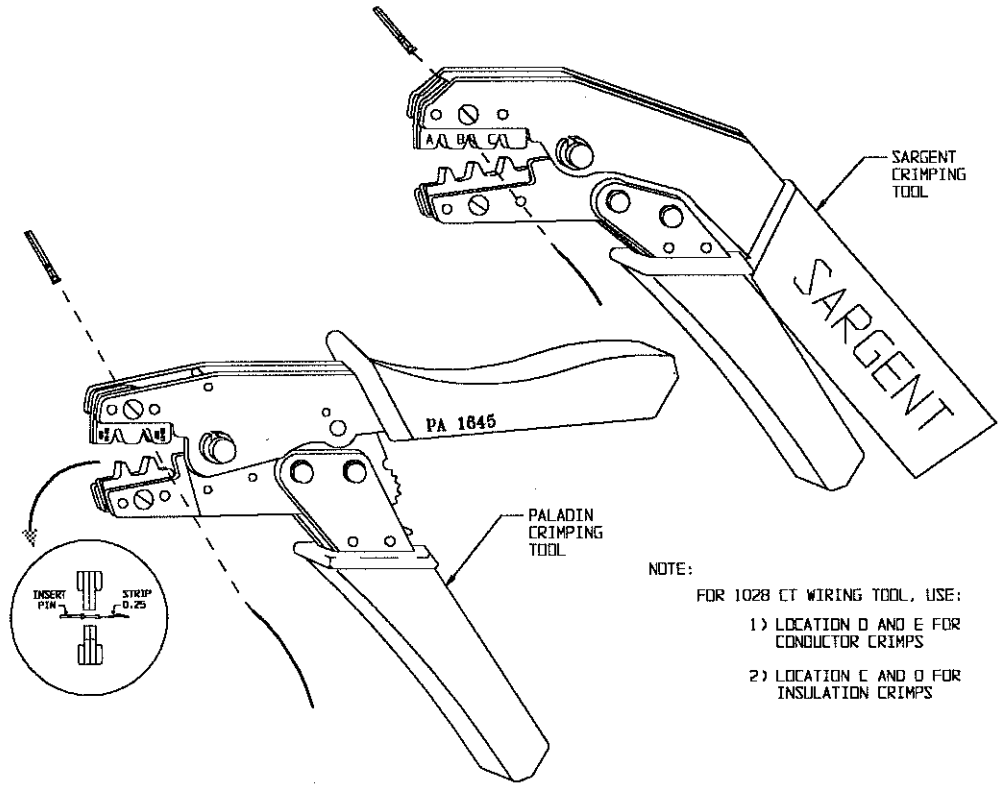
597-6000-6

FIGURE 2-6. VU METER DISTRIBUTION CIRCUIT BOARD PROGRAMMING



597-9010-2

FIGURE 2-7. CLOCK/TIMER CIRCUIT BOARD PROGRAMMING



597-9012-13

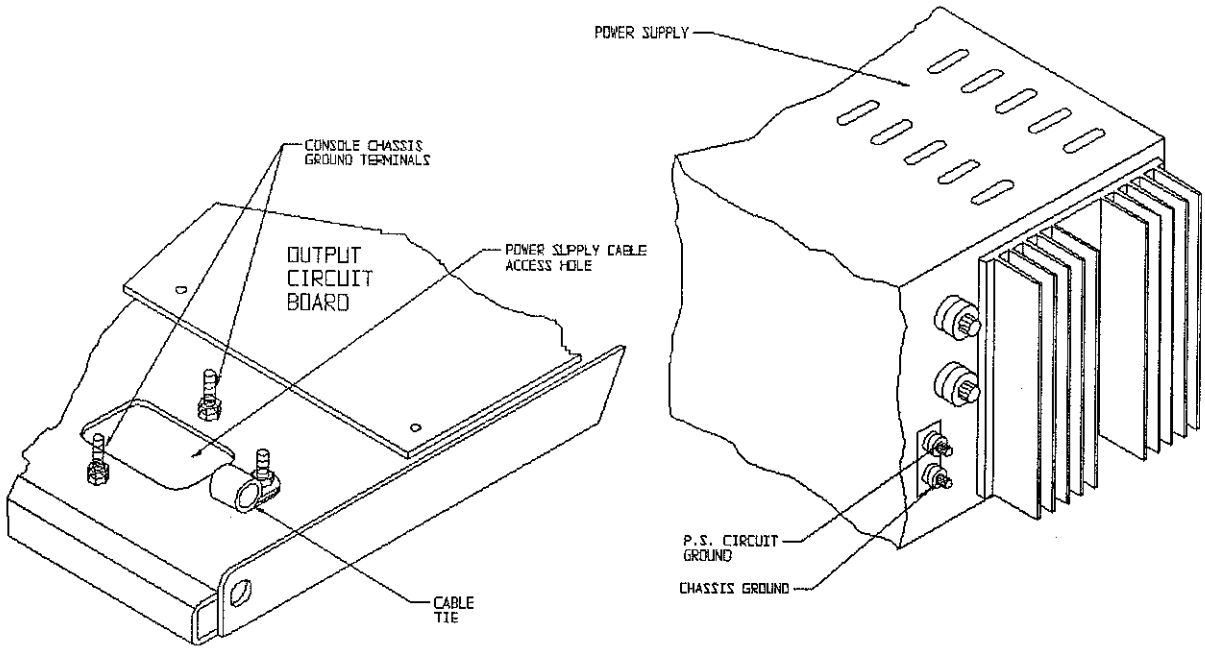
FIGURE 2-8. WIRING TOOL OPERATION

2-51. **Power Supply Ground Configuration.** A power supply ground configuration consists of connecting an earth ground to the power supply unit. Connect an earth ground to the power supply unit **CHASSIS** and **P.S. CIRCUIT** ground terminals.

2-52. **Mainframe Ground Configuration.** If a mainframe central ground point is required, an earth ground must be connected to the power supply chassis and the console mainframe. Connect an earth ground to the power supply **CHASSIS** ground terminal and the console ground terminal.

2-53. **Floating Ground Configuration.** If a floating ground system is required, contact the Broadcast Electronics Customer Service Department for a recommended procedure.

2-54. **Audio Interconnections.** The shields of audio conductors attached to the console must be grounded to prevent the coupling of extraneous noise. Generally, the shields are grounded at the console. However, the shields may require grounding at the audio source or at a point between the audio source and the console. Particular care must be exercised to avoid ground loops at patch panels, external switching equipment, uninsulated jacks on associated equipment, and grounded racks or cabinets.



597-6000-10

FIGURE 2-9. CONSOLE CHASSIS AND POWER SUPPLY GROUND TERMINALS

2-55. **AUDIO CABLE.** All Air-Trak series consoles require the construction of interfacing cables for internal and external audio communication. The audio interfacing cables must be constructed with the appropriate size and type of cable. The following text presents recommended Belden audio cables for line and microphone level service. Construct the cables with the Belden audio cable or equivalent.

LINE LEVEL AUDIO CABLE

NO.	TYPE OF CABLE	GAUGE	PART NO.
1	2-conductor, braided with shield	24	Belden 8641
2	2-conductor, braided with shield	22	Belden 8451
3	2-conductor, braided with shield	20	Belden 8762
4	2-conductor, braided with shield	18	Belden 8760

MICROPHONE LEVEL AUDIO CABLE

NO.	TYPE OF CABLE	GAUGE	PART NO.
1	2-conductor, braided with shield	22	Belden 8441

2–56. **INPUT CIRCUIT BOARD CONNECTIONS.** Microphone, consumer, and line input audio interfacing is accomplished by modular connectors on the input circuit board. The 6 channel and 2 channel input circuit boards accept three audio input sources for each channel.

NOTE ***FOR OPTIMUM AUDIO PERFORMANCE, TERMINATE ALL UNUSED AUDIO INPUTS WITH 600 OHM 1/4 WATT RESISTORS.***

NOTE

2–57. **Audio Input Wiring.** Connectors J100 through J600 on 6 channel input circuit boards and J100 and J200 on 2 channel input circuit boards provide audio input interfacing. Figure 2–10 presents pin descriptions for the audio input connectors. Refer to Figure 2–10 and the following text to construct an audio interface cable using the wiring kit supplied with the console and the specified line or microphone level Belden audio cable or equivalent (refer to AUDIO CABLE information in the preceding text).

2–58. For microphone, consumer, and line level balanced stereophonic sources, connect the audio source left and right channels to the modular connector as shown. If a monophonic line or consumer level source is assigned to an input, it is recommended the audio source input be connected to the left and right channels at the modular connector. For a monophonic microphone level source: 1) connect the audio source input to the left and right channels at the modular connector or 2) install a microphone splitting transformer. For optimum audio performance, terminate all unused audio inputs with 600 Ohm 1/4 watt resistors.

2–59. Unbalanced audio input connections are presented in Figure 2–11. Refer to Figures 2–10 and 2–11 and connect the unbalanced audio inputs to the console as required.

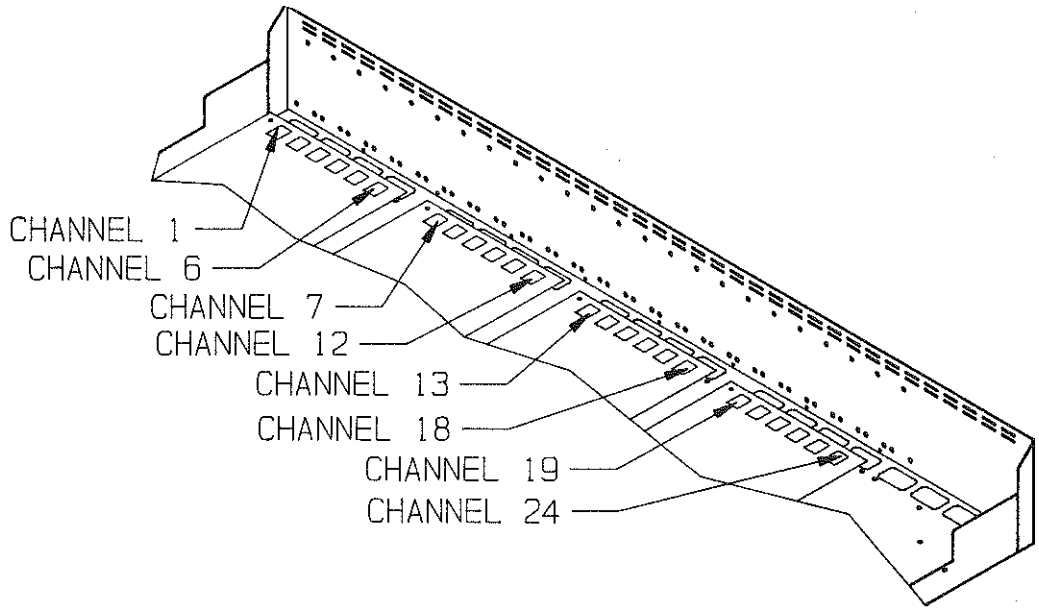
2–60. **Patch Point Interfacing.** Modular connectors on the input circuit board provide interfacing for patch point audio operations (refer to Figure 2–12). Patch points are unbalanced transmitting and receiving terminals for the connection of external audio equipment such as an audio processing unit. Jumpers are installed in the connectors prior to shipment. If patch point operation is desired, remove the jumpers and wire the connectors as follows.

2–61. If patch point operation for channel 1 is desired, refer to Figure 2–12 and construct an interface cable using the wiring kit supplied with the console. Use the specified Belden audio cable or equivalent (refer to AUDIO CABLE information in the preceding text).

2–62. If patch point operations are desired for channels 2 through 6 on 6 channel input circuit boards and channel 2 on 2 channel input circuit boards, refer to the chart in Figure 2–12 to determine the connectors associated with the desired channel. Construct an interface cable as described for channel 1 using the wiring kit supplied with the console and the specified Belden audio cable or equivalent (refer to AUDIO CABLE information in the preceding text).

2–63. **OUTPUT CIRCUIT BOARD CONNECTIONS.** The output circuit board contains modular connectors for interfacing with the program and audition, studio and control room monitor, external cue and headphone, mix minus, and monophonic audio output circuits. The circuit board also provides interfacing for the talkback circuitry, mute control circuitry, and off–air and external monitor audio inputs.

2–64. The program, audition, studio room monitor, control room monitor, and the mix minus audio output circuits are designed as balanced output circuits. Therefore, it is recommended that these circuits be interfaced with external audio equipment in a balanced configuration. In addition, these circuits are also designed to fold–back if either the positive or negative output is inadvertently grounded.



PIN NO.	DESCRIPTION
1	A INPUT, RIGHT CHANNEL -
2	A INPUT, RIGHT CHANNEL +
3	A INPUT, LEFT CHANNEL -
4	A INPUT, LEFT CHANNEL +
5	SHIELD GROUND
6	SHIELD GROUND
7	SHIELD GROUND
8	SHIELD GROUND
9	B INPUT, RIGHT CHANNEL -
10	B INPUT, RIGHT CHANNEL +
11	B INPUT, LEFT CHANNEL -
12	B INPUT, LEFT CHANNEL +
13	SHIELD GROUND
14	SHIELD GROUND
15	SHIELD GROUND
16	SHIELD GROUND
17	C INPUT, RIGHT CHANNEL -
18	C INPUT, RIGHT CHANNEL +
19	C INPUT, LEFT CHANNEL -
20	C INPUT, LEFT CHANNEL +

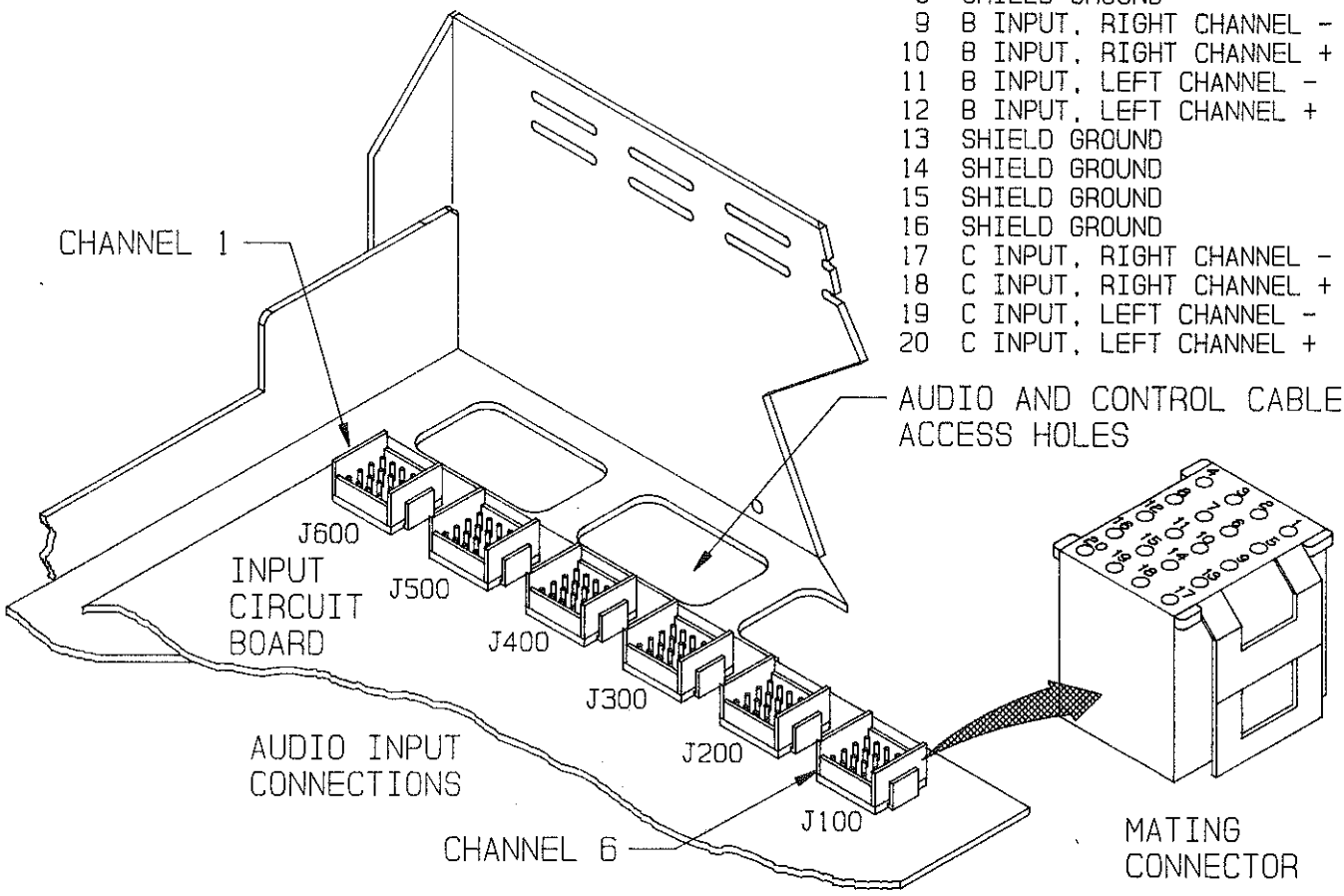
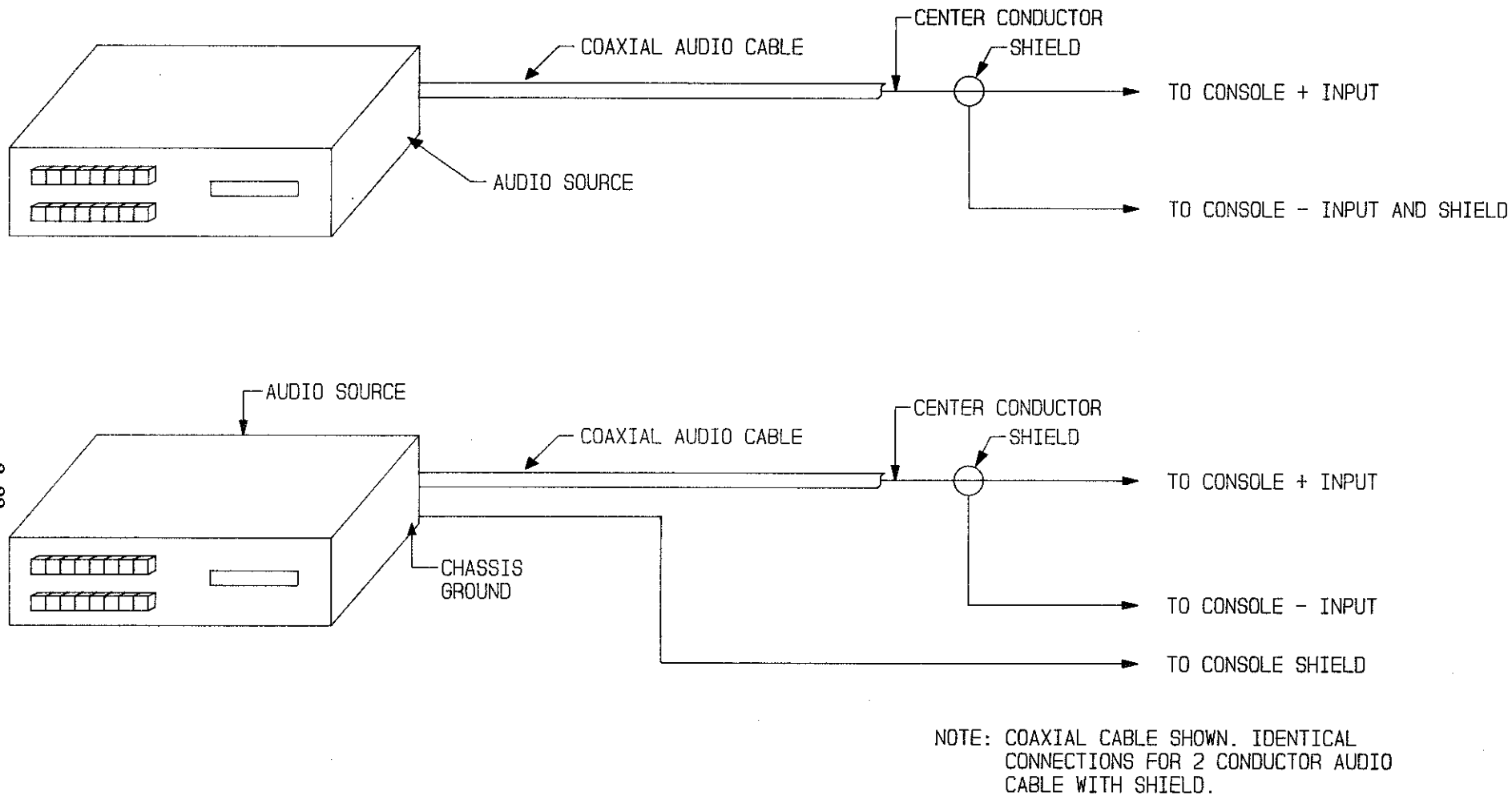


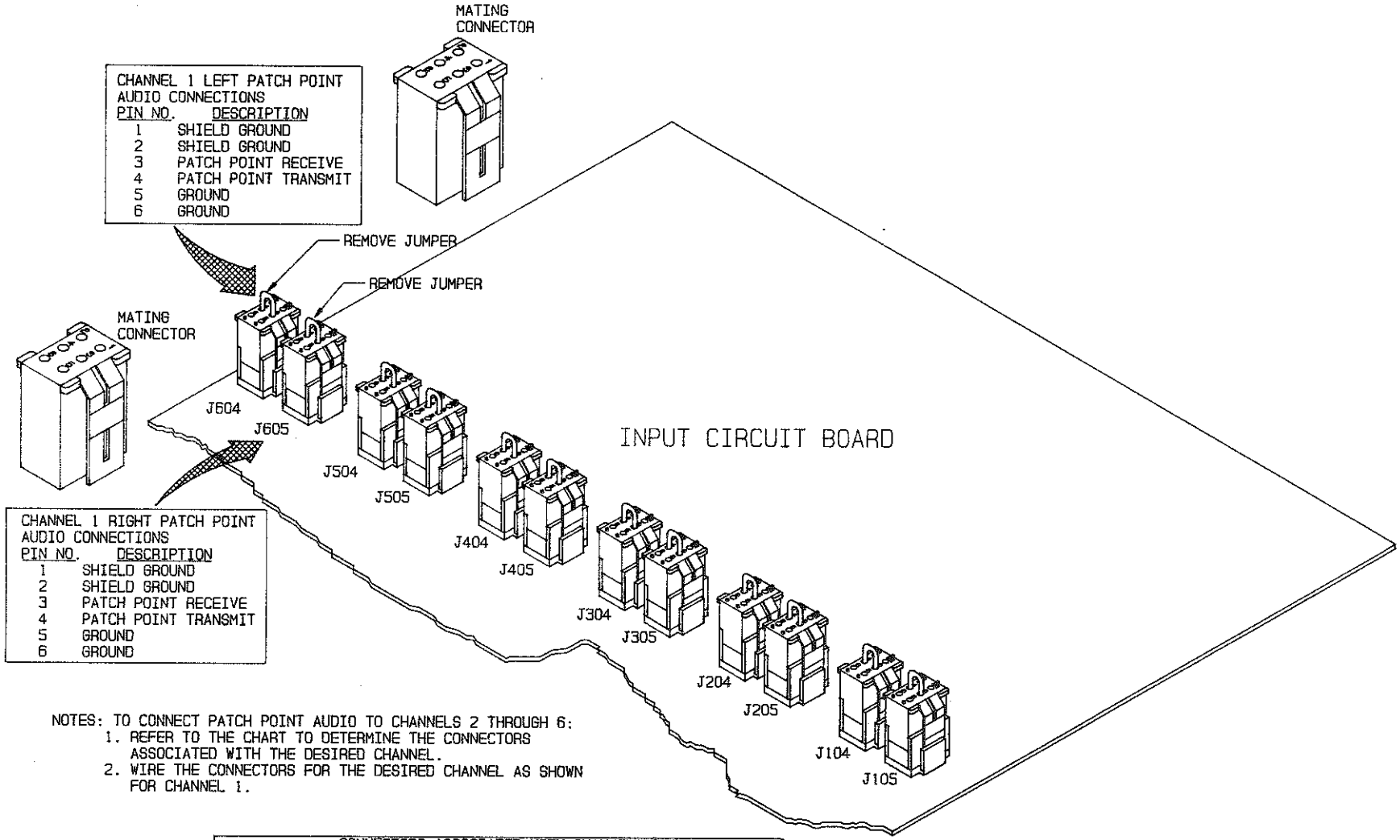
FIGURE 2–10. AUDIO INPUT CONNECTIONS



NOTE: COAXIAL CABLE SHOWN. IDENTICAL CONNECTIONS FOR 2 CONDUCTOR AUDIO CABLE WITH SHIELD.

597-6000-3

FIGURE 2-11. UNBALANCED AUDIO INPUT CONNECTIONS



	CONNECTORS ASSOCIATED WITH CHANNELS 2 THROUGH 6				
	CHANNEL 2	CHANNEL 3	CHANNEL 4	CHANNEL 5	CHANNEL 6
LEFT	J504	J404	J304	J204	J104
RIGHT	J505	J405	J305	J205	J105

597-6000-13

FIGURE 2-12. PATCH POINT AUDIO CONNECTIONS

2–65. **Audition/Program Output.** The audition and program output circuits provide a continuously variable level from +0 dBm to +10 dBm with a 600 Ohm minimum load impedance. To interface audition output connector J9 and program output connector J10 to external audio equipment, refer to Figure 2–13 and construct audio interface cables. Construct the cables using the wiring kit supplied with the console and the specified Belden audio cable or equivalent (refer to AUDIO CABLE information in the preceding text).

2–66. **Audition/Program Monophonic Output.** The audition and program monophonic output circuits provide a continuously variable level from +0 dBm to +10 dBm with a 600 Ohm minimum load impedance. To interface audition/program monophonic output connector J8 to external audio equipment, refer to Figure 2–13 and construct an audio interface cable. Construct the cable using the wiring kit supplied with the console and the specified Belden audio cable or equivalent (refer to AUDIO CABLE information in the preceding text).

2–67. **Mix Minus Output.** If the mix minus bus is enabled, the monophonic mix minus output circuit will provide a continuously variable level from +0 dBm to +10 dBm with a 600 Ohm minimum load impedance. To interface mix minus output connector J7 to external audio equipment, refer to Figure 2–13 and construct an audio interface cable. Construct the cable using the wiring kit supplied with the console and the specified Belden audio cable or equivalent (refer to AUDIO CABLE information in the preceding text).

2–68. **Studio/Control Room Monitor Output.** The studio and control room monitor outputs are designed to drive external monitor power amplifiers. The outputs provide a level of +0 dBm with a 600 Ohm minimum load impedance. To interface studio output connector J6 and control room output connector J5 to external audio monitor power amplifiers, refer to Figure 2–13 and construct audio interface cables. Construct the cables using the wiring kit supplied with the console and the specified Belden audio cable or equivalent (refer to AUDIO CABLE information in the preceding text).

2–69. **External Cue/Headphone Output.** The external cue and headphone output circuits provide a level of +0 dBm with a 600 Ohm minimum load impedance. To interface external cue output connector J3 and external headphone output connector J4 to external audio equipment, refer to Figure 2–13 and construct audio interface cables. Construct the cables using the wiring kit supplied with the console and the specified Belden audio cable or equivalent (refer to AUDIO CABLE information in the preceding text).

CAUTION

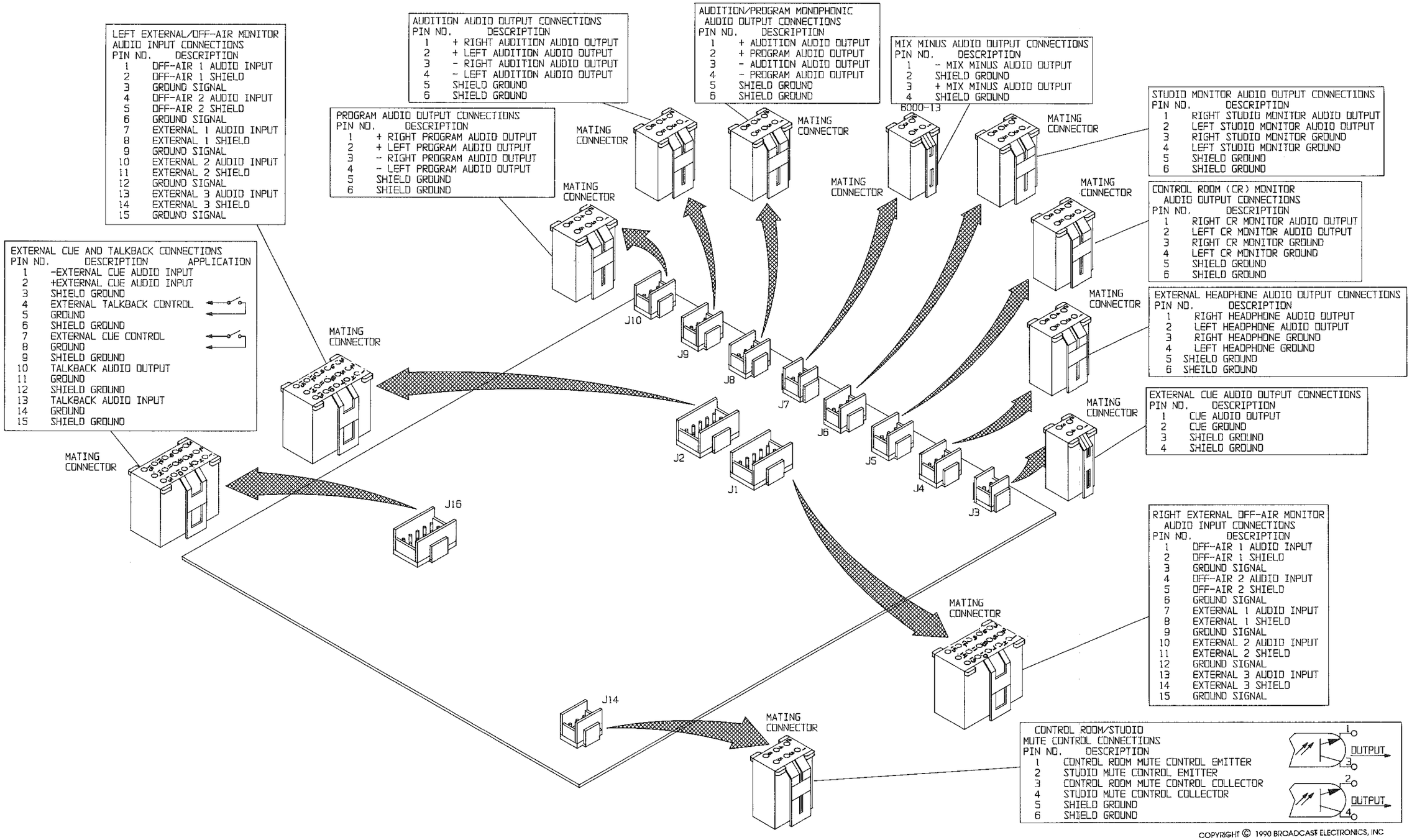
CAUTION

THE OFF–AIR AND EXTERNAL MONITOR INPUTS ARE UNBALANCED. ENSURE BALANCED AUDIO SOURCES ARE PROPERLY CONNECTED TO THE INPUT TERMINALS.

2–70. **Off–Air/External Monitor Inputs.** Right channel connector J1 and left channel connector J2 provide unbalanced audio interfacing for off–air 1, off–air 2, external 1, external 2, and external 3 monitor inputs. If off–air and external monitor operations are desired, refer to Figure 2–13 and construct audio interface cables. Construct the cables using the wiring kit supplied with the console and the specified Belden audio cable or equivalent (refer to AUDIO CABLE information in the preceding text).

2–71. **External Cue Input.** Connector J16 provides interfacing for the external cue audio input circuit. If an external cue operation is desired, refer to Figure 2–13 and construct an audio interface cable. Construct the cable using the wiring kit supplied with the console and the specified Belden audio cable or equivalent (refer to AUDIO CABLE information in the preceding text). To activate the external cue circuit, refer to Figure 2–13 and connect an external switch to J16 as shown.

2–72. **Mute Control Operations.** Connector J14 provides interfacing for studio and control room mute control operations. To interface J14, refer to Figure 2–13 and construct an interface cable as required using the wiring kit supplied with the console.



597-6000-12

FIGURE 2–13. AUDIO OUTPUT AND EXTERNAL MONITOR INPUT CONNECTIONS

2-73. **Talkback System Connections.** AT-90/100 console talkback operations are accomplished by the studio and control room microphones, a control room speaker, the console cue speaker, the external cue circuitry, the talkback circuitry, and the console input channels. Figure 2-14 presents installation information for dual and single console talkback systems. If a talkback system is desired, refer to Figure 2-14 and the following information.

2-74. Refer to Figure 2-12 as required for the location of the patch point connectors. Construct interface cables as required using the wiring kit supplied with the console and the specified Belden audio cable or equivalent (refer to AUDIO CABLE information in the preceding text). Do not remove the patch point connector jumper between pins 3 and 4 when the interface cables are constructed.

2-75. **CONTROL CIRCUIT BOARD CONNECTIONS.** The control circuit board contains modular connectors for remote control operations. The connectors provide interfacing for the control of the console channels from a remote location and the remote control of audio source equipment.

2-76. **Remote Control.** Connectors J1, J12, J21, J30, J39, and J48 on 6 channel control circuit boards and J1/J12 on 2 channel control circuit boards provide remote control interfacing. Each connector provides interfacing for one channel and allows: 1) on/off control of the channel from a remote location and 2) the remote control of the channel audio source equipment. Figure 2-15 presents pin descriptions for the remote control connectors. To provide remote control operations, construct a cable using the wiring kit supplied with the console and the specified Belden audio cable or equivalent (refer to AUDIO CABLE information in the preceding text). Connect this cable between the appropriate connector on the control circuit board and the external equipment. Repeat the remote control connections for each channel requiring remote control operations.

2-77. **Example - AT-90/100/Cartridge Machine Connections.** A typical source remote control configuration is presented in Figure 2-15. The illustration provides the connections required to interface an AT-90/100 audio console to a Broadcast Electronics PT-90 cartridge machine for remote control operations. To provide remote control operations for a PT-90 cartridge machine, refer to Figure 2-15 and connect the AT-90/100 to the PT-90 as shown. To connect a different cartridge machine to the AT-90/100, analyze the information presented in Figure 2-15 to determine the required connections. Once the connections are determined, construct the required interfacing cable and connect the cartridge machine to the AT-90/100 console.

2-78. **SOURCE RELAY INTERFACE CIRCUIT BOARD.** A source relay interface circuit board is designed to allow relay isolated: 1) on/off control of the channel from a remote location and 2) remote control of the channel audio source equipment. The interface circuit board also contains on/off tally outputs to provide remote on/off indications. The AT-90/100 consoles are shipped with a quantity of relay interface circuit boards for installation to the console channel circuitry. The interface circuit boards are located in the installation kit.

2-79. Figure 2-16 illustrates a typical source relay interface circuit board installation for a 6 channel console. To install a relay interface circuit board for channel 1, refer to Figure 2-17 and mount the circuit board on the rear-panel of the console using three screws. Construct an audio source interface cable using the wiring kit supplied with the console and the specified Belden audio cable or equivalent (refer to AUDIO CABLE information in the preceding text). Connect this cable between the external equipment and J2 on the relay interface circuit board.

2-80. The source relay interface circuit board is supplied with an internal audio interface cable to provide communication between J1 on the relay interface circuit board and J1 on the control circuit board (refer to Figure 2-16). Route the cable from the control circuit board to the relay interface circuit board and attach the mating connector to the cable. Once the cable is assembled, connect the cable between the relay interface circuit board and the channel control circuit board as shown.

2-81. To install a relay interface circuit board for channels 2 through 6, mount the unit on the rear-panel of the console as shown in Figure 2-16. Construct an interface cable as described for channel 1 and connect between the external equipment and J2 on the relay interface circuit board. Assemble and connect the cable supplied with the relay interface circuit board between J1 on the relay interface circuit board and the appropriate connector on the channel control circuit board as listed below.

2-82. **WARNING LIGHT UTILITY RELAY.** A modular utility relay is designed to control ancillary equipment such as an on-air warning light. Refer to Figure 2-17 and connect the relay to the interfacing connectors as shown for the studio and control room operations. Attach the ancillary equipment to the relay contacts as required.

CHANNEL	CONNECTOR
2	J12
3	J21
4	J30
5	J39
6	J48

2-83. **POWER SUPPLY.** The console power supply generates both regulated and unregulated dc operating potentials for application to the console. The power supply interfaces with the console at connectors J15 and J19 on the output circuit board (refer to Figure 2-18).

2-84. The power supply is shipped from the factory with a 10 foot (3 meter) interfacing cable. If an alternate length of cable is required, refer to Figure 2-18 and construct the cable with 18 gauge 12-conductor cable such as Belden 8466 or equivalent. For consoles equipped with a single power supply, connect the power supply cable between DC OUT on the power supply and connectors J15 and J19 on the output circuit board.

2-85. **Main/Alternate Power Supply Systems.** For consoles equipped with a main/alternate power supply system, the two power supplies require interfacing to the automatic power supply switcher panel. Connect the cables from the DC OUT receptacles on the power supply modules to the INPUT A and INPUT B connectors on the automatic power supply switcher panel. Connect the cable from the OUTPUT connector on the automatic power supply switcher panel to connectors J15 and J19 on the output circuit board.

2-86. **POWER SUPPLY CONNECTION - AT-100 MODULES.** The AT-100 modules must be interfaced to power supply distribution circuit board 911-6031. The pin descriptions for the circuit board are as follows:

PIN	DESCRIPTION
1	+24V dc
2	Common
3	Common
4	-24V dc

WARNING ***ENSURE ALL PRIMARY POWER IS DISCONNECTED BEFORE PROCEEDING.***

WARNING

2-87. **AC INPUT.** The Air-Trak 90/100 power supply is programmed for the proper power supply voltage at the factory prior to shipment. The operating voltage requirement for the unit is indicated on the identification plate. If the unit is to be operated from an alternate power source, refer to Figure 2-19 and reprogram the unit for the desired ac input potential.

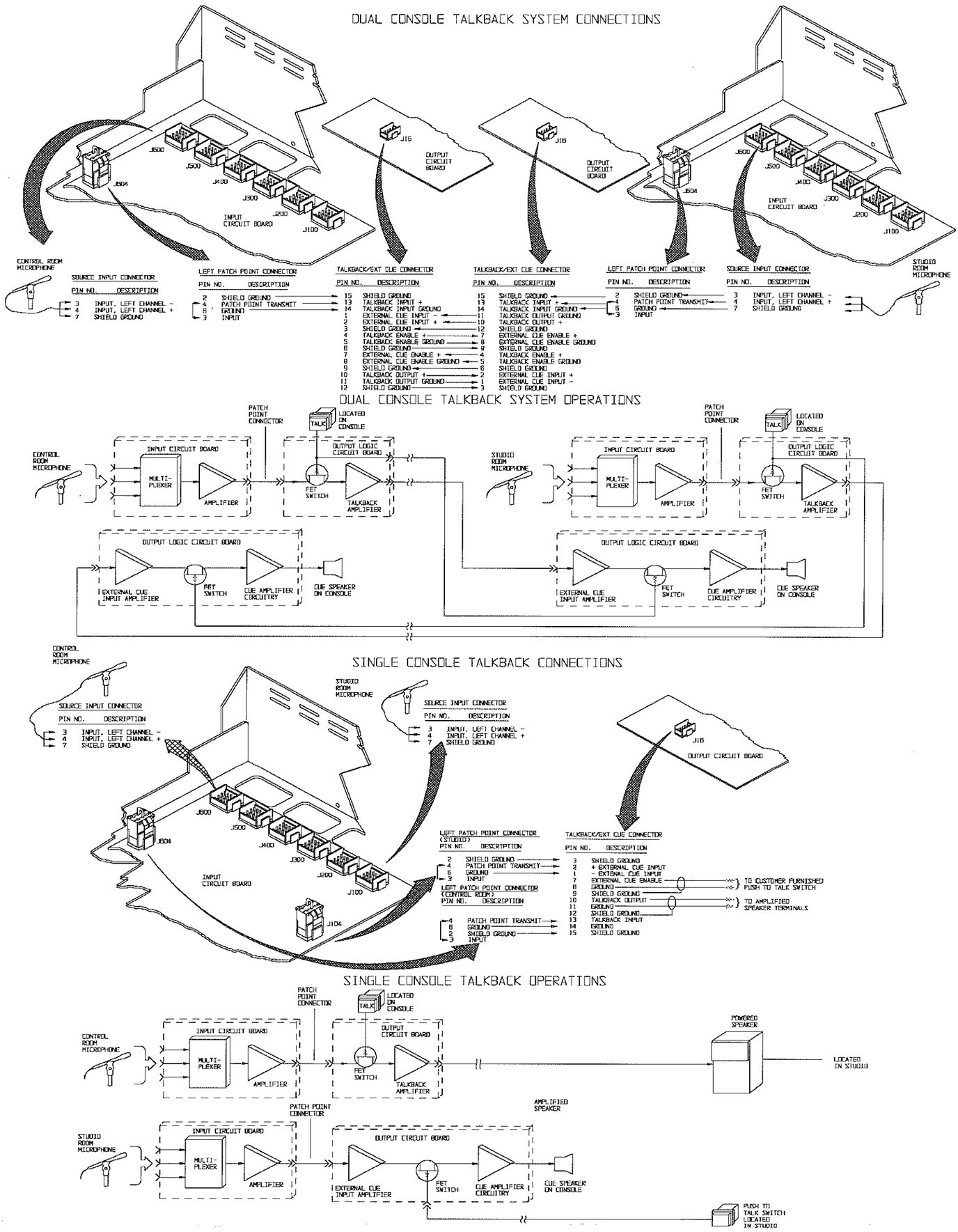
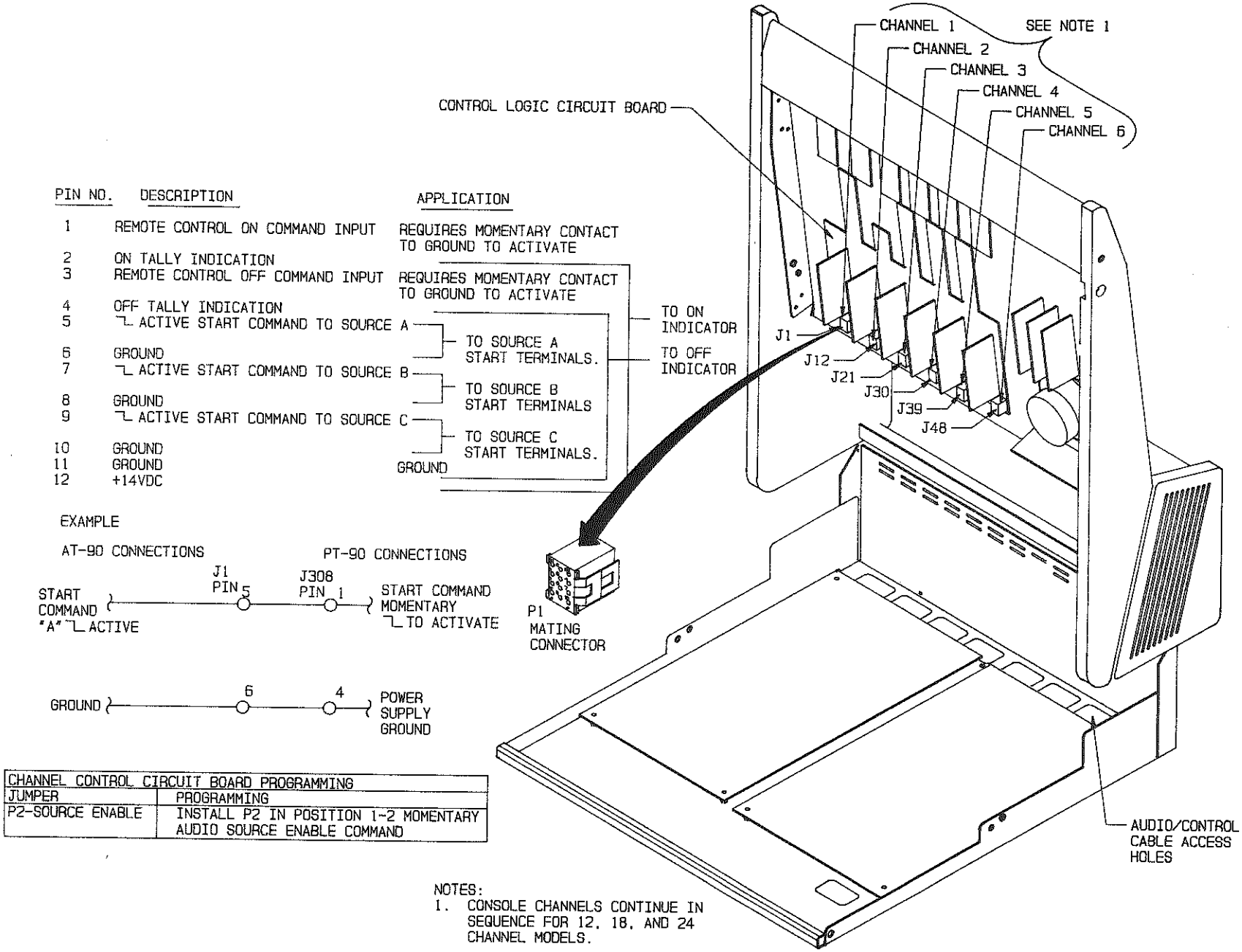


FIGURE 2-14.
CONSOLE TALKBACK SYSTEMS INSTALLATION

2-29/2-30

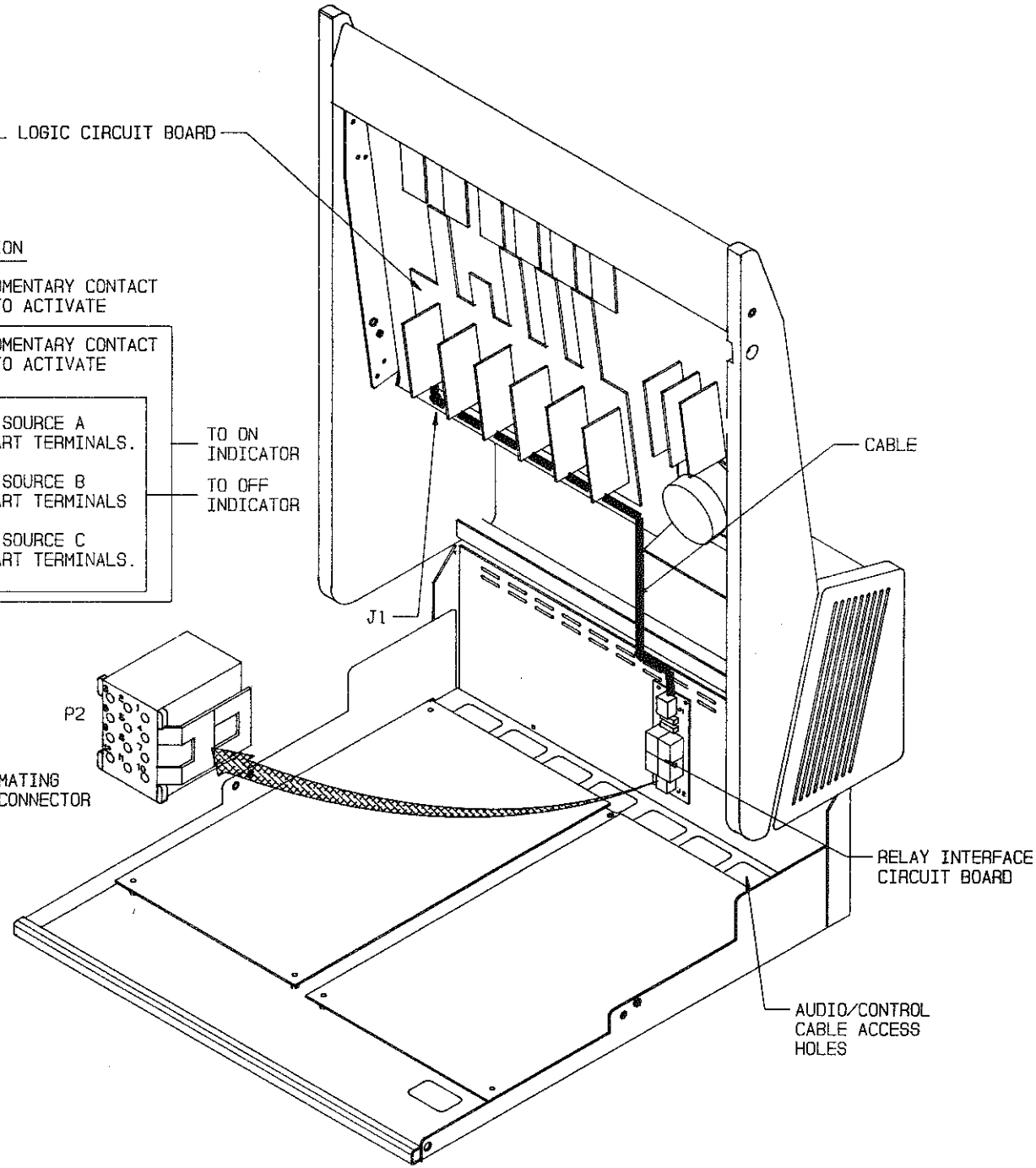


CHANNEL CONTROL CIRCUIT BOARD PROGRAMMING	
JUMPER	PROGRAMMING
P2-SOURCE ENABLE	INSTALL P2 IN POSITION 1-2 MOMENTARY AUDIO SOURCE ENABLE COMMAND

597-6000-35

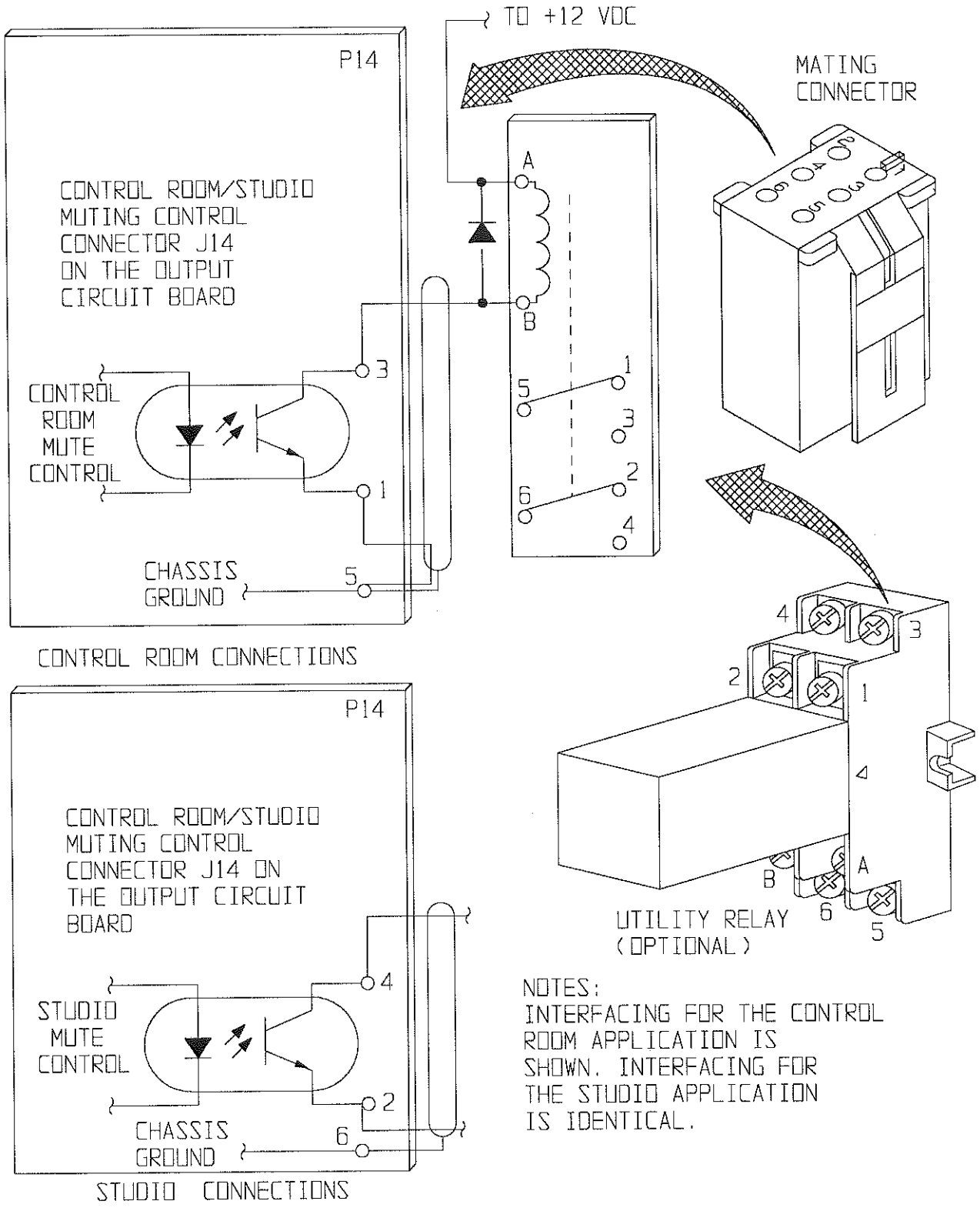
FIGURE 2-15. REMOTE CONTROL INTERFACING

PIN NO.	DESCRIPTION	APPLICATION
1	REMOTE CONTROL ON COMMAND INPUT	REQUIRES MOMENTARY CONTACT TO GROUND TO ACTIVATE
2	ON TALLY INDICATION	
3	REMOTE CONTROL OFF COMMAND INPUT	REQUIRES MOMENTARY CONTACT TO GROUND TO ACTIVATE
4	OFF TALLY INDICATION	
5	START COMMAND TO SOURCE A	TO SOURCE A START TERMINALS.
6	SOURCE A START COMMAND COMMON	
7	START COMMAND TO SOURCE B	TO SOURCE B START TERMINALS
8	SOURCE B START COMMAND COMMON	
9	START COMMAND TO SOURCE C	TO SOURCE C START TERMINALS.
10	SOURCE C START COMMAND COMMON	
11	GROUND	GROUND
12	TALLY RELAY COMMON	TO ON INDICATOR; TO OFF INDICATOR



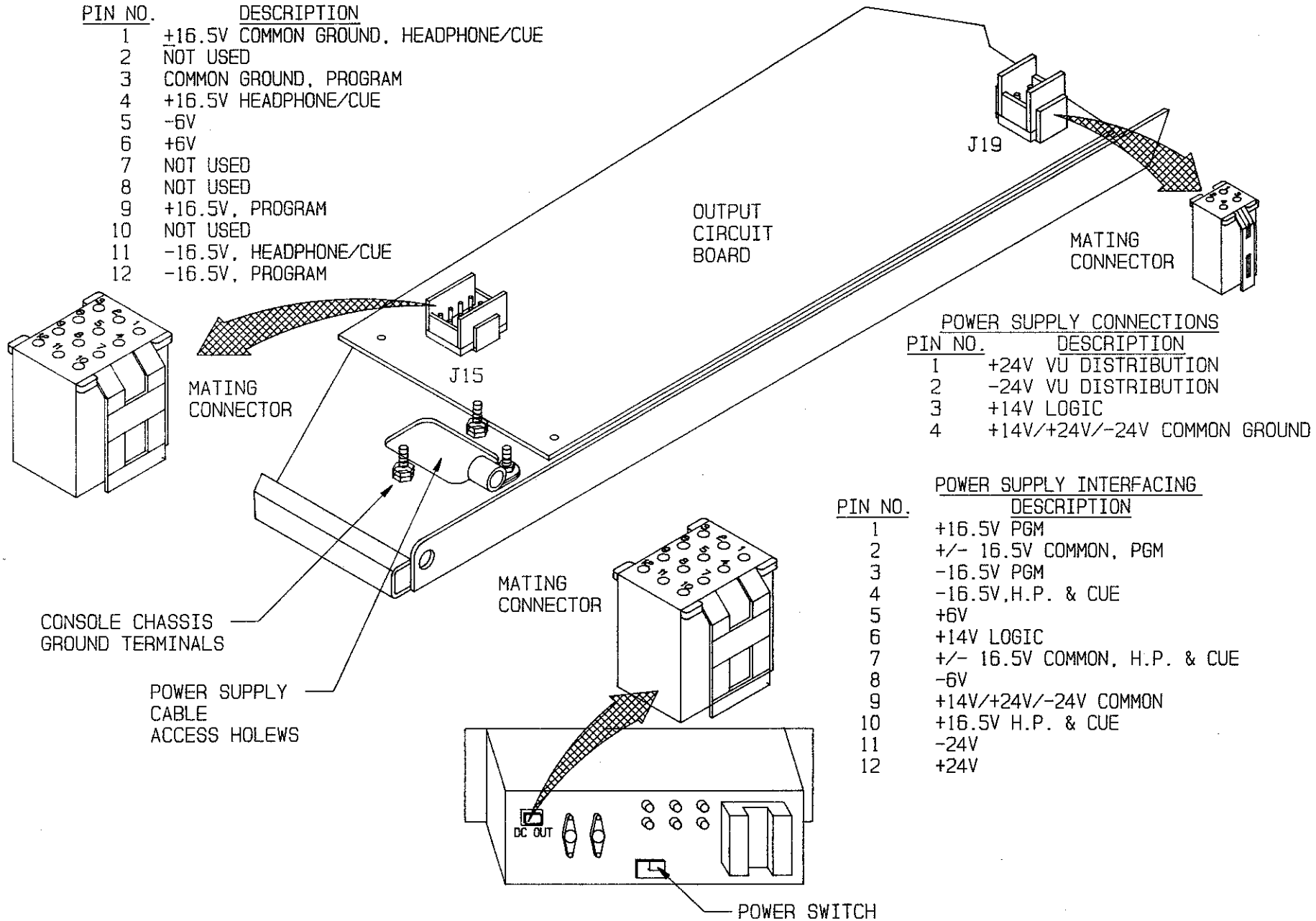
597-6000-8

FIGURE 2-16. RELAY INTERFACE CIRCUIT BOARD INSTALLATION



597-6000-15

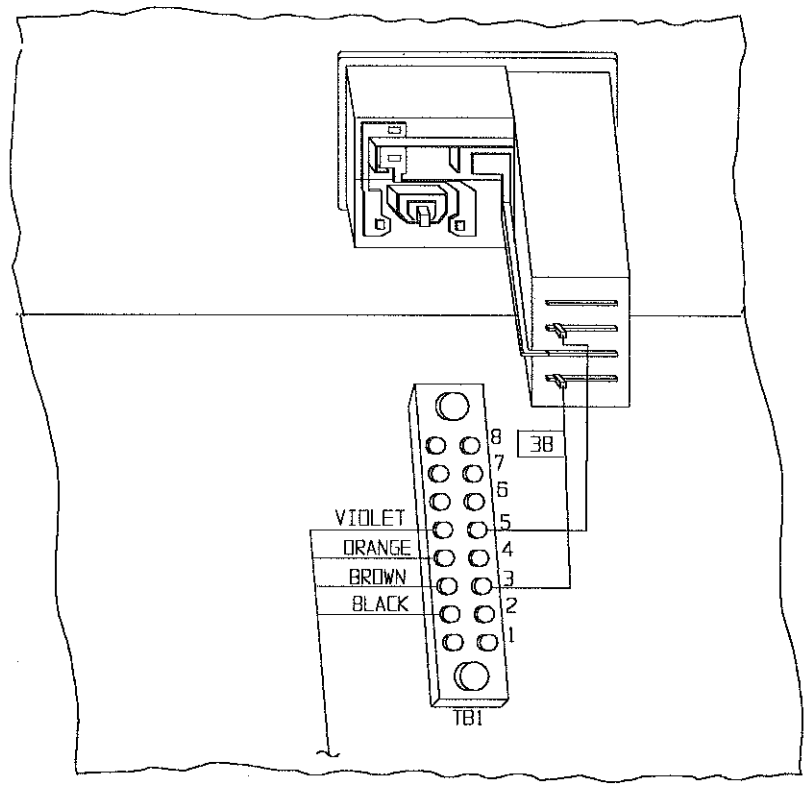
FIGURE 2-17. UTILITY RELAY INSTALLATION



2-88. Refer to Figure 2-20 and remove the ac line fuse from the rear-panel ac fuse-holder. Ensure the fuse is a slow-blow type rated at 4A for 105V to 132V operation or 2A for 210V to 264V operation.

2-89. The power supply is also equipped with fuses for the ±24 volt, ±16.5 volt, ±6V, and +14 volt dc potentials. Ensure the appropriate fuse is installed as described below for each dc output.

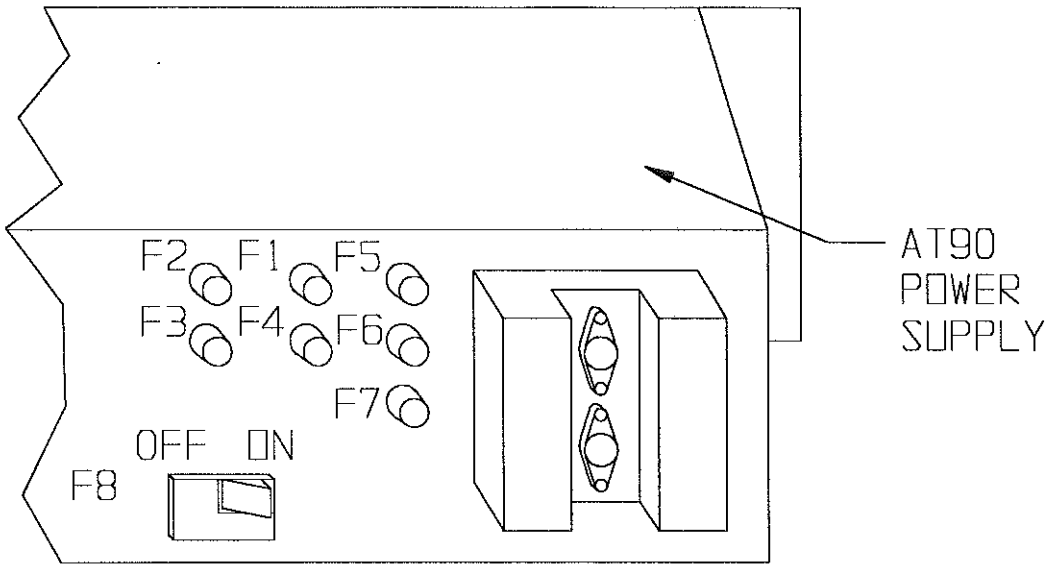
REF. DES.	DC SUPPLY	FUSE
F2	+24 Volt	1A Slow-Blow
F3	-24 Volt	1A Slow-Blow
F1	+16.5 Volt	3A
F4	-16.5 Volt	3A
F5	+6 Volt	.25A
F6	-6 Volt	.25A
F7	+14 Volt	5A



PRIMARY AC LINE VOLTAGE PROGRAMMING	
INPUT VOLTAGE	JUMPER TERMINALS
117V AC	INSTALL WIRE #38 IN TERMINAL 3 2-3 4-5
220V AC	INSTALL WIRE #38 IN TERMINAL 2 3-4

597-6000-17

FIGURE 2-19. POWER SUPPLY AC LINE VOLTAGE PROGRAMMING



597-6000-30

FIGURE 2-20. POWER SUPPLY FUSE LOCATIONS

2-90. Refer to Figure 2-20 and ensure the rear-panel power switch is operated to OFF and connect the power supply line cord to the appropriate power source.

2-91. **INSTALLATION ADJUSTMENTS.**

2-92. The Air-Trak 90/100 console installation adjustments involve the alignment of the console audio level structure. The test equipment required for the installation adjustments is listed below.

TEST EQUIPMENT

1. Low-distortion Sinewave Output Audio Oscillator (Potomac AG-51 or equivalent).
2. High Impedance dB Calibrated Voltmeter.
3. Two 600 Ohm ±5%, 1/2 Watt Resistors.
4. Audio Source Alignment Tapes.
5. NAB Alignment CD.
6. Audio Analyzer (Potomac AA-51 or equivalent).
7. Insulated adjustment tool.

2-93. **INPUT LEVEL ADJUSTMENTS.** For optimum signal-to-noise performance, the console channels must be individually adjusted to compensate for input level differences between the left and right signal sources. The primary audio source assigned to the channel should be selected for level adjustments.

2-94. The input circuit boards are equipped with microphone and consumer gain controls for the left and right audio circuits of each console channel. The microphone gain controls are adjusted if the channel is programmed for microphone input operation. The consumer gain controls are adjusted if the channel is programmed for line/consumer operation.

2-95. **Consumer Gain Controls.** To adjust the left consumer gain control for channel 1 for each input circuit board, proceed as follows:

2-96. Refer to Figure 2-21 and connect a decibel calibrated voltmeter between left channel patch point transmit terminal J604 pin 4 and ground.

2-97. Insert the alignment material into the audio source and reproduce the test audio. If alignment audio is not available, connect the audio oscillator to the channel 1 input terminals and adjust the oscillator for a 1kHz output at -10 dBu.

2-98. Refer to OPERATION in SECTION III and operate the channel to select the test audio.

2-99. With the fader control in the -55 dB position, refer to Figure 2-21 and adjust left consumer gain control R694 for a meter indication of -5 dBu. If a -5 dBu level cannot be obtained, re-programming of the channel attenuation will be required. Refer to INPUT CIRCUIT BOARD PROGRAMMING in the preceding text and perform the procedures to re-program the attenuation.

2-100. Repeat the procedure for the right channel using right consumer gain control R695 and right channel patch point terminal J605 pin 4 (refer to Figure 2-21).

2-101. Repeat the procedure for the remaining channels. Refer to the chart in Figure 2-21 to determine the controls associated with the desired channel.

2-102. When audio level alignment is complete, remove all test equipment.

2-103. **Microphone Gain Controls.** To adjust the left microphone gain control for channel 1 on each input circuit board, proceed as follows:

2-104. Refer to Figure 2-21 and connect a decibel calibrated voltmeter between left channel patch point transmit terminal J604 pin 4 and ground.

2-105. Operate the microphone source to generate the test audio.

2-106. Refer to OPERATION in SECTION III and operate the channel to select the test audio.

2-107. With the fader control in the -55 dB position, refer to Figure 2-21 and adjust left microphone gain control R696 for a meter indication of -5 dBu. If a -5 dBu level cannot be obtained, re-programming of the channel attenuation will be required. Refer to INPUT CIRCUIT BOARD PROGRAMMING in the preceding text and perform the procedures to re-program the attenuation.

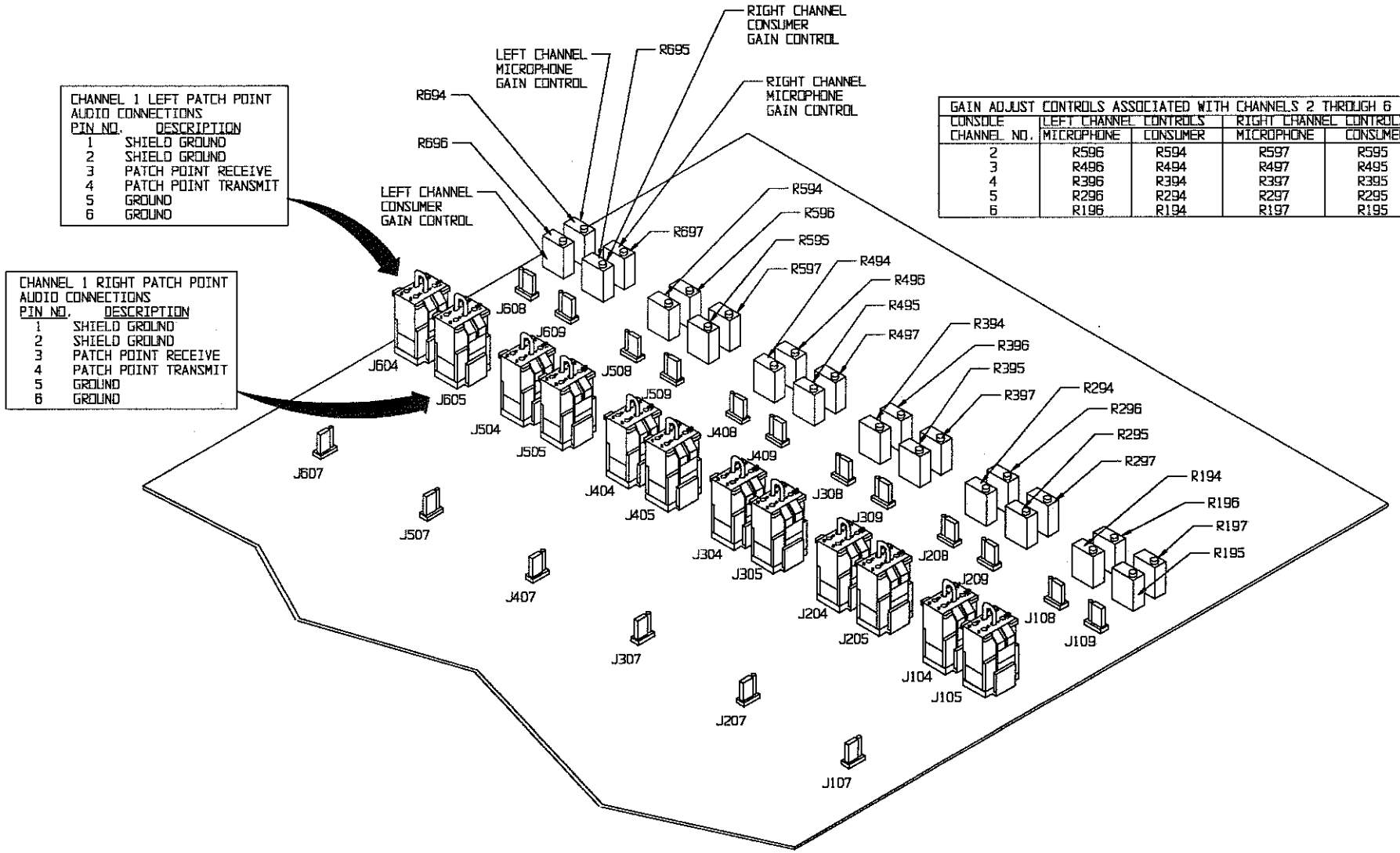
2-108. Repeat the procedure for the right channel using right microphone gain control R697 and right channel patch point terminal J605 pin 4 (refer to Figure 2-21).

2-109. Repeat the procedure for the remaining channels. Refer to the chart in Figure 2-21 to determine the controls associated with the desired channel.

2-110. When audio level alignment is complete, remove the test equipment.

2-111. **OUTPUT LEVEL/VU METER ADJUSTMENT.** Each Air-Trak 90/100 console is shipped from the factory at a +4 dBu output level. If an alternate console output level is required, refer to the PROGRAM OUTPUT CALIBRATION AND AUDITION OUTPUT CALIBRATION procedures in SECTION V, MAINTENANCE.

2-112. **EXTERNAL CUE INPUT LEVEL ADJUSTMENT.** The external cue circuitry operates in association with the talkback system. The external cue input is equipped with a level control to allow the level to be calibrated to the internal cue channel. The calibration of the control will prevent the adjustment of the cue level control when the external cue audio source is enabled. The external cue input level is calibrated by external cue input level control R118. The external cue input level is calibrated as follows.



GAIN ADJUST CONTROLS ASSOCIATED WITH CHANNELS 2 THROUGH 6				
CONSOLE	LEFT CHANNEL CONTROLS		RIGHT CHANNEL CONTROLS	
CHANNEL NO.	MICROPHONE	CONSUMER	MICROPHONE	CONSUMER
2	R596	R594	R597	R595
3	R496	R494	R497	R495
4	R396	R394	R397	R395
5	R296	R294	R297	R295
6	R196	R194	R197	R195

597-6000-18

FIGURE 2-21. AUDIO SOURCE INPUT LEVEL CONTROLS

2–113. **Procedure.** To calibrate the external cue input level, perform the following procedure. The procedure may be performed acoustically using the external cue input source and the console cue speaker if desired.

2–114. Refer to Figure 2–13 and connect the audio generator to the external cue input terminals at connector J16.

2–115. Refer to Figure 2–13 and connect a switch to the external cue enable terminals at connector J16.

2–116. Refer to Figure 2–13 and terminate the external cue audio output at connector J3 with a 600 Ohm resistor.

2–117. Refer to Figure 2–13 and connect the audio analyzer to the external cue audio output at connector J3.

2–118. Configure the audio analyzer for level indications.

2–119. Operate the audio generator for a 1 kHz output at a level equal to the external cue audio input source.

2–120. Depress the external cue audio switch to activate the cue circuitry and the external cue audio output.

2–121. Refer to Figure 2–22 and adjust external cue audio input level control R118 until the audio analyzer indicates approximately 0 dB.

2–122. Disconnect all test equipment and reconnect any console cables if required.

2–123. **CONTROL ROOM MONITOR DIM ADJUSTMENT.** The control room monitor dim function conveniently reduces the control room monitor speaker level during cue channel operations. The dim level is adjusted by control room monitor dim level control R163 on the output circuit board. The dim level is adjusted as follows.

2–124. **Procedure.** To adjust the control room monitor dim level, proceed as follows:

2–125. Select two console channels and a line/consumer audio level source assigned to each channel for the procedure.

2–126. Configure one channel by: 1) selecting the test audio source, 2) operating the fader to the 0 position, and 3) routing the audio to the audition bus.

2–127. Configure the second channel by: 1) selecting the test audio source and 2) operating the channel to cue.

2–128. Refer to SECTION III, OPERATION and operate the monitor system to monitor the audition audio.

2–129. Operate the console to start the audio sources.

2–130. Refer to Figure 2–22 and adjust control room monitor dim control R163 for the desired control room monitor level during cue channel monitoring operations.

2–131. When the monitor dim level adjustment is complete, return the console to the original configuration.

2–132. **OFF–AIR 1 INPUT LEVEL CALIBRATION ADJUSTMENT.** The off–air 1 input is equipped with level controls to allow the level to be calibrated to the program and audition channels. The calibration of the controls will prevent the adjustment of the monitor level control when monitoring the off–air 1 source. The off–air 1 input level is calibrated by left channel off–air 1 input level control R52 and right channel off–air 1 input level control R2 on the output circuit board. The off–air 1 input level is calibrated as follows.

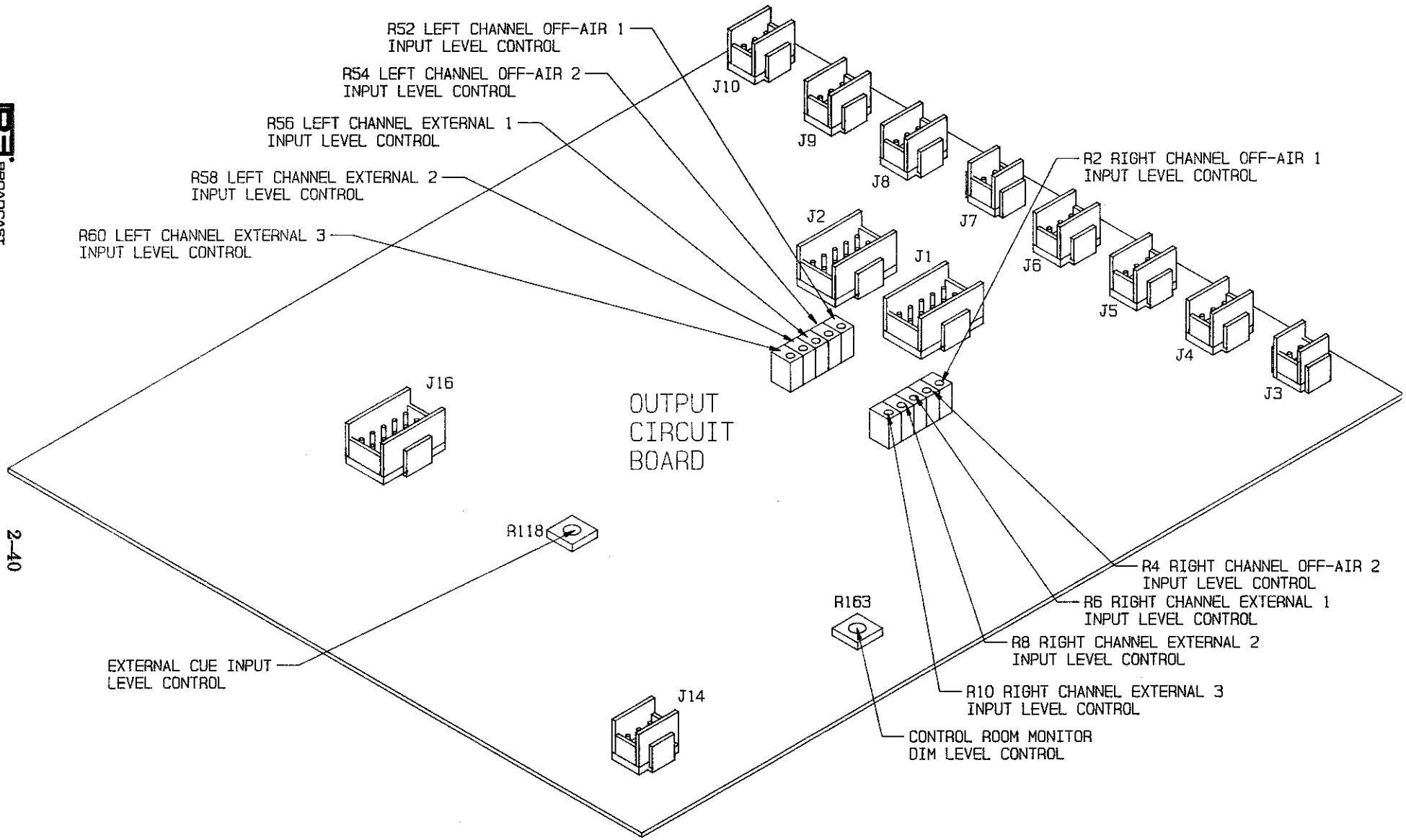


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FIGURE 2-22. EXTERNAL MONITOR INPUT, EXTERNAL CUE INPUT, AND CONTROL ROOM MONITOR DIM CONTROLS

2-133. **Procedure.** To calibrate the off-air 1 input level, perform the the following procedure. The procedure may be performed acoustically using the off-air 1 audio source and the headphone system if desired.

2-134. Refer to Figure 2-13 and connect the audio generator to the left channel off-air 1 input terminals.

2-135. Refer to Figure 2-13 and terminate the control room monitor output left channel at connector J5 with a 600 Ohm resistor.

2-136. Refer to Figure 2-13 and connect the audio analyzer to the control room monitor output left channel at connector J5.

2-137. Configure the audio analyzer for level indications.

2-138. Operate the audio generator for a 1 kHz output at a level equal to the off-air 1 audio source.

2-139. Refer to SECTION III, OPERATION and operate the monitor system to monitor the off-air 1 audio.

2-140. Refer to Figure 2-22 and adjust left channel off-air 1 input level control R52 until the audio analyzer indicates approximately 0 dB.

2-141. Repeat the procedure for the right channel. Connect the audio generator to the right channel input and the audio analyzer to the control room monitor right channel output. Calibrate the right channel off-air 1 input using right channel off-air 1 input level control R2.

2-142. Disconnect all test equipment and reconnect any console cables if required.

2-143. **OFF-AIR 2 INPUT LEVEL CALIBRATION ADJUSTMENT.** The off-air 2 input is equipped with level controls to allow the level to be calibrated to the program and audition channels. The calibration of the controls will prevent the adjustment of the monitor level control when monitoring the off-air 2 source. The off-air 2 input level is calibrated by left channel off-air 2 input level control R54 and right channel off-air 2 input level control R4. The off-air input level is calibrated as follows.

2-144. **Procedure.** To calibrate the off-air 2 input level, refer to the OFF-AIR 1 INPUT LEVEL CALIBRATION ADJUSTMENT procedure presented in the preceding text and perform the procedure for the off-air 2 input. Connect the audio generator to the off-air 2 input. Calibrate the off-air 2 input using left channel off-air 2 input level control R54 and right channel off-air 2 input level control R4 (refer to Figure 2-22).

2-145. **EXTERNAL 1/EXTERNAL 2/EXTERNAL 3 INPUT LEVEL CALIBRATION ADJUSTMENT.** The external 1/external 2/external 3 inputs are equipped with level controls to allow the levels to be calibrated to the program and audition channels. The calibration of the controls will prevent the adjustment of the monitor level control when monitoring the external 1/external 2/external 3 inputs. The external 1 input level is calibrated by left channel external 1 input level control R56 and right channel external 1 input control R6. The external 2 input level is calibrated by left channel external 2 input level control R58 and right channel external 2 input level control R8. The external 3 input level is calibrated by left channel external 3 input level control R60 and right channel external 3 input level control R10. The external 1/external 2/external 3 input levels are calibrated as follows.

2-146. **Procedure.** To calibrate the external 1/external 2/external 3 input levels, refer to the OFF-AIR 1 INPUT LEVEL CALIBRATION ADJUSTMENT procedure presented in the preceding text and perform the procedure for the external 1/external 2/external 3 inputs. Refer to Figure 2-22 and calibrate the external 1/external 2/external 3 inputs using the following controls.

1. Left channel external 1 input level control R56.
2. Right channel external 1 input level control R6.
3. Left channel external 2 input level control R58.
4. Right channel external 2 input level control R8.
5. Left channel external 3 input level control R60.
6. Right channel external 3 input level control R10.

SECTION III
OPERATION

3–1. INTRODUCTION.

3–2. This section presents operating information for the Air–Trak 90/100 series audio consoles. The information includes control and indicator identification and standard operating procedures.

3–3. CONTROLS AND INDICATORS.

3–4. CONSOLE MAIN FRAME.

3–5. Refer to Figure 3–1 for the location of controls and indicators associated with the Air–Trak 90/100 series consoles. The function of each control or indicator is described in Table 3–1.

TABLE 3–1. MAIN FRAME CONTROLS AND INDICATORS
(Sheet 1 of 3)

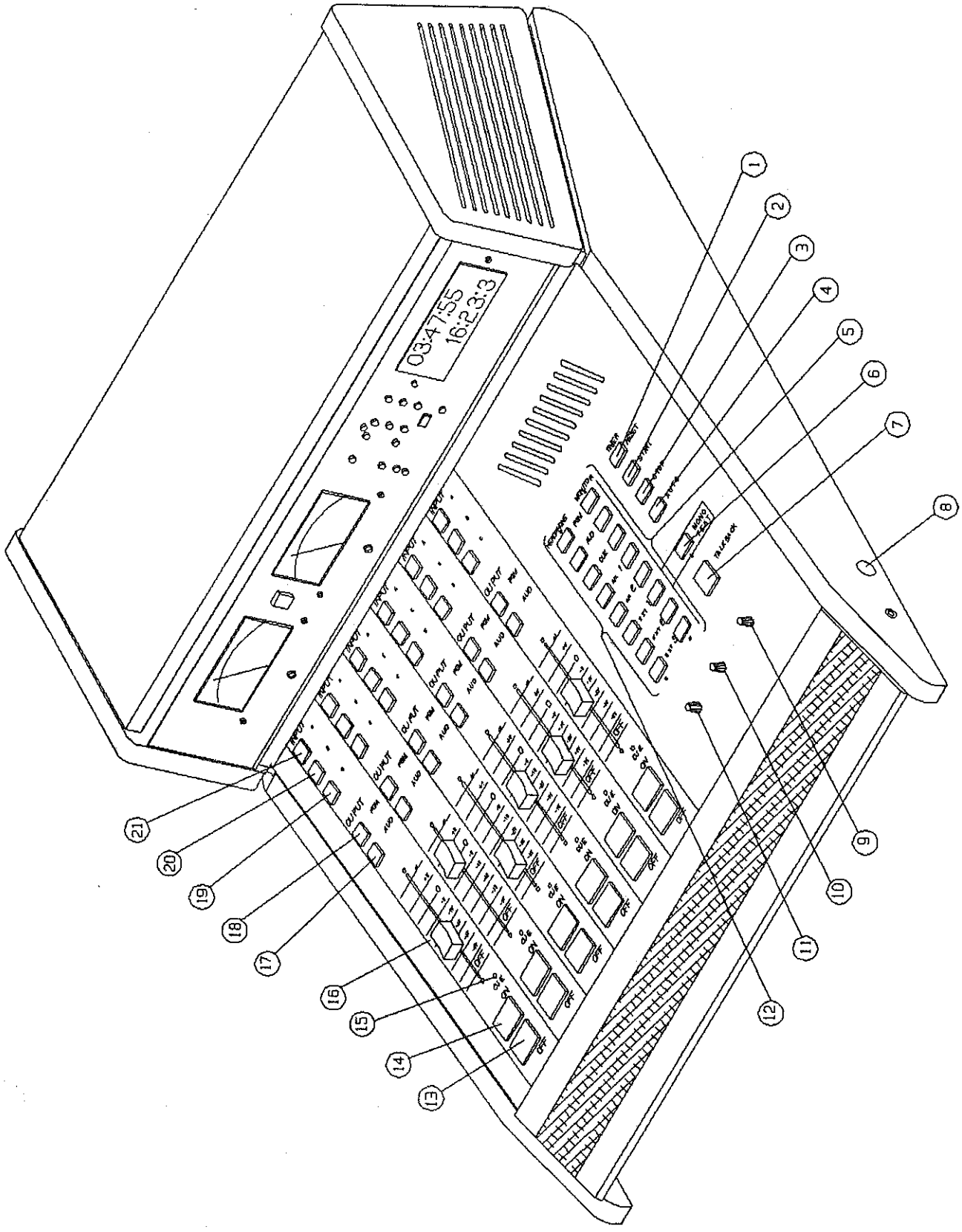
INDEX NO.	NOMENCLATURE	FUNCTION
1	**RESET** Switch/ Indicator	SWITCH: Resets the clock/timer module timer section manual timer to 00 00.0. INDICATOR: Illuminates to indicate the manual timer reset function is enabled.
2	**START** Switch/ Indicator	SWITCH: Initiates operation of the clock/timer module timer section manual timer. INDICATOR: Illuminates to indicate the manual timer start function is enabled.
3	**STOP** Switch/ Indicator	SWITCH: Terminates the clock/timer module timer section manual timer and freezes the display. INDICATOR: Illuminates to indicate the manual timer stop function is enabled.
4	**AUTO** Switch/ Indicator	SWITCH: Selects either the automatic timer or manual timer for display on the clock/timer module timer section. INDICATOR: Illuminates green to indicate the clock/ timer module timer section automatic timer is displayed.

TABLE 3–1. MAIN FRAME CONTROLS AND INDICATORS
(Sheet 2 of 3)

INDEX NO.	NOMENCLATURE	FUNCTION
5	Control Room/Studio Monitor Select Switch/Indicator Assembly 1. **PGM** 2. **AUD** 3. **CUE** 4. **AIR 1** 5. **AIR 2** 6. **EXT 1** 7. **EXT 2** 8. **EXT 3**	SWITCHES: Configures **PGM, AUD, CUE, AIR 1, AIR 2, EXT 1, EXT 2,** or **EXT 3** audio for application to the control room and studio monitor speakers. INDICATORS: Illuminates yellow to indicate an associated monitor input (**PGM, AUD, CUE, AIR 1, AIR 2, EXT 1, EXT 2,** or **EXT 3**) is selected for application to the control room and studio monitor speakers.
6	**MONO TEST** Switch/Indicator	SWITCH: Applies a monophonic test signal derived from the stereophonic audio signal to the control room monitor speakers. INDICATOR: Illuminates to indicate the monophonic test circuitry is enabled.
7	**TALKBACK** Switch	Allows the operator to communicate with the studio room via the talkback system.
8	Headphone Receptacle	Console headphone receptacle.
9	**CUE** Level Control	Adjusts the console cue speaker level.
10	**MONITOR** Level Control	Adjusts the control room monitor level.
11	**HEADPHONE** Level Control	Adjusts the headphone level.
12	Headphone Select Switch/Indicator Assembly 1. **PGM** 2. **AUD** 3. **CUE** 4. **AIR 1** 5. **AIR 2** 6. **EXT 1** 7. **EXT 2** 8. **EXT 3**	SWITCHES: Configures **PGM, AUD, CUE, AIR 1, AIR 2, EXT 1, EXT 2,** or **EXT 3** for application to the console headphone system. INDICATORS: Illuminates orange to indicate an associated monitor input (**PGM, AUD, CUE, AIR 1, AIR 2, EXT 1, EXT 2,** or **EXT 3**) is selected for application to the console headphone system.

TABLE 3–1. MAIN FRAME CONTROLS AND INDICATORS
(Sheet 3 of 3)

INDEX NO.	NOMENCLATURE	FUNCTION
13	**OFF** Switch/ Indicator	SWITCH: Disables the operation of the console channel. INDICATOR: Illuminates to indicate the console channel is disabled.
14	**ON** Switch/ Indicator	SWITCH: Enables the operation of the console channel. INDICATOR: Illuminates to indicate the console channel is enabled.
15	**CUE** Indicator	Illuminates to indicate the console channel is operated to the cue bus.
16	Fader Control	A. Adjusts the audio output level of the channel. B. Configures the channel to the cue bus when operated to the **OFF** position.
17	**AUD** Switch/Indicator	SWITCH: Routes the console channel to the audition bus. INDICATOR: Illuminates to indicate the console channel is routed to the audition bus.
18	**PGM** Switch	SWITCH: Routes the console channel to the program bus. INDICATOR: Illuminates to indicate the console channel is routed to the program bus.
19	**C** Input Select Switch/Indicator	SWITCH: Selects input **C** for audio operations. INDICATOR: Illuminates to indicate input **C** is selected for audio operations.
20	**B** Input Select Switch/Indicator	SWITCH: Selects input **B** for audio operations. INDICATOR: Illuminates to indicate input **B** is selected for audio operations.
21	**A** Input Select Switch/Indicator	SWITCH: Selects input **A** for audio operations. INDICATOR: Illuminates to indicate input **A** is selected for audio operations.
22	Accessory Module Locations (AT–100 consoles only)	Provided for the placement of accessory modules (refer to additional information shipped with the console for accessory module operating information).



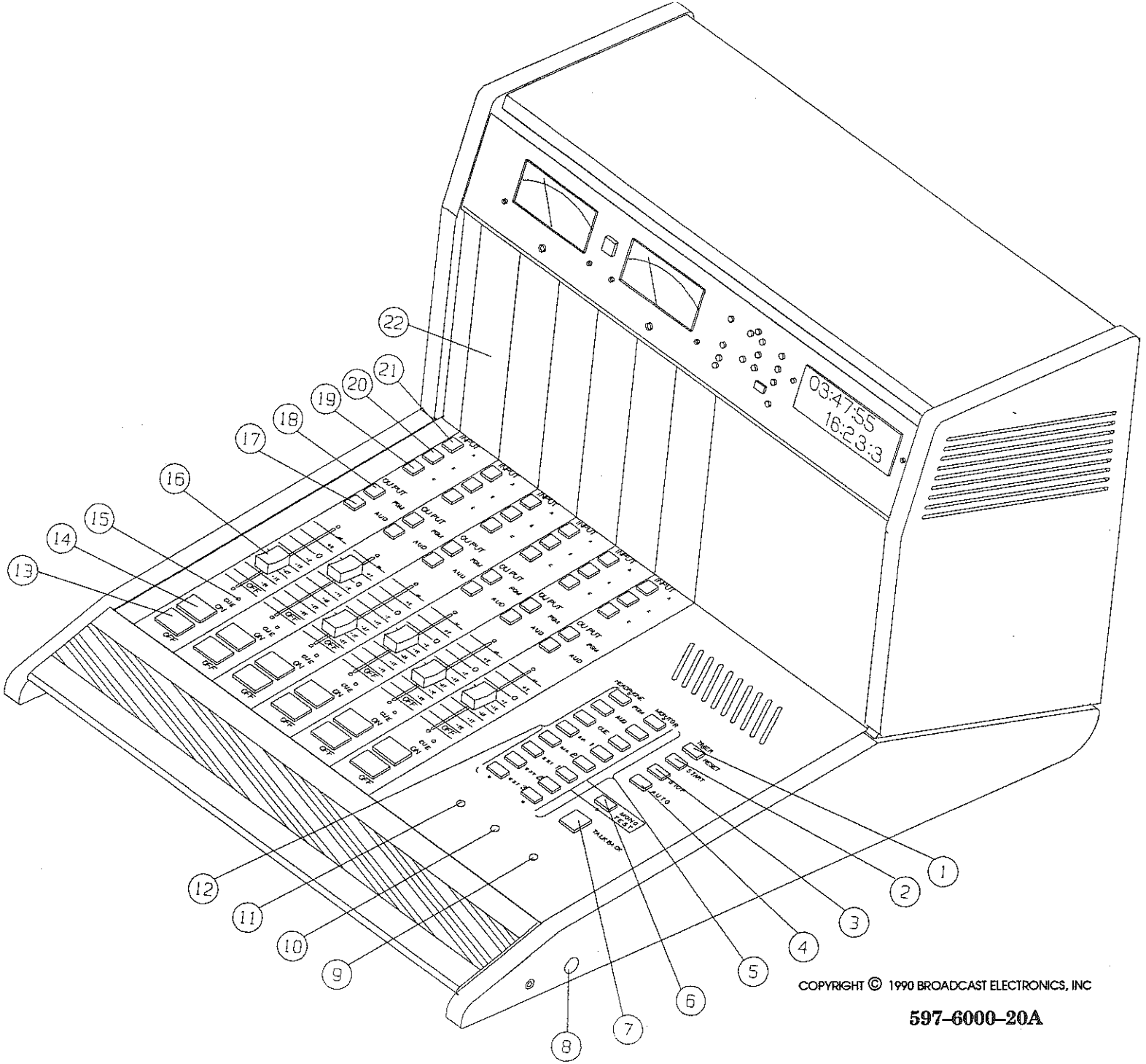


FIGURE 3–1. AT–100 CONSOLE CONTROLS AND INDICATORS (SHEET 2 OF 2)

3–6. **CONSOLE METER BRIDGE ASSEMBLY.**

3–7. **6 CHANNEL CONSOLE.** Refer to Figure 3–2 for the location of all controls and indicators associated with the 6 channel console meter bridge assembly. The function of each control or indicator is described in Table 3–2.

TABLE 3–2. 6 CHANNEL METER BRIDGE CONTROLS AND INDICATORS
(Sheet 1 of 2)

INDEX NO.	NOMENCLATURE	FUNCTION
1	**LEFT** and **RIGHT** Channel VU Meter Assemblies	Displays left and right channel program or audition output level parameters.
2	Meter Assembly Peak Indicators	Illuminates to indicate peak program or audition audio output conditions.
3	**AUD/PGM** Switch/ Indicator	SWITCH: A. When depressed, configures VU meter to display audition output level parameters. B. When released, configures VU meter to display program output level parameters. INDICATOR: Illuminates orange to indicate the VU meter is configured to display audition output level parameters.
4	**MIX –** Level Indicator	Illuminates to indicate the presence of monophonic mix minus audio.
5	**MONO AUD** Level Indicator	Illuminates to indicate the presence of monophonic audition audio.
6	**MONO PGM** Level Indicator	Illuminates to indicate the presence of monophonic program audio.
7	**MONO AUD** Phase Indicator	Illuminates green to indicate an in–phase condition of audition audio. Illuminates red to indicate an out–of–phase condition of audition audio. The indicator will provide valid indications only when the **MONO AUD** level indicator is illuminated.
8	**MONO PGM** Phase Indicator	Illuminates green to indicate an in–phase condition of program audio. Illuminates red to indicate an out–of–phase condition of program audio. The indicator will provide valid indications only when the **MONO PGM** level indicator is illuminated.
9	±24 V Supply Indicators	Illuminates to indicate the presence of the ±24 volt operating potentials when the **TEST** switch is depressed.

TABLE 3–2. 6 CHANNEL METER BRIDGE CONTROLS AND INDICATORS
(Sheet 2 of 2)

INDEX NO.	NOMENCLATURE	FUNCTION
10	Clock/Timer Assembly	Displays clock information on a 6–digit red LED display. The clock can be configured for a 12 or 24 hour format. Displays timer information on a 5–digit green LED display. The timer can be configured for automatic or manual operation. The .10 digit will be extinguished when the timer is configured for automatic operation. The .10 digit will be illuminated when the timer is configured for manual operation.
10A	Second Control	Advances the clock/timer second display.
10B	Minute Control	Advances the clock/timer minute display.
10C	Hour Control	Advances the clock/timer hour display.
11	±16V Supply Indicators	Illuminates to indicate the presence of the ±16.5 volt operating potentials when the **TEST** switch is depressed.
12	**TEST** Switch	Enables the ±24V, ±16V, and ±6V display circuitry.
13	±6 V Supply Indicators	Illuminates to indicate the presence of the ±6 volt operating potentials when the **TEST** switch is depressed.

3–8. **8, 12, 18, AND 24 CHANNEL CONSOLE.** Refer to Figure 3–3 for the location of all controls and indicators associated with the 8, 12, 18, and 24 channel console meter bridge assemblies. The function of each control or indicator is described in Table 3–3.

TABLE 3–3. 8, 12, 18, AND 24 CHANNEL METER BRIDGE CONTROLS AND INDICATORS
(Sheet 1 of 3)

INDEX NO.	NOMENCLATURE	FUNCTION
1	**LEFT** and **RIGHT** Channel **AUDITION** Meter Assemblies	Displays left and right channel audition output level parameters.
2	**AUDITION** Meter Assembly Peak Indicators	Illuminates to indicate peak audition audio output conditions.
3	**MONO AUDITION** Meter Assembly (24 Channel Consoles)	Displays monophonic audition output level parameters.

TABLE 3–3. 8, 12, 18, AND 24 CHANNEL METER BRIDGE CONTROLS AND INDICATORS
(Sheet 2 of 3)

INDEX NO.	NOMENCLATURE	FUNCTION
4	**MONO AUDITION** Meter Assembly Peak Indicator (24 Channel Consoles)	Illuminates to indicate peak monophonic audition audio output conditions.
5	**LEFT** and **RIGHT** Channel **PROGRAM** Meter Assemblies	Displays left and right channel program output level parameters.
6	**PROGRAM** Meter Assembly Peak Indicators	Illuminates to indicate peak program audio output conditions.
7	**MONO PROGRAM** Meter Assembly (24 Channel Consoles)	Displays monophonic program output level parameters.
8	**MONO PROGRAM** Meter Assembly Peak Indicator (24 Channel Consoles)	Illuminates to indicate peak monophonic program audio output conditions.
9	**MIX –** Level Indicator	Illuminates to indicate the presence of monophonic mix minus audio.
10	**MONO AUD** Level Indicator	Illuminates to indicate the presence of monophonic audition audio.
11	**MONO PGM** Level Indicator	Illuminates to indicate the presence of monophonic program audio.
12	**MONO AUD** Phase Indicator	Illuminates green to indicate an in–phase condition of audition audio. Illuminates red to indicate an out–of–phase condition of audition audio. The indicator will provide valid indications only when the **MONO AUD** level indicator is illuminated.
13	**MONO PGM** Phase Indicator	Illuminates green to indicate an in–phase condition of program audio. Illuminates red to indicate an out–of–phase condition of program audio. The indicator will provide valid indications only when the **MONO PGM** level indicator is illuminated.
14	±24 V Supply Indicators	Illuminates to indicate the presence of the ±24 volt operating potentials when the **TEST** switch is depressed.
15	Clock/Timer Assembly	Displays clock information on a 6–digit red LED display. The clock can be configured for a 12 or 24 hour format.

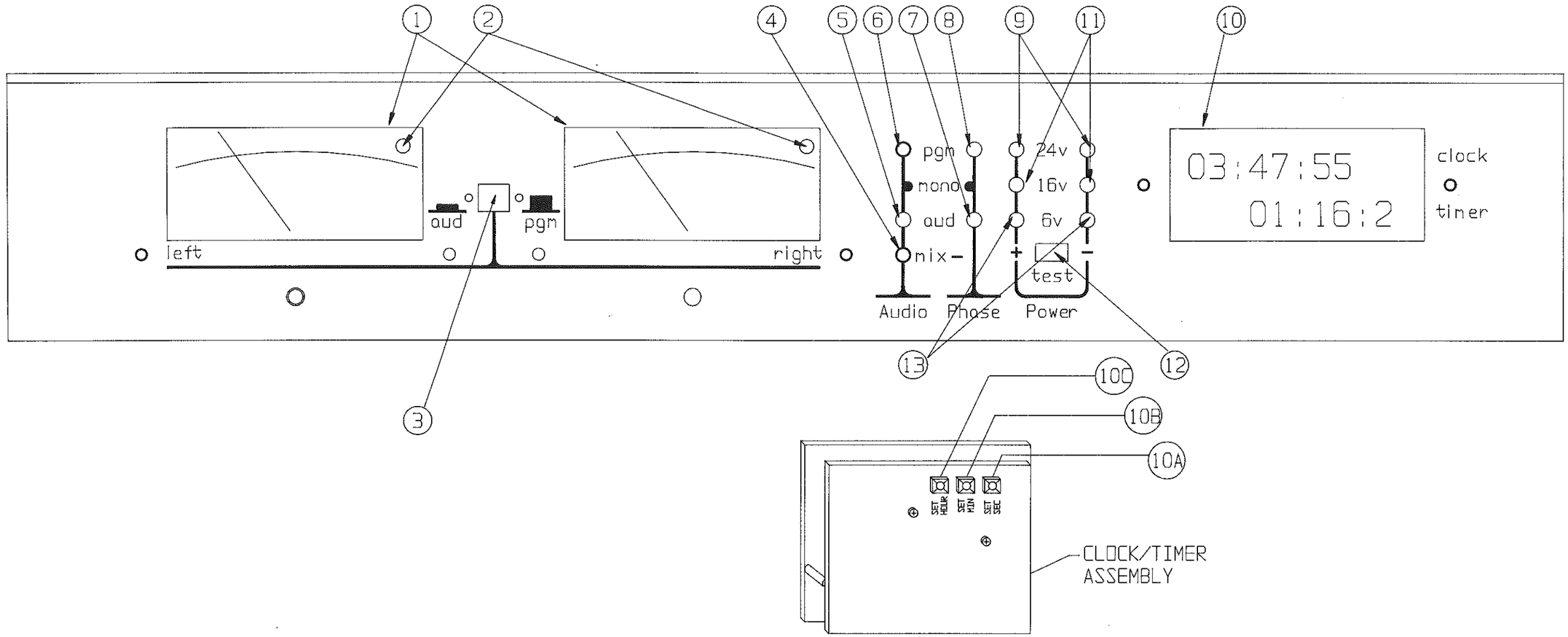


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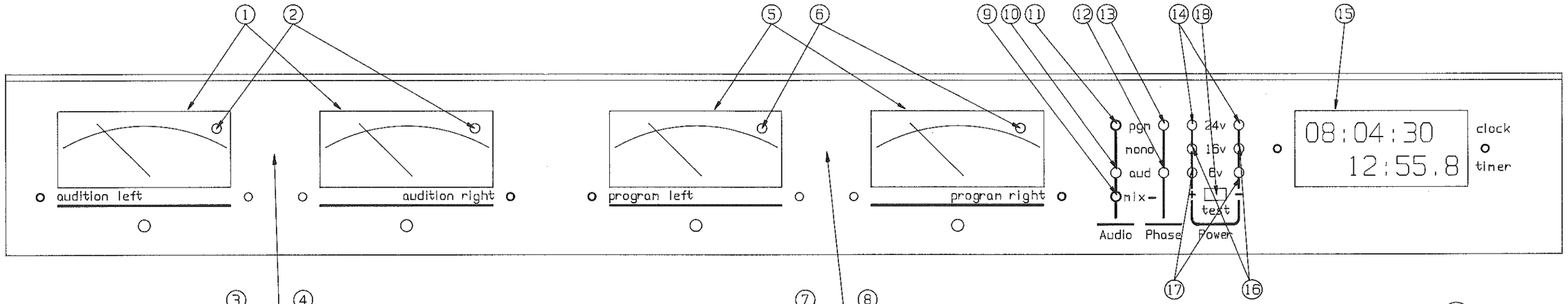
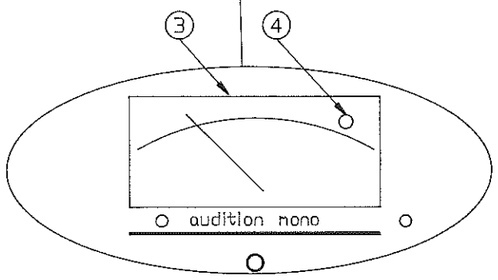
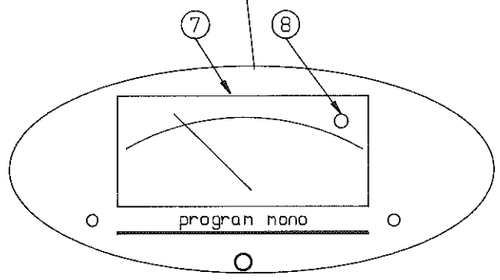
FIGURE 3-2. 6 CHANNEL CONSOLE METER BRIDGE CONTROLS AND INDICATORS





24 CHANNEL CONSOLE MODELS



24 CHANNEL CONSOLE MODELS

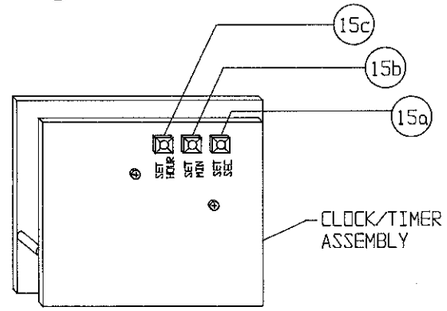


FIGURE 3-3.
12, 18, AND 24 CHANNEL CONSOLE METER BRIDGE CONTROLS AND INDICATORS

TABLE 3–3. 8, 12, 18, AND 24 CHANNEL METER BRIDGE CONTROLS AND INDICATORS
(Sheet 3 of 3)

INDEX NO.	NOMENCLATURE	FUNCTION
		Displays timer information on a 5–digit green LED display. The timer can be configured for automatic or manual operation. The .10 digit will be extinguished when the timer is configured for automatic operation. The .10 digit will be illuminated when the timer is configured for manual operation.
15A	Seconds Control	Advances the clock/timer second display.
15B	Minutes Control	Advances the clock/timer minute display.
15C	Hour Control	Advances the clock/timer hour display.
16	±16 V Supply Indicators	Illuminates to indicate the presence of the ±16.5 volt operating potentials when the **TEST** switch is depressed.
17	±6 V Supply Indicators	Illuminates to indicate the presence of the ±6 volt operating potentials when the **TEST** switch is depressed.
18	**TEST** Switch	Enables the ±24V, ±16V, and ±6V supply display circuitry.

3–9. POWER SUPPLY ASSEMBLY.

3–10. Refer to Figure 3–4 for the location of all controls and indicators associated with the power supply assembly. The function of each control or indicator is described in Table 3–4.

TABLE 3–4. POWER SUPPLY ASSEMBLY CONTROLS AND INDICATORS

INDEX NO.	NOMENCLATURE	FUNCTION
1	AC Power Control Switch	Controls the application of ac power to the power supply assembly.

3–11. AUTOMATIC POWER SUPPLY SWITCHER PANEL.

3–12. Refer to Figure 3–5 for the location of all controls and indicators associated with the automatic power supply switcher panel. The function of each control or indicator is described in Table 3–5.

3–13. OPERATION.

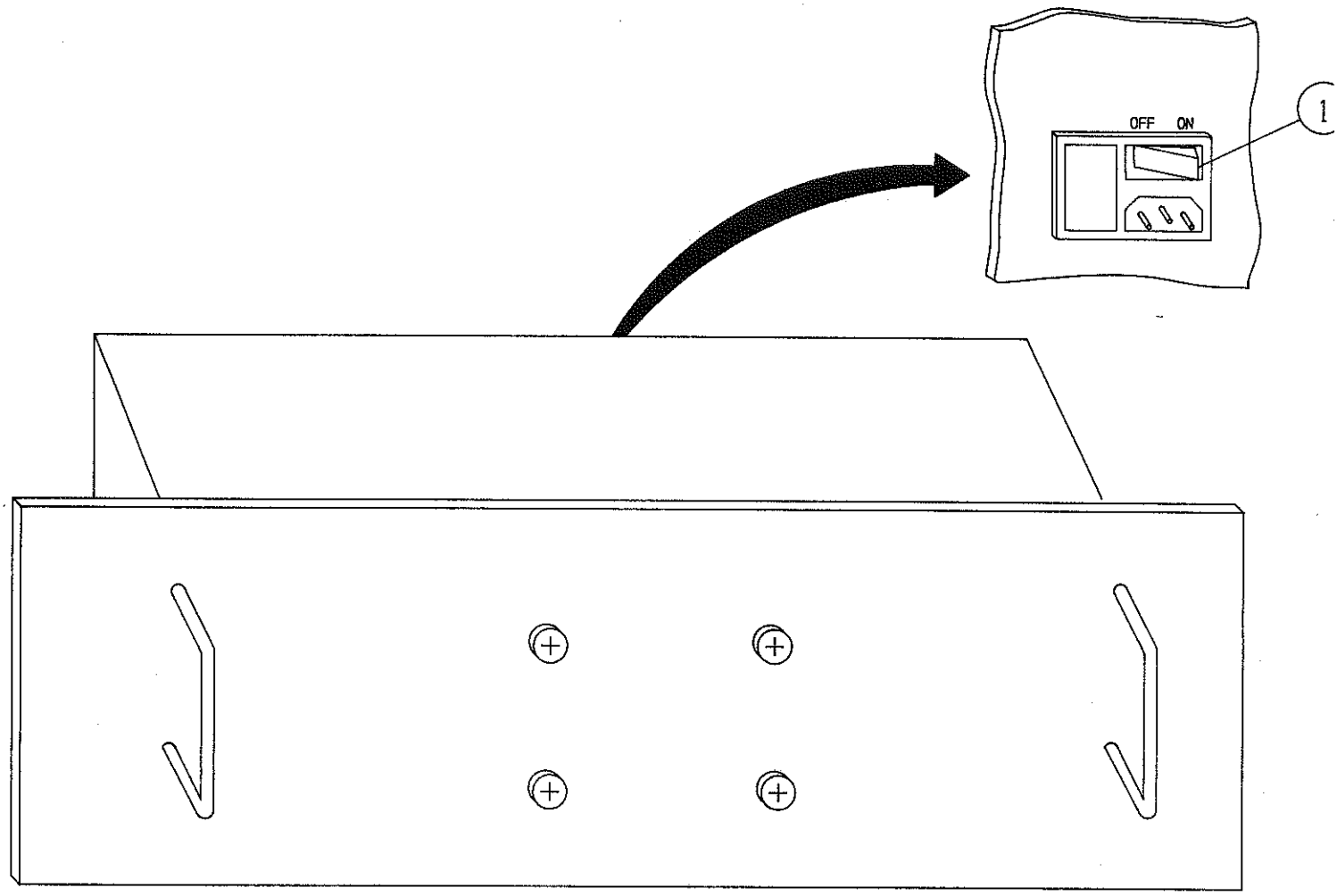
NOTE

NOTE

THE FOLLOWING PROCEDURES ASSUME THAT THE AT–90/100 CONSOLE IS COMPLETELY INSTALLED AND IS FREE OF ANY DISCREPANCIES.

3–14. The following text provides procedures for specific operating functions. Perform the appropriate procedure for the type of operating function desired.

3–15. Operate the ac power switch to the ON position to apply power to the console.



597–6000–23

FIGURE 3–4. POWER SUPPLY MODULE CONTROLS AND INDICATORS

TABLE 3–5. AUTOMATIC POWER SUPPLY SWITCHER PANEL CONTROLS AND INDICATORS
(Sheet 1 of 2)

INDEX NO.	NOMENCLATURE	DESCRIPTION
1	Power Supply 1 +24V Indicator	Illuminates to indicate power supply 1 +24 volt potential is operational.
2	Power Supply 1 –24V Indicator	Illuminates to indicate power supply 1 –24 volt potential is operational.
3	Power Supply 1 +16V PGM Indicator	Illuminates to indicate power supply 1 +16 volt program potential is operational.
4	Power Supply 1 –16V PGM Indicator	Illuminates to indicate power supply 1 –16 volt program potential is operational.

TABLE 3–5. AUTOMATIC POWER SUPPLY SWITCHER PANEL CONTROLS AND INDICATORS
(Sheet 2 of 2)

INDEX NO.	NOMENCLATURE	DESCRIPTION
5	Power Supply 1 +16V HDP Indicator	Illuminates to indicate power supply 1 +16 volt headphone potential is operational.
6	Power Supply 1 –16V HDP Indicator	Illuminates to indicate power supply 1 –16 volt headphone potential is operational.
7	Power Supply 1 +6V Indicator	Illuminates to indicate power supply 1 +6 volt potential is operational.
8	Power Supply 1 –6V Indicator	Illuminates to indicate power supply 1 –6 volt potential is operational.
9	Power Supply 1 +14V Indicator	Illuminates to indicate power supply 1 +14 volt potential is operational.
10	Power Supply 2 +24V Indicator	Illuminates to indicate power supply 2 +24 volt potential is operational.
11	Power Supply 2 –24V Indicator	Illuminates to indicate power supply 2 –24 volt potential is operational.
12	Power Supply 2 +16V PGM Indicator	Illuminates to indicate power supply 2 +16 volt program potential is operational.
13	Power Supply 2 –16V PGM Indicator	Illuminates to indicate power supply 2 –16 volt program potential is operational.
14	Power Supply 2 +16V HDP Indicator	Illuminates to indicate power supply 2 +16 volt headphone potential is operational.
15	Power Supply 2 –16V HDP Indicator	Illuminates to indicate power supply 2 –16 volt headphone potential is operational.
16	Power Supply 2 +6V Indicator	Illuminates to indicate power supply 2 +6 volt potential is operational.
17	Power Supply 2 –6V Indicator	Illuminates to indicate power supply 2 –6 volt potential is operational.
18	Power Supply 2 +14V Indicator	Illuminates to indicate power supply 2 +14 volt potential is operational.

3–16. INPUT SELECTION.

3–17. Configure input A for application to the console audio circuitry by depressing the **A** input switch to illuminate the **A** input indicator. Configure input B for application to the console audio circuitry by depressing the B input switch to illuminate the **B** input indicator. Configure input C for application to the console audio circuitry by depressing the **C** input switch to illuminate the **C** input indicator. Only one input may be selected for application to the console channel audio circuitry.

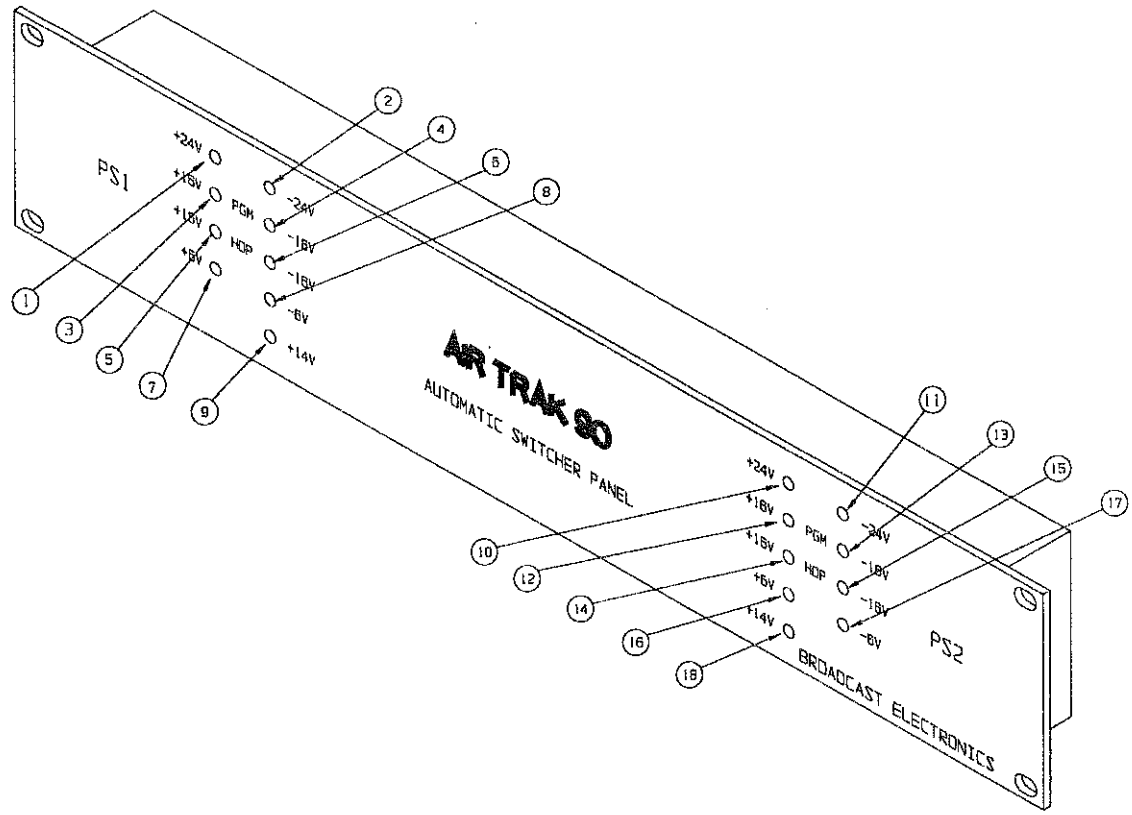


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FIGURE 3-5. AT-90/100 AUTOMATIC POWER SUPPLY SWITCHER PANEL

3-18. PROGRAM/AUDITION BUS SELECTION.

3-19. To select audio for application to the program bus, depress the **PGM** switch to illuminate the **PGM** indicator. To select audio for application to the audition bus, depress the **AUD** switch to illuminate the **AUD** indicator. To select audio for application to both the program and audition buses, depress both the **PGM** and **AUD** switches to illuminate the indicators.

3-20. FADER CONTROL.

3-21. Operate the fader control to maintain or vary the audio input level as required. The fader control range is from +10 dB to –55 dB. If the fader start control function is enabled, the channel will be enabled when the fader is operated from the CUE position.

3-22. CHANNEL ON/OFF CONTROL.

3-23. Ensure an **A, B,** or **C** input select switch is depressed and enable the console channel by depressing the **ON** switch/indicator to illuminate the switch/indicator. The channel will not operate to **ON** unless an **A, B,** or **C** input select switch is enabled. Disable the console channel by depressing the **OFF** switch/indicator to illuminate the switch/indicator.

3–24. If the fader start control function is enabled, a channel may be enabled by the operation of the fader. Operate the fader from the **OFF** position to enable the channel. The **ON** switch/indicator will illuminate. Depress the **OFF** switch/indicator to disable the channel. The **OFF** switch/indicator will illuminate.

3–25. **HEADPHONE SYSTEM.**

CAUTION

CAUTION

DO NOT CONNECT MONOPHONIC HEADPHONES TO THE CONSOLE HEADPHONE RECEPTACLE.

CAUTION

CAUTION

DO NOT CONNECT HEADPHONES OF LESS THAN 35 OHMS TO THE HEADPHONE RECEPTACLE.

3–26. The console headphone receptacle will accept stereophonic headphones with: 1) an impedance range from 35 Ohms to 600 Ohms and 2) a standard 1/4 inch jack. To avoid possible damage to the headphone circuitry, ensure that only stereophonic headphones are connected to the console headphone receptacle.

3–27. To operate the console headphone system, proceed as follows:

WARNING

WARNING

TO MAINTAIN A SAFE OPERATING LEVEL ENVIRONMENT, ALWAYS OPERATE THE HEADPHONE SYSTEM BY INITIALLY ADJUSTING THE VOLUME CONTROL FULLY COUNTERCLOCKWISE AND THEN INCREASE THE LEVEL GRADUALLY.

3–28. Operate the **HEADPHONE** level control fully counterclockwise. Insert the headphone jack into the console headphone receptacle.

3–29. To select headphone system audio, depress either the **PGM, AUD, CUE, AIR 1, AIR 2, EXT 1, EXT 2,** or **EXT 3** switch/indicator to illuminate the switch/indicator orange.

3–30. Operate the **HEADPHONE** level control as required for the desired headphone level.

3–31. **MONITOR SYSTEM.**

3–32. Controls are only provided for the control room monitoring functions. Studio room monitor operations are determined by the control room monitor operations. To operate the console control room monitor system, proceed as follows.

WARNING

WARNING

TO MAINTAIN A SAFE OPERATING LEVEL ENVIRONMENT, ALWAYS OPERATE THE MONITOR SYSTEM BY INITIALLY ADJUSTING THE VOLUME CONTROL FULLY COUNTERCLOCKWISE AND THEN INCREASE THE LEVEL GRADUALLY.

3–33. Operate the **MONITOR** level control fully counterclockwise.

3–34. To select control room monitor audio, depress either the **PGM, AUD, CUE, AIR 1, AIR 2, EXT 1, EXT 2,** or **EXT 3** switch/indicator to illuminate the switch/indicator yellow.

3–35. Operate the **MONITOR** level control as required for the desired monitor level. If a channel is configured for cue monitoring operations, the control room monitor speaker level will be automatically reduced.

3–36. **CUE SYSTEM.**

3–37. To configure a channel for application to the cue bus, operate the fader to the OFF position to illuminate the **CUE** indicator. Input audio will be routed to the console cue speaker for monitoring.

3–38. Operate the **CUE** level control as required for the desired cue speaker level.

3–39. **CLOCK/TIMER SYSTEM.**

3–40. The clock/timer assembly presents clock information on a six–digit LED display and elapsed time information on a five–digit LED display. Observe the displays as required for clock and elapsed time information. Refer to the following text to set the clock section and operate the timer section.

3–41. **CLOCK OPERATION.** To set the clock/timer assembly clock display section, proceed as follows.

3–42. Depress the hour control to advance and set the hour display.

3–43. Depress the minutes control to advance and set the minutes display.

3–44. Continuously depress the seconds control to hold the seconds display at 00 and set the seconds display.

3–45. **Reset Clock.** Header J3 on the clock/timer module resets the clock/timer module microprocessor. Refer to Figure 2–7 in SECTION II, INSTALLATION and short the terminals of header J3 to reset the module microprocessor.

3–46. **TIMER OPERATION.** The clock/timer module timer section consists of two individual internal timers: 1) an automatic timer and 2) a manual timer. The timer display section may be configured as required to display time information generated by the automatic timer or manual timer.

3–47. **Automatic Timer.** To operate the **TIMER** switches to configure the clock/timer module timer section to display the automatic timer, proceed as follows:

3–48. Operate the **AUTO** switch/indicator to illuminate the switch/indicator green. The timer .1 digit will be extinguished.

3–49. Timer start and reset commands will be initiated by the program output bus. When a channel configured for program output is enabled, the timer will start. The timer will reset and start when an additional channel configured for program output is enabled.

3–50. **Manual Mode.** To operate the **TIMER** switches to configure the clock/timer module timer section to display and control the manual timer, proceed as follows:

3–51. Operate the **AUTO** switch/indicator to extinguish the switch/indicator. The timer .1 digit will illuminate.

3–52. Operate the **RESET, STOP,** and **START** manual mode function switch/indicators to initiate manual timer reset, stop, and start operations as desired.

3–53. **Automatic Timer/Manual Timer Operations.** The clock/timer module timer section may be operated to display automatic timer and manual timer information as required. A typical automatic timer and manual timer operating sequence is presented in the following text. To operate the **TIMER** switches to configure the clock/timer module timer section to display automatic timer and manual timer information, proceed as follows:

3–54. Begin an automatic timer operation such as to display the on–air time of an input module as follows:

A. Operate the **AUTO** switch/indicator to illuminate the switch/indicator green.

B. Enable a channel configured for program output. The timer section will reset and display automatic timer information.

3–55. Begin a manual timer operation such as to determine the time length of a commercial as follows:

A. If the timer is operating, depress the **STOP** switch/indicator.

B. Operate the **AUTO** switch/indicator to extinguish the switch/indicator.

C. Depress the **RESET** switch/indicator. The timer display will reset to 00 00.0.

D. Start the timer by depressing the **START** switch/indicator. The timer will begin operation.

E. Terminate the manual timer operation when the commercial is complete by depressing the **STOP** switch/indicator. The timer will display the time of the commercial (manual timer information display).

3–56. Check the time of the on–air module by operating the **AUTO** switch/indicator to illuminate the switch/indicator green. The timer will indicate the on–air time of the module (automatic timer information display).

3–57. MONO TEST OPERATION.

3–58. To test the stereophonic audio signal for out–of–phase (monophonic) conditions, operate the **MONO TEST** switch/indicator to illuminate the switch/indicator. The phase condition of the signal will be monitored by the control room monitor speaker system.

3–59. TALKBACK SYSTEMS.

3–60. The following text presents the procedures to operate a dual or single console talkback system. Refer to the appropriate procedure to operate the system installed in the station. Talkback operations may be enabled at any time. However, talkback operations will not be executed during local muting operations.

3–61. **DUAL CONSOLE SYSTEM.** To operate a dual console intercommunication system, proceed as follows.

3–62. **Control Room–To–Studio Operation.** To operate the talkback system for control room–to–studio communication, proceed as follows.

3–63. At the control room console, depress the control room microphone input switch to illuminate the input indicator.

3–64. Talkback audio may be configured for routing to: 1) only the studio room or 2) the studio room and on–the–air. To configure the talkback audio for routing to only the studio room: 1) depress the control room console control room microphone channel **OFF** switch/indicator to illuminate the switch/indicator or 2) depress the control room console control room microphone channel **PGM** and **AUD** switches to extinguish the **PGM** and **AUD** indicators. To configure the talkback audio for routing to the studio room and on–the–air: 1) depress either the control room console control room microphone channel **PGM** or **AUD** switches to illuminate the **PGM** or **AUD** indicators as determined by the output channel configured for on–air operation and 2) depress the control room console control room microphone channel **ON** switch/indicator to illuminate the switch/indicator.

3–65. At the control room console, depress the **TALKBACK** switch and communicate the message to the control room microphone. Intercom information will be routed to the studio room console cue speaker or to the studio room console cue speaker and on–the–air as configured.

3–66. At the studio console, adjust the intercom level by operating the **CUE** level control as required.

3–67. **Studio–To–Control Room Operation.** To operate the talkback system for studio–to–control room communication, proceed as follows.

3–68. At the studio room console, depress the studio room microphone input switch to illuminate the input indicator.

3–69. Talkback audio may be configured for routing to: 1) only the control room or 2) the control room and on–the–air. To configure the talkback audio for routing to only the control room: 1) depress the studio room console studio room microphone channel **OFF** switch/indicator to illuminate the switch/indicator or 2) depress the studio room console studio room microphone channel **PGM** and **AUD** switches to extinguish the **PGM** and **AUD** indicators. To configure the talkback audio for routing to the control room and on–the–air: 1) depress either the studio room console studio room microphone channel **PGM** or **AUD** switches to illuminate the **PGM** or **AUD** indicators as determined by the output channel configured for on–air operation and 2) depress the studio room console studio room microphone channel **ON** switch/indicator to illuminate the switch/indicator.

3–70. At the studio room console, depress the **TALKBACK** switch and communicate the message to the studio room microphone. Intercom information will be routed to the control room console cue speaker or to the control room console cue speaker and on–the–air as configured.

3–71. At the control room console, adjust the intercom level by operating the **CUE** level control as required.

3–72. **SINGLE CONSOLE SYSTEM.** To operate a single console intercommunication system, proceed as follows.

3–73. **Control Room–To–Studio Operation.** To operate the talkback system for control room–to–studio communication, proceed as follows.

3–74. Depress the control room microphone input switch to illuminate the input indicator.

3–75. Depress the control room microphone channel **OFF** switch/indicator to illuminate the switch/indicator or 2) depress the control room microphone channel **PGM** and **AUD** switches to extinguish the **PGM** and **AUD** indicators.

3–76. Depress the console **TALKBACK** switch and communicate the message to the control room microphone. Intercom information will be routed through the talkback circuitry to a studio speaker.

3–77. **Studio–To–Control Room Operation.** To operate the talkback system for studio–to–control room communication, proceed as follows.

3–78. For studio–to–control room intercom operations, configure the console by depressing: 1) the console studio microphone input switch to illuminate the input indicator, 2) the studio microphone channel **OFF** switch/indicator to illuminate the switch/indicator, and 3) the studio microphone channel **PGM** and **AUD** switches to extinguish the **PGM** and **AUD** indicators.

3–79. In the studio, depress the talkback switch and communicate the message to the studio microphone. Intercom information will be routed to the console cue speaker.

3–80. At the console, adjust the level by operating the **CUE** level control as required.

3–81. **METER BRIDGE ASSEMBLIES.**

3–82. **VU METER (6 Channel Consoles).** Observe the **LEFT** and **RIGHT VU** meters for program or audition level indications. The peak indicators will illuminate to indicate peak audio output conditions.

3–83. **AUD/PGM SWITCH (6 Channel Consoles).** To observe audition output level indications on the **LEFT** and **RIGHT VU** meters, depress the **AUD/PGM** switch/indicator to illuminate the switch/indicator orange.

3–84. To observe program output level indications on the **LEFT** and **RIGHT VU** meters, depress the **AUD/PGM** switch/indicator to extinguish the switch/indicator.

3–85. **PROGRAM OUTPUT METER (8, 12, 18, and 24 Channel Consoles).** Observe the **PROGRAM** meters for program output level indications. The peak indicators will illuminate to indicate peak audio output conditions.

3–86. **AUDITION OUTPUT METER (8, 12, 18, and 24 Channel Consoles).** Observe the **AUDITION** meters for audition output level indications. The peak indicators will illuminate to indicate peak audio output conditions.

3–87. **MONOPHONIC OUTPUT METER (24 Channel Consoles).** Observe the **MONO PROGRAM** and **MONO AUDITION** meters for monophonic program and audition output level indications. The peak indicators will illuminate to indicate peak audio output conditions.

3–88. **POWER SUPPLY MONITORING.** To observe the presence of the console operating potentials, depress the **TEST** switch. The ±24V, ±16V, and ±6V supply indicators will illuminate if the supplies are operational.

3–89. **MIX MINUS MONITORING.** Observe the **MIX** – indicator for the presence of monophonic audio on the mix minus bus. The indicator will illuminate if a channel is configured for mix minus bus operation and audio is present.

3–90. **MONOPHONIC MONITORING.** Observe the **MONO AUD** and **MONO PGM** indicators for the presence of monophonic audition and monophonic program audio. The indicators will illuminate if monophonic audio is present.

3–91. **PHASE MONITORING.** Observe the **MONO AUD** and **MONO PGM** phase indicators for in–phase or out–of–phase conditions of the audition or program audio. The indicators will illuminate green for in–phase conditions or red for out–of–phase conditions. The indicators will provide valid indications only when the **MONO AUD** and **MONO PGM** level indicators are illuminated. If audio is removed, the indicators will remain illuminated. During 180 degree out–of–phase conditions, the **MONO AUD/PGM** level indicators may extinguish and the **MONO AUD/PGM** phase indicators will illuminate red.

3–92. **AUTOMATIC POWER SUPPLY SWITCHER PANEL.**

3–93. The automatic power supply switcher panel indicators provide status indications of the power supply 1 and 2 dc operating potentials. Each indicator illuminates to indicate the associated power supply potential is operational. In the event of a power supply failure, the appropriate indicator will extinguish and power from the operating supply will be automatically routed to the console.

SECTION IV
THEORY OF OPERATION

4–1. INTRODUCTION.

4–2. This section presents the theory of operation for the Broadcast Electronics AT–90/100 series audio consoles.

4–3. GENERAL DESCRIPTION.

4–4. A block diagram of the AT–90 series consoles is presented in Figure 4–1. Refer to Figure 4–1 for a general description of the AT–90 series consoles. A functional description of the console circuitry is discussed in the following text.

4–5. FUNCTIONAL DESCRIPTION.

4–6. INPUT CIRCUIT BOARD.

4–7. The 6 channel input circuit board consists of 6 independent stereophonic audio processing channels. The 2 channel input circuit board consists of 2 independent stereophonic audio processing channels. The operation of each channel is identical. Therefore, only the operation of channel 6 will be discussed.

4–8. A detailed block diagram of the left and right channel 6 audio circuit is presented in Figure 4–2. Refer to Figure 4–2 as required for the following description of the channel 6 circuitry.

4–9. When applicable, the text will describe the operation of the left and right channel audio circuits. The left and right channel audio circuits are identical. Therefore, only the left channel circuitry will be discussed.

4–10. **INPUT ATTENUATION NETWORKS.** Each channel will accept inputs from three audio sources. Audio is applied to inputs 1A, 1B, and 1C through attenuation networks consisting of programmable headers J101 and J103. The jumpers select various combinations of resistors to equalize input levels when three sources at different levels are applied to the same channel. Audio from the attenuation network is routed to an input selection circuit.

4–11. **INPUT SELECTION CIRCUIT.** Left channel audio input selection is accomplished by input multiplexer U100. Control lines X and Y from the channel control circuit board are applied to U100. U100 decodes the logic signals to select audio from channel 1A, 1B, or 1C for application to an input amplifier. The following is a list of logic combinations and corresponding operations.

X	Y	SELECTED INPUT
LOW	LOW	NONE
LOW	HIGH	1A
HIGH	LOW	1B
HIGH	HIGH	1C

4–12. **INPUT AMPLIFIER CIRCUIT.** Input amplification is provided by differential amplifier U101. The amplifier circuit is designed to accept and equalize input levels ranging from –60 dB to +4 dB and produce a nominal output bus level of –5 dBu. Microphone or consumer gain operation is selected by programmable header J108. The microphone position is selected if a microphone source is applied to the channel. The consumer position is selected if no microphone source is applied to the channel. In addition, J108 inserts microphone gain control R196 or consumer gain control R194 into the circuit to provide ±5 dB of level adjustment. The output of U101 is routed to a cue amplifier circuit and a voltage controlled amplifier (VCA). Connector J104 provides patch point interfacing for the application of external audio processing equipment. Patch point operations are bypassed by the installation of a wire jumper in connector J104.

4–13. **VCA CIRCUIT.** Audio from the input amplifier or patch point equipment is applied to left channel VCA U104. U104 is a precision low–noise current–input/current–output device with a voltage sensitive control port. The gain of U104 is established by a dc control voltage applied to the control port. The control voltage is generated by a VCA taper control circuit. Potentiometer R153 is provided to cancel any distortion within the VCA stage.

4–14. The output of the VCA is routed to output amplifier U108A. U108A operates in association with the VCA to convert the output current of the VCA to a voltage. U108A also provides a nominal output level of –5dBu for application to an output selection circuit.

4–15. **OUTPUT SELECTION CIRCUIT.** Audio output selection is accomplished by left channel output multiplexer U109. Control lines consisting of program, audition, cue, and enable from the channel control circuit board are applied to U109. U109 decodes the logic signals to select audio for application to either the program, audition, or cue bus. The following is a list of logic combinations and corresponding operations.

ENABLE	CUE	AUDITION	PROGRAM	SELECTED BUS
LOW	LOW	LOW	LOW	NONE
LOW	LOW	LOW	HIGH	PROGRAM
LOW	LOW	HIGH	LOW	AUDITION
LOW	HIGH	LOW	LOW	CUE
LOW	LOW	HIGH	HIGH	PROGRAM+AUDITION

4–16. **PROGRAM MUTE CONTROL.** Audio is routed to the program bus through a program mute circuit consisting of FET Q100 and mute control transistor Q102. When the program bus is selected, the program control line will go HIGH. The HIGH is inverted LOW by Q102 and applied to Q100 to enable the transistor. When the program bus is not selected, the program control line will go LOW to disable Q100 and mute the program output.

4–17. **CUE CIRCUIT.** Audio from left channel input amplifier U101 and right channel input amplifier U103 is applied to cue amplifier U107B through summing resistors. The monophonic output of U107B is routed to left output multiplexer U109. When the fader control is operated to the cue position, the cue control line will go HIGH. The enable, audition, and program control lines will be LOW. U109 will decode the control logic and select cue audio for application to the cue bus.

4–18. **MIX MINUS CIRCUIT.** Program audio from left channel output multiplexer U109 and right channel output multiplexer U110 is applied to amplifier U207B through summing resistors. The output of U207B is applied to the mix minus bus through programmable header J107 at a nominal level of –5 dBu.

4–19. **VCA TAPER CONTROL CIRCUIT.** Left channel audio level control operations are accomplished by VCA U104 and a taper control circuit. The taper control circuit consists of: 1) the channel 1 fader control, 2) a reference control network consisting of diodes D100 through D103, resistors R132 through R135, 3) differential amplifier U106B, and 4) driver U106A.

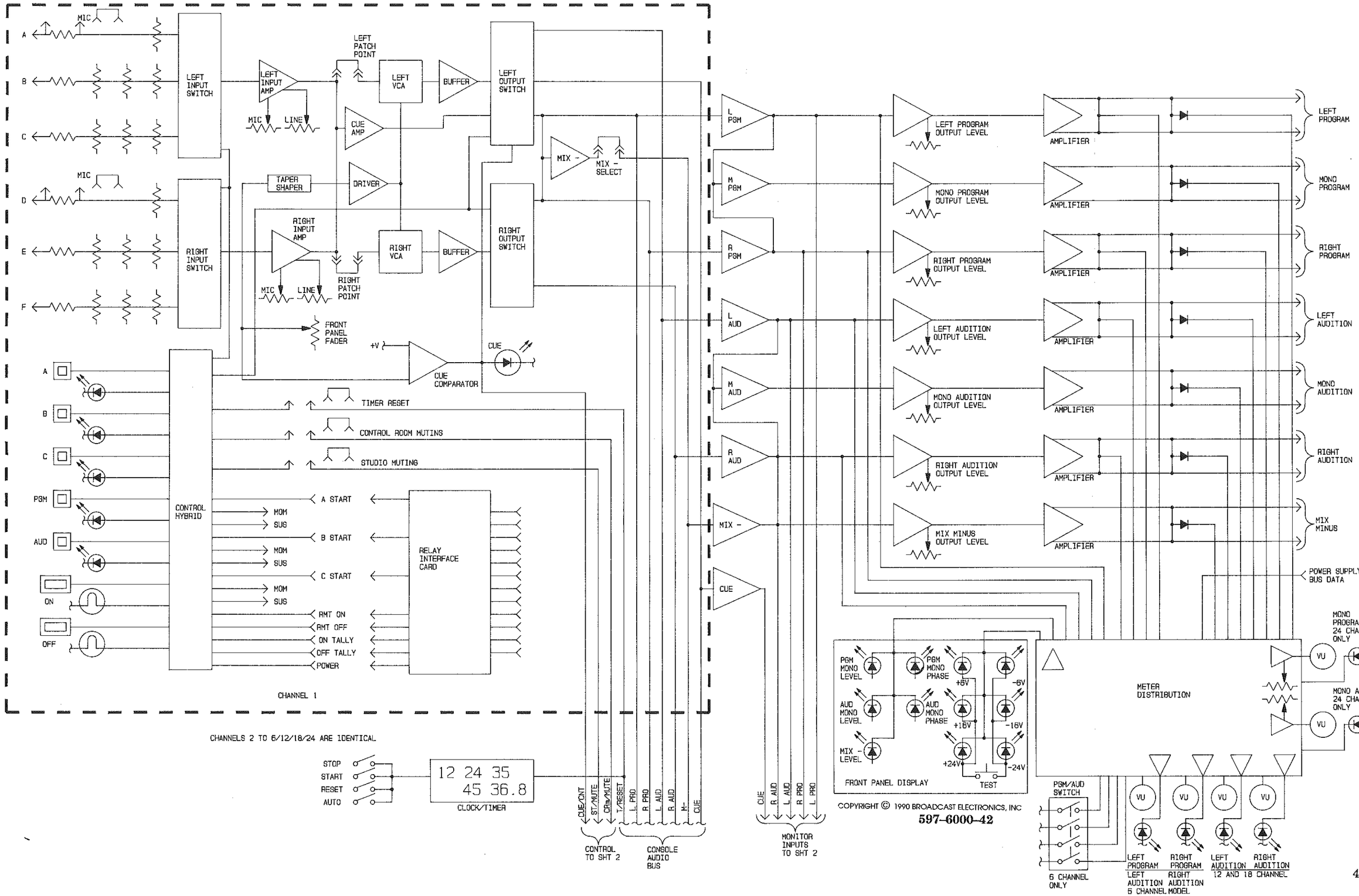

FIGURE 4–1. AT–90 BLOCK DIAGRAM (Sheet 1 of 2)

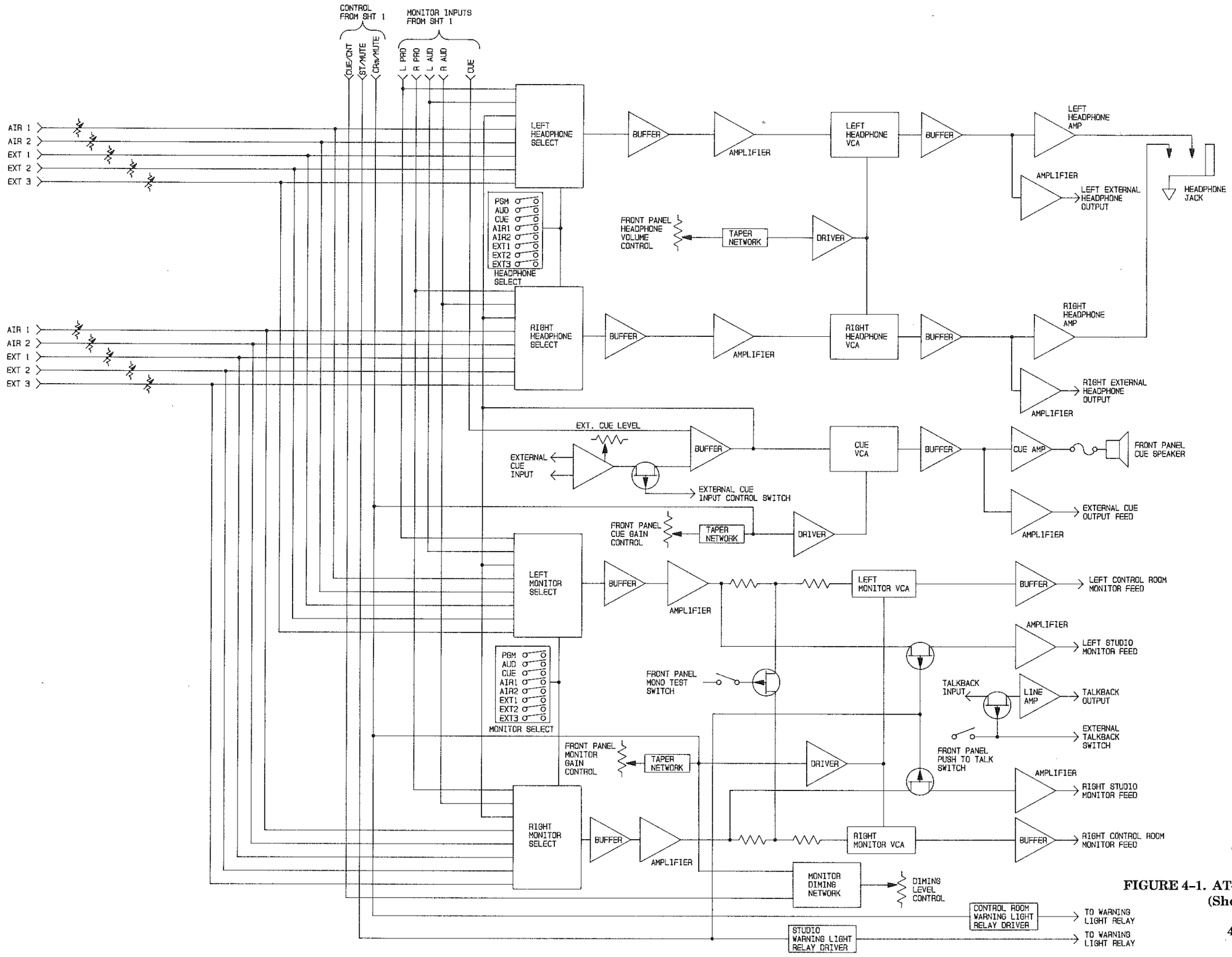

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FIGURE 4-1. AT-90 BLOCK DIAGRAM
(Sheet 2 of 2)

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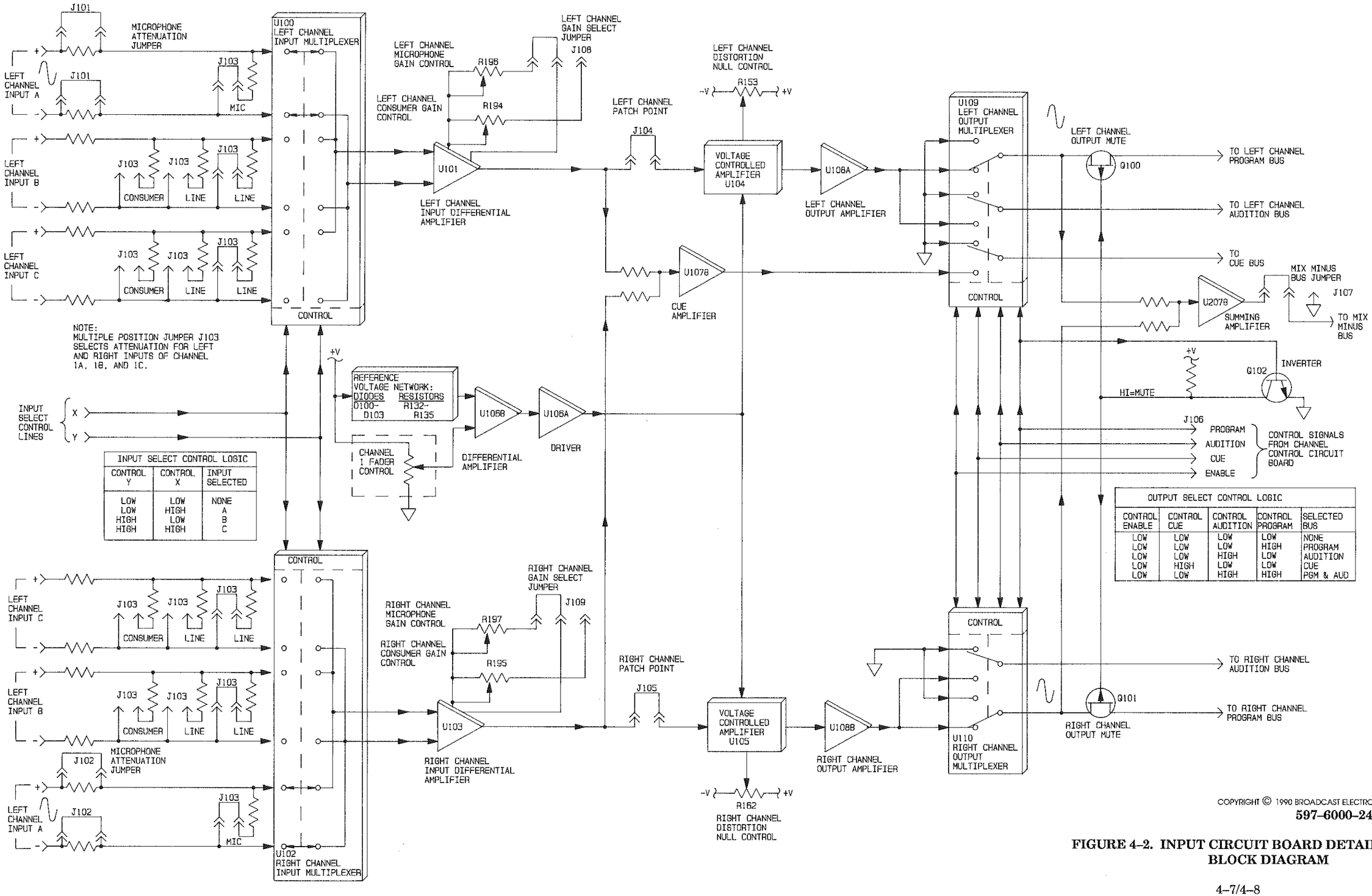

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FIGURE 4–2. INPUT CIRCUIT BOARD DETAILED BLOCK DIAGRAM

4–20. The taper control circuit operates in response to changes in the output voltage from the fader control. The fader control produces a continuously variable dc control voltage from 0 to +5 volts. This control voltage is differentially amplified at U106B with a non–linear reference voltage generated by the reference voltage network. The following is a list of reference voltages, corresponding circuit gains, and relative fader positions.

FADER CONTROL POSITION	REFERENCE VOLTAGE RANGE	U106B CIRCUIT GAIN
+10 dB to –5 dB	0.0 to 2.0	1.0
–5 dB to –30 dB	2.0 to 3.4	1.5
–30 dB to –55 dB	3.4 to 5.0	2.5

4–21. The output of the VCA taper control circuit is designed to apply a voltage to VCA U104 for precision control of the audio level. When the fader control is operated to the +10 dB position, a 0 volt dc reference is applied to differential amplifier U106B. U106B will output approximately 0 volts through a 20:1 voltage divider to driver U106A. U106A will output approximately 0 volts to the VCA to establish maximum gain. When the fader control is operated to the –55 dB position, a +5 volt dc reference is applied to U106B. U106B will output approximately 12 volts dc through the voltage divider to driver U106A. U106A will respond by outputting approximately +0.4V to establish maximum attenuation. The following is a list of gain control voltages, corresponding VCA conditions, and relative fader control positions.

FADER POSITION	GAIN CONTROL VOLTAGE (Output of U106A)	VCA CONDITION
+10 dB	–0.1V	Maximum Gain
–55 dB	+0.42V	Maximum Attenuation

4–22. **OUTPUT CIRCUIT BOARD.**

4–23. The output circuit board consists of amplifier networks for the console audio outputs and monitoring system. The program and audition outputs are amplified to a line level by stereophonic and monophonic output amplifier circuits. Amplifier circuits are also provided for the mix minus, cue, and talkback networks. The control room monitor and headphone systems are equipped with a control network which selects either program, audition, cue, or one of five external audio inputs for application to a stereophonic amplifier network.

4–24. A detailed block diagram of the output circuit board is presented in Figure 4–3. Refer to Figure 4–3 as required for the following description of the output circuit board.

4–25. When applicable, the text will describe the operation of the left and right channel audio circuits. The left and right channel audio circuits are identical. Therefore, only the right channel circuitry will be discussed.

4–26. **PROGRAM AND AUDITION AMPLIFIER CIRCUITS.** The operation of the program and audition amplifier circuits are identical. Therefore, only the program amplifier circuitry will be discussed.

4–27. **Input Amplifier Circuit.** Audio from the program bus is applied to input amplifier U42B. U42B is configured for a gain of approximately 2. The output of U42B is routed to the: 1) VU meter distribution circuit board for application to the program phase error sensor circuit, 2) right channel monitor input multiplexer U1, 3) amplifier U43B, and 4) mono program amplifier U41A. Amplifier U43B and potentiometer R390 adjust the program audio level applied to the right program output amplifier circuit.

4–28. **Program Output Amplifier Circuit.** Audio from U43B is routed through inverter U31B and applied to the amplifier stage in an inverted and non–inverted format. Inverted audio is applied to amplifier stage U32B. Non–inverted audio is applied to amplifier U32A. Together, U32A and U32B operate as a balanced audio output amplifier to provide an output ranging from 0 dBm to +10 dBm. Amplifier U31C functions as a monitoring and gain stage for shorted audio output conditions.

4–29. When the audio output impedance is balanced, the input and output of U31C is at zero volts. When either the positive or negative output terminal is grounded, an audio signal will be applied to U31C. U31C will output a signal to increase the gain of the remaining output amplifier network. Consequently, the network will maintain the rated output into an unbalanced load condition.

4–30. **Monophonic Program Input Amplifier.** Audio from the output of right program input amplifier U42B and left program input amplifier U42A is routed to L+R generator U41A through summing resistors. Potentiometer R383 adjusts the monophonic program audio level applied to the monophonic program output amplifier circuit.

4–31. **Monophonic Program Output Amplifier Circuit.** Audio from U41A is routed through inverter U35A and applied to the amplifier stage in an inverted and non–inverted format. Inverted audio is applied to amplifier stage U36B. Non–inverted audio is applied to amplifier U36A. Together, U36A and U36B operate as a balanced audio output amplifier to provide an output ranging from 0 dBm to +10 dBm. Amplifier U35B functions as a monitoring and gain stage for shorted audio output conditions.

4–32. When the audio output impedance is balanced, the input and output of U35B is at zero volts. When either the positive or negative output terminal is grounded, an audio signal will be applied to U35B. U35B will output a signal to increase the gain of the remaining output amplifier network. Consequently, the network will maintain the rated output into an unbalanced load condition. The output of U36A and U36B is rectified to provide a peak output signal for application to the VU meter distribution circuit board.

4–33. **OVERLOAD INDICATOR CIRCUIT.** Audio output from U32A and U32B is rectified and applied to the input of comparator U31A. If the input signal exceeds a reference voltage established by peak calibration control R313, the output of U31A will go HIGH. This HIGH is routed to the VU meter distribution circuit board for further processing to illuminate a peak indicator on the program meter.

4–34. **METER DRIVER CIRCUIT.** Balanced audio from U32A and U32B is applied to the input of meter driver U31D. Potentiometer R303 calibrates the right channel program output VU meter. The output of U31D is routed to the VU meter distribution circuit board for further processing and applied to the program meter.

4–35. **CUE AMPLIFIER CIRCUIT.** Audio from the cue bus is routed to the input of amplifier U17B. The output of U17B is applied to the monitor and headphone input multiplexers and voltage controlled amplifier U19 through buffer U18B.

4–36. **VCA Circuit.** U19 is a precision low–noise current–input/current–output device with a voltage sensitive control port. The gain of U19 is established by a dc gain control voltage applied to the control port from a level control network consisting of front–panel cue control R21 and driver U16B. Potentiometer R124 is provided to cancel any distortion within the VCA stage.

4–37. The output level of the cue circuit is determined by front–panel cue control R21 and driver U16B. When a dc voltage applied to R21 is varied, the output of U16B responds by applying a variable control voltage to VCA U19. A mute control signal from U24B is also applied to U16B. When muting is required, the mute control signal will go HIGH to establish maximum VCA attenuation and mute the audio output.

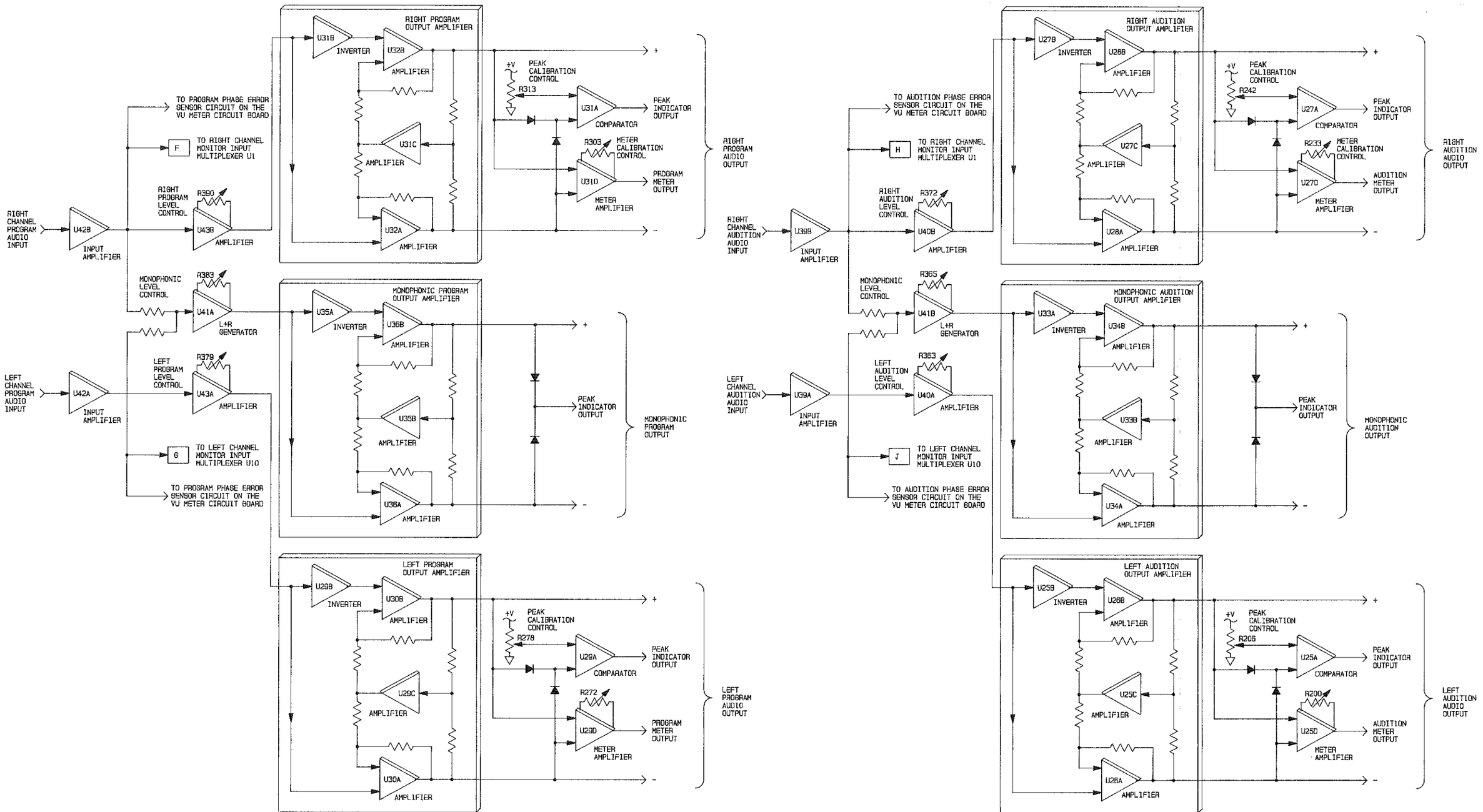

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FIGURE 4–3. OUTPUT CIRCUIT BOARD DETAILED BLOCK DIAGRAM (Sheet 1 of 4)

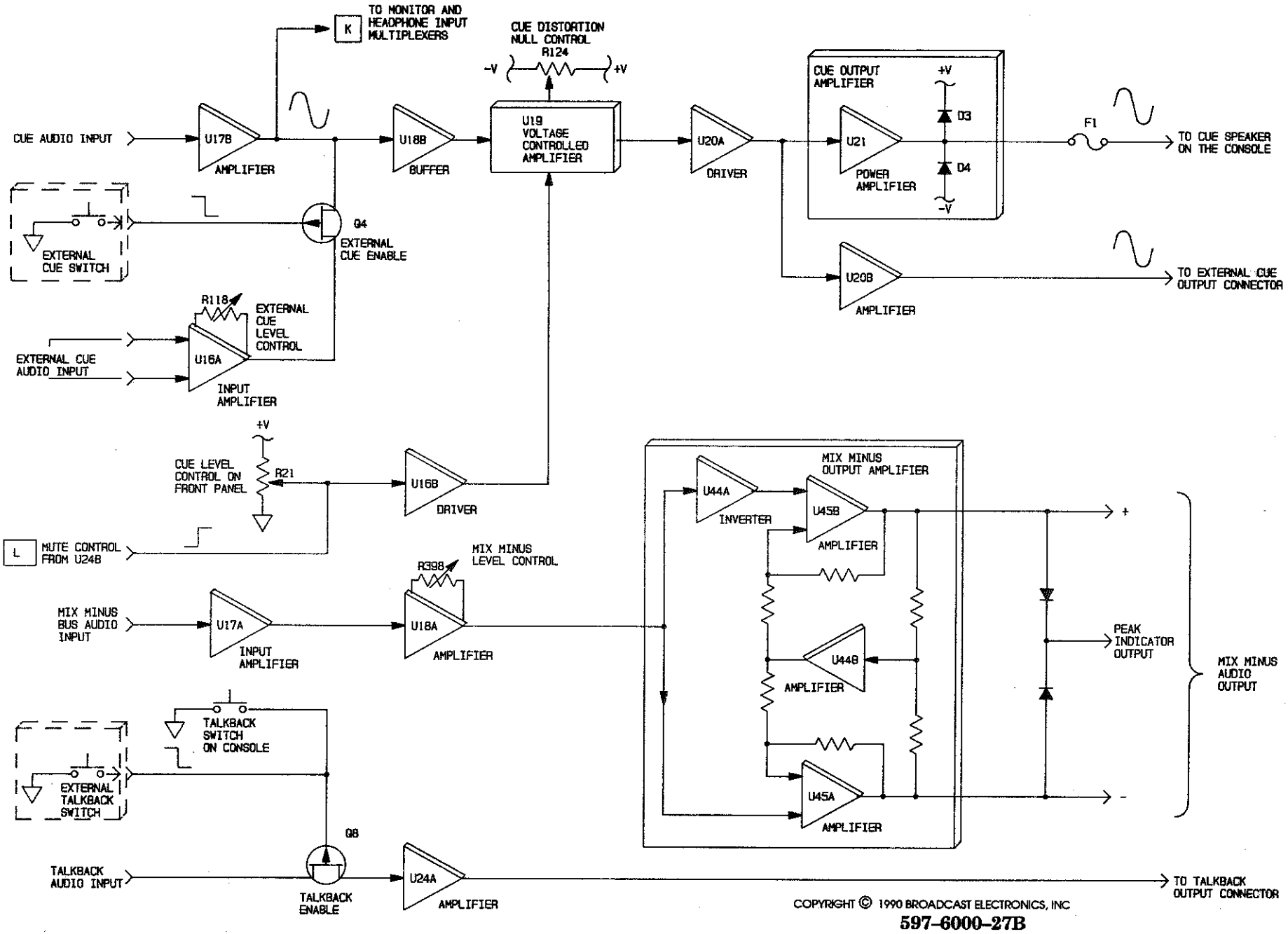

FIGURE 4–3. OUTPUT CIRCUIT BOARD DETAILED BLOCK DIAGRAM
(Sheet 2 of 4)

CONTROL ROOM AND HEADPHONE CONTROL SIGNALS				
INH	C	B	A	SELECTED
HIGH	LOW	LOW	LOW	NONE
LOW	LOW	LOW	LOW	PROGRAM
LOW	LOW	LOW	HIGH	AUDITION
LOW	LOW	HIGH	LOW	CUE
LOW	LOW	HIGH	HIGH	AIR 1
LOW	HIGH	LOW	LOW	AIR 2
LOW	HIGH	LOW	HIGH	EXT 1
LOW	HIGH	HIGH	LOW	EXT 2
LOW	HIGH	HIGH	HIGH	EXT 3

CONTROL SIGNALS FROM CONTROL ROOM SWITCH CIRCUIT BOARD
INH
C
B
A
M TO LEFT CHANNEL MONITOR INPUT MULTIPLEXER U10
F RIGHT PROGRAM AUDIO INPUT
H RIGHT AUDITION AUDIO INPUT
K CUE AUDIO INPUT
RIGHT AIR 1 AUDIO INPUT
RIGHT AIR 2 AUDIO INPUT
RIGHT EXTERNAL 1 AUDIO INPUT
RIGHT EXTERNAL 2 AUDIO INPUT
RIGHT EXTERNAL 3 AUDIO INPUT
R2
R4
R6
R8
R10
U1 RIGHT CHANNEL MONITOR INPUT MULTIPLEXER
POTENTIOMETERS R2-R10 ARE INPUT LEVEL CONTROLS.
B TO LEFT CHANNEL STUDIO ROOM AUDIO CONTROL Q3
Q5 INVERTER
+V
U37 OPTICAL COUPLER
TO STUDIO ROOM WARNING LIGHT SYSTEM
RIGHT CHANNEL STUDIO ROOM MUTE CONTROL
Q1
STUDIO ROOM MUTE CONTROL SIGNAL FROM CHANNEL CONTROL CIRCUIT BOARD
U2B OUTPUT AMPLIFIER
TO EXTERNAL STUDIO ROOM MONITOR CONNECTOR
RIGHT CHANNEL MONITOR DISTORTION NULL CONTROL
R29
-V
+V
U4 VOLTAGE CONTROLLED AMPLIFIER
U3D BUFFER
U3C AMPLIFIER
U5B OUTPUT AMPLIFIER
TO EXTERNAL CONTROL ROOM MONITOR CONNECTOR
Q2
S1A
MONOPHONIC TEST SWITCH ON THE FRONT PANEL
C TO LEFT CHANNEL MONITOR VOLTAGE CONTROLLED AMPLIFIER U11
CONTROL ROOM MONITOR DIM ADJUST
R163
MONITOR DIM CONTROL
Q7
CUE CONTROL SIGNAL FROM CHANNEL CONTROL CIRCUIT BOARD
Q9 INVERTER
CONTROL ROOM MONITOR LEVEL ADJUST ON THE FRONT PANEL
R20
U9B DRIVER
D10
D TO LEFT CHANNEL MONITOR VOLTAGE CONTROLLED AMPLIFIER U11
L MUTE CONTROL TO DRIVER U16B
A TO LEFT CHANNEL MONITOR INPUT MULTIPLEXER U10 AND LEFT CHANNEL HEADPHONE INPUT MULTIPLEXER U14.
CONTROL ROOM MUTE SIGNAL FROM CHANNEL CONTROL CIRCUIT BOARD
U24B
Q6 INVERTER
U3B OPTICAL COUPLER
TO CONTROL ROOM WARNING LIGHT SYSTEM
HEADPHONE LEVEL CONTROL ON THE FRONT PANEL
R19
U9A DRIVER
E TO LEFT CHANNEL HEADPHONE VCA U15
U6 RIGHT CHANNEL HEADPHONE INPUT MULTIPLEXER
U7D BUFFER
U7C AMPLIFIER
U8 VOLTAGE CONTROLLED AMPLIFIER
U12B DRIVER
RIGHT HEADPHONE OUTPUT AMPLIFIER
U23 POWER AMPLIFIER
D7
D8
TO RIGHT HEADPHONE JACK
R40
RIGHT CHANNEL HEADPHONE DISTORTION NULL CONTROL
U13B OUTPUT AMPLIFIER
TO RIGHT CHANNEL EXTERNAL HEADPHONE CONNECTOR
CONTROL SIGNALS FROM HEADPHONE SWITCH CIRCUIT BOARD
A
B
C
INH
N TO LEFT CHANNEL HEADPHONE INPUT MULTIPLEXER U14

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FIGURE 4–3. OUTPUT CIRCUIT BOARD DETAILED BLOCK DIAGRAM (Sheet 3 of 4)

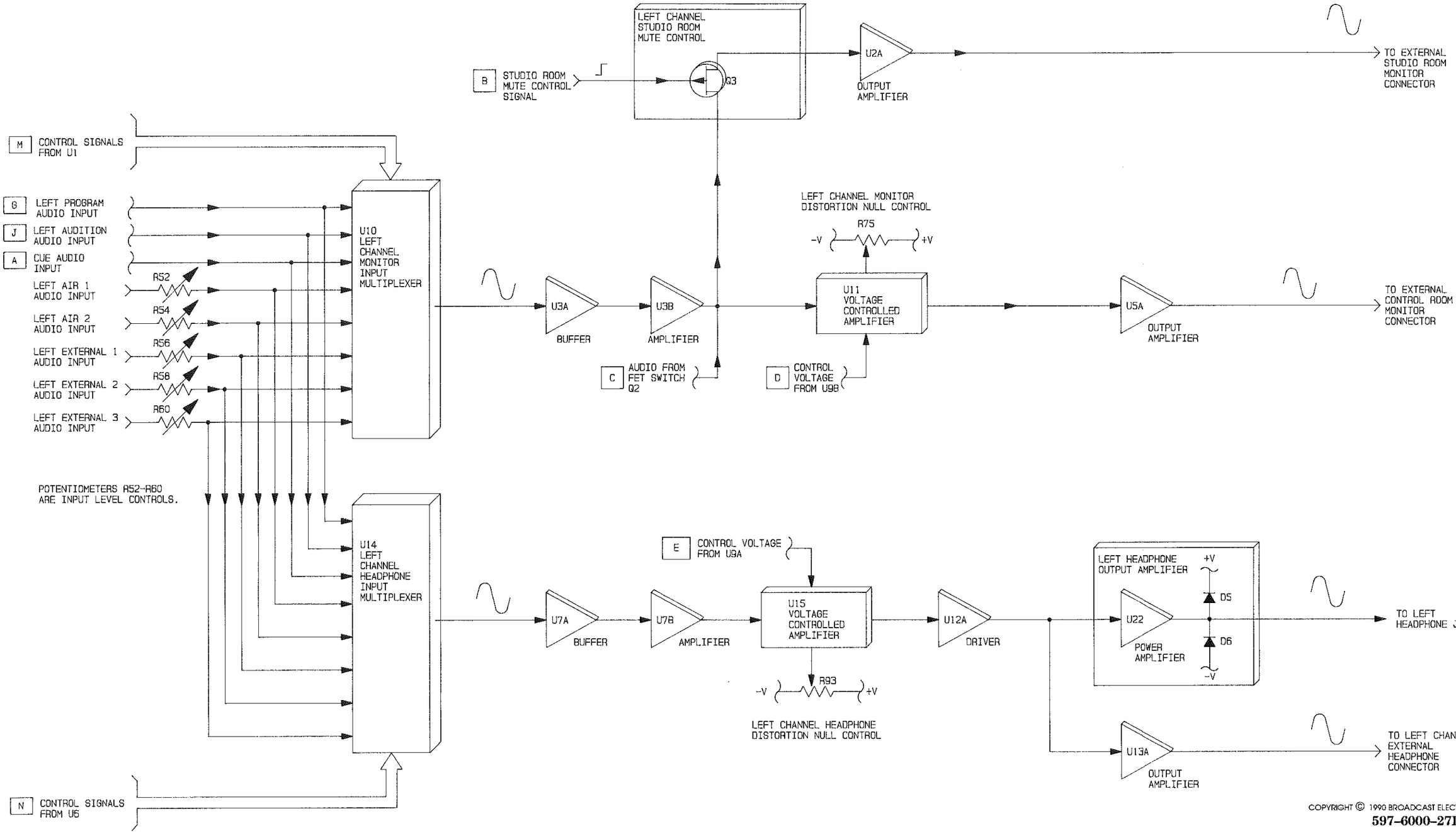

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FIGURE 4-3. OUTPUT CIRCUIT BOARD DETAILED BLOCK DIAGRAM (Sheet 4 of 4)

4–38. The output of VCA U19 is routed to driver U20A. U20A operates in association with VCA U19 to convert the output current of the VCA to a voltage. The output of U20A is routed to: 1) external cue audio output amplifier U20B and 2) cue speaker power amplifier U21. Amplifier U20B is configured for a gain of approximately 2. The output of U20B is routed for application to an external cue audio amplifier.

4–39. **Cue Speaker Output Amplifier.** The cue speaker output amplifier consists of power amplifier U21 and peak limiting diodes D3 and D4. U21 will output approximately 2 watts through fuse F1 for application to the console cue speaker.

4–40. **EXTERNAL CUE INPUT AMPLIFIER CIRCUIT.** External cue audio is applied to input amplifier U16A. The gain of U16A is controlled by potentiometer R118 which allows the external cue audio input level to be calibrated to the internal cue audio level. The output of U16A is routed to buffer U18B through external cue enable transistor Q14. When a LOW is applied to the gate of Q14 from an external cue switch, audio from U16A will be routed to the input of U18B.

4–41. **MIX MINUS AMPLIFIER CIRCUIT.** Audio from the mix minus bus is routed to input amplifier U17A. The output of U17A is routed to mix minus level control amplifier U18A. Potentiometer R398 provides a 10 dB range of level adjustment.

4–42. **Mix Minus Output Amplifier Circuit.** Audio from U18A is routed through inverter U44A and applied to the amplifier stage in an inverted and non–inverted format. Inverted audio is applied to amplifier stage U45B. Non–inverted audio is applied to amplifier U45A. Together, U45A and U45B operate as a balanced audio output amplifier to provide an output ranging from 0 dBm to +10 dBm. Amplifier U44B functions as a monitoring and gain stage for shorted audio output conditions.

4–43. When the audio output impedance is balanced, the input and output of U44B is at zero volts. When either the positive or negative output terminal is grounded, an audio signal will be applied to U44B. U44B will output a signal to increase the gain of the remaining output amplifier network. Consequently, the network will maintain the rated output into an unbalanced load condition. The output of U45A and U45B is rectified to provide a peak output signal for application to the VU meter distribution circuit board.

4–44. **TALKBACK AMPLIFIER CIRCUIT.** The talkback amplifier circuit consists of amplifier U24A, talkback enable transistor Q8, and the console talkback switch or an external talkback switch. When either the console or external talkback switch is depressed, a LOW will be applied to transistor Q8. The LOW will enable Q8 and allow talkback audio to be routed to amplifier U24A. The output of U24A is routed for application to external equipment such as an audio amplifier or an additional AT–90 console.

4–45. **CONTROL ROOM MONITOR CIRCUITS.** The control room monitor circuit is designed to allow the monitoring of eight audio sources. The circuit monitors: 1) internal program, audition, and cue audio and 2) external off–air 1, off–air 2, external 1, external 2, and external 3 audio. Input selection is accomplished by an input selection circuit. Muting of the control room monitor output is controlled by a muting control network.

4–46. **Input Selection Circuit.** Right channel audio input selection is accomplished by monitor input multiplexer U1. Control lines A, B, C, and INH from the control room switch circuit board are applied to U1. U1 decodes the logic signals to select audio from the program bus, audition bus, cue bus, or one of five external sources for application to buffer U3D. Potentiometers R2, R4, R6, R8, and R10 allow the input levels of the external audio sources to be calibrated to internal levels.

4–47. **VCA Circuit.** The selected audio is applied to VCA U4 through buffer U3D and amplifier U3C. U4 is a precision low–noise current–input/current–output device with a voltage sensitive control port. The gain of U4 is established by a dc gain control voltage applied to the control port from a level control network consisting of front panel control room monitor level control R20 and driver U9B. Potentiometer R29 is provided to cancel any distortion within the VCA stage.

4–48. The output of the VCA is routed to output amplifier U5B. U5B operates in association with VCA U4 to convert the output current of the VCA to a voltage. The output of U5B provides a nominal output level of 0 dBu for application to an external control room monitor power amplifier.

4–49. **VCA Level Control Circuit.** The output level of VCA U4 is determined by driver U9B and front–panel control room monitor level control R20. When a dc voltage applied to R20 is varied, the output of U9B responds by applying a variable control voltage to the VCA. The VCA will respond by amplifying or attenuating the audio as determined by the control voltage.

4–50. **Monitor Dim Circuit.** During a cue operation, the cue control signal from the channel control circuit board applies a HIGH to transistor Q9. Q9 inverts the HIGH to a LOW to enable monitor dim control FET Q7. With Q7 enabled, a dc voltage from control room monitor dim control R163 is applied to VCA level control driver U9B. The VCA will respond by reducing the control room monitor level as controlled by monitor dim control R163 to allow cue channel monitoring operations.

4–51. **Control Room Mute Circuit.** The control room mute circuit consists of driver U24B. When a microphone input initiates a mute operation, a HIGH is routed from the channel control circuit board to driver U24B. The HIGH from U24B is routed to: 1) monitor level control driver U9B, 2) an auxiliary control room mute circuit, and 3) diode D10. Driver U9B converts the mute signal to a dc gain control voltage which is applied to the control port on VCA U4. The voltage will establish maximum VCA attenuation and mute the control room monitors.

4–52. The HIGH from driver U24B is applied to an auxiliary control room mute circuit consisting of transistor Q6 and optical coupler U38. The HIGH is inverted by transistor Q6 which outputs a LOW to activate optical coupler U38. U38 provides an auxiliary control room mute command for application to external circuitry such as an on–air warning light.

4–53. The HIGH from driver U24B is also applied to diode D10. D10 couples the HIGH mute control signal to the cue mute control circuit to initiate muting of the cue output.

4–54. **STUDIO ROOM MONITOR CIRCUITS.** The monitor switches on the console front–panel are designed to select audio for both the studio and control room monitor circuits. The circuit monitors: 1) internal program, audition, and cue audio and 2) external off–air 1, off–air 2, external 1, external 2, and external 3 audio. Muting of the studio monitor output is controlled by a muting control network.

4–55. **Input Selection Circuit.** Right channel studio room monitor audio is selected by the front panel monitor select switches and multiplexer U1. Control lines A, B, C, and INH from the control room monitor switch circuit board are applied to U1. U1 decodes the logic signals to select audio from the program output, audition output, cue output, off–air 1, off–air 2, external 1, external 2, or external 3 sources. Potentiometers R2, R4, R6, R8, and R10 allow the input levels of the off–air and external audio sources to be calibrated.

4–56. Audio from multiplexer U1 is routed through buffer U3D to amplifier U3C. The output of U3C is routed to the studio mute control circuit.

4–57. **Studio Room Mute Circuit.** The right channel studio room mute circuit consists of studio room mute control transistor Q1 and output amplifier U2B. When muting is not required, a LOW mute command from the channel control circuit board is applied to bias transistor Q1 on. Q1 will route monitor audio from amplifier U3C to amplifier U2B for application to an external studio room power amplifier. When muting is required, a HIGH mute command will be applied to bias transistor Q1 off and mute the studio room output.

4–58. The HIGH mute command from the channel control circuit board is also applied to an auxiliary studio room mute output circuit. The HIGH is inverted by transistor Q5 which outputs a LOW to activate optical coupler U37. U37 provides an auxiliary studio room mute output command for application to external circuitry such as an on–air warning light.

4-59. **MONOPHONIC TEST CIRCUIT.** The monophonic test circuit is designed to test the audio phase conditions between the left and right channel monitor amplifier circuits. The circuit consists of front-panel test switch S1A and FET Q2. When the test switch is depressed, a LOW is applied to enable Q2. Audio from right channel amplifier U3C and left channel amplifier U3B will be combined. If the phase condition is incorrect, a severe loss of level will be observed at the monitor speakers.

4-60. **HEADPHONE MONITOR CIRCUITS.** The headphone monitor circuit is designed to allow the monitoring of eight audio sources. The circuit monitors: 1) internal program, audition, and cue audio and 2) external off-air 1, off-air 2, external 1, external 2, and external 3 audio. The headphone monitor circuit consists of an input selection circuit, a VCA circuit, and VCA level control circuit.

4-61. **Input Selection Circuit.** Right channel audio input selection is accomplished by headphone input multiplexer U6. Control lines A, B, C, and INH from the headphone switch circuit board are applied to U6. U6 decodes the logic signals to select audio from the program bus, audition bus, cue bus or one of five external sources for application to buffer U7D. Potentiometers R2, R4, R6, R8, and R10 allow the input levels of the external audio sources to be calibrated to internal levels.

4-62. **VCA Circuit.** The selected audio is applied to VCA U8 through buffer U7D and amplifier U7C. U8 is a precision low-noise current-input/current-output device with a voltage sensitive control port. The gain of U8 is established by a dc gain control voltage applied to the control port from a level control network consisting of front-panel headphone level control R19 and driver U9A. Potentiometer R40 is provided to cancel any distortion within the VCA stage.

4-63. The output of VCA U8 is routed to driver U12B. U12B operates in association with VCA U8 to convert the output current of the VCA to a voltage. The output of U12B is routed to: 1) external headphone amplifier U13B and 2) headphone power amplifier U23. Amplifier U13B is configured for a gain of approximately 2. The output of U13B is routed for application to an external headphone audio amplifier.

4-64. **Headphone Output Amplifier.** The headphone output amplifier consists of power amplifier U23 and peak limiting diodes D7 and D8. U23 will output approximately 2.8 volts for application to the console right channel headphone jack terminals.

4-65. **VCA Level Control Circuit.** The output level of VCA U8 is determined by driver U9A and headphone monitor level control R19. When a dc voltage applied to R19 is varied, the output of U9A responds by applying a variable control voltage to the VCA. The VCA will respond by amplifying or attenuating the audio as determined by the control voltage.

4-66. **CHANNEL CONTROL CIRCUIT BOARD.**

4-67. The 6 channel control circuit board consists of 6 control networks designed to direct the operation of the associated console audio channels. The 2 channel control circuit board consists of 2 control networks designed to direct the operation of the associated console audio channels. The operation of each control network is identical. Therefore, only the operation of the channel 1 control circuitry will be discussed.

4-68. A detailed block diagram of the channel control circuit board is presented in Figure 4-4. Only the circuitry for channel 1 is presented in detail. Refer to Figure 4-4 as required for the following channel control circuit board discussion.

4-69. **CHANNEL CONTROL CIRCUIT.** The channel control circuit contains a hybrid logic circuit board which operates as the primary control unit. When input A switch S1, input B switch S2, input C switch S3, program switch S4, audition switch S5, the channel on switch, or the channel off switch is depressed, a LOW is applied to the input of the hybrid logic circuit. In addition, the remote on and off commands from external equipment also route LOW commands to the input of the hybrid logic circuit board.

4–70. The hybrid logic circuit board will process the input signals and output a LOW command to illuminate the selected: 1) source indicator input A, input B, or input C or 2) output bus indicator program or audition. In addition, a LOW is output to illuminate the selected control switch/indicator: 1) channel on or 2) channel off. Depending on the programming of source start control headers J2, J3, and J4, a continuous or momentary LOW start command will be routed to the selected source when the on switch/indicator is depressed.

4–71. The hybrid logic circuit board also generates HIGH: 1) X and Y control commands for application to the input selection network on the input circuit board and 2) program and audition control commands for the output selection network on the input circuit board. The hybrid also generates LOW on and off tally commands. The tally commands are routed for application to equipment external to the console such as a remote control panel.

4–72. Programmable headers J57and J58 enable control room muting and studio room muting. When the jumpers are installed, a HIGH is output for application to the appropriate console control bus.

4–73. **Timer Reset Control.** Programmable headers J76, J77, and J78 select timer reset control operations. Header J76 selects program/audition timer reset control for channel 1A. Header J77 selects program/audition timer reset control for channel 1B. Header J78 selects program/audition timer reset control for channel 1C.

4–74. Program output control operation is initiated when the on switch is depressed. A HIGH is routed from the control hybrid logic circuit board to AND gate U5B. HIGHs from the control hybrid logic A, B, and C select inputs are routed to headers J76, J77, and J78. If the jumpers are configured for program operation, a HIGH will be routed to U5B. U5B will output a HIGH to the timer reset bus.

4–75. **Fader Start Control.** Programmable header J69 configures the channel for fader start operations. When the fader is operated from the off position, a HIGH from comparator U1A will be applied to capacitor C2 and resistor R75. The HIGH will be inverted LOW and applied to the remote on control line to enable the channel.

4–76. **Cue Disable.** Programmable header J94 is designed to disable the channel cue operation. Cue operation is required to be disabled only when the channel is assigned a control room microphone.

4–77. **CONTROL BUS.** The channel control circuit board contains a control bus consisting of the control room muting, studio room muting, timer reset, and cue control signals. The fader reference and cue reference voltages are also routed on the control bus. Connector J6 provides interconnection of control buses when two or more channel control circuit boards are installed in the console. Connector J7 provides connection to a monitor distribution circuit board.

4–78. **CUE DETECTOR CIRCUIT.** The cue detector circuit determines when the channel fader is operated to the cue position. This circuit consists of comparator U1A, diode D1, a cue indicator, and the fader control. A +5 volt fader reference is applied to the input of U1A through the fader control. A +4.95 volt cue reference is also applied to the comparator. When the fader output exceeds +4.95 volts (below the –55dB position), the output of U1A will go HIGH.

4–79. The HIGH from U1A illuminates the cue indicator and instructs the output selection network on the input circuit board to initiate cue bus operation. This HIGH is also routed through diode D1 to the monitor dimming circuit on the output circuit board via the cue control bus.

4–80. **POWER SUPPLY.** Operating potentials for the hybrid logic circuit board, headphone select switches on the headphone select circuit board, and the monitor select switches on the monitor circuit board are generated by a voltage regulator circuit. A +14V supply is regulated to +6 volts by regulator U2 and the associated components.

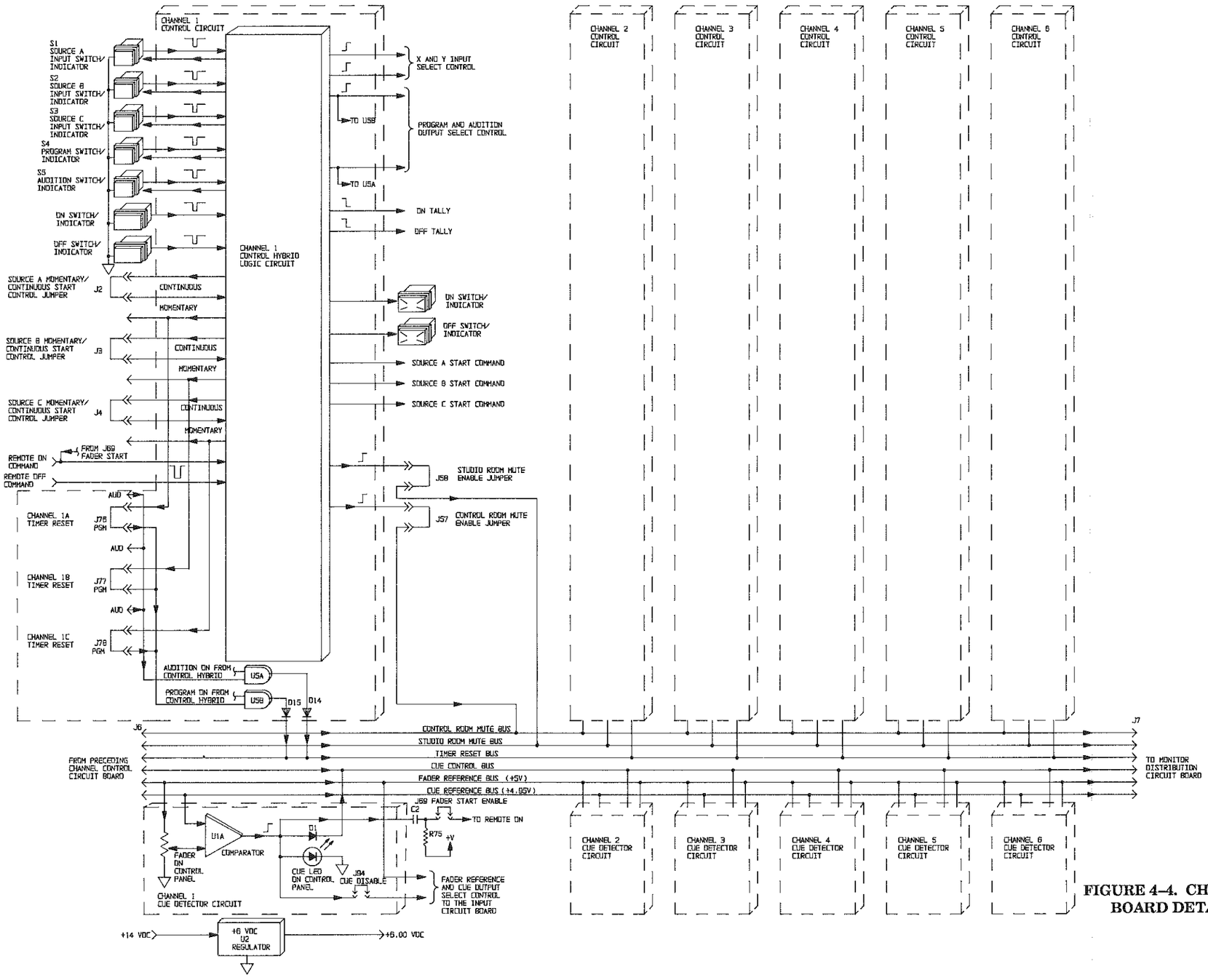

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FIGURE 4–4. CHANNEL CONTROL CIRCUIT BOARD DETAILED BLOCK DIAGRAM

4–81. **VU METER DISTRIBUTION AND AUDIO/POWER DISPLAY CIRCUIT BOARDS.**

4–82. Figure 4–5 presents a block diagram of the VU meter distribution and audio/power display circuit boards. Refer to Figure 4–5 as required for the following discussion.

4–83. **MONOPHONIC PROGRAM, MONOPHONIC AUDITION, AND MIX MINUS INDICATOR CIRCUITS.** Audio from the monophonic program amplifier on the output circuit board is routed to the input of program comparator U5A on the VU meter distribution circuit board. When the input level exceeds the reference voltage applied to U5A, the output of U5A will go to LOW. The LOW will illuminate mono program status indicator DS1 on the audio/power display circuit board to indicate the presence of mono program audio. The mono audition circuit consisting of comparator U5B/indicator DS2 and the mix minus circuit consisting of comparator U5C/indicator DS3 operate in an identical manner.

4–84. **PHASE ERROR SENSOR CIRCUITS.** The VU meter distribution circuit board contains program and audition phase error detector circuits. These circuits are identical in operation. Therefore, only the program phase error detector circuit will be described.

4–85. Right and left channel program audio from the output circuit board is routed to L–R generator U1D on the VU meter distribution circuit board. The L–R output signal of U1D is applied to amplifier U1A which provides a gain of approximately 9. The output of U1A is rectified and applied to comparator U2B.

4–86. Right and left channel program audio from the output circuit board is also routed to L+R generator U1C on the VU meter distribution circuit board. The L+R output signal of U1C is applied to amplifier U1B which provides a gain of approximately 9. The output of U1B is rectified and applied to comparator U2B.

4–87. When the signals applied to comparator U2B are in–phase, the output of U2B will go HIGH to illuminate phase indicator DS5 green on the audio/power display circuit board. However, if the average level of the L–R signal exceeds the average level of the L+R signal, U2B will output a LOW to illuminate DS5 red to indicate an out–of–phase condition.

4–88. **VOLTAGE INDICATOR CIRCUITS.** The +/–6V, +/–16.5V, and +/–24V supply potentials are applied to indicators DS6 through DS11 on the audio/power display circuit board. The indicators are connected to ground through front–panel TEST switch S2. When S2 is depressed, the LEDs will illuminate to indicate the presence of supply voltages.

4–89. **METERING CIRCUITS.** Metering circuits are provided for monitoring the program and audition output levels. The meter circuits contain a jumper programming network consisting of J8 through J11. On 6 channel console models only, the jumpers in the network are removed and program/audition switch S1 is installed. The switch allows 6 channel console left channel meter M1 and right channel meter M2 to display both program and audition normal/peak levels.

4–90. On 12, 18, and 24 channel console models: 1) program/audition switch S1 is not installed and 2) jumpers J8 and J11 are installed as shown. This allows left channel meter M1 and right channel meter M2 to display normal/peak program output levels. Left and right channel normal/peak audition levels are displayed by meters M3 and M4.

4–91. On 24 channel console models, left and right program audio is applied through summing resistors to L+R generator U4A. The audio output of U4A is displayed on monophonic program meter M5. The left and right audition audio is applied through summing resistors to L+R generator U4B. The audio output of U4B is displayed on monophonic audition meter M6. Left and right program and audition audio is summed by diodes D11 through D14 and routed to LEDs on meters M5 and M6 to indicate peak conditions.

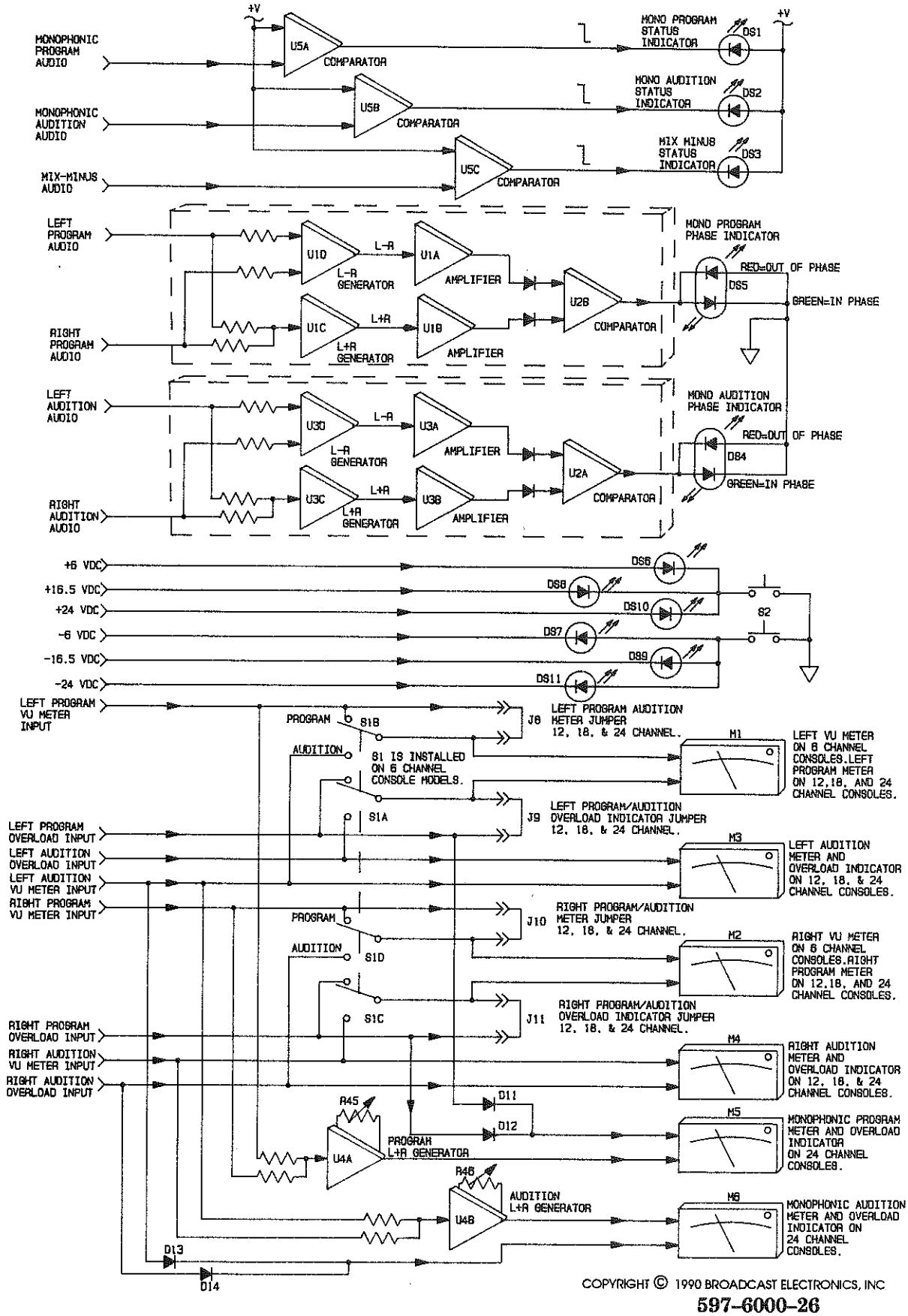

FIGURE 4-5. VU METER DISTRIBUTION AND AUDIO/POWER DISPLAY CIRCUIT BOARD BLOCK DIAGRAM

4–92. **CONTROL LOGIC HYBRIDS.**

4–93. The Air Trak 90 console is equipped with a control logic hybrid for each channel. Due to the limited troubleshooting and repair of the hybrid, the circuitry on the hybrid is presented only in the schematic diagram. Refer to the control logic hybrid schematic in SECTION VII, DRAWINGS as required for the circuitry contained on the hybrid logic circuit board.

4–94. **MONITOR DISTRIBUTION CIRCUIT BOARD.**

4–95. The monitor distribution circuit board functions as a distribution center for control signals and operating potentials (refer to the monitor distribution circuit board schematic in SECTION VII, DRAWINGS). The circuit board provides interconnections for control signals and operating potentials being routed to/from the output, headphone select, monitor select, control room/headphone/cue gain, and control circuit boards.

4–96. **HEADPHONE SELECT CIRCUIT BOARD.**

4–97. The headphone select circuit board consists of eight position select switch S1 (refer to the headphone select circuit board schematic in SECTION VII, DRAWINGS). The switch selects program, audition, cue, off–air 1, off–air 2, external 1, external 2, or external 3 audio for application to the headphone monitor circuitry. The switches select audio by routing HIGH control commands to a bus consisting of control lines A, B, C, and INH. The control lines are routed through the monitor distribution circuit board for application to the headphone selection network on the output circuit board.

4–98. **MONITOR SELECT CIRCUIT BOARD.**

4–99. The monitor select circuit board consists of eight position select switch S2 (refer to the monitor select circuit board schematic in SECTION VII, DRAWINGS). The switch selects program, audition, cue, off–air 1, off–air 2, external 1, external 2, or external 3 audio for application to the control room/studio monitor circuitry. The switches select audio by routing HIGH control commands to a bus consisting of control lines A, B, C, and INH. The control lines are routed through the monitor distribution circuit board for application to the control room/studio monitor selection network on the output circuit board.

4–100. **CONTROL ROOM/HEADPHONE/CUE GAIN CIRCUIT BOARD.**

4–101. The control room/headphone/cue gain circuit board consists of headphone level control R19, control room monitor level control R20, and cue level control R21 (refer to the control room/headphone/cue gain circuit board schematic in SECTION VII, DRAWINGS). The controls route dc control voltages through the monitor distribution circuit board to the control room monitor, headphone, and cue VCA level control networks on the output circuit board. The circuit board also provides interfacing for the console talkback switch.

4–102. **RELAY INTERFACE CIRCUIT BOARD.**

4–103. The relay interface circuit board is equipped with six individual relay networks (refer to the relay interface circuit board schematic diagram in SECTION VII, DRAWINGS). The start A, start B, start C, and on tally/off tally networks provide isolated control commands for application to source equipment. The remote on and remote off networks are designed to isolate remote channel on and off commands.

4–104. The start A, start B, start C, and on tally/off tally networks are enabled by LOW control commands from the channel control circuit board. The LOW enables the relay to provide isolated remote commands for application to source equipment. Fuses F1 through F4 provide overload protection for the control commands.

4–105. The remote on and remote off networks are enabled by LOW channel on and off commands from a remote location. The LOW enables the relay to provide an isolated LOW remote control command for application to the channel control circuit board.

4–106. **ON/OFF SWITCH INTERFACE CIRCUIT BOARD.**

4–107. Each channel is equipped with an on/off switch interface circuit board (refer to the channel control circuit board schematic in SECTION VII, DRAWINGS). The circuit board allows dc and ground potentials to be interfaced to the channel on and off switches.

4–108. **CLOCK/TIMER MODULE.**

4–109. Console clock and timer information is presented to the console operator by the clock/timer module (refer to Figure 4–6). The module consists of an Intel 80C31 microprocessor, a precision clock circuit, and an LED display circuit. The circuitry is designed to function as a precision clock and as an elapsed timer. Clock information is presented on a 6–digit LED display. Timer information is presented on a 5–digit LED display. The clock section of the module is equipped with an interface circuit which allows the clock to be synchronized to network audio or a logic signal to eliminate drift. The timer section of the module can be configured for automatic or manual operation.

4–110. **CLOCK/TIMER FUNCTION CIRCUIT.**

4–111. The module clock and timer functions are created by a circuit consisting of microprocessor U1, EPROM U4, address latch U3, and clock integrated circuit U5. The circuit is designed to generate and display clock and timer information.

4–112. U1 is an Intel 80C31 microprocessor containing built–in random–access–memory (RAM) and a universal–asynchronous–receiver–transmitter (UART). U1 is responsible for all data processing operations. A clock reference for U1 is provided by oscillator Y1. U4 is an erasable–programmable–read–only–memory (EPROM) integrated circuit. The EPROM provides a permanent location for the clock/timer module program code. The code directs the operation of all microprocessor functions. Integrated circuit U3 is a latch for the addressing of EPROM U4. U5 is a clock integrated circuit. The clock circuit will output hour/minute/second and day/month/year information for application to microprocessor U1. A clock reference for U5 is provided by oscillator Y2. The oscillator circuit is equipped with frequency calibration capacitor C9.

4–113. **READ OPERATION.** When microprocessor U1 is required to read information, the microprocessor will select a memory location or pheripheral integrated circuit by presenting the appropriate address on the data bus. If U1 is addressing EPROM U4, the address will be output using: 1) address bus A8–A12 and 2) address latch U3. The device containing the address location is selected by control lines. A microprocessor PSEN control line will go LOW to select U4. A microprocessor RD line will go LOW to select clock integrated circuit U5 or peripheral interface U9. The device will respond by presenting the requested information on the data bus.

4–114. **WRITE OPERATION.** When microprocessor U1 is required to write information, U1 will select clock integrated circuit U5 or peripheral interface U9 by presenting the appropriate address on the data bus. The microprocessor WR control line will go LOW to select the device. The device will respond by accessing the information from the data bus.

4–115. **CLOCK OPERATION.**

4–116. The clock/timer module clock is generated by microprocessor U1 and the clock/timer module program code. Clock integrated circuit U5 and three clock control circuits provide programming data for clock operation. During initial power–on or a reset operation, U1 will read data from clock circuit U5. The information from U5 programs the microprocessor clock for the correct hour/minute/second and day/month/year. The microprocessor clock is synchronized to clock integrated circuit U5 by one second interrupt pulse INT0. Once the clock information is determined, U1 will write the information to the data display circuit. Information from the clock control circuitry is processed in an identical manner.

4–117. **CLOCK CONTROL.** Clock operation is directed by a 12/24 hour format circuit, a synchronization circuit, and a clock set circuit. 12/24 hour format and clock set information is interfaced to microprocessor U1 via peripheral interface integrated circuit U9. Synchronization circuit information is routed to the INT1 port of U1. The following text presents information on the clock control circuitry.

4–118. **12/24 Hour Format.** Jumper P7 programs the clock to display information in a 12 or 24 hour time format. A LOW configures the clock for a 24 hour time format. A HIGH configures the clock for a 12 hour format. The information is routed to port C of peripheral interface U9. Microprocessor U1 will read the information from U9 to establish the clock format.

4–119. **Synchronization Circuit.** The clock synchronization circuit consists of a differential amplifier/rectifier stage and a comparator network. The circuit allows the clock to be synchronized to network audio or a logic signal to eliminate drift. Clock synchronization is initiated when audio at a level of –30 dBm or a logic signal is applied to a differential amplifier/rectifier stage consisting of integrated circuit U6A and diode D2. The synchronization signal must be present within ± 2 seconds from the beginning of the hour to initiate circuit operation. Jumper P11 configures the circuit for an audio or logic synchronization signal.

4–120. When a synchronization signal is applied, amplifier/rectifier stage U6A/D2 will output a dc level to comparator U6B. As the audio or logic signal increases above the comparator reference voltage, the output of U6B will go HIGH. The HIGH is inverted by U2C and applied to U1 at interrupt INT1. U1 responds by: 1) incrementing the clock 0.1 seconds if the synchronization signal is received before the hour or 2) decrementing the clock 0.1 seconds if the synchronization signal is received after the hour.

4–121. **Clock Set Circuit.** The clock set circuit consists of hour set switch S1, minutes set switch S2, and seconds set switch S3. The clock hour is set when switch S1 is depressed. A LOW is routed to port C of peripheral interface U9. Microprocessor U1 will read the information from U9 to set the clock. Minutes set switch S2 and seconds set switch S3 operate in an identical manner.

4–122. **TIMER CIRCUIT.**

4–123. The timer section consists of two individual timers: 1) an automatic timer and 2) a manual timer. The timer is created by microprocessor U1 and the clock/timer module program code. Five control lines direct the operation of the timer. The control lines are interfaced to microprocessor U1 at port 1.

4–124.. Automatic or manual timer operation is selected by the auto/manual switch on the timer reset circuit board. A HIGH command configures the timer for manual operation. A LOW command configures the timer for automatic operation. When the automatic timer is selected, the timer is controlled by audition and program timer jumpers on the control circuit board. Each channel contains jumpers which are programmed for audition or program bus control. The jumpers route a reset/start signal to the timer when the channel is enabled.

4–125. When the manual timer is selected, LOW commands from the timer reset circuit board stop, start, and reset switches are routed to U1 to control the manual timer as desired. The timer may be configured to display time information generated by the automatic timer or manual timer. When timer information is to be displayed, the information will be routed to the data display circuit.

4–126. **DATA DISPLAY CIRCUIT.**

4–127. Clock and timer information from microprocessor U1 is displayed on seven–segment LED digits. Clock information is presented on a six–digit red display consisting of digits DS1 through DS6. Timer information is presented on a five–digit green display consisting of digits DS7 through DS11.

4–128. The data from microprocessor U1 is interfaced to the LED digits by: 1) peripheral interface integrated circuit U9, 2) display data bus driver network U13, and digit driver network U10/U11/U12. When microprocessor U1 is required to display information on the clock seconds display, the microprocessor will address peripheral interface circuit U9. U1 will output an eight–bit code to disable all display digit segments. Next, U1 will output an eight–bit digit code through U9 and digit driver network U10/U11/U12 to enable DS6. Next, U1 will output an eight–bit code through U9 and display data driver network U13 to enable the required segments of DS6. The remaining clock display digits and the timer display digits operate in an identical manner.

4–129. MASTER/SLAVE CLOCK OPERATION.

4–130. The clock/timer module can be connected to additional clock/timer modules for master/slave operation. Jumpers P9 and P10 configure the module for master/slave operation. On master clocks, jumpers P9 and P10 must be removed. On slave clocks: 1) jumper P10 is installed when only clock operation is desired or 2) jumpers P9 and P10 are installed when clock and timer operation is desired.

4–131. Master/slave clock interfacing is performed by an RS232 network. RS232 driver U7 provides the data transfer interfacing required for master/slave operation. Master/slave operation is accomplished: 1) by connecting the master clock module transmit control line to the slave clock/timer module receive control line and 2) programming jumpers P9 and P10 for the desired operation.

4–132. RESET CIRCUIT.

4–133. The clock/timer module is equipped with a reset circuit. The reset circuit consists of two reset terminals and inverter U2A. When the microprocessor module is to be reset, the reset terminals are momentarily shorted to apply a LOW to inverter U2A. The output of U2A will go HIGH to reset microprocessor U1.

4–134. POWER SUPPLY.

4–135. DC operating potentials for application to clock/timer module components are produced by a regulator network. An unregulated +12V supply is applied to +5V dc regulator U8. U8 is a three terminal adjustable regulator containing internal thermal and short–circuit current limiting features. Diode D4 protects the regulator from a short circuit potential applied to the input. The regulated output from U8 is applied to the circuit board components.

4–136. The power supply circuit also contains a battery back–up system. Battery BT1 will output a +3V supply to maintain clock integrated circuit U5 during a power failure. The battery system will maintain clock operation for several months.

4–137. TIMER RESET CIRCUIT BOARD.

4–138. The timer reset circuit board consists of four position switch S3 (refer to Figure 4–6). The switch is designed to provide control of the clock/timer module timer section. The timer is equipped with two individual timers: 1) an automatic timer and 2) a manual timer.

4–139. The timer reset circuit board configures the timer section of the clock/timer module for either automatic timer or manual timer display via the auto switch. The switch routes control signals through the auto/manual control line and for application to microprocessor U1 on the clock/timer module. A HIGH is routed to U1 to configure the timer for manual timer displays. A LOW is routed to U1 to configure the timer for automatic timer displays.

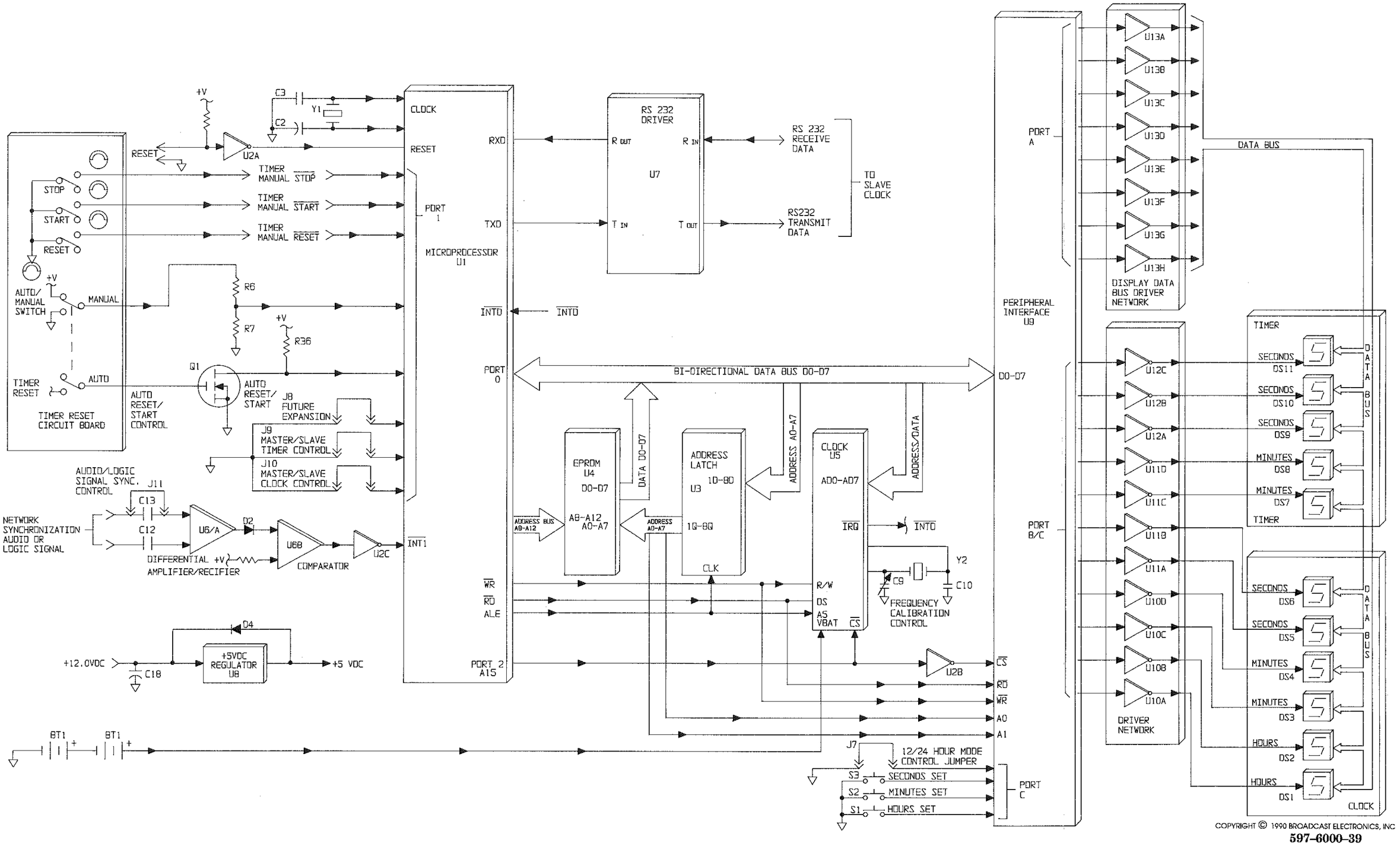

FIGURE 4–6. CLOCK/TIMER MODULE AND TIMER RESET CIRCUIT BOARD DETAILED BLOCK DIAGRAM

4–140. When the timer is configured for automatic timer displays, timer reset operations will be controlled by the audition/program timer reset jumpers on the control circuit board. Pulses from the timer reset bus are routed through the auto reset/start control line to U1 to reset the timer.

4–141. When the timer is configured for manual timer displays, three switch/indicators provide stop, start, and reset control functions. A manual timer stop command is generated when the stop switch/indicator is depressed. A LOW is routed through the manual stop control line to U1 to stop the manual timer. The manual timer start and reset switch/indicators operate in an identical manner.

4–142. POWER SUPPLY MODULE.

4–143. The console power supply consists of a self–contained modular assembly external to the console (refer to Figure 4–7). The module contains ac power transformation, dc rectification, and dc regulator circuitry for the generation of all console operating potentials. The potentials are routed through a power supply cable to the console for distribution.

4–144. AC INPUT CIRCUIT.

4–145. Primary ac power is applied to the module through the ac input receptacle. The ac input receptacle is equipped with built–in overload fuse F5 and ac control switch S1. Power from the receptacle is routed to terminal strip TB1. TB1 consists of a programming network for the configuration of the module for 117 volt or 234 volt ac input operation. AC power transformation is provided by transformer T1. T1 is equipped with two primary and two secondary windings. The secondary windings produce low–voltage ac potentials for application to the rectifier and regulator networks.

4–146. RECTIFIER NETWORKS.

4–147. The ac potential from secondary 1 of power transformer T1 is full–wave rectified by bridge rectifier D2 and filtered by capacitors C2 and C3 into two ±24 volt dc supplies. The +24 volt potentials are protected from overload conditions by fuses F1 and F2. The –24 volt potentials are protected from overload conditions by fuses F3 and F4. The ±24 volt supplies are routed from the rectifier network to a power supply circuit board.

4–148. The ac potential from secondary 2 of power transformer T1 is full–wave rectified by bridge rectifier D1 and filtered by capacitor C1 into a +14 volt dc supply. The supply is protected from overload conditions by fuse F7 and routed through the power supply circuit board for application to the console circuitry.

4–149. POWER SUPPLY CIRCUIT BOARD.

4–150. The power supply circuit board contains support circuitry for: 1) a ±16.5 volt regulator network and 2) a ±6 volt regulator network. The circuit board also routes unregulated ±24 volts supplies for application to the console circuitry.

4–151. **±16.5 VOLT REGULATOR CIRCUIT.** ±24 volt supplies from the rectifier circuit are applied to a regulator circuit which produces ±16.5V operating potentials. The +24 volt supply from fuse F1 is applied to +16.5 volt regulator U1. Capacitors C1 and C5 provide filtering for the supply. Transistor Q1 and diode D9 automatically disables the regulator in the event of failure in either the positive or negative supply. The output of U1 is routed for application to the cue/headphone amplifier circuitry. The +24 volt supply from fuse F2 is routed through the power supply circuit board to provide an unregulated dc potential for application to the VU meters.

4–152. The –24 volt supply from fuse F4 is applied to –16.5 volt regulator U2. Capacitors C2 and C6 provide filtering for the supply. Transistor Q2 and diode D10 automatically disables the regulator in the event of a failure in either the positive or negative supply. The output of U2 is routed for application to the cue/headphone amplifier circuitry. The –24 supply from F3 is routed through the power supply circuit board to provide an unregulated dc potential for application to the VU meters.

4–153. Regulators U1 and U2 are three–terminal adjustable devices containing internal thermal–overload and short–circuit current limiting features. Additional protection for the regulators is provided by diodes D1 through D4. Diodes D2 and D3 provide protection from reverse polarity potentials applied to the outputs. Diodes D1 and D4 provide protection from a short circuit applied to the input.

4–154. **±6 VOLT REGULATOR CIRCUIT.** ±16.5 volt supplies from the output of regulators U1 and U2 are applied to a ±6 volt regulator circuit. The +16.5 volt supply from fuse F5 is applied to +6 volt regulator U3. Capacitors C7 and C11 provide filtering for the supply. The output of U3 is routed for application to the console circuitry.

4–155. The –16.5 volt supply from fuse F6 is applied to –6 volt regulator U4. Capacitors C8 and C12 provide filtering for the supply. The output of U4 is routed for application to the console circuitry.

4–156. **AUTOMATIC POWER SUPPLY SWITCHER PANEL.**

4–157. The automatic power supply switcher panel controls the application of dc operating potentials to the console in a main/alternate power supply configuration (refer to SB911–6032 in SECTION VII, DRAWINGS). The switch panel consists of individual diode combining networks for the: 1) ±24 volt, 2) ±16 volt PGM, 3) ±16 volt HP, 4) ±6 volt, and 5) +14 volt supplies. In the event of a power supply, failure, the switch panel will automatically transfer dc potentials from the remaining operational power supply to the console without interruption.

4–158. **SWITCHING NETWORKS.** +24 volt supplies from power supply 1 and power supply 2 are applied to the +24 volt combining circuit. The combining circuit consists of diodes D1 and D2. In the event of a failure in a +24 volt supply circuit, the combining circuit will automatically route the remaining operational +24 volt supply to the console without interruption. Power supply 1 +24 volt indicator DS2 and power supply 2 +24 volt indicator DS1 provide status indications. The indicators will illuminate when the supplies are operational. The –24 volt, 2) ±16 volt PGM, 3) ±16 volt HP, 4) ±6 volt, and 5) +14 volt supplies operate in an identical manner.

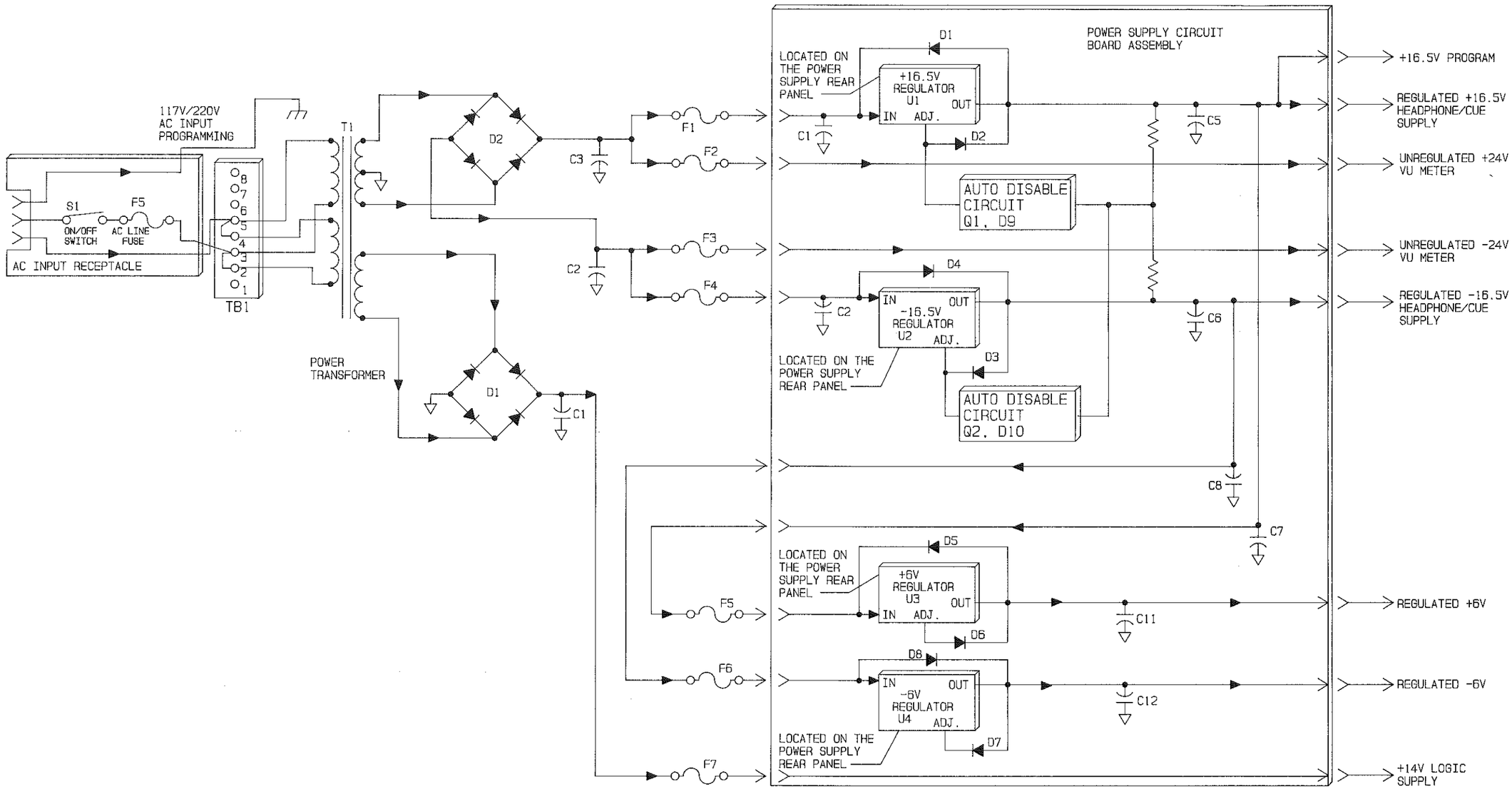

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FIGURE 4–7. POWER SUPPLY MODULE CIRCUITRY

SECTION V
MAINTENANCE

5–1. INTRODUCTION.

5–2. This section presents maintenance and troubleshooting information for the Air Trak–90/100 series audio consoles.

5–3. SAFETY CONSIDERATIONS.

5–4. Low voltages are used throughout the Air Trak–90/100 console. All high voltages and current sources used within the power supply module have been shielded; however, do not touch any components within the console or power supply module with the power energized. Good judgment, care, and common sense must be practiced to prevent accidents. The procedures contained in this section should be performed only by experienced and trained maintenance personnel.

5–5. FIRST LEVEL MAINTENANCE.

5–6. First level maintenance consists of precautionary procedures applied to the equipment to prevent future failures. The procedures are performed on a regular basis and the results recorded in a performance log.

WARNING ***DISCONNECT ALL CONSOLE PRIMARY POWER BEFORE ATTEMPTING ANY EQUIPMENT MAINTENANCE.***

WARNING

5–7. GENERAL.

5–8. Clean the console and the power supply of accumulated dust as required using a nylon–bristle brush and vacuum cleaner. Remove accumulated dirt from the console overlays using a cloth and any mild household cleaner. Inspect the console circuit boards for improperly seated semiconductors and components damaged by overheating. In addition, periodically inspect the circuit boards and the chassis for loose hardware.

5–9. FADER CONTROLS.

5–10. **PENNY AND GILES.** Penny and Giles slide–action fader controls are standard in each AT–90/100 console. If a fader control becomes defective, the control may require: 1) cleaning or 2) replacement of the control shaft bushings.

5–11. To clean the slide–action fader, remove the fader from the console. Remove the fader end–caps and slide the fader assembly out of the aluminum housing. Using distilled water and a cotton swab, remove all dust and dirt from the fader circuit board area. Re–assemble the fader control and replace the fader assembly in the console.

5–12. To replace the fader shaft bushings, replacement parts and a recommended procedure must be obtained from Penny and Giles Inc. Contact Penny and Giles at the address shown below for the replacement bushings and the installation instructions.

Penny and Giles
2617 Ocean Park Blvd.
Suite 1005
Santa Monica, California 90405

5–13. **SELLMARK.** The AT–90/100 consoles may be equipped with Sellmark slide–action fader controls. The Sellmark fader is an open frame unit and is not designed for routine maintenance or parts replacement. Therefore, if a Sellmark fader control becomes defective, it is recommended the fader be replaced.

5–14. SECOND LEVEL MAINTENANCE.

5–15. Second level maintenance consists of procedures required to restore the Air Trak–90/100 console to operation after a fault has occurred. The procedures are divided into electrical adjustment procedures and troubleshooting.

5–16. ELECTRICAL ADJUSTMENTS.

5–17. The following text provides electrical adjustment procedures for the Air Trak–90/100 console controls. The adjustments consist of distortion null, output level calibration, and VU meter calibration controls. Adjustment procedures for the Air Trak–90/100 input level controls are presented in SECTION II, INSTALLATION. The adjustment procedures are presented in the following order:

A. Program Output Calibration – Level/VU Meter/Peak LED.
B. Audition Output Calibration – Level/VU Meter/Peak LED.
C. Mix Minus Bus Output Level Calibration.
D. Console Input Channel 1 Distortion Null Adjustment.
E. Console Input Channels 2 Through 6 Distortion Null Adjustment.
F. External Headphone Output Distortion Null Adjustment.
G. Control Room Monitor Distortion Null Adjustment.
H. Cue Channel Distortion Null Adjustment.

5–18. The following equipment is required for the electrical adjustment procedures:

A. Audio Analyzer (Potomac AA–51 or equivalent).
B. Insulated Non–Metallic Adjustment Tool.
C. Audio Signal Generator (Potomac AG–51 or equivalent).
D. 600 Ohm ±5%, 1/2W Resistor.

5–19. Input and output connections for the electrical adjustment procedures are presented in Figure 5–1. Refer to Figure 5–1 as required to connect equipment to the console during the adjustment procedures.

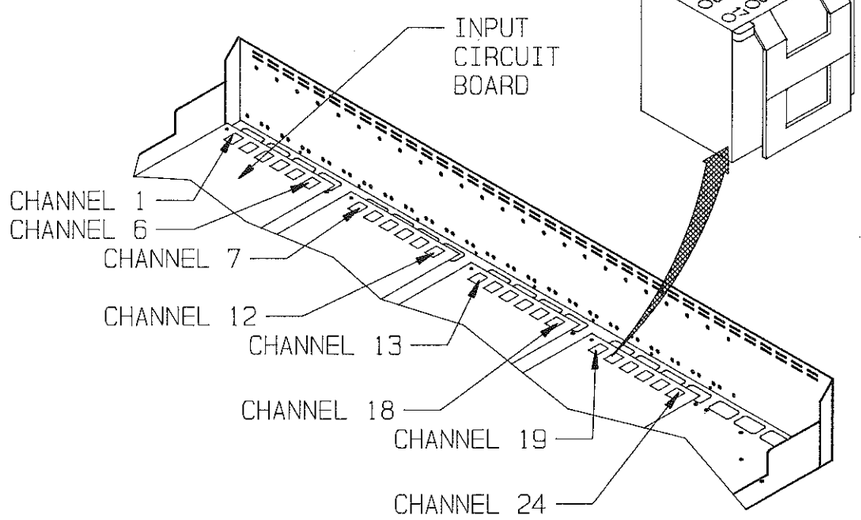
5–20. **PROGRAM OUTPUT CALIBRATION – LEVEL/VU METER/PEAK LED.** On AT–90/100 consoles, the program output level is adjusted by left channel program output level control R379 and right channel program output level control R390. The program VU meters are calibrated by left channel program VU meter control R272 and right channel program VU meter control R303. The program VU meter peak LEDs are calibrated by left channel program VU meter peak LED control R278 and right channel program VU meter peak LED control R313. On 24 channel console models, the mono program VU meter is calibrated by mono program VU meter control R45. Calibrate the program output level, VU meters, peak LEDs, and mono VU meter by performing the following procedure.

5–21. **Procedure.** To calibrate the program output level, VU meters, peak LEDs, and mono VU meter, proceed as follows:

5–22. Open the console and select a console channel and a source input for the procedure. Ensure the selected source input level is calibrated (refer to INPUT LEVEL ADJUSTMENT procedures in SECTION II, INSTALLATION if required).

5–23. Refer to Figure 5–1 and connect the audio signal generator to the left channel terminals of the selected console channel source input.

PIN NO.	DESCRIPTION
1	A INPUT, RIGHT CHANNEL -
2	A INPUT, RIGHT CHANNEL +
3	A INPUT, LEFT CHANNEL -
4	A INPUT, LEFT CHANNEL +
5	SHIELD GROUND
6	SHIELD GROUND
7	SHIELD GROUND
8	SHIELD GROUND
9	B INPUT, RIGHT CHANNEL -
10	B INPUT, RIGHT CHANNEL +
11	B INPUT, LEFT CHANNEL -
12	B INPUT, LEFT CHANNEL +
13	SHIELD GROUND
14	SHIELD GROUND
15	SHIELD GROUND
16	SHIELD GROUND
17	C INPUT, RIGHT CHANNEL -
18	C INPUT, RIGHT CHANNEL +
19	C INPUT, LEFT CHANNEL -
20	C INPUT, LEFT CHANNEL +



INPUT CONNECTIONS

AUDITION AUDIO OUTPUT CONNECTIONS

PIN NO.	DESCRIPTION
1	+ RIGHT AUDITION AUDIO OUTPUT
2	+ LEFT AUDITION AUDIO OUTPUT
3	- RIGHT AUDITION AUDIO OUTPUT
4	- LEFT AUDITION AUDIO OUTPUT
5	SHIELD GROUND
6	SHIELD GROUND

AUDITION/PROGRAM MONOPHONIC AUDIO OUTPUT CONNECTIONS

PIN NO.	DESCRIPTION
1	+ AUDITION AUDIO OUTPUT
2	+ PROGRAM AUDIO OUTPUT
3	- AUDITION AUDIO OUTPUT
4	- PROGRAM AUDIO OUTPUT
5	SHIELD GROUND
6	SHIELD GROUND

MIX MINUS AUDIO OUTPUT CONNECTIONS

PIN NO.	DESCRIPTION
1	- MIX MINUS AUDIO OUTPUT
2	SHIELD GROUND
3	+ MIX MINUS AUDIO OUTPUT
4	SHIELD GROUND

PROGRAM AUDIO OUTPUT CONNECTIONS

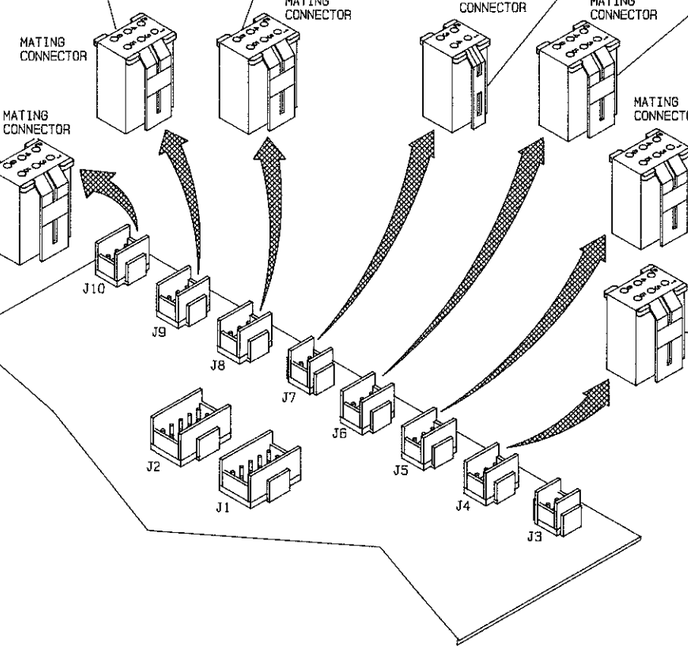
PIN NO.	DESCRIPTION
1	+ RIGHT PROGRAM AUDIO OUTPUT
2	+ LEFT PROGRAM AUDIO OUTPUT
3	- RIGHT PROGRAM AUDIO OUTPUT
4	- LEFT PROGRAM AUDIO OUTPUT
5	SHIELD GROUND
6	SHIELD GROUND

STUDIO MONITOR AUDIO OUTPUT CONNECTIONS

PIN NO.	DESCRIPTION
1	RIGHT STUDIO MONITOR AUDIO OUTPUT
2	LEFT STUDIO MONITOR AUDIO OUTPUT
3	RIGHT STUDIO MONITOR GROUND
4	LEFT STUDIO MONITOR GROUND
5	SHIELD GROUND
6	SHIELD GROUND

CONTROL ROOM (CR) MONITOR AUDIO OUTPUT CONNECTIONS

PIN NO.	DESCRIPTION
1	RIGHT CR MONITOR AUDIO OUTPUT
2	LEFT CR MONITOR AUDIO OUTPUT
3	RIGHT CR MONITOR GROUND
4	LEFT CR MONITOR GROUND
5	SHIELD GROUND
6	SHIELD GROUND



EXTERNAL HEADPHONE AUDIO OUTPUT CONNECTIONS

PIN NO.	DESCRIPTION
1	RIGHT HEADPHONE AUDIO OUTPUT
2	LEFT HEADPHONE AUDIO OUTPUT
3	RIGHT HEADPHONE GROUND
4	LEFT HEADPHONE GROUND
5	SHIELD GROUND
6	SHEILD GROUND

OUTPUT CONNECTIONS

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FIGURE 5-1.
AUDIO INPUT AND OUTPUT CONNECTIONS

5–24. Refer to Figure 5–1 and terminate the program output left channel with a 600 Ohm resistor.

5–25. Refer to Figure 5–1 and connect the audio analyzer to the program output left channel.

5–26. Determine if the selected input is programmed for a microphone, consumer, or line level source. Adjust the audio generator for a 1 kHz output at: 1) –60 dB for an input programmed for a microphone level, 2) –10 dB for an input programmed for a consumer level, or 3) +4 dB for an input programmed for a line level. Record the level _____ .

5–27. Configure the audio analyzer for level indications.

5–28. Operate the console channel fader to the 0 position and route the test audio to the program output bus.

5–29. Refer to Figure 5–2 and adjust left channel program output level control R379 until the audio analyzer indicates the desired output level.

5–30. Refer to Figure 5–2 and adjust left channel program VU meter calibrate control R272 until the left channel program VU meter indicates 0 VU.

5–31. Adjust the audio generator for a 1 kHz output at a level which is 10 dB greater than the level recorded in the preceding text.

5–32. Refer to Figure 5–2 and adjust left channel program peak LED calibrate control R278 until the left channel program peak LED just illuminates.

5–33. Repeat the procedure for the right channel. Connect the audio generator to the right channel input and the audio analyzer to the right channel output. Calibrate the right channel output level using right channel program output level control R390. Calibrate the right channel VU meter using right channel program VU meter calibrate control R303. Calibrate the right channel program peak LED using right channel program peak LED calibrate control R313.

5–34. For 24 channel console models only, adjust the mono program VU meter as follows:

A. Adjust the audio generator for a 1 kHz output at: 1) –60 dB for an input programmed for a microphone level, 2) –10 dB for an input programmed for a consumer level, or 3) +4 dB for an input programmed a line level.

B. Refer to Figure 5–3 and adjust mono program VU meter calibrate control R45 until the mono program VU meter indicates 0 VU.

5–35. Disconnect all test equipment and reconnect any console cables as required.

5–36. **AUDITION OUTPUT CALIBRATION – LEVEL/VU METER/PEAK LED.** On AT–90/100 consoles, the audition output level is adjusted by left channel audition output level control R363 and right channel audition output level control R372. The audition VU meters are calibrated by left channel audition VU meter control R200 and right channel audition VU meter control R233. The audition VU meter peak LEDs are calibrated by left channel audition VU meter peak LED control R206 and right channel audition VU meter peak LED control R242. On 24 channel console models, the mono audition VU meter is calibrated by mono audition VU meter control R46. Calibrate the audition output level, VU meters, peak LEDs, and mono VU meter by performing the following procedure.

5–37. **Procedure.** To calibrate the audition output, refer to the PROGRAM OUTPUT CALIBRATION – LEVEL/VU METER/PEAK LED procedure presented in the preceding text and perform the procedures for the audition output. Connect the audio analyzer to the audition output terminals and route the audio signal to the audition output. Refer to Figure 5–2 and calibrate the audition output using the following controls.

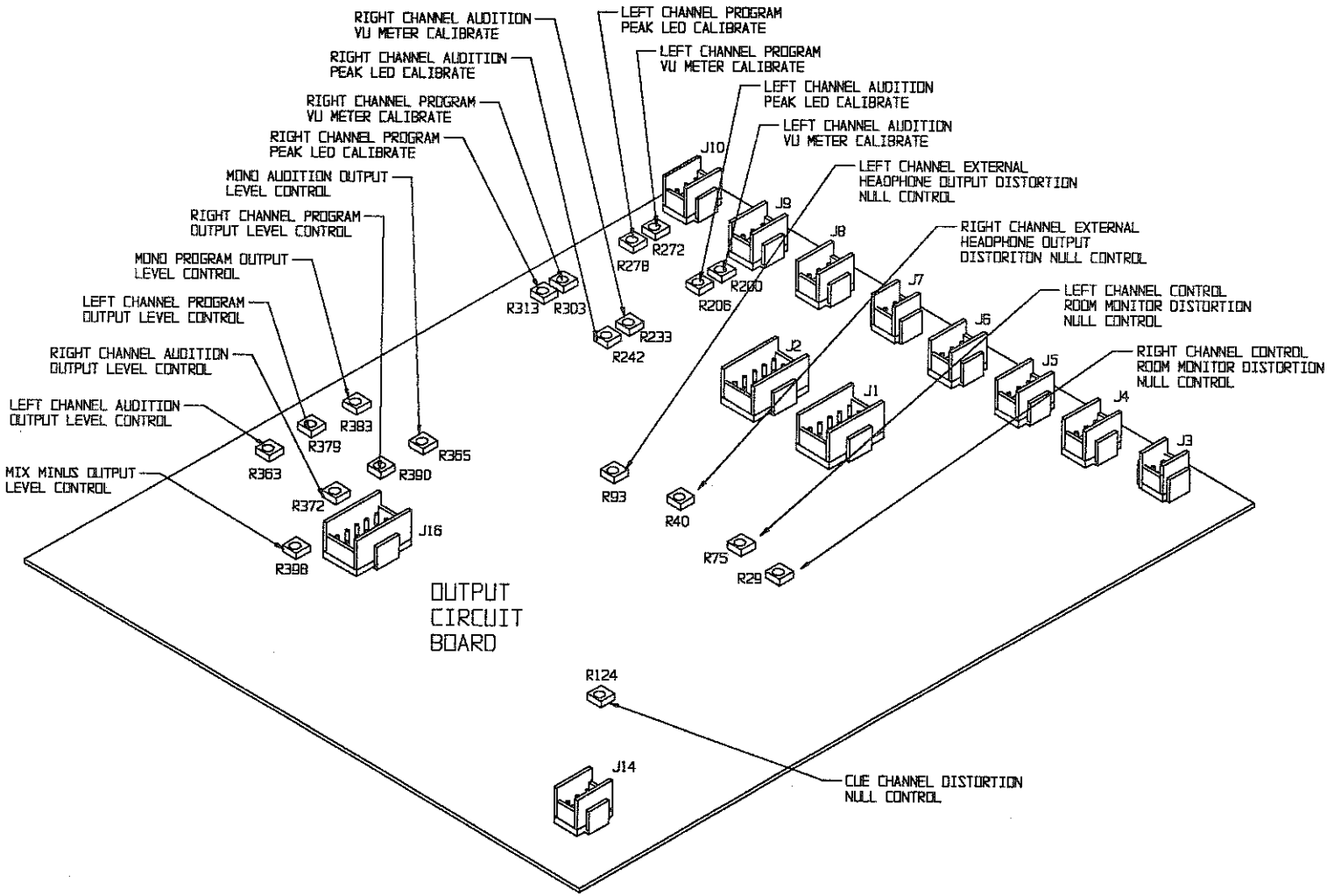

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FIGURE 5-2. DISTORTION NULL, OUTPUT LEVEL, AND VU METER CALIBRATE CONTROLS

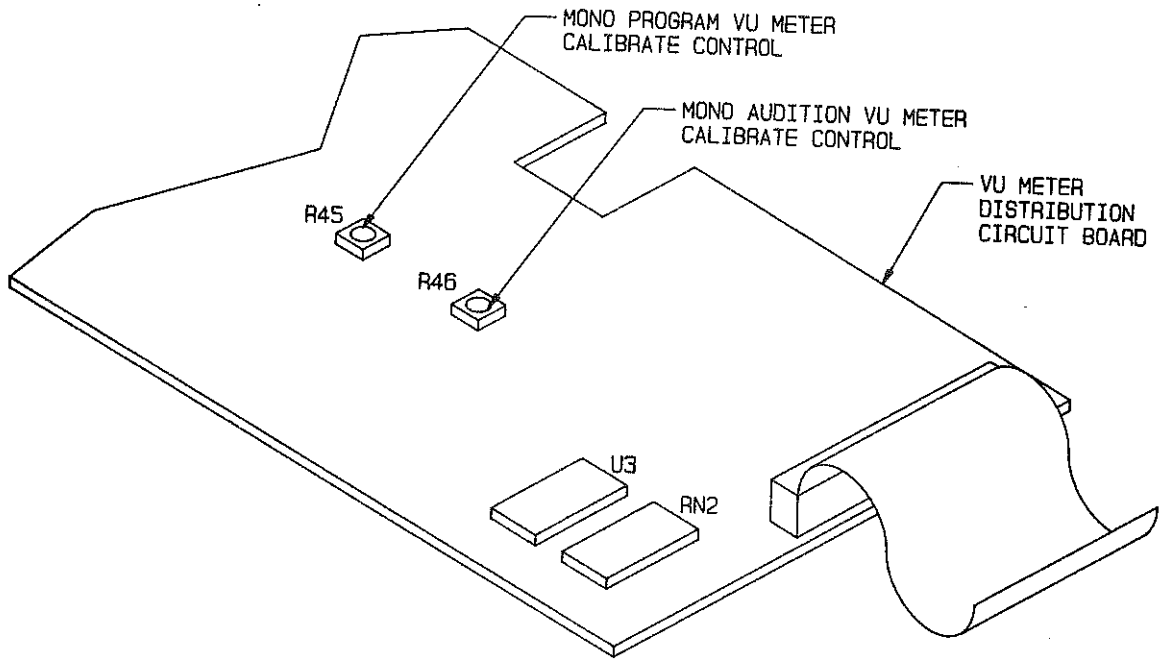

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FIGURE 5-3. MONO PROGRAM AND AUDITION VU METER CONTROLS

1. Left channel audition output level control R363.
2. Right channel audition output level control R372
3. Left channel audition VU meter control R200.
4. Right channel audition VU meter control R233.
5. Left channel audition VU meter peak LED calibrate control R206.
6. Right channel audition VU Peak LED calibrate control R242.
7. Mono audition VU meter calibrate control R46.

5-38. **MIX-MINUS BUS OUTPUT LEVEL CALIBRATION.** The mix-minus bus output level is adjusted by mix-minus bus output level control R398. Adjust the mix-minus bus output level by performing the following procedure.

5-39. **Procedure.** To calibrate the mix minus bus output level, proceed as follows:

5-40. Open the console and select a console channel which is programmed for mix-minus bus operation. Ensure the selected source input level is calibrated (refer to INPUT LEVEL ADJUSTMENT procedures in SECTION II, INSTALLATION if required).

5-41. Refer to Figure 5-1 and connect the audio signal generator to the left channel terminals of the selected console channel source input.

5-42. Refer to Figure 5-1 and terminate the console mix minus bus output with a 600 Ohm resistor.

5-43. Refer to Figure 5-1 and connect the audio analyzer to the mix minus bus output.

5-44. Determine if the selected input is programmed for a microphone, consumer, or line level source. Adjust the audio generator for a 1 kHz output at: 1) -60 dB for an input programmed for a microphone level, 2) -10 dB for an input programmed for a consumer level, or 3) +4 dB for an input programmed for a line level.

5–45. Configure the audio analyzer for level indications.

5–46. Operate the console channel fader to the 0 position.

5–47. Refer to Figure 5–2 and adjust mix minus bus output level control R398 until the audio analyzer indicates the desired output level.

5–48. Disconnect all test equipment and reconnect any console cables as required.

5–49. **CONSOLE INPUT CHANNEL 1 DISTORTION NULL ADJUSTMENT.** The console channel 1 distortion is nulled by left channel 1 distortion null control R653 and right channel 1 distortion null control R662 on the 6 and 2 channel input circuit boards. Null the console channel 1 distortion by performing the following procedure.

5–50. **Procedure.** To null the console channel 1 distortion, proceed as follows:

5–51. Open the console and select a channel 1 source input for the procedure.

5–52. Refer to Figure 5–1 and connect the audio signal generator to the left channel terminals of the selected channel 1 source input.

5–53. Refer to Figure 5–1 and terminate the left channel audition output with a 600 Ohm resistor.

5–54. Refer to Figure 5–1 and connect the audio analyzer to the audition output left channel.

5–55. Determine if the selected input is programmed for a microphone, consumer, or line level source. Adjust the audio generator for a 1 kHz output at: 1) –60 dB for an input programmed for a microphone level, 2) –10 dB for an input programmed for a consumer level, or 3) +4 dB for an input programmed for a line level.

5–56. Configure the audio analyzer for distortion indications.

5–57. Operate the console channel fader to the 0 position and route the audio to the audition output.

5–58. Refer to Figure 5–4 and adjust left channel 1 distortion null control R653 for a minimum distortion indication on the audio analyzer.

5–59. Repeat the procedure for the right channel. Connect the audio generator to the right channel input and the audio analyzer to the right channel audition output. Null the right channel distortion using right channel 1 distortion null control R662.

5–60. Disconnect all test equipment and reconnect any console cables as required.

5–61. **CONSOLE INPUT CHANNEL 2 THROUGH 6 DISTORTION NULL ADJUSTMENT.** Console channel 2 through 6 distortion is nulled by left and right channel distortion null controls on the 6 channel and 2 channel input circuit boards. Null the distortion in console channels 2 through 6 by performing the following procedure.

5–62. **Procedure.** To null distortion in console channels 2 through 6, refer to the CONSOLE INPUT CHANNEL 1 DISTORTION NULL ADJUSTMENT procedure presented in the preceding text and perform the procedure for console channels 2 through 6. Refer to Figure 5–4 and null the console channel 2 through 6 distortion using the following controls.

1. Left channel 2 distortion null control R553.
2. Right channel 2 distortion null control R562.
3. Left channel 3 distortion null control R453.
4. Right channel 3 distortion null control R462.
5. Left channel 4 distortion null control R353.
6. Right channel 4 distortion null control R362.

7. Left channel 5 distortion null control R253.
8. Right channel 5 distortion null control R262.
9. Left channel 6 distortion null control R153.
10. Right channel 6 distortion null control R162.

5–63. **EXTERNAL HEADPHONE OUTPUT DISTORTION NULL ADJUSTMENT.** The external headphone output distortion is nulled by left channel external headphone output distortion null control R93 and right channel external headphone output distortion null control R40. Null the external headphone output distortion by performing the following procedure.

5–64. **Procedure.** To null the external headphone output distortion, proceed as follows:

5–65. Open the console and select a console channel and a source input for the procedure.

5–66. Refer to Figure 5–1 and connect the audio signal generator to the left channel terminals of the selected console channel source input.

5–67. Refer to Figure 5–1 and terminate the external headphone output left channel with a 600 resistor.

5–68. Refer to Figure 5–1 and connect the audio analyzer to the external headphone output left channel.

5–69. Determine if the selected input is programmed for a microphone, consumer, or line level source. Adjust the audio generator for a 1 kHz output at: 1) –60 dB for an input programmed for a microphone level, 2) –10 dB for an input programmed for a consumer level, or 3) +4 dB for an input programmed for a line level.

5–70. Configure the audio analyzer for distortion indications.

5–71. Operate the console channel fader to the 0 position.

5–72. Route the audio to the audition output and operate the headphone system to monitor the audition audio.

5–73. Refer to Figure 5–2 and adjust left channel external headphone output distortion null control R93 for a minimum distortion indication on the audio analyzer.

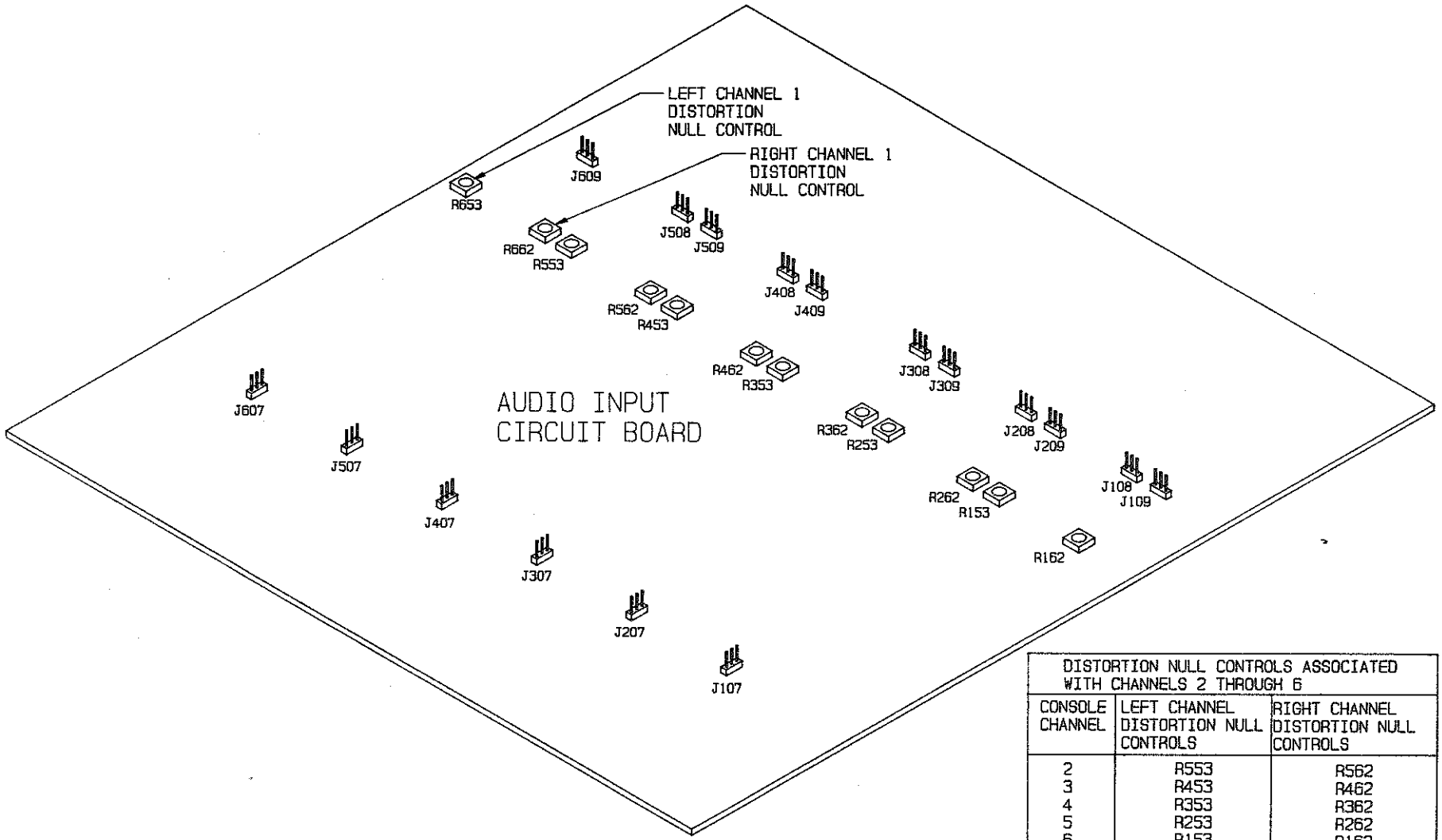
5–74. Repeat the procedure for the right channel. Connect the audio generator to the right channel input and the audio analyzer to the right channel audition output. Null the right channel distortion using right channel external headphone output distortion null control R40.

5–75. Disconnect all test equipment and reconnect any console cables as required.

5–76. **CONTROL ROOM MONITOR DISTORTION NULL ADJUSTMENT.** The control room monitor distortion is nulled by left channel control room monitor distortion null control R75 and right channel control room monitor distortion null control R29 on the output circuit board. Null the control room monitor distortion by performing the following procedure.

5–77. **Procedure.** To null the control room monitor distortion, refer to the EXTERNAL HEADPHONE OUTPUT DISTORTION NULL procedure presented in the preceding text and perform the procedure for the control room monitor. Connect the audio analyzer to the control room monitor output terminals. Refer to Figure 5–2 and null the control room monitor distortion by using left channel control room monitor distortion null control R75 and right channel control room monitor distortion null control R29.

5–78. **CUE CHANNEL DISTORTION NULL ADJUSTMENT.** The cue channel distortion is nulled by cue channel distortion null control R124. Null the cue channel distortion by performing the following procedure.



DISTORTION NULL CONTROLS ASSOCIATED WITH CHANNELS 2 THROUGH 6		
CONSOLE CHANNEL	LEFT CHANNEL DISTORTION NULL CONTROLS	RIGHT CHANNEL DISTORTION NULL CONTROLS
2	R553	R562
3	R453	R462
4	R353	R362
5	R253	R262
6	R153	R162

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FIGURE 5–4. INPUT CHANNEL DISTORTION NULL CONTROLS

5–79. **Procedure.** To null the cue channel distortion, proceed as follows:

5–80. Open the console and select a console channel and a source input for the procedure.

5–81. Refer to Figure 5–1 and connect the audio signal generator to the left channel terminals of the selected console channel source input.

5–82. Refer to Figure 5–1 and terminate the external cue audio output with a 600 Ohm resistor.

5–83. Refer to Figure 5–1 and connect the audio analyzer to the external cue audio output.

5–84. Determine if the selected input is programmed for a microphone, consumer, or line level source. Adjust the audio generator for a 1 kHz output at: 1) –60 dB for an input programmed for a microphone level, 2) –10 dB for an input programmed for a consumer level, or 3) +4 dB for an input programmed for a line level.

5–85. Configure the audio analyzer for distortion indications.

5–86. Operate the console channel to route the audio to the cue bus.

5–87. Refer to Figure 5–2 and adjust cue channel distortion null control R124 for a minimum distortion indication on the audio analyzer.

5–88. Disconnect all test equipment and reconnect any console cables as required.

5–89. **TROUBLESHOOTING.**

5–90. **SAFETY CONSIDERATIONS.** Low voltages are used throughout the Air Trak–90/100 console. The power supply contains primary ac line voltage and high current capacitors. All power supply module high voltage and current components contain shields; however, do not perform any maintenance or troubleshooting procedures within the power supply with power energized. Troubleshooting with power energized is always considered hazardous and caution should be observed. Good judgment, care, and common sense must be practiced to prevent accidents.

WARNING ***DISCONNECT ALL CONSOLE POWER BEFORE REMOVING OR INSERTING PRINTED CIRCUIT BOARDS OR REPLACING ANY COMPONENTS.***

WARNING

CAUTION ***INADVERTENT CONTACT BETWEEN ADJACENT COMPONENTS OR CIRCUIT BOARDS WITH TEST EQUIPMENT MAY CAUSE SERIOUS DAMAGE TO THE CONSOLE.***

CAUTION

5–91. **CONSOLE SYSTEM TROUBLESHOOTING.** The troubleshooting philosophy for the Air Trak–90/100 console consists of isolating a problem to a specific circuit board. Tables 5–1 through 5–12 present Air Trak–90/100 console troubleshooting. Figure 5–5 presents AT–90/100 console channel and circuit board locations. The AT–100 console is identical to the AT–90/100 with the exception of the power distribution circuit board. The power distribution circuit board is presented in SECTION II, INSTALLATION. Refer to Figure 2–2 in SECTION II if required. Refer to the tables as required to isolate problems to a specific circuit board.

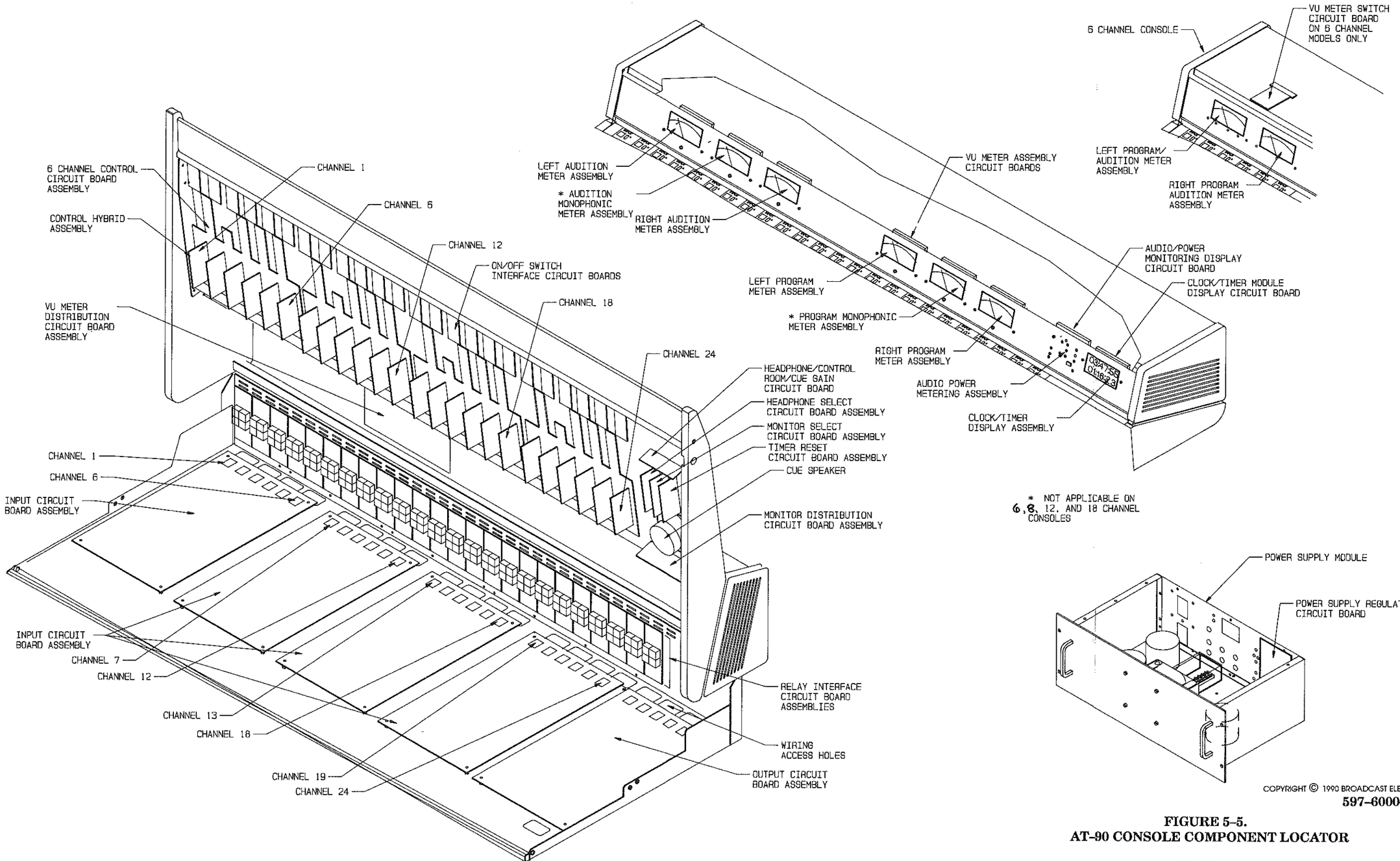

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FIGURE 5-5.
AT-90 CONSOLE COMPONENT LOCATOR

TABLE 5–1. CONSOLE INPUT CHANNEL TROUBLESHOOTING
(Sheet 1 of 4)

SYMPTOM	DEFECT
CHANNEL WILL NOT OPERATE TO ON.	1. Ensure an A, B, or C input is selected. 2. Check the ribbon cable between the channel control circuit board and the channel on/off switch interface circuit board. 3. Check the channel on switch. 4. Check the channel control hybrid.
CHANNEL WILL NOT OPERATE TO OFF.	1. Check the ribbon cable between the channel control circuit board and the channel on/off switch interface circuit board. 2. Check the channel off switch. 3. Check the channel control hybrid.
CHANNEL OPERATES TO CUE – CUE LED DOES NOT ILLUMINATE.	1. Check the ribbon cable between the channel control circuit board and the channel on/off switch interface circuit board. 2. Check cue indicator DS31 on the on/off switch interface circuit board.
CHANNEL WILL NOT OPERATE TO CUE.	1. Check U1, U3, and U4 on the channel control circuit board. 2. Check regulator U1 on the monitor distribution circuit board. 3. Check resistors R8, R9, and capacitor C5 on the monitor distribution circuit board. 4. Check capacitors C3, C7, C13, C21,C22, and C24 on the channel control circuit board. 5. Check the ribbon cable between the channel control circuit board and the input circuit board. 6. Check for a HIGH control signal at pin 9 of U109 – CH6, U209 – CH5, U309 – CH4, U409 – CH3, U509 – CH2, or U609 – CH1 on the input circuit board. 7. Check U109 – CH6, U209 – CH5, U309 – CH4, U409 –CH3, U509 – CH2, or U609 – CH1 on the input circuit board.
CHANNEL WILL OPERATE TO CUE – NO CUE AUDIO OUTPUT.	1. Ensure an A, B, or C input is selected. 2. Ensure the cue level control is operated to obtain normal monitoring levels. 3. Check cue speaker fuse F1 on the output circuit board. 4. Ensure header J57 – CH1, J59 – CH2, J61 – CH3, J63 – CH4, J65 – CH5, or J67 – CH6 on the control circuit board is correctly pro–grammed.

TABLE 5-1. CONSOLE INPUT CHANNEL TROUBLESHOOTING
(Sheet 2 of 4)

SYMPTOM	DEFECT
CHANNEL WILL OPERATE TO CUE – NO CUE AUDIO OUTPUT	5. Check the cable between the output circuit board and the cue speaker. 6. Check the cable between: 1) the output circuit board and the monitor distribution circuit board and 2) the monitor distribution circuit board and the headphone/control room/cue gain circuit board. 7. Check cue summing amplifier U107B – CH6, U107A – CH5, U307B –CH4, U307A – CH3, U507B – CH2, or U507A – CH1 on the input circuit board. 8. Check U109 – CH6, U209 – CH5, U309 – CH4, U409 – CH3, U509 – CH2, or U609 – CH1 on the input circuit board. 9. Check U21 on the output circuit board. 10. Check the cue speaker.
CHANNEL FADER HAS NO CONTROL OF SIGNAL LEVEL – OUTPUT OF CHANNEL IS HIGH.	1. Check fuse F7 in the power supply. 2. Check the wiring from the fader to the channel control circuit board. 3. Check regulator U1 on the monitor distribution circuit board. 4. Check U106 – CH6, U206 – CH5, U306 – CH4, U406 – CH3, U506 – CH2, or U606 – CH1 on the input circuit board. 5. Check U104/U105 – CH6, U204/U205 – CH5, U304/U305 – CH4, U404/U405 – CH3, U504/U505 – CH2, or U604/U605 – CH1 on the input circuit board.
CHANNEL FADER HAS NO CONTROL OF SIGNAL LEVEL – OUTPUT OF CHANNEL IS LOW.	1. Check the wiring from the fader to channel control circuit board. 2. Check regulator U1 on the monitor distribution circuit board. 3. Check U106 – CH6, U206 – CH5, U306 – CH4, U406 – CH3, U506 – CH2, or U606 – CH1 on the input circuit board. 4. Check U104/U105 – CH6, U204/U205 – CH5, U304/U305 – CH4, U404/U405 – CH3, U504/U505 – CH2, or U604/U605 – CH1 on the input circuit board.

TABLE 5–1. CONSOLE INPUT CHANNEL TROUBLESHOOTING
(Sheet 3 of 4)

SYMPTOM	DEFECT
CHANNEL FADER CONTROL IS OPERATIONAL – AUDIO TAPER IS NOT EQUAL TO OVERLAY.	1. If left channel only is defective, check U104 – CH6, U204 – CH5, U304 – CH4, U404 – CH3, U504 – CH2, or U604 – CH1 on the input circuit board. If right channel only is defective, check U105 – CH6, U205 – CH5, U305 – CH4, U405 – CH3, U505 – CH2, or U605 – CH1 on the input circuit board. 2. Check diodes D100 thru D103 – CH6, D200 thru D203 – CH5, D300 thru D303 – CH4, D400 thru D403 – CH3, D500 thru 503 – CH2, or D600 thru D603 – CH1 on the input circuit board.
CHANNEL FADER CONTROL IS OPERATIONAL – FADER IS NOISY.	1. Clean fader control surface. 2. If left channel only is defective, check U104 – CH6, U204 – CH5, U304 – CH4, U404 – CH3, U504 – CH2, or U604 – CH1 on the input circuit board. If right channel only is defective, check U105 – CH6, U205 – CH5, U305 – CH4, U405 – CH3, U505 – CH2, or U605 – CH1 on the input circuit board.
CHANNEL PROGRAM OUTPUT ROUTING WILL NOT ACTIVATE.	1. Check the cable between the channel channel control circuit board and the input circuit board. 2. Check program switch S4 – CH1, S9 – CH2, S14 – CH3, S19 – CH4, S24 – CH5, or S29 – CH6 on the channel control circuit board. 3. Check the channel control hybrid. 4. Check U109/U110 – CH6, U209/U210 – CH5, U309/U310 – CH4, U409/U410 – CH3, U509/U510 – CH2, or U609/U610 – CH1 on the input circuit board. 5. Check Q100/Q101 – CH6, Q200/Q201 – CH5, Q300/Q301 – CH4, Q400/Q401 – CH3, U500/U501 – CH2, or Q600/Q601 – CH1 on the input circuit board. 6. Check fuses F5 and F6 in the power supply. 7. Check U3 and U4 in the power supply.

WARNING: DISCONNECT PRIMARY POWER PRIOR TO SERVICING

TABLE 5–1. CONSOLE INPUT CHANNEL TROUBLESHOOTING
(Sheet 4 of 4)

SYMPTOM	DEFECT
CHANNEL AUDITION OUTPUT ROUTING WILL NOT ACTIVATE.	1. Check the cable between the channel control circuit board and the input circuit board. 2. Check audition switch S5 – CH1, S10 – CH2, S15 – CH3, S20 – CH4, S25 – CH5, or S30 – CH6 on the channel control circuit board. 3. Check the channel control hybrid. 4. Check U109/U110 – CH6, U209/U210 – CH5, U309/U310 – CH4, U409/U410 – CH3, U509/U510 – CH2, or U609/U610 – CH1 on the input circuit board. 5. Check fuses F5 and F6 in the power supply. 6. Check U3 and U4 in the power supply.
CHANNEL INPUT SELECTION WILL NOT ACTIVATE.	1. Check the cable between the channel channel control circuit board and the input circuit board. 3. Check input A, B, and C switches S1/S2/S3 – CH1, S6/S7/S8 – CH2, S11/S12/S13 – CH3, S16/S17/S18 – CH4, S21/S22/S23 – CH5, or S26/S27/S28 – CH6 on the channel control circuit board. 4. Check the channel control hybrid.
CHANNEL INPUT SELECTION WILL NOT ACTIVATE	5. Check U100/U102 – CH6, U200/U202 – CH5, U300/U302 – CH4, U400/U402 – CH3, U500/U502 – CH2, or U600/U602 – CH1 on the input circuit board. 6. Check fuses F5 and F6 in the power supply. 7. Check U3 and U4 in the power supply.

TABLE 5–2 CLOCK/TIMER TROUBLESHOOTING

SYMPTOM	DEFECT
TIMER WILL NOT RESET WHEN CHANNEL IS OPERATED TO ON.	1. Ensure the AUTO switch/indicator is illuminated. 2. Ensure jumpers P76/P77/P78 – CH1, P79/P80/P81 – CH2, P82/P83/P84 – CH3, P85/P86/P87 – CH4, P88/P89/P90 – CH5, or P91/P92/P93 – CH6 on the channel control circuit board are installed in the appropriate position for the desired output control.
CLOCK/TIMER DISPLAYS RANDOM INFORMATION DURING POWER–UP CONDITIONS.	1. Set the clock time.

TABLE 5-3 REMOTE CONTROL TROUBLESHOOTING
(Sheet 1 of 2)

SYMPTOM	DEFECT
AUDIO SOURCE WILL NOT START WHEN CHANNEL ON SWITCH IS DEPRESSED.	1. Ensure the appropriate source input switch is depressed. 2. Ensure headers J2/J3/J4 – CH1, J13/ J14/J15 – CH2, J22/J23/J24 – CH3, J31/J32/J33 – CH4, J40/J41/J42 – CH5, J49/J50/J51 –CH6 on the channel control circuit board are configured for the appropriate type of start command required by the source. 3. Check the channel control hybrid. 4. Check fuse F7 and the +14 volt dc supply.
AUDIO SOURCE WILL NOT START WHEN CHANNEL ON SWITCH IS DEPRESSED – RELAY INTERFACE CIRCUIT BOARD IS INSTALLED.	1. Ensure the appropriate source input switch is depressed. 2. Check the cable between the channel channel control circuit board and the relay interface circuit board. 3. Ensure headers J2/J3/J4 – CH1, J13/ J14/J15 – CH2, J22/J23/J24 – CH3, J31/J32/J33 – CH4, J40/J41/J42 – CH5, J49/J50/J51 –CH6 on the channel control circuit board are configured for the appropriate type of start command required by the source. 4. Check diode D1 on the relay interface circuit board. 5. Check the channel control hybrid. 6. Check fuse F7 and the +14 volt dc supply.
HEADPHONE SWITCH WILL NOT SELECT INPUTS.	1. Check headphone select switch S1 on the headphone select switch circuit board. 2. Check for +6 volts dc at pin 10 of J7 on the headphone select circuit board. 3. Check diodes D3 thru D11 on the headphone select circuit board. 4. Check for +6 volts dc at D8 on the channel control circuit board. 5. Check for +6 volts dc at the output of U2 on the channel control circuit board. 6. Check for +6 volt dc control voltage at J12 pins 5, 7, 9, and 11 on the output circuit board. 7. Check U6 and U14 on the output circuit board.

WARNING: DISCONNECT PRIMARY POWER PRIOR TO SERVICING

TABLE 5–3 REMOTE CONTROL TROUBLESHOOTING
(Sheet 2 of 2)

SYMPTOM	DEFECT
NO HEADPHONE AUDIO OUTPUT.	1. Ensure the desired headphone audio source switch is depressed. 2. Ensure the headphone level control is operated for a normal monitoring level. 3. If the desired headphone audio source is from an external input, check the adjustment of R2/R52 – Off–Air 1, R4/R54 – Off–Air 2, R6/R56 – Ext 1, R8/R58 – Ext 2, or R10/R60 – Ext 3 on the output circuit board. 4. Check the cable between: 1) the output circuit board and the monitor distribution circuit board and 2) the monitor distribution circuit board and the headphone/control room/cue gain circuit board. 5. Check the cable between the audio output circuit board and the headphone jack. 6. Check U6 and U14 on the output circuit board. 7. Check U8 and U15 on the output circuit board. 8. Check U12, U22, and U23 on the output circuit board.

TABLE 5–4 CONTROL ROOM MONITOR SYSTEM TROUBLESHOOTING
(Sheet 1 of 2)

SYMPTOM	DEFECT
CONTROL ROOM MONITOR SWITCH WILL NOT SELECT INPUTS.	1. Check control room monitor select switch S2 on the control room monitor select switch circuit board. 2. Check for +6 volts dc at pin 10 of J7 on the control room monitor select circuit board. 3. Check diodes D12 thru D20 on the control room monitor select circuit board. 4. Check for +6 volts dc at D8 on the channel control circuit board. 5. Check for +6 volts dc at the output of U2 on the channel control circuit board. 6. Check for +6 volt dc control voltage at J12 pins 13, 15, 17, and 19 on the output circuit board. 7. Check U1 and U10 on the output circuit board.
NO CONTROL ROOM MONITOR AUDIO OUTPUT.	1. Ensure the desired control room monitor audio source switch is depressed. 2. Ensure the control room monitor level control is operated for a normal monitoring level.

TABLE 5–4 CONTROL ROOM MONITOR SYSTEM TROUBLESHOOTING
(Sheet 2 of 2)

SYMPTOM	DEFECT
NO CONTROL ROOM MONITOR AUDIO OUTPUT.	3. If the desired control room monitor audio source is from an external input, check the adjustment of R2/R52 – Off–Air 1, R4/R54 – Off–Air 2, R6/R56 – Ext 1, R8/R58 – Ext 2, or R10/R60 – Ext 3 on the output circuit board. 4. Check the cable between: 1) the output circuit board and the monitor distribution circuit board and 2) the monitor distribution circuit board and the headphone/control room/cue gain circuit board. 5. Check U6 and U14 on the output circuit board. 6. Check U4 and U11 on the output circuit board. 7. Check U5 on the output circuit board.

TABLE 5–5. MONO TEST SYSTEM TROUBLESHOOTING.

SYMPTOM	DEFECT
NO MONO TEST SYSTEM OPERATION.	1. Check mono test switch S3 on the timer reset circuit board. 2. Check the cable between: 1) the timer reset circuit board and the monitor distribution circuit board and 2) the monitor distribution circuit board and the output circuit board. 3. Check Q2 on the output circuit board assembly.

TABLE 5–6. 6 CHANNEL CONSOLE VU METER TROUBLESHOOTING.
(Sheet 1 of 2)

SYMPTOM	DEFECT
OUTPUT AUDIO PRESENT – NO VU METER INDICATIONS.	1. Ensure the meter bridge aud/pgm select switch is operated to the appropriate position to monitor the output audio. 2. Check the cable between J13 on the meter switch circuit board and J7 on the VU meter distribution circuit board. 3. Check the cables between J2/J4 on the VU meter distribution circuit board and J1 on each VU meter assembly. 4. Check the cable between J11 on the output circuit board and J1 on the VU meter distribution circuit board. 5. Check U25, U27, U29, and U31 on the output circuit board.

TABLE 5–6. 6 CHANNEL CONSOLE VU METER TROUBLESHOOTING.
(Sheet 2 of 2)

SYMPTOM	DEFECT
VU METERS OPERATE – INDICATIONS ARE NOT CALIBRATED TO 0 VU.	1. Check the adjustment of R200/R233 – audition and R272/R303 – program on the output circuit board.
PEAK LED NOT OPERATING.	1. Ensure the meter bridge aud/pgm select switch is operated to the appropriate position to monitor the output audio. 2. Check the cable between J13 on the meter switch circuit board and J7 on the VU meter distribution circuit board. 3. Check the cables between J2/J4 on the VU meter distribution circuit board and J1 on each VU meter assembly. 4. Check the cable between J11 on the output circuit board and J1 on the VU meter distribution circuit board. 5. Check U25, U27, U29, and U31 on the output circuit board. 6. Check LED DS3 on the VU meter circuit board.
PEAK LED OPERATES – INDICATIONS ARE NOT CALIBRATED.	1. Check the adjustment of R206/R242 – audition and R278/R313 – program on the output circuit board.

TABLE 5–7. 8, 12, AND 18 CHANNEL CONSOLE VU METER TROUBLESHOOTING.
(Sheet 1 of 2)

SYMPTOM	DEFECT
OUTPUT AUDIO PRESENT – NO VU INDICATIONS.	1. Ensure jumpers P8 and P10 on the VU METER meter distribution circuit board are installed. 2. Check the cables between J2/J3/J4/J5 on the VU meter distribution circuit board and J1 on each VU meter assembly. 3. Check the cable between J11 on the output circuit board and J1 on the VU meter distribution circuit board. 4. Check U25, U27, U29, and U31 on the output circuit board.
VU METERS OPERATE – INDICATIONS ARE NOT CALIBRATED TO 0 VU.	1. Check the adjustment of R200/R233 – audition and R272/R303 – program on the output circuit board.

TABLE 5–7. 8, 12, AND 18 CHANNEL CONSOLE VU METER TROUBLESHOOTING.
(Sheet 2 of 2)

SYMPTOM	DEFECT
PEAK LED NOT OPERATING.	1. Ensure jumpers P9 and P11 on the VU meter distribution circuit board are installed. 2. Check the cables between J2/J3/J4/J5 on the VU meter distribution circuit board and J1 on each VU meter assembly. 3. Check the cable between J11 on the output circuit board and J1 on the VU meter distribution circuit board. 4. Check U25, U27, U29, and U31 on the output circuit board. 5. Check LED DS3 on the VU meter circuit board.
PEAK LED OPERATES – INDICATIONS ARE NOT CALIBRATED.	1. Check the adjustment of R206/R242 – audition and R278/R313 – program on the output circuit board.

TABLE 5–8. 24 CHANNEL CONSOLE VU METER TROUBLESHOOTING.
(Sheet 1 of 2)

SYMPTOM	DEFECT
OUTPUT AUDIO PRESENT – NO VU INDICATIONS.	1. Ensure jumpers P8 and P10 on the VU METER meter distribution circuit board are installed. 2. Check the cables between J2/J3/J4/J5/J14/J15 on the VU meter distribution circuit board and J1 on each VU meter assembly. 3. Check the cable between J11 on the output circuit board and J1 on the VU meter distribution circuit board. 4. Check U25, U27, U29, and U31 on the output circuit board. 5. If symptoms appear on the mono VU meters only, check U4 on the VU meter distribution circuit board.
VU METERS OPERATE – INDICATIONS ARE NOT CALIBRATED TO 0 VU.	1. Check the adjustment of: 1) R200/R233 – audition and R272/R303 – program on the output circuit board and 2) R45 – mono program and R46 mono audition on the VU meter distribution circuit board.

TABLE 5–8. 24 CHANNEL CONSOLE VU METER TROUBLESHOOTING.
(Sheet 2 of 2)

SYMPTOM	DEFECT
PEAK LED NOT OPERATING.	1. Ensure jumpers P9 and P11 on the VU meter distribution circuit board are installed. 2. Check the cables between J2/J3/J4/J5/J14/J15 on the VU meter distribution circuit board and J1 on each VU meter assembly. 3. Check the cable between J11 on the output circuit board and J1 on the VU meter distribution circuit board. 4. Check U25, U27, U29, and U31 on the output circuit board. 5. If symptoms appear on the mono VU meters only, check U4 on the VU meter distribution circuit board. 6. Check LED DS3 on the VU meter circuit board.
PEAK LED OPERATES – INDICATIONS ARE NOT CALIBRATED.	1. Check the adjustment of R206/R242 – audition and R278/R313 – program on the output circuit board.

TABLE 5–9. MONO PROGRAM/AUDITION STATUS INDICATOR TROUBLESHOOTING.

SYMPTOM	DEFECT
AUDIO PRESENT AT THE OUTPUT – MONO PROGRAM/ AUDITION STATUS LEDS DO NOT ILLUMINATE.	1. Check the cable between J6 on the VU meter distribution circuit board and J12 on the audio/power monitoring LED display circuit board. 2. Check the cable between J11 on the output circuit board and J1 on the VU meter distribution circuit board. 3. Check U5 on the VU meter distribution circuit board. 4. Check R37, R38, and R51 on the VU meter distribution circuit board. 5. Check LEDs DS1/DS2 on the audio/power monitoring LED display circuit board.

TABLE 5–10. PROGRAM/AUDITION PHASE INDICATOR TROUBLESHOOTING.

SYMPTOM	DEFECT
AUDIO PRESENT AT THE OUTPUT – PROGRAM/AUDITION PHASE LEDS DO NOT ILLUMINATE.	1. Check the cable between J6 on the VU meter distribution circuit board and J12 on the audio/power monitoring LED display circuit board. 2. Check the cable between J11 on the output circuit board and J1 on the VU meter distribution circuit board. 3. Check U2 on the VU meter distribution circuit board. 4. Check R25 and R26 on the VU meter distribution circuit board. 5. Check LEDs DS4/DS5 on the audio/power monitoring LED display circuit board.
AUDIO PRESENT AT THE OUTPUT – PROGRAM/AUDITION PHASE LEDS DO NOT CHANGE WHEN THE SIGNAL IS REVERSED.	1. Check the cable between J11 on the output circuit board and J1 on the VU meter distribution circuit board. 2. Check U1 and U3 on the VU meter distribution circuit board. 3. Check diodes D1 through D4 on the VU meter distribution circuit board. 4. Check U2 on the VU meter distribution circuit board.

TABLE 5–11. POWER SUPPLY STATUS INDICATOR TROUBLESHOOTING.

SYMPTOM	DEFECT
POWER SUPPLY INDICATORS DO NOT ILLUMINATE WHEN TEST SWITCH IS DEPRESSED.	1. Check the ac line fuse in the power supply module. 2. Check the cable between the power supply module and the console. 3. Check the cable between J6 on the VU meter distribution circuit board and J12 on the audio/power monitoring LED display circuit board. 4. Check the cable between J11 on the output circuit board and J1 on the VU meter distribution circuit board. 5. Check switch S2 on the audio/power monitoring LED display circuit board. 6. Check diodes D5 through D10 on the audio/power monitoring LED display circuit board. 7. Check resistors R29 through R34 on the audio/power monitoring LED display circuit board. 8. Check LEDs DS6 through DS11 on the audio/power monitoring LED display circuit board.

TABLE 5–12. TALKBACK SYSTEM TROUBLESHOOTING.

SYMPTOM	DEFECT
NO TALKBACK SYSTEM OPERATION.	1. Ensure talkback audio is connected to the output circuit board. 2. Check the cable between the control room microphone channel patch point and J16 on the output circuit board. 3. Check the cable between J16 on the output circuit board and the external powered speaker or external cue input on the second At–90/100 console. 4. Check the cable between the J16 on the output circuit board and the input connector on the second AT–90/100 console. 5. Check the cable between J12 on the output circuit board and J1 on the monitor distribution circuit board. 6. Check the cable between J3 on the monitor distribution circuit board and J11 on the headphone/control room/cue gain circuit board. 7. Check the cable between the **TALKBACK** switch and the headphone/control room/cue gain circuit board. 8. Check the **TALKBACK** switch.

WARNING ***DISCONNECT ALL PRIMARY POWER BEFORE REPLACING CIRCUIT BOARD COMPONENTS.***

WARNING

CAUTION ***WHEN REPLACING A COMPONENT MOUNTED ON A HEAT–SINK, ENSURE A THIN FILM OF HEAT–SINK COMPOUND IS USED TO ASSURE GOOD HEAT DISSIPATION.***

CAUTION

5–92. **COMPONENT REPLACEMENT.** The circuit boards used in the Air Trak–90/100 series consoles are double–sided with plated–through holes. Due to the plated–through hole design, solder fills the holes by capillary action. This condition requires that defective components be removed carefully to avoid damage to the circuit board.

5–93. On all circuit boards, the adhesion between the copper trace and the circuit board fails at almost the same temperature as solder melts. A circuit board trace can be destroyed by excessive heat or lateral movement during soldering. The use of a small soldering iron with steady pressure is required for circuit board repairs.

5–94. To remove a soldered component from a circuit board, cut the leads from the body of the defective component while the device is still soldered to the board. Grip a component lead with needle–nose pliers. Touch the soldering iron to the lead at the solder connection on the circuit side of the board. When the solder begins to melt, push the lead through the back side of the board and cut off the clinched end of the lead. Each lead may now be heated independently and pulled out of each hole. The holes may be cleared by: 1) careful re–heating with a low wattage iron and 2) removing residual solder with a soldering vacuum tool.

5–95. Install the new component and apply solder from the circuit side of the board. If no damage has been incurred to the plated–through holes, soldering of the component side of the board will not be required.

WARNING *MOST SOLVENTS WHICH REMOVE ROSIN FLUX ARE VOLATILE AND TOXIC BY NATURE AND SHOULD BE USED ONLY IN SMALL AMOUNTS IN A WELL VENTILATED AREA AWAY FROM FLAME, CIGARETTES, AND HOT SOLDERING IRONS.*

WARNING

WARNING *OBSERVE THE MANUFACTURERS CAUTIONARY INSTRUCTIONS.*

WARNING

5–96. After soldering, remove residual flux with a suitable solvent. Rubbing alcohol is highly diluted and is not effective.

5–97. Inspect the circuit board to ensure the flux has been completely removed. Rosin flux is not normally corrosive, however in time, the flux will absorb enough moisture to become conductive and create problems.

5–98. **INTEGRATED CIRCUITS.** Special care should be exercised with integrated circuits. Each integrated circuit must be installed by matching the integrated circuit notch with the notch on the socket. Do not attempt to remove an integrated circuit from a socket with your fingers. Use an integrated circuit puller to lightly pry the component from the socket.

SECTION VI
PARTS LIST

6–1. INTRODUCTION.

6–2. This section provides descriptions and part numbers of electrical components, assemblies, and selected mechanical parts required for maintenance of the Broadcast Electronics Air–Trak 90/100 series audio consoles. Each table entry in the section is indexed by reference designators appearing on the applicable schematic diagram.

TABLE 6–1. REPLACEMENT PARTS LISTS
(Sheet 1 of 2)

TABLE 6-1. REPLACEMENT PARTS LISTS
(Sheet 2 of 2)

TABLE 6-2. AT-90 6 CHANNEL LINEAR CONSOLE - 901-6006/-XXX

REF. DES.	DESCRIPTION	PART NO.	QTY.
	901-6006-001/-301 MODELS		
----	Slide-Action Attenuator With Knob, 10K Ohm, Penny and Giles PGF3210DUA (Channel Faders)	180-0012	6
	901-6006-011 MODELS		
----	Slide-Action Attenuator With Knob, 10K Ohm, Sellmark CPA7207B (Channel Faders)	180-0014-002	6
----	Lamp, No. 73, 14V, 0.08A, T-1 3/4 Bulb, Wedge Base (**ON/OFF** Switches)	320-0007	12
----	Switch Cap, Blue, For **TALKBACK** Switch	340-0059	1
----	Switch, Pushbutton, Rectangular, Momentary Contact, Illuminated (Channel **ON/OFF** Switches)	340-0103	12
----	Switch, Push, Illuminated, 2PDT, Square, Momentary Contact, 3A @ 125V ac (**TALKBACK** Switch)	343-0042	1
----	Switch Cap, Amber (for **ON** Switches)	346-1017	6
----	Switch Cap, Red (for **OFF** Switches)	346-1018	6
----	Speaker, 4 Inch (10.16 cm), 8-10 Ohms, 7 Watts	414-0009	1
----	Connector Cover, .09 In. x 1 In. x .5 In. (J3,J4 on input PCB and J6 on control PCB)	417-2602	3
----	Phone Jack, 1/4 inch (0.635 cm), 3 Conductor (Headphone Jack)	417-0311	1
----	Knob, Yellow, 15mm w/Spot, C152 (Monitor Level)	481-0024	1
----	Knob, Orange, 15mm w/Spot, C152 (Headphone Level)	481-0028	1
----	Knob, Red, 15mm w/Spot, C152 (Cue Level)	481-0037	1
----	Overlay, 6 Channel Console, Meter Bridge	595-0086-001	1
----	Overlay, 12 Channel Console, Main Chassis	595-0102	1
----	Monitor Distribution Circuit Board Assembly	911-6000-A	1
----	Headphone Select Circuit Board Assembly	911-6000-B	1
----	Control Room Monitor Selection Circuit Board Assembly	911-6000-C	1
----	Timer Reset Circuit Board Assembly	911-6000-D	1
----	Headphone/Control Room/Cue Gain Circuit Board	911-6000-E	1
----	Audio Output Circuit Board Assembly	911-6004-001	1
----	VU Meter Distribution Circuit Board Assembly	911-6007-A	1
----	Audio/Power Monitoring Display Circuit Board Assembly	911-6007-B	1
----	VU Meter Switch Circuit Board Assembly	911-6007-C	1
----	Audio Input Circuit Board Assembly	911-6008	1
----	Channel Control Circuit Board Assembly	911-6010-002A	1
----	**ON/OFF** Switch Interface Circuit Board Assembly	911-6010-002B	6
----	Cable Assembly, 6 Channel AT-90 Console	941-0055	1
----	Clock/Timer Module	951-0037	1
----	VU Meter Assembly	951-0044	2
	901-6006-001/-011 MODELS		
----	Power Supply Assembly, 117 Volt ac 50/60 Hz Operation	951-6030	1
	901-6006-301/-311 MODELS		
----	Power Supply Assembly, 220 Volt ac 50 Hz Operation	951-6030-300	1
----	Installation Kit, 6 Channel AT-90 Console	971-0032	1

TABLE 6-3. AT-90 8 CHANNEL LINEAR CONSOLE - 901-6008/-XXX

REF. DES.	DESCRIPTION	PART NO.	QTY.
	901-6008-001/301 MODELS		
----	Slide-Action Attenuator With Knob, 10K Ohm, Penny and Giles PGF3210DUA (Channel Faders)	180-0012	8
	901-6008-011/-311 MODELS		
----	Slide-Action Attenuator With Knob, 10K Ohm, Sellmark CPA7207B (Channel Faders)	180-0014-002	8
----	Lamp, No. 73, 14V, 0.08A, T-1 3/4 Bulb, Wedge Base (**ON/OFF** Switches)	320-0007	16
----	Switch Cap, Blue (for **TALKBACK** Switch)	340-0059	1
----	Switch, Pushbutton, Rectangular, Momentary Contact, Illuminated (Channel **ON/OFF** Switches)	340-0103	16
----	Switch, Push, Illuminated, 2PDT, Square, Momentary Contact, 3A @ 125V ac (**TALKBACK** Switch)	343-0042	1
----	Switch Cap, Amber (for **ON** Switches)	346-1017	8
----	Switch Cap, Red (for **OFF** Switches)	346-1018	8
----	Speaker, 4 Inch (10.16 cm), 8-10 Ohms, 7 Watts	414-0009	1
----	Connector Cover, .09 In. x 1 In. x .5 In. (J3,J4 on input PCB and J6 on control PCB)	417-2602	4
----	Phone Jack, 1/4 inch (0.635 cm), 3 Conductor	417-0311	1
----	Knob, Yellow, 15mm w/Spot, C152 (Monitor Level)	481-0024	1
----	Knob, Orange, 15mm w/Spot, C152 (Headphone Level)	481-0028	1
----	Knob, Red, 15mm w/Spot, C152 (Cue Level)	481-0037	1
----	Overlay, 12 Channel Console, Meter Bridge	595-0086-002	1
----	Overlay, 12 Channel Console, Main Chassis	595-0102	1
----	Monitor Distribution Circuit Board Assembly	911-6000-A	1
----	Headphone Select Circuit Board Assembly	911-6000-B	1
----	Control Room Monitor Selection Circuit Board Assembly	911-6000-C	1
----	Timer Reset Circuit Board Assembly	911-6000-D	1
----	Headphone/Control/Cue Gain Circuit Board	911-6000-E	1
----	Audio Output Circuit Board Assembly	911-6004-001	1
----	VU Meter Distribution Circuit Board Assembly	911-6007A-001	1
----	Audio/Power Monitoring Display Circuit Board Assembly	911-6007B	1
----	6 Channel Audio Input Circuit Board Assembly	911-6008	1
----	2 Channel Audio Input Circuit Board Assembly	911-6008-401	1
----	6 Channel Control Circuit Board Assembly	911-6010-002A	1
----	6 Channel **ON/OFF** Switch Interface Circuit Board Assembly	911-6010-002B	6
----	2 Channel Control Circuit Board Assembly	911-6010-402A	1
----	2 Channel **ON/OFF** Switch Interface Circuit Board Assembly	911-6010-402B	2
----	Cable Assembly, 12 Channel AT-90 Console	941-0056	1
----	Clock/Timer Module	951-0037	1
----	VU Meter Assembly	951-0044	4
	901-6008-001/-011 MODELS		
----	Power Supply Assembly, 117 Volt ac 50/60 Hz Operation	951-6030	1
	901-6008-301/-311 MODELS		
----	Power Supply Assembly, 220 Volt ac 50 Hz Operation	951-6030-300	1
----	Installation Kit, 6 Channel AT-90 Console	971-0033	1

TABLE 6-4. AT-90 12 CHANNEL LINEAR CONSOLE - 901-6012/-XXX

REF. DES.	DESCRIPTION	PART NO.	QTY.
	901-6012-001/301 MODELS		
----	Slide-Action Attenuator With Knob, 10K Ohm, Penny and Giles PGF3210DUA (Channel Faders)	180-0012	12
	901-6012-011 MODELS		
----	Slide-Action Attenuator With Knob, 10K Ohm, Sellmark CPA7207B (Channel Faders)	180-0014-002	12
----	Lamp, No. 73, 14V, 0.08A, T-1 3/4 Bulb, Wedge Base (**ON/OFF** Switches)	320-0007	24
----	Switch Cap, Blue (for **TALKBACK** Switch)	340-0059	1
----	Switch, Pushbutton, Rectangular, Momentary Contact, Illuminated (Channel **ON/OFF** Switches)	340-0103	24
----	Switch, Push, Illuminated, 2PDT, Square, Momentary Contact, 3A @ 125V ac (**TALKBACK** Switch)	343-0042	1
----	Switch Cap, Amber (for **ON** Switches)	346-1017	12
----	Switch Cap, Red (for **OFF** Switches)	346-1018	12
----	Speaker, 4 Inch (10.16 cm), 8-10 Ohms, 7 Watts	414-0009	1
----	Connector Cover, .09 In. x 1 In. x .5 In. (J3,J4 on input PCB and J6 on control PCB)	417-2602	3
----	Phone Jack, 1/4 inch (0.635 cm), 3 Conductor	417-0311	1
----	Knob, Yellow, 15mm w/Spot, C152 (Monitor Level)	481-0024	1
----	Knob, Orange, 15mm w/Spot, C152 (Headphone Level)	481-0028	1
----	Knob, Red, 15mm w/Spot, C152 (Cue Level)	481-0037	1
----	Overlay, 12 Channel Console, Meter Bridge	595-0086-002	1
----	Overlay, 12 Channel Console, Main Chassis	595-0102	1
----	Monitor Distribution Circuit Board Assembly	911-6000-A	1
----	Headphone Select Circuit Board Assembly	911-6000-B	1
----	Control Room Monitor Selection Circuit Board Assembly	911-6000-C	1
----	Timer Reset Circuit Board Assembly	911-6000-D	1
----	Headphone/Control/Cue Gain Circuit Board	911-6000-E	1
----	Audio Output Circuit Board Assembly	911-6004-001	1
----	VU Meter Distribution Circuit Board Assembly	911-6007A-001	1
----	Audio/Power Monitoring Display Circuit Board Assembly	911-6007-B	1
----	Audio Input Circuit Board Assembly	911-6008	2
----	Channel Control Circuit Board Assembly	911-6010-002A	2
----	**ON/OFF** Switch Interface Circuit Board Assembly	911-6010-002B	12
----	Cable Assembly, 12 Channel AT-90 Console	941-0056	1
----	Clock/Timer Module	951-0037	1
----	VU Meter Assembly	951-0044	4
	901-6012-001/-011 MODELS		
----	Power Supply Assembly, 117 Volt ac 50/60 Hz Operation	951-6030	1
	901-6012-301/-311 MODELS		
----	Power Supply Assembly, 220 Volt ac 50 Hz Operation	951-6030-300	1
----	Installation Kit, 6 Channel AT-90 Console	971-0033	1

TABLE 6-5. AT-90 18 CHANNEL LINEAR CONSOLE - 901-6018/-XXX

REF. DES.	DESCRIPTION	PART NO.	QTY.
	901-6018-001/-301 MODELS		
----	Slide-Action Attenuator With Knob, 10K Ohm, Penny and Giles PGF3210DUA (Channel Faders)	180-0012	18
	901-6018-011 MODELS		
----	Slide-Action Attenuator With Knob, 10K Ohm, Sellmark CPA7207B (Channel Faders)	180-0014-002	18
----	Lamp, No. 73, 14V, 0.08A, T-1 3/4 Bulb, Wedge Base (**ON/OFF** Switches)	320-0007	36
----	Switch Cap, Blue (for **TALKBACK** Switch)	340-0059	1
----	Switch, Pushbutton, Rectangular, Momentary Contact, Illuminated (Channel **ON/OFF** Switches)	340-0103	36
----	Switch, Push, Illuminated, 2PDT, Square, Momentary Contact, 3A @ 125V ac (**TALKBACK** Switch)	343-0042	1
----	Switch Cap, Amber (for **ON** Switches)	346-1017	18
----	Switch Cap, Red (for **OFF** Switches)	346-1018	18
----	Speaker, 4 Inch (10.16 cm), 8-10 Ohms, 7 Watts	414-0009	1
----	Connector Cover, .09 In. x 1 In. x .5 In. (J3,J4 on input PCB and J6 on control PCB)	417-2602	3
----	Phone Jack, 1/4 inch (0.635 cm), 3 Conductor (Headphone Jack)	417-0311	1
----	Knob, Yellow, 15mm w/Spot, C152 (Monitor Level)	481-0024	1
----	Knob, Orange, 15mm w/Spot, C152 (Headphone Level)	481-0028	1
----	Knob, Red, 15mm w/Spot, C152 (Cue Level)	481-0037	1
----	Overlay, 18 Channel Console, Meter Bridge	595-0086-003	1
----	Overlay, 12 Channel Console, Main Chassis	595-0102	2
----	Monitor Distribution Circuit Board Assembly	911-6000-A	1
----	Headphone Select Circuit Board Assembly	911-6000-B	1
----	Control Room Monitor Selection Circuit Board Assembly	911-6000-C	1
----	Timer Reset Circuit Board Assembly	911-6000-D	1
----	Headphone/Control/Cue Gain Circuit Board	911-6000-E	1
----	Audio Output Circuit Board Assembly	911-6004-001	1
----	VU Meter Distribution Circuit Board Assembly	911-6007A-001	1
----	Audio/Power Monitoring Display Circuit Board Assemblky	911-6007-B	1
----	Audio Input Circuit Board Assembly	911-6008	3
----	6 Channel Control Circuit Board Assembly	911-6010-002A	3
----	**ON/OFF** Switch Interface Circuit Board Assembly	911-6010-002B	18
----	Cable Assembly, 18 Channel AT-90 Console	941-0057	1
----	Clock/Timer Module	951-0037	1
----	VU Meter Assembly	951-0044	4
	901-6018-001/-011 MODELS		
----	Power Supply Assembly, 117 Volt ac 50/60 Hz Operation	951-6030	1
	901-6018-301/-311 MODELS		
----	Power Supply Assembly, 220 Volt ac 50 Hz Operation	951-6030-300	1
----	Installation Kit, 18 Channel AT-90 Console	971-0034	1

TABLE 6-6. AT-90 24 CHANNEL LINEAR CONSOLE - 901-6024/-XXX

REF. DES.	DESCRIPTION	PART NO.	QTY.
	901-6024-001/-301 MODELS		
----	Slide-Action Attenuator With Knob, 10K Ohm, Penny and Giles PGF3210DUA (Channel Faders)	180-0012	24
	901-6024-011 MODELS		
----	Slide-Action Attenuator With Knob, 10K Ohm, Sellmark CPA7207B (Channel Faders)	180-0014-002	24
----	Lamp, No. 73, 14V, 0.08A, T-1 3/4 Bulb, Wedge Base (**ON/OFF** Switches)	320-0007	48
----	Switch Cap, Blue (for **TALKBACK** Switch)	340-0059	1
----	Switch, Pushbutton, Rectangular, Momentary Contact, Illuminated (Channel **ON/OFF** Switches)	340-0103	48
----	Switch, Push, Illuminated, 2PDT, Square, Momentary Contact, 3A @ 125V ac (**TALKBACK** Switch)	343-0042	1
----	Switch Cap, Amber (for **ON** Switches)	346-1017	24
----	Switch Cap, Red (for **OFF** Switches)	346-1018	24
----	Speaker, 4 Inch (10.16 cm), 8-10 Ohms, 7 Watts	414-0009	1
----	Connector Cover, .09 In. x 1 In. x .5 In. (J3,J4 on input PCB and J6 on control PCB)	417-2602	3
----	Phone Jack, 1/4 inch (0.635 cm), 3 Conductor	417-0311	1
----	Knob, Yellow, 15mm w/Spot, C152 (Monitor Level)	481-0024	1
----	Knob, Orange, 15mm w/Spot, C152 (Headphone Level)	481-0028	1
----	Knob, Red, 15mm w/Spot, C152 (Cue Level)	481-0037	1
----	Overlay, 24 Channel Console, Meter Bridge	595-0086-004	1
----	Overlay, 12 Channel Console, Main Chassis	595-0102	2
----	Monitor Distribution Circuit Board Assembly	911-6000-A	1
----	Headphone Select Circuit Board Assembly	911-6000-B	1
----	Control Room Monitor Selection Circuit Board Assembly	911-6000-C	1
----	Timer Reset Circuit Board Assembly	911-6000-D	1
----	Headphone/Control Room/Cue Gain Circuit Board	911-6000-E	1
----	Audio Output Circuit Board Assembly	911-6004-001	1
----	VU Meter DistributionCircuit Board Assembly	911-6007A-002	1
----	Audio/Power Monitoring Display Circuit Board Assembly	911-6007-B	1
----	Audio Input Circuit Board Assembly	911-6008	4
----	Channel Control Circuit Board Assembly	911-6010-002A	4
----	**ON/OFF** Switch Interface Circuit Board Assembly	911-6010-002B	24
----	Cable Assembly, 24 Channel AT-90 Console	941-0058	1
----	Clock/Timer Module	951-0037	1
----	VU Meter Assembly	951-0044	6
	901-6024-001/-011 MODELS		
----	Power Supply Assembly, 117 Volt ac 50/60 Hz Operation	951-6030	1
	901-6024-301/-311 MODELS		
----	Power Supply Assembly, 220 Volt ac 50 Hz Operation	951-6030-300	1
----	Installation Kit, 24 Channel AT-90 Console	971-0035	1

TABLE 6-7. AT-100 6 CHANNEL LINEAR CONSOLE - 901-6106/-010

REF. DES.	DESCRIPTION	PART NO.	QTY.
	901-6006 MODELS		
----	Slide-Action Attenuator With Knob, 10K Ohm, Penny and Giles PGF3210DUA (Channel Faders)	180-0012	6
	901-6006-010 MODELS		
----	Slide-Action Attenuator With Knob, 10K Ohm, Sellmark CPA7207B (Channel Faders)	180-0014-002	6
----	Lamp, No. 73, 14V, 0.08A, T-1 3/4 Bulb, Wedge Base (**ON/OFF** Switches)	320-0007	12
----	Switch Cap, Blue, For **TALKBACK** Switch	340-0059	1
----	Switch, Pushbutton, Rectangular, Momentary Contact, Illuminated (Channel **ON/OFF** Switches)	340-0103	12
----	Switch, Push, Illuminated, 2PDT, Square, Momentary Contact, 3A @ 125V ac (**TALKBACK** Switch)	343-0042	1
----	Switch Cap, Amber (for **ON** Switches)	346-1017	6
----	Switch Cap, Red (for **OFF** Switches)	346-1018	6
----	Speaker, 4 Inch (10.16 cm), 8-10 Ohms, 7 Watts	414-0009	1
----	Connector Cover, .09 In. x 1 In. x .5 In. (J3,J4 on input PCB and J6 on control PCB)	417-2602	3
----	Phone Jack, 1/4 inch (0.635 cm), 3 Conductor (Headphone Jack)	417-0311	1
----	Knob, Yellow, 15mm w/Spot, C152 (Monitor Level)	481-0024	1
----	Knob, Orange, 15mm w/Spot, C152 (Headphone Level)	481-0028	1
----	Knob, Red, 15mm w/Spot, C152 (Cue Level)	481-0037	1
----	Overlay, 6 Channel Console, Meter Bridge	595-0086-001	1
----	Overlay, 12 Channel Console, Main Chassis	595-0102	1
----	Monitor Distribution Circuit Board Assembly	911-6000-A	1
----	Headphone Select Circuit Board Assembly	911-6000-B	1
----	Control Room Monitor Selection Circuit Board Assembly	911-6000-C	1
----	Timer Reset Circuit Board Assembly	911-6000-D	1
----	Headphone/Control Room/Cue Gain Circuit Board	911-6000-E	1
----	Audio Output Circuit Board Assembly	911-6004-001	1
----	VU Meter Distribution Circuit Board Assembly	911-6007-A	1
----	Audio/Power Monitoring Display Circuit Board Assembly	911-6007-B	1
----	VU Meter Switch Circuit Board Assembly	911-6007-C	1
----	Audio Input Circuit Board Assembly	911-6008	1
----	Channel Control Circuit Board Assembly	911-6010-002A	1
----	**ON/OFF** Switch Interface Circuit Board Assembly	911-6010-002B	6
----	Power Distribution Circuit Board Assembly	911-6031	1
----	Cable Assembly, 6 Channel AT-90 Console	941-0055	1
----	Clock/Timer Module	951-0037	1
----	VU Meter Assembly	951-0044	2
----	Relay Remote Control Card, 5 Relays	951-6021	3
----	Power Supply Assembly, 117 Volt ac 50/60 Hz Operation	951-6030	1
----	Installation Kit, 6 Channel AT-90 Console	971-0032	1

TABLE 6-8. AT-100 12 CHANNEL LINEAR CONSOLE - 901-6112/-010

REF. DES.	DESCRIPTION	PART NO.	QTY.
	901-6112 MODELS		
----	Slide-Action Attenuator With Knob, 10K Ohm, Penny and Giles PGF3210DUA (Channel Faders)	180-0012	12
	901-6112-010 MODELS		
----	Slide-Action Attenuator With Knob, 10K Ohm, Sellmark CPA7207B (Channel Faders)	180-0014-002	12
----	Lamp, No. 73, 14V, 0.08A, T-1 3/4 Bulb, Wedge Base (**ON/OFF** Switches)	320-0007	24
----	Switch Cap, Blue (for **TALKBACK** Switch)	340-0059	1
----	Switch, Pushbutton, Rectangular, Momentary Contact, Illuminated (Channel **ON/OFF** Switches)	340-0103	24
----	Switch, Push, Illuminated, 2PDT, Square, Momentary Contact, 3A @ 125V ac (**TALKBACK** Switch)	343-0042	1
----	Switch Cap, Amber (for **ON** Switches)	346-1017	12
----	Switch Cap, Red (for **OFF** Switches)	346-1018	12
----	Speaker, 4 Inch (10.16 cm), 8-10 Ohms, 7 Watts	414-0009	1
----	Connector Cover, .09 In. x 1 In. x .5 In. (J3,J4 on input PCB and J6 on control PCB)	417-2602	3
----	Phone Jack, 1/4 inch (0.635 cm), 3 Conductor	417-0311	1
----	Knob, Yellow, 15mm w/Spot, C152 (Monitor Level)	481-0024	1
----	Knob, Orange, 15mm w/Spot, C152 (Headphone Level)	481-0028	1
----	Knob, Red, 15mm w/Spot, C152 (Cue Level)	481-0037	1
----	Overlay, 12 Channel Console, Meter Bridge	595-0086-002	1
----	Overlay, 12 Channel Console, Main Chassis	595-0102	1
----	Monitor Distribution Circuit Board Assembly	911-6000-A	1
----	Headphone Select Circuit Board Assembly	911-6000-B	1
----	Control Room Monitor Selection Circuit Board Assembly	911-6000-C	1
----	Timer Reset Circuit Board Assembly	911-6000-D	1
----	Headphone/Control/Cue Gain Circuit Board	911-6000-E	1
----	Audio Output Circuit Board Assembly	911-6004-001	1
----	VU Meter Distribution Circuit Board Assembly	911-6007A-001	1
----	Audio/Power Monitoring Display Circuit Board Assembly	911-6007-B	1
----	Audio Input Circuit Board Assembly	911-6008	2
----	Channel Control Circuit Board Assembly	911-6010-002A	2
----	**ON/OFF** Switch Interface Circuit Board Assembly	911-6010-002B	12
----	Power Distribution Circuit Board Assembly	911-6031	2
----	Cable Assembly, 12 Channel AT-90 Console	941-0056	1
----	Clock/Timer Module	951-0037	1
----	VU Meter Assembly	951-0044	4
----	Power Supply Assembly, 117 Volt ac 50/60 Hz Operation	951-6030	1
----	Installation Kit, 12 Channel AT-90 Console	971-0033	1

TABLE 6-9. AT-100 18 CHANNEL LINEAR CONSOLE - 901-6118/-010

REF. DES.	DESCRIPTION	PART NO.	QTY.
	901-6118 MODELS		
----	Slide-Action Attenuator With Knob, 10K Ohm, Penny and Giles PGF3210DUA (Channel Faders)	180-0012	18
	901-6118-010 MODELS		
----	Slide-Action Attenuator With Knob, 10K Ohm, Sellmark CPA7207B (Channel Faders)	180-0014-002	18
----	Lamp, No. 73, 14V, 0.08A, T-1 3/4 Bulb, Wedge Base (**ON/OFF** Switches)	320-0007	36
----	Switch Cap, Blue (for **TALKBACK** Switch)	340-0059	1
----	Switch, Pushbutton, Rectangular, Momentary Contact, Illuminated (Channel **ON/OFF** Switches)	340-0103	36
----	Switch, Push, Illuminated, 2PDT, Square, Momentary Contact, 3A @ 125V ac (**TALKBACK** Switch)	343-0042	1
----	Switch Cap, Amber (for **ON** Switches)	346-1017	18
----	Switch Cap, Red (for **OFF** Switches)	346-1018	18
----	Speaker, 4 Inch (10.16 cm), 8-10 Ohms, 7 Watts	414-0009	1
----	Connector Cover, .09 In. x 1 In. x .5 In. (J3,J4 on input PCB and J6 on control PCB)	417-2602	3
----	Phone Jack, 1/4 inch (0.635 cm), 3 Conductor (Headphone Jack)	417-0311	1
----	Knob, Yellow, 15mm w/Spot, C152 (Monitor Level)	481-0024	1
----	Knob, Orange, 15mm w/Spot, C152 (Headphone Level)	481-0028	1
----	Knob, Red, 15mm w/Spot, C152 (Cue Level)	481-0037	1
----	Overlay, 18 Channel Console, Meter Bridge	595-0086-003	1
----	Overlay, 12 Channel Console, Main Chassis	595-0102	2
----	Monitor Distribution Circuit Board Assembly	911-6000-A	1
----	Headphone Select Circuit Board Assembly	911-6000-B	1
----	Control Room Monitor Selection Circuit Board Assembly	911-6000-C	1
----	Timer Reset Circuit Board Assembly	911-6000-D	1
----	Headphone/Control/Cue Gain Circuit Board	911-6000-E	1
----	Audio Output Circuit Board Assembly	911-6004-001	1
----	VU Meter Distribution Circuit Board Assembly	911-6007A-001	1
----	Audio/Power Monitoring Display Circuit Board Assembly	911-6007-B	1
----	Audio Input Circuit Board Assembly	911-6008	3
----	6 Channel Control Circuit Board Assembly	911-6010-002A	3
----	**ON/OFF** Switch Interface Circuit Board Assembly	911-6010-002B	18
----	Power Distribution Circuit Board Assembly	911-6031	3
----	Cable Assembly, 18 Channel AT-90 Console	941-0057	1
----	Clock/Timer Module	951-0037	1
----	VU Meter Assembly	951-0044	4
----	Power Supply Assembly, 117 Volt ac 50/60 Hz Operation	951-6030	1
----	Installation Kit, 18 Channel AT-90 Console	971-0034	1

TABLE 6-10. AT-100 24 CHANNEL LINEAR CONSOLE - 901-6124/-010

REF. DES.	DESCRIPTION	PART NO.	QTY.
	901-6124 MODELS		
----	Slide-Action Attenuator With Knob, 10K Ohm, Penny and Giles PGF3210DUA (Channel Faders)	180-0012	24
	901-6124-010 MODELS		
----	Slide-Action Attenuator With Knob, 10K Ohm, Sellmark CPA7207B (Channel Faders)	180-0014-002	24
----	Lamp, No. 73, 14V, 0.08A, T-1 3/4 Bulb, Wedge Base (**ON/OFF** Switches)	320-0007	48
----	Switch Cap, Blue (for **TALKBACK** Switch)	340-0059	1
----	Switch, Pushbutton, Rectangular, Momentary Contact, Illuminated (Channel **ON/OFF** Switches)	340-0103	48
----	Switch, Push, Illuminated, 2PDT, Square, Momentary Contact, 3A @ 125V ac (**TALKBACK** Switch)	343-0042	1
----	Switch Cap, Amber (for **ON** Switches)	346-1017	24
----	Switch Cap, Red (for **OFF** Switches)	346-1018	24
----	Speaker, 4 Inch (10.16 cm), 8-10 Ohms, 7 Watts	414-0009	1
----	Connector Cover, .09 In. x 1 In. x .5 In. (J3,J4 on input PCB and J6 on control PCB)	417-2602	3
----	Phone Jack, 1/4 inch (0.635 cm), 3 Conductor	417-0311	1
----	Knob, Yellow, 15mm w/Spot, C152 (Monitor Level)	481-0024	1
----	Knob, Orange, 15mm w/Spot, C152 (Headphone Level)	481-0028	1
----	Knob, Red, 15mm w/Spot, C152 (Cue Level)	481-0037	1
----	Overlay, 24 Channel Console, Meter Bridge	595-0086-004	1
----	Overlay, 12 Channel Console, Main Chassis	595-0102	2
----	Monitor Distribution Circuit Board Assembly	911-6000-A	1
----	Headphone Select Circuit Board Assembly	911-6000-B	1
----	Control Room Monitor Selection Circuit Board Assembly	911-6000-C	1
----	Timer Reset Circuit Board Assembly	911-6000-D	1
----	Headphone/Control Room/Cue Gain Circuit Board	911-6000-E	1
----	Audio Output Circuit Board Assembly	911-6004-001	1
----	VU Meter DistributionCircuit Board Assembly	911-6007A-002	1
----	Audio/Power Monitoring Display Circuit Board Assembly	911-6007-B	1
----	Audio Input Circuit Board Assembly	911-6008	4
----	Channel Control Circuit Board Assembly	911-6010-002A	4
----	**ON/OFF** Switch Interface Circuit Board Assembly	911-6010-002B	24
----	Cable Assembly, 24 Channel AT-90 Console	941-0058	1
----	Clock/Timer Module	951-0037	1
----	VU Meter Assembly	951-0044	6
----	Relay, Remote control Card, 5 Relays	951-6021	12
----	Power Supply Assembly, 117 Volt ac 50/60 Hz Operation	951-6030	1
----	Power Distribution Assembly Board	911-6031	4
----	Installation Kit, 24 Channel AT-90 Console	971-0035	1

TABLE 6-11. MONITOR DISTRIBUTION CIRCUIT BOARD ASSEMBLY - 911-6000-A

REF. DES.	DESCRIPTION	PART NO.	QTY.
C1 THRU C3	Capacitor, Electrolytic, 100 uF, 25V	023-1084	3
C4,C5	Capacitor, Electrolytic, 10 uF, 35V	023-1076	2
C7	Capacitor, Electrolytic, 470 uF ±20%, 25V	020-4784	1
J1	Connector Header, 40-Pin	417-0173	1
J2	Receptacle, Male, 26-Pin Dual In-Line	417-2600	1
J3 THRU J6	Connector, 10-Pin Dual In-Line	418-1003	4
R1	Resistor, 1 k Ohm ±1%, 1/4W	100-1041	1
R2	Resistor, 162 Ohm ±1%, 1/4W	100-1631	1
R3	Resistor, 1 k Ohm ±1%, 1/4W	100-1041	1
R4	Resistor, 162 Ohm ±1%, 1/4W	100-1631	1
R5	Resistor, 1 k Ohm ±1%, 1/4W	100-1041	1
R6	Resistor, 162 Ohm ±1%, 1/4W	100-1631	1
R7	Resistor, 75 Ohm ±1%, 1/4W	103-7502	1
R8	Resistor, 100 Ohm, ±1%, 1/4W	100-1031	1
R9	Resistor, 48.7 k Ohm ±1%, 1/4W	103-4875	1
U1	Integrated Circuit, MC1805CT, Voltage Regulator, 5V @ 1.0 Ampere, TO-220 Case	227-7805	1
----	Blank Circuit Board	511-6000-A	1

TABLE 6-12. HEADPHONE SELECT CIRCUIT BOARD ASSEMBLY - 911-6000-B

REF. DES.	DESCRIPTION	PART NO.	QTY.
D3 THRU D11	Diode, 1N4148, Silicon, 75V @ 0.3 Amperes	203-4148	9
J7	Ribbon Cable Assembly, 10-Pin, Dual In-Line	941-0060	1
R10 THRU R13	Resistor, 1 Meg Ohm ±1%, 1/4W	103-1007	4
S1	Switch, 8 Section, 2PDT Pushbutton, Black/Orange Indications (Headphone Select)	340-0125	1
-----	Blank Circuit Board, Headphone Select	511-6000-B	1

TABLE 6-13. CONTROL ROOM MONITOR SELECT CIRCUIT BOARD ASSEMBLY - 911-6000-C

REF. DES.	DESCRIPTION	PART NO.	QTY.
D12 THRU D20	Diode, 1N4148, Silicon, 75V @ 0.3 Amperes	203-4148	9
J8	Ribbon Cable Assembly, 10-Pin, Dual In-Line	941-0060	1
R14 THRU R17	Resistor, 1 Meg Ohm ±1%, 1/4W	103-1007	4
S2	Switch, 8 Section, 2PDT Pushbutton, Black/Yellow Indications (Control Room Monitor Select)	340-0124	1
-----	Blank Circuit Board, Control Room Monitor Select Circuit Board	511-6000-C	1

TABLE 6-14. TIMER RESET CIRCUIT BOARD ASSEMBLY - 911-6000-D

REF. DES.	DESCRIPTION	PART NO.	QTY.
C6	Capacitor, Electrolytic, 1000 uF, 25V	013-1095	1
J9	Ribbon Cable Assembly, 10-Pin, Dual In-Line	941-0060	1
J10	Connector, 10-Pin In-Line	417-0044	1
R18	Resistor, 6.2 Ohm, ±5%, 5W, W/W	130-6253	1
S3	Switch, 5 Section, 2PDT Pushbutton, Black/White Indications (Timer Reset Select)	340-0126	1
----	Blank Circuit Board, Timer Reset	511-6000-D	1

TABLE 6-15. HEADPHONE/CONTROL ROOM/CUE GAIN CIRCUIT BOARD ASSEMBLY - 911-6000-E

REF. DES.	DESCRIPTION	PART NO.	QTY.
E1,E2	Terminal, Barrel, 4 Amperes	417-0133	2
J11	Connector, 10-Pin, Dual In-Line	418-1003	1
R19 THRU R21	Potentiometer, 10K Ohm ±10%, 1/2W (Headphone Monitor, Cue Level Controls)	178-1055	3
----	Cap, Barrel Terminal	417-0133-001	2
----	Blank Circuit Board, Headphone/Control Room/Cue Gain	511-6000-E	1

TABLE 6-16. AUDIO OUTPUT CIRCUIT BOARD ASSEMBLY - 911-6004-001
(Sheet 1 of 15)

REF. DES.	DESCRIPTION	PART NO.	QTY.
----	Blank Circuit Board, Output	511-6004	1
C1 THRU C6	Capacitor, Mica, 330 pF ±5%, 500V	040-3333	6
C7,C8	Capacitor, Monolithic Ceramic, 0.1 uF ±20%, 50V	003-1054	2
C9	Capacitor, Ceramic, 68 pF ±5%, 50V	003-6812	1
C10 THRU C13	Capacitor, Monolithic Ceramic, 0.1 uF ±20%, 50V	003-1054	4
C14	Capacitor, Mylar, 0.01 uF ±10%, 100V	031-1043	1
C15	Capacitor, Electrolytic, 33 uF, 25V	020-3374	1
C16,C18	Capacitor, Monolithic Ceramic, 0.1 uF ±20%, 50V	003-1054	2
C17	Capacitor, Tantalum, 2.2 uF, 35V	064-2263	1
C19	Capacitor, Ceramic, 33 pF ±5%, 50V	003-3312	1
C20	Capacitor, Mylar, 0.01 uF ±10%, 100V	031-1043	1
C21,C22	Capacitor, Monolithic Ceramic, 0.1 uF ±20%, 50V	003-1054	2
C23	Capacitor, Ceramic, 33 pF ±5%, 50V	003-3312	1
C24	Capacitor, Monolithic Ceramic, 0.1 uF ±20%, 50V	003-1054	1
C25	Capacitor, Electrolytic, 10 uF, 35V	023-1075	1
C26	Capacitor, Monolithic Ceramic, 0.1 uF ±20%, 50V	003-1054	1
C27	Capacitor, Tantalum, 2.2 uF, 35V	064-2263	1
C28	Capacitor, Electrolytic, 1 uF, 50V, Non-Polarized	020-1064	1
C29	Capacitor, Monolithic Ceramic, 0.1 uF ±20%, 50V	003-1054	1
C30	Capacitor, Ceramic, 33 pF ±5%, 50V	003-3312	1
C31	Capacitor, Monolithic Ceramic, 0.1 uF ±20%, 50V	003-1054	1
C32	Capacitor, Mylar, 0.01 uF ±10%, 100V	031-1043	1
C33 THRU C38	Capacitor, Mica, 330 pF ±5%, 500V	040-3333	6
C39,C40	Capacitor, Monolithic Ceramic, 0.1 uF ±20%, 50V	003-1054	2

TABLE 6-16. AUDIO OUTPUT CIRCUIT BOARD ASSEMBLY - 911-6004-001
(Sheet 2 of 15)

REF. DES.	DESCRIPTION	PART NO.	QTY.
C41	Capacitor, Ceramic, 33 pF ±5%, 50V	003-3312	1
C42,C43	Capacitor, Monolithic Ceramic, 0.1 uF ±20%, 50V	003-1054	2
C44	Capacitor, Mylar, 0.01 uF ±10%, 100V	031-1043	1
C45	Capacitor, Electrolytic, 33 uF, 25V	020-3374	1
C46	Capacitor, Tantalum, 2.2 uF, 35V	064-2263	1
C47,C48	Capacitor, Monolithic Ceramic, 0.1 uF ±20%, 50V	003-1054	2
C49	Capacitor, Ceramic, 33 pF ±5%, 50V	003-3312	1
C50	Capacitor, Electrolytic, 33 uF, 25V	020-3374	1
C51	Capacitor, Monolithic Ceramic, 0.1 uF ±20%, 50V	003-1054	1
C52	Capacitor, Ceramic, 47 pF ±5%, 50V	003-4712	1
C53	Capacitor, Mylar, 0.01 uF ±10%, 100V	031-1043	1
C54,C55	Capacitor, Monolithic Ceramic, 0.1 uF ±20%, 50V	003-1054	2
C56	Capacitor, Ceramic, 33 pF ±5%, 50V	003-3312	1
C57	Capacitor, Monolithic Ceramic, 0.1 uF ±20%, 50V	003-1054	1
C58	Capacitor, Electrolytic, 10 uF, 35V	023-1075	1
C59	Capacitor, Tantalum, 2.2 uF, 35V	064-2263	1
C60	Capacitor, Monolithic Ceramic, 0.1 uF ±20%, 50V	003-1054	1
C61	Capacitor, Electrolytic, 1 uF, 50V, Non-Polarized	020-1064	1
C62	Capacitor, Monolithic Ceramic, 0.1 uF ±20%, 50V	003-1054	1
C63	Capacitor, Ceramic, 33 pF ±5%, 50V	003-3312	1
C64	Capacitor, Monolithic Ceramic, 0.1 uF ±20%, 50V	003-1054	1
C65	Capacitor, Electrolytic, 33 uF, 25V	020-3374	1
C66	Capacitor, Monolithic Ceramic, 0.1 uF ±20%, 50V	003-1054	1
C67	Capacitor, Ceramic, 47 pF ±5%, 50V	003-4712	1
C68	Capacitor, Mylar, 0.01 uF ±10%, 100V	031-1043	1
C69	Capacitor, Electrolytic, 33 uF, 25V	020-3374	1
C70	Capacitor, Monolithic Ceramic, 0.1 uF ±20%, 50V	003-1054	1
C71	Capacitor, Silvered Mica, 100 pF ±5%, 500V	040-1022	1
C72,C73	Capacitor, Electrolytic, 10 uF, 35V	023-1075	2
C74 THRU C76	Capacitor, Monolithic Ceramic, 0.1 uF ±20%, 50V	003-1054	3
C77	Capacitor, Electrolytic, 10 uF, 35V	023-1075	1
C79	Capacitor, Ceramic, 33 pF ±5%, 50V	003-3312	1
C80	Capacitor, Monolithic Ceramic, 0.1 uF ±20%, 50V	003-1054	1
C81	Capacitor, Electrolytic, 33 uF, 25V	020-3374	1
C82	Capacitor, Monolithic Ceramic, 0.1 uF ±20%, 50V	003-1054	1
C83	Capacitor, Mylar, 0.22 uF ±10%, 100V	030-2253	1
C84	Capacitor, Monolithic Ceramic, 0.1 uF ±20%, 50V	003-1054	1
C85	Capacitor, Electrolytic, 470 uF, 25V	020-4784	1
C86	Capacitor, Mica, 470 pF ±1%, 500V	040-4721	1
C87	Capacitor, Electrolytic, 3.3 uF, 50V	020-3363	1
C88	Capacitor, Monolithic Ceramic, 0.1 uF ±20%, 50V	003-1054	1
C89	Capacitor, Electrolytic, 470 uF, 25V	020-4784	1
C90	Capacitor, Mylar, 0.22 uF ±10%, 100V	030-2253	1
C91	Capacitor, Mica, 330 pF, ±5%, 500V	040-3333	1
C92	Capacitor, Electrolytic, 33 uF, 25V	020-3374	1
C93	Capacitor, Monolithic Ceramic, 0.1 uF ±20%, 50V	003-1054	1
C94	Capacitor, Electrolytic, 100 uF, 25V	023-1084	1
C95	Capacitor, Electrolytic, 33 uF, 25V	020-3374	1
C96	Capacitor, Monolithic Ceramic, 0.1 uF ±20%, 50V	003-1054	1
C97	Capacitor, Electrolytic, 100 uF, 25V	023-1084	1

TABLE 6–16. AUDIO OUTPUT CIRCUIT BOARD ASSEMBLY – 911–6004–001
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REF. DES.	DESCRIPTION	PART NO.	QTY.
C98	Capacitor, Ceramic Monolithic, 10 pF ±5%, 100V	000–1013	1
C99	Capacitor, Mylar, 0.22 uF ±10%, 100V	030–2253	1
C100	Capacitor, Electrolytic, 33 uF, 25V	020–3374	1
C101	Capacitor, Ceramic Monolithic, 10 pF ±5%, 100V	000–1013	1
C102	Capacitor, Electrolytic, 33 uF, 25V	020–3374	1
C103	Capacitor, Monolithic Ceramic, 0.1 uF ±20%, 50V	003–1054	1
C104	Capacitor, Electrolytic, 100 uF, 25V	023–1084	1
C105	Capacitor, Monolithic Ceramic, 0.1 uF ±20%, 50V	003–1054	1
C106	Capacitor, Electrolytic, 100 uF, 25V	023–1084	1
C107	Capacitor, Mylar, 0.22 uF ±10%, 100V	030–2253	1
C108 THRU C110	Capacitor, Mica, 330 pF, ±5%, 500V	040–3333	3
C111	Capacitor, Monolithic Ceramic, 0.1 uF ±20%, 50V	003–1054	1
C112	Capacitor, Electrolytic, 10 uF, 35V	023–1075	1
C113,C114	Capacitor, Monolithic Ceramic, 0.1 uF ±20%, 50V	003–1054	2
C115,C116	Capacitor, Mica, 330 pF, ±5%, 500V	040–3333	2
C117	Capacitor, Monolithic Ceramic, 0.1 uF ±20%, 50V	003–1054	1
C118	Capacitor, Electrolytic, 10 uF, 35V	023–1075	1
C119	Capacitor, Monolithic Ceramic, 0.1 uF ±20%, 50V	003–1054	1
C120	Capacitor, Electrolytic, 10 uF, 35V	023–1075	1
C121	Capacitor, Mica, 330 pF, ±5%, 500V	040–3333	1
C122,C123	Capacitor, Electrolytic, 220 uF, 25V	023–2273	2
C124 THRU C136	Capacitor, Mica, 330 pF, ±5%, 500V	040–3333	13
C137,C138	Capacitor, Ceramic, 47 pF ±5%, 50V	003–4712	2
C139,C140	Capacitor, Monolithic Ceramic, 0.1 uF ±20%, 50V	003–1054	2
C141	Capacitor, Ceramic, 47 pF ±5%, 50V	003–4712	1
C142	Capacitor, Electrolytic, 33 uF, 25V	020–3374	1
C143	Capacitor, Silvered Mica, 100 pF ±5%, 500V	040–1022	1
C144	Capacitor, Monolithic Ceramic, 0.1 uF ±20%, 50V	003–1054	1
C145	Capacitor, Mica, 330 pF, ±5%, 500V	040–3333	1
C146	Capacitor, Mylar Film, 0.047 uF ±10%, 100V	030–4743	1
C147	Capacitor, Monolithic Ceramic, 0.1 uF ±20%, 50V	003–1054	1
C148	Capacitor, Mica, 330 pF, ±5%, 500V	040–3333	1
C149	Capacitor, Ceramic, 47 pF ±5%, 50V	003–4712	1
C150	Capacitor, Monolithic Ceramic, 0.1 uF ±20%, 50V	003–1054	1
C151,C152	Capacitor, Ceramic, 47 pF ±5%, 50V	003–4712	2
C153	Capacitor, Electrolytic, 33 uF, 25V	020–3374	1
C154	Capacitor, Silvered Mica, 100 pF ±5%, 500V	040–1022	1
C155,156	Capacitor, Monolithic Ceramic, 0.1 uF ±20%, 50V	003–1054	2
C157,158	Capacitor, Mica, 330 pF, ±5%, 500V	040–3333	2
C159	Capacitor, Mylar Film, 0.047 uF ±10%, 100V	030–4743	1
C160	Capacitor, Monolithic Ceramic, 0.1 uF ±20%, 50V	003–1054	1
C161	Capacitor, Ceramic, 47 pF ±5%, 50V	003–4712	1
C162	Capacitor, Monolithic Ceramic, 0.1 uF ±20%, 50V	003–1054	1
C163,C164	Capacitor, Ceramic, 47 pF ±5%, 50V	003–4712	2
C165	Capacitor, Electrolytic, 33 uF, 25V	020–3374	1
C166	Capacitor, Silvered Mica, 100 pF ±5%, 500V	040–1022	1
C167,C168	Capacitor, Monolithic Ceramic, 0.1 uF ±20%, 50V	003–1054	2

TABLE 6–16. AUDIO OUTPUT CIRCUIT BOARD ASSEMBLY – 911–6004–001
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REF. DES.	DESCRIPTION	PART NO.	QTY.
C169,C170	Capacitor, Mica, 330 pF, ±5%, 500V	040–3333	2
C171	Capacitor, Monolithic Ceramic, 0.1 uF ±20%, 50V	003–1054	1
C172	Capacitor, Mylar Film, 0.047 uF ±10%, 100V	030–4743	1
C173	Capacitor, Ceramic, 47 pF ±5%, 50V	003–4712	1
C174	Capacitor, Monolithic Ceramic, 0.1 uF ±20%, 50V	003–1054	1
C175	Capacitor, Ceramic, 47 pF ±5%, 50V	003–4712	1
C176	Capacitor, Electrolytic, 33 uF, 25V	020–3374	1
C177	Capacitor, Ceramic, 47 pF ±5%, 50V	003–4712	1
C178	Capacitor, Monolithic Ceramic, 0.1 uF ±20%, 50V	003–1054	1
C179	Capacitor, Silvered Mica, 100 pF ±5%, 500V	040–1022	1
C180	Capacitor, Monolithic Ceramic, 0.1 uF ±20%, 50V	003–1054	1
C181,C182	Capacitor, Mica, 330 pF, ±5%, 500V	040–3333	2
C183	Capacitor, Mylar Film, 0.047 uF ±10%, 100V	030–4743	1
C184	Capacitor, Monolithic Ceramic, 0.1 uF ±20%, 50V	003–1054	1
C185	Capacitor, Ceramic, 47 pF ±5%, 50V	003–4712	1
C186	Capacitor, Monolithic Ceramic, 0.1 uF ±20%, 50V	003–1054	1
C187	Capacitor, Ceramic, 47 pF ±5%, 50V	003–4712	1
C188	Capacitor, Electrolytic, 33 uF, 25V	020–3374	1
C189	Capacitor, Ceramic, 47 pF ±5%, 50V	003–4712	1
C190	Capacitor, Monolithic Ceramic, 0.1 uF ±20%, 50V	003–1054	1
C191,C192	Capacitor, Mica, 330 pF, ±5%, 500V	040–3333	2
C193	Capacitor, Mylar Film, 0.047 uF ±10%, 100V	030–4743	1
C194 THRU C197	Capacitor, Monolithic Ceramic, 0.1 uF ±20%, 50V	003–1054	4
C198	Capacitor, Ceramic, 47 pF ±5%, 50V	003–4712	1
C199	Capacitor, Monolithic Ceramic, 0.1 uF ±20%, 50V	003–1054	1
C200	Capacitor, Ceramic, 47 pF ±5%, 50V	003–4712	1
C201	Capacitor, Electrolytic, 33 uF, 25V	020–3374	1
C202	Capacitor, Ceramic, 47 pF ±5%, 50V	003–4712	1
C203	Capacitor, Monolithic Ceramic, 0.1 uF ±20%, 50V	003–1054	1
C204,C205	Capacitor, Mica, 330 pF, ±5%, 500V	040–3333	2
C206	Capacitor, Mylar Film, 0.047 uF ±10%, 100V	030–4743	1
C207	Capacitor, Mylar, 0.1 uF ±10%, 100V	030–1053	1
C208	Capacitor, Electrolytic, 330 uF, 25V, Non–Polarized	020–3385	1
C209	Capacitor, Electrolytic, 10 uF, 35V	023–1075	1
C210	Capacitor, Monolithic Ceramic, 0.1 uF ±20%, 50V	003–1054	1
C211	Capacitor, Ceramic, 47 pF ±5%, 50V	003–4712	1
C212	Capacitor, Monolithic Ceramic, 0.1 uF ±20%, 50V	003–1054	1
C213	Capacitor, Ceramic, 47 pF ±5%, 50V	003–4712	1
C214	Capacitor, Monolithic Ceramic, 0.1 uF ±20%, 50V	003–1054	1
C215	Capacitor, Ceramic, 47 pF ±5%, 50V	003–4712	1
C216	Capacitor, Silvered Mica, 100 pF ±5%, 500V	040–1022	1
C217	Capacitor, Mylar, 0.1 uF ±10%, 100V	030–1053	1
C218	Capacitor, Electrolytic, 330 uF, 25V, Non–Polarized	020–3385	1
C219	Capacitor, Electrolytic, 10 uF, 35V	023–1075	1
C220	Capacitor, Monolithic Ceramic, 0.1 uF ±20%, 50V	003–1054	1
C221	Capacitor, Silvered Mica, 100 pF ±5%, 500V	040–1022	1
C222	Capacitor, Mylar, 0.1 uF ±10%, 100V	030–1053	1

TABLE 6-16. AUDIO OUTPUT CIRCUIT BOARD ASSEMBLY - 911-6004-001
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REF. DES.	DESCRIPTION	PART NO.	QTY.
C223	Capacitor, Electrolytic, 100 uF, 50V	020-1085	1
C224	Capacitor, Electrolytic, 10 uF, 35V	023-1075	1
C225	Capacitor, Silvered Mica, 100 pF ±5%, 500V	040-1022	1
C226	Capacitor, Monolithic Ceramic, 0.1 uF ±20%, 50V	003-1054	1
C227	Capacitor, Silvered Mica, 100 pF ±5%, 500V	040-1022	1
C228	Capacitor, Monolithic Ceramic, 0.1 uF ±20%, 50V	003-1054	1
C229	Capacitor, Mylar, 0.1 uF ±10%, 100V	030-1053	1
C230	Capacitor, Electrolytic, 100 uF, 50V	020-1085	1
C231	Capacitor, Electrolytic, 10 uF, 35V	023-1075	1
C232	Capacitor, Ceramic, 47 pF ±5%, 50V	003-4712	1
C233	Capacitor, Monolithic Ceramic, 0.1 uF ±20%, 50V	003-1054	1
C234	Capacitor, Ceramic, 47 pF ±5%, 50V	003-4712	1
C235	Capacitor, Monolithic Ceramic, 0.1 uF ±20%, 50V	003-1054	1
C236	Capacitor, Ceramic, 47 pF ±5%, 50V	003-4712	1
C237	Capacitor, Monolithic Ceramic, 0.1 uF ±20%, 50V	003-1054	1
C238	Capacitor, Electrolytic, 33 uF, 25V	020-3374	1
C239	Capacitor, Silvered Mica, 100 pF ±5%, 500V	040-1022	1
C240	Capacitor, Monolithic Ceramic, 0.1 uF ±20%, 50V	003-1054	1
C241	Capacitor, Ceramic, 47 pF ±5%, 50V	003-4712	1
C242 THRU C244	Capacitor, Monolithic Ceramic, 0.1 uF ±20%, 50V	003-1054	3
C245	Capacitor, Ceramic, 47 pF ±5%, 50V	003-4712	1
C246	Capacitor, Monolithic Ceramic, 0.1 uF ±20%, 50V	003-1054	1
C247	Capacitor, Ceramic, 47 pF ±5%, 50V	003-4712	1
C248	Capacitor, Electrolytic, 33 uF, 25V	020-3374	1
C249	Capacitor, Ceramic, 47 pF ±5%, 50V	003-4712	1
C250	Capacitor, Monolithic Ceramic, 0.1 uF ±20%, 50V	003-1054	1
C251,C252	Capacitor, Mica, 330 pF ±5%, 500V	040-3333	2
C253	Capacitor, Mylar Film, 0.047 uF ±10%, 100V	030-4743	1
C254,C255	Capacitor, Electrolytic, 100 uF, 25V	023-1084	2
C256	Capacitor, Monolithic Ceramic, 0.1 uF ±20%, 50V	003-1054	1
C257	Capacitor, Mylar, 0.01 uF ±10%, 100V	031-1043	1
C258,C259	Capacitor, Electrolytic, 47 uF, 16V	013-4750	2
C260,261	Capacitor, Monolithic Ceramic, 0.1 uF ±20%, 50V	003-1054	2
C262,C263	Capacitor, Electrolytic, 100 uF, 25V	023-1084	2
C264	Capacitor, Electrolytic, 330 uF, 25V, Non-Polarized	020-3385	1
C265	Capacitor, Electrolytic, 100 uF, 50V	020-1085	1
C266	Capacitor, Electrolytic, 330 uF, 25V, Non-Polarized	020-3385	1
C267 THRU C276	Capacitor, Electrolytic, 10 uF, 35V	023-1075	10
C277	Capacitor, Polyester, 0.0022 uF ±10%, 100V	031-2033	1
C278	Capacitor, Mica, 470 pF ±1%, 500V	040-4721	1
D1,D2	Diode, 1N4148, Silicon, 75V @ 0.3 Amperes	203-4148	2
D3 THRU D8	Diode, 1N4005, Silicon, 600V @ 1 Ampere	203-4005	6
D9 THRU D11	Diode, 1N4148, Silicon, 75V @ 0.3 Amperes	203-4148	3
D12,D13	Diode, 1N4005, Silicon, 600V @ 1 Ampere	203-4005	2
D14 THRU D25	Diode, 1N4148, Silicon, 75V @ 0.3 Amperes	203-4148	12
D26, D27 THRU D31	Diode, HP5082-2800, High Voltage, Schottky Barrier Type, 70V, 15 mA	201-2800	6
D32, D33	Diode, 1N5817, Schottky Barrier Type, 20V, 1 Ampere	200-0019	2

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REF. DES.	DESCRIPTION	PART NO.	QTY.
F1	Fuse, AGC, 1A, 250V, Slow-Blow (for 115 Volt operation)	334-0100	1
J1,J2	Connector, Housing, 15-Pin	417-0169	2
J3	Socket, 4-Pin	418-0255	1
J4 THRU J6	Receptacle, 6-Pin	417-0677	3
J7	Socket, 4-Pin	418-0255	1
J8 THRU J10	Receptacle, 6-Pin	417-0677	3
J11,J12	Connector Header, 40-Pin	417-0173	2
J13	Receptacle, Male, 8-Pin In-Line	417-0200	0.4
J14	Receptacle, 6-Pin	417-0677	1
J15	Receptacle, 12-Pin	417-1276	1
J16	Connector, Housing, 15-Pin	417-0169	1
J17,J18	Receptacle, Male, 13-Pin Dual In-Line	417-2600	2
J19	Socket, 4-Pin	418-0255	1
Q1 THRU Q3	Field Effect Transistor, J270, P-Channel JEFET, TO-92 Case	210-0270	3
Q4	Field Effect Transistor, J271, P-Channel JFET, TO-92 Case	210-0271	1
Q5,Q6	Transistor, MPS-A14, Silicon, NPN, Darlington, TO-92 Case	211-0014	2
Q7,Q8	Field Effect Transistor, J271, P-Channel JFET, TO-92 Case	210-0271	2
Q9	Transistor, 2N3904, NPN, Silicon, TO-92 Case	211-3904	1
Q10, Q11	Transistor, 2N7000, FET, N-Channel, TO-92 Case	210-7000	2
R1	Resistor, 10 k Ohm ±1%, 1/4W	100-1051	1
R2	Potentiometer, 2 k Ohm ±10%, 1/2W	177-2045	1
R3	Resistor, 10 k Ohm ±1%, 1/4W	100-1051	1
R4	Potentiometer, 2 k Ohm ±10%, 1/2W	177-2045	1
R5	Resistor, 10 k Ohm ±1%, 1/4W	100-1051	1
R6	Potentiometer, 2 k Ohm ±10%, 1/2W	177-2045	1
R7	Resistor, 10 k Ohm ±1%, 1/4W	100-1051	1
R8	Potentiometer, 2 k Ohm ±10%, 1/2W	177-2045	1
R9	Resistor, 10 k Ohm ±1%, 1/4W	100-1051	1
R10	Potentiometer, 2 k Ohm ±10%, 1/2W	177-2045	1
R11	Resistor, 2 k Ohm ±1%, 1/4W	100-2041	1
R12	Resistor, 100 k Ohm ±1%, 1/4W	103-1062	1
R13	Resistor, 20.0 k Ohm ±1%, 1/4W	103-2051	1
R14	Resistor, 8.66 k Ohm ±1%, 1/4W	100-8641	1
R15	Resistor, 10 k Ohm ±1%, 1/4W	100-1051	1
R16	Resistor, 30.1 Ohm ±1%, 1/4W	103-3011	1
R17	Resistor, 4.99 k Ohm ±1%, 1/4W	100-5041	1
R18	Resistor, 30.1 Ohm ±1%, 1/4W	103-3011	1
R19	Resistor, 4.99 k Ohm ±1%, 1/4W	100-5041	1
R20	Resistor, 475 k Ohm ±1%, 1/4W	103-4731	1
R21 THRU R23	Resistor, 100 k Ohm ±1%, 1/4W	103-1062	3
R24	Resistor, 1 k Ohm ±1%, 1/4W	100-1041	1
R25	Resistor, 10 k Ohm ±1%, 1/4W	100-1051	1
R26	Resistor, 4.87 k Ohm ±1%, 1/4W	103-4874	1
R27	Resistor, 511 k Ohm ±1%, 1/4W	103-5116	1
R28	Resistor, 51.1 Ohm ±1%, 1/4W	103-5112	1
R29	Potentiometer, 50 k Ohm ±10%, 1/2W	177-5054	1
R30	Resistor, 20.0 k Ohm ±1%, 1/4W	103-2051	1
R31,R32	Resistor, 30.1 Ohm ±1%, 1/4W	103-3011	2
R33,R34	Resistor, 2.87 k Ohm ±1%, 1/4W	103-2871	2

TABLE 6–16. AUDIO OUTPUT CIRCUIT BOARD ASSEMBLY – 911–6004–001
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REF. DES.	DESCRIPTION	PART NO.	QTY.
R35	Resistor, 2 k Ohm ±1%, 1/4W	100–2041	1
R36	Resistor, 100 k Ohm ±1%, 1/4W	103–1062	1
R37	Resistor, 8.66 k Ohm ±1%, 1/4W	100–8641	1
R38	Resistor, 20.0 k Ohm ±1%, 1/4W	103–2051	1
R39	Resistor, 1 k Ohm ±1%, 1/4W	100–1041	1
R40	Potentiometer, 50 k Ohm ±10%, 1/2W	177–5054	1
R41	Resistor, 10 k Ohm ±1%, 1/4W	100–1051	1
R42	Resistor, 4.87 k Ohm ±1%, 1/4W	103–4874	1
R43	Resistor, 511 k Ohm ±1%, 1/4W	103–5116	1
R44	Resistor, 51.1 Ohm ±1%, 1/4W	103–5112	1
R45	Resistor, 1 Meg Ohm ±1%, 1/4W	103–1007	1
R46	Resistor, 124 k Ohm ±1%, 1/4W	103–1246	1
R47	Resistor, 1.91 k Ohm ±1%, 1/4W	103–1914	1
R48	Resistor, 20.0 k Ohm ±1%, 1/4W	103–2051	1
R49,R50	Resistor, 30.1 Ohm ±1%, 1/4W	103–3011	2
R51	Resistor, 10 k Ohm ±1%, 1/4W	100–1051	1
R52	Potentiometer, 2 k Ohm ±10%, 1/2W	177–2045	1
R53	Resistor, 10 k Ohm ±1%, 1/4W	100–1051	1
R54	Potentiometer, 2 k Ohm ±10%, 1/2W	177–2045	1
R55	Resistor, 10 k Ohm ±1%, 1/4W	100–1051	1
R56	Potentiometer, 2 k Ohm ±10%, 1/2W	177–2045	1
R57	Resistor, 10 k Ohm ±1%, 1/4W	100–1051	1
R58	Potentiometer, 2 k Ohm ±10%, 1/2W	177–2045	1
R59	Resistor, 10 k Ohm ±1%, 1/4W	100–1051	1
R60	Potentiometer, 2 k Ohm ±10%, 1/2W	177–2045	1
R61	Resistor, 2 k Ohm ±1%, 1/4W	100–2041	1
R62	Resistor, 100 k Ohm ±1%, 1/4W	103–1062	1
R63	Resistor, 8.66 k Ohm ±1%, 1/4W	100–8641	1
R64	Resistor, 10 k Ohm ±1%, 1/4W	100–1051	1
R65	Resistor, 20.0 k Ohm ±1%, 1/4W	103–2051	1
R66,R67	Resistor, 4.99 k Ohm ±1%, 1/4W	100–5041	2
R68,R69	Resistor, 30.1 Ohm ±1%, 1/4W	103–3011	2
R70	Resistor, 1 k Ohm ±1%, 1/4W	100–1041	1
R71	Resistor, 10 k Ohm ±1%, 1/4W	100–1051	1
R72	Resistor, 4.87 k Ohm ±1%, 1/4W	103–4874	1
R73	Resistor, 511 k Ohm ±1%, 1/4W	103–5116	1
R74	Resistor, 51.1 Ohm ±1%, 1/4W	103–5112	1
R75	Potentiometer, 50 k Ohm ±10%, 1/2W	177–5054	1
R76	Resistor, 20.0 k Ohm ±1%, 1/4W	103–2051	1
R77	Resistor, 10 k Ohm ±1%, 1/4W	100–1051	1
R78	Resistor, 5.11 k Ohm ±1%, 1/4W	103–5141	1
R79	Resistor, 10 k Ohm ±1%, 1/4W	100–1051	1
R80,R81	Resistor, 30.1 Ohm ±1%, 1/4W	103–3011	2
R82,R83	Resistor, 2.87 k Ohm ±1%, 1/4W	103–2871	2
R84	Resistor, 100 k Ohm ±1%, 1/4W	103–1062	1
R85	Resistor, 2 k Ohm ±1%, 1/4W	100–2041	1

TABLE 6–16. AUDIO OUTPUT CIRCUIT BOARD ASSEMBLY – 911–6004–001
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REF. DES.	DESCRIPTION	PART NO.	QTY.
R86	Resistor, 8.66 k Ohm ±1%, 1/4W	100–8641	1
R87	Resistor, 20.0 k Ohm ±1%, 1/4W	103–2051	1
R88	Resistor, 1 k Ohm ±1%, 1/4W	100–1041	1
R89	Resistor, 10 k Ohm ±1%, 1/4W	100–1051	1
R90	Resistor, 4.87 k Ohm ±1%, 1/4W	103–4874	1
R91	Resistor, 511 k Ohm ±1%, 1/4W	103–5116	1
R92	Resistor, 51.1 Ohm ±1%, 1/4W	103–5112	1
R93	Potentiometer, 50 k Ohm ±10%, 1/2W	177–5054	1
R94	Resistor, 124 k Ohm ±1%, 1/4W	103–1246	1
R95	Resistor, 1 Meg Ohm ±1%, 1/4W	103–1007	1
R96	Resistor, 1.91 k Ohm ±1%, 1/4W	103–1914	1
R97	Resistor, 20.0 k Ohm ±1%, 1/4W	103–2051	1
R98	Resistor, 10 k Ohm ±1%, 1/4W	100–1051	1
R99	Resistor, 5.11 k Ohm ±1%, 1/4W	103–5141	1
R100	Resistor, 10 k Ohm ±1%, 1/4W	100–1051	1
R101,R102	Resistor, 30.1 Ohm ±1%, 1/4W	103–3011	2
R103	Resistor, 10 Ohm ±1%, 1/4W	100–1021	1
R104,R105	Resistor, 20.0 k Ohm ±1%, 1/4W	103–2051	2
R106,R107	Resistor, 10 k Ohm ±1%, 1/4W	100–1051	2
R108	Resistor, 5.11 k Ohm ±1%, 1/4W	103–5141	1
R109	Resistor, 100 k Ohm ±1%, 1/4W	103–1062	1
R110	Resistor, 475 k Ohm ±1%, 1/4W	103–4731	1
R111	Resistor, 100 k Ohm ±1%, 1/4W	103–1062	1
R112,R113	Resistor, 10 k Ohm ±1%, 1/4W	100–1051	2
R114	Resistor, 100 k Ohm ±1%, 1/4W	103–1062	1
R115,R116	Resistor, 909 Ohm ±1%, 1/4W	103–9031	2
R117	Resistor, 24.9 Ohm ±1%, 1/4W	103–2490	1
R118	Potentiometer, 1 k Ohm ±10%, 1/2W	175–1034	1
R119,R120	Resistor, 909 Ohm, ±1%, 1/4W	103–9031	2
R121	Resistor, 10 k Ohm ±1%, 1/4W	100–1051	1
R122	Resistor, 20.0 k Ohm ±1%, 1/4W	103–2051	1
R123	Resistor, 1 k Ohm ±1%, 1/4W	100–1041	1
R124	Potentiometer, 50 k Ohm ±10%, 1/2W	177–5054	1
R125	Resistor, 511 k Ohm ±1%, 1/4W	103–5116	1
R126	Resistor, 51.1 Ohm ±1%, 1/4W	103–5112	1
R127	Resistor, 10 k Ohm ±1%, 1/4W	100–1051	1
R128	Resistor, 4.87 k Ohm ±1%, 1/4W	103–4874	1
R129	Resistor, 20.0 k Ohm ±1%, 1/4W	103–2051	1
R130	Resistor, 5.11 k Ohm ±1%, 1/4W	103–5141	1
R131,R132	Resistor, 10 k Ohm ±1%, 1/4W	100–1051	2
R133,R134	Resistor, 30.1 Ohm ±1%, 1/4W	103–3011	2
R135	Resistor, 4.32 k Ohm ±1%, 1/4W	103–4324	1
R136	Resistor, 22.1 k Ohm ±1%, 1/4W	103–2211	1
R137	Resistor, 2.21 k Ohm ±1%, 1/4W	103–2241	1
R138	Resistor, 22.1 k Ohm ±1%, 1/4W	103–2211	1
R139	Resistor, 1 Ohm ±5%, 1/2W	110–1013	1

TABLE 6–16. AUDIO OUTPUT CIRCUIT BOARD ASSEMBLY – 911–6004–001
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REF. DES.	DESCRIPTION	PART NO.	QTY.
R140,R141	Resistor, 22.1 k Ohm ±1%, 1/4W	103–2211	2
R142	Resistor, 2.21 k Ohm ±1%, 1/4W	103–2241	1
R143	Resistor, 1 Ohm ±5%, 1/2W	110–1013	1
144	Resistor, 22.1 k Ohm ±1%, 1/4W	103–2211	1
R145	Resistor, 2.21 k Ohm ±1%, 1/4W	103–2241	1
R146	Resistor, 22.1 k Ohm ±1%, 1/4W	103–2211	1
R147	Resistor, 1 Ohm ±5%, 1/2W	110–1013	1
R148	Resistor, 221 Ohm ±1%, 1/4W	103–2213	1
R149	Resistor, 100 k Ohm ±1%, 1/4W	103–1062	1
R150	Resistor, 221 Ohm ±1%, 1/4W	103–2213	1
R151	Resistor, 1 Meg Ohm ±1%, 1/4W	103–1007	1
R152	Resistor, 124 k Ohm, 1/4W	103–1246	1
R153	Resistor, 1.91 k Ohm ±1%, 1/4W	103–1914	1
R154	Resistor, 432 k Ohm ±1%, 1/4W	103–4361	1
R155	Resistor, 100 Ohm ±1%, 1/4W	100–1031	1
R156	Resistor, 1 Meg Ohm ±1%, 1/4W	103–1007	1
R157	Resistor, 1 k Ohm ±1%, 1/4W	100–1041	1
R158	Resistor, 432 k Ohm ±1%, 1/4W	103–4361	1
R159	Resistor, 100 Ohm ±1%, 1/4W	100–1031	1
R160	Resistor, 1 Meg Ohm ±1%, 1/4W	103–1007	1
R161	Resistor, 1 k Ohm ±1%, 1/4W	100–1041	1
R162	Resistor, 5.62 k Ohm ±1%, 1/4W	103–5624	1
R163	Potentiometer, 5 k Ohm ±10%, 1/2W	177–5044	1
R164	Resistor, 1 k Ohm ±1%, 1/4W	100–1041	1
R165	Resistor, 100 k Ohm ±1%, 1/4W	103–1062	1
R166	Resistor, 1 Meg Ohm ±1%, 1/4W	103–1007	1
R167,R168	Resistor, 100 k Ohm ±1%, 1/4W	103–1062	2
R169	Resistor, 10 k Ohm ±1%, 1/4W	100–1051	1
R170	Resistor, 100 k Ohm ±1%, 1/4W	103–1062	1
R171	Resistor, 10 k Ohm ±1%, 1/4W	100–1051	1
R172	Resistor, 61.9 Ohm ±1%, 1/4W	103–6151	1
R173	Resistor, 100 k Ohm ±1%, 1/4W	103–1062	1
R174,R175	Resistor, 10 k Ohm ±1%, 1/4W	100–1051	2
R176	Resistor, 5.11 k Ohm ±1%, 1/4W	103–5141	1
R177,R178	Resistor, 10 k Ohm ±1%, 1/4W	100–1051	2
R179	Resistor, 5.11 k Ohm ±1%, 1/4W	103–5141	1
R180,R181	Resistor, 10 k Ohm ±1%, 1/4W	100–1051	2
R182	Resistor, 5.11 k Ohm ±1%, 1/4W	103–5141	1
R183	Resistor, 10 k Ohm ±1%, 1/4W	100–1051	1
R184	Resistor, 5.11 k Ohm ±1%, 1/4W	103–5141	1
R185	Resistor, 10 k Ohm ±1%, 1/4W	100–1051	1
R186	Resistor, 100 k Ohm ±1%, 1/4W	103–1062	1
R187	Resistor, 33.2 Ohm ±1%, 1/4W	103–3322	1
R188,R189	Resistor, 10 k Ohm ±1%, 1/4W	100–1051	2
R190	Resistor, 33.2 Ohm ±1%, 1/4W	103–3322	1
R191,R192	Resistor, 100 k Ohm ±1%, 1/4W	103–1062	2
R193	Resistor, 49.9 k Ohm ±1%, 1/4W	103–4951	1

TABLE 6–16. AUDIO OUTPUT CIRCUIT BOARD ASSEMBLY – 911–6004–001
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REF. DES.	DESCRIPTION	PART NO.	QTY.
R194,R195	Resistor, 100 k Ohm ±1%, 1/4W	103–1062	2
R196	Resistor, 49.9 k Ohm ±1%, 1/4W	103–4951	1
R197	Resistor, 100 k Ohm ±1%, 1/4W	103–1062	1
R198,R199	Resistor, 24.9 k Ohm ±1%, 1/4W	103–2495	2
R200	Potentiometer, 100 k Ohm ±10%, 1/2W	177–1064	1
R201,R202	Resistor, 24.9 k Ohm ±1%, 1/4W	103–2495	2
R203	Resistor, 1.82 k Ohm ±1%, 1/4W	100–1841	1
R204	Resistor, 3.65 k Ohm ±1%, 1/4W	100–3611	1
R205	Resistor, 8.25 k Ohm ±1%, 1/4W	103–8254	1
R206	Potentiometer, 5 k Ohm ±10%, 1/2W	177–5044	1
R207	Resistor, 82.5 Ohm ±1%, 1/4W	103–8251	1
R208	Resistor, 1 Meg Ohm ±1%, 1/4W	103–1007	1
R209	Resistor, 1.3 k Ohm ±1%, 1/4W	103–1304	1
R210,R211	Resistor, 10 k Ohm ±1%, 1/4W	100–1051	2
R212	Resistor, 5.11 k Ohm ±1%, 1/4W	103–5141	1
R213,R214	Resistor, 10 k Ohm ±1%, 1/4W	100–1051	2
R215	Resistor, 5.11 k Ohm ±1%, 1/4W	103–5141	1
R216,R217	Resistor, 10 k Ohm ±1%, 1/4W	100–1051	2
R218	Resistor, 5.11 k Ohm ±1%, 1/4W	103–5141	1
R219	Resistor, 10 k Ohm ±1%, 1/4W	100–1051	1
R220	Resistor, 5.11 k Ohm ±1%, 1/4W	103–5141	1
R221	Resistor, 10 k Ohm ±1%, 1/4W	100–1051	1
R222	Resistor, 100 k Ohm ±1%, 1/4W	103–1062	1
R223	Resistor, 33.2 Ohm ±1%, 1/4W	103–3322	1
R224,R225	Resistor, 10 k Ohm ±1%, 1/4W	100–1051	2
R226	Resistor, 33.2 Ohm ±1%, 1/4W	103–3322	1
R227,R228	Resistor, 100 k Ohm ±1%, 1/4W	103–1062	2
R229	Resistor, 49.9 k Ohm ±1%, 1/4W	103–4951	1
R230	Resistor, 100 k Ohm ±1%, 1/4W	103–1062	1
R231,R232	Resistor, 24.9 k Ohm ±1%, 1/4W	103–2495	2
R233	Potentiometer, 100 k Ohm ±10%, 1/2W	177–1064	1
R234	Resistor, 100 k Ohm ±1%, 1/4W	103–1062	1
R235	Resistor, 49.9 k Ohm ±1%, 1/4W	103–4951	1
R236	Resistor, 100 k Ohm ±1%, 1/4W	103–1062	1
R237,R238	Resistor, 24.9 k Ohm ±1%, 1/4W	103–2495	2
R239	Resistor, 1.82 k Ohm ±1%, 1/4W	100–1841	1
R240	Resistor, 3.65 k Ohm ±1%, 1/4W	100–3611	1
R241	Resistor, 8.25 k Ohm ±1%, 1/4W	103–8254	1
R242	Potentiometer, 5 k Ohm ±10%, 1/2W	177–5044	1
R243	Resistor, 82.5 Ohm ±1%, 1/4W	103–8251	1
R244	Resistor, 1 Meg Ohm ±1%, 1/4W	103–1007	1
R245	Resistor, 1.3 k Ohm +1%, 1/4W	103–1304	1
R246,R247	Resistor, 10 k Ohm ±1%, 1/4W	100–1051	2
R248	Resistor, 5.11 k Ohm ±1%, 1/4W	103–5141	1
R249,R250	Resistor, 10 k Ohm ±1%, 1/4W	100–1051	2
R251	Resistor, 5.11 k Ohm ±1%, 1/4W	103–5141	1
R252,R253	Resistor, 10 k Ohm ±1%, 1/4W	100–1051	2

TABLE 6–16. AUDIO OUTPUT CIRCUIT BOARD ASSEMBLY – 911–6004–001
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REF. DES.	DESCRIPTION	PART NO.	QTY.
R254	Resistor, 100 k Ohm ±1%, 1/4W	103–1062	1
R255	Resistor, 33.2 Ohm ±1%, 1/4W	103–3322	1
R256	Resistor, 10 k Ohm ±1%, 1/4W	100–1051	1
R257	Resistor, 5.11 k Ohm ±1%, 1/4W	103–5141	1
R258,R259	Resistor, 10 k Ohm ±1%, 1/4W	100–1051	2
R260	Resistor, 5.11 k Ohm ±1%, 1/4W	103–5141	1
R261	Resistor, 10 k Ohm ±1%, 1/4W	100–1051	1
R262	Resistor, 33.2 Ohm ±1%, 1/4W	103–3322	1
R263,R264	Resistor, 100 k Ohm ±1%, 1/4W	103–1062	2
R265	Resistor, 49.9 k Ohm ±1%, 1/4W	103–4951	1
R266,R267	Resistor, 100 k Ohm ±1%, 1/4W	103–1062	2
R268	Resistor, 49.9 k Ohm ±1%, 1/4W	103–4951	1
R269	Resistor, 100 k Ohm ±1%, 1/4W	103–1062	1
R270,R271	Resistor, 24.9 k Ohm ±1%, 1/4W	103–2495	2
R272	Potentiometer, 100 k Ohm ±10%, 1/2W	177–1064	1
R273,R274	Resistor, 24.9 k Ohm ±1%, 1/4W	103–2495	2
R275	Resistor, 1.82 k Ohm ±1%, 1/4W	100–1841	1
R276	Resistor, 3.65 k Ohm ±1%, 1/4W	100–3611	1
R277	Resistor, 8.25 k Ohm ±1%, 1/4W	103–8254	1
R278	Potentiometer, 5 k Ohm ±10%, 1/2W	177–5044	1
R279	Resistor, 82.5 Ohm ±1%, 1/4W	103–8251	1
R280	Resistor, 1 Meg Ohm ±1%, 1/4W	103–1007	1
R281	Resistor, 1.3 k Ohm ±1%, 1/4W	103–1304	1
R282,R283	Resistor, 10 k Ohm ±1%, 1/4W	100–1051	2
R284,R285	Resistor, 5.11 k Ohm ±1%, 1/4W	103–5141	2
R286 THRU R288	Resistor, 10 k Ohm ±1%, 1/4W	100–1051	3
R289	Resistor, 100 k Ohm ±1%, 1/4W	103–1062	1
R290	Resistor, 33.2 Ohm ±1%, 1/4W	103–3322	1
R291	Resistor, 10 k Ohm ±1%, 1/4W	100–1051	1
R292	Resistor, 5.11 k Ohm ±1%, 1/4W	103–5141	1
R293,R294	Resistor, 10 k Ohm ±1%, 1/4W	100–1051	2
R295	Resistor, 5.11 k Ohm ±1%, 1/4W	103–5141	1
R296	Resistor, 10 k Ohm ±1%, 1/4W	100–1051	1
R297	Resistor, 33.2 Ohm ±1%, 1/4W	103–3322	1
R298,R299	Resistor, 100 k Ohm ±1%, 1/4W	103–1062	2
R300	Resistor, 49.9 k Ohm ±1%, 1/4W	103–4951	1
R301,R302	Resistor, 24.9 k Ohm ±1%, 1/4W	103–2495	2
R303	Potentiometer, 100 k Ohm ±10%, 1/2W	177–1064	1
R304,R305	Resistor, 100 k Ohm ±1%, 1/4W	103–1062	2
R306	Resistor, 49.9 k Ohm ±1%, 1/4W	103–4951	1
R307	Resistor, 100 k Ohm ±1%, 1/4W	103–1062	1
R308,R309	Resistor, 24.9 k Ohm ±1%, 1/4W	103–2495	2
R310	Resistor, 1.82 k Ohm ±1%, 1/4W	100–1841	1
R311	Resistor, 3.65 k Ohm ±1%, 1/4W	100–3611	1
R312	Resistor, 8.25 k Ohm ±1%, 1/4W	103–8254	1
R313	Potentiometer, 5 k Ohm ±10%, 1/2W	177–5044	1

TABLE 6–16. AUDIO OUTPUT CIRCUIT BOARD ASSEMBLY – 911–6004–001
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REF. DES.	DESCRIPTION	PART NO.	QTY.
R314	Resistor, 82.5 Ohm ±1%, 1/4W	103–8251	1
R315	Resistor, 1 Meg Ohm ±1%, 1/4W	103–1007	1
R316	Resistor, 1.3 k Ohm ±1%, 1/4W	103–1304	1
R317 THRU R319	Resistor, 10 k Ohm ±1%, 1/4W	100–1051	3
R320,R321	Resistor, 5.11 k Ohm ±1%, 1/4W	103–5141	2
R322 THRU R324	Resistor, 10 k Ohm ±1%, 1/4W	100–1051	3
R325	Resistor, 100 k Ohm ±1%, 1/4W	103–1062	1
R326	Resistor, 33.2 Ohm ±1%, 1/4W	103–3322	1
R327R328	Resistor, 10 k Ohm ±1%, 1/4W	100–1051	2
R329	Resistor, 5.11 k Ohm ±1%, 1/4W	103–5141	1
R330 THRU R332	Resistor, 10 k Ohm ±1%, 1/4W	100–1051	3
R333	Resistor, 33.2 Ohm ±1%, 1/4W	103–3322	1
R334	Resistor, 100 k Ohm ±1%, 1/4W	103–1062	1
R335	Resistor, 1 Meg Ohm ±1%, 1/4W	103–1007	1
R336	Resistor, 5.11 k Ohm ±1%, 1/4W	103–5141	1
R337,R338	Resistor, 10 k Ohm ±1%, 1/4W	100–1051	2
R339,R340	Resistor, 5.11 k Ohm ±1%, 1/4W	103–5141	2
R341 THRU R343	Resistor, 10 k Ohm ±1%, 1/4W	100–1051	3
R344	Resistor, 100 k Ohm ±1%, 1/4W	103–1062	1
R345	Resistor, 33.2 Ohm ±1%, 1/4W	103–3322	1
R346	Resistor, 10 k Ohm ±1%, 1/4W	100–1051	1
R347	Resistor, 5.11 k Ohm ±1%, 1/4W	103–5141	1
R348 THRU R350	Resistor, 10 k Ohm ±1%, 1/4W	100–1051	3
R351	Resistor, 5.11 k Ohm ±1%, 1/4W	103–5141	1
R352	Resistor, 10 k Ohm ±1%, 1/4W	100–1051	1
R353	Resistor, 33.2 Ohm ±1%, 1/4W	103–3322	1
R354	Resistor, 100 k Ohm ±1%, 1/4W	103–1062	1
R355	Resistor, 1 Meg Ohm ±1%, 1/4W	103–1007	1
R356	Resistor, 10 k Ohm ±1%, 1/4W	100–1051	1
R357,R358	Resistor, 6.81 k Ohm ±1%, 1/4W	103–6814	2
359,R360	Resistor, 15 k Ohm ±5%, 1/4W	100–1551	2
R361	Resistor, 5.11 k Ohm ±1%, 1/4W	103–5141	1
R362	Resistor, 5.62 k Ohm ±1%, 1/4W	103–5624	1
R363	Potentiometer, 25K Ohm ±10%, 1/2W	177–2553	1
R364	Resistor, 2.05 k Ohm ±1%, 1/4W	103–2054	1
R365	Potentiometer, 25K Ohm ±10%, 1/2W	177–2553	1
R366	Resistor, 6.81 k Ohm ±1%, 1/4W	103–6814	1
R367	Resistor, 10 Ohm ±1%, 1/4W	103–1021	1
R368	Resistor, 6.81 k Ohm ±1%, 1/4W	103–6814	1
R369	Resistor, 15 k Ohm ±5%, 1/4W	100–1551	1
R370	Resistor, 5.11 k Ohm ±1%, 1/4W	103–5141	1
R371	Resistor, 5.62 k Ohm ±1%, 1/4W	103–5624	1
R372	Potentiometer, 25K Ohm ±10%, 1/2W	177–2553	1

TABLE 6–16. AUDIO OUTPUT CIRCUIT BOARD ASSEMBLY – 911–6004–001
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REF. DES.	DESCRIPTION	PART NO.	QTY.
R373	Resistor, 15 k Ohm ±5%, 1/4W	100–1551	1
R374	Resistor, 5.11 k Ohm ±1%, 1/4W	103–5141	1
R375,R376	Resistor, 6.81 k Ohm ±1%, 1/4W	103–6814	2
R377	Resistor, 15 k Ohm ±5%, 1/4W	100–1551	1
R378	Resistor, 5.62 k Ohm ±1%, 1/4W	103–5624	1
R379	Potentiometer, 25K Ohm ±10%, 1/2W	177–2553	1
R380	Resistor, 5.11 k Ohm ±1%, 1/4W	103–5141	1
R381	Resistor, 15 k Ohm ±5%, 1/4W	100–1551	1
R382	Resistor, 2.05 k Ohm ±1%, 1/4W	103–2054	1
R383	Potentiometer, 25K Ohm ±10%, 1/2W	177–2553	1
R384	Resistor, 5.11 k Ohm ±1%, 1/4W	103–5141	1
R385	Resistor, 6.81 k Ohm ±1%, 1/4W	103–6814	1
R386	Resistor,10 Ohm ±1%, 1/4W	103–1021	1
R387	Resistor, 6.81 k Ohm ±1%, 1/4W	103–6814	1
R388	Resistor, 15 k Ohm ±5%, 1/4W	100–1551	1
R389	Resistor, 5.62 k Ohm ±1%, 1/4W	103–5624	1
R390	Potentiometer, 25K Ohm ±10%, 1/2W	177–2553	1
R391	Resistor, 15 k Ohm ±1%, 1/4W	100–1551	1
R392	Resistor, 5.11 k Ohm ±1%, 1/4W	103–5141	1
R393	Resistor, 10 Ohm ±1%, 1/4W	103–1021	1
R394 THRU R396	Resistor, 10 k Ohm ±1%, 1/4W	100–1051	3
R397	Resistor, 2.05 k Ohm ±1%, 1/4W	103–2054	1
R398	Potentiometer, 25K Ohm ±10%, 1/2W	177–2553	1
R399	Resistor, 6.19 k Ohm ±1%, 1/4W	103–6194	1
R400,R401	Resistor, 10 k Ohm ±1%, 1/4W	100–1051	2
R402	Resistor, 5.11 k Ohm ±1%, 1/4W	103–5141	1
R403	Resistor, 10 k Ohm ±1%, 1/4W	100–1051	1
R404	Resistor, 5.11 k Ohm ±1%, 1/4W	103–5141	1
R405	Resistor, 10 k Ohm ±1%, 1/4W	100–1051	1
R406	Resistor, 5.11 k Ohm ±1%, 1/4W	103–5141	1
R407 THRU R409	Resistor, 10 k Ohm ±1%, 1/4W	100–1051	3
R412	Resistor, 33.2 Ohm ±1%, 1/4W	103–3322	1
R413,R414	Resistor, 10 k Ohm ±1%, 1/4W	100–1051	2
R415	Resistor, 33.2 Ohm ±1%, 1/4W	103–3322	1
R416	Resistor, 100 k Ohm ±1%, 1/4W	103–1062	1
R417	Resistor, 10 k Ohm ±1%, 1/4W	100–1051	1
R418	Resistor, 1 Meg Ohm ±1%, 1/4W	103–1007	1
R419,R420	Resistor, 10 Ohm ±1%, 1/4W	103–1021	2
R421,R422	Resistor, 1 k Ohm ±1%, 1/4W	100–1041	2
R423 THRU R426	Resistor, 200 Ohm ±1%, 1/4W	103–2003	4
R427	Resistor, 100 k Ohm ±1%, 1/4W	103–1062	1
R428,R430	Resistor, 10 Ohm ±5%, 2W	130–1023	2
R431	Resistor, 100 k Ohm ±1%, 1/4W	103–1062	1
R432 THRU R435	Resistor, 100 Ohm ±5%, 2W	132–1033	4

TABLE 6–16. AUDIO OUTPUT CIRCUIT BOARD ASSEMBLY – 911–6004–001
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REF. DES.	DESCRIPTION	PART NO.	QTY.
R437,R438	Resistor, 2.21 k Ohm ±1%, 1/4W	103–2241	2
R439	Resistor, 2.87 k Ohm ±1%, 1/4W	103–2871	1
R440	Resistor, 13 k Ohm ±1%, 1/4W	103–1305	1
R441	Resistor, 3.01 k Ohm ±1%, 1/4W	103–3014	1
R442,R443	Resistor, 2 Ohm ±1%, 5W	130–2011	2
U1	Integrated Circuit, MC14051, 8–Bit Analog Multiplexer, CMOS, 16–Pin DIP	220–4051	1
U2	Integrated Circuit, NE5532AP, Dual Low Noise Operational Amplifier, 8–Pin DIP	221–5532–001	1
U3	Integrated Circuit, LM837, Quad Input Operational Amplifier, 14–Pin DIP	221–0837	1
U4	Integrated Circuit, 2150A, Voltage Controlled Amplifier, 8–Pin DIP	220–2150	1
U5	Integrated Circuit, NE5532AP, Dual Low Noise Operational Amplifier, 8–Pin DIP	221–5532–001	1
U6	Integrated Circuit, MC14051, 8–Bit Analog Multiplexer, CMOS, 16–Pin DIP	220–4051	1
U7	Integrated Circuit, LM837, Quad Input Operational Amplifier, 14–Pin DIP	221–0837	1
U8	Integrated Circuit, 2150A, Voltage Controlled Amplifier, 8–Pin DIP	220–2150	1
U9	Integrated Circuit, TL072CP, Dual JFET–Input Operational Amplifier, 8–Pin DIP	221–0072	1
U10	Integrated Circuit, MC14051, 8–Bit Analog Multiplexer, CMOS, 16–Pin DIP	220–4051	1
U11	Integrated Circuit, 2150A, Voltage Controlled Amplifier, 8–Pin DIP	220–2150	1
U12	Integrated Circuit, TL072CP, Dual JFET–Input Operational Amplifier, 8–Pin DIP	221–0072	1
U13	Integrated Circuit, NE5532AP, Dual Low Noise Operational Amplifier, 8–Pin DIP	221–5532–001	1
U14	Integrated Circuit, MC14051, 8–Bit Analog Multiplexer, CMOS, 16–Pin DIP	220–4051	1
U15	Integrated Circuit, 2150A, Voltage Controlled Amplifier, 8–Pin DIP	220–2150	1
U16 THRU U18	Integrated Circuit, NE5532AP, Dual Low Noise Operational Amplifier, 8–Pin DIP	221–5532–001	3
U19	Integrated Circuit, 2150A, Voltage Controlled Amplifier, 8–Pin DIP	220–2150	1
U20	Integrated Circuit, NE5532AP, Dual Low Noise Operational Amplifier, 8–Pin DIP	221–5532–001	1
R410	Resistor, 5.11 k Ohm +1%, 1/4W	103–5141	1
R411	Resistor, 100 k Ohm ±1%, 1/4W	103–1062	1
U21 THRU U23	Integrated Circuit, LM185, Audio Power Amplifier, 20W Output, TO5B Package	220–1875	3
U24	Integrated Circuit, NE5532AP, Dual Low Noise Operational Amplifier, 8–Pin DIP	221–5532–001	1
U25	Integrated Circuit, TLO74CN, Quad JFET–Input Operational Amplifier, 14–Pin DIP	221–0074	1
U26	Integrated Circuit, NE5532AP, Dual Low Noise Operational Amplifier, 8–Pin DIP	221–5532–001	1
U27	Integrated Circuit, TLO74CN, Quad JFET–Input Operational Amplifier, 14–Pin DIP	221–0074	1
U28	Integrated Circuit, NE5532AP, Dual Low Noise Operational Amplifier, 8–Pin DIP	221–5532–001	1
U29	Integrated Circuit, TLO74CN, Quad JFET–Input Operational Amplifier, 14–Pin DIP	221–0074	1
U30	Integrated Circuit, NE5532AP, Dual Low Noise Operational Amplifier, 8–Pin DIP	221–5532–001	1

TABLE 6–16. AUDIO OUTPUT CIRCUIT BOARD ASSEMBLY – 911–6004–001
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REF. DES.	DESCRIPTION	PART NO.	QTY.
U31	Integrated Circuit, TLO74CN, Quad JFET–Input Operational Amplifier, 14–Pin DIP	221–0074	1
U32	Integrated Circuit, NE5532AP, Dual Low Noise Operational Amplifier, 8–Pin DIP	221–5532–001	1
U33	Integrated Circuit, TL072CP, Dual JFET–Input Operational Amplifier, 8–Pin DIP	221–0072	1
U34	Integrated Circuit, NE5532AP, Dual Low Noise Operational Amplifier, 8–Pin DIP	221–5532–001	1
U35	Integrated Circuit, TL072CP, Dual JFET–Input Operational Amplifier, 8–Pin DIP	221–0072	1
U36	Integrated Circuit, NE5532AP, Dual Low Noise Operational Amplifier, 8–Pin DIP	221–5532–001	1
U37,U38	Integrated Circuit, 4N33, Optical Isolator, NPN Photo Transistor/Infared Emitting Diode Type, 1500V Isolation, Response: 30 kHz Maximum, Current: 50 mA Maximum, 6–Pin DIP	229–0033	2
U39 THRU U43	Integrated Circuit, NE5532AP, Dual Low Noise Operational Amplifier, 8–Pin DIP	221–5532–001	5
U44	Integrated Circuit, TL072CP, Dual JFET–Input Operational Amplifier, 8–Pin DIP	221–0072	1
U45	Integrated Circuit, NE5532AP, Dual Low Noise Operational Amplifier, 8–Pin DIP	221–5532–001	1
XF1	Fuse Clips, AGC	415–2068	1
XU1	Socket, 16–Pin DIP	417–1604	1
XU2	Socket, 8–Pin DIP	417–0804	1
XU3	Socket, 14–Pin DIP	417–1404	1
XU5	Socket, 8–Pin DIP	417–0804	1
XU6	Socket, 16–Pin DIP	417–1604	1
XU7	Socket, 14–Pin DIP	417–1404	1
XU9	Socket, 8–Pin DIP	417–0804	1
XU10	Socket, 16–Pin DIP	417–1604	1
XU12,XU13	Socket, 8–Pin DIP	417–0804	2
XU14	Socket, 16–Pin DIP	417–1604	1
XU16 THRU XU18, XU20, XU24	Socket, 8–Pin DIP	417–0804	5
XU25	Socket, 14–Pin DIP	417–1404	1
XU26	Socket, 8–Pin DIP	417–0804	1
XU27	Socket, 14–Pin DIP	417–1404	1
XU28	Socket, 8–Pin DIP	417–0804	1
XU29	Socket, 14–Pin DIP	417–1404	1
XU30	Socket, 8–Pin DIP	417–0804	1
XU31	Socket, 14–Pin DIP	417–1404	1
XU32 THRU XU36	Socket, 8–Pin DIP	417–0804	5
XU37,XU38	Socket, 6–Pin DIP	417–0600	2
XU39 THRU XU45	Socket, 8–Pin DIP	417–0804	7

TABLE 6–17. 6 CHANNEL AUDIO INPUT CIRCUIT BOARD ASSEMBLY – 911–6008
(Sheet 1 of 16)

REF. DES.	DESCRIPTION	PART NO.	QTY.
C1 THRU C4	Capacitor, Electrolytic, 100 uF, 50V	020–1083	4
C100 THRU C111	Capacitor, Mica, 330 pF ±5%, 500V	040–3333	12

TABLE 6–17. 6 CHANNEL AUDIO INPUT CIRCUIT BOARD ASSEMBLY – 911–6008
(Sheet 2 of 16)

REF. DES.	DESCRIPTION	PART NO.	QTY.
C112 THRU C123	Capacitor, Electrolytic, 10 uF, 35V, Non–Polarized	023–1075	12
C126, C127	Capacitor, Monolithic Ceramic, 0.1 uF ±20%, 50V	003–1054	6
C131 THRU C134			
C138, C139	Capacitor, Electrolytic, 33uF, 25V, Non–Polarized	020–3374	2
C140	Capacitor, Monolithic Ceramic, 0.1 uF ±20%, 50V	003–1054	1
C141	Capacitor, Electrolytic, 10 uF, 35V, Non–Polarized	023–1075	1
C142	Capacitor, Monolithic Ceramic, 0.1 uF ±20%, 50V	003–1054	1
C143, C144	Capacitor, Electrolytic, 33uF, 25V Non–Polarized	020–3374	2
C147, C148	Capacitor, Ceramic, 33pF, ±5%, 50V	003–3312	2
C149	Capacitor, Electrolytic, 33uF, 25V, Non–Polarized	020–3374	1
C150	Capacitor, Ceramic, 68pF ±5%, 50V	003–6812	1
C151	Capacitor, Electrolytic, 10 uF, 35V, Non–Polarized	023–1075	1
C152	Capacitor, Electrolytic, 33uF, 25V, Non–Polarized	020–3374	1
C153, C154	Capacitor, Monolithic Ceramic, 0.1 uF ±20%, 50V	003–1054	2
C155	Capacitor, Electrolytic, 10uF, 35V Non–Polarized	023–1075	1
C156, C157	Capacitor, Monolithic Ceramic, 0.1 uF ±20%, 50V	003–1054	2
C158	Capacitor, Ceramic, 68pF ±5%, 50V	003–6812	1
C159 THRU C162	Capacitor, Mica, 330 pF±5%, 500V	040–3333	4
C163 THRU C165	Capacitor, Monolithic Ceramic, 0.1 uF ±20%, 50V	003–1054	3
C166, C167	Capacitor, Mica, 82pF ±5%, 500V	042–8212	2
C200 THRU C211	Capacitor, Mica, 330 pF ±5%, 500V	040–3333	12
C212 THRU C223	Capacitor, Electrolytic, 10 uF, 35V, Non–Polarized	023–1075	12
C226,C227	Capacitor, Monolithic Ceramic, 0.1 uF ±20%, 50V	003–1054	2
C231 THRU C234	Capacitor, Monolithic Ceramic, 0.1 uF ±20%, 50V	003–1054	4
C238, C239	Capacitor, Electrolytic, 33uF, 25V, Non–Polarized	020–3374	2
C240	Capacitor, Monolithic Ceramic, 0.1 uF ±20%, 50V	003–1054	1
C241	Capacitor, Electrolytic, 10 uF, 35V, Non–Polarized	023–1075	1
C242	Capacitor, Monolithic Ceramic, 0.1 uF ±20%, 50V	003–1054	1
C243, C244	Capacitor, Electrolytic, 33uF, 25V, Non–Polarized	020–3374	2
C246	Capacitor, Monolithic Ceramic, 0.1 uF ±20%, 50V	003–1054	1
C247, C248	Capacitor, Ceramic, 33pF, ±5%, 50V	003–3312	2
C249	Capacitor, Electrolytic, 33uF, 25V, Non–Polarized	020–3374	1
C250	Capacitor, Ceramic, 68pF ±5%, 50V	003–6812	1
C251	Capacitor, Electrolytic, 10 uF, 35V, Non–Polarized	023–1075	1
C252	Capacitor, Electrolytic, 33uF, 25V, Non–Polarized	020–3374	1
C253, C254	Capacitor, Monolithic Ceramic, 0.1 uF ±20%, 50V	003–1054	2
C255	Capacitor, Electrolytic, 10uF, Non–Polarized	023–1075	1

TABLE 6–17. AUDIO INPUT CIRCUIT BOARD ASSEMBLY – 911–6008
(Sheet 3 of 16)

REF. DES.	DESCRIPTION	PART NO.	QTY.
C258	Capacitor, Ceramic, 68pF ±5%, 50V	003–6812	1
C259 THRU C262	Capacitor, Mica, 330 pF ±5%, 500V	040–3333	4
C263 THRU C265	Capacitor, Monolithic Ceramic, 0.1 uF ±20%, 50V	003–1054	3
C266, C267	Capacitor, Mica, 82pF ±5%, 500V	042–8212	2
C300 THRU C311	Capacitor, Mica, 330 pF ±5%, 500V	040–3333	12
C312 THRU C323	Capacitor, Electrolytic, 10 uF, 35V, Non–Polarized	023–1075	12
C326 THRU C334	Capacitor, Monolithic Ceramic, 0.1 uF ±20%, 50V	003–1054	6
C338, C339	Capacitor, Electrolytic, 33uF, 25V, Non–Polarized	020–3374	2
C340	Capacitor, Monolithic Ceramic, 0.1 uF ±20%, 50V	003–1054	1
C341	Capacitor, Electrolytic, 10 uF, 35V, Non–Polarized	023–1075	1
C342	Capacitor, Monolithic Ceramic, 0.1 uF ±20%, 50V	003–1054	1
C343, C344	Capacitor, Electrolytic, 33uF, 25V, Non–Polarized	020–3374	2
C347, C348	Capacitor, Ceramic, 33pF, ±5%, 50V	003–3312	2
C349	Capacitor, Electrolytic, 33uF, 25V, Non–Polarized	020–3374	1
C350	Capacitor, Ceramic, 68pF ±5%, 50V	003–6812	1
C351	Capacitor, Electrolytic, 10 uF, 35V, Non–Polarized	023–1075	1
C352	Capacitor, Electrolytic, 33uF, 25V, Non–Polarized	020–3374	1
C353, C354	Capacitor, Monolithic Ceramic, 0.1 uF ±20%, 50V	003–1054	2
C355	Capacitor, Electrolytic, 10uF, Non–Polarized	023–1075	1
C356, C357	Capacitor, Monolithic Ceramic, 0.1 uF ±20%, 50V	003–1054	2
C358	Capacitor, Ceramic, 68pF ±5%, 50V	003–6812	1
C359 THRU C362	Capacitor, Mica, 330 pF ±5%, 500V	040–3333	4
C363 THRU C365	Capacitor, Monolithic Ceramic, 0.1 uF ±20%, 50V	003–1054	3
C366, C367	Capacitor, Mica, 82pF ±5%, 500V	042–8212	2
C400 THRU C411	Capacitor, Mica, 330 pF ±5%, 500V	040–3333	12
C412 THRU C423	Capacitor, Electrolytic, 10 uF, 35V, Non–Polarized	023–1075	12
C426, C427	Capacitor, Monolithic Ceramic, 0.1 uF ±20%, 50V	003–1054	2
C431 THRU C434	Capacitor, Monolithic Ceramic, 0.1 uF ±20%, 50V	003–1054	4
C438, C439	Capacitor, Electrolytic, 33uF, 25V, Non–Polarized	020–3374	2
C440	Capacitor, Monolithic Ceramic, 0.1 uF ±20%, 50V	003–1054	1
C441	Capacitor, Electrolytic, 10 uF, 35V, Non–Polarized	023–1075	1
C442	Capacitor, Monolithic Ceramic, 0.1 uF ±20%, 50V	003–1054	1

TABLE 6–17. 6 CHANNEL AUDIO INPUT CIRCUIT BOARD ASSEMBLY – 911–6008
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REF. DES.	DESCRIPTION	PART NO.	QTY.
C443, C444	Capacitor, Electrolytic, 33uF, 25V, Non–Polarized	020–3374	2
C446	Capacitor, Monolithic Ceramic, 0.1 uF ±20%, 50V	003–1054	1
C447, C448	Capacitor, Ceramic, 33pF, ±5%, 50V	003–3312	2
C449	Capacitor, Electrolytic, 33uF, 25V, Non–Polarized	020–3374	1
C450	Capacitor, Ceramic, 68pF ±5%, 50V	003–6812	1
C451	Capacitor, Electrolytic, 10 uF, 35V, Non–Polarized	023–1075	1
C452	Capacitor, Electrolytic, 33uF, 25V, Non–Polarized	020–3374	1
C453, C454	Capacitor, Monolithic Ceramic, 0.1 uF ±20%, 50V	003–1054	2
C455	Capacitor, Electrolytic, 10uF, Non–Polarized	023–1075	1
C456	Capacitor, Monolithic Ceramic, 0.1 uF ±20%, 50V	003–1054	1
C458	Capacitor, Ceramic, 68pF ±5%, 50V	003–6812	1
C459 THRU C462	Capacitor, Mica, 330 pF ±5%, 500V	040–3333	4
C463 THRU C465	Capacitor, Monolithic Ceramic, 0.1 uF ±20%, 50V	003–1054	3
C466, C467	Capacitor, Mica, 82pF ±5%, 500V	042–8212	2
C500 THRU C511	Capacitor, Mica, 330 pF ±5%, 500V	040–3333	12
C512 THRU C523	Capacitor, Electrolytic, 10 uF, 35V, Non–Polarized	023–1075	12
C526, C527	Capacitor, Monolithic Ceramic, 0.1 uF ±20%, 50V	003–1054	2
C531 THRU C534	Capacitor, Monolithic Ceramic, 0.1 uF ±20%, 50V	003–1054	4
C538, C539	Capacitor, Electrolytic, 33uF, 25V, Non–Polarized	020–3374	2
C540	Capacitor, Monolithic Ceramic, 0.1 uF ±20%, 50V	003–1054	1
C541	Capacitor, Electrolytic, 10 uF, 35V, Non–Polarized	023–1075	1
C542	Capacitor, Monolithic Ceramic, 0.1 uF ±20%, 50V	003–1054	1
C543, C544	Capacitor, Electrolytic, 33uF, 25V, Non–Polarized	020–3374	2
C547, C548	Capacitor, Ceramic, 33pF, ±5%, 50V	003–3312	2
C549	Capacitor, Electrolytic, 33uF, 25V, Non–Polarized	020–3374	1
C550	Capacitor, Ceramic, 68pF ±5%, 50V	003–6812	1
C551	Capacitor, Electrolytic, 10 uF, 35V, Non–Polarized	023–1075	1
C552	Capacitor, Electrolytic, 33uF, 25V, Non–Polarized	020–3374	1
C553, C554	Capacitor, Monolithic Ceramic, 0.1 uF ±20%, 50V	003–1054	2
C555	Capacitor, Electrolytic, 10uF, Non–Polarized	023–1075	1
C556, C557	Capacitor, Monolithic Ceramic, 0.1 uF ±20%, 50V	003–1054	2
C558	Capacitor, Ceramic, 68pF ±5%, 50V	003–6812	1
C559 THRU C562	Capacitor, Mica, 330 pF ±5%, 500V	040–3333	4
C563 THRU C565	Capacitor, Monolithic Ceramic, 0.1 uF ±20%, 50V	003–1054	3
C566, C567	Capacitor, Mica, 82pF ±5%, 500V	042–8212	2
C600 THRU C611	Capacitor, Mica, 330 pF ±5%, 500V	040–3333	12
C612 THRU C623	Capacitor, Electrolytic, 10 uF, 35V, Non–Polarized	023–1075	12
C626, C627	Capacitor, Monolithic Ceramic, 0.1 uF ±20%, 50V	003–1054	2
C631 THRU C634	Capacitor, Monolithic Ceramic, 0.1 uF ±20%, 50V	003–1054	4
C638, C639	Capacitor, Electrolytic, 33uF, 25V, Non–Polarized	020–3374	2
C640	Capacitor, Monolithic Ceramic, 0.1 uF ±20%, 50V	003–1054	1
C641	Capacitor, Electrolytic, 10 uF, 35V, Non–Polarized	023–1075	1
C642	Capacitor, Monolithic Ceramic, 0.1 uF ±20%, 50V	003–1054	1
C643, C644	Capacitor, Electrolytic, 33uF, 25V, Non–Polarized	020–3374	2
C646	Capacitor, Monolithic Ceramic, 0.1 uF ±20%, 50V	003–1054	1

TABLE 6–17. 6 CHANNEL AUDIO INPUT CIRCUIT BOARD ASSEMBLY – 911–6008
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REF. DES.	DESCRIPTION	PART NO.	QTY.
C647, C648	Capacitor, Ceramic, 33pF, ±5%, 50V	003–3312	2
C649	Capacitor, Electrolytic, 33uF, 25V, Non–Polarized	020–3374	1
C650	Capacitor, Ceramic, 68pF ±5%, 50V	003–6812	1
C651	Capacitor, Electrolytic, 10 uF, 35V, Non–Polarized	023–1075	1
C652	Capacitor, Electrolytic, 33uF, 25V, Non–Polarized	020–3374	1
C653, C654	Capacitor, Monolithic Ceramic, 0.1 uF ±20%, 50V	003–1054	2
C655	Capacitor, Electrolytic, 10uF, Non–Polarized	023–1075	1
C656	Capacitor, Monolithic Ceramic, 0.1 uF ±20%, 50V	003–1054	1
C658	Capacitor, Ceramic, 68pF ±5%, 50V	003–6812	1
C659, THRU C662	Capacitor, Mica, 330 pF ±5%, 500V	040–3333	4
C663 THRU C665	Capacitor, Monolithic Ceramic, 0.1 uF ±20%, 50V	003–1054	3
C666, C667	Capacitor, Mica, 82pF ±5%, 500V	042–8212	2
D100 THRU D103	Diode, 1N4148, Silicon, 75V @ 0.3 Amperes	203–4148	4
D200 THRU D203	Diode, 1N4148, Silicon, 75V @ 0.3 Amperes	203–4148	4
D300 THRU D303	Diode, 1N4148, Silicon, 75V @ 0.3 Amperes	203–4148	4
D400 THRU D403	Diode, 1N4148, Silicon, 75V @ 0.3 Amperes	203–4148	4
D500 THRU D503	Diode, 1N4148, Silicon, 75V @ 0.3 Amperes	203–4148	4
D600 THRU D603	Diode, 1N4148, Silicon, 75V @ 0.3 Amperes	203–4148	4
J1 THRU J4	Receptacle, Male, 13–Pin Dual In–Line	417–2600	4
J100	Connector, Male, 20–Pin, PCB Mount	417–0230	1
J101 THRU J103	Connector Header, 36–Pin, Dual In–Line	417–0231	3
J104, J105	Receptacle, 6–Pin	417–0677	2
J106	Connector Header, 36–Pin, Dual In–Line	417–0231	1
J107 THRU	Receptacle, Male, 3–Pin In–line	417–0003	3
J109 J200	Connector, Male, 20–Pin, PCB Mount	417–0230	1
J201 THRU J203	Connector Header, 36–Pin, Dual In–Line	417–0231	3
J204, J205	Receptacle, 6–Pin	417–0677	2
J206	Connector Header, 36–Pin, Dual In–Line	417–0231	1
J207 THRU J209	Receptacle, Male, 3–Pin In–line	417–0003	3
J300	Connector, Male, 20–Pin, PCB Mount	417–0230	1
J301 THRU J303	Connector Header, 36–Pin, Dual In–Line	417–0231	3
J304, J305	Receptacle, 6–Pin	417–0677	2
J306	Connector Header, 36–Pin, Dual In–Line	417–0231	1
J307 THRU J309	Receptacle, Male, 3–Pin In–line	417–0003	3
J400	Connector, Male, 20–Pin, PCB Mount	417–0230	1
J401 THRU J403	Connector Header, 36–Pin, Dual In–Line	417–0231	3
J404, J405	Receptacle, 6–Pin	417–0677	2
J406	Connector Header, 36–Pin, Dual In–Line	417–0231	1
J407 THRU J409	Receptacle, Male, 3–Pin In–line	417–0003	3
J500	Connector, Male, 20–Pin, PCB Mount	417–0230	1
J501 THRU J503	Connector Header, 36–Pin, Dual In–Line	417–0231	3
J504	Receptacle, 6–Pin	417–0677	1
J506	Connector Header, 36–Pin, Dual In–Line	417–0231	1

TABLE 6–17. 6 CHANNEL AUDIO INPUT CIRCUIT BOARD ASSEMBLY – 911–6008
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REF. DES.	DESCRIPTION	PART NO.	QTY.
J507 THRU J509	Receptacle, Male, 3–Pin In–line	417–0003	3
J600	Connector, Male, 20–Pin, PCB Mount	417–0230	1
J601 THRU J603	Connector Header, 36–Pin, Dual In–Line	417–0231	3
J605	Receptacle, 6–Pin	417–0677	1
J606	Connector Header, 36–Pin, Dual In–Line	417–0231	1
J607 THRU J609	Receptacle, Male, 3–Pin In–line	417–0003	3
J505.J604	Receptacle, 6–Pin	417–0677	1
P100, P101, P105, P106, P110 THRU P112	Jumper, Programmable, 2–Pin	340–0004	7
P200, P201 P205, P206 P210 THRU P212	Jumper, Programmable, 2–Pin	340–0004	7
P300, P301 P305, P306 P310 THRU P312	Jumper, Programmable, 2–Pin	340–0004	7
P400, P401 P405, P406 P410 THRU P412	Jumper, Programmable, 2–Pin	340–0004	7
P500, P501 P505, P506 P510 THRU P512	Jumper, Programmable, 2–Pin	340–0004	7
P600, P601 P605, P606 P610 THRU P612	Jumper, Programmable, 2–Pin	340–0004	7
Q100, Q101	Field Effect Transistor, J271, P–Channel JFET, TO–92 Case	210–0271	2
Q102	Transistor, 2N3904, NPN, Silicon, TO–92 Case	211–3904	1
Q200, Q201	Field Effect Transistor, J271, P–Channel JFET, TO–92 Case	210–0271	2
Q202	Transistor, 2N3904, NPN, Silicon, TO–92 Case	211–3904	1
Q300, Q301	Field Effect Transistor, J271, P–Channel JFET, TO–92 Case	210–0271	2
Q302	Transistor, 2N3904, NPN, Silicon, TO–92 Case	211–3904	1
Q400, Q401	Field Effect Transistor, J271, P–Channel JFET, TO–92 Case	210–0271	2
Q402	Transistor, 2N3904, NPN, Silicon, TO–92 Case	211–3904	1
Q500, Q501	Field Effect Transistor, J271, P–Channel JFET, TO–92 Case	210–0271	2
Q502	Transistor, 2N3904, NPN, Silicon, TO–92 Case	211–3904	1
Q600, Q601	Field Effect Transistor, J271, P–Channel JFET, TO–92 Case	210–0271	2
Q602	Transistor, 2N3904, NPN, Silicon, TO–92 Case	211–3904	1
R100	Resistor Network, 4–20K Ohm ±0.1% Resistors, 8–Pin Dip	226–2010	1
R101	Resistor Network, 8–20K Ohm ±0.1% Resistors, 16–Pin Dip	226–2011	1
R102	Resistor, 2.49 k Ohm ±1%, 1/4W	103–2494	1
R103, R104	Resistor Network, 7–6.8K Ohm, 1% Resistors, 8–Pin Single In–Line Package	226–6800	2
R105	Resistor, 127 Ohm ±1%, 1/4W	103–1273	1
R106	Resistor, 24.9 Ohm ±1%, 1/4W	103–2490	1
R107	Resistor, 2.49 k Ohm ±1%, 1/4W	103–2494	1
R110	Resistor, 127 Ohm ±1%, 1/4W	103–1273	1
R111	Resistor, 24.9 Ohm ±1%, 1/4W	103–2490	1
R112, R115	Resistor, 2.49 k Ohm ±1%, 1/4W	103–2494	2
R118	Resistor, 127 Ohm ±1%, 1/4W	103–1273	1
R119	Resistor, 24.9 Ohm ±1%, 1/4W	103–2490	1
R120	Resistor, 2.49 k Ohm ±1%, 1/4W	103–2494	1
R123	Resistor, 127 Ohm ±1%, 1/4W	103–1273	1

TABLE 6–17. 6 CHANNEL AUDIO INPUT CIRCUIT BOARD ASSEMBLY – 911–6008
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REF. DES.	DESCRIPTION	PART NO.	QTY.
R124	Resistor, 24.9 Ohm ±1%, 1/4W	103–2490	1
R125	Resistor, 2.49 k Ohm ±1%, 1/4W	103–2494	1
R128	Resistor, 10 Ohm ±1%, 1/4W	103–1021	1
R129	Resistor, 845 Ohm ±1%, 1/4W	103–8453	1
R130, R131	Resistor, 5.11 k Ohm ±1%, 1/4W	103–5141	2
R132	Resistor, 49.9 k Ohm ±1%, 1/4W	103–4951	1
R133	Resistor, 33.2 k Ohm ±1%, 1/4W	103–3325	1
R134	Resistor, 49.9 k Ohm ±1%, 1/4W	103–4951	1
R135	Resistor, 12.4 k Ohm ±1%, 1/4W	103–1245	1
R136	Resistor, 10 Ohm ±1%, 1/4W	103–1021	1
R137	Resistor, 845 Ohm ±1%, 1/4W	103–8453	1
R141	Resistor, 121 Ohm ±5%, 1/4W	100–1231	1
R142	Resistor, 100 k Ohm ±1%, 1/4W	103–1062	1
R144	Resistor, 226 k Ohm, ±1%, 1/4W	103–2276	1
R145	Resistor, 1 k Ohm ±1%, 1/4W	103–1041	1
R146	Resistor, 19.1 k Ohm ±1%, 1/4W	103–1915	1
R147	Resistor, 20.0 k Ohm ±1%, 1/4W	103–2051	1
R148	Resistor, 1 k Ohm ±1%, 1/4W	103–1041	1
R150	Resistor, 121 Ohm ±5%, 1/4W	100–1231	1
R151	Resistor, 100 k Ohm ±1%, 1/4W	103–1062	1
R153	Potentiometer, 50 k Ohm 10%, 1/2W	177–5054	1
R154	Resistor, 511K Ohm ±1%, 1/4W	103–5116	1
R155	Resistor, 51.1 Ohm ±1%, 1/4W	103–5112	1
R156	Resistor, 20.0 k Ohm ±1%, 1/4W	103–2051	1
R157	Resistor, 30.1 k Ohm ±1%, 1/4W	100–3051	1
R158	Resistor, 4.87 k Ohm ±1%, 1/4W	103–4874	1
R159	Resistor, 10 k Ohm ±1%, 1/4W	100–1051	1
R160, R161	Resistor, 20.0 k Ohm ±1%, 1/4W	103–2051	2
R162	Potentiometer, 50 k Ohm ±10%, 1/2W	177–5054	1
R163	Resistor, 511K Ohm ±1%, 1/4W	103–5116	1
R164	Resistor, 51.1 Ohm ±1%, 1/4W	103–5112	1
R165	Resistor, 20.0 k Ohm ±1%, 1/4W	103–2051	1
R166	Resistor, 30.1 k Ohm ±1%, 1/4W	100–3051	1
R167	Resistor, 10 k Ohm ±1%, 1/4W	100–1051	1
R168	Resistor, 4.87 k Ohm ±1%, 1/4W	103–4874	1
R169	Resistor, 20.0 k Ohm ±1%, 1/4W	103–2051	1
R170 THRU R173	Resistor, 100 k Ohm ±1%, 1/4W	103–1062	4
R174	Resistor, 10k Ohm ±1%, 1/4W	100–1051	1
R175	Resistor, 100 k Ohm ±1%, 1/4W	103–1062	1
R176	Resistor, 20.0 k Ohm ±1%, 1/4W	103–2051	1
R177	Resistor, 100 k Ohm ±1%, 1/4W	103–1062	1
R178 THRU R181	Resistor, 3.40 k Ohm, ±1%, 1/4W	103–3404	4
R182	Resistor, 10 k Ohm ±1%, 1/4W	100–1051	1
R183	Resistor, 100 k Ohm ±1%, 1/4W	103–1062	1
R184, R185	Resistor, 10 k Ohm ±1%, 1/4W	100–1051	2
R186, R187	Resistor, 100 k Ohm ±1%, 1/4W	103–1062	2
R188 THRU R191	Resistor, 3.40 k Ohm, ±1%, 1/4W	103–3404	4
R192, R193	Resistor, 100 k Ohm ±1%, 1/4W	103–1062	2
R194, R195	Potentiometer, 20 k Ohm ±10%, 1/2W	176–2011	2
R196, R197	Potentiometer, 20 Ohm ±10%, 1/2W	176–2010	2
R198	Resistor, 100 k Ohm ±1%, 1/4W	103–1062	1
R199	Resistor, 1 Meg Ohm ±1%, 1/4W	103–1007	1
R200	Resistor Network, 4–20K Ohm ±0.1% Resistors, 8–Pin Dip	226–2010	1

TABLE 6–17. 6 CHANNEL AUDIO INPUT CIRCUIT BOARD ASSEMBLY – 911–6008
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REF. DES.	DESCRIPTION	PART NO.	QTY.
R201	Resistor Network, 8–20K Ohm ±0.1% Resistors, 16–Pin Dip	226–2011	1
R202	Resistor, 2.49 k Ohm ±1%, 1/4W	103–2494	1
R203, R204	Resistor Network, 7–6.8K Ohm, 1% Resistors, 8–Pin Single In–Line Package	226–6800	2
R205	Resistor, 127 Ohm ±1%, 1/4W	103–1273	1
R206	Resistor, 24.9 Ohm ±1%, 1/4W	103–2490	1
R207	Resistor, 2.49 k Ohm ±1%, 1/4W	103–2494	1
R210	Resistor, 127 Ohm ±1%, 1/4W	103–1273	1
R211	Resistor, 24.9 Ohm ±1%, 1/4W	103–2490	1
R212, R215	Resistor, 2.49 k Ohm ±1%, 1/4W	103–2494	2
R215			
R218	Resistor, 127 Ohm ±1%, 1/4W	103–1273	1
R219	Resistor, 24.9 Ohm ±1%, 1/4W	103–2490	1
R220	Resistor, 2.49 k Ohm ±1%, 1/4W	103–2494	1
R223	Resistor, 127 Ohm ±1%, 1/4W	103–1273	1
R224	Resistor, 24.9 Ohm ±1%, 1/4W	103–2490	1
R225	Resistor, 2.49 k Ohm ±1%, 1/4W	103–2494	1
R228	Resistor, 10 Ohm ±1%, 1/4W	103–1021	1
R229	Resistor, 845 Ohm ±1%, 1/4W	103–8453	1
R230, R231	Resistor, 5.11 k Ohm ±1%, 1/4W	103–5141	2
R232	Resistor, 49.9 k Ohm ±1%, 1/4W	103–4951	1
R233	Resistor, 33.2 k Ohm ±1, 1/4W	103–3325	1
R234	Resistor, 49.9 k Ohm ±1%, 1/4W	103–4951	1
R235	Resistor, 12.4 k Ohm ±1%, 1/4W	103–1245	1
R236	Resistor, 10 Ohm ±1%, 1/4W	103–1021	1
R237	Resistor, 845 Ohm ±1%, 1/4W	103–8453	1
R241	Resistor, 121 Ohm ±5%, 1/4W	100–1231	1
R242	Resistor, 100 k Ohm ±1%, 1/4W	103–1062	1
R244	Resistor, 226 k Ohm, ±1%, 1/4W	103–2276	1
R245	Resistor, 1 k Ohm ±1%, 1/4W	103–1041	1
R246	Resistor, 19.1 k Ohm +1%, 1/4W	103–1915	1
R247	Resistor, 20.0 k Ohm +1%, 1/4W	103–2051	1
R248	Resistor, 1 k Ohm +1%, 1/4W	103–1041	1
R250	Resistor, 121 Ohm +5%, 1/4W	100–1231	1
R251	Resistor, 100 k Ohm ±1%, 1/4W	103–1062	1
R253	Potentiometer, 50 k Ohm ±10%, 1/2W	177–5054	1
R254	Resistor, 511K Ohm ±1%, 1/4W	103–5116	1
R255	Resistor, 51.1 Ohm ±1%, 1/4W	103–5112	1
R256	Resistor, 20.0 k Ohm ±1%, 1/4W	103–2051	1
R257	Resistor, 30.1 k Ohm ±1%, 1/4W	100–3051	1
R258	Resistor, 4.87 k Ohm ±1%, 1/4W	103–4874	1
R259	Resistor, 10 k Ohm ±1%, 1/4W	100–1051	1
R260, R261	Resistor, 20.0 k Ohm ±1%, 1/4W	103–2051	2
R262	Potentiometer, 50 k Ohm ±10%, 1/2W	177–5054	1
R263	Resistor, 511K Ohm ±1%, 1/4W	103–5116	1
R264	Resistor, 51.1 Ohm ±1%, 1/4W	103–5112	1
R265	Resistor, 20.0 k Ohm ±1%, 1/4W	103–2051	1
R266	Resistor, 30.1 k Ohm ±1%, 1/4W	100–3051	1
R267	Resistor, 10 k Ohm ±1%, 1/4W	100–1051	1
R268	Resistor, 4.87 k Ohm ±1%, 1/4W	103–4874	1
R269	Resistor, 20.0 k Ohm ±1%, 1/4W	103–2051	1
R270 THRU	Resistor, 100 k Ohm ±1%, 1/4W	103–1062	4
R273			
R274	Resistor, 10 k Ohm ±1%, 1/4W	100–1051	1
R275	Resistor, 100 k Ohm ±1%, 1/4W	103–1062	1
R276	Resistor, 20.0 k Ohm ±1%, 1/4W	103–2051	1
R277	Resistor, 100 k Ohm ±1%, 1/4W	103–1062	1

TABLE 6–17. 6 CHANNEL AUDIO INPUT CIRCUIT BOARD ASSEMBLY – 911–6008
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REF. DES.	DESCRIPTION	PART NO.	QTY.
R278 THRU R281	Resistor, 3.40 k Ohm, ±1%, 1/4W	103–3404	4
R282	Resistor, 10 k Ohm ±1%, 1/4W	100–1051	1
R283	Resistor, 100 k Ohm ±1%, 1/4W	103–1062	1
R284, R285	Resistor, 10 k Ohm ±1%, 1/4W	100–1051	2
R286, R287	Resistor, 100 k Ohm ±1%, 1/4W	103–1062	2
R288 THRU R291	Resistor, 3.40 k Ohm, ±1%, 1/4W	103–3404	4
R292, R293	Resistor, 100 k Ohm ±1%, 1/4W	103–1062	2
R294, R295	Potentiometer, 20 k Ohm ±10%, 1/2W	176–2011	2
R296, R297	Potentiometer, 20 Ohm ±10%, 1/2W	176–2010	2
R298	Resistor, 100 k Ohm ±1%, 1/4W	103–1062	1
R299	Resistor, 1 Meg Ohm ±1%, 1/4W	103–1007	1
R300	Resistor Network, 4–20K Ohm ±0.1% Resistors, 8–Pin Dip	226–2010	1
R301	Resistor Network, 8–20K Ohm ±0.1% Resistors, 16–Pin Dip	226–2011	1
R302	Resistor, 2.49 k Ohm ±1%, 1/4W	103–2494	1
R303, R304	Resistor Network, 7–6.8K Ohm, ±1% Resistors, 8–Pin Single In–Line Package	226–6800	2
R305	Resistor, 127 Ohm ±1%, 1/4W	103–1273	1
R306	Resistor, 24.9 Ohm ±1%, 1/4W	103–2490	1
R307	Resistor, 2.49 k Ohm ±1%, 1/4W	103–2494	1
R310	Resistor, 127 Ohm ±1%, 1/4W	103–1273	1
R311	Resistor, 24.9 Ohm ±1%, 1/4W	103–2490	1
R312	Resistor, 2.49 k Ohm ±1%, 1/4W	103–2494	1
R315	Resistor, 2.49 k Ohm ±1%, 1/4W	103–2494	1
R318	Resistor, 127 Ohm ±1%, 1/4W	103–1273	1
R319	Resistor, 24.9 Ohm ±1%, 1/4W	103–2490	1
R320	Resistor, 2.49 k Ohm ±1%, 1/4W	103–2494	1
R323	Resistor, 127 Ohm ±1%, 1/4W	103–1273	1
R324	Resistor, 24.9 Ohm ±1%, 1/4W	103–2490	1
R325	Resistor, 2.49 k Ohm ±1%, 1/4W	103–2494	1
R328	Resistor, 10 Ohm ±1%, 1/4W	103–1021	1
R329	Resistor, 845 Ohm ±1%, 1/4W	103–8453	1
R330, R331	Resistor, 5.11 k Ohm ±1%, 1/4W	103–5141	2
R332	Resistor, 49.9 k Ohm ±1%, 1/4W	103–4951	1
R333	Resistor, 33.2 k Ohm ±1, 1/4W	103–3325	1
R334	Resistor, 49.9 k Ohm ±1%, 1/4W	103–4951	1
R335	Resistor, 12.4 k Ohm ±1%, 1/4W	103–1245	1
R336	Resistor, 10 Ohm ±1%, 1/4W	103–1021	1
R337	Resistor, 845 Ohm ±1%, 1/4W	103–8453	1
R341	Resistor, 121 Ohm ±5%, 1/4W	100–1231	1
R342	Resistor, 100 k Ohm ±1%, 1/4W	103–1062	1
R344	Resistor, 226 k Ohm, ±1%, 1/4W	103–2276	1
R345	Resistor, 1 k Ohm ±1%, 1/4W	103–1041	1
R346	Resistor, 19.1 k Ohm ±1%, 1/4W	103–1915	1
R347	Resistor, 20.0 k Ohm ±1%, 1/4W	103–2051	1
R348	Resistor, 1 k Ohm ±1%, 1/4W	103–1041	1
R350	Resistor, 121 Ohm ±5%, 1/4W	100–1231	1
R351	Resistor, 100 k Ohm ±1%, 1/4W	103–1062	1
R353	Potentiometer, 50 k Ohm ±10%, 1/2W	177–5054	1
R354	Resistor, 511K Ohm ±1%, 1/4W	103–5116	1

TABLE 6–17. 6 CHANNEL AUDIO INPUT CIRCUIT BOARD ASSEMBLY – 911–6008
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REF. DES.	DESCRIPTION	PART NO.	QTY.
R369	Resistor, 20.0 k Ohm ±1%, 1/4W	103–2051	1
R370 THRU R373	Resistor, 100 k Ohm ±1%, 1/4W	103–1062	4
R374	Resistor, 10 k Ohm ±1%, 1/4W	100–1051	1
R375	Resistor, 100 k Ohm ±1%, 1/4W	103–1062	1
R376	Resistor, 20.0 k Ohm ±1%, 1/4W	103–2051	1
R377	Resistor, 100 k Ohm ±1%, 1/4W	103–1062	1
R378 THRU R381	Resistor, 3.40 k Ohm, ±1%, 1/4W	103–3404	4
R382	Resistor, 10 k Ohm ±1%, 1/4W	100–1051	1
R383	Resistor, 100 k Ohm ±1%, 1/4W	103–1062	1
R384	Resistor, 10 k Ohm ±1%, 1/4W	100–1051	1
R385	Resistor, 10 k Ohm ±1%, 1/4W	100–1051	1
R386	Resistor, 100 k Ohm ±1%, 1/4W	103–1062	1
R387	Resistor, 100 k Ohm ±1%, 1/4W	103–1062	1
R388 THRU R391	Resistor, 3.40 k Ohm, ±1%, 1/4W	103–3404	4
R392, R393	Resistor, 100 k Ohm ±1%, 1/4W	103–1062	2
R394, R395	Potentiometer, 20 k Ohm ±10%, 1/2W	176–2011	2
R396, R397	Potentiometer, 20 Ohm ±10%, 1/2W	176–2010	2
R398	Resistor, 100 k Ohm ±1%, 1/4W	103–1062	1
R399	Resistor, 1 Meg Ohm ±1%, 1/4W	103–1007	1
R400	Resistor Network, 4–20K Ohm ±0.1% Resistors, 8–Pin Dip	226–2010	1
R401	Resistor Network, 8–20K Ohm ±0.1% Resistors, 16–Pin Dip	226–2011	1
R402	Resistor, 2.49 k Ohm ±1%, 1/4W	103–2494	1
R403, R404	Resistor Network, 7–6.8K Ohm, ±1% Resistors, 8–Pin Single In–Line Package	226–6800	2
R405	Resistor, 127 Ohm ±1%, 1/4W	103–1273	1
R406	Resistor, 24.9 Ohm ±1%, 1/4W	103–2490	1
R407	Resistor, 2.49 k Ohm ±1%, 1/4W	103–2494	1
R410	Resistor, 127 Ohm ±1%, 1/4W	103–1273	1
R411	Resistor, 24.9 Ohm ±1%, 1/4W	103–2490	1
R412	Resistor, 2.49 k Ohm ±1%, 1/4W	103–2494	1
R415	Resistor, 2.49 k Ohm ±1%, 1/4W	103–2494	1
R418	Resistor, 127 Ohm ±1%, 1/4W	103–1273	1
R419	Resistor, 24.9 Ohm ±1%, 1/4W	103–2490	1
R420	Resistor, 2.49 k Ohm ±1%, 1/4W	103–2494	1
R423	Resistor, 127 Ohm ±1%, 1/4W	103–1273	1
R424	Resistor, 24.9 Ohm ±1%, 1/4W	103–2490	1
R425	Resistor, 2.49 k Ohm ±1%, 1/4W	103–2494	1
R428	Resistor, 10 Ohm ±1%, 1/4W	103–1021	1
R429	Resistor, 845 Ohm ±1%, 1/4W	103–8453	1
R430, R431	Resistor, 5.11 k Ohm ±1%, 1/4W	103–5141	2
R432	Resistor, 49.9 k Ohm ±1%, 1/4W	103–4951	1
R433	Resistor, 33.2 k Ohm ±1, 1/4W	103–3325	1
R434	Resistor, 49.9 k Ohm ±1%, 1/4W	103–4951	1
R435	Resistor, 12.4 k Ohm ±1%, 1/4W	103–1245	1
R436	Resistor, 10 Ohm ±1%, 1/4W	103–1021	1
R437	Resistor, 845 Ohm ±1%, 1/4W	103–8453	1
R441	Resistor, 121 Ohm ±5%, 1/4W	100–1231	1
R442	Resistor, 100 k Ohm ±1%, 1/4W	103–1062	1

TABLE 6–17. 6 CHANNEL AUDIO INPUT CIRCUIT BOARD ASSEMBLY – 911–6008
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REF. DES.	DESCRIPTION	PART NO.	QTY.
R444	Resistor, 226 k Ohm, ±1%, 1/4W	103–2276	1
R445	Resistor, 1 k Ohm ±1%, 1/4W	103–1041	1
R446	Resistor, 19.1 k Ohm ±1%, 1/4W	103–1915	1
R447	Resistor, 20.0 k Ohm ±1%, 1/4W	103–2051	1
R448	Resistor, 1 k Ohm ±1%, 1/4W	103–1041	1
R450	Resistor, 121 Ohm ±5%, 1/4W	100–1231	1
R451	Resistor, 100 k Ohm ±1%, 1/4W	103–1062	1
R453	Potentiometer, 50 k Ohm ±10%, 1/2W	177–5054	1
R355	Resistor, 51.1 Ohm ±1%, 1/4W	103–5112	1
R356	Resistor, 20.0 k Ohm ±1%, 1/4W	103–2051	1
R357	Resistor, 30.1 k Ohm ±1%, 1/4W	100–3051	1
R358	Resistor, 4.87 k Ohm ±1%, 1/4W	103–4874	1
R359	Resistor, 10 k Ohm ±1%, 1/4W	100–1051	1
R360, R361	Resistor, 20.0 k Ohm ±1%, 1/4W	103–2051	2
R362	Potentiometer, 50 k Ohm ±10%, 1/2W	177–5054	1
R363	Resistor, 511K Ohm ±1%, 1/4W	103–5116	1
R364	Resistor, 51.1 Ohm ±1%, 1/4W	103–5112	1
R365	Resistor, 20.0 k Ohm ±1%, 1/4W	103–2051	1
R366	Resistor, 30.1 k Ohm ±1%, 1/4W	100–3051	1
R367	Resistor, 10 k Ohm ±1%, 1/4W	100–1051	1
R368	Resistor, 4.87 k Ohm ±1%, 1/4W	103–4874	1
R454	Resistor, 511K Ohm ±1%, 1/4W	103–5116	1
R455	Resistor, 51.1 Ohm ±1%, 1/4W	103–5112	1
R456	Resistor, 20.0 k Ohm ±1%, 1/4W	103–2051	1
R457	Resistor, 30.1 k Ohm ±1%, 1/4W	100–3051	1
R458	Resistor, 4.87 k Ohm ±1%, 1/4W	103–4874	1
R459	Resistor, 10 k Ohm ±1%, 1/4W	100–1051	1
R460	Resistor, 20.0 k Ohm ±1%, 1/4W	103–2051	1
R461	Resistor, 20.0 k Ohm ±1%, 1/4W	103–2051	1
R462	Potentiometer, 50 k Ohm ±10%, 1/2W	177–5054	1
R463	Resistor, 511K Ohm ±1%, 1/4W	103–5116	1
R464	Resistor, 51.1 Ohm ±1%, 1/4W	103–5112	1
R465	Resistor, 20.0 k Ohm ±1%, 1/4W	103–2051	1
R466	Resistor, 30.1 k Ohm ±1%, 1/4W	100–3051	1
R467	Resistor, 10 k Ohm ±1%, 1/4W	100–1051	1
R468	Resistor, 4.87 k Ohm ±1%, 1/4W	103–4874	1
R469	Resistor, 20.0 k Ohm ±1%, 1/4W	103–2051	1
R470 THRU R473	Resistor, 100 k Ohm ±1%, 1/4W	103–1062	4
R474	Resistor, 10 k Ohm ±1%, 1/4W	100–1051	1
R475	Resistor, 100 k Ohm ±1%, 1/4W	103–1062	1
R476	Resistor, 20.0 k Ohm ±1%, 1/4W	103–2051	1
R477	Resistor, 100 k Ohm ±1%, 1/4W	103–1062	1
R478 THRU R481	Resistor, 3.40 k Ohm, ±1%, 1/4W	103–3404	4
R482	Resistor, 10 k Ohm ±1%, 1/4W	100–1051	1
R483	Resistor, 100 k Ohm ±1%, 1/4W	103–1062	1
R484, R485	Resistor, 10 k Ohm ±1%, 1/4W	100–1051	2
R486, R487	Resistor, 100 k Ohm ±1%, 1/4W	103–1062	2

TABLE 6–17. 6 CHANNEL AUDIO INPUT CIRCUIT BOARD ASSEMBLY – 911–6008
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REF. DES.	DESCRIPTION	PART NO.	QTY.
R488 THRU R491	Resistor, 3.40 k Ohm, ±1%, 1/4W	103–3404	4
R492, R493	Resistor, 100 k Ohm ±1%, 1/4W	103–1062	2
R494, R495	Potentiometer, 20 k Ohm ±10%, 1/2W	176–2011	2
R496, R497	Potentiometer, 20 Ohm ±10%, 1/2W	176–2010	2
R498	Resistor, 100 k Ohm ±1%, 1/4W	103–1062	1
R499	Resistor, 1 Meg Ohm ±1%, 1/4W	103–1007	1
R500	Resistor Network, 4–20K Ohm ±0.1% Resistors, 8–Pin Dip	226–2010	1
R501	Resistor Network, 8–20K Ohm ±0.1% Resistors, 16–Pin Dip	226–2011	1
R502	Resistor, 2.49 k Ohm ±1%, 1/4W	103–2494	1
R503, R504	Resistor Network, 7–6.8K Ohm, ±1% Resistors, 8–Pin Single In–Line Package	226–6800	2
R505	Resistor, 127 Ohm ±1%, 1/4W	103–1273	1
R506	Resistor, 24.9 Ohm ±1%, 1/4W	103–2490	1
R507	Resistor, 2.49 k Ohm ±1%, 1/4W	103–2494	1
R510	Resistor, 127 Ohm ±1%, 1/4W	103–1273	1
R511	Resistor, 24.9 Ohm ±1%, 1/4W	103–2490	1
R512	Resistor, 2.49 k Ohm ±1%, 1/4W	103–2494	1
R515	Resistor, 2.49 k Ohm ±1%, 1/4W	103–2494	1
R518	Resistor, 127 Ohm ±1%, 1/4W	103–1273	1
R519	Resistor, 24.9 Ohm ±1%, 1/4W	103–2490	1
R520	Resistor, 2.49 k Ohm ±1%, 1/4W	103–2494	1
R523	Resistor, 127 Ohm ±1%, 1/4W	103–1273	1
R524	Resistor, 24.9 Ohm ±1%, 1/4W	103–2490	1
R525	Resistor, 2.49 k Ohm ±1%, 1/4W	103–2494	1
R528	Resistor, 10 Ohm ±1%, 1/4W	103–1021	1
R529	Resistor, 845 Ohm ±1%, 1/4W	103–8453	1
R530, R531	Resistor, 5.11 k Ohm ±1%, 1/4W	103–5141	2
R532	Resistor, 49.9 k Ohm ±1%, 1/4W	103–4951	1
R533	Resistor, 33.2 k Ohm ±1, 1/4W	103–3325	1
R534	Resistor, 49.9 k Ohm ±1%, 1/4W	103–4951	1
R535	Resistor, 12.4 k Ohm ±1%, 1/4W	103–1245	1
R536	Resistor, 10 Ohm ±1%, 1/4W	103–1021	1
R537	Resistor, 845 Ohm ±1%, 1/4W	103–8453	1
R541	Resistor, 121 Ohm ±5%, 1/4W	100–1231	1
R542	Resistor, 100 k Ohm ±1%, 1/4W	103–1062	1
R544	Resistor, 226 k Ohm, ±1%, 1/4W	103–2276	1
R545	Resistor, 1 k Ohm ±1%, 1/4W	103–1041	1
R546	Resistor, 19.1 k Ohm ±1%, 1/4W	103–1915	1
R547	Resistor, 20.0 k Ohm ±1%, 1/4W	103–2051	1
R548	Resistor, 1 k Ohm ±1%, 1/4W	103–1041	1
R550	Resistor, 121 Ohm ±5%, 1/4W	100–1231	1
R551	Resistor, 100 k Ohm ±1%, 1/4W	103–1062	1
R553	Potentiometer, 50 k Ohm ±10%, 1/2W	177–5054	1
R554	Resistor, 511K Ohm ±1%, 1/4W	103–5116	1
R555	Resistor, 51.1 Ohm ±1%, 1/4W	103–5112	1
R556	Resistor, 20.0 k Ohm ±1%, 1/4W	103–2051	1
R557	Resistor, 30.1 k Ohm ±1%, 1/4W	100–3051	1

TABLE 6–17. 6 CHANNEL AUDIO INPUT CIRCUIT BOARD ASSEMBLY – 911–6008
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REF. DES.	DESCRIPTION	PART NO.	QTY.
R558	Resistor, 4.87 k Ohm ±1%, 1/4W	103–4874	1
R559	Resistor, 10 k Ohm ±1%, 1/4W	100–1051	1
R560, R561	Resistor, 20.0 k Ohm ±1%, 1/4W	103–2051	2
R562	Potentiometer, 50 k Ohm ±10%, 1/2W	177–5054	1
R563	Resistor, 511K Ohm ±1%, 1/4W	103–5116	1
R564	Resistor, 51.1 Ohm ±1%, 1/4W	103–5112	1
R565	Resistor, 20.0 k Ohm ±1%, 1/4W	103–2051	1
R566	Resistor, 30.1 k Ohm ±1%, 1/4W	100–3051	1
R567	Resistor, 10 k Ohm ±1%, 1/4W	100–1051	1
R568	Resistor, 4.87 k Ohm ±1%, 1/4W	103–4874	1
R569	Resistor, 20.0 k Ohm ±1%, 1/4W	103–2051	1
R570 THRU R573	Resistor, 100 k Ohm ±1%, 1/4W	103–1062	4
R574	Resistor, 10 k Ohm ±1%, 1/4W	100–1051	1
R575	Resistor, 100 k Ohm ±1%, 1/4W	103–1062	1
R576	Resistor, 20.0 k Ohm ±1%, 1/4W	103–2051	1
R577	Resistor, 100 k Ohm ±1%, 1/4W	103–1062	1
R578 THRU R581	Resistor, 3.40 k Ohm ±1%, 1/4W	103–3404	4
R582	Resistor, 10 k Ohm ±1%, 1/4W	100–1051	1
R583	Resistor, 100 k Ohm ±1%, 1/4W	103–1062	1
R584, R585	Resistor, 10 k Ohm ±1%, 1/4W	100–1051	2
R586, R587	Resistor, 100 k Ohm ±1%, 1/4W	103–1062	2
R588 THRU R591	Resistor, 3.40 k Ohm, ±1%, 1/4W	103–3404	4
R592, R593	Resistor, 100 k Ohm ±1%, 1/4W	103–1062	2
R594, R595	Potentiometer, 20 k Ohm ±10%, 1/2W	176–2011	2
R596, R597	Potentiometer, 20 Ohm ±10%, 1/2W	176–2010	2
R598	Resistor, 100 k Ohm ±1%, 1/4W	103–1062	1
R599	Resistor, 1 Meg Ohm ±1%, 1/4W	103–1007	1
R600	Resistor Network, 4–20K Ohm ±0.1% Resistors, 8–Pin Dip	226–2010	1
R601	Resistor Network, 8–20K Ohm ±0.1% Resistors, 16–Pin Dip	226–2011	1
R602	Resistor, 2.49 k Ohm ±1%, 1/4W	103–2494	1
R603, R604	Resistor Network, 7–6.8K Ohm, ±1% Resistors, 8–Pin Single In–Line Package	226–6800	2
R605	Resistor, 127 Ohm ±1%, 1/4W	103–1273	1
R606	Resistor, 24.9 Ohm ±1%, 1/4W	103–2490	1
R607	Resistor, 2.49 k Ohm ±1%, 1/4W	103–2494	1
R610	Resistor, 127 Ohm ±1%, 1/4W	103–1273	1
R611	Resistor, 24.9 Ohm ±1%, 1/4W	103–2490	1
R612	Resistor, 2.49 k Ohm ±1%, 1/4W	103–2494	1
R615	Resistor, 2.49 k Ohm ±1%, 1/4W	103–2494	1
R618	Resistor, 127 Ohm ±1%, 1/4W	103–1273	1
R619	Resistor, 24.9 Ohm ±1%, 1/4W	103–2490	1
R620	Resistor, 2.49 k Ohm ±1%, 1/4W	103–2494	1
R623	Resistor, 127 Ohm ±1%, 1/4W	103–1273	1
R624	Resistor, 24.9 Ohm ±1%, 1/4W	103–2490	1
R625	Resistor, 2.49 k Ohm ±1%, 1/4W	103–2494	1
R628	Resistor, 10 Ohm ±1%, 1/4W	103–1021	1
R629	Resistor, 845 Ohm ±1%, 1/4W	103–8453	1
R630, R631	Resistor, 5.11 k Ohm ±1%, 1/4W	103–5141	2
R632	Resistor, 49.9 k Ohm ±1%, 1/4W	103–4951	1

TABLE 6–17. 6 CHANNEL AUDIO INPUT CIRCUIT BOARD ASSEMBLY – 911–6008
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REF. DES.	DESCRIPTION	PART NO.	QTY.
R633	Resistor, 33.2 k Ohm ±1%, 1/4W	103–3325	1
R634	Resistor, 49.9 k Ohm ±1%, 1/4W	103–4951	1
R635	Resistor, 12.4 k Ohm ±1%, 1/4W	103–1245	1
R636	Resistor, 10 Ohm ±1%, 1/4W	103–1021	1
R637	Resistor, 845 Ohm ±1%, 1/4W	103–8453	1
R641	Resistor, 121 Ohm ±5%, 1/4W	100–1231	1
R642	Resistor, 100 k Ohm ±1%, 1/4W	103–1062	1
R644	Resistor, 226 k Ohm, ±1%, 1/4W	103–2276	1
R645	Resistor, 1 k Ohm ±1%, 1/4W	103–1041	1
R646	Resistor, 19.1 k Ohm ±1%, 1/4W	103–1915	1
R647	Resistor, 20.0 k Ohm ±1%, 1/4W	103–2051	1
R648	Resistor, 1 k Ohm ±1%, 1/4W	103–1041	1
R650	Resistor, 121 Ohm ±5%, 1/4W	100–1231	1
R651	Resistor, 100 k Ohm ±1%, 1/4W	103–1062	1
R653	Potentiometer, 50 k Ohm ±10%, 1/2W	177–5054	1
R654	Resistor, 511K Ohm ±1%, 1/4W	103–5116	1
R655	Resistor, 51.1 Ohm ±1%, 1/4W	103–5112	1
R656	Resistor, 20.0 k Ohm ±1%, 1/4W	103–2051	1
R657	Resistor, 30.1 k Ohm ±1%, 1/4W	100–3051	1
R658	Resistor, 4.87 k Ohm ±1%, 1/4W	103–4874	1
R659	Resistor, 10 k Ohm ±1%, 1/4W	100–1051	1
R660, R661	Resistor, 20.0 k Ohm ±1%, 1/4W	103–2051	2
R662	Potentiometer, 50 k Ohm ±10%, 1/2W	177–5054	1
R663	Resistor, 511K Ohm ±1%, 1/4W	103–5116	1
R664	Resistor, 51.1 Ohm ±1%, 1/4W	103–5112	1
R665	Resistor, 20.0 k Ohm ±1%, 1/4W	103–2051	1
R666	Resistor, 30.1 k Ohm ±1%, 1/4W	100–3051	1
R667	Resistor, 10 k Ohm ±1%, 1/4W	100–1051	1
R668	Resistor, 4.87 k Ohm ±1%, 1/4W	103–4874	1
R669	Resistor, 20.0 k Ohm ±1%, 1/4W	103–2051	1
R670 THRU R673	Resistor, 100 k Ohm ±1%, 1/4W	103–1062	4
R674	Resistor, 10 k Ohm ±1%, 1/4W	100–1051	1
R675	Resistor, 100 k Ohm ±1%, 1/4W	103–1062	1
R676	Resistor, 20.0 k Ohm ±1%, 1/4W	103–2051	1
R677	Resistor, 100 k Ohm ±1%, 1/4W	103–1062	1
R678 THRU R681	Resistor, 3.40 k Ohm, ±1%, 1/4W	103–3404	4
R682	Resistor, 10 k Ohm ±1%, 1/4W	100–1051	1
R683	Resistor, 100 k Ohm ±1%, 1/4W	103–1062	1
R684, R685	Resistor, 10 k Ohm ±1%, 1/4W	100–1051	2
R686, R687	Resistor, 100 k Ohm ±1%, 1/4W	103–1062	2
R688 THRU R691	Resistor, 3.40 k Ohm, ±1%, 1/4W	103–3404	4
R692, R693	Resistor, 100 k Ohm ±1%, 1/4W	103–1062	2

TABLE 6–17. 6 CHANNEL AUDIO INPUT CIRCUIT BOARD ASSEMBLY – 911–6008
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REF. DES.	DESCRIPTION	PART NO.	QTY.
R694, R695	Potentiometer, 20 k Ohm ±10%, 1/2W	176–2011	2
R696, R697	Potentiometer, 20 Ohm ±10%, 1/2W	176–2010	2
R698	Resistor, 100 k Ohm ±1%, 1/4W	103–1062	1
R699	Resistor, 1 Meg Ohm ±1%, 1/4W	103–1007	1
U100	Integrated Circuit, M74HC4052B1, Dual 4–Channel Analog Multiplexers /Demultiplexers, CMOS MSI, 2P4T, 16–Pin DIP	220–4052–001	1
U101	Integrated Circuit, SSM2017, Low Noise Differential Audio Amplifier, 8–Pin DIP	221–2017	1
U102	Integrated Circuit, M74HC4052B1, Dual 4–Channel Analog Multiplexers/Demultiplexers, CMOS MSI, 2P4T, 16–Pin DIP	220–4052–001	1
U103	Integrated Circuit, SSM2017, Low Noise Differential Audio Amplifier, 8 –Pin DIP	221–2017	1
U104	Integrated Circuit, 2150A, Voltage Controlled Amplifier, 8–Pin DIP	220–2150	1
U105	Integrated Circuit, 2150A, Voltage Controlled Amplifier, 8–Pin DIP	220–2150	1
U106	Integrated Circuit, TL072CP, Dual JFET–Input Operational Amplifier, 8–Pin DIP	221–0072	1
U107	Integrated Circuit, TL072CP, Dual JFET–Input Operational Amplifier, 8–Pin DIP	221–0072	1
U108	Integrated Circuit, NE5532AP, Dual Low Noise Operational Amplifier, 8–Pin DIP	221–5532–001	1
U109	Integrated Circuit, MC14053B, Analog Multiplexers/Demulti–plexers, CMOS MSI, 16–Pin DIP plexers, CMOS MSI, 16–Pin DIP	220–4053	1
U310	Integrated Circuit, MC14053B, Analog Multiplexers/Demulti–plexers, CMOS MSI, 16–Pin DIP	220–4053	1
U311	Integrated Circuit, TL072CP, Dual JFET–Input Operational Amplifier, 8–Pin DIP	221–0072	1
U400	Integrated Circuit, M74HC4052B1, Dual 4–Channel Analog Multiplexers/Demultiplexers, CMOS MSI, 16–Pin DIP	220–4052–001	1
U401	Integrated Circuit, SSM2017, Low Noise Differential Audio Amplifier, 8–Pin DIP	221–2017	1
U402	Integrated Circuit, M74HC4052B1, Dual 4–Channel Analog Multiplexers/Demultiplexers, CMOS MSI, 16–Pin DIP	220–4052–001	1
U403	Integrated Circuit, SSM2017, Low Noise Differential Audio Amplifier, 8–Pin DIP	221–2017	1
U603	Integrated Circuit, SSM2017, Low Noise Differential Audio Amplifier, 8–Pin DIP	221–2017	1
U604	Integrated Circuit, 2150A, Voltage Controlled Amplifier, 8–Pin DIP	220–2150	1
U605	Integrated Circuit, 2150A, Voltage Controlled Amplifier, 8–Pin DIP	220–2150	1
U606	Integrated Circuit, TL072CP, Dual JFET–Input Operational Amplifier, 8–Pin DIP	221–0072	1
U608	Integrated Circuit, NE5532AP, Dual Low Noise Operational Amplifier, 8–Pin DIP	221–5532–001	1
U609	Integrated Circuit, MC14053B, Analog Multiplexers/Demulti–plexers, CMOS MSI, 16–Pin DIP	220–4053	1
U610	Integrated Circuit, MC14053B, Analog Multiplexers/Demulti–plexers, CMOS MSI, 16–Pin DIP	220–4053	1
XU100	Socket, 16–Pin DIP	417–1604	1
XU101	Socket, 8–Pin DIP	417–0804	1
XU102	Socket, 16–Pin DIP	417–1604	1
XU103	Socket, 8–Pin DIP	417–0804	1
XU106	Socket, 8–Pin DIP	417–0804	1
XU107	Socket, 8–Pin DIP	417–0804	1
XU108	Socket, 8–Pin DIP	417–0804	1
XU109	Socket, 16–Pin DIP	417–1604	1

TABLE 6-17.6 CHANNEL AUDIO INPUT CIRCUIT BOARD ASSEMBLY - 911-6008
(Sheet 16 of 16)

REF. DES.	DESCRIPTION	PART NO.	QTY.
XU110	Socket, 16-Pin DIP	417-1604	1
XU111	Socket, 8-Pin DIP	417-0804	1
XU200	Socket, 16-Pin DIP	417-1604	1
XU201	Socket, 8-Pin DIP	417-0804	1
XU202	Socket, 16-Pin DIP	417-1604	1
XU203	Socket, 8-Pin DIP	417-0804	1
XU206	Socket, 8-Pin DIP	417-0804	1
XU208	Socket, 8-Pin DIP	417-0804	1
XU209	Socket, 16-Pin DIP	417-1604	1
XU210	Socket, 16-Pin DIP	417-1604	1
XU300	Socket, 16-Pin DIP	417-1604	1
XU301	Socket, 8-Pin DIP	417-0804	1
XU302	Socket, 16-Pin DIP	417-1604	1
XU303	Socket, 8-Pin DIP	417-0804	1
XU306	Socket, 8-Pin DIP	417-0804	1
XU307	Socket, 8-Pin DIP	417-0804	1
XU308	Socket, 8-Pin DIP	417-0804	1
XU309	Socket, 16-Pin DIP	417-1604	1
XU310	Socket, 16-Pin DIP	417-1604	1
XU311	Socket, 8-Pin DIP	417-0804	1
XU400	Socket, 16-Pin DIP	417-1604	1
XU401	Socket, 8-Pin DIP	417-0804	1
XU402	Socket, 16-Pin DIP	417-1604	1
XU403	Socket, 8-Pin DIP	417-0804	1
XU406	Socket, 8-Pin DIP	417-0804	1
XU408	Socket, 8-Pin DIP	417-0804	1
XU409	Socket, 16-Pin DIP	417-1604	1
XU410	Socket, 16-Pin DIP	417-1604	1
XU500	Socket, 16-Pin DIP	417-1604	1
XU501	Socket, 8-Pin DIP	417-0804	1
XU502	Socket, 16-Pin DIP	417-1604	1
XU503	Socket, 8-Pin DIP	417-0804	1
XU506	Socket, 8-Pin DIP	417-0804	1
XU507	Socket, 8-Pin DIP	417-0804	1
XU508	Socket, 8-Pin DIP	417-0804	1
XU509	Socket, 16-Pin DIP	417-1604	1
XU510	Socket, 16-Pin DIP	417-1604	1
XU511	Socket, 8-Pin DIP	417-0804	1
XU600	Socket, 16-Pin DIP	417-1604	1
XU601	Socket, 8-Pin DIP	417-0804	1
XU602	Socket, 16-Pin DIP	417-1604	1
XU603	Socket, 8-Pin DIP	417-0804	1
XU606	Socket, 8-Pin DIP	417-0804	1
XU608	Socket, 8-Pin DIP	417-0804	1
XU609	Socket, 16-Pin DIP	417-1604	1
XU610	Socket, 16-Pin DIP	417-1604	1
----	Blank Audio Input Board Circuit Board	511-6008	1

TABLE 6-18.2 CHANNEL AUDIO INPUT CIRCUIT BOARD ASSEMBLY - 911-6008-401
(Sheet 1 of 6)

REF. DES.	DESCRIPTION	PART NO.	QTY.
----	Blank, 6 Channel Audio Input Circuit Board	511-6008	1
C1 THRU C4	Capacitor, Electrolytic, 100 uF, 50V	020-1083	4
C500 THRU	Capacitor, Mica 330 pF ±5%, 500V	040-3333	1
C511	CAP,MICA,330PF,500V,5%	040-3333	12
C512 THRU	Capacitor, Electrolytic, 10 uF, 25V, Non-Polarized	023-1075	1
C523	Capacitor, Electrolytic, 10 uF, 25V, Non-Polarized	023-1075	12
C526 THRU	Capacitor, Monolithic Ceramic, 0.1 uF ±20%, 50V	003-1054	1
C534	Capacitor, Monolithic Ceramic, 0.1 uF ±20%, 50V	003-1054	1
C538, C539	Capacitor, Electrolytic, 33 uF, 25V, Non-Polarized	020-3374	2
C540	Capacitor, Monolithic Ceramic, 0.1 uF ±20%, 50V	003-1054	1
C541	Capacitor, Electrolytic, 10 uF, 25V, Non-Polarized	023-1075	1
C542	Capacitor, Monolithic Ceramic, 0.1 uF ±20%, 50V	003-1054	1
C543, C544	Capacitor, Electrolytic, 33 uF, 25V, Non-Polarized	020-3374	2
C547, C548	Capacitor, Ceramic, 33 pF±5%, 50V	003-3312	2
C549	Capacitor, Electrolytic, 33 uF, 25V, Non-Polarized	020-3374	1
C550	Capacitor, Ceramic, 68 pF ±5%, 50V	003-6812	1
C551	Capacitor, Electrolytic, 10 uF, 25V, Non-Polarized	023-1075	1
C552	Capacitor, Electrolytic, 33 uF, 25V, Non-Polarized	020-3374	1
C553, C554	Capacitor, Monolithic Ceramic, 0.1 uF ±20%, 50V	003-1054	2
C555	Capacitor, Electrolytic, 10 uF, 25V, Non-Polarized	023-1075	1
C556, C557	Capacitor, Monolithic Ceramic, 0.1 uF ±20%, 50V	003-1054	2
C558	Capacitor, Ceramic, 68 pF ±5%, 50V	003-6812	1
C559 THRU C562	Capacitor, Mica 330 pF ±5%, 500V	040-3333	4
C563 THRU C565	Capacitor, Monolithic Ceramic, 0.1 uF ±20%, 50V	003-1054	3
C566, C567	Capacitor, Mica, 82 pF ±5%, 500V	042-8212	2
C600 THRU C611	Capacitor, Mica 330 pF ±5%,	040-3333	12
C612 THRU C623	Capacitor, Electrolytic, 10 uF, 25V, Non-Polarized	023-1075	12
C626 THRU C634	Capacitor, Monolithic Ceramic, 0.1 uF ±20%, 50V	003-1054	12
C638, C639	Capacitor, Mica 330 pF ±5%, 500V	020-3374	2
C640	Capacitor, Monolithic Ceramic, 0.1 uF ±20%, 50V	003-1054	1
C641	Capacitor, Electrolytic, 10 uF, 25V, Non-Polarized	023-1075	1
C642	Capacitor, Monolithic Ceramic, 0.1 uF ±20%, 50V	003-1054	1
C643, C644	Capacitor, Electrolytic, 33 uF, 25V, Non-Polarized	020-3374	2
C646	Capacitor, Monolithic Ceramic, 0.1 uF ±20%, 50V	003-1054	1
C647, C648	Capacitor, Ceramic, 33 pF±5%, 50V,	003-3312	2
C649	Capacitor, Electrolytic, 33 uF, 25V, Non-Polarized	020-3374	1
C650	Capacitor, Ceramic, 68 pF ±5%, 50V	003-6812	1
C651	Capacitor, Electrolytic, 10 uF, 25V, Non-Polarized	023-1075	1
C652	Capacitor, Electrolytic, 33 uF, 25V, Non-Polarized	020-3374	1
C653, C654	Capacitor, Monolithic Ceramic, 0.1 uF ±20%, 50V	003-1054	1
C655	Capacitor, Electrolytic, 10 uF, 25V, Non-Polarized	023-1075	1
C656	Capacitor, Monolithic Ceramic, 0.1 uF ±20%, 50V	003-1054	1

TABLE 6-18. 2 CHANNEL AUDIO INPUT CIRCUIT BOARD ASSEMBLY - 911-6008-401
(Sheet 2 of 6)

REF. DES.	DESCRIPTION	PART NO.	QTY.
C658	Capacitor, Ceramic, 68 pF ±5%, 50V	003-6812	1
C659 THRU C662	Capacitor, Mica 330 pF ±5%, 500V	040-3333	4
C663 THRU C665	Capacitor, Monolithic Ceramic, 0.1 uF ±20%, 50V	003-1054	3
C666, C667	Capacitor, Mica, 82 pF ±5%, 500V	042-8212	1
D500 THRU D503, D600 THRU D603	Diode, 1N4148, Silicon, 75V @ 0.3 Amperes	203-4148	8
J1 THRU J4	Receptacle, Male, 13-Pin Dual In-Line	417-2600	4
J500	Connector, Male, 20-Pin PCB Mount	417-0230	1
J501 THRU J503	Connector, Header, 36-Pin Dual In-Line	417-0231	3
J504, J505	Receptacle, 6-Pin	417-0677	2
J506	Connector, Header, 36-Pin Dual In-Line	417-0231	1
J507 THRU J509	Receptacle, Male, 3-Pin In-line	417-0003	3
J600	Connector, Male, 20-Pin PCB Mount	417-0230	1
J601 THRU J603	Connector, Header, 36-Pin Dual In-Line	417-0231	3
J604, J605	Receptacle, 6-Pin	417-0677	2
J606	Connector, Header, 36-Pin Dual In-Line	417-0231	1
J607 THRU J609	Receptacle, Male, 3-Pin In-line	417-0003	3
P500, P501 P505, P506 P510 THRU P512	Jumper, Programmable, 2-Pin	340-0004	7
P600, P601 P605, P606 P610 THRU P612	Jumper, Programmable, 2-Pin	340-0004	7
Q500, Q501	Field Effect Transistor, J271, P-Channel JFET, TO-92 Case	210-0271	2
Q502	Transistor, 2N3904, NPN, Silicon, TO-92 Case	211-3904	1
Q600, Q601	Field Effect Transistor, J271, P-Channel JFET, TO-92 Case	210-0271	2
Q602	Transistor, 2N3904, NPN, Silicon, TO-92 Case	211-3904	1
R500	Resistor, Network, 4-20K Ohm ±0.1% Resistors, 8-Pin Dip	226-2010	1
R501	Resistor, Network, 8-20K Ohm ±0.1% Resistors, 16-Pin Dip	226-2011	1
R502	Resistor, 2.49 k Ohm ±1%, 1/4W	103-2494	1
R503, R504	Resistor, Network, 7-6.8K Ohm ±1% Resistors, 8-Pin Dip	226-6800	2
R505	Resistor, 127 Ohm, ±1%, 1/4W	103-1273	1
R506	Resistor, 24.9 Ohm, ±1%, 1/4W	103-2490	1
R507	Resistor, 2.49 k Ohm ±1%, 1/4W	103-2494	1
R510	Resistor, 127 Ohm, ±1%, 1/4W	103-1273	1
R511	Resistor, 24.9 Ohm, ±1%, 1/4W	103-2490	1
R512, R515	Resistor, 2.49 k Ohm ±1%, 1/4W	103-2494	2
R518	Resistor, 127 Ohm, ±1%, 1/4W	103-1273	1
R519	Resistor, 24.9 Ohm, ±1%, 1/4W	103-2490	1
R520	Resistor, 2.49 k Ohm ±1%, 1/4W	103-2494	1
R523	Resistor, 127 Ohm, ±1%, 1/4W	103-1273	1

TABLE 6–18. 2 CHANNEL AUDIO INPUT CIRCUIT BOARD ASSEMBLY – 911–6008–401
(Sheet 3 of 6)

REF. DES.	DESCRIPTION	PART NO.	QTY.
R524	Resistor, 24.9 Ohm, ±1%, 1/4W	103–2490	1
R525	Resistor, 2.49 k Ohm ±1%, 1/4W	103–2494	1
R528	Resistor, 10 Ohm, ±1%, 1/4W	103–1021	1
R529	Resistor, 845 Ohm ±1%, 1/4W	103–8453	1
R530	Resistor, 5.11 k Ohm ±1%, 1/4W	103–5141	1
R531	Resistor, 5.11 k Ohm ±1%, 1/4W	103–5141	1
R532	Resistor, 49.9 k Ohm ±1%, 1/4W	103–4951	1
R533	Resistor, 33.2 k Ohm ±1%, 1/4W	103–3325	1
R534	Resistor, 49.9 k Ohm ±1%, 1/4W	103–4951	1
R535	Resistor, 12.4 k Ohm ±1%, 1/4W	103–1245	1
R536	Resistor, 10 Ohm ±1%, 1/4W	103–1021	1
R537	Resistor, 845 Ohm ±1%, 1/4W	103–8453	1
R541	Resistor, 100 Ohm ±1%, 1/4W	100–1031	1
R542	Resistor, 100 k Ohm ±1%, 1/4W	103–1062	1
R544	Resistor, 226 k Ohm ±1%, 1/4W	103–2276	1
R545	Resistor, 1 k Ohm ±1%, 1/4W	103–1041	1
R546	Resistor, 19.1 k Ohm ±1%, 1/4W	103–1915	1
R547	Resistor, 20.0 k Ohm ±1%, 1/4W	103–2051	1
R548	Resistor, 1 k Ohm ±1%, 1/4W	103–1041	1
R550	Resistor, 100 Ohm ±1%, 1/4W	100–1031	1
R551	Resistor, 100 k Ohm ±1%, 1/4W	103–1062	1
R553	Potentiometer, 50 k Ohm ±10%, 1/2W	177–5054	1
R554	Resistor, 511 k Ohm ±1%, 1/4W	103–5116	1
R555	Resistor, 51.1 Ohm ±1%, 1/4W	103–5112	1
R556	Resistor, 20.0 k Ohm ±1%, 1/4W	103–2051	1
R557	Resistor, 30.1 k Ohm ±1%, 1/4W	100–3051	1
R558	Resistor, 4.87 k Ohm ±1%, 1/4W	103–4874	1
R559	Resistor, 10 k Ohm ±1%, 1/4W	100–1051	1
R560	Resistor, 20.0 k Ohm ±1%, 1/4W	103–2051	1
R561	Resistor, 20.0 k Ohm ±1%, 1/4W	103–2051	1
R562	Potentiometer, 50 k Ohm ±10%, 1/2W	177–5054	1
R563	Resistor, 511 k Ohm ±1%, 1/4W	103–5116	1
R564	Resistor, 51.1 Ohm ±1%, 1/4W	103–5112	1
R565	Resistor, 20.0 k Ohm ±1%, 1/4W	103–2051	1
R566	Resistor, 30.1 k Ohm ±1%, 1/4W	100–3051	1
R567	Resistor, 10 k Ohm ±1%, 1/4W	100–1051	1
R568	Resistor, 4.87 k Ohm ±1%, 1/4W	103–4874	1
R569	Resistor, 20.0 k Ohm ±1%, 1/4W	103–2051	1
R570 THRU R573	Resistor, 100 k Ohm ±1%, 1/4W	103–1062	4
R574	Resistor, 10 k Ohm ±1%, 1/4W	100–1051	1
R575	Resistor, 100 k Ohm ±1%, 1/4W	103–1062	1
R576	Resistor, 20.0 k Ohm ±1%, 1/4W	103–2051	1
R577	Resistor, 100 k Ohm ±1%, 1/4W	103–1062	1
R578 THRU R581	Resistor, 3.40 k Ohm ±1%, 1/4W	103–3404	4
R582	Resistor, 10 k Ohm ±1%, 1/4W	100–1051	1
R583	Resistor, 100 k Ohm ±1%, 1/4W	103–1062	1
R584	Resistor, 10 k Ohm ±1%, 1/4W	100–1051	1
R585	Resistor, 10 k Ohm ±1%, 1/4W	100–1051	1
R586, R587	Resistor, 100 k Ohm ±1%, 1/4W	103–1062	2

TABLE 6–18. 2 CHANNEL AUDIO INPUT CIRCUIT BOARD ASSEMBLY – 911–6008–401
(Sheet 4 of 6)

REF. DES.	DESCRIPTION	PART NO.	QTY.
R588 THRU R591	Resistor, 3.40 k Ohm ±1%, 1/4W	103–3404	4
R592	Resistor, 100 k Ohm ±1%, 1/4W	103–1062	1
R593	Resistor, 100 k Ohm ±1%, 1/4W	103–1062	1
R594, R595	Potentiometer, 20 k Ohm ±10%, 1/2W	176–2011	2
R596, R597	Potentiometer, 20 Ohm ±10%, 1/2W	176–2010	2
R598	Resistor, 100 k Ohm ±1%, 1/4W	103–1062	1
R599	Resistor, 1 Meg Ohm ±1%, 1/4W	103–1007	1
R600	Resistor, Network, 4–20K Ohm ±0.1% Resistors, 8–Pin Dip	226–2010	1
R601	Resistor, Network, 8–20K Ohm ±0.1% Resistors, 16–Pin Dip	226–2011	1
R602	Resistor, 2.49 k Ohm ±1%, 1/4W	103–2494	1
R603, R604	Resistor, Network, 7–6.8K Ohm ±1% Resistors, 8–Pin Dip	226–6800	2
R605	Resistor, 127 Ohm, ±1%, 1/4W	103–1273	1
R606	Resistor, 24.9 Ohm, ±1%, 1/4W	103–2490	1
R607	Resistor, 2.49 k Ohm, ±1%, 1/4W	103–2494	1
R610	Resistor, 127 Ohm, ±1%, 1/4W	103–1273	1
R611	Resistor, 24.9 Ohm, ±1%, 1/4W	103–2490	1
R612	Resistor, 2.49 k Ohm ±1%, 1/4W	103–2494	1
R615	Resistor, 2.49 k Ohm ±1%, 1/4W	103–2494	1
R618	Resistor, 127 Ohm, ±1%, 1/4W	103–1273	1
R619	Resistor, 24.9 Ohm, ±1%, 1/4W	103–2490	1
R620	Resistor, 2.49 k Ohm ±1%, 1/4W	103–2494	1
R623	Resistor, 127 Ohm, ±1%, 1/4W	103–1273	1
R624	Resistor, 24.9 Ohm, ±1%, 1/4W	103–2490	1
R625	Resistor, 2.49 k Ohm ±1%, 1/4W	103–2494	1
R628	Resistor, 10 Ohm ±1%, 1/4W	103–1021	1
R629	Resistor, 845 Ohm ±1%, 1/4W	103–8453	1
R630	Resistor, 5.11 k Ohm ±1%, 1/4W	103–5141	1
R631	Resistor, 5.11 k Ohm ±1%, 1/4W	103–5141	1
R632	Resistor, 49.9 k Ohm ±1%, 1/4W	103–4951	1
R633	Resistor, 33.2 k Ohm ±1%, 1/4W	103–3325	1
R634	Resistor, 49.9 k Ohm ±1%, 1/4W	103–4951	1
R635	Resistor, 12.4 k Ohm ±1%, 1/4W	103–1245	1
R636	Resistor, 10 Ohm ±1%, 1/4W	103–1021	1
R637	Resistor, 845 Ohm ±1%, 1/4W	103–8453	1
R641	Resistor, 100 Ohm ±1%, 1/4W	100–1031	1
R642	Resistor, 100 k Ohm ±1%, 1/4W	103–1062	1
R644	Resistor, 226 k Ohm ±1%, 1/4W	103–2276	1
R645	Resistor, 1 k Ohm ±1%, 1/4W	103–1041	1
R646	Resistor, 19.1 k Ohm ±1%, 1/4W	103–1915	1
R647	Resistor, 20.0 k Ohm ±1%, 1/4W	103–2051	1
R648	Resistor, 1 k Ohm ±1%, 1/4W	103–1041	1
R650	Resistor, 100 Ohm ±1%, 1/4W	100–1031	1
R651	Resistor, 100 k Ohm ±1%, 1/4W	103–1062	1
R653	Potentiometer, 50 k Ohm ±10%, 1/2W	177–5054	1
R654	Resistor, 511 k Ohm ±1%, 1/4W	103–5116	1
R655	Resistor, 51.1 Ohm ±1%, 1/4W	103–5112	1
R656	Resistor, 20.0 k Ohm ±1%, 1/4W	103–2051	1
R657	Resistor, 30.1 k Ohm ±1%, 1/4W	100–3051	1
R658	Resistor, 4.87 k Ohm ±1%, 1/4W	103–4874	1
R659	Resistor, 10 k Ohm ±1%, 1/4W	100–1051	1

TABLE 6-18. 2 CHANNEL AUDIO INPUT CIRCUIT BOARD ASSEMBLY - 911-6008-401
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REF. DES.	DESCRIPTION	PART NO.	QTY.
R660 R661	Resistor, 20.0 k Ohm ±1%, 1/4W	103-2051	2
R662	Potentiometer, 50 k Ohm ±10%, 1/2W	177-5054	1
R663	Resistor, 511 k Ohm ±1%, 1/4W	103-5116	1
R664	Resistor, 51.1 Ohm ±1%, 1/4W	103-5112	1
R665	Resistor, 20.0 k Ohm ±1%, 1/4W	103-2051	1
R666	Resistor, 30.1 k Ohm ±1%, 1/4W	100-3051	1
R667	Resistor, 10 k Ohm ±1%, 1/4W	100-1051	1
R668	Resistor, 4.87 k Ohm ±1%, 1/4W	103-4874	1
R669	Resistor, 20.0 k Ohm ±1%, 1/4W	103-2051	1
R670 THRU R673	Resistor, 100 k Ohm ±1%, 1/4W	103-1062	4
R674	Resistor, 10 k Ohm ±1%, 1/4W	100-1051	1
R675	Resistor, 100 k Ohm ±1%, 1/4W	103-1062	1
R676	Resistor, 20.0 k Ohm ±1%, 1/4W	103-2051	1
R677	Resistor, 100 k Ohm ±1%, 1/4W	103-1062	1
R678 THRU R681	Resistor, 3.40 k Ohm ±1%, 1/4W	103-3404	4
R682	Resistor, 10 k Ohm ±1%, 1/4W	100-1051	1
R683	Resistor, 100 k Ohm ±1%, 1/4W	103-1062	1
R684, R685	Resistor, 10 k Ohm ±1%, 1/4W	100-1051	2
R686, R687	Resistor, 100 k Ohm ±1%, 1/4W	103-1062	2
R688 THRU R691	Resistor, 3.40 k Ohm ±1%, 1/4W	103-3404	4
R692, R693	Resistor, 100 k Ohm ñ1%, 1/4W	103-1062	2
R694, R695	Potentiometer, 20 k Ohm ±10%, 1/2W	176-2011	2
R696, R697	Potentiometer, 20 Ohm ±10%, 1/2W	176-2010	2
R698	Resistor, 100 k Ohm ±1%, 1/4W	103-1062	1
R699	Resistor, 1 Meg Ohm ±1%, 1/4W	103-1007	1
U500	Integrated Circuit, M74HC4052B1, Dual 4-Channel Analog Multiplexer/Demultiplexer, CMPS MSI, 2P4T, 16-Pin DIP	220-4052-001	1
U501	Integrated Circuit, SSM-2017, Low Noise Differential Audio Amplifier, 8-Pin DIP	221-2017	1
U502	Integrated Circuit, M74HC4052B1, Dual 4-Channel Analog Multiplexer/Demultiplexer, CMPS MSI, 2P4T, 16-Pin DIP	220-4052-001	1
U503	Integrated Circuit, SSM-2017, Low Noise Differential Audio Amplifier, 8-Pin DIP	221-2017	1
U504, U505	Integrated Circuit, 2150A, Voltage Controlled Ampliifer, 8-Pin DIP	220-2150	2
U506	Integrated Circuit, TL072CP, Dual JFET-Input Operational Amplifier, 8-Pin DIP	221-0072	1
U507	Integrated Circuit, TL072CP, Dual JFET-Input Operational Amplifier, 8-Pin DIP	221-0072	1
U508	Integrated Circuit, NE5532AP, Dual Low Noise Operational Amplifier, 8-Pin DIP	221-5532-001	1
U509	Integrated Circuit, MC14053B, Analog Multiplexers/Demultiplexers, CMOS MSI, 16-Pin DIP	220-4053	1
U510	Integrated Circuit, MC14053B, Analog Multiplexers/Demultiplexers, CMOS MSI, 16-Pin DIP	220-4053	1
U511	Integrated Circuit, TL072CP, Dual JFET-Input Operational Amplifier, 8-Pin DIP	221-0072	1
U600	Integrated Circuit, M74HC4052B1, Dual 4-Channel Analog Multiplexer/Demultiplexer, CMPS MSI, 2P4T, 16-Pin DIP	220-4052-001	1
U601	Integrated Circuit, SSM-2017, Low Noise Differential Audio Amplifier, 8-Pin DIP	221-2017	1
U602	Integrated Circuit, M74HC4052B1, Dual 4-Channel Analog Multiplexer/Demultiplexer, CMPS MSI, 2P4T, 16-Pin DIP	220-4052-001	1

TABLE 6–18. 2 CHANNEL AUDIO INPUT CIRCUIT BOARD ASSEMBLY – 911–6008–401
(Sheet 6 of 6)

REF. DES.	DESCRIPTION	PART NO.	QTY.
U603	Integrated Circuit, SSM–2017, Low Noise Differential Audio Amplifier, 8–Pin DIP	221–2017	1
U604, U605	Integrated Circuit, 2150A, Voltage Controlled Ampliifer, 8–Pin DIP	220–2150	2
U606	Integrated Circuit, TL072CP, Dual JFET–Input Operational Amplifier, 8–Pin DIP	221–0072	1
U608	Integrated Circuit, NE5532AP, Dual Low Noise Operational Amplifier, 8–Pin DIP	221–5532–001	1
U609	Integrated Circuit, MC14053B, Analog Multiplexers/Demulti–plexers, CMOS MSI, 16–Pin DIP	220–4053	1
U610	Integrated Circuit, MC14053B, Analog Multiplexers/Demulti–plexers, CMOS MSI, 16–Pin DIP	220–4053	1
XU500	Socket, 16–Pin DIP	417–1604	1
XU501	Socket, 8–Pin DIP	417–0804	1
XU502	Socket, 16–Pin DIP	417–1604	1
XU503 THRU XU508	Socket, 8–Pin DIP	417–0804	4
XU509, XU510	Socket, 16–Pin DIP	417–1604	2
XU511	Socket, 8–Pin DIP	417–0804	1
XU600	Socket, 16–Pin DIP	417–1604	1
XU601	Socket, 8–Pin DIP	417–0804	1
XU602	Socket, 16–Pin DIP	417–1604	1
XU603, XU606 XU608	Socket, 8–Pin DIP	417–0804	3
XU609, XU610	Socket, 16–Pin DIP	417–1604	2

TABLE 6–19. AT–90 6 CHANNEL INPUT CONTROL BOARD – 911–6010–002A
(Sheet 1 of 4)

REF. DES.	DESCRIPTION	PART NO.	QTY.
A1 THRU A6	Control Logic Hybrid Assembly	220–0018	6
C1	Capacitor, Monolithic Ceramic, 22000uF,16VDC	024–2290	1
C2	Capacitor, Electrolytic, 10 uF, 35V	023–1076	1
C3, C4	Capacitor, Monolithic Ceramic, 0.1 uF ±20%, 50V	003–1054	2
C5, C6	Capacitor, Electrolytic, 10 uF, 35V	023–1076	2
C7	Capacitor, Monolithic Ceramic, 0.1 uF ±20%, 50V	003–1054	1
C8 THRU C12	Capacitor, Electrolytic, 10 uF, 35V	023–1076	5
C13, C14 C16 THRU C18	Capacitor, Monolithic Ceramic, 0.1 uF ±20%, 50V	003–1054	6
C19	Capacitor, Electrolytic, 10 uF, 35V	023–1076	1
C21 THRU C24	Capacitor, Monolithic Ceramic, 0.1 uF ±20%, 50V	003–1054	4
D1 THRU D11 D14 THRU D40	Diode, 1N4148, Silicon, 75V @ 0.3 Amperes	203–4148	38
D41 THRU D52	Diode, 1N4005, Silicon, 600V @ 1 Ampere	203–4005	12
E1 THRU E18	Terminal, Barrel, 4 Amperes	417–0133	18
J1	Receptacle, 12–Pin	417–1276	1
J2 THRU J4	Receptacle, Male, 3–Pin In–Line	417–0003	3
J5 THRU J7	Receptacle, Male, 13–Pin Dual In–Line	417–2600	3
J8	Connector, 10–Pin Dual In–Line	418–1003	1
J12	Receptacle, 12–Pin	417–1276	1
J13 THRU J15	Receptacle, Male, 3–Pin In–Line	417–0003	3
J16	Receptacle, Male, 13–Pin Dual In–Line	417–2600	1
J17	Connector, 10–Pin Dual In–Line	418–1003	1
J21	Receptacle, 12–Pin	417–1276	1

TABLE 6–19. AT–90 6 CHANNEL INPUT CONTROL BOARD – 911–6010–002A
(Sheet 2 of 4)

REF. DES.	DESCRIPTION	PART NO.	QTY.
J22 THRU J24	Receptacle, Male, 3–Pin In–Line	417–0003	3
J25	Receptacle, Male, 13–Pin Dual In–Line	417–2600	1
J26	Connector, 10–Pin Dual In–Line	418–1003	1
J30	Receptacle, 12–Pin	417–1276	1
J31 THRU J33	Receptacle, Male, 20–Pin In–Line	417–0200	3
J34	Receptacle, Male, 13–Pin Dual In–Line	417–2600	1
J35	Connector, 10–Pin Dual In–Line	418–1003	1
J39	Receptacle, 12–Pin	417–1276	1
J40 THRU J42	Receptacle, Male, 3–Pin In–Line	417–0003	3
J43	Receptacle, Male, 13–Pin Dual In–Line	417–2600	1
J44	Connector, 10–Pin Dual In–Line	418–1003	1
J48	Receptacle, 12–Pin	417–1276	1
J49 THRU J51	Receptacle, Male, 20–Pin In–Line	417–0200	3
J52	Receptacle, Male, 13–Pin Dual In–Line	417–2600	1
J53	Connector, 10–Pin Dual In–Line	418–1003	1
J57 THRU J65	Receptacle, Male, 20–Pin In–Line	417–0200	9
J66 THRU J68	Receptacle, Male, 20–Pin In–Line	417–0200	3
J69 THRU J74	Socket, 14–Pin DIP	417–1404	6
J76 THRU J93	Receptacle, Male, 20–Pin In–Line	417–0200	18
J94 THRU J99	Socket, 14–Pin DIP	417–1404	6
P2, THRU P4	Jumper, Programmable, 2–Pin	340–0004	60
P13 THRU P15			
P22 THRU P24			
P31 THRU P33			
P40 THRU P42			
P49, P51			
P57 THRU P74			
P76 THRU P99			
R1	Resistor, 2.2 Ohm ±5%, 1/4W	100–2213	1
R2	Resistor, 475 Ohm ±1%, 1/4W	103–4753	1
R3	Resistor, 2.2 Ohm ±5%, 1/4W	100–2213	1
R4	Resistor, 475 Ohm ±1%, 1/4W	103–4753	1
R5	Resistor, 590 Ohm ±1%, 1/4W	100–5931	1
R6	Resistor, 2.2 Ohm ±5%, 1/4W	100–2213	1
R7	Resistor, 475 Ohm ±1%, 1/4W	103–4753	1
R8	Resistor, 2.2 Ohm ±5%, 1/4W	100–2213	1
R9	Resistor, 475 Ohm ±1%, 1/4W	103–4753	1
R10	Resistor, 590 Ohm ±1%, 1/4W	100–5931	1
R11	Resistor, 2.2 Ohm ±5%, 1/4W	100–2213	1
R12	Resistor, 475 Ohm ±1%, 1/4W	103–4753	1
R13	Resistor, 2.2 Ohm ±5%, 1/4W	100–2213	1
R14	Resistor, 475 Ohm ±1%, 1/4W	103–4753	1
R15	Resistor, 590 Ohm ±1%, 1/4W	100–5931	1
R16	Resistor, 121 Ohm ±5%, 1/4W	100–1231	1
R17	Resistor, 511 Ohm ±1%, 1/4W,	103–5113	1
R18 THRU R20	Resistor, 1 k Ohm ±1%, 1/4W	100–1041	3
R21	Resistor, 2.2 Ohm ±5%, 1/4W	100–2213	1
R22	Resistor, 475 Ohm ±1%, 1/4W	103–4753	1
R23	Resistor, 2.2 Ohm ±5%, 1/4W	100–2213	1
R24	Resistor, 475 Ohm ±1%, 1/4W	103–4753	1
R25	Resistor, 590 Ohm ±1%, 1/4W	100–5931	1
R26	Resistor, 2.2 Ohm ±5%, 1/4W	100–2213	1

TABLE 6–19. AT–90 6 CHANNEL INPUT CONTROL BOARD – 911–6010–002A
(Sheet 3 of 4)

REF. DES.	DESCRIPTION	PART NO.	QTY.
R27	Resistor, 475 Ohm ±1%, 1/4W	103–4753	1
R28	Resistor, 2.2 Ohm ±5%, 1/4W	100–2213	1
R29	Resistor, 475 Ohm ±1%, 1/4W	103–4753	1
R30	Resistor, 590 Ohm ±1%, 1/4W	100–5931	1
R31	Resistor, 2.2 Ohm ±5%, 1/4W	100–2213	1
R32	Resistor, 475 Ohm ±1%, 1/4W	103–4753	1
R33	Resistor, 2.2 Ohm ±5%, 1/4W	100–2213	1
R34	Resistor, 475 Ohm ±1%, 1/4W	103–4753	1
R35	Resistor, 590 Ohm ±1%, 1/4W	100–5931	1
R36 THRU R65	Resistor, 510 Ohm ±5%, 1/2W	110–5133	30
R66 THRU R68	Resistor, 1 k Ohm ±1%, 1/4W	100–1041	3
R69 THRU R74	Resistor, 1 Meg Ohm ±1%, 1/4W	103–1007	5
R75	Resistor, 205 k Ohm ±1%, 1/4W	103–2056	1
R76, R77	Resistor, 1 Meg Ohm ±1%, 1/4W	103–1007	2
R78	Resistor, 205 k Ohm ±1%, 1/4W	103–2056	1
R79, R80	Resistor, 1 Meg Ohm ±1%, 1/4W	103–1007	2
R81	Resistor, 205 k Ohm ±1%, 1/4W	103–2056	1
R82, R83	Resistor, 1 Meg Ohm ±1%, 1/4W	103–1007	2
R84	Resistor, 205 k Ohm ±1%, 1/4W	103–2056	1
R85, R86	Resistor, 1 Meg Ohm ±1%, 1/4W	103–1007	2
R87	Resistor, 205 k Ohm ±1%, 1/4W	103–2056	1
R88 THRU R91	Resistor, 1 Meg Ohm ±1%, 1/4W	103–1007	3
R92	Resistor, 205 k Ohm ±1%, 1/4W	103–2056	1
R93	Resistor, 1 Meg Ohm ±1%, 1/4W	103–1007	1
S1 THRU S3	Switch, SPST Normally Open, 12V dc @ 50mA Maximum, built–in LED, Yellow Indications (Input Select)	340–0139	3
S4, S5	Switch, SPST Normally Open, 12V dc @ 50mA Maximum built–in LED, Green Indications (PGM/AUD Select)	340–0140	2
S6 THRU S8	Switch, SPST Normally Open 12V dc @ 50mA Maximum, built–in LED, Yellow Indications (Input Select)	340–0139	3
S9, S10	Switch, SPST Normally Open, 12V dc @ 50mA Maximum built–in LED, Green Indications (PGM/AUD Select)	340–0140	1
S11 THRU S13	Switch, SPST Normally Open 12V dc @ 50mA Maximum, built–in LED, Yellow Indications (Input Select)	340–0139	3
S14, S15	Switch, SPST Normally Open, 12V dc @ 50mA Maximum built–in LED, Green Indications (PGM/AUD Select)	340–0140	1
S16 THRU S18	Switch, SPST Normally Open 12V dc @ 50mA Maximum, built–in LED, Yellow Indications (Input Select)	340–0139	3
S19, S20	Switch, SPST Normally Open, 12V dc @ 50mA Maximum built–in LED, Green Indications (PGM/AUD Select)	340–0140	1
S21 THRU S23	Switch, SPST Normally Open 12V dc @ 50mA Maximum, built–in LED, Yellow Indications (Input Select)	340–0139	3
S24, S25	Switch, SPST Normally Open, 12V dc @ 50mA Maximum built–in LED, Green Indications (PGM/AUD Select)	340–0140	1
S26 THRU S28	Switch, SPST Normally Open 12V dc @ 50mA Maximum, built–in LED, Yellow Indications (Input Select)	340–0139	3
S29, S30	Switch, SPST Normally Open, 12V dc @ 50mA Maximum built–in LED, Green Indications (PGM/AUD Select)	340–0140	2
U1	Integrated Circuit, LM358N, Dual Operational Amplifier, 8–Pin DIP	221–0358	1

TABLE 6–19. 6 CHANNEL INPUT CONTROL BOARD – 911–6010–002A
(Sheet 4 of 4)

REF. DES.	DESCRIPTION	PART NO.	QTY.
U2	Integrated Circuit, LM317T, Adjustable Positive Voltage Regulator, 1.2V to 37V, 1.5 Ampere, TO–220 Case	227–0317	1
U3, U4	Integrated Circuit, LM358N, Dual Operational Amplifier, 8–Pin DIP	221–0358	2
U5, U6, U7	Integrated Circuit, CD4081B, Quad 2–Input AND Gate, CMOS, 14–Pin DIP	225–0008	3
XA1 THRU XA6	Socket, 20–pin, Single In–line (For Control Hybrids)	417–0172	6
XU1, XU3, XU4	Socket, 8–Pin DIP	417–0804	3
XU5, XU6, XU7	Socket, 14–Pin DIP	417–1404	3

TABLE 6–20. 2 CHANNEL INPUT CONTROL BOARD – 911–6010–400A
(Sheet 1 of 2)

REF. DES.	DESCRIPTION	PART NO.	QTY.
A1, A2	Control Logic Hybrid Assembly	220–0018	2
C1	Capcitor, Electrolytic, 22000 uF, 16V dc	024–2290	1
C2	Capacitor, Electrolytic, 10 uF, 35V	023–1076	1
C3, C4	Capacitor, Monolithic Ceramic, 0.1 uF ±20%, 50V	003–1054	2
C5	Capacitor, Electrolytic, 10 uF, 35V	023–1076	1
C6, C7	Capacitor, Monolithic Ceramic, 0.1 uF ±20%, 50V	003–1054	2
C8 THRU C10	Cpacitor, Electrolytic, 10 uF, 35V	023–1076	3
C16	Capacitor, Monolithic Ceramic, 0.1 uF ñ20%, 50V	003–1054	1
D1, D2	Diode, 1N4148, Silicon, 75V @ 0.3 Amperes	203–4148	2
D7, D8	Diode, 1N4005, Silicon, 600V @ 1 Ampere	203–4005	1
D9 THRU D20	Diode, 1N4148, Silicon, 75V @ 0.3 Amperes	203–4148	10
D41, D42, D47, D48	Diode, 1N4005, Silicon, 600V @ 1 Ampere	203–4005	4
E1 THRU E6	Terminal, Barrel, 4 Amperes	417–0133	6
J1	Receptacle, 12–Pin	417–1276	1
J2 THRU J4	Receptacle, Male, 3–Pin In–line	417–0003	3
J5 THRU J7	Receptacle, Male, 13–Pin Dual In–Line	417–2600	3
J8	Connector, 10–Pin, Dual In–Line	418–1003	1
J12	Receptacle, 12–Pin	417–1276	1
J13 THRU J15	Receptacle, Male, 3–Pin In–line	417–0003	3
J16	Receptacle, Male, 13–Pin Dual In–Line	417–2600	1
J17	Connector, 10–Pin, Dual In–Line	418–1003	1
J57 THRU J60,	Receptacle, Male, 20–Pin In–Line	417–0200	2
J69, J70	Socket, 14–Pin DIP	417–1404	2
J76 THRU J81	Receptacle, Male, 3–Pin In–line	417–0003	6
J94, J95	Socket, 14–Pin DIP	417–1404	2

TABLE 6–20. 2 CHANNEL INPUT CONTROL BOARD – 911–6010–400A
(Sheet 2 of 2)

REF. DES.	DESCRIPTION	PART NO.	QTY.
P2 THRU P4 P13 THRU P15 P57 THRU P60 P69, P70 P76 THRU P81 P94, P95	Jumper, Programmable, 2–Pin	340–0004	20
R1	Resistor, 2.2 Ohm ±5%, 1/4W	100–2213	1
R2	Resistor, 475 Ohm ±1%, 1/4W	103–4753	1
R3	Resistor, 2.2 Ohm ±5%, 1/4W	100–2213	1
R4	Resistor, 475 Ohm ±1%, 1/4W	103–4753	1
R5	Resistor, 590 Ohm ±1%, 1/4W	100–5931	1
R6	Resistor, 2.2 Ohm ±5%, 1/4W	100–2213	1
R7	Resistor, 475 Ohm ±1%, 1/4W	103–4753	1
R8	Resistor, 2.2 Ohm ±5%, 1/4W	100–2213	1
R9	Resistor, 475 Ohm ±1%, 1/4W	103–4753	1
R10	Resistor, 590 Ohm ±1%, 1/4W	100–5931	1
R16	Resistor, 121 Ohm ±5%, 1/4W	100–1231	1
R17	Resistor 511 Ohm ±1%, 1/4W	103–5113	1
R18, R19	Resistor, 1 k Ohm ±1%, 1/4W	100–1041	2
R36 THRU R45	Resistor, 510 Ohm ±5%, 1/2W	110–5133	10
R69, R70	Resistor, 1 Meg Ohm ±1%, 1/4W	103–1007	2
R75	Resistor, 205 k Ohm ±1%, 1/4W	103–2056	1
R76, R77	Resistor, 1 Meg Ohm ±1%, 1/4W	103–1007	2
R78	Resistor, 205 k Ohm ±1%, 1/4W	103–2056	1
R79, R80	Resistor, 1 Meg Ohm ±1%, 1/4W	103–1007	2
R93	Resistor, 10 k Ohm ±1%, 1/4W	100–1051	1
S1 THRU S3	Switch, SPST Normally Open, 12V dc @ 50 mA Maximum, Built–in LED, Yellow Indications (Input Select)	340–0139	3
S4, S5	Switch, SPST Normally Open, 12V dc @ 50 mA Maximum, Built–in LED, Green Indications (PGM/AUD Select)	340–0140	2
S6 THRU S8	Switch, SPST Normally Open, 12V dc @ 50 mA Maximum, Built–in LED, Yellow Indications (Input Select)	340–0139	3
S9, S10	Switch, SPST Normally Open, 12V dc @ 50 mA Maximum, Built–in LED, Green Indications (PGM/AUD Select)	340–0140	2
U1	Integrated Circuit, LM358N, Dual Operational Amplifier, 8–Pin DIP	221–0358	1
U2	Integrated Circuit, LM317T, Adjustable Positive Voltage Regulator, 1.2V to 37V, 1.5 Ampere, TO–220 Case	227–0317	1
U5	Integrated Circuit, CD4081B, Quad 2–Input AND Gate, CMOS, 14–Pin DIP	225–0008	1
XA1, XA2	Socket, 20–Pin Single In–Line (For Control Hybrids)	417–0172	2
XU1	Socket, 8–Pin DIP	417–0804	1
XU5	Socket, 14–Pin DIP	417–1404	1

TABLE 6-21. 6 CHANNEL/2 CHANNEL ON/OFF CONTROL BOARD - 911-6010-002B/-400B

REF. DES.	DESCRIPTION	PART NO.	QTY.
DS31A	LED, 534141, Red, Peak Flasher, PCB Mount	320-0029	1
J75A THRU J75F	Connector, 10-Pin Dual In-Line	418-1003	6
P100A THRU P109A	Sockets, Terminal Plug-N, 50864-6	417-0198	10
----	Blank Circuit Board, ON/OFF switch interface	511-6010B-002	1

TABLE 6-22. VU METER DISTRIBUTION CIRCUIT BOARD ASSEMBLY 911-6007A, -001, -002 (Sheet 1 of 2)

REF. DES.	DESCRIPTION	PART NO.	QTY.
C1 THRU C6	Capacitor, Monolithic Ceramic, 0.1 uF 20%, 50V	003-1054	6
C7 THRU C10	Capacitor, Electrolytic, 1 uF, 50V	024-1064	4
C11,C12	Capacitor, Electrolytic, 10 uF, 35V	023-1076	2
C15,C16	Capacitor, Monolithic Ceramic, 0.1 uF 20%, 50V	003-1054	2
C17	Capacitor, Electrolytic, 10 uF, 35V	023-1076	1
D1 THRU D4	Diode, 1N4148, Silicon, 75V @ 0.3 Amperes	203-4148	4
J1	Connector Header, 40-Pin	417-0173	1
J2 THRU J5	Receptacle, Male, 8-Pin In-Line	417-0200	1.6
J6,J7	Receptacle, Header, Dual In-Line 8-Pin	417-1603	2
J8 THRU J11	Receptacle, Male, 2-Pin In-line	417-4004	4
R5,R6	Resistor, 10 k Ohm ±1%, 1/4W	100-1051	2
R9 THRU R12	Resistor, 90.9 k Ohm ±1%, 1/4W	103-9095	4
R13 THRU R16	Resistor, 15 k Ohm ±5%, 1/4W	100-1551	4
R17 THRU R20	Resistor, 1 Meg Ohm ±1%, 1/4W	103-1007	4
R21,R22	Resistor, 1 k Ohm ±1%, 1/4W	100-1041	2
R23,R24	Resistor, 4.7 Meg Ohm ±5%, 1/4W	100-4773	2
R25,R26	Resistor, 1.5 k Ohm ±1%, 1/4W	103-1504	2
R27,R28	Resistor, 10 Ohm ±5%, 1/4W	100-1024	2
R35	Resistor, 16.2 k Ohm ±1%, 1/4W	103-1625	1
R36	Resistor, 240 Ohm ±1%, 1/4W	103-2431	1
R37,R38,R51	Resistor, 1.6 k Ohm± 5%, 1W	120-1643	3
RN1,RN2	Resistor Network, 8-10 k Ohm ±1%, 1/4W, 16-Pin DIP	226-1055	2
U1	Integrated Circuit, TLO74CN, Quad JFET-Input Operational Amplifier, 14-Pin DIP	221-0074	1
U2	Integrated Circuit, TL072CP, Dual JFET-Input Operational Amplifier, 8-Pin DIP	221-0072	1
U3,U5	Integrated Circuit, TLO74CN, Quad JFET-Input Operational Amplifier, 14-Pin DIP	221-0074	2
XDS1 THRU XDS11	Socket/Spacer, LED	407-0074	11
XU1	Socket, 14-Pin DIP	417-1404	1
XU2	Socket, 8-Pin DIP	417-0804	1
XU3,XU5	Socket, 14-Pin DIP	417-1404	2
----	Blank Circuit Board , VU Meter Distribution	511-6007A	1
	FOR 911-6007A-001 ASSEMBLY		
	DELETE COMPONENTS		
J7,J13	Receptacle, Header, Dual In-Line 8-Pin	417-1603	2
S1	Switch, 1 Section 4PDT Pushbutton, Black/Orange Indications (PGM/AUD Meter Switch, 6 Channel Models Only)	340-0129	1

TABLE 6-22. VU METER DISTRIBUTION CIRCUIT BOARD ASSEMBLY 911-6007A, -001, -002 (Sheet 2 of 2)

REF. DES.	DESCRIPTION	PART NO.	QTY.
	ADD COMPONENTS		
P8,P9,P10,P11	Jumper, Programmable, 2-Pin	340-0004	4
	FOR 911-6007A-002 ASSEMBLY		
	DELETE COMPONENTS		
J7,J13	Receptacle, Header, Dual In-Line 8-Pin	417-1603	2
S1	Switch, 1 Section 4PDT Pushbutton, Black/Orange Indications	340-0129	1
	ADD COMPONENTS		
C13,C14	Capacitor, Monolithic Ceramic, 0.1 uF 20%, 50V	003-1054	2
D11 THRU D14	Diode, 1N4148, Silicon, 75V @ 0.3 Amperes	203-4148	4
J14,J15	Receptacle, Male, 8-Pin In-Line	417-0080	2
P8 THRU P11	Jumper, Programmable, 2-Pin	340-0004	4
R39 THRU R42	Resistor, 10 k Ohm ±1%, 1/4W	100-1051	4
R43,R44	Resistor, 1.5 k Ohm ±1%, 1/4W	103-1504	2
R45,R46	Potentiometer, 10 k Ohm ±10%, 1/2W	177-1054	2
R47,R48	Resistor, 10 Ohm, ±5%, 1/4W	100-1024	2
R49,R50	Resistor, 200 Ohm, ±1%, 1/4W	103-2003	2
U4	Integrated Circuit, TL072CP, Dual JFET-Input Operational Amplifier, 8-Pin DIP	221-0072	1
XU4	Socket, 8-Pin DIP	417-0804	1

TABLE 6-23. AUDIO/POWER MONITORING CIRCUIT BOARD - 911-6007-B

REF. DES.	DESCRIPTION	PART NO.	QTY.
D5 THRU D10	Diode, 1N4148, Silicon, 75V @ 0.3 Amperes	203-4148	6
DS1 THRU DS3	Indicator, LED, Green, 521-9175, 3V @ 40 mA Maximum	323-9224	3
DS4,DS5	Indicator, LED, Green/Red Bi-Color, OPL710, T-1 3/4 Bulb, 2.5V @ 40 mA Maximum	320-0018	2
DS6 THRU DS11	Indicator, LED, Yellow, 521-9176, 3V @ 40 mA Maximum	323-9225	6
J12	Receptacle, Header, Dual In-Line 8-Pin	417-1603	1
R29,R30	Resistor, 182 Ohm ±1%, 1/4W	103-1823	2
R31,R32	Resistor, 680 Ohm ±5%, 1/2W	110-6833	2
R33,R34	Resistor, 1 k Ohm ±5%, 1/2W	110-1043	2
S2	Switch, Pushbutton, SPDT, 50V @ 25 mA Maximum (Test Switch)	340-0112	1
----	Blank Circuit Board, Audio/Power Monitoring Display	511-6007-B	1

TABLE 6-24. VU METER SWITCH CIRCUIT BOARD - 911-6007-C

REF. DES.	DESCRIPTION	PART NO.	QTY.
J13	Receptacle, Header, Dual In-Line 8-Pin	417-1603	1
S1	Switch, 1 Section 4PDT Pushbutton, Black/Prange Indicators (PGM/AUD Meter Switch, 6 Channel Models Only)	340-0129	1
----	Blank Circuit Board, VU Meter Switch	511-6007-C	1

TABLE 6-25. AT-90 CONSOLE POWER SUPPLY ASSEMBLY - 951-6030/-300

REF. DES.	DESCRIPTION	PART NO.	QTY.
----	Power Supply Regulator Circuit Board Assembly	911-6030	1
C1 THRU C3	Capacitor, Electrolytic, 22,000 uF, 50V	027-2200	3
C3,C4	Capacitor, Polyester, 0.47 uF ±10%, 100V	038-4753	2
D1,D2	Full-Wave Bridge Rectifier, MDA3502, 200 PIV, 35 Amperes	230-3502	2
F1,F4	Fuse, 3AG, 250V, 3 Amperes	330-0300	2
F2,F3	Fuse, AGC, 1 Ampere, Slow-Blow	334-0100	2
F5,F6	Fuse, AGC, 250V, 1/4 Ampere	330-0025	2
F7	Fuse, 3AG, 250V, 5 Amperes	330-0500	1
	110V OPERATION		
F8	Fuse, 4AG, 125V, Slow-Blow	334-0400	2
	220V OPERATION		
F8	Fuse, 3AG, 250V, 2 Amperes, Slow-Blow	334-0200	2
T1	Transformer, Power Primary: 117V/234V 10%, 50/60 Hz, Single Phase Secondary: 1. 39.7V AC Center Tapped 2. 10.7V AC	370-2359	1
TB1	Barrier Strip, 8 Terminal	412-0023	1
U1,U3	Integrated Circuit, LM317K, Three-Terminal Adjustable Positive Voltage Regulator, 1.2 to 37V, 1.5 Ampere Maximum, TO-3 Case	227-0318	2
U2,U4	Integrated Circuit, LM337K, Adjustable Negative Voltage Regulator, 1.2V to 37V, 1.5 Ampere, TO-3 Case	227-0338	2
XF1 THRU XF7	Fuse Holder, AGC	415-2012	7
XU1 THRU XU4	Socket, Transistor, TO-3	417-0298	4
	110V OPERATION		
----	AC Line Cord, N.E.M.A. 3-Wire North American Plug	682-0001	1
	220V OPERATION		
----	AC Line Cord, European	682-0003	1
----	Connector, Power, Snap-in, Black (Combination fuse holder, switch, and IEC Connector)	418-0050	1
----	Cable Assembly, Power Supply Module	941-0036-001	1
----	Wire Harness, Power Supply Module	941-0059	1

TABLE 6-26. POWER SUPPLY REGULATOR CIRCUIT BOARD ASSEMBLY - 911-6030
(Sheet 1 of 2)

REF. DES.	DESCRIPTION	PART NO.	QTY.
----	Blank Circuit Board, Power Supply Regulator	511-6030	1
C1 THRU C12	Capacitor, Electrolytic, 10 uF, 35V	023-1076	12
D1 THRU D8	Diode, 1N4005, Silicon, 600V @ 1 Ampere	203-4005	8
D9,D10	Diode, 1N5817, Schottky Barrier Type, 20V, 1 Ampere	200-0019	2
E1 THRU E3	Terminal, Turret, Double Shoulder	413-1597	3
E4,E5	Turret, Single Shoulder	413-0315	2
E6 THRU E21	Terminal, Turret, Double Shoulder	413-1597	16
E22,E23	Turret, Single Shoulder	413-0315	2
J1	Receptacle, 12-Pin	417-1276	1
Q1	Transistor, 2N3904, NPN, Silicon, TO-92 Case	211-3904	1
Q2	Transistor, 2N3906, PNP, Silicon, TO-92 Case	210-3906	1

TABLE 6–26. POWER SUPPLY REGULATOR CIRCUIT BOARD ASSEMBLY – 911–6030
(Sheet 2 of 2)

REF. DES.	DESCRIPTION	PART NO.	QTY.
R1,R2	Resistor, 1.47 k Ohm ±1%, 1/4W	103–1474	2
R3,R4	Resistor, 121 Ohm ±5%, 1/4W	100–1231	2
R5,R6	Resistor, 464 Ohm ±1%, 1/4W	103–4643	2
R7,R8	Resistor, 121 Ohm ±5%, 1/4W	100–1231	2
R9,R10	Resistor, 75 Ohm ±1%, 1/4W	103–7502	2
R11,R12	Resistor, 10 k Ohm ±1%, 1/4W	100–1051	2

TABLE 6–27. CLOCK TIMER MODULE ASSEMBLY – 951–0037
(Sheet 1 of 3)

REF. DES.	DESCRIPTION	PART NO.	QTY.
C2, C3	Capacitor, Mica, 33 pF ±5%, 500V	042–3312	2
C4	Capacitor, Monolithic Ceramic, 0.1 uF ±20%, 50V	003–1054	1
C5	Capacitor, Electrolytic, 1000 uF, ±20%, 35V	024–1000	1
C6 THRU C8	Capacitor, Monolithic Ceramic, 0.1 uF ±20%, 50V	003–1054	3
C9	Capacitor, Ceramic, 8–25PF N470 250V	090–0825	1
C10	Capacitor, Mica 5PF ±5% 500V	040–5003	1
C11 THRU C13	Capacitor, Monolithic Ceramic, 0.1 uF ±20%, 50V	003–1054	3
C14, C15	Capacitor, Electrolytic, 10 uF, 35V	023–1076	2
C16, C17	Capacitor, Monolithic Ceramic, 0.1 uF ±20%, 50V	003–1054	2
C18, C19	Capacitor, Electrolytic, 10 uF, 35V	023–1076	2
C20, C21	Capacitor, Monolithic Ceramic, 0.1 uF ±20%, 50V	003–1054	2
C22	Capacitor, Electrolytic, 10 uF, 35V	023–1076	1
C23	Capacitor, Mica, 33 pF ±5%, 500V	042–3312	1
C24	Capacitor, Mylar, 0.22 uF ±10%, 100V	030–2253	1
D1 THRU D4	Diode, 1N4005, Silicon, 600V @ 1 Ampere	203–4005	4
DS1 THRU DS6	LED, HD11070, Red, 7–Segment High Efficiency Common Cathode	320–0023	6
DS7 THRU DS11	LED, HD1107G, Green, 7–Segment High Efficiency Common	320–0022	5
DS12 THRU DS15	LED, l321DR, Red, 2.0v @ 20mA maximum	320–0032	4
DS16	Light–Emitting Diode, Green, Miniature, L321DC, 2.5V @ 20 mA Maximum	320–0009	1
DS17	Light–Emitting Diode, Green, Miniature, L321DC, 2.5V @ 20 mA Maximum	320–0009	1
J1	Receptacle Header, 12–Pin In–Line	417–1203	1
J2	Receptacle Header, 12–Pin In–Line	417–1203	1
J3	Receptacle, 2–Pin	417–0075	1
J7	Receptacle, 2–Pin	417–0075	1
J8	Receptacle, 2–Pin	417–0075	1
J9	Receptacle, 2–Pin	417–0075	1
J10	Receptacle, 2–Pin	417–0075	1
J11	Receptacle, Male, 2–Pin In–line	417–4004	1
L1	Coil, Molded, Shielded, 5.6 uH, 335 mA, .72 Ohms DC Resistance	364–0056	1
P7	Jumper, Programmable, 2–Pin	340–0004	1
P9	Jumper, Programmable, 2–Pin	340–0004	1

TABLE 6–27. CLOCK TIMER MODULE ASSEMBLY – 951–0037
(Sheet 2 of 3)

REF. DES.	DESCRIPTION	PART NO.	QTY.
P10	Jumper, Programmable, 2–Pin	340–0004	1
Q1	Transistor, 2N7000, N–Channel MOSFET 60V @ 75 mA, TO–92 Case	210–7000	1
R1	Resistor, 100 Ohm ±1%, 1/4W	100–1031	1
R2	Resistor, 100 k Ohm ±1%, 1/4W	103–1062	1
R3	Resistor, 10 k Ohm ±1%, 1/4W	100–1051	1
R5	Resistor, 1 Meg Ohm ±1%, 1/4W	103–1007	1
R6, R7	Resistor, 10 k Ohm ±1%, 1/4W	100–1051	2
R8	Resistor, 22 Meg Ohm, ±5%, 1/4W	100–2283	1
R9, R10	Resistor, 18.2 k Ohm ±1%, 1/4W	103–1825	2
R11, R12	Resistor, 221 k Ohm ±1%, 1/4W	103–2216	2
R13, R14	Resistor, 4.75 k Ohm ±1%, 1/4W	103–4741	2
R15	Resistor, 475 Ohm ±1%, 1/4W	103–4753	1
R16	Resistor, 665K Ohm, ±1%1/4W	103–6654	1
R17	Resistor, 475 Ohm ±1%, 1/4W	103–4753	1
R18	Resistor, 10 Meg Ohm ±5%, 1/4	100–1083	1
R19	Resistor, 10 k Ohm ±1%, 1/4W	100–1051	1
R20	Resistor, 121 Ohm ±5%, 1/4W	100–1231	1
R21	Resistor, 365 Ohm ±1%, 1/4W	103–3631	1
R22 THRU R25	Resistor, 10 k Ohm ±1%, 1/4W	100–1051	4
R26, R27	Resistor, 604 Ohm ±1%, 1/4W	100–6031	2
R28 THRU R35	Resistor 62 Ohm, ±5%, 2W	130–6223	8
R36	Resistor, 1 Meg Ohm ±1%, 1/4W	103–1007	1
S1 THRU S3	Switch, Pushbutton, Momentary, Circuit Board Mount	340–0116	3
TP1	Terminal, Turret, Double Shoulder	413–1597	1
U1	Integrated Circuit, 80C31BH, Microcontroller, 3.5 to 12 MHz, 44–Pin PLCC	229–8031–001	1
U2	Integrated Circuit, MC74HC14 Hex Schmitt Trigger, CMOS, 14–Pin DIP	220–4106	1
U3	Integrated Circuit, 74HC373, 8–Bit Latch, Tri–State Output, CMOS, 20–Pin DIP	220–7473	1
U4	Kit, Software, Clock/Timer Moudule	971–0037	1
U5	Integrated Circuit, DS1285Q,Real Time Clock, 28–Pin PLCC	229–1285	1
U6	Integrated Circuit, LM358N, Dual Operational Amplifier, 8–Pin DIP	221–0358	1
U7	Integrated Circuit, MAX233,Dual RS232 Driver/Receiver 20–Pin DIP	229–0233	1
U8	Integrated Circuit, LM317T, Adjustable Positive Voltage Regulator, 1.2V to 37V, 1.5 Ampere, TO–220 Case	227–0317	1
U9	Integrated Circuit, 82C55A, Peripheral Interface, 44–Pin PLCC	229–8255–001	1

TABLE 6-27. CLOCK TIMER MODULE ASSEMBLY - 951-0037
(Sheet 3 of 3)

REF. DES.	DESCRIPTION	PART NO.	QTY.
U10 THRU U12	Integrated Circuit, ULN2068B,35V, 1..5A Darlington Quad Driver 16-Pin DIP	220-2068	3
U13	Integrated Circuit, UDN2981A, CMOS, HIGH-Voltage/High-Current Source Drivers, 50V @ 350mA, 18-Pin DIP	220-2981	1
W1 THRU W6	Flexstrip Jumper 22-Pin	417-0253	6
XU1	Socket, 44Pin PLCC	417-4401	1
XU2	Socket, 14-Pin DIP	417-1404	1
XU3	Socket, 20-Pin DIP	417-2004	1
XU4	Socket, 28-Pin DIP	417-2804	1
XU5	Socket, 28-Pin PLCC	417-2801	1
XU6	Socket, 8-Pin DIP	417-0804	1
XU7	Socket, 20-Pin DIP	417-2004	1
XU9	Socket, 44Pin PLCC	417-4401	1
XU10 THRU XU13	Socket, 16-Pin DIP	417-1604	4
Y1	Crystal, 11.0592 MHZ NE-18 Case	390-0033	1
Y2	Oscillator, Crystal, NTF3238C, 10.5 pF, 32.768 kHz	390-0011	1
----	Blank Clock/Timer Module Circuit Board	511-0037	1

TABLE 6-28. VU METER ASSEMBLY - 951-0044

REF. DES.	DESCRIPTION	PART NO.	QTY.
----	Blank Circuit Board, VU Meter Assembly	511-0044	1
D1,D2	Diode, Zener, 1N4735, 6.2V ±10%, 1W	200-4735	2
DS1,DS2	Lamp, FK6332430, Incandescent, 24V, 3 Watts	321-0692	2
DS3	LED, 534141, Red, Peak Flasher, PCB Mount	320-0029	1
J1	Receptacle, Male, 8-Pin In-Line, Right Angle	417-0080-001	1
M1	Meter, 3.5 Inch (8.89 cm), Model 3LW Window Mount w/Peak Flasher, Taut Band Type, 3900 Ohm Resistance	319-0004	1
XDS1,XDS2	Fuse Clips, AGC	415-2068	4

TABLE 6-29. POWER DISTRIBUTION ASSEMBLY - 911-6031

REF. DES.	DESCRIPTION	PART NO.	QTY.
J1 THRU J8	Connector, Male, 4-Pin	418-0255	8
----	Blank, Power Distribution Circuit Board	511-6031	0.33

TABLE 6-30. INSTALLATION KIT, 6 CHANNEL ASSEMBLY - 971-0032

REF. DES.	DESCRIPTION	PART NO.	QTY.
----	Adjustment Tool, 8 T000/5 Spectrol	407-0186	1
----	Tool, Contact Removal	710-0002	1
----	Receptacle, 20-Pin	417-0176	6
----	Connector Housing, 6-Pin	418-0670	7
----	Plug, Housing, 4-Pin	418-0240	2
----	Connector, Housing, 15-Pin	417-2379	3
----	Plug, Connector Housing, 12-Pin	418-1271	6
----	Crimping Tool	300-0009	1
----	Pins, Connector	417-0053	350
----	Source Remote Relay Interface Circuit Board Kit Assembly	951-6021-001	2
----	Relay, On Air Warning Light	951-0036	1
----	Housing, 9-Pin In-Line	417-0161	1
----	Pins, Connector	417-8766	9

TABLE 6-31. INSTALLATION KIT, 12 CHANNEL ASSEMBLY - 971-0033

REF. DES.	DESCRIPTION	PART NO.	QTY.
----	Adjustment Tool, 8 T000/5 Spectrol	407-0186	1
----	Tool, Contact Removal	710-0002	1
----	Receptacle, 20-Pin	417-0176	12
----	Connector Housing, 6-Pin	418-0670	7
----	Plug, Housing, 4-Pin	418-0240	2
----	Connector, Housing, 15-Pin	417-2379	3
----	Plug, Connector Housing, 12-Pin	418-1271	12
----	Crimping Tool	300-0009	1
----	Pins, Connector	417-0053	625
----	Source Remote Relay Interface Circuit Board Kit Assembly	951-6021-001	2
----	Relay, On Air Warning Light	951-0036	1
----	Housing, 9-Pin In-Line	417-0161	1
----	Pins, Connector	417-8766	9

TABLE 6-32. INSTALLATION KIT, 18 CHANNEL ASSEMBLY - 971-0034

REF. DES.	DESCRIPTION	PART NO.	QTY.
----	Adjustment Tool, 8 T000/5 Spectrol	407-0186	1
----	Tool, Contact Removal	710-0002	1
----	Receptacle, 20-Pin	417-0176	18
----	Connector Housing, 6-Pin	418-0670	7
----	Plug, Housing, 4-Pin	418-0240	2
----	Connector, Housing, 15-Pin	417-2379	3
----	Plug, Connector Housing, 12-Pin	418-1271	18
----	Crimping Tool	300-0009	1
----	Pins, Connector	417-0053	890
----	Source Remote Relay Interface Circuit Board Kit Assembly	951-6021-001	2
----	Relay, On Air Warning Light	951-0036	1
----	Housing, 9-Pin In-Line	417-0161	1
----	Pins, Connector	417-8766	9

TABLE 6-33. INSTALLATION KIT, 24 CHANNEL ASSEMBLY - 971-0035

REF. DES.	DESCRIPTION	PART NO.	QTY.
----	Adjustment Tool, 8 T000/5 Spectrol	407-0186	1
----	Tool, Contact Removal	710-0002	1
----	Receptacle, 20-Pin	417-0176	24
----	Connector Housing, 6-Pin	418-0670	7
----	Plug, Housing, 4-Pin	418-0240	2
----	Connector, Housing, 15-Pin	417-2379	3
----	Plug, Connector Housing, 12-Pin	418-1271	24
----	Crimping Tool	300-0009	1
----	Pins, Connector	417-0053	1155
----	Source Remote Relay Interface Circuit Board Kit Assembly	951-6021-001	2
----	Relay, On Air Warning Light	951-0036	1
----	Housing, 9-Pin In-Line	417-0161	1
----	Pins, Connector	417-8766	9

TABLE 6-34. SPARE PARTS KIT, 6,12,18 & 24 CH. AT-90 - 971-0050-001

REF. DES.	DESCRIPTION	PART NO.	QTY.
----	Fuse, AGC, 1A, 250V, Slow-Blow (for 115 Volt operation)	334-0100	1
----	Fuse, 3AG, 32V, 4 Amperes	330-0400	1
----	Fuse, 3AG, 250V, 3 Amperes	330-0300	1
----	Fuse, AGC, 250V, 1/4 Ampere	330-0025	1
----	Fuse, 3AG, 250V, 5 Amperes	330-0500	1
----	Integrated Circuit, M74HC4052B1, Dual 4-Channel Analog Multiplexers/Demultiplexers, CMOS MS1, 2P4T, 16-Pin DIP	220-4052-001	1
----	Jumper, Programmable, 2-Pin	340-0004	2
----	Lamp, No. 73, 14V, 0.08A, T-1 3/4 Bulb, Wedge Base	320-0007	2
----	Integrated Circuit, 4N33, Optical Isolator, NPN Photo Transistor/Infared Emitting Diode Type, 1500V Isolation, Response: 30 kHz Maximum, Current: 50 mA Maximum, 6-Pin DIP	229-0033	1
----	Lamp, FK6332430, Incandescent, 24V, 3 Watts	321-0692	2

TABLE 6-35. CABLE ASSEMBLY, 6 CHANNEL AT-90 CONSOLE - 941-0055

REF. DES.	DESCRIPTION	PART NO.	QTY.
----	Connector Housing, 6-Pin	418-0670	12
----	Connector, 16-Pin	417-0131	4
----	Plug, 26-Pin, Dual In-Line	417-0047	6
----	Plug, 40-Pin, Dual In-Line	417-0118	4
----	Connector Housing, 10-Pin	417-0148	1
----	Plug, Housing, 8-Pin	417-0046	5
----	Pins, Crimp Type	417-8766	55
----	Plug, Housing, 12-Pin	417-1202	1
----	Socket, Connector, 10-Pin	417-1003	2
----	Pins, Connector	417-0053	24
----	Cable Assembly, ON/OFF Switch Interface Circuit Board To Control Control Circuit Board	941-0061	6
----	Cable Assembly, Input Circuit Board To Control Circuit Board	941-0062	6

TABLE 6-36. CABLE ASSEMBLY, 12 CHANNEL AT-90 CONSOLE - 941-0056

REF. DES.	DESCRIPTION	PART NO.	QTY.
----	Connector Housing, 6-Pin	418-0670	24
----	Connector, 16-Pin	417-0131	2
----	Plug, 26-Pin, Dual In-Line	417-0047	12
----	Plug, 40-Pin, Dual In-Line	417-0118	4
----	Connector Housing, 10-Pin	417-0148	1
----	Plug, Housing, 8-Pin	417-0046	9
----	Pins, Crimp Type	417-8766	83
----	Plug, Housing, 12-Pin	417-1202	1
----	Socket, Connector, 10-Pin	417-1003	2
----	Pins, Connector	417-0053	48
----	Cable Assembly, ON/OFF Switch Interface Circuit Board To Control Control Circuit Board	941-0061	12
----	Cable Assembly, Input Circuit Board To Control Circuit Board	941-0062	12

TABLE 6-37. CABLE ASSEMBLY, 18 CHANNEL AT-90 CONSOLE - 941-0057

REF. DES.	DESCRIPTION	PART NO.	QTY.
----	Connector Housing, 6-Pin	418-0670	36
----	Connector, 16-Pin	417-0131	2
----	Plug, 26-Pin, Dual In-Line	417-0047	18
----	Plug, 40-Pin, Dual In-Line	417-0118	4
----	Connector Housing, 10-Pin	417-0148	1
----	Plug, Housing, 8-Pin	417-0046	9
----	Pins, Crimp Type	417-8766	83
----	Plug, Housing, 12-Pin	417-1202	1
----	Socket, Connector, 10-Pin	417-1003	2
----	Pins, Connector	417-0053	72
----	Cable Assembly, ON/OFF Switch Interface Circuit Board To Control Control Circuit Board	941-0061	18
----	Cable Assembly, Input Circuit Board To Control Circuit Board	941-0062	18

TABLE 6-38. CABLE ASSEMBLY, 24 CHANNEL - 941-0058

REF. DES.	DESCRIPTION	PART NO.	QTY.
----	Connector Housing, 6-Pin	418-0670	48
----	Connector, 16-Pin	417-0131	2
----	Plug, 26-Pin, Dual In-Line	417-0047	24
----	Plug, 40-Pin, Dual In-Line	417-0118	4
----	Connector Housing, 10-Pin	417-0148	1
----	Plug, Housing, 8-Pin	417-0046	12
----	Pins, Crimp Type	417-8766	105
----	Plug, Housing, 12-Pin	417-1202	1
----	Socket, Connector, 10-Pin	417-1003	2
----	Pins, Connector	417-0053	96
----	Cable Assembly, ON/OFF Switch Interface Circuit Board To Control Control Circuit Board	941-0061	24
----	Cable Assembly, Input Circuit Board To Control Circuit Board	941-0062	24

TABLE 6-39. CABLE ASSEMBLY, POWER SUPPLY - 941-0036-001

REF. DES.	DESCRIPTION	PART NO.	QTY.
----	Pins, Connector	417-0053	24
----	Plug, Connector Housing, 12-Pin	418-1271	2
----	Plug, Housing, 4-Pin	418-0240	1

TABLE 6-40. OPTIONAL RELAY INTERFACE CIRCUIT BOARD ASSEMBLY - 951-6021

REF. DES.	DESCRIPTION	PART NO.	QTY.
C1	Capacitor, Electrolytic, 100 uF, 25V	013-1084	1
D2 THRU D5	Diode, 1N4005, Silicon, 600V @ 1 Ampere	203-4005	4
J1,J2	Receptacle, 12-Pin	417-1276	2
K1 THRU K4	Relay, Circuit Board Mount Coil: 12V dc Contacts: SPDT, 3A @ 28V dc and 3A @ 120V ac	270-0059	4
K5,K6	Relay, Coil: 12V dc, 800 Ohms Contacts: 100V dc @ 0.5 Amperes Maximum	270-0056	2
----	Resistor, 1 Ohm ±5%, 1/4W	100-1013	1
----	Blank Circuit Board, Relay Interface	511-6021	1

TABLE 6-41. SOURCE REMOTE RELAY INTERFACE CIRCUIT BOARD KIT 951-6021-001

REF. DES.	DESCRIPTION	PART NO.	QTY.
----	Source Remote Relay Interface Circuit Board	951-6021	1
----	Cable Assembly, Source Remote Relay Interface Circuit Board	941-0063	1

TABLE 6-42. AUTOMATIC POWER SUPPLY SWITCHER PANEL - 951-0042

REF. DES.	DESCRIPTION	PART NO.	QTY.
----	Automatic Switcher Front Panel	471-0908	1
----	Power Supply Switchover Circuit Board Assembly	911-6032	1
----	Automatic Power Supply Switcher Cable Assembly	941-0032	2

TABLE 6-43. POWER SUPPLY SWITCHOVER CIRCUIT BOARD ASSEMBLY - 911-6032 (Sheet 1 of 2)

REF. DES.	DESCRIPTION	PART NO.	QTY.
D1 THRU D14	Diode, MR751, Silicon, 100V @ 6 Amperes	202-0751	14
D15 THRU D18	Diode, Schottky, MBR360, 60V @ 3 Amperes	203-0360	4
D19 THRU D22	Diode, Zener, 1N4746, 18V ±10%, 1W	200-4746	4
D23 THRU D30	Diode, Zener, 1N4740A, 10V, 7 Ohm	200-4740	8
D31, D32	Diode, Zener, 7.5V ±5%, 1W	200-4737	2
DS1 THRU DS18	Indicator, LED, Green, 521-9175, 3V @ 40 mA Maximum	323-9224	18

TABLE 6-43. POWER SUPPLY SWITCHOVER CIRCUIT BOARD ASSEMBLY - 911-6032
(Sheet 2 of 2)

REF. DES.	DESCRIPTION	PART NO.	QTY.
J1 THRU J3	Receptacle, 12-Pin	417-1276	3
R1 THRU R4	Resistor, 562 Ohm ±1%, 1/4W	103-5623	4
R5 THRU R12	Resistor, 681 Ohm ±1%, 1/4W	103-6813	8
R13, R14	Resistor, 562 Ohm ±1%, 1/4W	103-5623	2
R15 THRU R18	Resistor, 604 Ohm±1%, 1/4W	100-6031	4
----	Blank, Power Supply Switchover Circuit Board	511-6032	1

SECTION VII
DRAWINGS

7-1. INTRODUCTION.

7-2. This section provides assembly drawings, wiring diagrams, and schematic diagrams as listed below for the Broadcast Electronics Air -Trak 90/100 series audio consoles.

FIGURE	TITLE	NUMBER
7-1	OVERALL CONNECTION DIAGRAM, AT-90 CONSOLE	597-6000-41
7-2	SCHEMATIC DIAGRAM, 6 CHANNEL AUDIO INPUT CIRCUIT BOARD	SD911-6008/-401
7-3	ASSEMBLY DIAGRAM, 6 CHANNEL AUDIO INPUT CIRCUIT BOARD	AC911-6008/-401
7-4	SCHEMATIC DIAGRAM, 6 CHANNEL/ 2 CHANNEL INPUT CONTROL CIRCUIT BOARD	SB911-6010-001/ -002 -400
7-5	ASSEMBLY DIAGRAM, 6 CHANNEL/2 CHANNEL INPUT CONTROL CIRCUIT BOARD	AC911-6010-001 -002 -400
7-6	SCHEMATIC DIAGRAM, AUDIO OUTPUT CIRCUIT BOARD	SD911-6004-001
7-7	ASSEMBLY DIAGRAM, AUDIO OUTPUT CIRCUIT BOARD	AD911-6004-001
7-8	SCHEMATIC DIAGRAM, DISTRIBUTION/SWITCH/ DISPLAY CIRCUIT BOARD	SD911-6007/ -001 -002
7-9	ASSEMBLY DIAGRAM, DISTRIBUTION/SWITCH/ DISPLAY CIRCUIT BOARD	AC911-6007/ -001 -002
7-10	SCHEMATIC DIAGRAM, MONITOR DISTRIBUTION CIRCUIT BOARD	SD911-6000-A
7-11	SCHEMATIC DIAGRAM, HEADPHONE SELECT CIRCUIT BOARD	SC911-6000-B
7-12	SCHEMATIC DIAGRAM, CONTROL ROOM MONITOR SELECT CIRCUIT BOARD	SC911-6000-C
7-13	SCHEMATIC DIAGRAM, TIMER RESET CIRCUIT BOARD	SC911-6000-D
7-14	SCHEMATIC DIAGRAM, HEADPHONE CONTROL ROOM CUE GAIN CIRCUIT BOARD	SC911-6000-E
7-15	ASSEMBLY DIAGRAM, 911-6000-A THROUGH 911-6000-E CIRCUIT BOARDS	AC911-6000-A-E
7-16	SCHEMATIC DIAGRAM, RELAY INTERFACE CIRCUIT BOARD	SC951-6021
7-17	ASSEMBLY DIAGRAM, RELAY INTERFACE CIRCUIT BOARD	AB951-6021
7-18	SCHEMATIC DIAGRAM, POWER SUPPLY MODULE	SC951-6030/-300
7-19	SCHEMATIC DIAGRAM, POWER SUPPLY REGULATOR CIRCUIT BOARD	SC911-6030

J2	
PIN	DESCRIPTION
1	REMOTE "ON"
2	"ON" TALLY
3	REMOTE "OFF"
4	"OFF" TALLY
5	"A" START
6	"A" START
7	"B" START
8	"B" START
9	"C" START
10	"C" START
11	GROUND
12	TALLY COMMON

J11,J12,J21,J30,J39,J48	
PIN	DESCRIPTION
1	REMOTE "ON" SWITCH
2	"ON" TALLY
3	REMOTE "OFF" SWITCH
4	"OFF" TALLY
5	"A" START
6	GROUND
7	"B" START
8	GROUND
9	"C" START
10	GROUND
11	GROUND
12	+14V

J7 TO J6	
PIN	DESCRIPTION
1	POWER GROUND
2	FADER GROUND
3	POWER GROUND
4	POWER GROUND
5	CUE REF. VOLTAGE,+4.9V
6	POWER GROUND
7	NO CONNECTION
8	POWER GROUND
9	FADER REFERENCE,+5.0V
10	POWER GROUND
11	CUE CONTROL
12	POWER GROUND
13	STUDIO MUTE
14	POWER GROUND
15	C/R MUTE
16	POWER GROUND
17	TIMER RESET
18	+16.5V
19	+16.5V
20	+16.5V

J7 TO J2			
PIN	DESCRIPTION	PIN	DESCRIPTION
1	POWER GROUND	14	POWER GROUND
2	FADER GROUND	15	C/R MUTE
3	POWER GROUND	16	POWER GROUND
4	POWER GROUND	17	TIMER RESET
5	CUE REF. VOLTAGE,+4.95V	18	+14V
6	POWER GROUND	19	+14V
7	SWITCHED +8.0V	20	+14V
8	POWER GROUND	21	+14V
9	FADER REF.,+5.0V	22	+14V
10	POWER GROUND	23	+14V
11	CUE CONTROL	24	+14V
12	POWER GROUND	25	+14V
13	STUDIO MUTE	26	+14V

J8,J17,J26,J35,J44, & J53 TO J75	
PIN	DESCRIPTION
1	+14V
2	ON SWITCH CONTROL
3	ON SWITCH LAMP, +
4	ON SWITCH LAMP, -
5	GROUND
6	OFF SWITCH CONTROL
7	OFF SWITCH LAMP, +
8	OFF SWITCH LAMP, -
9	CUE LED, ANODE
10	CUE LED, CATHODE

J600,J500,J400,J300,J200,&J100	
PIN	DESCRIPTION
1	A INPUT, RIGHT CHANNEL, -
2	A INPUT, RIGHT CHANNEL, +
3	A INPUT, LEFT CHANNEL, -
4	A INPUT, LEFT CHANNEL, +
5	CHASSIS GROUND
6	CHASSIS GROUND
7	CHASSIS GROUND
8	CHASSIS GROUND
9	B INPUT, RIGHT CHANNEL, -
10	B INPUT, RIGHT CHANNEL, +
11	B INPUT, LEFT CHANNEL, -
12	B INPUT, LEFT CHANNEL, +
13	CHASSIS GROUND
14	CHASSIS GROUND
15	CHASSIS GROUND
16	CHASSIS GROUND
17	C INPUT, RIGHT CHANNEL, -
18	C INPUT, RIGHT CHANNEL, +
19	C INPUT, LEFT CHANNEL, -
20	C INPUT, LEFT CHANNEL, +

J604,J204,J304,J404,J504,J604	
PIN	DESCRIPTION
1	LEFT CHAN CHASSIS GND
2	LEFT CHAN CHASSIS GND
3	LEFT CHAN PATCH INPUT
4	LEFT CHAN PATCH OUTPUT
5	LEFT CHAN SIGNAL GND
6	LEFT CHAN SIGNAL GND

J605,J205,J305,J405,J505,J605	
PIN	DESCRIPTION
1	RIGHT CHAN CHASSIS GND
2	RIGHT CHAN CHASSIS GND
3	RIGHT CHAN PATCH INPUT
4	RIGHT CHAN PATCH OUTPUT
5	RIGHT CHAN SIGNAL GND
6	RIGHT CHAN SIGNAL GND

J606 TO J5,J506 TO J16,J406 TO J25, J306 TO J34,J206 TO J43,J106 TO J52	
PIN	DESCRIPTION
1	FADER REFERENCE, +5V
2	INPUT SWITCH CONTROL, "B"
3	VCA CONTROL VOLTAGE
4	INPUT SWITCH CONTROL, "A"
5	OUTPUT SWITCH CONTROL, INH
6	FADER GROUND
7	OUTPUT SWITCH CONTROL, "A" PGM
8	NO CONNECTION
9	OUTPUT SWITCH CONTROL,"C",CUE
10	OUTPUT SWITCH CONTROL,"B",AUD

J7 TO J13	
PIN	DESCRIPTION
1	LEFT PK LED, OUT
2	LEFT AUD PK LED, +
3	LEFT PGM PK LED, +
4	LEFT PGM VU METER, +
5	GROUND
6	LEFT VU METER, OUT
7	GROUND
8	LEFT AUD VU METER, +
9	GROUND
10	RIGHT AUD VU METER, +
11	GROUND
12	RIGHT VU METER, OUT
13	RIGHT PGM PK LED, +
14	RIGHT PGM VU METER, +
15	RIGHT PK LED, OUT
16	RIGHT AUD PK LED, +

J5 TO J12	
PIN	DESCRIPTION
1	MONO AUD P.A. LED, +
2	MONO AUD P.A. LED, -
3	MONO PGM P.A. LED, -
4	MIX MINUS P.A. LED, +
5	MONO PGM P.A. LED, +
6	MIX MINUS P.A. LED, -
7	MONO AUD/PGM PHASE LED,-
8	-24V
9	MONO AUD PHASE LED, +
10	-16.5V
11	MONO PGM PHASE LED, +
12	-6V
13	+24V
14	GROUND
15	+8V
16	+16.5V

J2,J3,J4,J5,J14,J15 TO J1	
PIN	DESCRIPTION
1	+24V
2	+/-24V COMMON
3	-24V
4	PEAK LED, +
5	PEAK LED, -
6	NO CONNECTION
7	VU METER, -
8	VU METER, +

LEFT CHANNEL AUDITION VU METER CIRCUIT BOARD 951-0044 — J1

MONO AUDITION VU METER CIRCUIT BOARD 951-0044 — J1

RIGHT CHANNEL AUDITION VU METER CIRCUIT BOARD 951-0044 — J1

LEFT CHANNEL PROGRAM VU METER CIRCUIT BOARD 951-0044 — J1

MONO PROGRAM VU METER CIRCUIT BOARD 951-0044 — J1

RIGHT CHANNEL PROGRAM VU METER CIRCUIT BOARD 951-0044 — J1

METER SWITCH CIRCUIT BOARD 911-6007-C — J13

AUDIO/POWER DISPLAY CIRCUIT BOARD 911-6007-B — J12

VU METER DISTRIBUTION CIRCUIT BOARD 911-6007-001 — J3, J5, J2, J4, J7, J14, J1, J6

J1 TO J11	
PIN	DESCRIPTION
1	LEFT PROGRAM PK LED,+
2	LEFT PGM PK LED,RETURN
3	LEFT PROGRAM VU METER,+
4	LEFT PROGRAM VU METER,GROUND
5	LEFT AUDITION PK LED,+
6	LEFT AUDITION PK LED,RETURN
7	LEFT AUDITION VU METER,+
8	LEFT AUDITION VU METER,GROUND
9	RIGHT PROGRAM PK LED,+
10	RIGHT PROGRAM PK LED,RETURN
11	RIGHT AUDITION PK LED,+
12	RIGHT AUDITION PK LED,RETURN
13	RIGHT PROGRAM VU METER,+
14	RIGHT PROGRAM VU METER,GROUND
15	RIGHT AUDITION VU METER,+
16	RIGHT AUDITION VU METER,GROUND
17	MONO PROGRAM LED P.A.,+
18	MONO PROGRAM LED P.A.,GROUND
19	MONO AUDITION LED P.A.,+
20	MONO AUDITION LED P.A.,GROUND
21	MIX - LED P.A.,+
22	MIX - LED P.A.,GROUND
23	LEFT PROGRAM AUDIO,+
24	LEFT PROGRAM AUDIO,GROUND
25	LEFT AUDITION AUDIO,+
26	LEFT AUDITION AUDIO,GROUND
27	RIGHT PROGRAM AUDIO,+
28	RIGHT PROGRAM AUDIO,GROUND
29	RIGHT AUDITION AUDIO,+
30	RIGHT AUDITION AUDIO,GROUND
31	+8V
32	-8V
33	+24V/-24V COMMON
34	GROUND
35	+16.5V
36	-16.5V
37	+24V
38	+24V
39	-24V
40	-24V

J1 TO J12	
PIN	DESCRIPTION
1	PUSH TO TALK, HIGH
2	CLOCK GROUND
3	PUSH TO TALK, GROUND RETURN
4	CLOCK GROUND
5	HEADPHONE SELECT, "A"
6	CLOCK GROUND
7	HEADPHONE SELECT, "B"
8	CLOCK GROUND
9	HEADPHONE SELECT, "C"
10	CONTROL GROUND
11	HEADPHONE SELECT, INHIBIT
12	CONTROL GROUND
13	C/R MONITOR SELECT, "A"
14	CONTROL GROUND
15	C/R MONITOR SELECT "B"
16	CONTROL GROUND
17	C/R MONITOR SELECT, "C"
18	CONTROL GROUND
19	C/R MONITOR SELECT, INHIBIT
20	CONTROL GROUND
21	HEADPHONE GAIN CONTROL
22	FADER GROUND
23	C/R MONITOR GAIN CONTROL
24	GROUND
25	CUE GAIN CONTROL
26	+14V LOGIC
27	REMOTE GAIN CONTROL GROUND RETURN
28	+14V, LOGIC
29	+5V FADER REFERENCE
30	+14V, LOGIC
31	CUE CONTROL
32	+14V, LOGIC
33	STUDIO MUTE
34	+14V, LOGIC
35	C/R MUTE
36	+14V, LOGIC
37	MONO TEST CONTROL
38	+14V, LOGIC
39	+14V, LOGIC
40	+14V, LOGIC

J1	
PIN	DESCRIPTION
1	SYNC AUDIO +
2	SYNC AUDIO -
3	NO CONNECTION
4	SERIAL IN
5	SERIAL OUT
6	AUD TIMER CONTROL
7	PGM TIMER CONTROL
8	GROUND
9	+12.6V

J10 TO J2	
PIN	DESCRIPTION
1	NO CONNECTION
2	NO CONNECTION
3	+11V/+12V
4	GROUND
5	AUTO/MANUAL MODE
6	KEY
7	AUTO/RESET START
8	MANUAL RESET
9	START
10	STOP

CLOCK/TIMER MODULE 951-0037 — J1, J2

S1 TALKBACK NO RED BLK

HEADPHONE CONTROL ROOM CUE GAIN CIR.BD. 911-6000-E — J11

TIMER RESET CIRCUIT BOARD 911-6000-D — J9, J10

HEADPHONE SELECT CIRCUIT BOARD 911-6000-B — J7

MONITOR SELECT CIRCUIT BOARD 911-6000-C — J8

MONITOR DISTRIBUTION CIRCUIT BOARD 911-6000-A — J2, J1, J3, J6, J4, J5

J3 TO J11	
PIN	DESCRIPTION
1	+5.0V REFERENCE
2	+5.0V REFERENCE
3	HEADPHONE CNTL VOLTAGE
4	C/R MON. CNTL VOLTAGE
5	CUE CNTL VOLTAGE
6	GROUND
7	GROUND
8	GROUND
9	PUSH TO TALK
10	PUSH TO TALK

J8 TO J9	
PIN	DESCRIPTION
1	GROUND
2	GROUND
3	GROUND
4	GROUND
5	GROUND
6	+14V
7	TIMER RESET
8	+14V
9	MONO TEST CNTL
10	+14V

J5 TO J7	
PIN	DESCRIPTION
1	GROUND
2	GROUND
3	HEADPHONE CNTL INHIBIT
4	GROUND
5	HEADPHONE CONTROL "C"
6	GROUND
7	HEADPHONE CONTROL "B"
8	GROUND
9	HEADPHONE CONTROL "A"
10	+6.0V SWITCHED

J4 TO J8	
PIN	DESCRIPTION
1	GROUND
2	GROUND
3	C/R MON. CONTROL INHIBIT
4	GROUND
5	C/R MONITOR CONTROL "A"
6	GROUND
7	C/R MONITOR CONTROL "B"
8	GROUND
9	C/R MONITOR CONTROL "A"
10	+6.0V SWITCHED

J7	
PIN	DESCRIPTION
1	MIX MINUS LINE OUTPUT, -
2	CHASSIS GROUND
3	MIX MINUS LINE OUTPUT, +
4	CHASSIS GROUND

J5	
PIN	DESCRIPTION
1	RIGHT EXT C/R MONITOR OUTPUT, +
2	LEFT EXT C/R MONITOR OUTPUT, +
3	RIGHT EXT. C/R MON. OUTPUT,GND RETURN
4	LEFT EXT. C/R MON. OUTPUT,GND RETURN
5	CHASSIS GROUND
6	CHASSIS GROUND

J4	
PIN	DESCRIPTION
1	RIGHT EXT PHONE OUTPUT, +
2	LEFT EXT PHONE OUTPUT, +
3	RIGHT EXT PHONE OUTPUT,GND RETURN
4	LEFT EXT PHONE OUTPUT,GND RETURN
5	CHASSIS GROUND
6	CHASSIS GROUND

J8	
PIN	DESCRIPTION
1	AUD MONO LINE OUTPUT, +
2	PGM MONO LINE OUTPUT, +
3	AUD MONO LINE OUTPUT, -
4	PGM MONO LINE OUTPUT, -
5	CHASSIS GROUND
6	CHASSIS GROUND

J6	
PIN	DESCRIPTION
1	RIGHT EXT STUDIO MON OUTPUT, +
2	LEFT EXT STUDIO MON OUTPUT, +
3	RIGHT EXT. STUDIO MON. OUTPUT,GND RETURN
4	LEFT EXT. STUDIO MON. OUTPUT,GND RETURN
5	CHASSIS GROUND

J3	
PIN	DESCRIPTION
1	EXT CUE OUTPUT, +
2	EXT CUE OUTPUT,GROUND RETURN
3	CHASSIS GROUND
4	CHASSIS GROUND

J10	
PIN	DESCRIPTION
1	RIGHT PGM LINE OUTPUT, +
2	LEFT PGM LINE OUTPUT, +
3	RIGHT PGM LINE OUTPUT, -
4	LEFT PGM LINE OUTPUT, -
5	CHASSIS GROUND

J9	
PIN	DESCRIPTION
1	RIGHT AUD LINE OUTPUT, +
2	LEFT AUD LINE OUTPUT, +
3	RIGHT AUD LINE OUTPUT, -
4	LEFT AUD LINE OUTPUT, -
5	CHASSIS GROUND
6	CHASSIS GROUND

J19	
PIN	DESCRIPTION
1	+24V
2	-24V
3	+14V, LOGIC
4	+24V/-24V/+14V COMMON

J13	
PIN	DESCRIPTION
1	LEFT HEADPHONE, +
2	LEFT HEADPHONE, COMMON
3	RIGHT HEADPHONE, +
4	RIGHT HEADPHONE,COMMON
5	H.P./CUE GROUND LINE
6	NO CONNECTION, KEY
7	CUE SPEAKER, +
8	CUE SPEAKER, COMMON

J10 J9 J8 J7 J6 J5 J4 J3 — J11, J19, J12

J2 J1 — J16

J17 J18 — AUDIO OUTPUT CIRCUIT BOARD 911-6004-001 — J13 J15 J14

YELLOW BLUE — CUE SPEAKER SPKR 1

HEADPHONE RECEPTACLE — YELLOW YELLOW GREEN BLUE SHLD — J1

J1 POWER SUPPLY MODULE 951-6030

J2 OPTIONAL RELAY INTERFACE CIRCUIT BOARD 951-6021 — J1

CONTROL LOGIC HYBRID ASSEMBLIES 220-0018-001 — J1, J12, J21, J30, J39, J48

2-CHANNEL CONTROL CIRCUIT BOARD 911-6010-400
8-CHANNEL CONTROL CIRCUIT BOARD 911-6010-002 — J75

ON/OFF SWITCH INTERFACE CIR.BD. 911-6010-002/400

CHANNEL 1 CHANNEL 2 CHANNEL 3 CHANNEL 4 CHANNEL 5 CHANNEL 6 — CHANNEL FADER

J600 J500 J400 J300 J200 J100

6-CHANNEL AUDIO INPUT CIRCUIT BOARD 911-6008

2-CHANNEL AUDIO INPUT CIRCUIT BOARD 911-6008-401 — J3, J4, J1, J2

J2 OPTIONAL RELAY INTERFACE CIRCUIT BOARD 951-6021 — J1

CONTROL LOGIC HYBRID ASSEMBLIES 220-0018-001 — J1, J12, J21, J30, J39, J48

2-CHANNEL CONTROL CIRCUIT BOARD 911-6010-400
8-CHANNEL CONTROL CIRCUIT BOARD 911-6010-002 — J75

ON/OFF SWITCH INTERFACE CIR.BD. 911-6010-002/400

CHANNEL 7 CHANNEL 8 CHANNEL 9 CHANNEL 10 CHANNEL 11 CHANNEL 12 — CHANNEL FADER

J600 J500 J400 J300 J200 J100

6-CHANNEL AUDIO INPUT CIRCUIT BOARD 911-6008

2-CHANNEL AUDIO INPUT CIRCUIT BOARD 911-6008-401 — J3, J4, J1, J2

J1 TO J3	
PIN	DESCRIPTION
1,2	LEFT PROGRAM SIGNAL
3,4	LEFT PROGRAM GROUND
5,6	LEFT AUDITION SIGNAL
7,8	LEFT AUDITION GROUND
9,10	RIGHT AUDITION SIGNAL
11,12	RIGHT AUDITION GROUND
13,14	RIGHT PROGRAM SIGNAL
15,16	RIGHT PROGRAM GROUND
17,18	MIX MINUS SIGNAL
19,20	MIX MINUS GROUND
21,22	CUE SIGNAL
23,24	CUE GROUND
25,26	POWER GROUND

J2 TO J4	
PIN	DESCRIPTION
1,2	GROUND
3,4	GROUND
5,6	GROUND
7,8	+16.5V
9,10	+16.5V
11,12	+16.5V
13,14	-6V
15,16	-6V
17,18	-16.5V
19,20	-16.5V
21,22	-16.5V
23,24	+6V
25,26	+6V

J1 TO J7	
PIN	DESCRIPTION
1,2	GROUND
3,4	GROUND
5,6	GROUND
7,8	+16.5V
9,10	+16.5V
11,12	+16.5V
13,14	-6V
15,16	-6V
17,18	-16.5V
19,20	-16.5V
21,22	-16.5V
23,24	+6V
25,26	+6V

J16 (AUDIO OUTPUT PCB)	
PIN	DESCRIPTION
1	EXTERNAL CUE INPUT,-
2	EXTERNAL CUE INPUT,+
3	CHASSIS GROUND
4	PUSH TO TALK,REMOTE,HIGH(+8 TO 9V)
5	PUSH TO TALK,REMOTE,RETURN GND
6	CHASSIS GROUND
7	EXT CUE CONTROL,REMOTE,HIGH(+13 TO 14V)
8	EXT CUE CONTROL,REMOTE,RETURN GND
9	CHASSIS GROUND
10	TALKBACK OUTPUT,+
11	TALKBACK OUTPUT,GND
12	CHASSIS GROUND
13	TALKBACK INPUT,+
14	TALKBACK INPUT,GND
15	CHASSIS GROUND

J15 (AUDIO OUTPUT PCB)	
PIN	DESCRIPTION
1	+/- 16.5V COM, H.P. & CUE
2	NO CONNECTION
3	+/- 16.5V COMMON, PGM
4	+/- 16.5V, H.P. & CUE
5	-6V
6	+6V
7	NO CONNECTION
8	NO CONNECTION
9	+16.5V, PGM
10	NO CONNECTION
11	-16.5V, H.P. & CUE
12	-16.5V, PGM

J2 (AUDIO OUTPUT PCB)	
PIN	DESCRIPTION
1	LEFT CHAN AIR 1, SIGNAL +
2	LEFT CHAN AIR 1, CHASSIS GND
3	LEFT CHAN AIR 1, SIGNAL GND
4	LEFT CHAN AIR 2, SIGNAL +
5	LEFT CHAN AIR 2, CHASSIS GND
6	LEFT CHAN AIR 2, SIGNAL GND
7	LEFT CHAN EXT 1, SIGNAL +
8	LEFT CHAN EXT 1, CHASSIS GND
9	LEFT CHAN EXT 1, SIGNAL GND
10	LEFT CHAN EXT 2, SIGNAL +
11	LEFT CHAN EXT 2, CHASSIS GND
12	LEFT CHAN EXT 2, SIGNAL GND
13	LEFT CHAN EXT 3, SIGNAL +
14	LEFT CHAN EXT 3, CHASSIS GND
15	LEFT CHAN EXT 3, SIGNAL GND

J1 (AUDIO OUTPUT PCB)	
PIN	DESCRIPTION
1	RIGHT CHAN AIR 1, SIGNAL +
2	RIGHT CHAN AIR 1, CHASSIS GND
3	RIGHT CHAN AIR 1, SIGNAL GND
4	RIGHT CHAN AIR 2, SIGNAL +
5	RIGHT CHAN AIR 2, CHASSIS GND
6	RIGHT CHAN AIR 2, SIGNAL GND
7	RIGHT CHAN EXT 1, SIGNAL +
8	RIGHT CHAN EXT 1, CHASSIS GND
9	RIGHT CHAN EXT 1, SIGNAL GND
10	RIGHT CHAN EXT 2, SIGNAL +
11	RIGHT CHAN EXT 2, CHASSIS GND
12	RIGHT CHAN EXT 2, SIGNAL GND
13	RIGHT CHAN EXT 3, SIGNAL +
14	RIGHT CHAN EXT 3, CHASSIS GND
15	RIGHT CHAN EXT 3, SIGNAL GND

J1 (POWER SUPPLY MODULE)	
PIN	DESCRIPTION
1	+16.5V,PGM
2	+/-16.5V COMMON,PGM
3	-16.5V,PGM
4	- 16.5V, H.P. & CUE
5	+6V
6	+14V LOGIC
7	+/-16.5V COMMON,HP & CUE
8	-6V
9	+14V/+24V/-24V COMMON
10	+16.5V HP & CUE
11	-24V
12	+24V

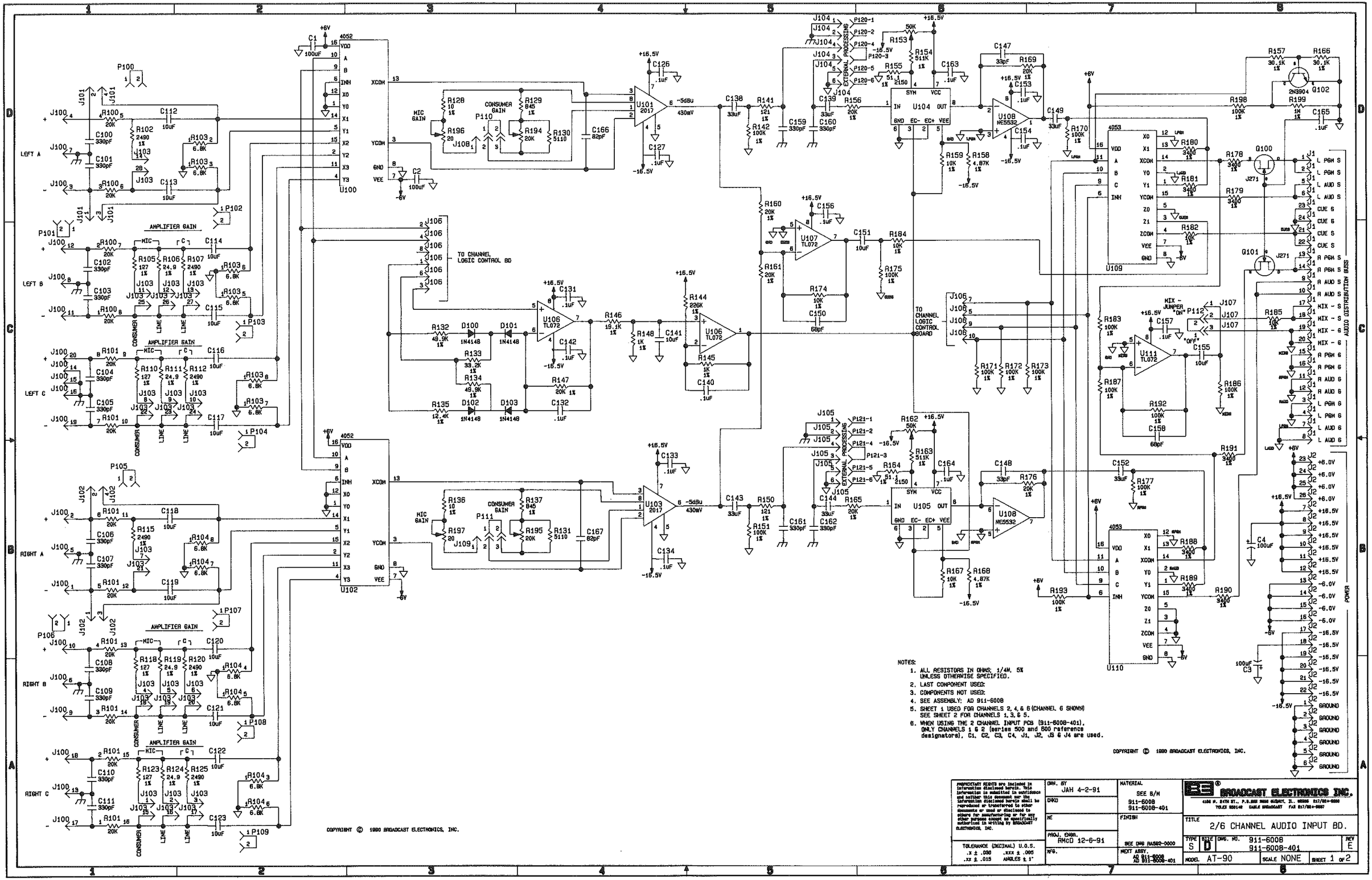
J14	
PIN	DESCRIPTION
1	C/R, MUTE, EMITTER, LOW
2	STUDIO, MUTE, EMITTER, LOW
3	C/R, MUTE, COLLECTOR, HIGH
4	STUDIO, MUTE, COLLECTOR, HIGH
5	CHASSIS GROUND
6	CHASSIS GROUND

NOTES:
1. FOR 6 CHANNEL CONSOLES - REMOVE 1 AUDIO INPUT/CHANNEL CONTROL NETWORK.
2. FOR 18 CHANNEL CONSOLES - ADD 1 AUDIO INPUT/CHANNEL CONTROL NETWORK.
3. FOR 24 CHANNEL CONSOLES - ADD 2 AUDIO INPUT/CHANNEL CONTROL NETWORKS.

597-6000-41

FIGURE 7-1. AT-90 CONSOLE, OVERALL CONNECTION DIAGRAM

BROADCAST ELECTRONICS INC



NOTES:

1. ALL RESISTORS IN OHMS; 1/4W, 5% UNLESS OTHERWISE SPECIFIED.
2. LAST COMPONENT USED:
3. COMPONENTS NOT USED:
4. SEE ASSEMBLY: AD 911-6008
5. SHEET 1 USED FOR CHANNELS 2, 4, & 6 (CHANNEL 6 SHOWN) SEE SHEET 2 FOR CHANNELS 1, 3, & 5.
6. WHEN USING THE 2 CHANNEL INPUT PCB (911-6008-401), ONLY CHANNELS 1 & 2 (series 500 and 600 reference designators), C1, C2, C3, C4, J1, J2, J3 & J4 are used.

TOLERANCE (DECIMAL) U.O.S.
.x ± .030 .xxx ± .005
.xx ± .015 ANGLES ± 1°

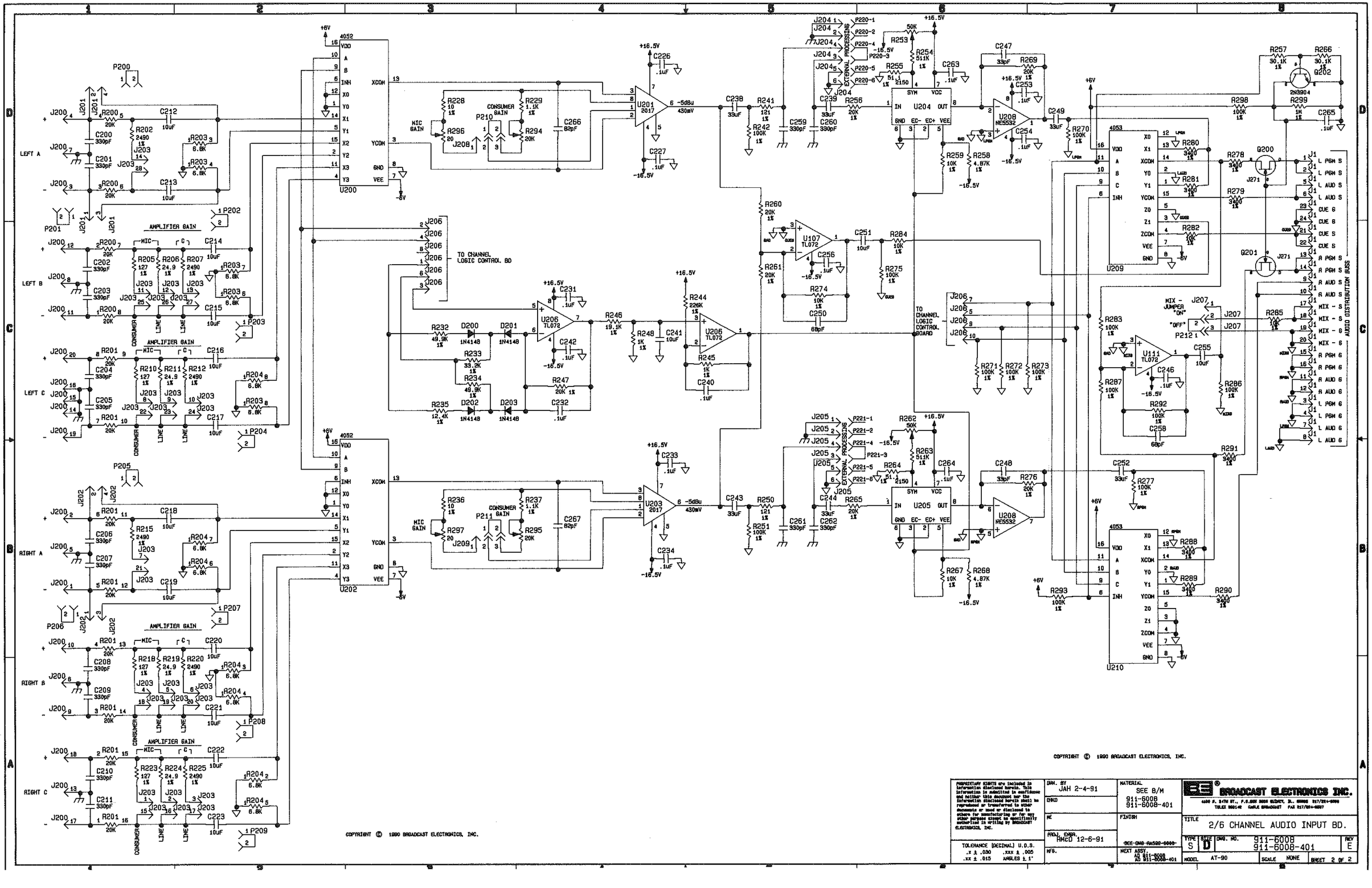
DWN. BY	JAH 4-2-91
CHKD	
ENG	
PROJ. ENGR.	RMCD 12-6-91
MFG.	
MATERIAL	SEE B/M 911-6008 911-6008-401
FINISH	SEE DWG PA582-0000
NEXT ASSY.	AD 911-6008 AD 911-6008-401

BROADCAST ELECTRONICS INC.
4100 N. 24TH ST., P.O. BOX 3606 QUINCY, IL. 62305 217/224-9600
TELEX 820140 CABLE BRDCAST FAX 217/224-9607

TITLE: 2/6 CHANNEL AUDIO INPUT BD.

TYPE	SIZE	DWG. NO.	REV
S	D	911-6008	E
		911-6008-401	

MODEL AT-90 | SCALE NONE | SHEET 1 OF 2


P200
LEFT A
LEFT B
LEFT C
AMPLIFIER GAIN
MIC
LINE
CONSUMER
U200
4052
XCOM
YCOM
MIC GAIN
CONSUMER GAIN
P210
U201
2017
-5dBu
430mV
TO CHANNEL LOGIC CONTROL BD
P202
P203
P204
P201
J201
J200
J203
J206
U206
TL072
U107
TL072
U204
SYM
VCC
IN
OUT
GND
EC-
EC+
VEE
U208
NE5532
EXTERNAL PROCESSING
P220
TO CHANNEL LOGIC CONTROL BOARD
U209
4053
XO
X1
XCOM
YO
Y1
YCOM
ZO
Z1
ZCOM
VEE
GND
VDD
A
B
C
INH
Q200
Q201
2N3904
J271
MIX - JUMPER "ON" "OFF"
P212
U111
TL072
L PGM S
L AUD S
CUE S
R PGM S
R AUD S
MIX - S
L PGM G
L AUD G
R PGM G
R AUD G
AUDIO DISTRIBUTION BUSS
P205
P206
P207
P208
P209
J202
RIGHT A
RIGHT B
RIGHT C
U202
U203
U205
U210
P211
P221
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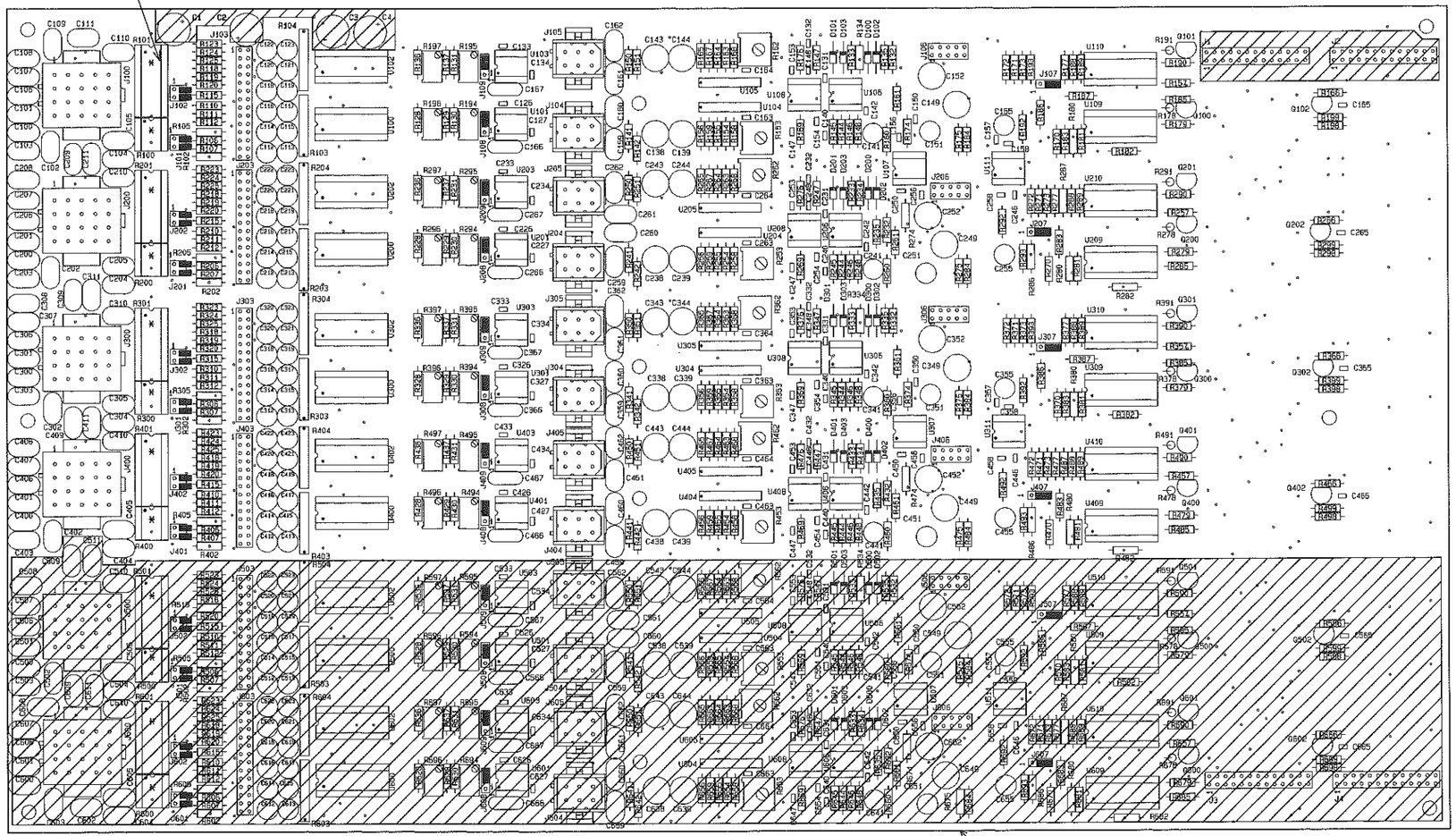
TOLERANCE [DECIMAL] U.O.S.
.x ± .030 .xxx ± .005
.xx ± .015 ANGLES ± 1°
DRN. BY JAH 2-4-91
CHKD
MC
APPD. CHGR. RMCD 12-6-91
MFG.
MATERIAL SEE B/M 911-6008 911-6008-401
FINISH
NEXT ASSY. AD 911-6008 AD 911-6008-401
BROADCAST ELECTRONICS INC.
4100 N. 24TH ST., P.O.BOX 3606 QUINCY, IL. 62305 217/224-9600
TELEX 9901140 CABLE BROADCAST FAX 217/224-9607
TITLE 2/6 CHANNEL AUDIO INPUT BD.
TYPE S SIZE D DWG. NO. 911-6008 911-6008-401 REV E
MODEL AT-90 SCALE NONE SHEET 2 OF 2



511-6008 REV.F

NOTES:

1. HEADERS J101, J102, J201, J202, J301, J302, J401, J402, J501, J502, J601, J602 HAVE JUMPER PLUGS CONNECTED TO A SINGLE POST ONLY FOR SHIPPING PURPOSES.
2. * = I.C.'S WITHOUT SOCKETS.
3. CROSS-HATCHED AREAS ARE USED ON 911-6008-401 PCB ASSEMBLY.

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TOLERANCE (DECIMAL) U.O.S.
.X ± .030 .XXX ± .005
.XX ± .015 ANGLES ± 1°

DWN. BY: JAH 4-1-91
DESIGNER (S): MH 4-2-91
PROJ. LEADER: RMcD 4-2-91
MFG.

MATERIAL: SEE B/M 911-6008 911-6008-401
FINISH
SEE DWG RA592-0000
NEXT ASSY.

BROADCAST ELECTRONICS INC.
4100 N.24TH ST. P.O.BOX 3606 QUINCY, IL. 62305 PH. 217/224-9600
TELEX 250142 CABLE BROADCAST FAX 217/224-9607

TITLE: PCB ASSEMBLY 2/6 CHANNEL INPUT BD.

TYPE	SIZE	DWG No.	REV
A	C	911-6008 911-6008-401	E

MODEL AT-90 SCALE 1=1 SHEET 1 OF 1

AREA WITHIN HEAVY DASHED LINE IS USED FOR 911-6010-400 ONLY

-002 VERSION

220-0016-001 CONTROL LOGIC HYBRID

220-0018-001 CONTROL LOGIC HYBRID

REMOTE CONTROL

TO J606 OF 6 CH INPUT BD

TIMER RESET

RMT CTRL

TO SHEET 2

NOTES:
1. ALL RESISTORS IN OHMS, 1/4W, 1% UNLESS OTHERWISE SPECIFIED.
2. LAST COMPONENT USED: A6, D52, DS31, C24, J99, R93, P99, S32, & U7.
3. COMPONENTS NOT USED: C19, C20.
4. SEE ASSEMBLY: AC911-6010-001/002, A/B AC911-6010-400
5. M - REMOVE JUMPER TO DISABLE CUE WHEN CHANNEL IS CONFIGURED FOR USE AS CONTROL ROOM MICROPHONE.

TOLERANCE (DECIMAL) U.O.S.
.x ± .030 .xxx ± .005
.xx ± .015 ANGLES ± 1°

DWN. BY	JAH 6-27-91
CHKD	
ME	
PROJ. ENGR.	AEB 2-19-93
MFG.	
MATERIAL	SEE B/M 911-6010-001 A/B 911-6010-002 A/B 911-6010-400
FINISH	
NEXT ASSY.	

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TITLE: SCHEMATIC 6 CHANNEL INPUT CONTROL BD.

TYPE	SIZE	DWG. NO.	REV
S	B	911-6010-001/002, A/B 911-6010-400	K

MODEL AT-90 | SCALE NONE | SHEET 1 OF 2

-002 VERSION

220-0018-001
CONTROL LOGIC HYBRID

A4 / A5 / A6

FADER START

REMOTE CONTROL

TO J306 OF 6 CH INPUT BD

TO J206 OF 6 CH INPUT BD

TO J106 OF 6 CH INPUT BD

STUDIO MUTE

C/R MUTE

TIMER RESET

RMT CNTL

FROM SHEET 1

TO CHANNEL FADER

TO CHANNEL "ON" SWITCH

TO CHANNEL "OFF" SWITCH

TO CUE LED

SWITCHES TO BE CHASSIS MOUNTED

"HALL EFFECT"

-001 VERSION LIKE THIS
-002 VERSION AS SHOWN ABOVE

AREA WITHIN HEAVY DASHED LINE IS USED ONLY ON 911-6010-400

NOTES: 1. W - REMOVE JUMPER TO DISABLE CUE WHEN CHANNEL IS CONFIGURED FOR USE AS CONTROL ROOM MICROPHONE.

TOLERANCE (DECIMAL) U.O.S.
.x ± .030 .xxx ± .005
.xx ± .015 ANGLES ± 1°

DWN. BY JAH 6-27-91
CHKD
ENG
PROJ. ENGR. AEB
MFG.

MATERIAL SEE B/M 911-6010-001 A/B 911-6010-002 A/B 911-6010-400
FINISH
~~SEE DWG PA593-0003~~
NEXT ASSY.

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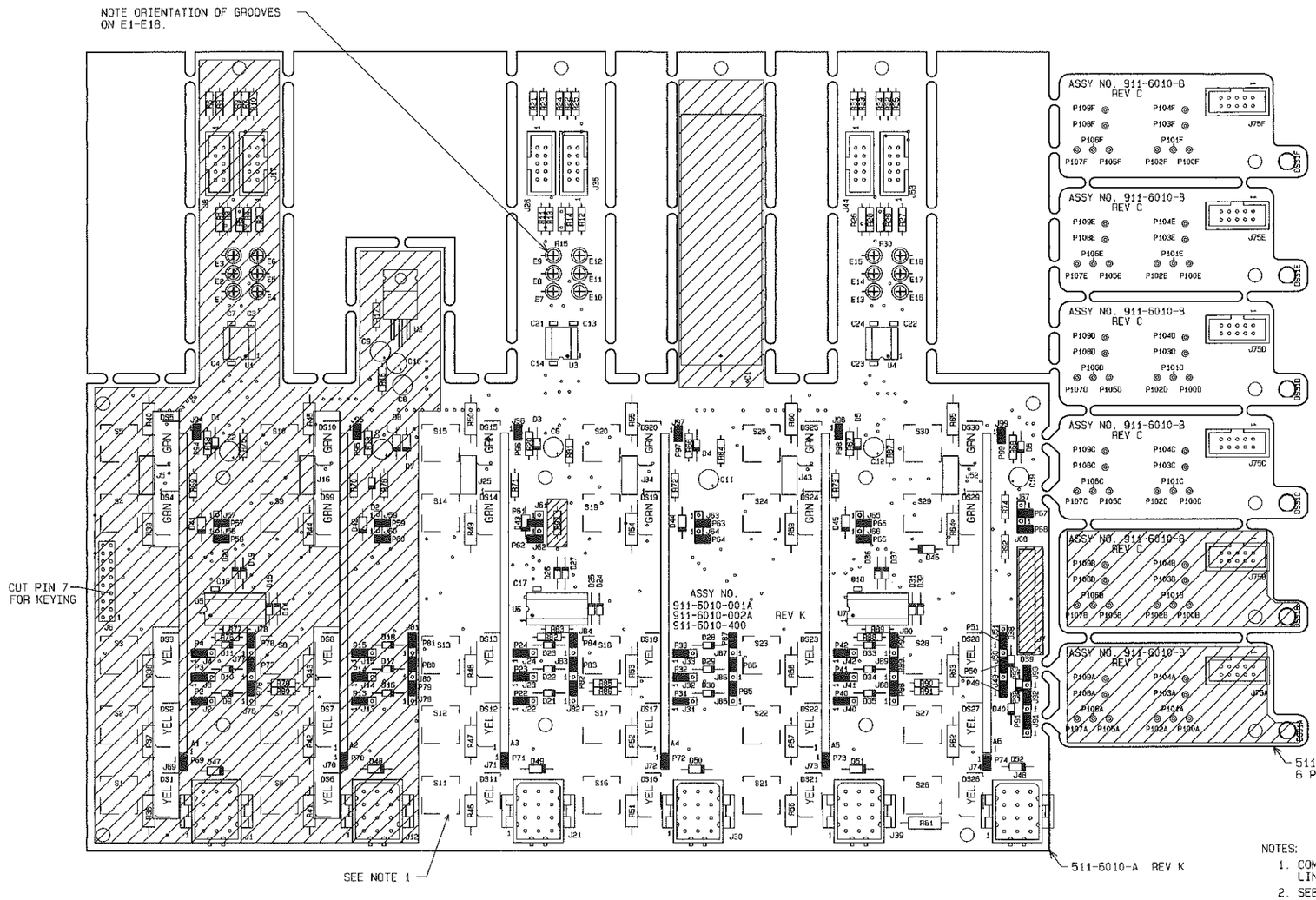
TITLE SCHEMATIC
6 CHANNEL INPUT CONTROL BD.

TYPE S | SIZE B | DWG. NO. 911-6010-001/002 A/B 911-6010-400 | REV K

MODEL AT-90 | SCALE NONE | SHEET 2 OF 2



NOTES:

1. COMPONENTS SHOWN WITH DOTTED LINES TO BE MOUNTED ON SOLDER SIDE.
2. SEE SCHEMATIC SB911-6010-001/002/400.
3. CROSS-HATCHED AREAS ARE USED ON 911-6010-400 PCB ASSEMBLY.

SWITCH / INDICATOR PART NUMBERS		
REFERENCE DESIGNATOR	PCB ASSEMBLY NUMBER 911-6010-001A	911-6010-002A
S1-S3, S6-S8, S11-S13, S16-S18, S21-S23, S26-S28	340-0127 (YEL)	340-0139 (YEL)
S4, S5, S9, S10, S14, S15, S19, S20, S24, S25, S29, S30	340-0128 (GRN)	340-0140 (GRN)
DS1-DS3, DS6-DS8, DS11-DS13, DS16-DS18, DS21-DS23, DS26-DS28,	320-3173 (YEL)	N/A
DS4, DS5, DS9, DS10, DS14, DS15, DS19, DS20, DS24, DS25, DS29, DS30	320-0016 (GRN)	N/A

TOLERANCE (DECIMAL) U.O.S.
.X ± .030 .XXX ± .005
.XX ± .015 ANGLES ± 1°

DWN. BY	JAH 8-13-90
CHKD	
ME	
PROJ. ENGR.	AEB 2-19-93
MFG.	
MATERIAL	SEE B/M 911-6010-001 911-6010-002 911-6010-400
FINISH	
~~SEE DWG RA592-0000~~	
NEXT ASSY.	

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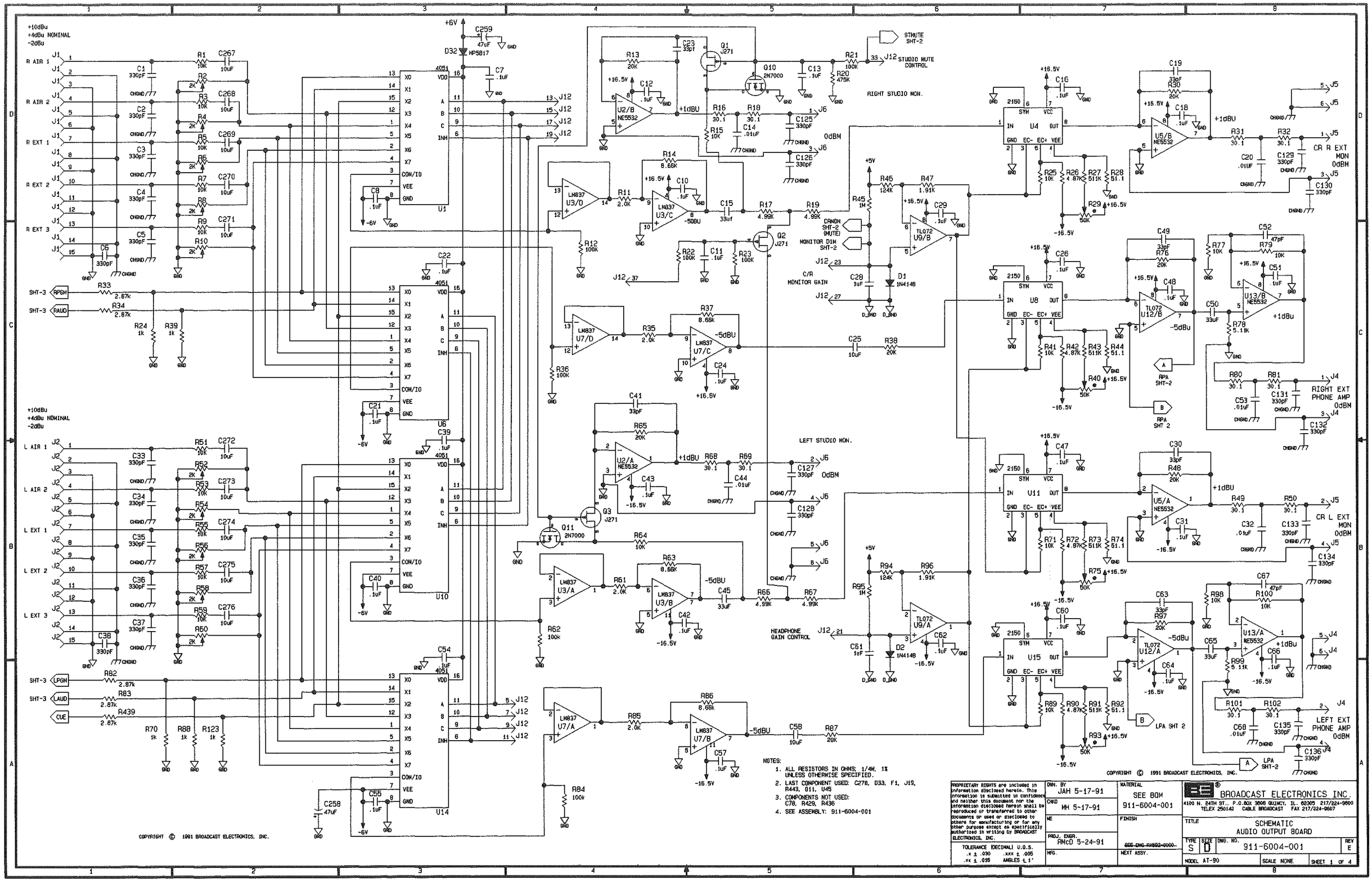
TITLE: PCB ASSY
2/6 CHANNEL INPUT CONTROL BD

TYPE	SIZE	DWG No.	REV
A	C	911-6010-001/002, A/B 911-6010-400	K

MODEL AT-90 / AT-100 SCALE 1/1 SHEET 1 OF 1



NOTES:

1. ALL RESISTORS IN OHMS; 1/4W, 1% UNLESS OTHERWISE SPECIFIED.
2. LAST COMPONENT USED: C278, D33, F1, J19, R443, U11, U45
3. COMPONENTS NOT USED: C78, R429, R436
4. SEE ASSEMBLY: 911-6004-001

TOLERANCE [DECIMAL] U.O.S.
.x ± .030 .xxx ± .005
.xx ± .015 ANGLES ± 1°

DWN. BY	JAH 5-17-91
CHKD	MH 5-17-91
ME	
PROJ. ENGR.	AMCD 5-24-91
MFG.	
MATERIAL	SEE BOM 911-6004-001
FINISH	
NEXT ASSY.	555-DWG-RA602-0000-

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TITLE: SCHEMATIC AUDIO OUTPUT BOARD

TYPE	SIZE	DWG. NO.	REV
S	D	911-6004-001	E

MODEL AT-90 | SCALE NONE | SHEET 1 OF 4

CUE SUMMING INPUT

EXTERNAL CUE INPUT -20dBu TO +4dBu

EXTERNAL CUE INPUT GAIN

CUE DISTORTION NULL

EXT CUE ACTIVATION SWITCH

CUE SPEAKER

EXT CUE OUTPUT

CUE AMP

N.C. KEY

LEFT PHONE AMP

RIGHT PHONE AMP

LEFT HEADPHONE

RIGHT HEADPHONE

STUDIO W.L. RELAY

CR W.L. RELAY

TALKBACK INPUT -5dBu

CUE GAIN CONTROL

C/R MUTE

MON DIM SHT-1

C/R MONITOR DIM LEVEL

CUE CONTROL

PUSH TO TALK CONSOLE

PUSH TO TALK REMOTE

TALKBACK OUTPUT

TO CONSOLE POWER SUPPLY

HP-CUE GND

+/-16.5V GND

FADER REFERENCE

CLOCK GND

CONTROL GND

TOLERANCE (DECIMAL) U.O.S.
.x ± .030 .xxx ± .005
.xx ± .015 ANGLES ± 1°

DRN. BY	JAH 5-17-91
CHKD	MH 5-17-91
ME	
PROJ. ENGR.	RMCD 5-24-91
MFG.	
MATERIAL	SEE BOM 911-6004-001
FINISH	SEE DWG RA892-0000
NEXT ASSY.	

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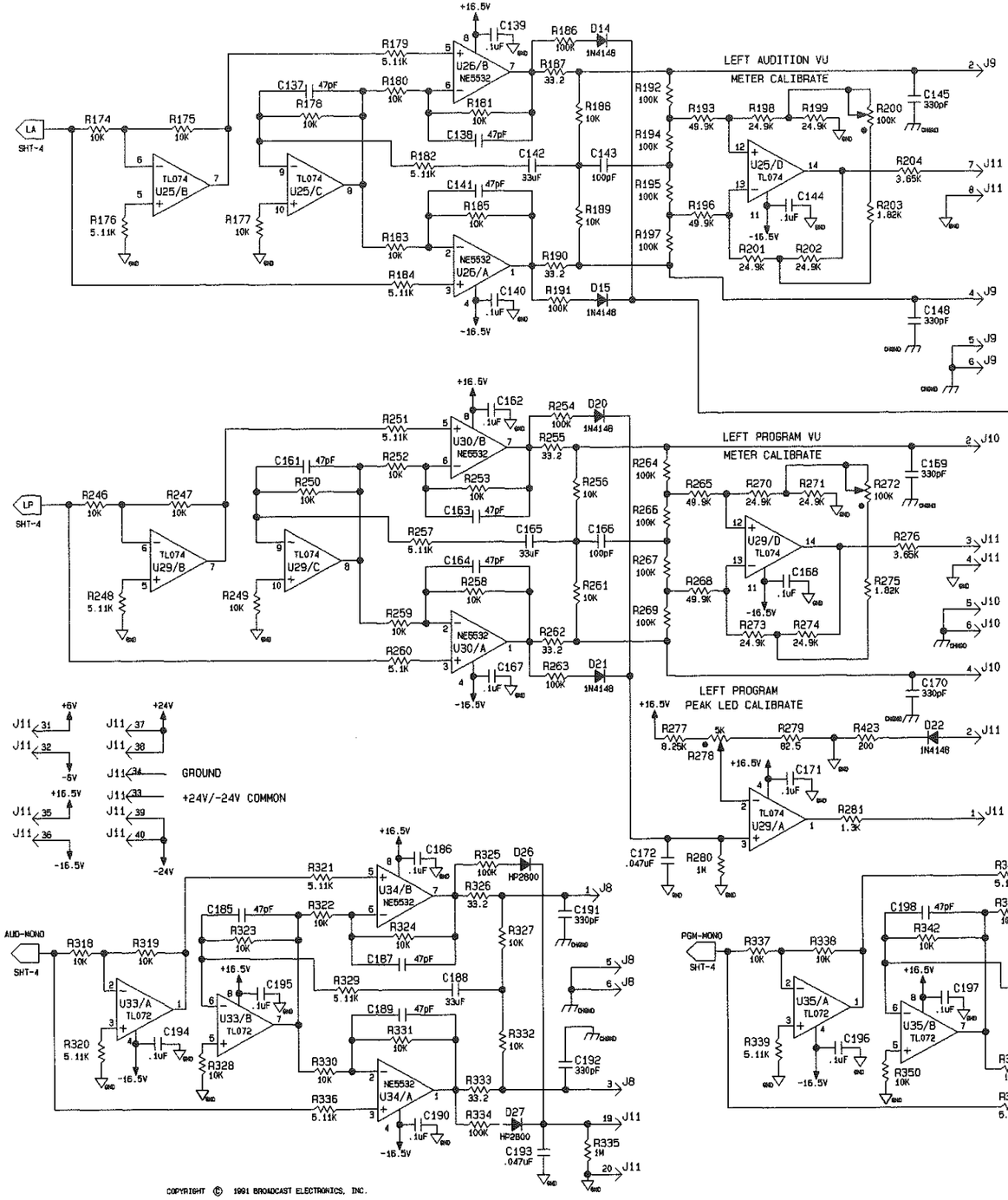
TITLE: SCHEMATIC AUDIO OUTPUT BOARD

TYPE	SIZE	DWG. NO.	REV
S	D	911-6004-001	E

MODEL AT-90 | SCALE NONE | SHEET 2 OF 4



TOLERANCE (DECIMAL) U.O.S.
.X ± .030 .XXX ± .005
.XX ± .015 ANGLES ± 1°

DWN. BY	JAH 5-17-91
CHK'D	MH 5-17-91
ME	
PROJ. ENGR.	RMcD 5-24-91
MFG.	
MATERIAL	SEE BOM 911-6004-001
FINISH	~~SEE DWG RA503-0000~~
NEXT ASSY.	

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TITLE: SCHEMATIC
AUDIO OUTPUT BOARD

TYPE	SIZE	DWG. NO.	REV
S	D	911-6004-001	E

MODEL AT-90 | SCALE NONE | SHEET 3 OF 4

POWER BUSS
TO
AUDIO INPUT BOARD
(911-6005)

LEFT
AUDITION
SUMMING
INPUT

RIGHT
AUDITION
SUMMING
INPUT

MIX
MINUS
SUMMING
INPUT

LEFT
PROGRAM
SUMMING
INPUT

RIGHT
PROGRAM
SUMMING
INPUT

MIX
MINUS
GAIN

LEFT
AUDITION
GAIN

MONO
AUDITION
GAIN

RIGHT
AUDITION
GAIN

LEFT
PROGRAM
GAIN

MONO
PROGRAM
GAIN

RIGHT
PROGRAM
GAIN

MIX OUT

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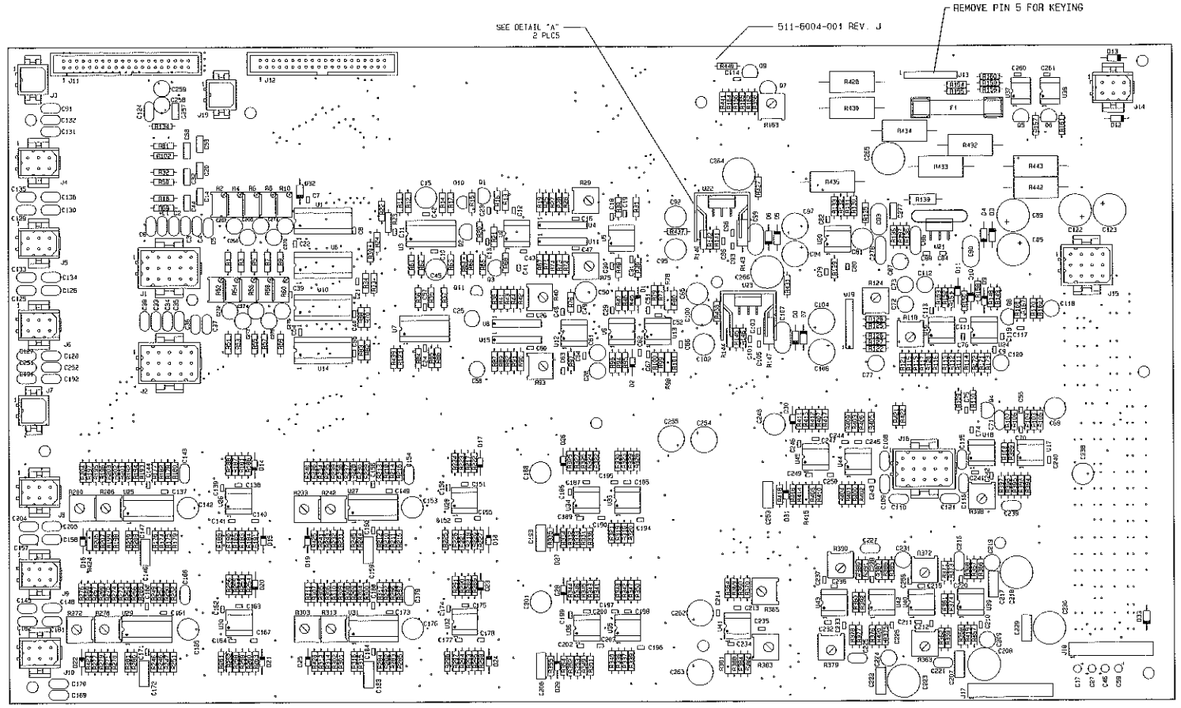
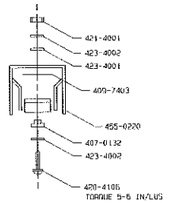
TOLERANCE (DECIMAL) U.O.S.
.x ± .030 .xxx ± .005
.xx ± .010 ANGLES ± 1°

DWN. BY JAH 5-17-91	MATERIAL SEE BOM	BROADCAST ELECTRONICS INC.
CHKD MH 5-17-91	911-6004-001	4100 N. 24TH ST., P.O.BOX 3606 QUINCY, IL. 62305 217/224-9600
ME	FINISH	TELEX 250142 CABLE BROADCAST FAX 217/224-9607
PROJ. ENGR. RMCD 5-24-91	SEE DWG RW562-0000	TITLE SCHEMATIC AUDIO OUTPUT BOARD
MFG.	NEXT ASSY.	TYPE S SIZE D DWG. NO. 911-6004-001 REV E
		MODEL AT-90 SCALE NONE SHEET 4 OF 4





DETAIL "A"

REVISIONS					
REV	DATE	DESCRIPTION	DRAFTER	APPROVED	ECN

TOLERANCE (DECIMAL) U.S.
.X ± .030 .XXX ± .005
.XX ± .015 ANGLES ± 1°

DWN. BY	JAH 5-17-91
DESIGNER(S)	MH 5-22-91
	JHS 5-22-91
PROJ. LEADER	RMCD 5-22-91
MFG.	PRB 5-22-91

MATERIAL	SEE BOM 911-6004-001
FINISH	-SEE DWG RA592-0000-
NEXT ASSY.	

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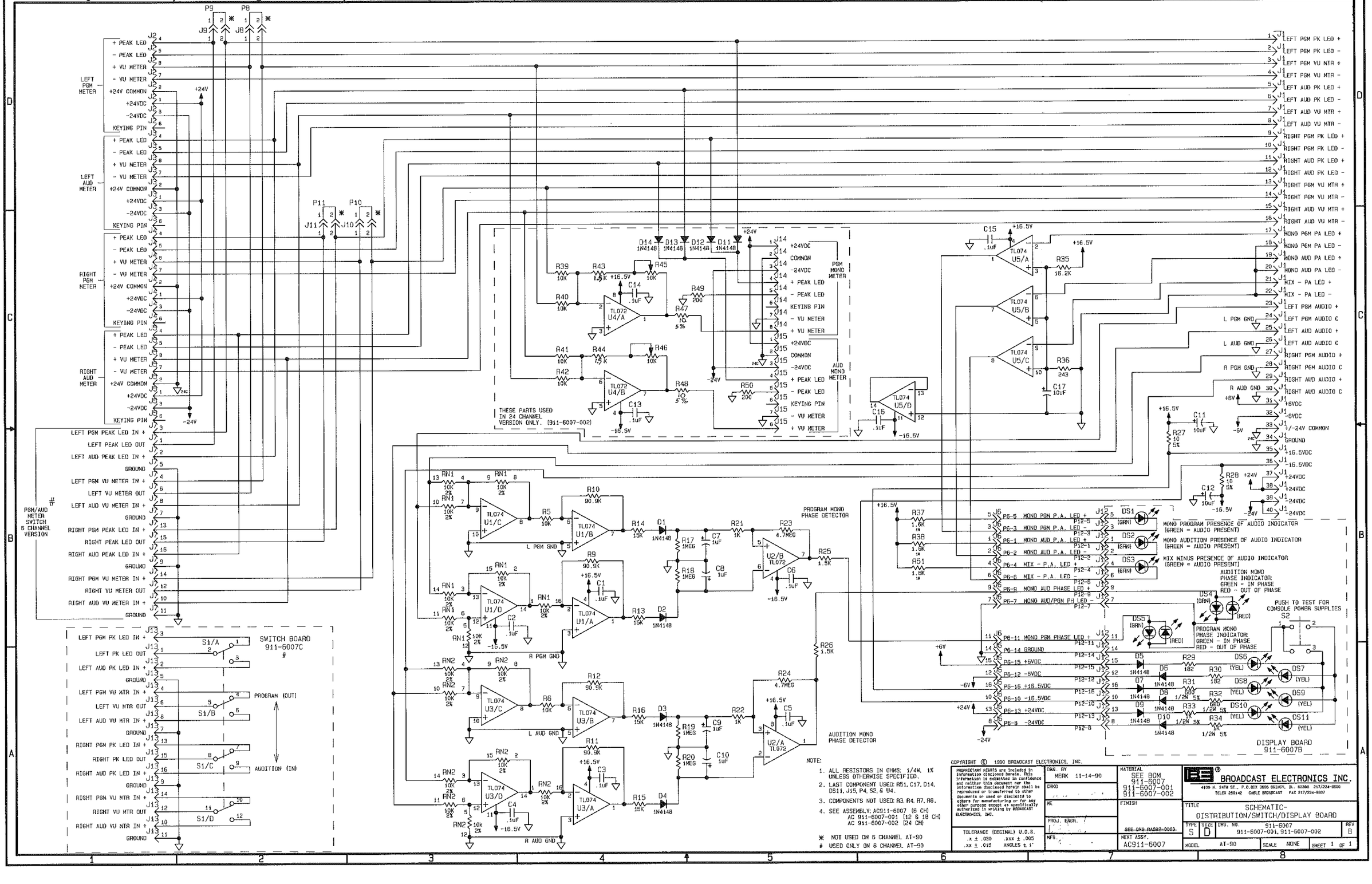
TITLE	PCB ASSY AUDIO OUTPUT		
TYPE A	SIZE D	DWG No. 911-6004-001	REV J
MODEL AT-90	SCALE 1/1	SHEET 1 OF 1	


LEFT PGM METER
LEFT AUD METER
RIGHT PGM METER
RIGHT AUD METER
+ PEAK LED
- PEAK LED
+ VU METER
- VU METER
+24V COMMON
+24VDC
-24VDC
KEYING PIN
LEFT PGM PEAK LED IN +
LEFT PEAK LED OUT
LEFT AUD PEAK LED IN +
GROUND
LEFT PGM VU METER IN +
LEFT VU METER OUT
LEFT AUD VU METER IN +
RIGHT PGM PEAK LED IN +
RIGHT PEAK LED OUT
RIGHT AUD PEAK LED IN +
RIGHT PGM VU METER IN +
RIGHT VU METER OUT
RIGHT AUD VU METER IN +
PGM/AUD METER SWITCH 5 CHANNEL VERSION
SWITCH BOARD 911-6007C
S1/A
S1/B
S1/C
S1/D
PROGRAM (OUT)
AUDITION (IN)
THESE PARTS USED IN 24 CHANNEL VERSION ONLY. (911-6007-002)
PGM MONO METER
AUD MONO METER
PROGRAM MONO PHASE DETECTOR
AUDITION MONO PHASE DETECTOR
L PGM GND
R PGM GND
L AUD GND
R AUD GND
MONO PROGRAM PRESENCE OF AUDIO INDICATOR (GREEN = AUDIO PRESENT)
MONO AUDITION PRESENCE OF AUDIO INDICATOR (GREEN = AUDIO PRESENT)
MIX MINUS PRESENCE OF AUDIO INDICATOR (GREEN = AUDIO PRESENT)
AUDITION MONO PHASE INDICATOR: GREEN - IN PHASE RED - OUT OF PHASE
PROGRAM MONO PHASE INDICATOR: GREEN - IN PHASE RED - OUT OF PHASE
PUSH TO TEST FOR CONSOLE POWER SUPPLIES
DISPLAY BOARD 911-6007B
NOTE:
1. ALL RESISTORS IN OHMS: 1/4W, 1% UNLESS OTHERWISE SPECIFIED.
2. LAST COMPONENT USED: R51, C17, D14, DS11, J15, P4, S2, & U4.
3. COMPONENTS NOT USED: R3, R4, R7, R8.
4. SEE ASSEMBLY: AC911-6007 (6 CH) AC 911-6007-001 (12 & 18 CH) AC 911-6007-002 (24 CH)
* NOT USED ON 6 CHANNEL AT-90
# USED ONLY ON 6 CHANNEL AT-90
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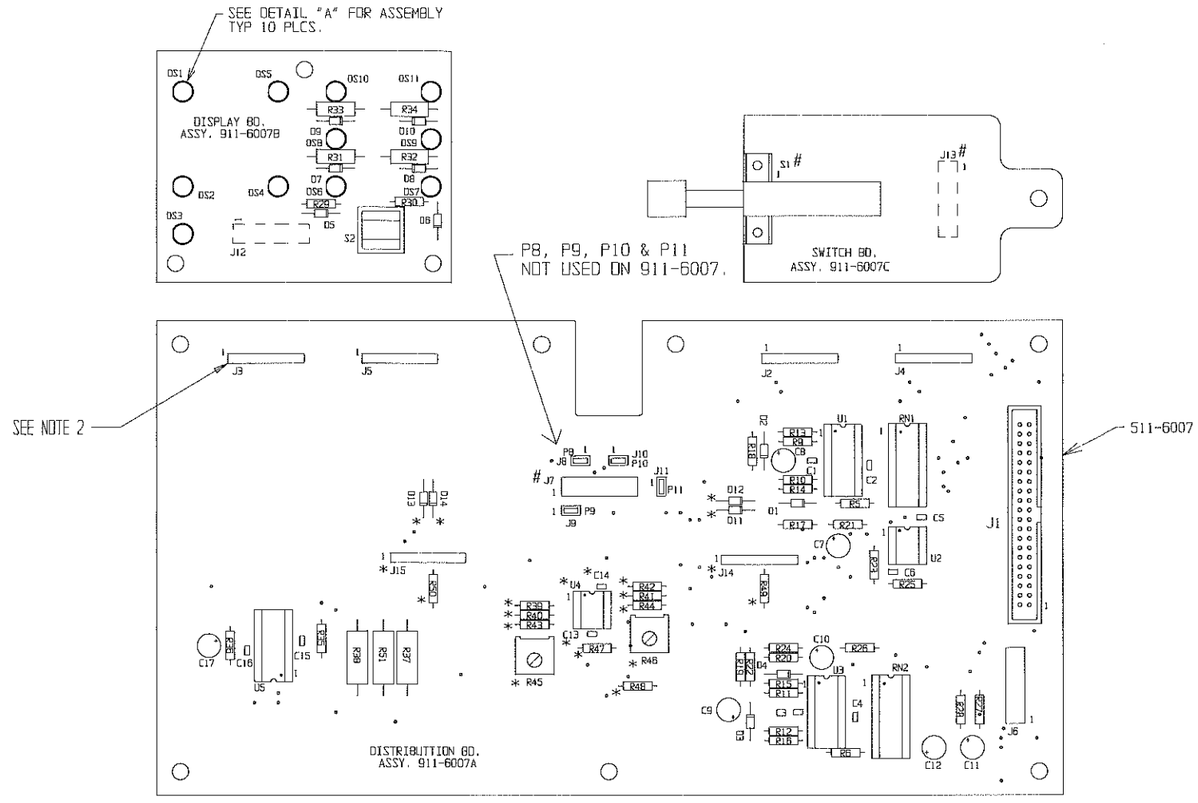
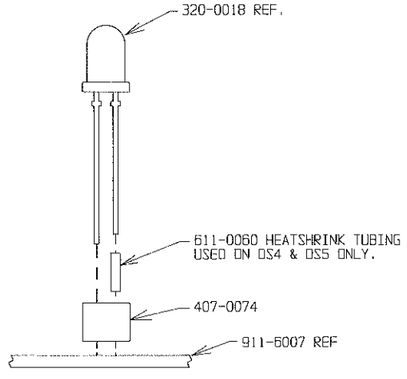
TOLERANCE (DECIMAL) U.O.S. .x ± .030 .xxx ± .005 .xx ± .010 ANGLES ± 1°
DWN. BY MERK 11-14-90
CHKD
ENG.
PROJ. ENGR.
MFG.
MATERIAL SEE BOM 911-6007 911-6007-001 911-6007-002
FINISH
SEE DWG RA592-0000
NEXT ASSY. AC911-6007
BROADCAST ELECTRONICS INC.
4100 N. 24TH ST., P.O.BOX 3606 QUINCY, IL. 62305 217/224-9600
TELEX 250142 CABLE BROADCAST FAX 217/224-9607
TITLE SCHEMATIC- DISTRIBUTION/SWITCH/DISPLAY BOARD
TYPE S SIZE D DWG. NO. 911-6007 911-6007-001, 911-6007-002 REV B
MODEL AT-90 SCALE NONE SHEET 1 OF 1



DETAIL "A" 2=1
ASSEMBLY OF LED'S DS1-DS10



CUT HEATSHRINK TUBING TO THE SAME HEIGHT AS SPACER. INSERT TUBING OVER ONE LEG FIRST, THEN INSERT SPACER OVER BOTH LEGS. DO NOT SHRINK TUBING. LED SHOULD BE INSERTED FLUSH AGAINST SPACER.

NOTES:

1. DASHED COMPONENTS TO BE MOUNTED FROM OPPOSITE SIDE.
2. PIN 6 OF CONNECTORS J2, J3, J4, J5, J14 & J15. TO BE REMOVED FOR KEYING.
3. # - INDICATES ADDITIONAL COMPONENTS USED ON 911-6007 ONLY.

   * - INDICATES ADDITIONAL COMPONENTS USED ON 911-6007-002 ONLY.
4. SEE SCHEMATIC SD 911-6007 (6 CHANNEL)
   SD 911-6007-001 (12&18 CHANNEL)
   SD 911-6007-002 (24 CHANNEL)

TOLERANCE (DECIMAL) U.O.S.
.X ± .030 .XXX ± .005
.XX ± .015 ANGLES ± 1°

DWN. BY	JAH 4-24-90
CHKD	MH 3-15-91
ME	3/20/91 JH STEINKAMP
PROJ. ENGR.	3/20/91 R. McDONOUGH
MFG.	PR BROSE 3/20/91
MATERIAL	SEE B/M 911-6007 911-6007-001 911-6007-002
FINISH	
~~SEE DWG RA502-6000~~	
NEXT ASSY.	

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TITLE: PCB ASSEMBLY DISTRIBUTION/SWITCH/DISPLAY BD

TYPE	SIZE	DWG No.	REV
A	C	911-6007 911-6007-001 & 911-6007-002	H

MODEL AT-90 SCALE 1/1 SHEET 1 OF 1

FROM OUTPUT BD

PUSH TO TALK J1 1
PUSH TO TALK J1 3
+14VDC J1 38
+14VDC J1 39
+14VDC J1 40
FADER REF +5V J1 29
CUE CONTROL J1 31
STUDIO MUTE J1 33
C/R MUTE J1 35
C/T GROUND J1 2
C/T GROUND J1 4
C/T GROUND J1 5
C/T GROUND J1 8
GROUND J1 10
GROUND J1 12
GROUND J1 14
GROUND J1 16
GROUND J1 18
GROUND J1 20
GROUND J1 22
GROUND J1 24
+14VDC J1 26
+14VDC J1 28
+14VDC J1 30
+14VDC J1 32
+14VDC J1 34
+14VDC J1 36
MONO SELECT J1 37
MON A CONT J1 13
MON B CONT J1 15
MON C CONT J1 17
MON INHIBIT J1 19
H.P. A CONT J1 5
H.P. B CONT J1 7
H.P. C CONT J1 9
HP INHIBIT J1 11
C/R VCA CT J1 23
FADER/VCA CT GND J1 27
HDPH VCA CT J1 21
CUE VCA CT J1 25

R7 75
C7 470uF 25V
7805 U1 IN GND OUT
+5.0VDC
C4 10uF
R8 100
R9 48.7K
C5 10uF
+4.98VDC

C3 100uF
R6 162
R5 1K
C2 100uF
R4 162
R3 1K
C1 100uF
R2 162
R1 1K

J6 +14VDC
J6 +14VDC
J6 +14VDC
J6 TIMER RESET
J6 MONO SELECT
J6 GROUND
J6 GROUND
J6 GROUND
J6 GROUND
J6 GROUND
→ TO CLOCK/TIMER BD

TO CONTROL BD
J2 18 +14VDC
J2 19 +14VDC
J2 20 +14VDC
J2 21 +14VDC
J2 22 +14VDC
J2 23 +14VDC
J2 24 +14VDC
J2 25 +14VDC
J2 26 +14VDC
J2 9 FADER REF +5V
J2 11 CUE CONTROL
J2 13 STUDIO MUTE
J2 15 C/R MUTE
J2 1 GROUND
J2 3 GROUND
J2 4 GROUND
J2 6 GROUND
J2 8 GROUND
J2 10 GROUND
J2 12 GROUND
J2 14 GROUND
J2 16 GROUND
J2 5 REF +4.98V
J2 7 +5.0VDC (SWITCHED)
J2 2 FADER GROUND
J2 17 TIMER RESET

TO HEADPHONE SELECT BD
J4 9 "A" CONTROL
J4 7 "B" CONTROL
J4 5 "C" CONTROL
J4 3 INHIBIT
J4 10 +6.0VDC
J4 1 GROUND
J4 2 GROUND
J4 4 GROUND
J4 6 GROUND
J4 8 GROUND

TO C/R MONITOR SELECT BD
J5 9 "A" CONTROL
J5 7 "B" CONTROL
J5 5 "C" CONTROL
J5 3 INHIBIT
J5 10 +6.0VDC
J5 1 GROUND
J5 2 GROUND
J5 4 GROUND
J5 6 GROUND
J5 8 GROUND

C/R MONITOR, HEADPHONE & CUE SYSTEM, GAIN CONTROLS
J3 4 C/R MONITOR WIPER ATN
J3 1 FADER REF +5V
J3 2 FADER REF +5V
J3 3 HEADPHONE WIPER ATN
J3 6 FADER GROUND
J3 7 FADER GROUND
J3 8 FADER GROUND
J3 5 CUE SYSTEM WIPER ATN

TO PUSH TO TALK SWITCH
J3 9 PUSH TO TALK
J3 10 PUSH TO TALK

NOTES:

1. ALL RESISTORS IN OHMS; 1/4W, 1% UNLESS OTHERWISE SPECIFIED.
2. LAST COMPONENT USED: R9, C7, U1, J6
3. COMPONENTS NOT USED:
4. SEE ASSEMBLY: AC 911-6000A

TOLERANCE (DECIMAL) U.O.S.
.x ± .030 .xxx ± .005
.xx ± .015 ANGLES ± 1°

DWN. BY JAH 12-18-89
CHKD MK 3-16-91
ENG
PROJ. ENGR. 3-18-91
R. McDONOUGH
MFG. PR BROSE 3/20/91

MATERIAL SEE BOM 911-6000
FINISH
NEXT ASSY.

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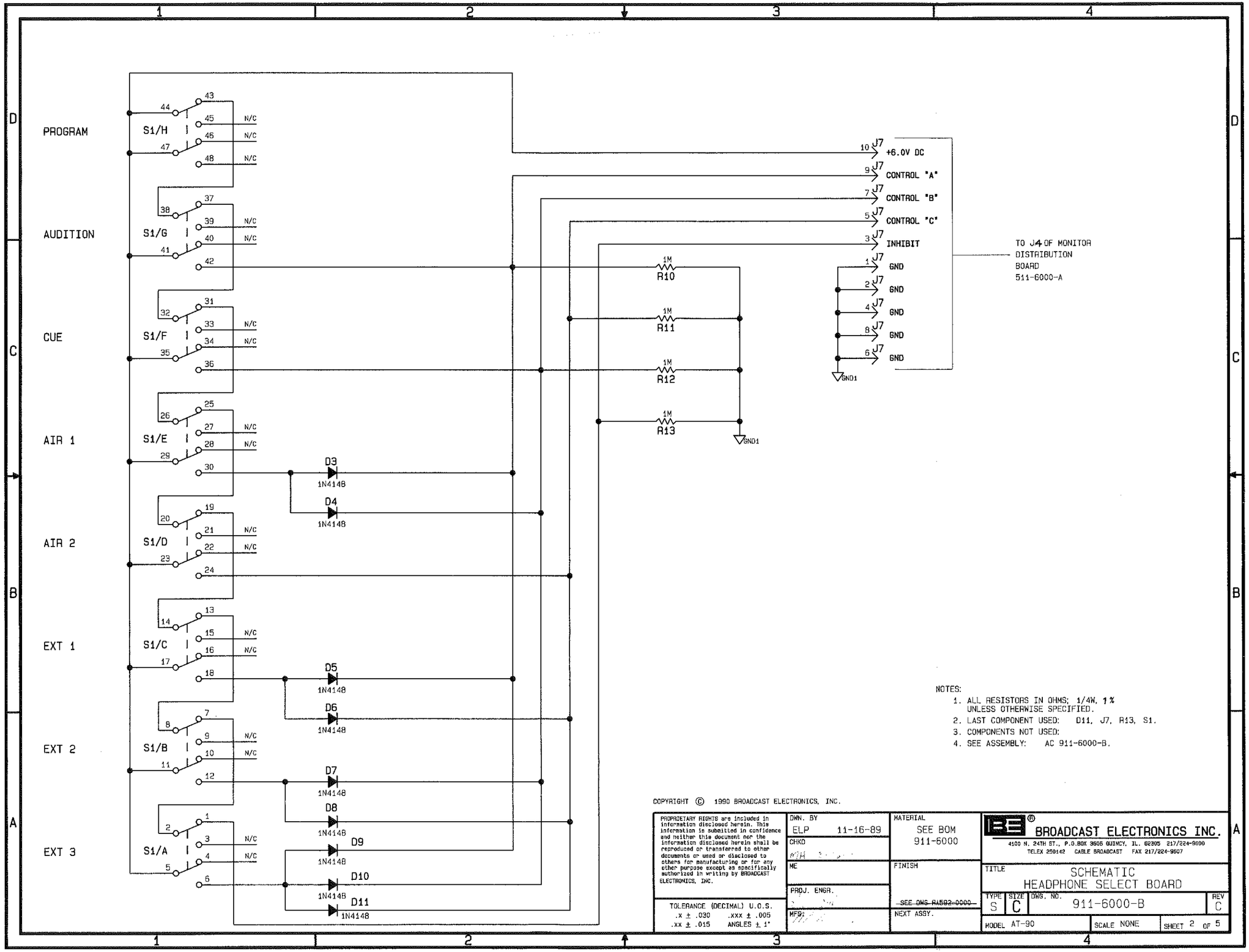
TELEX 250142 CABLE BROADCAST FAX 217/224-9607

TITLE SCHEMATIC MONITOR DISTRIBUTION BD.

TYPE S SIZE D DWG. NO. 911-6000-A REV E

MODEL AT-90 SCALE NONE SHEET 1 OF 5



NOTES:

1. ALL RESISTORS IN OHMS; 1/4W, 1%
   UNLESS OTHERWISE SPECIFIED.
2. LAST COMPONENT USED: D11, J7, R13, S1.
3. COMPONENTS NOT USED:
4. SEE ASSEMBLY: AC 911-6000-B.

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TOLERANCE (DECIMAL) U.O.S.
.x ± .030 .xxx ± .005
.xx ± .015 ANGLES ± 1°

DWN. BY ELP 11-16-89
CHKD
ME
PROJ. ENGR.
MFG.

MATERIAL SEE BOM 911-6000
FINISH
~~SEE DWG R1592-0000~~
NEXT ASSY.

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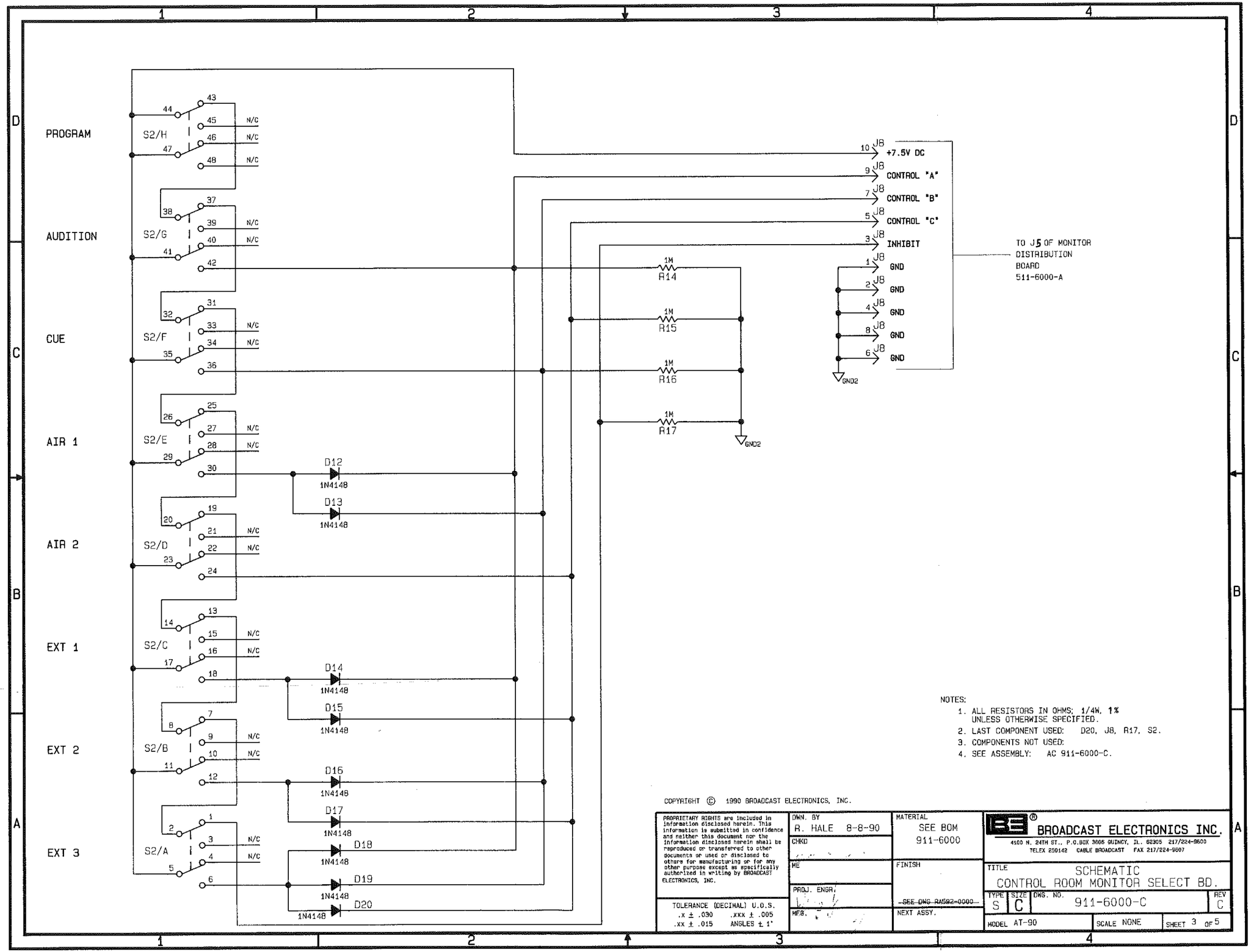
TITLE
SCHEMATIC
HEADPHONE SELECT BOARD

TYPE	SIZE	DWG. NO.	REV
S	C	911-6000-B	C

MODEL AT-90 SCALE NONE SHEET 2 OF 5



NOTES:

1. ALL RESISTORS IN OHMS; 1/4W, 1% UNLESS OTHERWISE SPECIFIED.
2. LAST COMPONENT USED: D20, J8, R17, S2.
3. COMPONENTS NOT USED:
4. SEE ASSEMBLY: AC 911-6000-C.

TOLERANCE (DECIMAL) U.O.S.
.x ± .030 .xxx ± .005
.xx ± .015 ANGLES ± 1°

DWN. BY R. HALE 8-8-90
CHKD
ME
PROJ. ENGR.
MFG.

MATERIAL SEE BOM 911-6000
FINISH -SEE DWG RA592-0000-
NEXT ASSY.

BROADCAST ELECTRONICS INC.
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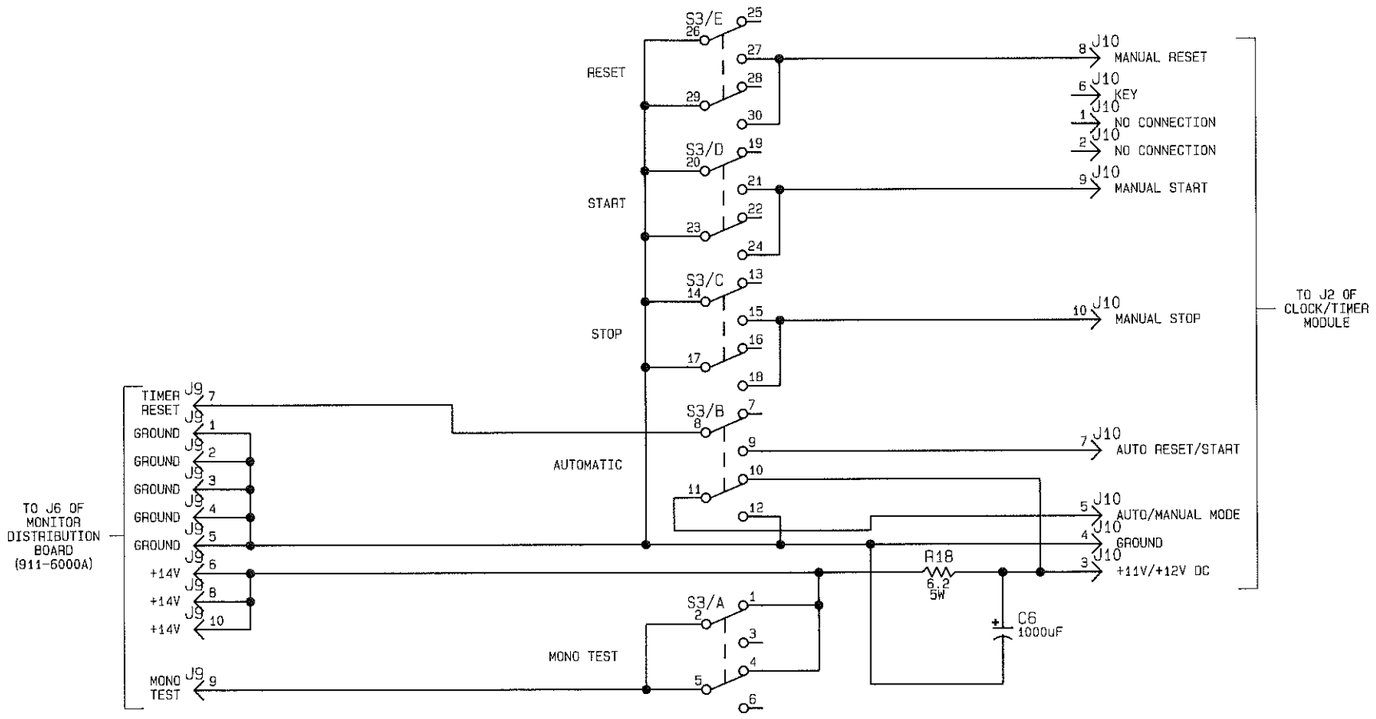
TELEX 250142 CABLE BROADCAST FAX 217/224-9607

TITLE SCHEMATIC
CONTROL ROOM MONITOR SELECT BD.

TYPE	SIZE	DWG. NO.	REV
S	C	911-6000-C	C

MODEL AT-90 SCALE NONE SHEET 3 OF 5



NOTES:

1. ALL RESISTORS IN OHMS; 1/4W, 1% UNLESS OTHERWISE SPECIFIED.
2. LAST COMPONENT USED: R18, C6, J10, & S3
3. COMPONENTS NOT USED:
4. SEE ASSEMBLY: AC 911-6000-D

TOLERANCE (DECIMAL) U.O.S.
.X ± .030 .XXX ± .005
.XX ± .015 ANGLES ± 1°

DWN. BY JAH 12-14-89
CHKD
ME
PROJ. ENGR.
MFG.

MATERIAL SEE BOM 911-6000
FINISH SEE DWG RA502-0000
NEXT ASSY.

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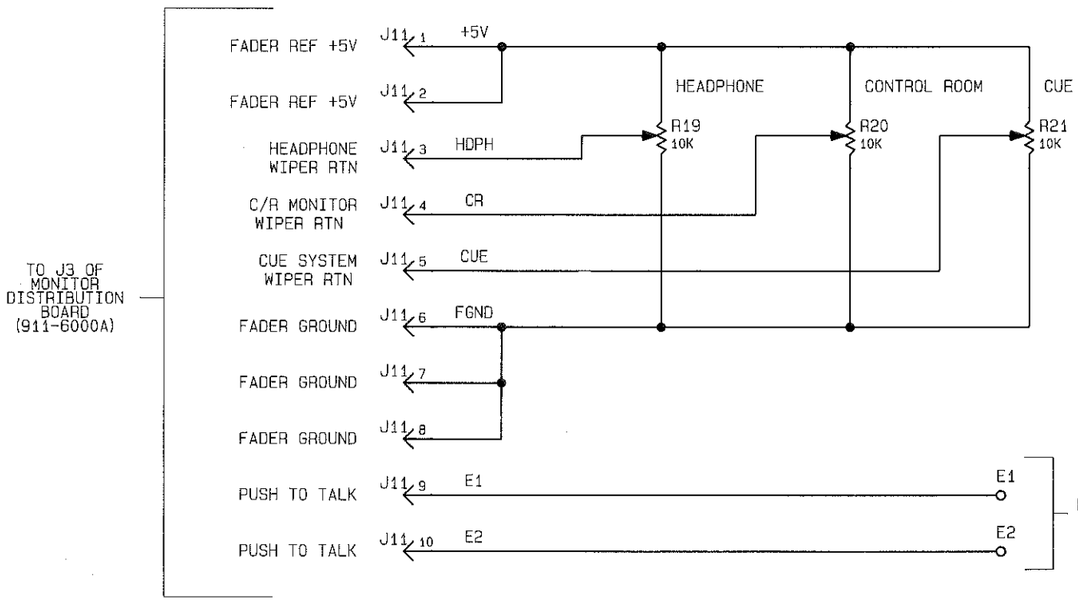
TELEX 250142 CABLE BROADCAST FAX 217/224-9607

TITLE SCHEMATIC
TIMER RESET BOARD

TYPE S | SIZE C | DWG. NO. 911-6000-D | REV C

MODEL AT-90 | SCALE NONE | SHEET 4 OF 5



NOTES:

1. ALL RESISTORS IN OHMS, 1/4W, 1% UNLESS OTHERWISE SPECIFIED.
2. LAST COMPONENT USED: R21, J11, E2
3. COMPONENTS NOT USED:
4. SEE ASSEMBLY: AC 911-6000-E

TOLERANCE (DECIMAL) U.O.S.
.x ± .030 .xxx ± .005
.xx ± .015 ANGLES ± 1°

DWN. BY AB 7-27-90
CHKD MH 8-6-91
ME
PROJ. ENGR.
MFG.

MATERIAL SEE BOM 911-6000
FINISH
~~SEE DWG #A502-0000~~
NEXT ASSY.

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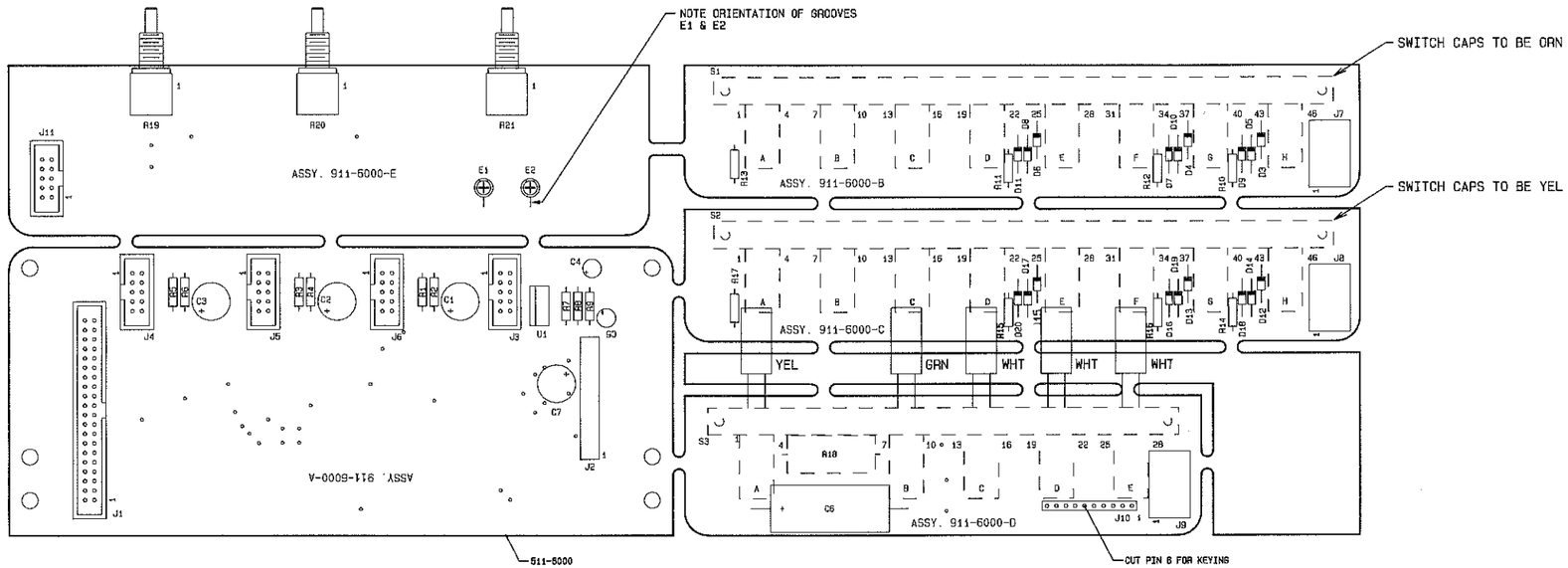
TELEX 250142 CABLE BROADCAST FAX 217/224-9607

TITLE SCHEMATIC
HEADPHONE CNTL RM CUE GAIN BD.

TYPE	SIZE	DWG. NO.	REV
S	C	911-6000-E	C

MODEL AT-90 SCALE NONE SHEET 5 OF 5



TOLERANCE (DECIMAL) U.O.S.
.X ± .030 .XXX ± .005
.XX ± .015 ANGLES + 1°

DWN. BY	MH 8-18-90
CHKD	M. HAYDEN 3-16-91
ME	JH STEINKAMP 3/20/91
PROJ. ENGR.	RMD 3-18-91 RMcDONOUGH 11-27-90
MFG.	PA BROSE 3/20/91
MATERIAL	SEE B/M 911-6000
FINISH	
~~SEE DWG RA592-0000~~	
NEXT ASSY.	

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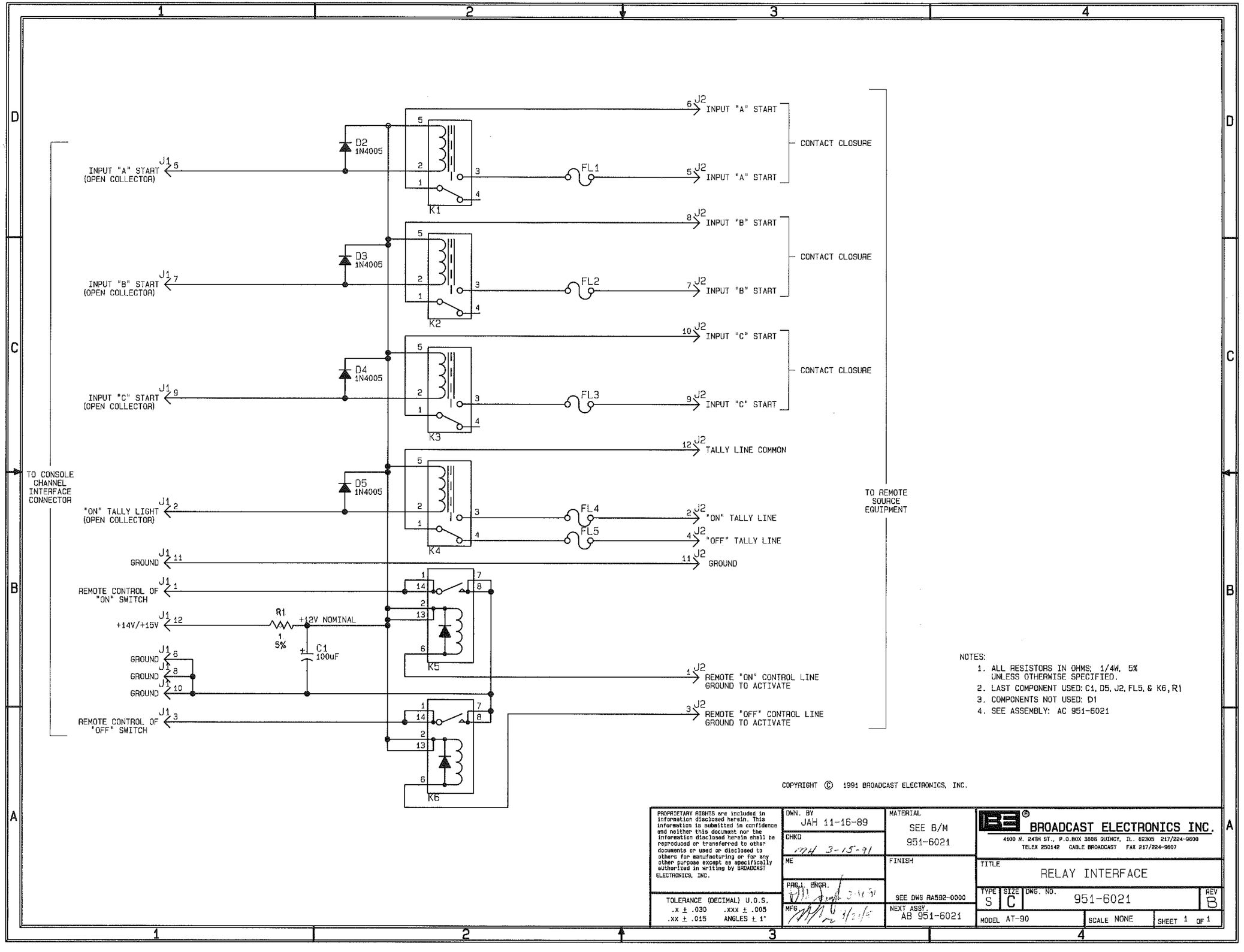
TELEX 250142 CABLE BROADCAST FAX 217/224-9607

TITLE: PCB ASSEMBLY- MONITOR DISTRIBUTION SYSTEM

TYPE	SIZE	DWG No.	REV
A	A	911-6000-A THRU E	E

MODEL AT-90 SCALE 1/1 SHEET 1 OF 1



NOTES:

1. ALL RESISTORS IN OHMS; 1/4W, 5% UNLESS OTHERWISE SPECIFIED.
2. LAST COMPONENT USED: C1, D5, J2, FL5, & K6, R1
3. COMPONENTS NOT USED: D1
4. SEE ASSEMBLY: AC 951-6021

TOLERANCE (DECIMAL) U.O.S.
.x ± .030 .xxx ± .005
.xx ± .015 ANGLES ± 1°

DWN. BY	JAH 11-16-89
CHKD	MH 3-15-91
ME	
PROJ. ENGR.	
MFG	
MATERIAL	SEE B/M 951-6021
FINISH	SEE DWG RA592-0000
NEXT ASSY.	AB 951-6021

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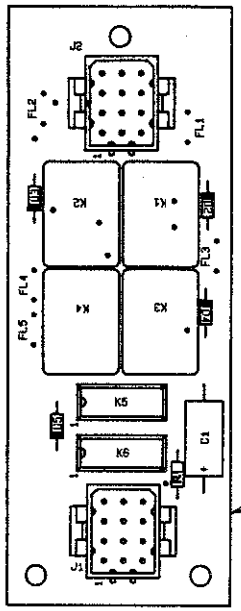
TELEX 250142 CABLE BROADCAST FAX 217/224-9607

TITLE: RELAY INTERFACE

TYPE	SIZE	DWG. NO.	REV
S	C	951-6021	B

MODEL AT-90 | SCALE NONE | SHEET 1 OF 1



TOLERANCE (DECIMAL) U.O.S.
.X ± .030 .XXX ± .005
.XX ± .015 ANGLES ± 1°

DWN. BY JAH 4-27-90
CHKD MH 3-15-91
ME
PROJ. ENGR. 3-19-91
MFG 3/26/91

MATERIAL SEE B/M 951-6021
FINISH
SEE DWG RA592-0000
NEXT ASSY.

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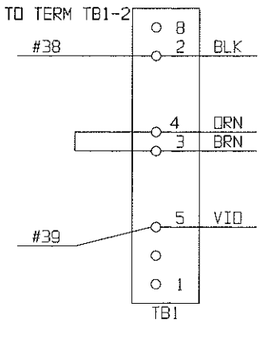
TELEX 250142 CABLE BROADCAST FAX 217/224-9607

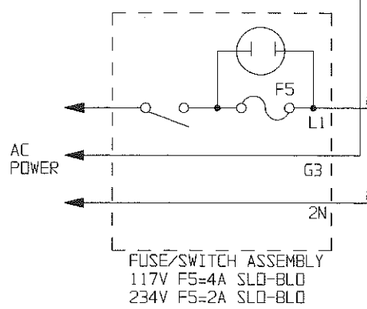
TITLE PCB ASSEMBLY
RELAY INTERFACE

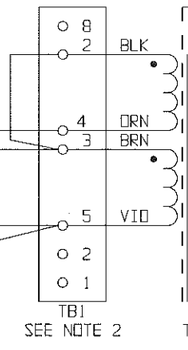
TYPE	SIZE	DWG.No.	REV
A	B	951-6021	B

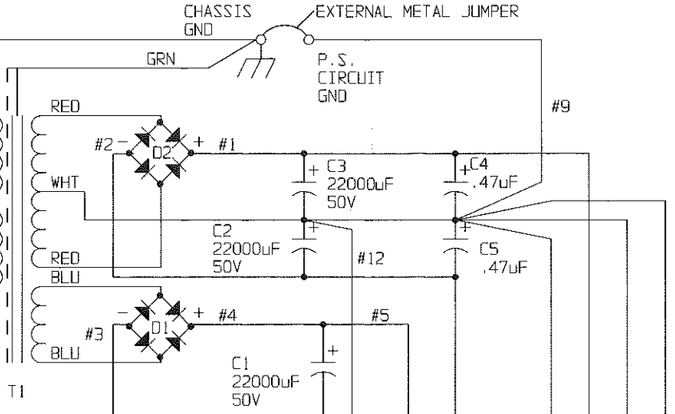
MODEL LINEAR CONSOLE SCALE 1=1 SHEET 1 OF 1

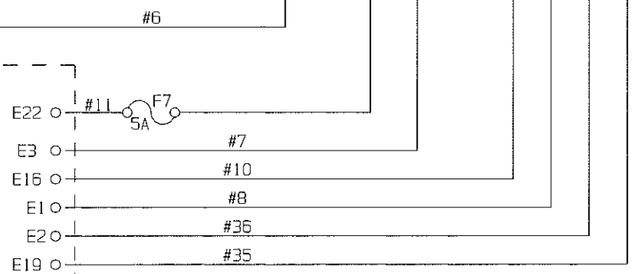
NOTES:
1. PIN # DESCRIPTION
   1 +16.5V, PGM
   2 +/- 16.5V COMMON,PGM
   3 -16.5V, PGM
   4 -16.5V, H.P. & CUE
   5 +6V
   6 +14V LOGIC
   7 +/-16.5V COMMON, H.P. & CUE
   8 -6V
   9 +14V/+24V/-24V COMMON
   10 +16.5V H.P. & CUE
   11 -24V
   12 +24V
2. 234V OPERATION
   REMOVE JUMPERS:
   2 TO 3, 4 TO 5
   ADD JUMPER
   3 TO 4
   MOVE WIRE 38 TO TERM TB1-2
   SEE DIAGRAM
   BELOW

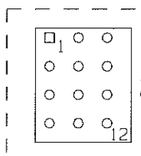


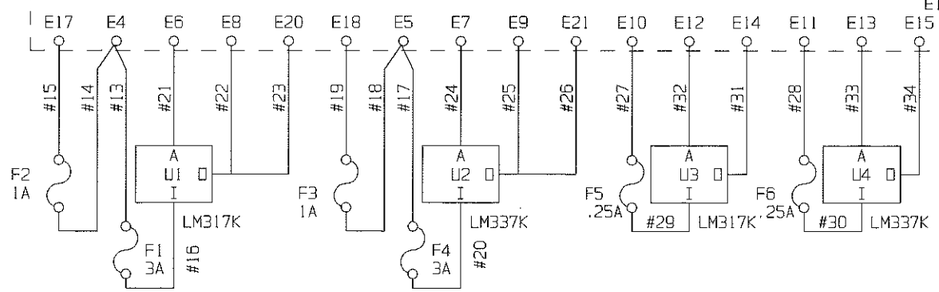












TOLERANCE (DECIMAL) U.O.S.
.x ± .030 .xxx ± .005
.xx ± .015 ANGLES ± 1°

DWN. BY C.RENARD 1-24-91
CHKD MH 1-31-91
ME
PROJ. ENGR.
MFG.

MATERIAL
FINISH
SEE DWG RA592-0000
NEXT ASSY.

BROADCAST ELECTRONICS INC.
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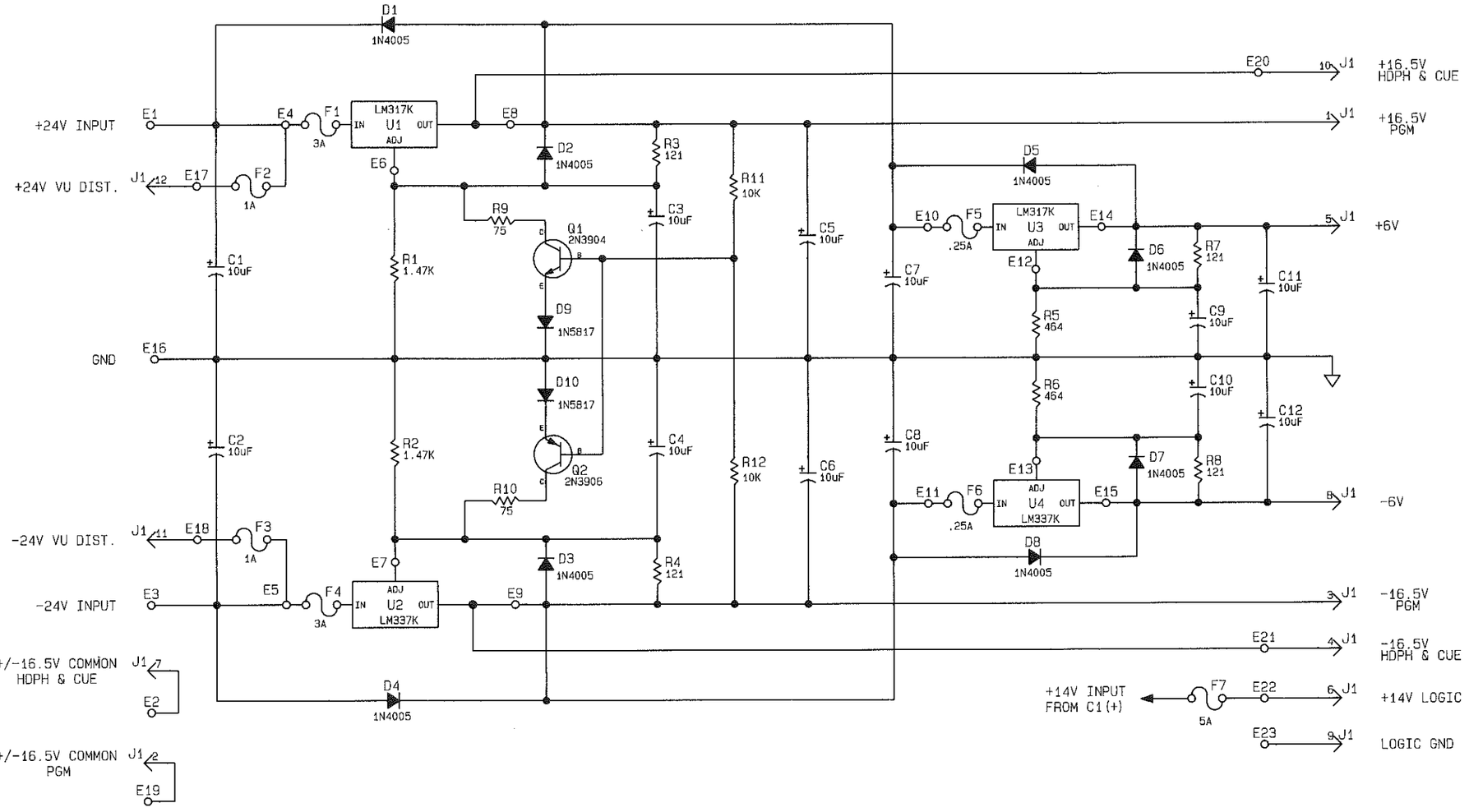
TELEX 250142 CABLE BRDADCAST FAX 217/224-9607

TITLE
POWER SUPPLY SCHEMATIC
AT90

TYPE	SIZE	DWG. NO.	REV
S	C	951-6030/-300	D

MODEL AT90 | SCALE NONE | SHEET 1 OF 1



NOTES:

1. ALL RESISTORS IN OHMS; 1/4W, 1% UNLESS OTHERWISE SPECIFIED.
2. LAST COMPONENT USED: R12, C12, D10, E23, J1, F7, & U4.
3. COMPONENTS NOT USED:
4. SEE ASSEMBLY: AB 911-6030
5. COMPONENTS U1-U4 & F1-F7 ARE NOT LOCATED ON BOARD.

DWN. BY	ELP 4-3-90
CHKD	
ME	
PROJ. ENGR.	
MFG.	
MATERIAL	SEE B/M 911-6030
FINISH	
NEXT ASSY.	~~SEE DWG RA592-0000~~

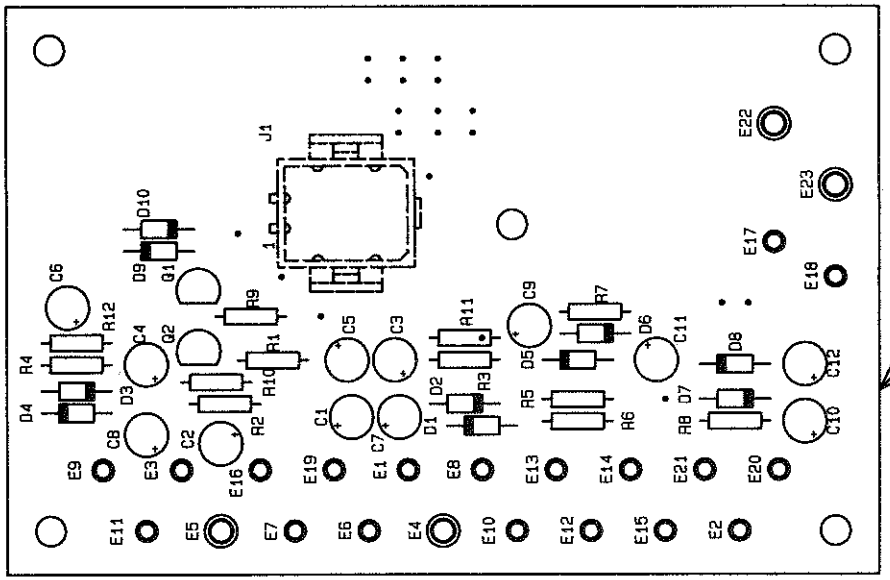
TOLERANCE (DECIMAL) U.O.S.
.x ± .030 .xxx ± .005
.xx ± .015 ANGLES ± 1°

BROADCAST ELECTRONICS INC.
4100 N. 24TH ST., P.O.BOX 3606 QUINCY, IL. 62305 217/224-9600
TELEX 250142 CABLE BROADCAST FAX 217/224-9607

TITLE: SCHEMATIC
POWER SUPPLY REGULATOR BD.

TYPE	SIZE	DWG. NO.	REV
S	C	911-6030	A

MODEL AT-90 SCALE NONE SHEET 1 OF 1



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TOLERANCE (DECIMAL) U.O.S.
.X ± .030 .XXX ± .005
.XX ± .015 ANGLES ± 1°

DWN. BY AEB 8-17-90
CHKD MH 3-18-91
ME 3/20/91
PROJ. ENGR. 3-18-91
MFG 3/20/91

MATERIAL SEE BOM 911-6030
FINISH SEE DWG RA592-0000
NEXT ASSY.

BROADCAST ELECTRONICS INC.
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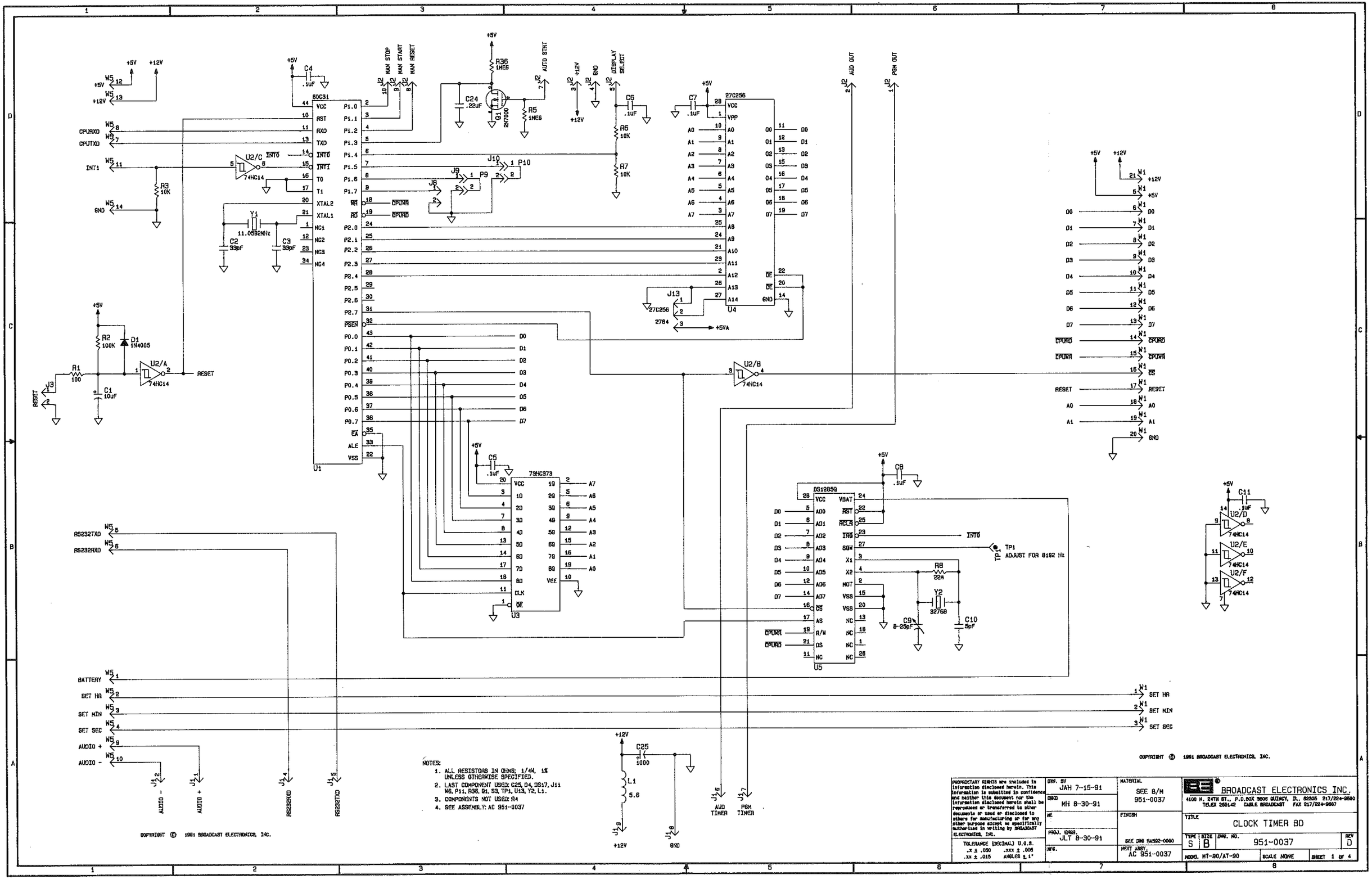
TELEX 250142 CABLE BROADCAST FAX 217/224-9607

TITLE: POWER SUPPLY REGULATOR BD.

TYPE	SIZE	DWG No.	REV
A	B	911-6030	A

MODEL AT-90 SCALE 1.5/1 SHEET 1 OF 1


80C31
74HC14
74HC373
27C256
DS1285Q
11.0592MHz
32768
MAN STOP
MAN START
MAN RESET
AUTO STRT
DISPLAY SELECT
AUD OUT
PGM OUT
CPURXD
CPUTXD
INT1
INT0
RESET
RS232TXD
RS232RXD
BATTERY
SET HR
SET MIN
SET SEC
AUDIO +
AUDIO -
AUD TIMER
PGM TIMER
TP1
ADJUST FOR 8192 Hz
NOTES:
1. ALL RESISTORS IN OHMS, 1/4W, 1% UNLESS OTHERWISE SPECIFIED.
2. LAST COMPONENT USED: C25, D4, DS17, J11 W6, P11, R36, Q1, S3, TP1, U13, Y2, L1.
3. COMPONENTS NOT USED: R4
4. SEE ASSEMBLY: AC 951-0037
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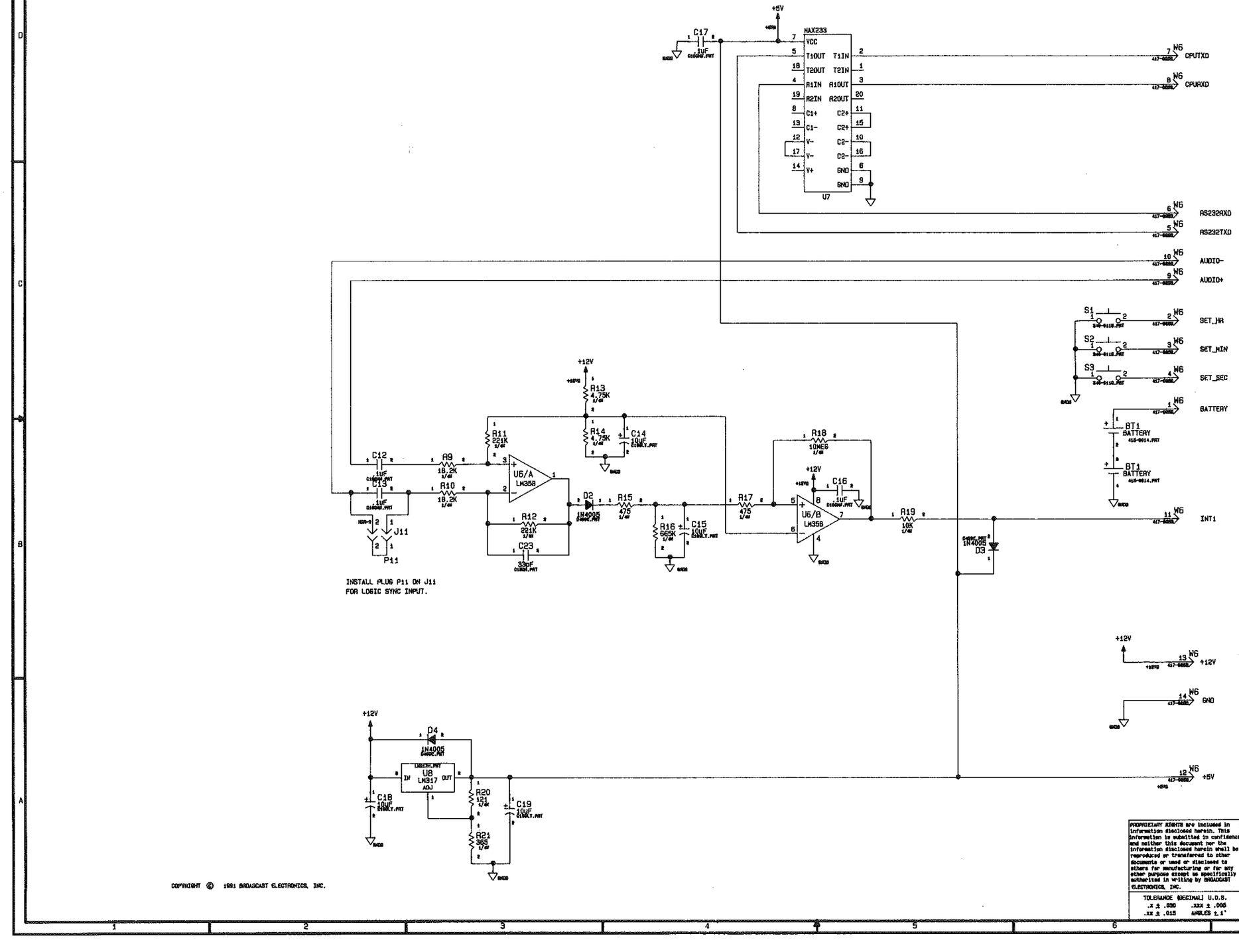
TOLERANCE (DECIMAL) U.O.S.
.x ± .030 .xxx ± .005
.xx ± .015 ANGLES ± 1°
DRN. BY JAH 7-15-91
CHKD MH 8-30-91
ENG
PROJ. ENGR. JLT 8-30-91
MFG.
MATERIAL SEE B/M 951-0037
FINISH
SEE DWG RA502-0060
NEXT ASSY. AC 951-0037
BROADCAST ELECTRONICS INC.
4100 N. 24TH ST., P.O.BOX 3606 QUINCY, IL. 62305 217/224-9600
TELEX 250142 CABLE BROADCAST FAX 217/224-9607
TITLE CLOCK TIMER BD
TYPE S SIZE B DWG. NO. 951-0037 REV D
MODEL MT-90/AT-90 SCALE NONE SHEET 1 OF 4



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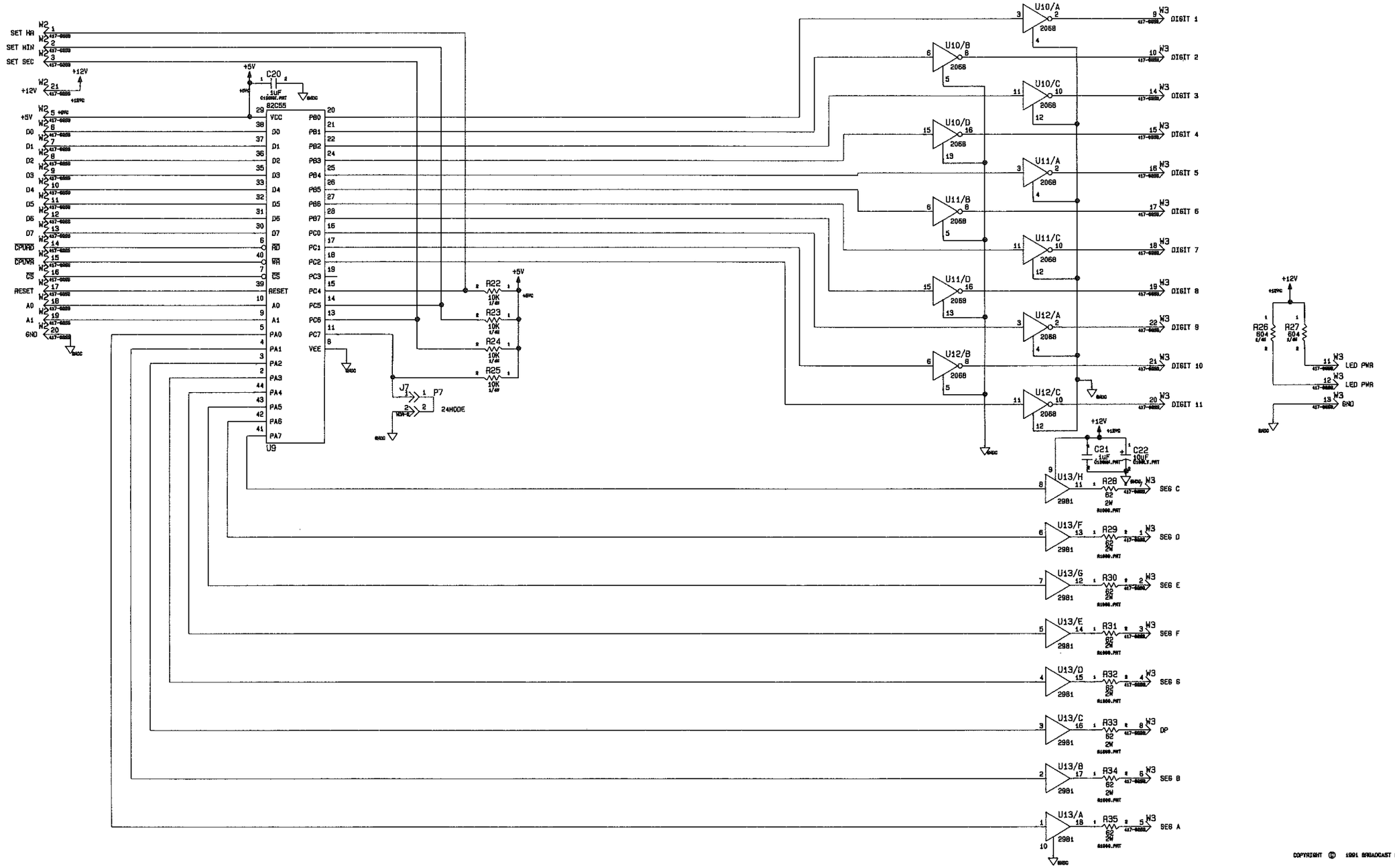
TOLERANCE (DECIMAL) U.O.S.
.X ± .030 .XXX ± .005
.XX ± .015 ANGLES ± 1°

DRN. BY JAH 7-22-91	MATERIAL SEE B/M 951-0037	BROADCAST ELECTRONICS INC.
CHKD MH 8-30-91	FINISH	4100 N. 24TH ST., P.O.BOX 3606 QUINCY, IL. 62305 217/224-9600 TELEX 250142 CABLE BROADCAST FAX 217/224-9607
ME		TITLE CLOCK TIMER BD
PROJ. ENGR. JLT 8-30-91	SEE DWG #A992-0000	TYPE S SIZE D DWG. NO. 951-0037 REV C
MFG.	NEXT ASSY. AC 951-0037	MODEL MT90/AT90 SCALE NONE SHEET 2 OF 4



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03

TOLERANCE (DECIMAL) U.O.S.
.X ± .030 .XXX ± .005
.XX ± .015 ANGLES ± 1°

DWN. BY JAH 7-22-91
CHKD MH 8-30-91
ME
PROJ. ENGR. JLT 8-30-91
MFG.

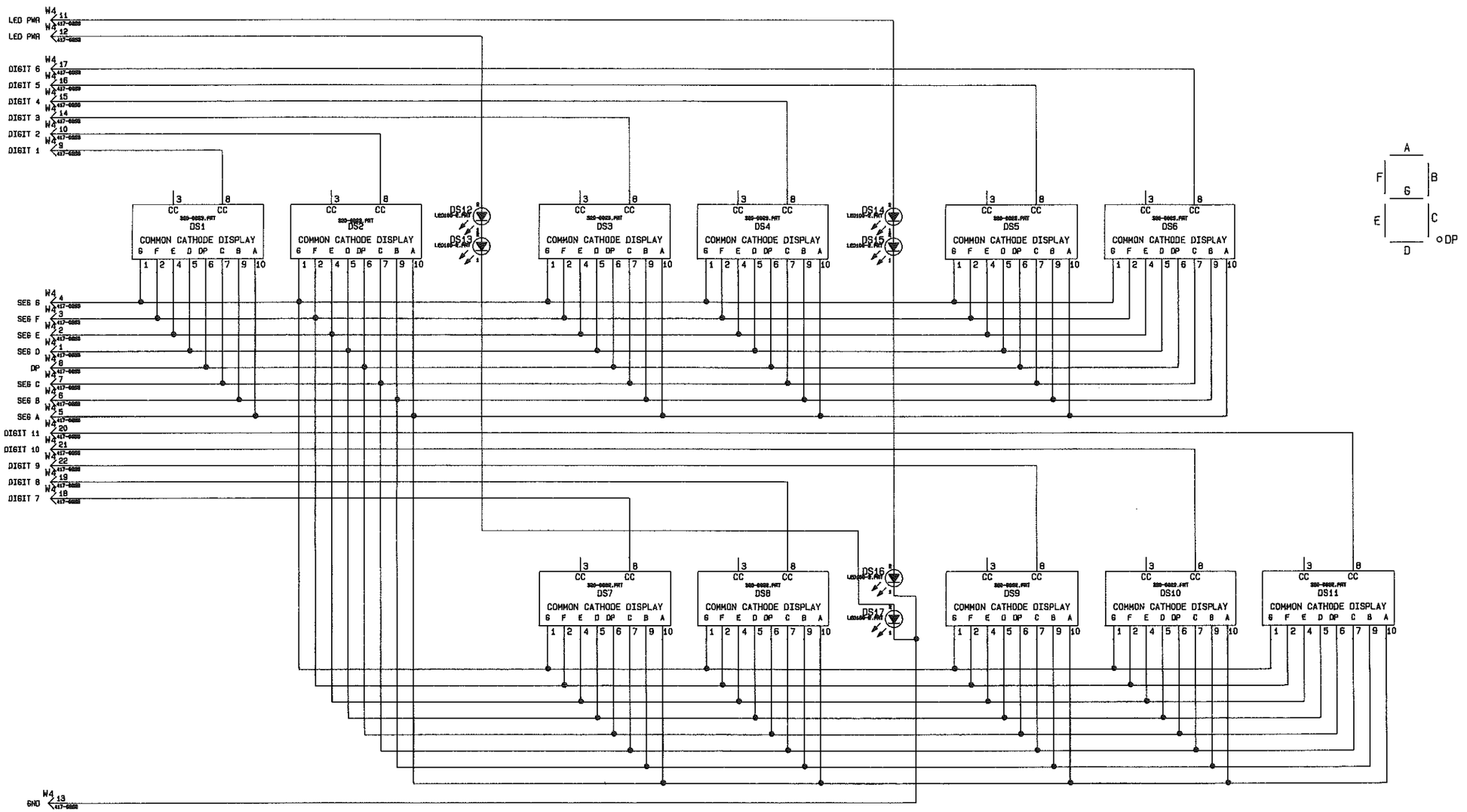
MATERIAL SEE B/M 951-0037
FINISH
SEE DWG RA562-0000
NEXT ASSY. AC 951-0037

BROADCAST ELECTRONICS INC.
4100 N. 24TH ST., P.O.BOX 3606 QUINCY, IL. 62305 217/224-9600
TELEX 250142 CABLE BROADCAST FAX 217/224-9607

TITLE CLOCK TIMER BD

TYPE S | SIZE D | DWG. NO. 951-0037 | REV C

MODEL MT90/AT90 | SCALE NONE | SHEET 3 OF 4



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04

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TOLERANCE (DECIMAL) U.O.S.
.x ± .030 .xxx ± .005
.xx ± .015 ANGLES ± 1°

DRN. BY JAH 7-22-91
CHKD MH 8-30-91
ENG
PROJ. ENGR. JLT 8-30-91
MFG.

MATERIAL SEE B/M 951-0037
FINISH
SEE DWG #A562-0000
NEXT ASSY. AC 951-0037

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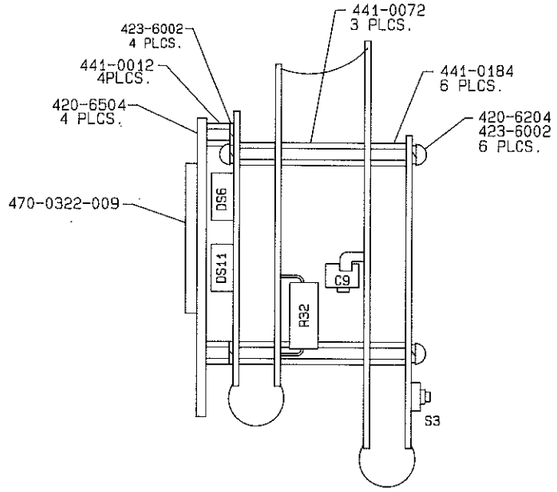
TITLE CLOCK TIMER BD

TYPE S SIZE D DWG. NO. 951-0037 REV C

MODEL MT90/AT90 SCALE NONE SHEET 4 OF 4



MODULE ASSEMBLY

426-6000 TO BE MOUNTED ON SOLDER SIDE 4 PLCS.

SPACER 441-0185 TO BE INSTALLED UNDER 1 LEG OF EACH LED AS SHOWN TYP. 3 PLCS.

REMOVE PIN 6

511-0037

CONNECT TERMINAL TO PCB USING 22 GA. BUS WIRE BE P/N 601-0022 TYP. 4 PLCS.

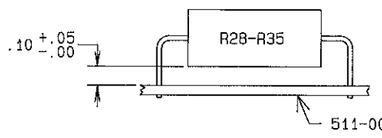
SEE DETAIL A

REMOVE PIN 3

420-2504
423-2002
421-2001
TYP. 2 PLCS.

701-0041

TY-RAP 402-0000 TO BE APPLIED AROUND BOARD AND THROUGH HOLE FOR BATTERY TIE DOWN



DETAIL 'A' SCALE 2=1

TOLERANCE (DECIMAL) U.O.S.
.X ± .030 .XXX ± .005
.XX ± .015 ANGLES ± 1°

DWN. BY	JAH 8-30-91
CHKD	MH 8-30-91
ME	
PROJ. ENGR.	JLT 8-30-91
MFG.	
MATERIAL	SEE B/M 951-0037
FINISH	SEE DWG RA592-0000
NEXT ASSY.	

BROADCAST ELECTRONICS INC.
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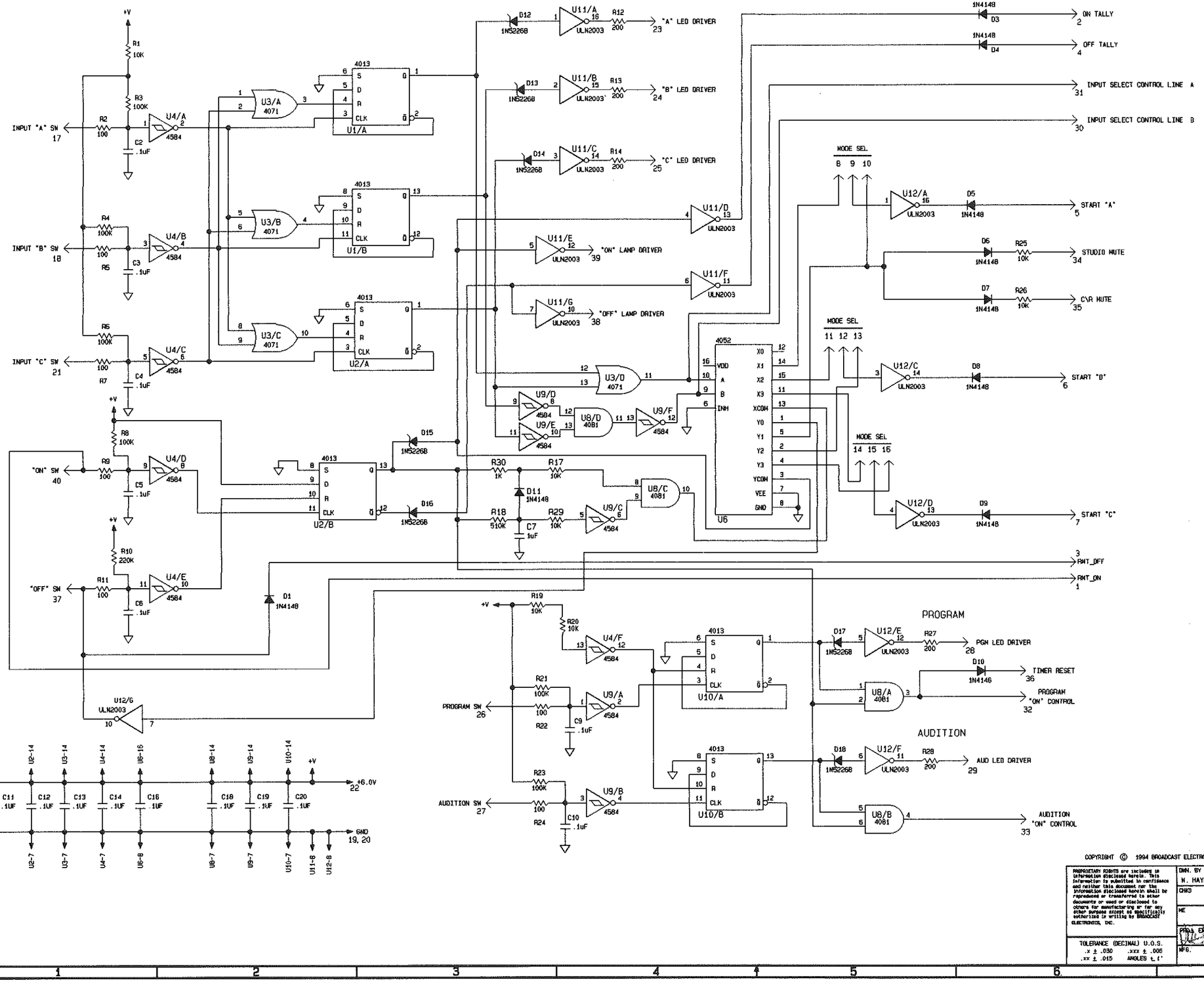
TELEX 250142 CABLE BROADCAST FAX 217/224-9607

TITLE: PCB ASSEMBLY CLOCK TIMER

TYPE	SIZE	DWG No.	REV
A	C	951-0037	D

MODEL MT90/AT90 SCALE 1=1 SHEET 1 OF 1



NOTES:
1. ALL RESISTORS IN OHMS, 1/4W, 5% UNLESS OTHERWISE SPECIFIED.
2. LAST COMPONENT USED: C20, D18, R30 & U12.
3. COMPONENTS NOT USED: C1, C8, C15, C17, D2, R15, R16, U5 & U7.
4. SEE ASSEMBLY: 220-0018-001.

TOLERANCE (DECIMAL) U.O.S.
.x ± .030 .xxx ± .005
.xx ± .015 ANGLES ± 1°

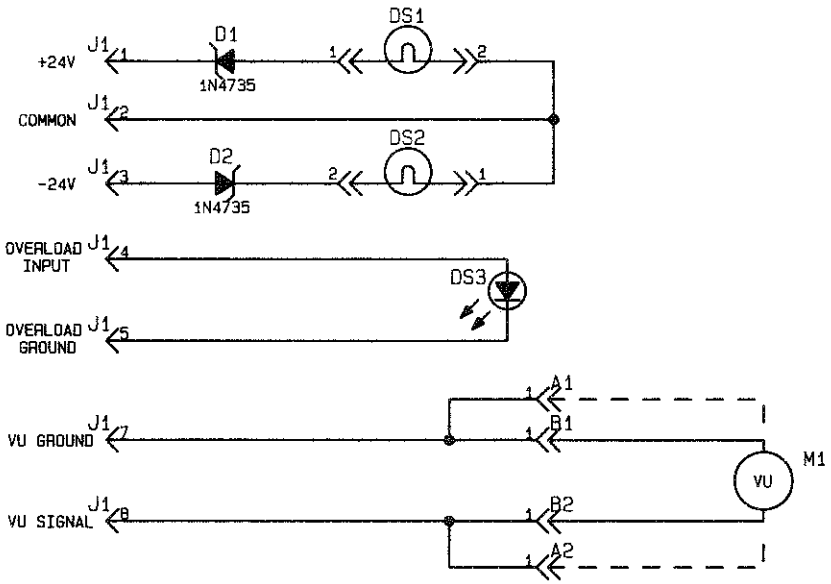
DWN. BY N. HAYDEN 4-13-94
CHKD
ME
PROJ. ENGR.
MFG.
MATERIAL
FINISH
NEXT ASSY.

BROADCAST ELECTRONICS INC.
4100 N. 24TH ST., P.O.BOX 3606 QUINCY, IL 62305 217/224-9600
TELEX 250142 CABLE BROADCAST FAX 217/224-9607

TITLE SCHEMATIC
CHANNEL CONTROL LOGIC HYBRID

TYPE S | SIZE D | DWG. NO. 220-0018-001 | REV A

MODEL AT-90 | SCALE NONE | SHEET 1 OF 1



TOLERANCE (DECIMAL) U.O.S.
.x ± .030 .xxx ± .005
.xx ± .015 ANGLES ± 1°

DWN. BY JAH 7-20-89
CHKD MH 11-14-89
ME 11/15/89
PROJ. ENGR. 11-14-89
MFG

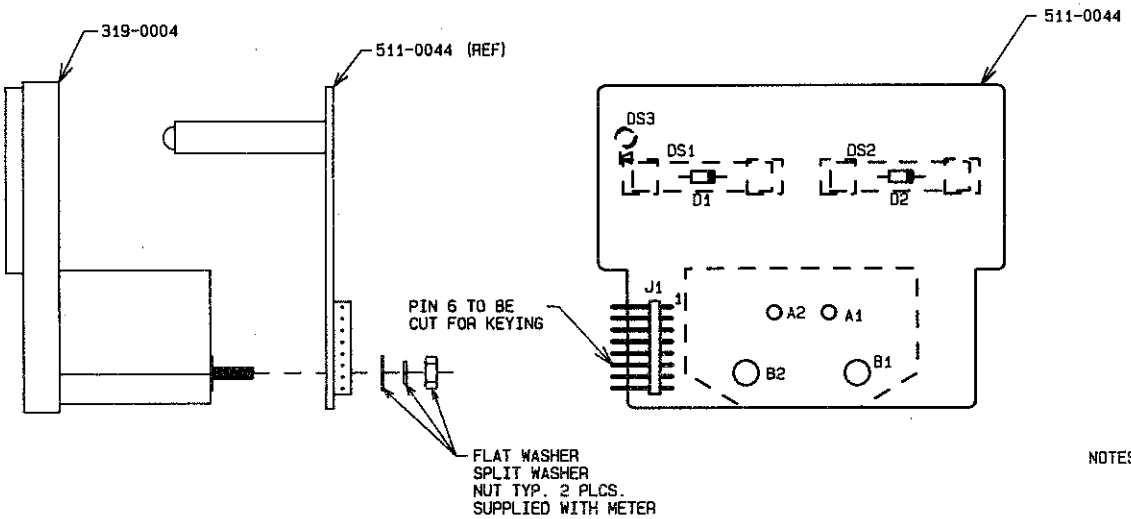
MATERIAL SEE B/M 951-0044
FINISH
SEE DWG RA592-0000
NEXT ASSY. AB 951-0044

BROADCAST ELECTRONICS INC.
4100 N. 24TH ST., P.O.BOX 3605 QUINCY, IL. 62305 217/224-9600
TELEX 250142 CABLE BROADCAST FAX 217/224-9607

TITLE VU METER BD

TYPE	SIZE	DWG. NO.	REV
S	B	951-0044	A

MODEL MT-90 | SCALE NONE | SHEET 1 OF 1



NOTES:

1. DASHED COMPONENTS MOUNTED ON OPPOSITE SIDE SHOWN.
2. SEE SCHEMATIC SB 951-0044.

TOLERANCE (DECIMAL) U.O.S.
.X ± .030 .XXX ± .005
.XX ± .015 ANGLES ± 1°

DWN. BY JAH 11-13-89
CHKD MH 11-14-89
ME
PROJ. ENGR.
MFG

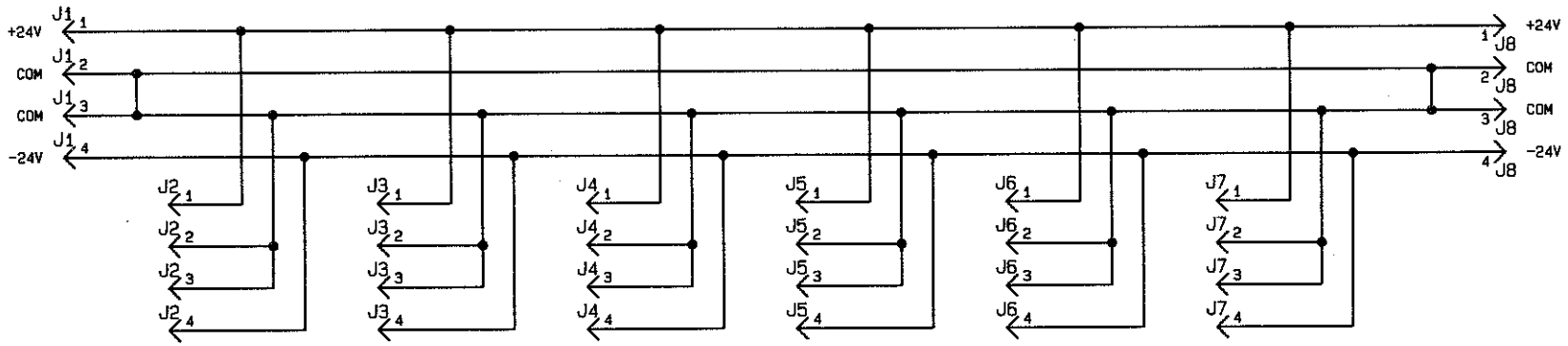
MATERIAL SEE B/M 951-0044
FINISH
SEE DWG RA592-0000
NEXT ASSY.

BROADCAST ELECTRONICS INC.
4100 N. 24TH ST. P.O.BOX 3606 QUINCY, IL. 62305 PH. 217/224-9600
TELEX 250142 CABLE BROADCAST FAX 217/224-9607

TITLE: VU METER PCB

TYPE	SIZE	DWG.No.	REV
A	B	951-0044	A

MODEL MT-90 SCALE 1=1 SHEET 1 OF 1



NOTES:

1. ALL RESISTORS IN OHMS; 1/4W, 1% UNLESS OTHERWISE SPECIFIED.
2. LAST COMPONENT USED: J8.
3. COMPONENTS NOT USED:
4. SEE ASSEMBLY: AC911-6031.

TOLERANCE (DECIMAL) U.O.S.
.x ± .030 .xxx ± .005
.xx ± .015 ANGLES ± 1°

DWN. BY 5-27-92
M. HAYDEN
CHKD
ME
PROJ. ENGR.
MFG.

MATERIAL
SEE B/M
911-6031

FINISH

SEE DWG RA592-0000

NEXT ASSY.

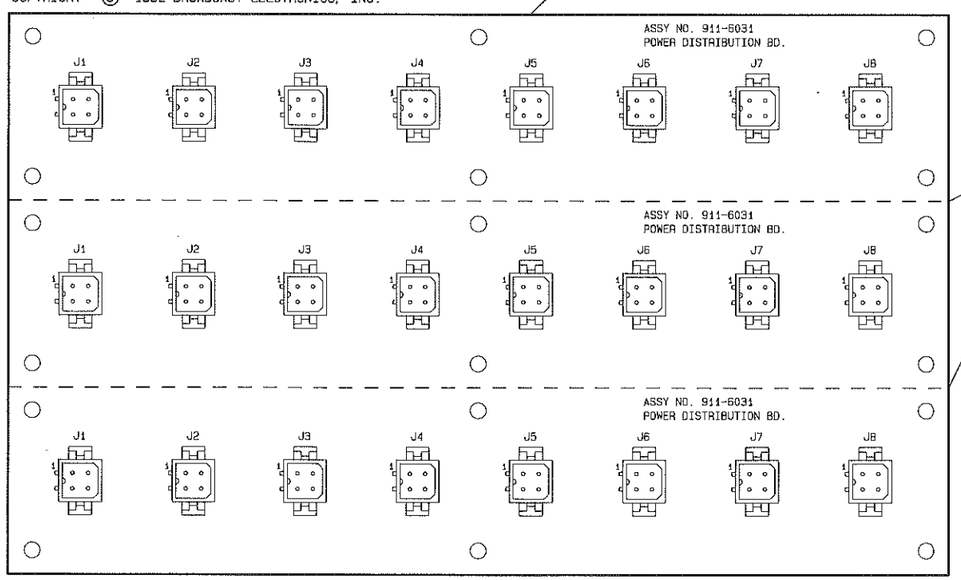
BROADCAST ELECTRONICS INC.
4100 N. 24TH ST., P.O.BOX 3606 QUINCY, IL. 62305 217/224-9600
TELEX 250142 CABLE BROADCAST FAX 217/224-9607

TITLE
SCHEMATIC
POWER DISTRIBUTION BD.

TYPE	SIZE	DWG. NO.	REV
S	B	911-6031	A

MODEL AT-100 SCALE NONE SHEET 1 OF 1

511-6031



BREAK BOARDS APART AFTER ASSEMBLY

TOLERANCE (DECIMAL) U.O.S.
.X ± .030 .XXX ± .005
.XX ± .015 ANGLES ± 1°

DWN. BY MA 1-25-92
CHKD
ME
PROJ. ENGR.
MFG.

MATERIAL
SEE B/M
911-6031

FINISH

~~SEE DWG RA592-0000~~

NEXT ASSY.

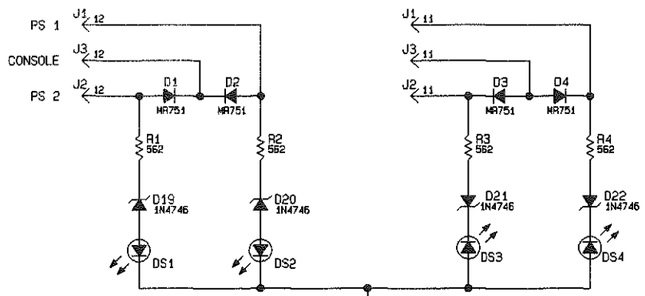
BROADCAST ELECTRONICS INC.
4100 N.24TH ST. P.O.BOX 3606 QUINCY, IL. 62305 PH. 217/224-9600
TELEX 250142 CABLE BROADCAST FAX 217/224-9607

TITLE
PCB ASSEMBLY
POWER DISTRIBUTION BD.

TYPE	SIZE	DWG No.	REV
A	C	911-6031	A

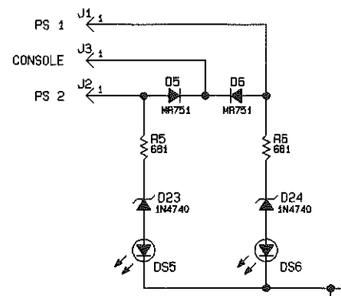
MODEL AT-100 SCALE 1/1 SHEET 1 OF 1

+24 VOLTS

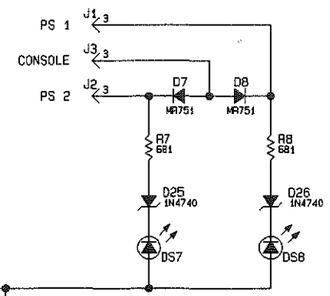


-24 VOLTS

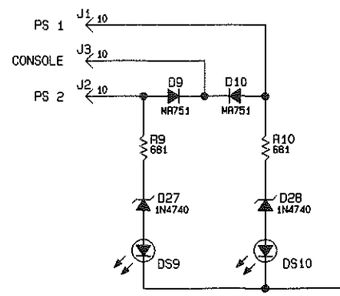
+16 VOLTS PGM



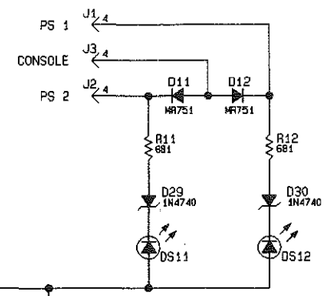
-16 VOLTS PGM



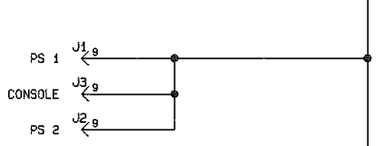
+16 VOLTS HP



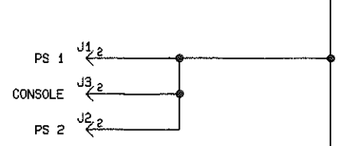
-16 VOLTS HP



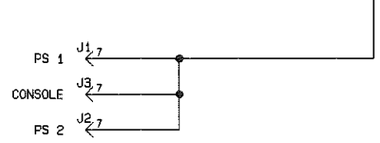
+14 VOLTS GND



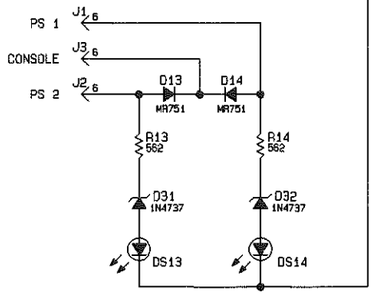
PGM GND



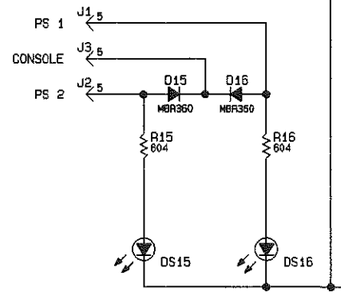
HP GND



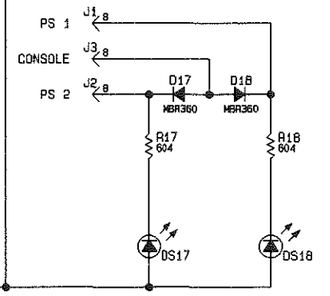
+14 VOLTS



+6 VOLTS



-6 VOLTS



NOTES:

1. ALL RESISTORS IN OHMS, 1/4W, 1%, UNLESS OTHERWISE SPECIFIED.
2. LAST COMPONENTS USED: D32, DS18, J3, R18.
3. SEE ASSEMBLY AC 911-6032.

TOLERANCE (DECIMAL) U.O.S.
.X ± .030 .XXX ± .005
.XX ± .015 ANGLES ± 1°

DRN. BY 1-27-92 M. HAYDEN
CHKD
ME
PROJ. ENGR. 10-4-93
MFG.

MATERIAL SEE B/M 911-6032
FINISH
SEE DWG RA503-0000
NEXT ASSY.

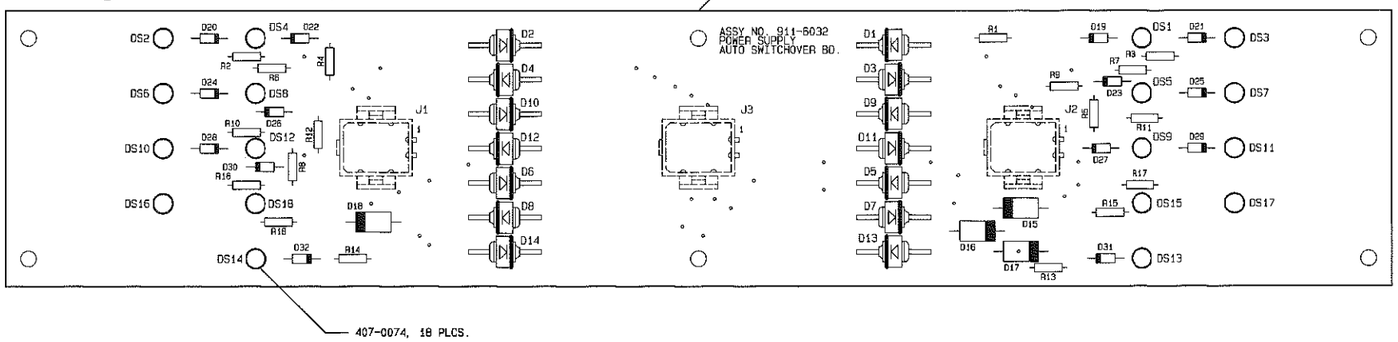
BROADCAST ELECTRONICS INC.
4100 N. 24TH ST., P.O.BOX 3606 QUINCY, IL. 62305 217/224-9600
TELEX 250142 CABLE BROADCAST FAX 217/224-9607

TITLE SCHEMATIC
POWER SUPPLY AUTO SWITCHOVER

TYPE	SIZE	DWG. NO.	REV
S	B	911-6032	A

MODEL AT-90 SCALE NONE SHEET 1 OF 1

511-6032



407-0074, 18 PLCS.

NOTES:

1. SEE SCHEMATIC NO. SB911-6032.

TOLERANCE (DECIMAL) U.O.S.
.X ± .030 .XXX ± .005
.XX ± .015 ANGLES ± 1°

DWN. BY MAH 1-23-92
CHKD
ME
PROJ. ENGR. 10-6-92
MFG.

MATERIAL
SEE B/M
911-6032

FINISH

~~SEE DWG PA592-0000~~

NEXT ASSY.

BROADCAST ELECTRONICS INC.
4100 N.24TH ST. P.O.BOX 3606 QUINCY, IL. 62305 PH. 217/224-9600
TELEX 250142 CABLE BROADCAST FAX 217/224-9507

TITLE
PCB ASSEMBLY
POWER SUPPLY AUTO SWITCHOVER

TYPE	SIZE	DWG No.	REV
A	C	911-6032	A

MODEL AT-90 SCALE 1/1 SHEET 1 OF 1

PRODUCT WARRANTY

LIMITED TWO YEAR

While this warranty gives Purchaser specific legal rights, which terminate two (2) years (one year on cartridge and blower motors) from the date of shipment, Purchaser may also have other rights which vary state to state.

Broadcast Electronics, Inc. ("Seller") hereby warrants cartridge machines, consoles, and other new Equipment manufactured by Seller against any defects in material or workmanship at the time of delivery thereof, that develop under normal use within a period of two (2) years (one year for cartridge and blower motors) from the date of shipment, as such term is defined herein. Other manufacturer's and suppliers' Equipment and services, if any, including electronic tubes, solid state devices, transmission line, antennas, towers, related equipment and installation and erection services, shall carry only such manufacturer's or suppliers' standard warranty. This warranty extends to the original user and any subsequent purchaser during the warranty period. Seller's sole responsibility with respect to any equipment or parts not conforming to this warranty is to replace such equipment or parts upon the return thereof F.O.B. Seller's factory or authorized repair depot within the period aforesaid.

In the event of replacement pursuant to the foregoing warranty, only the unexpired portion of the warranty from the time of the original purchase will remain in effect for any such replacement. However, the warranty period will be extended for the length of time that Purchaser is without the services of the Equipment due to its being serviced pursuant to this warranty. The terms of the foregoing warranty shall be null and void if the Equipment has been altered or repaired without specific written authorization of Seller, or if Equipment is operated under environmental conditions or circumstances other than those specifically described in Seller's product literature or instruction manual which accompany the Equipment. Seller shall not be liable for any expense of any nature whatsoever incurred by the original user without prior written consent of Seller.

Seller shall not be liable to Purchaser for any and all incidental or consequential damages for breach of either expressed or implied warranties. However, some states do not allow the exclusion or limitation of incidental or consequential damages, so the above limitation or exclusion may not apply to Purchaser. All express and implied warranties shall terminate at the conclusion of the period set forth herein. Any card which is enclosed with the equipment will be used by Seller for survey purposes only.

If the Equipment is described as used, it is sold as is and where is. If the contract covers equipment not owned by Seller at this date, it is sold subject to Seller's acquisition of possession and title.

EXCEPT AS SET FORTH HEREIN, AND EXCEPT AS TO TITLE, THERE ARE NO WARRANTIES, OR ANY AFFIRMATIONS OF FACT OR PROMISES BY SELLER, WITH REFERENCE TO THE EQUIPMENT, OR TO MERCHANTABILITY, FITNESS FOR A PARTICULAR APPLICATION, SIGNAL COVERAGE, INFRINGEMENT, OR OTHERWISE, WHICH EXTEND BEYOND THE DESCRIPTION OF THE EQUIPMENT ON THE FACE HEREOF.

BROADCAST ELECTRONICS, INC.
4100 North 24th Street, P.O. Box 3606, Quincy, Illinois 62305

PRODUCT WARRANTY

LIMITED TWO YEAR

While this warranty gives Purchaser specific legal rights, which terminate two (2) years (one year on cartridge and blower motors) from the date of shipment, Purchaser may also have other rights which vary state to state.

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In the event of replacement pursuant to the foregoing warranty, only the unexpired portion of the warranty from the time of the original purchase will remain in effect for any such replacement. However, the warranty period will be extended for the length of time that Purchaser is without the services of the Equipment due to its being serviced pursuant to this warranty. The terms of the foregoing warranty shall be null and void if the Equipment has been altered or repaired without specific written authorization of Seller, or if Equipment is operated under environmental conditions or circumstances other than those specifically described in Seller's product literature or instruction manual which accompany the Equipment. Seller shall not be liable for any expense of any nature whatsoever incurred by the original user without prior written consent of Seller.

Seller shall not be liable to Purchaser for any and all incidental or consequential damages for breach of either expressed or implied warranties. However, some states do not allow the exclusion or limitation of incidental or consequential damages, so the above limitation or exclusion may not apply to Purchaser. All express and implied warranties shall terminate at the conclusion of the period set forth herein. Any card which is enclosed with the equipment will be used by Seller for survey purposes only.

If the Equipment is described as used, it is sold as is and where is. If the contract covers equipment not owned by Seller at this date, it is sold subject to Seller's acquisition of possession and title.

EXCEPT AS SET FORTH HEREIN, AND EXCEPT AS TO TITLE, THERE ARE NO WARRANTIES, OR ANY AFFIRMATIONS OF FACT OR PROMISES BY SELLER, WITH REFERENCE TO THE EQUIPMENT, OR TO MERCHANTABILITY, FITNESS FOR A PARTICULAR APPLICATION, SIGNAL COVERAGE, INFRINGEMENT, OR OTHERWISE, WHICH EXTEND BEYOND THE DESCRIPTION OF THE EQUIPMENT ON THE FACE HEREOF.

BROADCAST ELECTRONICS, INC.
4100 North 24th Street, P.O. Box 3606, Quincy, Illinois 62305