210-SERIES CONSOLE SYSTEM

SERVICE AND INSTALLATION MANUAL

This manual should be read in its entirety before attempting to install or use this product.

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Chapter 1

Introduction

HOW TO USE THIS MANUAL

PLEASE READ THE NEXT THREE PAGES, EVEN IF YOU DON'T READ ANYTHING ELSE

Many people only read their Service and Installation Manual as a last resort. If you are one of these people, the next two pages tell you where to find information when you need it.

Read the introduction section at the beginning of each chapter for information regarding the topics covered therein.

This technical manual covers all configurations of the 210-Series Console System, and assumes that the user already has a good working knowledge of electronic circuitry and maintenance procedures.

Auditronics, Inc. strongly suggest that this manual be read in its entirety before attempting to install or use this product. If, for some reason, this is not possible, at least read *Unpacking*, in *Chapter 3, System Installation*, before taking delivery of your 210-Series Console System.

Alignment procedures may be found in the individual chapters where they pertain.

Schematic diagrams and location art for each component may be found at the end of the pertinent chapters. The diagrams in this manual do not carry page numbering, allowing them to be removed without interruption of pagination. Although they are not marked as such, the reverse sides of these diagrams have intentionally been left blank.

For parts and technical support, call Auditronics' Customer Service Department in Memphis, Tennessee, from 8:00 AM to 5:00 PM (central time), weekdays at (901) 362-1350.

CONVENTIONS

The following conventions are used within the text throughout this technical manual:

Page Numbering. The pages in this document are numbered according to chapter number and page number. For example, a reference to page '3 - 10' means *Chapter 3, Page 10.*

Bold type is used each time a new term or feature is introduced and defined within each chapter.

Italic type is used when referring to headings of other areas within this publication, or to the titles of other manuals or documents, or to figure numbers of diagrams.

Shading is used to isolate and highlight certain parts of a diagram while still showing the complete entity in perspective.

Terms

Throughout this publication there is liberal usage of the terms Input and Output. These terms are defined as follows:

- **Input**: Refers to an input of either an external piece of equipment or of the 210-Series Console System. The specific input referred to at any given time (210 or external device) will be defined.
- **Output**: Refers to an output of either an external piece of equipment or of the 210-Series Console System. The specific output referred to at any given time (210 or external device) will be defined.
- **Press**: Refers to a momentary (non-interlocking) pushbutton.
- **Depress**: Refers to an interlocking pushbutton.
- **CW** and **CCW**: Refers to clockwise and counter-clockwise rotation of a trimpot.

Any comments about or suggestions for improving this document are appreciated. Please forward any remarks to:

Auditronics, Inc.
3750 Old Getwell Road
Memphis, TN 38118

Attn: Manager, Technical Publications

The information in this manual is subject to change. While every effort has been made to eliminate errors, the company disclaims liability for errors or for difficulties arising from interpretation of the information contained herein.

HERE'S WHAT YOU'LL FIND INSIDE THIS MANUAL...

- **Chapter 1** contains basic information concerning the use of this manual, general writing conventions, (...and, of course, this list).
- **Chapter 2** contains information concerning how to contact the Auditronics Customer Service Department, the Auditronics limited warranty, general specifications and characteristics of your 210-Series Console System, information about Auditronics' service and repair policies including replacement parts and modules. Also included in Chapter 2 are some notes on troubleshooting audio problems and routine maintenance.
- **Chapter 3** contains a complete technical tutorial dealing with all aspects of commissioning your 210-Series Console System, including preparation of a suitable area for your console, environmental requirements, unpacking, various interconnections, configurations and options..
- **Chapter 4** contains information on the 210-MIS Microphone Input Module and related procedures, including diagram, control and pushbutton overview, audio and logic assignments, field options, alignment procedures, specifications and schematic diagrams.
- **Chapter 5** contains information on the 210-SLI and 210-SLB Stereo Line Input Modules and related procedures, including diagram, control and pushbutton overview, audio and logic assignments, field options, alignment procedures, specifications and schematic diagrams.
- **Chapter 6** contains information on the 210-CRM Control Room Monitor Module and related procedures, including diagram, control and pushbutton overview, audio and logic assignments, field options, specifications and schematic diagrams.
- **Chapter 7** contains information on the 210-CSM Communications/Studio Monitor Module and related procedures, including diagram, control and pushbutton overview, audio and logic assignments, specifications and schematic diagrams.
- **Chapter 8** contains information on the 210-DLO Dual Line Output Module and related procedures, including diagram, audio assignments, pin assignments, alignment procedures, and schematic diagrams.
- **Chapter 9** contains information on the 210 Timer/Clock Module and related procedures, including diagram, operating instructions...
- **Chapter 10** contains information on the 210-EQ and -PEQ Equalizer Modules and related procedures, including diagram, audio assignments, pin assignments, installation instructions, alignment procedures, and schematic diagrams.
- **Chapter 11** contains information on the 210-LS Series Line Input Selector Modules and related procedures, including diagram, audio assignments, pin assignments, installation instructions, and schematic diagrams.
- **Chapter 12** contains information on the 210-TR5 and -TR6 Tape Remote Control Modules and related procedures, including diagram, audio assignments, pin assignments, installation instructions, alignment procedures, and schematic diagrams.
- **Chapter 13** contains information on the 210-LI3 and -MX6 Mixer Modules and related procedures, including diagram, audio assignments, pin assignments, installation instructions, alignment procedures, and schematic diagrams.
- **Chapter 14** contains information on the 210-VCP Voice Controller Module and related procedures, including diagram, audio assignments, pin assignments, installation instructions, alignment procedures, and schematic diagrams.
- **Chapter 15** contains information on the 210-LOS Line Output Selector Module and related procedures, including diagram, installation instructions, input and output connections, and schematic diagrams.
- **Chapter 16** contains information on the 210-SRC Studio Remote Module and related procedures, including diagram, audio assignments, pin assignments, installation instructions, and schematic diagrams.
- **Chapter 17** contains information on the 210-MCMP Microphone Control Mixing Panel and related procedures including diagram, logic assignments, pin assignments, installation and cable building instructions, and schematic diagrams.
- **Chapter 18** contains information on the 210-MCP Microphone Control Panel and related procedures including diagram, audio assignments, pin assignments, installation and cable building instructions, and schematic diagrams.
- **Chapter 19** contains information on the 210 MSHP Monitor Speaker/Headphone Control Panel and related procedures including diagram, audio assignments, pin assignments, installation and cable building instructions, and schematic diagrams.
- **Chapter 20** contains information on the 210-TEL Telephone Interface Module and related procedures including diagram, audio assignments, pin assignments, installation and cable building instructions, and schematic diagrams.

- **Chapter 21** contains information on the 210-RY2 Relay Interface Module and related information including connector pinouts and schematic diagram.
- **Appendix A** contains general information regarding the physical installation of the 210 Overbridge.
- **Appendix B** contains diagrams of the commonly used cables, both internal and external, found in the 210-Series Console System. Each diagram includes pinouts, color code (if applicable, length, and is labelled with the actual purpose of the cable.

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Chapter 2

General Information

INTRODUCTION

Congratulations on your purchase of one of the most advanced audio mixing consoles available today. The Auditronics, Inc. Model 210-Series of consoles represents an excellent combination of today's 'high technologies' and over 15 years of experience in the design and manufacture of professional audio systems.

As you proceed through the manual, should you encounter what you believe to be an error or discrepancy in the manual, or if you desire additional guidance in the installation or operation of your console, please do not hesitate to contact us to bring the matter to our attention.

Please enjoy using your 210...

Customer Service Department
Auditronics, Inc.
3750 Old Getwell Road
Memphis, TN 38118
(901) 362-1350

AUDITRONICS PROFESSIONAL AUDIO EQUIPMENT ONE YEAR LIMITED WARRANTY

GENERAL

Auditronics, Inc. warrants its products to the original purchaser, and, limited to the original installation, to be free from defects in material and workmanship for a period of twelve (12) months from the registered installation date. If proper warranty registration has not been completed or is not applicable, warranty shall begin 30 days from date equipment is shipped from the factory.

MANUFACTURER LIABILITY

Auditronics' liability is limited to the repair or replacement of defective parts at no charge to the owner when shipped F.O.B. factory and only when parts are proven to be defective in material and workmanship by inspection at the factory.

EXCEPTION

This warranty does not apply to any materials or workmanship supplied by others in the process of installing Auditronics-manufactured equipment, nor does it apply to any Auditronics unit not installed in accordance with the manufacturer's recommended installation instructions.

This Auditronics warranty does not cover damage to equipment caused by fire, flood, external water, excessive corrosion, acts of God, misuse, or abuse.

No person of company is authorized to make warranties or exceptions to this warranty or assume any other liabilities on behalf of the manufacturer in connection with its product.

ELECTRICAL/ELECTRONIC SPECIFICATIONS

Stereo Line Input

Source Selectable from A or B Input

Source Impedance: . . . . . 600 Ohms, nominal
Input Impedance: . . . . . 50K Ohms, balanced Active Differential
Input Level: . . . . . -12dBm to +8 dBm, adjustable
Input Headroom: . . . . . 20dB over Nominal Input Level
CMRR: . . . . . 80dB 20Hz to 20kHz

Mono Microphone Input

Source Selectable from A or B Input

Source Impedance: . . . . . 150 Ohms, nominal
Input Impedance: . . . . . 1K Ohms, 20Hz to 20kHz, balanced Active Differential
Input Level: . . . . . -65dBm to -10dBm, adjustable
Input Headroom: . . . . . 22dB over Nominal Input Level
CMRR: . . . . . 80dB 20Hz to 20kHz

Stereo Program, Stereo Audition and Mono Outputs

Load Impedance: . . . . . 600 Ohms, Nominal
Output Impedance: . . . . . 60 Ohms, balanced
Output Level: . . . . . +8dBm Nominal, adjustable +24dBm Maximum Output

Stereo Control Room and Studio Monitor Outputs

Load Impedance: . . . . . 600 Ohms, Nominal
Output Impedance: . . . . . 600 Ohms, balanced Active Differential
Output Level: . . . . . 0dBm Nominal +24 dBm Maximum Output

Stereo Headphone Output

Load Impedance: . . . . . 8 Ohms or Greater
Output Level: . . . . . 2 Watts per Channel, Maximum

Cue Output

Output Level: . . . . . 4 Watts, Maximum into Built-In Speaker

Overall

Frequency Response: . . . . . 20Hz to 20kHz, +0 / -1 dB at +8dBm Output Level, Mic or Line Input to Program or Audition Output.

Specifications (cont'd.)

S/N Ratio, Mic In to Prog. or Aud. Out: . . . . . 78.5dBu or -128.5dBu equivalent input noise, 20Hz to 20kHz, with 150 Ohms Source Impedance, gain of 50dB.

S/N Ratio, Line In to Prog. or Aud. Out: . . . . . 85dB, 20Hz to 20kHz, with 600 Ohms Source Impedance, +4 dBm input, +8dBm output.

Dist. (THD) Mic In to Prog. or Aud. Out at +24dBm: . . . . . .05% at 1kHz; .1% 20Hz to 20kHz.

Dist (IM) Mic or Line In to Prog. or Aud. Out at +24dBm: . . . . . .05% SMPTE.

Crosstalk (Mic or Line Input): . . . . . Prog. Left Out to Prog. Right Out 1kHz; better than 74dB below nominal 20kHz; better than 63dB below nominal.

Isolation between Program and Audition Outputs: . . . . . .80dB 20Hz to 20kHz

Mains Requirement

115 or 230 VAC ± 10%, 50/60Hz (specify at time of order).

NOTE: Specifications subject to change without notice. All above specifications taken on a 12-input console, other configurations will differ accordingly. Auditronics, Inc. reserves the right to change specifications for product improvement without incurring obligation to incorporate such changes into previously manufactured products.

Level Measurement References:

0dBu = 0.775VAC RMS, no load specified

-dBm = 0.775VAC RMS, measured across 600 Ohms (1 milliwatt)

SERVICE AND REPAIR

Auditronics, Inc. Service and Repair Policy

General

The material in this section is provided for use as a guide in locating system malfunctions. Neither by implication nor statement does this in any way modify Auditronics' published warranty policies.

During the warranty period, covered repairs should be made only by the factory. Covered repairs can only be performed under the terms of the warranty. Auditronics' Customer Service Department should be consulted immediately if there is any requirement for warranty service.

For non-warranty repairs, the user has the option of returning products to either the dealer or the factory. Return authorization must be obtained before returning any products to the factory. Return authorization may be obtained by calling:

AUDITRONICS CUSTOMER SERVICE DEPARTMENT

(901) 362-1350

Please have the following information available when you call:

1. Console model number and console serial number (located on identification plate under the meter turret lid).

2. Module model number and serial number.

3. A brief but accurate description of the problem.

4. Your return shipping address, a telephone number where you may be reached if we require further information, and any additional instructions you may have.

Repair items should be sent to the factory with freight pre-paid. Completed repairs will be returned C.O.D. by the shipping method you request. If you cannot accept a C.O.D., we recommend that you return your product to an authorized dealer with appropriate arrangements for billing.

Replacement Parts

All components used are, whenever possible, standard items of general availability. Auditronics, Inc. maintains a reasonable stock of replacement parts. Your parts orders will be handled by the Customer Service Department.

1. TURN CONSOLE POWER OFF BEFORE REMOVING ANY MODULE! Removing modules with the console powered up may result in damage which will not be covered by your warranty.

2. Remove the screws which hold the module in the console mainframe.

3. Insert the puller into module screw holes and lift upright.

4. Pull upward to remove module, taking care to grasp module as it clears the mainframe to avoid dropping it.

Replacement or Additional Modules

Perhaps the best design feature of your Auditronics, Inc. console is that modules may be easily replaced, or the console expanded through additional modules. With very few exceptions, all modules and accessories are "pluggable", i.e., they need only be plugged in to be operational.

In the event that extended 'down time' is unacceptable within your organization, you may wish to maintain a stock of spare modules. By keeping one of each type of input, output, and monitor modules directly on hand, you may avoid the down time necessary for your dealer to provide you with a loaner module.

Your orders for replacement or additional modules will be handled by the Customer Service Department. In order that we may best serve you, please have the following information available when you call:

1. Console model number and serial number (located on identification plate under the meter turret lid).

2. The catalog number, name, and description of the module or accessory you desire.

Auditronics Customer Service Department
(901) 362-1350

We will provide basic information over the telephone as to operational features, installation needs, etc. documentation will be included with the shipment of the items. Naturally, should you have additional questions when you receive your new items, we will be happy to assist you however we can.

Modules and accessories will be shipped C.O.D. (unless prepaid) by the method you request. If you cannot accept a C.O.D. order, we recommend that you order through one of our dealers, with appropriate arrangements for billing.

Troubleshooting Audio

Always refer to the operations guide as a first step in resolving any problem with the console. It is our experience that many of the calls we take concerning problems experienced by customers are directly related to an operational problem rather than a failure.

If one signal path fails, the fault can usually be rapidly localized within a module by simple signal tracing using the console functional block diagram (signal flow) located at the end of *Chapter 3*.

If the problem appears to be in an input module, or any other module type which is duplicated in the console, interchange the suspect module with one operating properly. If the problem remains at the position, the module suspected is not at fault. If the problem moves with the module, the suspect module is the source of difficulty. **NOTE:** Always turn off the console power before removing or inserting modules or accessories.

Routine Maintenance

Before removing any module(s) or making adjustments to anything other than the top panel controls, it is recommended that you review both the *Installation* and *Operation Guides*. Before beginning signal tracing or other service procedure, it is best to be sure that the difficulty is not an installation or operational error.

If difficulty is encountered immediately after installation or after any changes to the audio system, please review the installation procedures carefully. The problem is more likely the result of a wiring error rather than a malfunction.

As components age, some changes in performance may become evident. If in doubt, your dealer is your best source of field support and can verify performance.

Lamp replacement in VU Meters will depend on the specific meter used when your console was manufactured. In the over 15 years that Auditronics, Inc. has been building professional audio products, we have used several meter manufacturers. Please contact your dealer's service department if you experience difficulty changing lamps in the VU Meters in your console. #387 28V 40ma #376 60ma (LONG LIFE) 327

Instructions for replacing the lamps in the Input Module ON and OFF switches follows:: #385 LONGER LIFE

1. Remove plastic lens by placing fingernails in the indentations on the two long sides of the lens and pull up.
2. A small tab may be seen next to the lamp; lifting it will pop the lamp from its socket.
3. Upon inserting a new lamp, snap the lens back into place.

If fading of the silk-screened artwork on the top channel occurs, this is most likely due to softening of the inks from finger oils deposited as the console is used. It is recommended that a mild cleaning solution be used on a lint-free rag to clean the top channels of dirt, finger oils, and other marks on a regular basis. The appearance of the console may be maintained in 'like new' condition with regular care. **NOTE:** Always apply cleaning solutions to the rag, never pour directly on any part of the console.

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Chapter 3

System Installation

INTRODUCTION

This section of the manual presents the factory-recommended procedures and methods for installing a 210-Series Console System. Topics covered in this chapter include: preparation for drop-through table/counter top mounting, unpacking, console environment, how to mount your power supply system, power supply environment, console to power supply interconnection, and power supply to mains power interconnection.

Also included is information concerning microphone audio interconnection, stereo line input audio interconnections, and control room/studio monitor/power amplifier interconnection.

NOTE: As with any piece of electronic equipment, all physical installation, wiring and connections should be performed with the main power cord unplugged from the mains and the power **OFF**!

ENVIRONMENT

The environment required for the operation of the 210-Series Console System is no more restrictive than that of any other complex piece of electronic equipment. Temperature and humidity, when kept within a range suitable for humans, should not be a problem for the 210. Caution should be exercised, however, if it should become necessary to move the unit through extremes of temperature. In such a case, a sudden temperature change from cold to hot could cause condensation in and on a cold unit. This circumstance should definitely be avoided.

There are atmospheric contaminants in many localities that can reduce the life of electrical contacts. If this is a particularly severe problem for you, it is suggested that arrangements be made to improve the environment in your facility.

Your 210-Series Console, like any other fine piece of electronic equipment, should be protected from dust, dirt, ashes, smoking materials, smoke, liquids, etc. Anything other than pure, clean air of proper temperature and humidity will shorten the life of the components inside your 210.

UNPACKING

The 210-Series Console System should not be removed from its shipping carton(s) except by the service technician who is installing it, or by his authority. Upon delivery and prior to signing the receiving documents, be sure to inspect all cartons and note any exterior damage. Exterior damage, if found, should be noted on the receiving documents. Inquiry should be made of the carrier about concealed damage rules. The commissioning service technician should be immediately informed of the arrival of the unit and also of the concealed damage rules of the carrier. This shipment left the factory undamaged. Auditronics' responsibility for any loss or damage ends when the shipment is delivered to you or to your carrier at our shipping dock. Loss or damage occurring after we deliver the shipment to the carrier is your responsibility, notwithstanding the fact that Auditronics, Inc., may have provided insurance coverage on the shipment at an additional charge to you. You must file all claims, although we stand ready to assist you in the preparation and filing of said claim. It is suggested that the shipping carton be moved as close as possible to the installation location prior to unpacking. This ensures the maximum protection for the unit and its components when being moved.

Your 210-Series Console System is Shipped With:

- Console (configured to your specifications) and power supply(ies)
- Installation kits generally including: Mating connectors and pins, a crimping tool, and a pin extractor
- This manual

GROUNDING

Power Supply Grounds

As shipped from the factory, the 210 Power Supply (PS-60) has its third pin of the AC cord tied to the power supply chassis. **NOTE:** If the third wire power ground is not desired, it is the customer's responsibility to modify as needed.

RF Grounding Problems

In very intense RF fields, RFI coupling through the ground circuit may occur if ground wires or signal cables are cut to the transmitter frequency wavelength, or an odd multiple thereof. Assuming proper ground system design and installation, this would be evidenced by RF interference dominated by one nearby station. This situation may be alleviated by trimming cables and ground wires to non-resonant length and as short as possible.

All other input and output shields are hard-grounded at the external equipment end only. shields terminating at the console are connected to the console ground plane through a capacitor mounted in the console, thus providing a low impedance RF path to ground while preventing a DC ground loop path.

TABLE-TOP MOUNTING

The following guidelines are intended to assist in mounting your 210-Series Console System into a table or counter-top.

The 210-Series Console is constructed in such a manner that the front and sides have an overhang of 3/4" (1.9cm). This allows the console to rest in a cutout of the proper dimensions in a counter-top or table.

All 210-Series consoles measure 22.25" (56.5cm) in depth but vary in width, according to the specific mainframe size. In addition, all consoles extend 6.5" (16.5cm) below the above-mentioned overhang. Of course, the actual extension will vary depending upon the thickness of the table top.

It is recommended that the table top be constructed of solid wood with a minimum thickness of 3/4" (preferably more), or if particle board is used, a minimum of 3/4" plus a plastic laminate (Formica) surface for additional strength.

In its heaviest configuration, a 210-Series console may weigh in excess of 160 pounds, therefore, extreme care is required in the construction of the furniture. It may be advantageous for the area in front of the table top cutout to be removeable so the console may be slid into place rather than lowered (see *Installing the Mainframe*, immediately following).

The meterbridge on the 210 is hinged, allowing it to be opened for access to the meters, clock/timer, cue speaker/amplifier, etc. When open, the maximum extension to the rear is approximately an additional 4 inches, totalling approximately 26 inches. It is advisable to leave sufficient clearance above and behind the console so that the cover may be opened fully for such access.

DIMENSIONS FOR CUTOUTS

210-6 (6-Input Configuration)

The cutout dimensions for the 6-Input configuration of the 210 are 23.5" (59.7cm) in width (left to right) and 21.5" (54.6cm) in depth (front to rear). The unit requires 6.5" (16.5cm) below the surface of the table or counter and is 13.5" (34.28cm) in **overall height** (16.5 inches when meterbridge cover is extended fully upward). Overall console width is 24.38" (61.9cm) and actual depth is 22.25" (58.5cm).

210-12 (12-Input Configuration)

The cutout dimensions for the 12-Input configuration of the 210 are 34" (86.4cm) in width (left to right) and 21.5" (54.6cm) in depth (front to rear). The unit requires 6.5" (16.5cm) below the surface of the table or counter and is 13.5" (34.28cm) in **overall height** (16.5 inches when meterbridge cover is extended fully upward). Overall console width is 34.88" (88.6cm) and actual depth is 22.25" (58.5cm).

210-18 (18-Input Configuration)

The cutout dimensions for the 18-Input configuration of the 210 are 43" (109.2cm) in width (left to right) and 21.5" (54.6cm) in depth (front to rear). The unit requires 6.5" (16.5cm) below the surface of the table or counter and is 13.5" (34.28cm) in **overall height** (16.5 inches when meterbridge cover is extended fully upward). Overall console width is 43.88" (61.9cm) and actual depth is 22.25" (58.5cm).

210-24 (24-Input Configuration)

The cutout dimensions for the 24-Input configuration of the 210 are 52" (132.1cm) in width (left to right) and 21.5" (54.6cm) in depth (front to rear). The unit requires 6.5" (16.5cm) below the surface of the table or counter and is 13.5" (34.28cm) in **overall height** (16.5 inches when meterbridge cover is extended fully upward). Overall console width is 52.88" (134.3cm) and actual depth is 22.25" (58.5cm). **NOTE:** The module/motherboard assembly on the 210-24 does not hinge, so bottom access is required for wiring.

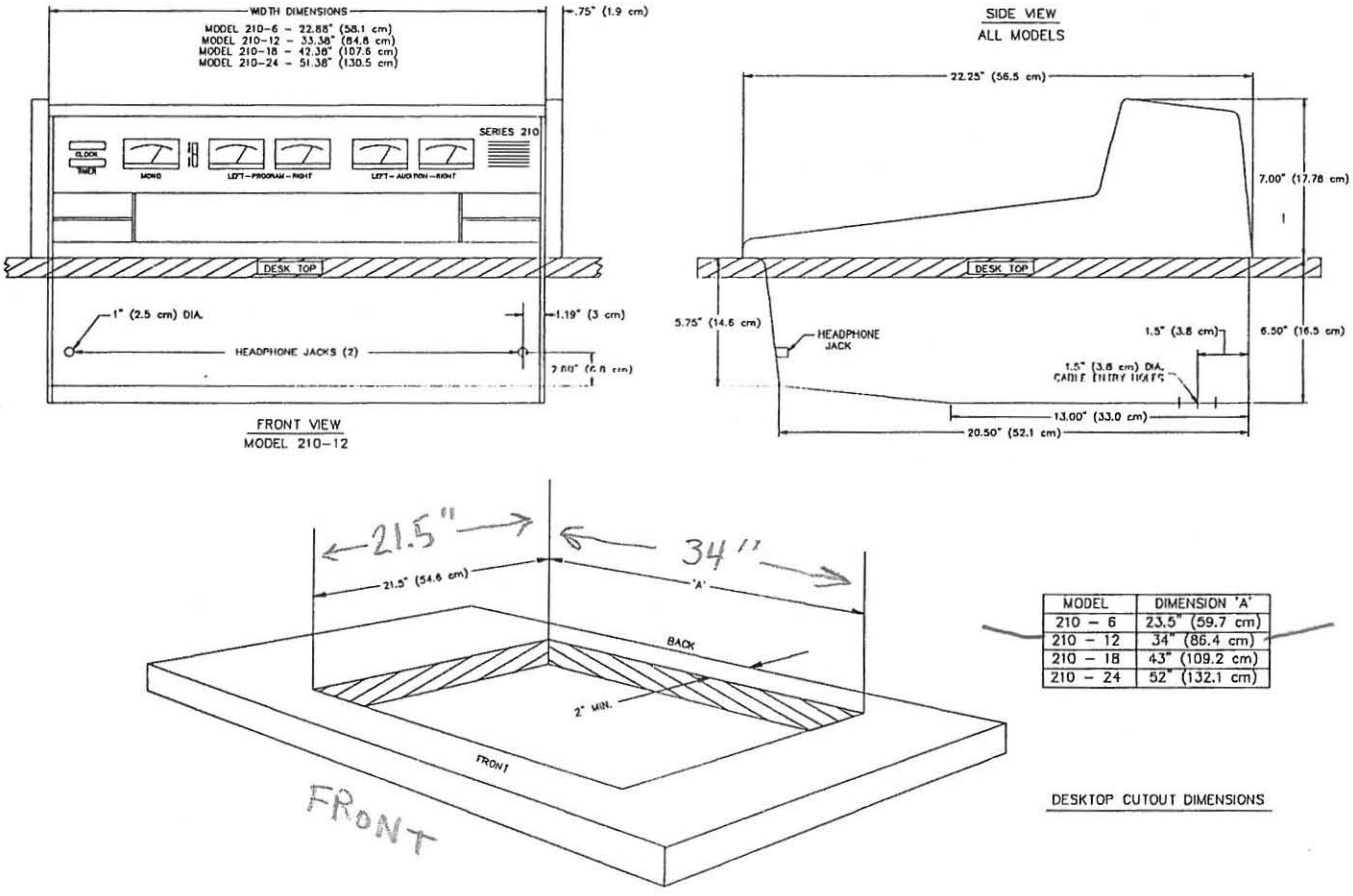


Figure 1, 210-Series Dimensions and Cutout Information.

CRIMPING INSTRUCTIONS

1. Strip wire approximately 3/16". Insert wire into proper stripping die, rotate tool one-half turn, and pull insulation off of wire.

2. Leaving wire aside for the moment, with tool fully open (engraved side toward user), bring a terminal into position from the unmarked side of the tool. Place the conductor tabs on the B anvil (slightly curved surface) so that the circular portion of the tabs rests in the curved surface of the anvil and the two tabs face up into the walls of the female jaw.

3. Close tool very slightly, only to the point of holding the terminal (pin) in position.

4. Insert wire into pin until wire insulation is stopped by conductor tabs. Crimp by squeezing handles until jaws are fully closed of sufficient crimp is made. Do not remove from tool.

5. Move terminal and conductor forward so that insulation tabs are properly positioned in the center of anvil A. Crimp again until jaws are closed or sufficient crimp is made.

6. If necessary, straighten pin while still held in jaw. The wire lead, with its properly crimped pin, is now ready to be inserted and locked into the nylon connector housing. When correctly inserted, a click can be felt (and even heard), indicating that the locking ears have been set. It is not normally necessary to pull back on the lead itself to test the locking feature, but if it must be done, use only a moderate pull.

7. If there is an insertion error or if a circuit change is needed, use the black-handled extractor tool supplied with the installation kit to remove the pin which was erroneously inserted.

Shorting Plugs or Jumpers

In many cases, leads are required to "jumper" one pin to another within a single connector. Many are already in place on the console. For example, the "B" Connector on a MIS position in the module/motherboard assembly. If additional jumpers are required, such as for Phantom Power, simply crimp pins (according to instructions above) on either end of a short lead and insert these pins into the proper receptacles in the shell.

In some cases, a jumper from one receptacle may need to go to two destinations. Simply insert both leads into one pin for the source, and the single ends into the remaining pins to form a "Y" plug.

INSTALLING THE MAINFRAME

Once the appropriate area is prepared, the console may be physically installed. The following tools are required for this procedure:

Wire strippers
Crimping tool
Heat-shrink tubing
Heat gun
Soldering iron and rosin-core solder (optional)
4-6" flat tip screwdriver

At least two people will be required to lift the console and lower it into the table-top cutout. To lift the console, first open the meterbridge cover. Approaching the console from the sides, one hand may be placed along the bottom edge of the wood trim on the side, toward the armrest, and the other inserted down into the meter turret, with the fingers gripping the console through one of the ventilation holes immediately beneath the meters. **NOTE:** If the armrest area is gripped, it should be done in such a manner that the metal lip beneath the armrest carries part of the load along with the wood. If only the wood part of the armrest is gripped, the module/motherboard assembly will open, possibly causing damage, personal injury, or both.

The console may now be carried to the cutout and carefully lowered in.

With the console in place and the meter turret top open, the module/motherboard assembly may be lifted into its vertical installation position, if desired. This is done by lifting the armrest. The entire assembly will lift open and when fully extended, it will lock in an upright position via a spring pin located near the hinge.

NOTE: The module/motherboard assembly of the Model 210-24 is bolted in place and does not flip up, primarily due to the weight. Removeable panels have been provided in the bottom pan of the console to provide access.

WARNING!! Be sure that the module/motherboard assembly is securely locked in the UP position. Serious injury can result if the assembly is accidentally closed while hands or fingers are inside the console shell.

At this point, the installer should refer to the console connector drawing and the console connector pinout drawing located in the reference drawing section. A separate installer's view sketch should be made up showing all of the console's input position assignments, i.e., which ones are mic inputs and which are line inputs. With these three drawings in hand, the installer should plan his/her cable runs and cable entries into the console mainframe. All cables will enter via the 1.5" holes at the bottom rear of the mainframe. The connectors may be removed by squeezing the locking tabs on either side of the connector with the thumb and forefinger while pulling backward. The strain relief should then be removed by unscrewing its retainer screw. The connector pins shipped with the console should be located and brought to the mainframe, along with any wire markers that are to be used. Cable preparation and pin installation may now begin.

Only new, unspliced cable should be used in connecting the console. Power supply connections may be made with the factory-wired and -supplied power supply interconnect cable. If, for any reason, the power supply interconnect cable is not long enough, it is recommended that an entirely new cable be made up of the correct length, instead of trying to add an extension to the existing cable. Stranded PVC insulated conductors rated at 600 volts should be used; #20 AWG or larger.

INSTALLING THE POWER SUPPLY

Mounting

The Model PS-60 power supply is designed to mount in a standard 19" equipment rack, and requires 5.25 inches (3 rack spaces) of vertical space. As the 210-Series console features regulation on each module, the PS-60 supplies the console with unregulated ± 24VDC, reducing ventilation requirements for the PS-60.

Prior to installing the PS-60 , the manner of system grounding must be determined (see *Grounding*, earlier in this section). If the power ground of the PS-60 is to be opened, the bottom panel of the supply should be removed (only with the supply unplugged). An 8-pin Molex connector (J3) is located immediately adjacent to the power transformer; attached are a 6-pin and a 2-pin plug. The 2-pin plug is attached to the 6-pin plug with a tie wrap. Remove the 2-pin plug to open the PS-60 ground. Do not disconnect the ground wire from the power cord; this will defeat the supply's RFI filter network. Also note that if the PS-60 is mounted in a metal rack with other equipment which is directly connected to the power ground, the removal of the ground jumper plug will have no effect, provided that the rack is grounded.

The PS-60 is factory-configured for 115VAC. If 230VAC operation is required, remove the bottom cover (only with the power supply unplugged from the mains outlet) and locate J1. This is an 8-pin connector found at the lower left corner of the PC board, labeled "115V and 230V". Simply remove the 4-pin connector from Pins 5-8 and replace it on Pins 1-4.

After replacing the cover, the unit may be mounted in the equipment rack and plugged into the mains outlet. Turn the supply ON and verify the ±24VDC output at the accessory terminal strip on the rear of the supply (J5). **NOTE:** This initial reading should be made before making the console to power supply interconnections. In this situation, the voltages may be as high as ±28VDC. If the output is within this range, turn the supply OFF and connect the supplied power cable to the power supply and console.

Console to Power Supply Interconnection

The Auditronics 210-Series Console System comes with a prepared power cable (Part Number 19045) which is 15 feet (4.572 meters) long and terminates with two 15-pin MR connectors. Both connectors are identical and pinned properly so that either end may be used for the console or the power supply.

To install the power cable, first, open the module/motherboard assembly by lifting the wooden armrest. As per the warning earlier in this chapter, **be sure that the module/motherboard assembly is securely locked in the UP position. Serious injury can result if the assembly is accidentally closed while hands or fingers are inside the console shell.**

Using the *Console Connector Location* drawing at the end of this chapter, locate the Power Connector. As viewed from the front of the console with the module/motherboard assembly open, it is immediately to the right of the highest-numbered input position, nearest Row 'A'. Feed the power cable through the nearest 1.5" access hole in the bottom of the console and plug it into the Power Connector.

NOTE: Do not plug the power supply into the mains outlet until after the power supply to console interconnection has been made. Now, attach the opposite end of the power cable to the 15-pin connector (J4) on the rear of the power supply.

Power Supply to Mains Interconnection

The majority of noise problems encountered in the installation of an audio console may be avoided simply by having a properly grounded system and properly interconnecting the mains of the system. The power supply for the 210-Series system requires a dedicated mains outlet in good condition. This outlet should be capable of providing 2 kVA of power with regulation adequate to prevent the mains voltage from dropping more than 10% below the stated voltage selected for the supply.

Grounding

A properly grounded system should be:

1) run on heavy-gauge copper wire, not on conduit.
2) free from corrosion at its connections.
3) routed by a direct path to the mains distribution panel.
4) connected to a mains earth known to present a low resistance to earth.

A quiet, effective audio system will usually possess the following characteristics:

1) A mains power distribution panel in or adjacent to the audio control room which is:

   a) fed from a single phase
   b) dedicated to the powering of audio equipment only.
   c) recently installed, or confirmed to be in excellent condition.
   d) connected to an earth (ground) source which is direct, and run on heavy-gauge copper wire.

2) Mains outlets located adjacent to the powered audio equipment. Outlets which are:

   a) routed from the distribution panel with the most direct route possible.
   b) dedicated to the powering of audio equipment only.
   c) recently installed or confirmed to be in excellent condition.
   d) connected to an earth (ground) source which is direct, and run on heavy-gauge copper wire.

3) Metal equipment racks, if used with mains outlets, should be configured as in #2 above, permanently mounted in or on the metal rack and securely tied to a heavy-gauge copper ground.

There are alternative methods of installing an audio system which is extremely quiet, however, they invariably involve compromises in safety and in compliance with established electrical codes. These are not necessary and Auditronics, Inc. strongly recommend that all electrical installation work be performed by qualified personnel and that said work be in compliance with local codes and regulations.

AUDIO INTERCONNECTION

WIRING PROCEDURE

The following pages contain instructions on the wiring required for operation and interconnection of the modules contained in the 210-Series console. Specifics may also be found in the individual module chapters.

In the case of input modules and the CRM and CSM monitor modules, all connections are made directly to the 15-pin plugs mounted on the console motherboard. Before beginning wiring procedures, it is recommended that the installer take a few moments to study the console connector location drawing and the console connector pinout drawing to familiarize himself/herself with the general layout of the motherboard. All connectors on the motherboard have been assigned a particular letter. This letter, in combination with the module function and/or location, defines a specific connector on the motherboard. For example: Connector MIS B, or CSM F. Note that any input position can be wired for either a microphone or a stereo line input module. Certain bus connectors, such as G and J, are spotted at various locations on the motherboard for convenience.

Connections for all of the optional modules in the 210-Series are mounted directly on the back of the optional module, and are connected to the motherboard via wiring harnesses. This permits a great deal of flexibility in the placement of optional modules.

Pin numbering information for the various connectors is located on both the connector location and the connector pin-out drawings. The function of each pin is described in the following pages and on the console connector pin-out sheet. Pinout information for the optional modules is located on their individual schematics. In the following instruction, individual pins will be designated using their connector letter, and where clarity requires, the connector function, e.g. pin B6, or pin CSM F11.

NOTE: Take special notice that the term **shield** means a capacitively coupled connection to the console ground plane, while **ground** and **common** are direct connection.

If not already done, *PLEASE* be sure to read and be familiar with all of the material in the first part of this section. In doing so, later problems may be avoided.

A few guidelines:

- Never connect the the (+) or (-) terminals of an active balanced, NON-FLOATING out stage to ground.
- Outputs may be connected to any input of 600 Ohms or greater.
- Phasing should be properly maintained at every connection. Good engineering practice calls for establishing one of the 2 colors in microphone and line cables as the HI side and maintaining that pattern through the entire installation.
- Connectors, as they are made up, should be identified with numbers corresponding to mating connectors on the console.
- Levels and impedances normally required for accessory equipment inputs and outputs should be checked for compatibility with requirements of the console (see Specifications in Section 1). Professional equipment seldom presents a problem except for power amplifiers used to drive monitor speakers and foldback headphones.
- Frequently, these amplifiers are much more sensitive than required to work in this application. Compensation for this must be made at the amplifier in order to maintain console and system gain structure. When an amplifier used in this application does not have an input level control, either a resistive pad or an input level control must be added to the amplifier input. Note that the monitor outputs of the 210 Console are balanced transformerless.
- In addition to the matter of level-matching, these circuits must also be free from any ground loops. As described in the *Grounding* section, earlier in this chapter, the cable shield is capacitively coupled to the console ground plane, and hard ground at the amplifier. A ground return wire is then brought back to the console ground plane.

MICROPHONE INTERCONNECTION

Each 210-MIS Module is capable of accommodating two microphones: A and B. These microphones connect to the motherboard via 15-pin MR connectors which, in turn, send the signals to the modules via the edge connectors on the main board of the modules. The 15-pin MR connectors are accessible by opening the module/motherboard assembly. This is achieved by lifting the armrest. The entire assembly lifts open and, when fully extended, will lock in an upright position via a spring pin located near the hinge (see *WARNING* on *Page 7* of this chapter). The underside of the module motherboard assembly will now be exposed, rendering all connection points accessible. All cables will enter via the 1.5" holes at the bottom rear of the mainframe.

NOTE: A shorting plug, which is, in essence, a 15-pin MR connector with Pins B5 (insert send) and B2 (insert return) shorted together, is necessary on the 'B' connector for every module position in which a 210-MIS Module is fitted. This connector may be found on the underside of the module/motherboard assembly (see *Console Connector Location* drawing at the end of this chapter). This closes the insert point and, unless an outboard device is connected, it is necessary for the operation of the module. These shorting plugs are normally installed at the factory, but their presence should be verified.

Required Tools

The required tools are furnished with the installation kit and include:

- Crimping Tool
- Pin Insertion Tool
- Pin Extractor Tool
- A sufficient quantity of mating 15-pin MR connectors, intended to terminate the microphone cables is also included.

The lines coming from your microphones should be of small conductor size, have a foil mylar shield, and a non-braided drain wire. Auditronics recommends 18- to 24-gauge AWG seven-strand, tinned wire for construction of such cables. The 15-pin receptacles mounted on the motherboard are female shell/male pin and connect to the cable which terminates with a male shell/female pin connector. The pin assignments for a typical microphone connector may be found in *Chapter 4, Audio and Logic Signals.*

LINE-LEVEL INTERCONNECTION

All audio interfaces with the 210-Series Console, other than microphones and DC logic signals, are standard line-level signals.

Each 210-SLI/SLB Module is capable of accommodating returns from two line-level sources: A and B. These inputs connect to the motherboard via 15-pin MR connectors which, in turn, send the signals to the modules via the edge connectors on the main board of the module. The 15-pin MR connectors are accessible by opening the module/motherboard assembly. This is achieved by lifting the armrest. The entire assembly lifts open and, when fully extended, will lock in an upright position via a spring pin located near the hinge (see *WARNING* on *Page 7* of this chapter). The underside of the module motherboard assembly will now be exposed, rendering all connection points accessible. All cables will enter via the 1.5" holes at the bottom rear of the mainframe.

NOTE: A shorting plug, which is, in essence, a 15-pin MR connector with Pin B5 (right insert send) shorted to B2 (right insert return) and Pin B6 (left insert send) shorted to B3 (left insert return), is necessary on the 'B' connector for every module position in which a 210-MIS Module is fitted. This connector may be found on the underside of the module/motherboard assembly (see *Console Connector Location* drawing at the end of this chapter). This closes the insert points and, unless an outboard device is connected, it is necessary for the operation of the module. These shorting plugs are normally installed at the factory, but their presence should be verified. A shorting plug is also in place on the 'C' Connector (logic) with jumpers in place between Pins C5 and C7 and Pins C6 and C7.

Required Tools

See *Required Tools* under *Microphone Interconnection*, above.

OUTPUT INTERCONNECTION

Connection of Audio Signals

Special Note Concerning Active, Balanced, Non-Floating Outputs:

The 210-Series consoles are supplied with actively balanced outputs (with a maximum output of +24dBm) on the control room and studio monitor outputs as standard. Actively balanced transformerless outputs provide the utmost in high quality signal processing and thus have been included in the critical monitoring outputs. The inherent problems associated with transformer use, such as low frequency distortion, are completely eliminated.

These outputs may be coupled to balanced inputs exactly as a transformer isolated output would be. However, coupling to unbalanced circuits requires a departure from established norms.

The usual procedure for connecting a balanced output to an unbalanced input is to strap the ground or shield to the low side and use the high side for the signal input. When using actively balanced, non-floating outputs, the ground and low side should not be strapped together. Signal should be taken from ground and the high side only, with the low side left disconnected.

Although Auditronics' active output circuits will continue to operate if ground and low are strapped together, this condition will cause the low side amplifier to operate in a high-current mode, with the resulting heat causing possible premature failure.

Power Amplifier Interconnection

Be sure to read the *Introduction* under *Audio Interconnection* on *Page 10* of this chapter **before connecting the 210-CRM and -CSM outputs.** Speakers should be connected to amplifiers as per amplifier instructions.

Control Room Monitor (210-CRM) Output connections are as follows:

LEFT	RIGHT
(+) Pin D3	(+) Pin D6
(-) Pin D2	(-) Pin D5
Shield Pin D1	Shield Pin D4

Communication/Studio Monitor (210-CSM) Output connections are as follows:

STUDIO A LEFT	STUDIO A RIGHT	STUDIO B LEFT	STUDIO B RIGHT
(+) Pin E12	(+) Pin E15	(+) Pin E3	(+) Pin E6
(-) Pin E11	(-) Pin E14	(-) Pin E2	(-) Pin E5
Shield Pin E10	Shield Pin E13	Shield Pin E1	Shield Pin E4

Complete pin assignment tables may be found under *Audio and Logic Signals* in *Chapters 6 and 7.*

As mentioned earlier, the console logic system will dim the control room monitor speaker output and sum it to the left speaker. **NOTE: If the Dim Control on the front of the 210-CRM Module is set too low, and an input module is placed in CUE, there will be no audible output from the control room speakers.** The recessed DIM-trimming pot on the front of the module should be turned up to provide a signal at the desired level.

Main Output Interconnection

There are several outputs designated as Main Outputs on the 210-Series; the **Program Outputs, Audition Outputs,** and **Mono Outputs.** These are intended for interconnection with the 'final' destination of the processed signals, ultimately the transmitter(s) and/or production recording equipment. Connection to these destinations should be done as per instructions supplied with said equipment. This section deals with the specific output signals and where to access them.

These signals appear on the 15-pin MR connectors designated "PGM", "AUD", and "MONO" in the module/motherboard assembly area. Three identical modules, the 210-DLO, are in place in these sections, each dealing with one of the designations above.

The Main Program outputs from the 210-Series Console are as follows:

LEFT	RIGHT
(+) Pin B12 & 15	(+) Pin B3 & B6
(-) Pin B11 & B14	(-) Pin B2 & B5
Shield Pin B10 & B13	Shield Pin B1 & B4

These outputs are paralleled allowing each signal to be accessed on two separate sets of pins.

The Main Audition outputs from the 210-Series Console are as follows:

LEFT	RIGHT
(+) Pin B12 & 15	(+) Pin B3 & B6
(-) Pin B11 & B14	(-) Pin B2 & B5
Shield Pin B10 & B13	Shield Pin B1 & B4

These outputs are paralleled allowing each signal to be accessed on two separate sets of pins.

The Main Mono outputs from the 210-Series Console are as follows:

AUD MONO	PGM MONO
(+) Pin B12	(+) Pin B3
(-) Pin B11	(-) Pin B2
Shield Pin B10	Shield Pin B1

Complete pin assignment tables may be found under *Audio and Logic Signals* in *Chapter 8.*

Headphone Outputs:

Headphone plugs are located on the front of the console bottom pan, and are wired in parallel. A third parallel connection point is located at:

HEADPHONE MULT OUT
Left Out - Pin D14
Right Out - Pin D15

The headphone output is rated at 2 watts per channel into 8 ohms or greater.

Connection of ON AIR light or relay:

Provision is made in the CRM Module for switching of an external ON AIR light or relay. This is accomplished through switching transistor Q1, rated for 100 ma at 24VDC, which turns on whenever a microphone module is turned on that has selected CRM muting. This provides a connection to ground for the external device connected at:

CRM ON-AIR LOGIC Pins CSM F2 or F3.

Example:

Wiring of the 210-DLO Stereo Line Output Module incorporates the summing and output amplifiers required to deliver a balanced output. **NOTE:** The gain structure of the 210 Console is carefully adjusted at the factory; Recommended trimming procedures are given in the SLI and MIS checkout sections of this manual.

Input connections for the 210-DLO (Program) are located on the motherboard Audition D connector, and are made as follows:

PROGRAM LEFT	Pins AUD D2 and D3
PROGRAM RIGHT	Pins AUD D5 and D6

These inputs are connected at the factory, however, the cross-feed, or mix, output of the 210-TEL module may be connected to these points if it is retrofitted into the console.

Insert Points:

An insert point is provided for each channel of the 210-DLO, and insert point shorting plugs must be inserted if the module is to pass signal. These plugs are connected from pin Program C2 to C8 and from pin Program C3 to C9, and are installed at the factory. Inasmuch as all three DLO Modules are identical (the only difference being the physical location of the module itself), the pin assignments are identical as well.

Although these insert points have been provided primarily for use with optional modules in the 210 Console, the user may wish to connect them to external processing equipment. Connections are as follows:

PROGRAM/AUDITION/MONO DLO SEND
Left - Pin C2
Right - Pin C3

PROGRAM/AUDITION/MONO DLO RETURN
Left - Pin C8
Right - Pin C9

NOTE: The insert point send signal will be 180 degrees out of phase with respect to the console input. The insert point return will shift the return signal 180 degrees. This insert is unbalanced, low impedance and operates at a nominal level of -5 to 0dBu.

Direct Outputs:

Direct outputs are provided for the left and right channels of the 210-DLO. Connection points are:

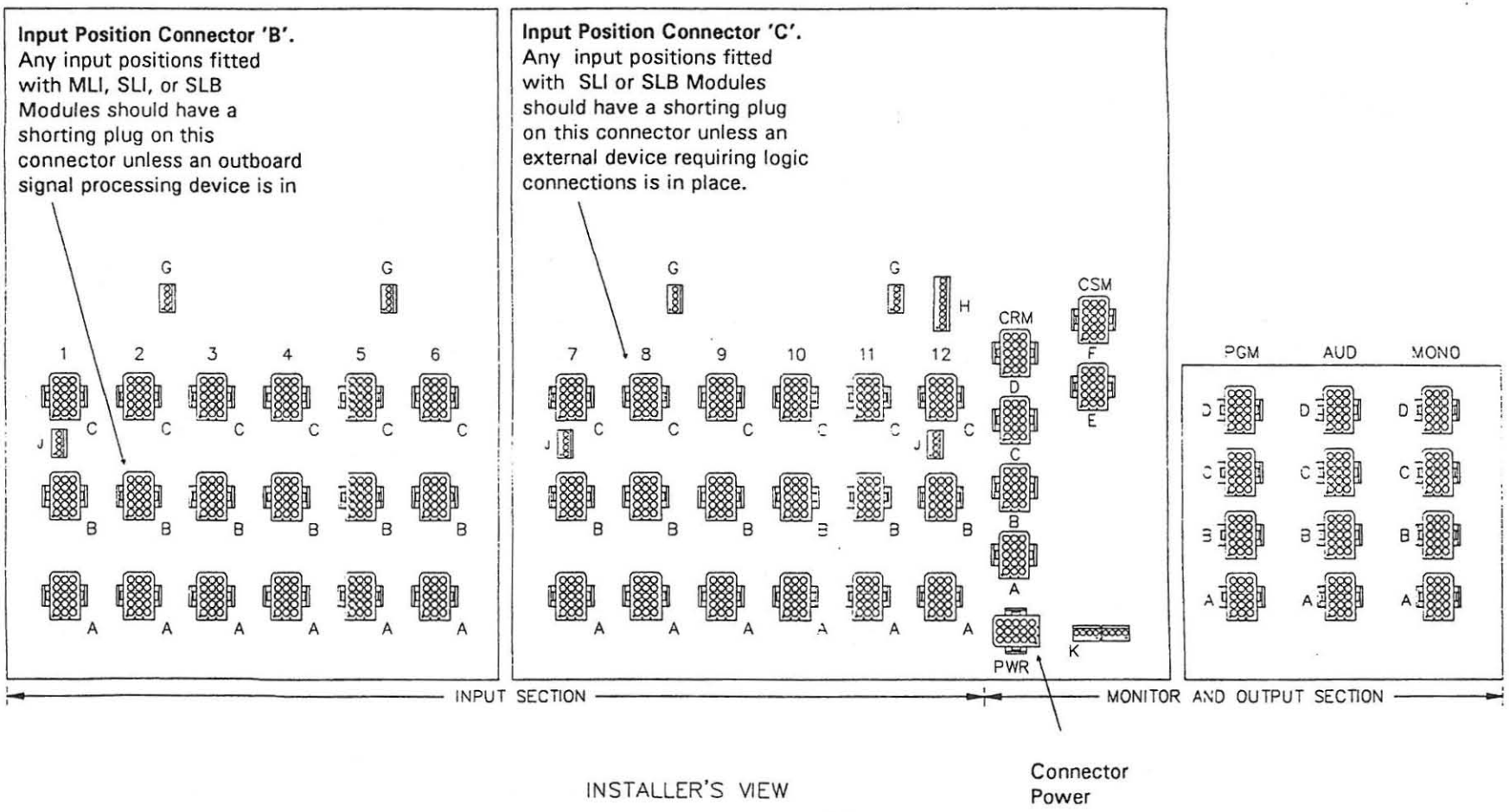
DIRECT OUT
Left - Pin A2 and A3
Right - Pin A5 and A6

These outputs are unbalanced, low impedance with a nominal operating level of +2 dBu. **NOTE:** These outputs are direct coupled to the direct output amplifier.

Main Output Connections:

MAIN OUTPUTS

(+) Left - Pin B12	(+) Right - Pin B3
(-) Left - Pin B11	(-) Right - Pin B2
Shield Left - Pin B10	Shield Right - Pin B1



INSTALLER'S VIEW

CONSOLE CONNECTOR LOCATION

210–SERIES CONSOLE

MODEL 210–12 SHOWN

Figure 2, 210-Series Console Connector Location Map.

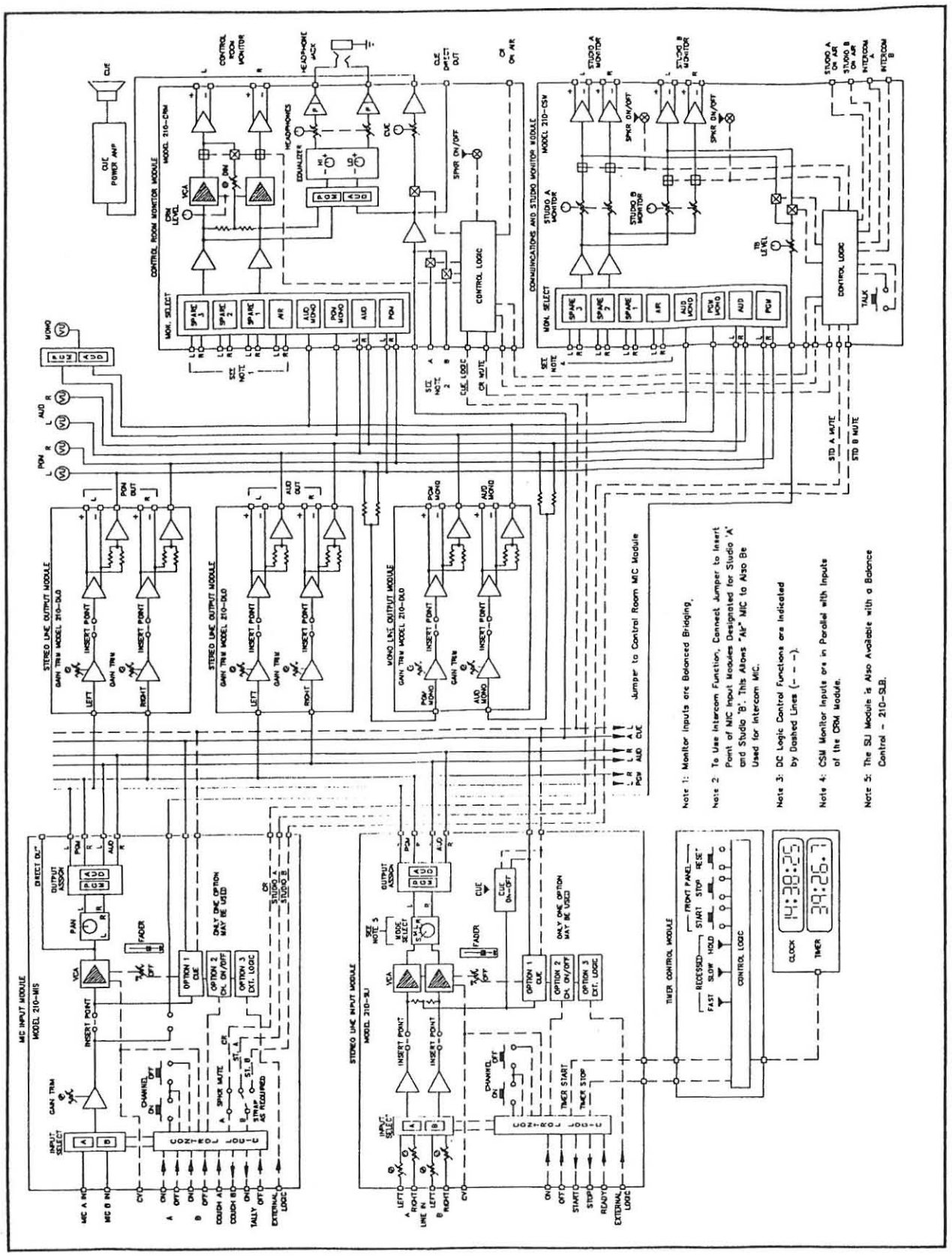
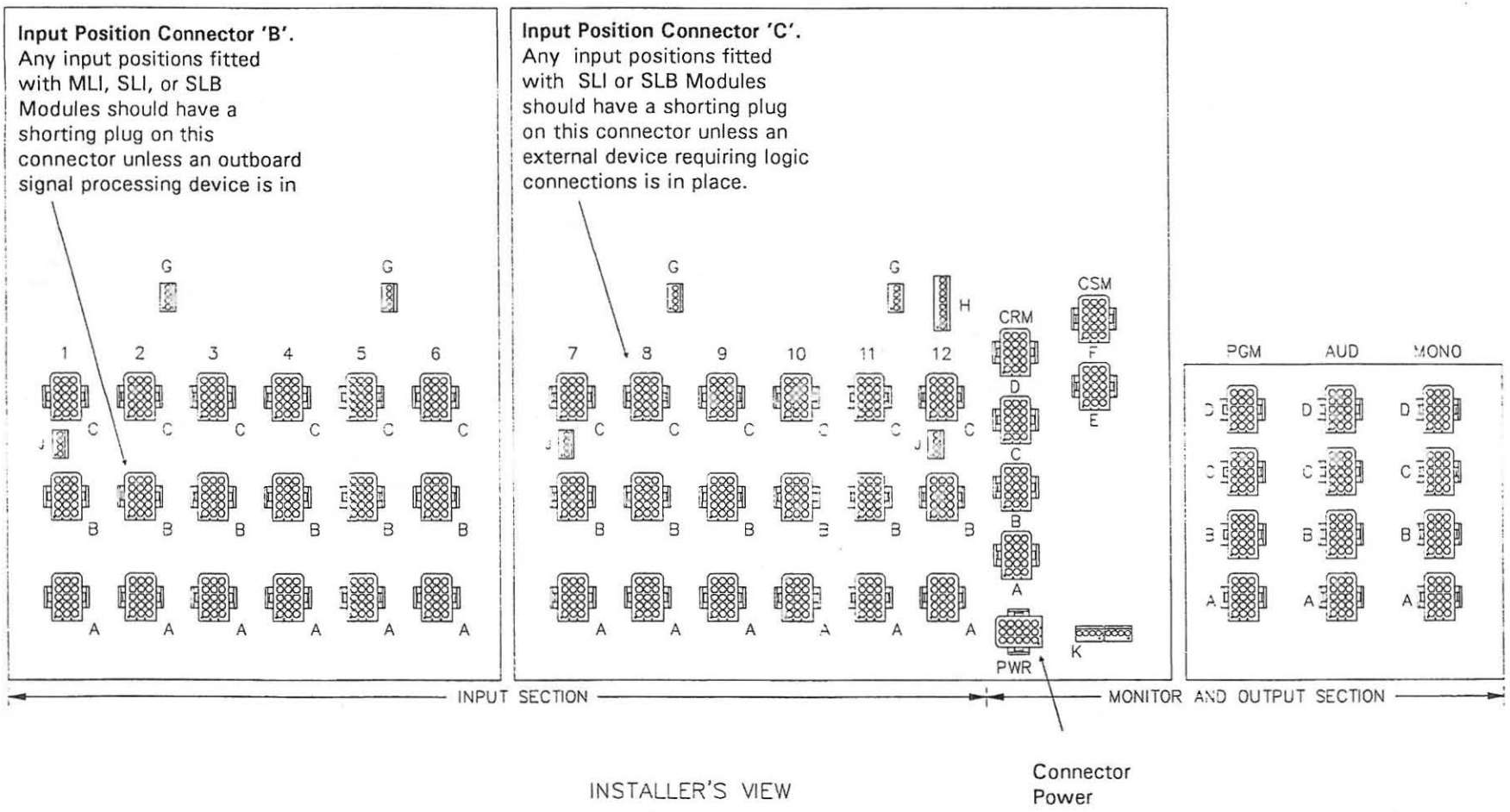


Figure 3, 210-Series System Block Diagram.



INSTALLER'S VIEW

CONSOLE CONNECTOR LOCATION

210–SERIES CONSOLE

MODEL 210–12 SHOWN

Figure 2, 210-Series Console Connector Location Map.

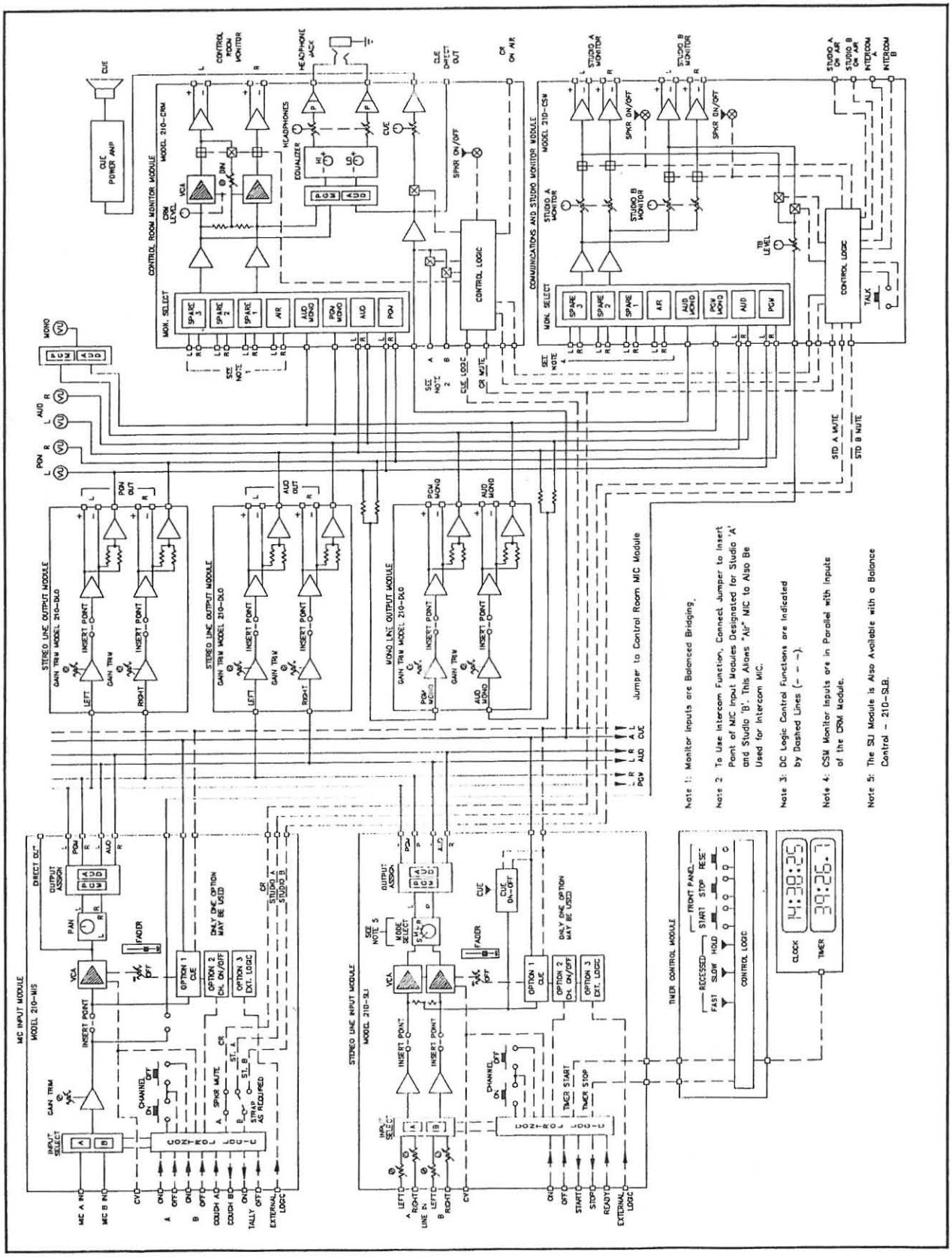


Figure 3, 210-Series System Block Diagram.

M CONNECTOR

1	COMMON
2	+48V

G CONNECTOR

1	-N/C-
2	STUDIO A MIC AUDIO
3	STUDIO B MIC AUDIO
4	CONTROL RM MIC AUDIO

CRM D

1	SHIELD
2	LEFT CRM OUTPUT (-)
3	LEFT CRM MONITOR OUTPUT (+)
4	SHIELD
5	RIGHT CRM OUTPUT (-)
6	RIGHT CRM MONITOR OUTPUT (+)
7	COMMON
8	COMMON
9	CUE DIRECT OUTPUT
10	SHIELD
11	OUT to CUE SPK (-)
12	OUT to CUE SPK (+)
13	HEADPHONE OUTPUT SHIELD
14	LEFT HEADPHONE OUTPUT
15	RIGHT HEADPHONE OUTPUT

CSM F

1	COMMON
2	CRM ON AIR LOGIC
3	CRM ON AIR LOGIC
4	COMMON
5	STUDIO A ON AIR LOGIC
6	STUDIO A ON AIR LOGIC
7	COMMON
8	STUDIO B ON AIR LOGIC
9	STUDIO B ON AIR LOGIC
10	COMMON
11	STUDIO A LISTEN LOGIC
12	STUDIO A LISTEN LOGIC
13	COMMON
14	STUDIO B LISTEN LOGIC
15	STUDIO B LISTEN LOGIC

H CONNECTOR

1	+24V
2	+24V
3	-24V
4	-24V
5	CONTROL ROOM MUTE BUS
6	STUDIO A MUTE BUS
7	STUDIO B MUTE BUS
8	-N/C-

J CONNECTOR

1	CLOCK STOP
2	CLOCK START
3	CUE LOGIC
4	CUE AUDIO

K CONNECTOR

1	-24V
2	+24V
3	COMMON
4	COMMON

MIS C

1	EXT OFF B
2	EXT ON A
3	EXT ON B
4	EXT OFF A
5	COUGH A
6	COUGH B
7	COMMON
8	EXT LAMP ON
9	EXT LAMP OFF
10	STUDIO B MUTE SELECT
11	COMMON
12	MIC A MUTE OUTPUT
13	STUDIO A MUTE SELECT
14	CRM MUTE SELECT
15	MIC B MUTE OUTPUT

SLI C

1	'B' MODULE OFF INPUT
2	'A' MODULE ON INPUT
3	'B' MODULE ON INPUT
4	'A' MODULE OFF INPUT
5	'A' EXTERNAL READY INPUT
6	'B' EXTERNAL READY INPUT
7	COMMON
8	'A' EXTERNAL START OUTPUT
9	'B' EXTERNAL START OUTPUT
10	-N/C-
11	COMMON
12	'A' REMOTE STOP OUTPUT
13	-N/C-
14	-N/C-
15	'B' REMOTE STOP OUTPUT

CRM C

1	-N/C-
2	MONO RIGHT INPUT
3	MONO LEFT INPUT
4	-N/C-
5	AUD RIGHT INPUT
6	AUD LEFT INPUT
7	-N/C-
8	-N/C-
9	-N/C-
10	-N/C-
11	-N/C-
12	-N/C-
13	-N/C-
14	PGM RIGHT INPUT
15	PGM LEFT INPUT

CSM E

1	STUDIO B LEFT OUTPUT SHIELD
2	STUDIO B LEFT OUTPUT (-)
3	STUDIO B LEFT OUTPUT (+)
4	STUDIO B RIGHT OUTPUT SHIELD
5	STUDIO B RIGHT OUTPUT (-)
6	STUDIO B RIGHT (+)
7	COMMON
8	COMMON
9	COMMON
10	STUDIO A LEFT OUTPUT SHIELD
11	STUDIO A LEFT OUTPUT (-)
12	STUDIO A LEFT OUTPUT (+)
13	STUDIO A RIGHT OUTPUT SHIELD
14	STUDIO A RIGHT OUTPUT (-)
15	STUDIO A RIGHT OUTPUT (+)

PGM D

1	COMMON
2	+24V
3	-24V
4	COMMON
5	+24V
6	-24V
7	COMMON
8	+24V
9	-24V
10	COMMON
11	+24V
12	-24V
13	COMMON
14	+24V
15	-24V

AUD D

1	COMMON
2	PGM INPUT LEFT (-)
3	PGM INPUT LEFT (+)
4	COMMON
5	PGM INPUT RIGHT (-)
6	PGM INPUT RIGHT (+)
7	COMMON
8	COMMON
9	COMMON
10	COMMON
11	AUD INPUT LEFT (-)
12	AUD INPUT LEFT (+)
13	COMMON
14	AUD INPUT RIGHT (-)
15	AUD INPUT RIGHT (+)

MONO D

1	COMMON
2	MONO PGM INPUT LEFT (-)
3	MONO PGM INPUT LEFT (+)
4	COMMON
5	MONO PGM INPUT RIGHT (-)
6	MONO PGM INPUT RIGHT (+)
7	COMMON
8	COMMON
9	COMMON
10	COMMON
11	MONO AUD INPUT LEFT (-)
12	MONO AUD INPUT LEFT (+)
13	COMMON
14	MONO AUD INPUT RIGHT (-)
15	MONO AUD INPUT RIGHT (+)

MIS B

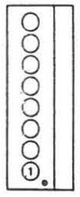
1	COMMON
2	INSERT POINT RETURN
3	-N/C-
4	COMMON
5	INSERT POINT SEND
6	INSERT POINT SEND MULT
7	COMMON
8	DIRECT OUTPUT
9	A OR B OPTION J
10	COMMON
11	EXT VCA VOLTAGE INPUT
12	EXT VCA CURRENT INPUT
13	COMMON
14	+24V (SPARE)
15	-24V (SPARE)

SLI B

1	GND
2	RETURN RIGHT
3	RETURN LEFT
4	GND
5	SEND RIGHT
6	SEND LEFT
7	GND
8	DIRECT OUT LEFT
9	DIRECT OUT RIGHT
10	GND
11	EXT VCA VOLTAGE INPUT
12	EXT VCA (CURRENT INPUT)
13	GND
14	+24V
15	-24V

CRM B

1	SHIELD
2	AUX 1 INPUT RIGHT (-)
3	AUX 1 INPUT RIGHT (+)
4	SHIELD
5	AIR INPUT LEFT (-)
6	AIR INPUT LEFT (+)
7	SHIELD
8	AIR INPUT RIGHT (-)
9	AIR INPUT RIGHT (+)
10	-N/C-
11	COMMON
12	AUD MONO
13	-N/C-
14	COMMON
15	AUD MONO



PGM C

1	COMMON
2	PGM LEFT INS. PT. SEND
3	PGM RIGHT INS. PT. SEND
4	COMMON
5	PGM LEFT INS. PT. SEND MULT
6	PGM RIGHT INS. PT. SEND MULT
7	COMMON
8	PGM LEFT INS. PT. RET
9	PGM RIGHT INS. PT. RET
10	COMMON
11	COMMON
12	COMMON
13	COMMON
14	+24v
15	-24v

AUD C

1	COMMON
2	AUD LEFT INS. PT. SNED
3	AUD RIGHT INS. PT. SEND
4	COMMON
5	AUD LEFT INS. PT. SEND MULT
6	AUD RIGHT INS. PT. SEND MULT
7	COMMON
8	AUD LEFT INS. PT. RET
9	AUD RIGHT INS. PT. RET
10	COMMON
11	COMMON
12	COMMON
13	COMMON
14	+24v
15	-24v

MONO C

1	COMMON
2	PGM INSERT POINT SEND
3	AUD INSERT POINT SEND
4	COMMON
5	PGM INSERT SEND MULT
6	AUD INSERT SEND MULT
7	COMMON
8	PGM INSERT RETURN
9	AUD INSERT RETURN
10	COMMON
11	COMMON
12	COMMON
13	COMMON
14	+24V
15	-24V

MIS A

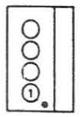
1	COMMON
2	COMMON
3	+50V SOURCE
4	MIC A INPUT SHIELD
5	MIC A (-) INPUT
6	MIC A (+) INPUT
7	-N/C-
8	-N/C-
9	-N/C-
10	MIC B INPUT SHIELD
11	MIC B (-) INPUT
12	MIC B (+) INPUT
13	SHIELD
14	MIC A +50V INPUT
15	MIC B +50V INPUT

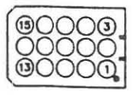
SLI A

1	COMMON
2	COMMON
3	+50V
4	LINE A INPUT LEFT SHIELD
5	LINE A INPUT LEFT (-)
6	LINE A INPUT LEFT (+)
7	LINE A INPUT RIGHT SHIELD
8	LINE A INPUT RIGHT (-)
9	LINE A INPUT RIGHT (+)
10	LINE B INPUT LEFT SHIELD
11	LINE B INPUT LEFT (-)
12	LINE B INPUT LEFT (+)
13	LINE B INPUT RIGHT SHIELD
14	LINE B INPUT RIGHT (-)
15	LINE B INPUT RIGHT (+)

CRM A

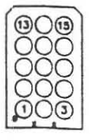
1	SHIELD
2	AUX 3 INPUT LEFT (-)
3	AUX 3 INPUT LEFT (+)
4	SHIELD
5	AUX 3 INPUT RIGHT (-)
6	AUX 3 INPUT RIGHT (+)
7	SHIELD
8	AUX 2 INPUT LEFT (-)
9	AUX 2 INPUT LEFT (+)
10	SHIELD
11	AUX 2 INPUT RIGHT (-)
12	AUX 2 INPUT RIGHT (+)
13	SHIELD
14	AUX 1 INPUT LEFT (-)
15	AUX 1 INPUT LEFT (+)





POWER

1	COMMON
2	+24V
3	-24V
4	COMMON
5	+24V
6	-24V
7	COMMON
8	+24V
9	-24V
10	-N/C-
11	COMMON
12	+50V COMMON
13	-N/C-
14	-N/C-
15	+50V



PGM B

1	PGM RIGHT OUTPUT SHIELD
2	PGM RIGHT OUTPUT (-)
3	PGM RIGHT OUTPUT (+)
4	PGM RIGHT OUTPUT SHIELD
5	PGM RIGHT OUTPUT (-)
6	PGM RIGHT OUTPUT (+)
7	GND
8	GND
9	GND
10	PGM LEFT OUTPUT SHIELD
11	PGM LEFT OUTPUT (-)
12	PGM LEFT OUTPUT (+)
13	PGM LEFT OUTPUT SHIELD
14	PGM LEFT OUTPUT (-)
15	PGM LEFT OUTPUT (+)

AUD B

1	AUD RIGHT OUTPUT SHIELD
2	AUD RIGHT OUTPUT (-)
3	AUD RIGHT OUTPUT (+)
4	AUD RIGHT OUTPUT SHIELD
5	AUD RIGHT OUTPUT (-)
6	AUD RIGHT OUTPUT (+)
7	GND
8	GND
9	GND
10	AUD LEFT OUTPUT SHIELD
11	AUD LEFT OUTPUT (-)
12	AUD LEFT OUTPUT (+)
13	AUD LEFT OUTPUT SHIELD
14	AUD LEFT OUTPUT (-)
15	AUD LEFT OUTPUT (+)

MONO B

1	PGM SHIELD
2	PGM OUT (-) (-)
3	PGM OUT (+) (+)
4	PGM MULT SHIELD
5	PGM OUT MULT (-)
6	PGM OUT MULT (+)
7	COMMON
8	COMMON
9	COMMON
10	AUD SHIELD
11	AUD OUT (-)
12	AUD OUT (+)
13	AUD MULT SHIELD
14	AUD OUT MULT (-)
15	AUD OUT MULT (+)

PGM A

1	COMMON
2	LEFT DIR OUT
3	LEFT MON SEND
4	COMMON
5	RIGHT DIR OUT
6	RIGHT MON SEND
7	COMMON
8	LEFT METER SEND
9	RIGHT METER SEND
10	COMMON
11	LEFT PGM MULT (-)
12	LEFT PGM MULT (+)
13	COMMON
14	RIGHT PGM MULT (-)
15	RIGHT PGM MULT (+)

AUD A

1	COMMON
2	LEFT DIR OUT
3	LEFT MON SEND
4	COMMON
5	RIGHT DIR OUT
6	RIGHT MON SEND
7	COMMON
8	LEFT METER SEND
9	RIGHT METER SEND
10	COMMON
11	LEFT AUD MULT (-)
12	LEFT AUD MULT (+)
13	COMMON
14	RIGHT AUD MULT (-)
15	RIGHT AUD MULT (+)

MONO A

1	COMMON
2	AUD DIR OUT
3	AUD MONITOR SEND
4	COMMON
5	PGM DIR OUT
6	PGM MONITOR SEND
7	COMMON
8	AUD METER SEND
9	PGM METER SEND
10	COMMON
11	AUD OUT MULT (-)
12	AUD OUT MULT (+)
13	COMMON
14	PGM OUT MULT (-)
15	PGM OUT MULT (+)

INPUT SECTION

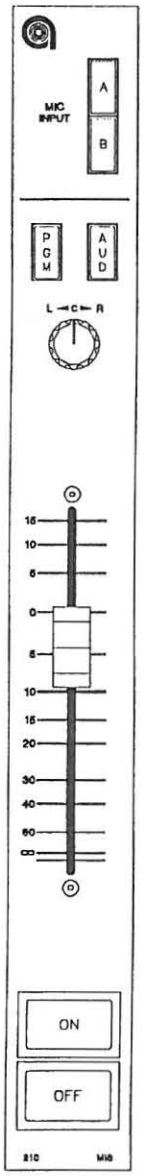
MONITOR SECTION

OUTPUT SECTION

210-SERIES CONSOLE CONNECTOR PINOUT

Chapter 4

210-Series Microphone Input Module - 210-MIS



INTRODUCTION

The 210-MIS Microphone Input Module is one of the 210-Series group of modules designed for stereo broadcast application. Any input position can be fitted with either a Microphone or a Stereo Line Input Module.

Among the features of the 210-MIS Module are:

- Provisions for the selection of either of two microphone by way of the input selector switches 'A' and 'B'.
- A newly designed, lower noise, active differential microphone input preamplifier which permits individual gain control settings for each of the inputs.
- Optional Phantom Power for condenser microphones.
- An insert point which is post-preamplifier and pre-fader to allow insertion of signal processing equipment, if required.
- A full stereo pan pot, with a center detent, enabling the microphone to be precisely positioned at any point within the stereo panorama.
- An extensive, user programmable logic system designed into the module permitting external On/Off control, "cough" interrupt control, logic control of external indicators (ON AIR lights), muting of control room and/or studio monitors (follows input selection), On/Off switching with fader-up movement, and cue activation upon fader-detent overpress.
- On/Off switching using illuminated switches controlling CMOS circuitry.

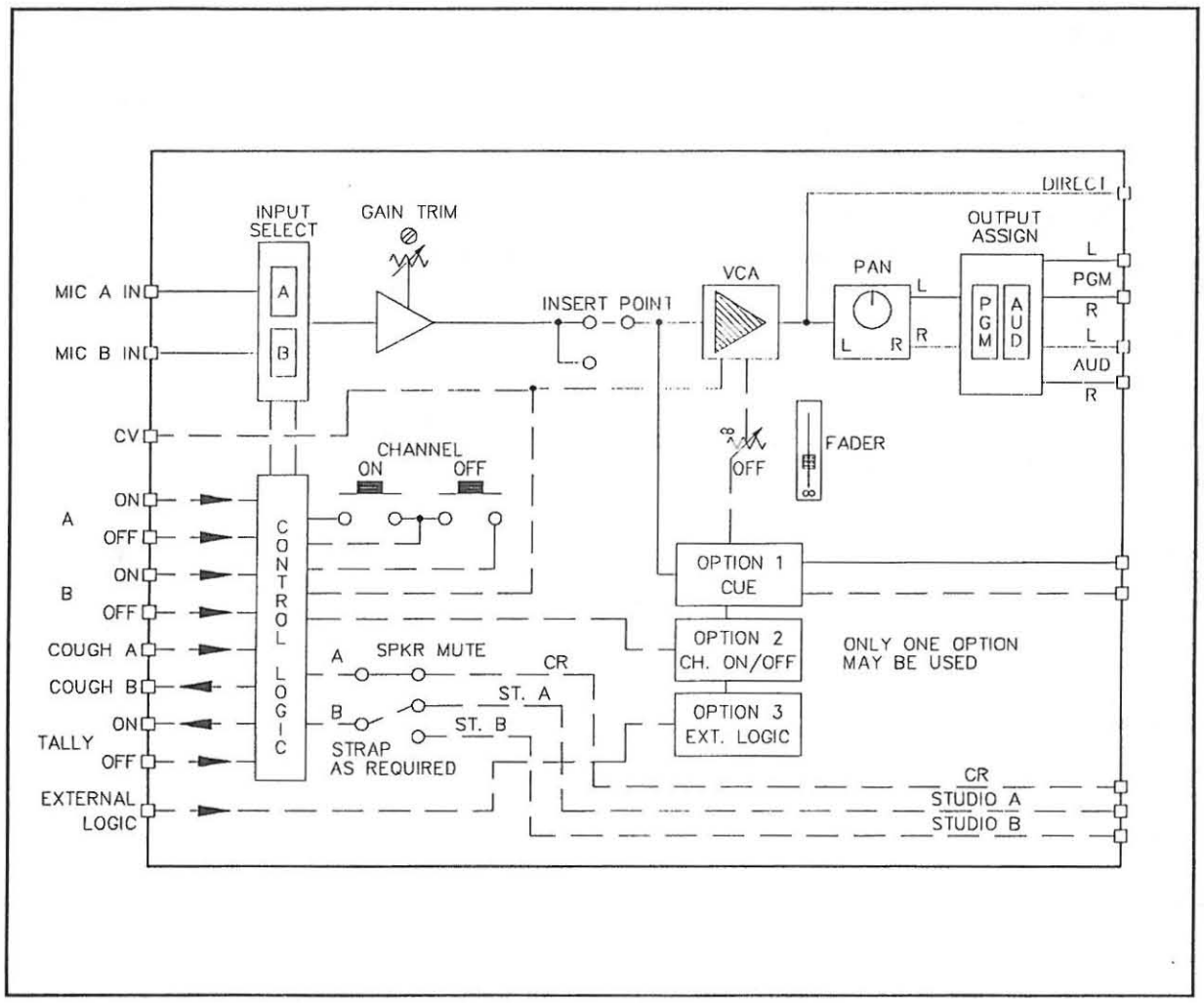


Figure 1, Microphone Input Module Signal Flow.

CONTROL AND PUSHBUTTON OVERVIEW

The following is a brief summary of the features and functions of the 210-Series MIS Microphone Input Module. This section is intended to familiarize the Service/Installation Technician with the controls of this module, as reference to these controls is frequently made in the text.

1. Input Select

The 210-MIS Module has two microphone inputs: A and B. The **Input Select** pushbuttons simply select between the two. If both pushbuttons are depressed or released, the module will go into the OFF setting, remaining there until this is corrected.

2. Output Assign Selectors

The pushbuttons labeled "PGM" and "AUD" are the **Output Assign Selectors**, which assign the signal to the Program and Audition busses. Either or both of these may be selected. A "Direct" output from the module is also included.

3 . Pan

The **Pan** control is a rotary potentiometer which positions the selected signal at any point within the stereo field. The Pan control is center-detented for exact center when set at the detent.

4. VCA Fader

The **VCA Fader** has two functions: In its primary function, it acts as a level control for the selected microphone. When moved down beyond infinity, and overpress switch is activated, enabling the CUE function, if the module is configured as such. This allows the user to audition the incoming signal through the CUE speaker located in the meterbridge or the headphones, without routing it to the main program outputs.

5. Module ON/OFF

The **Module ON and OFF** pushbuttons, located at the very bottom of the module activate and deactivate the module. An ON/OFF tally is provided to activate an external device such as an "ON AIR" light.

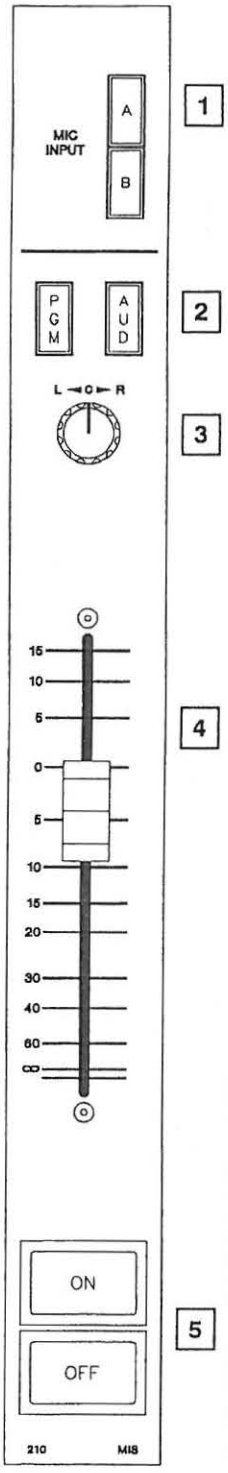


Figure 2, 210-MIS Module Front Panel.

AUDIO AND LOGIC SIGNALS

Audio Signals

The 210-Series Microphone Module is capable of accepting two separate microphone-level signals: the A Input and the B Input. These signals may be processed for broadcast and routed to either or both of the assign busses.

Audio Inputs

Both input signals appear on the input motherboard at the 15-pin MR connector labeled "A" in the desired input module. See *Console Connector Location* drawing at the end of *Chapter 3*. The pin assignments follow:

"A" Connector

13. Shield	14. Mic A (+)50V Input	15. Mic B (+)50V Input
10. Mic B Input Shield	11. Mic B Input (–)	12. Mic B Input (+)
7. -N/C-	8. -N/C-	9. -N/C-
4. Mic A Input Shield	5. Mic A Input (–)	6. Mic A Input (+)
1. Common	2. Common	3. +50V (Phantom Power)

NOTE: Microphone cable shields should be connected to Pins 1 or 2, **NOT** to Pins 4 or 10.

Audio Outputs

These signals appear on Connector "B" of the Input Motherboard on any input position in which a Microphone Input Module is fitted. See the *Console Connector Location* diagram at the end of Chapter 3 for location of these connectors. The pin assignment follows the *Logic Outputs* text.

The only accessible audio outputs on the 210-MIS Module are the **Direct Out** and the **Insert Point**.

The direct out is a 0dBu post-fader/pre-pan, output from the module and is intended primarily for multitrack application. It is accessible on Pin 8 of the module position's "B" Connector.

The remaining audio signals are sent internally to the Control Room and Studio Monitor Modules and have no reachable connections.

The insert point may also be found on Connector "B". This is a "Pre-Fader" signal and may be used to send a sample of the input signal through a signal processing device such as a reverb/delay, compressor, etc. The insert point is unbalanced low impedance, and operates at a nominal level of -5 to 0dBu. This Insert Point Send signal is located on Pin 5 of the "B" Connector.

NOTE: If no such external device is in use, a shorting plug must be in place on this connector. See *Microphone Interconnection* on *Page 3 - 11* for details.

"B" Connector

13. Common	14. +24 Volts	15. -24 Volts
10. Common	11. Ext. VCA Control Voltage Input	12. Ext. VCA Control Current Input
7. Common	8. Direct Out	9. -N/C-
4. Common	5. Insert Point Send	6. Insert Point Send Mult
1. Common	2. Insert Point Return	3. -N/C-

NOTE: Each row of three pins, 1 - 3, 4 - 6, etc., contains a shield or common. A given shield pin is intended for use with the other two pins in that row. The shield on Pin 1, for example, is intended for use with the signals on Pins 2 and 3; The shield on Pin 4 is intended for use with the signals on Pins 5 and 6, etc.

Logic Signals

Each of the returns, when selected, has its own individual logic interface. These interfaces may be broken down into two types of signals: Logic Inputs and Logic Outputs.

Logic Inputs

There are six Logic Inputs on the 210-Series Microphone Input Module: Three for the A side and three for the B side. This module provides tally outputs that follow the module's "ON/OFF" status. These may be used in conjunction with the CSM Module to drive a relay thay may light an "ON AIR" lamp. The outputs are 'open collector' and can sync 30mA DC. The pin assignments for Connector "C" may be found after the *Logic Outputs* heading and a brief description of the functions follows:

- **External ON A** This Logic Input starts operation of the 210-MIS Module when an external pushbutton (for example, a guest turret in the studio) is activated with Mic A selected, the module will turn ON.
- **External OFF A** This Logic Input stops operation of the 210-MIS Module when an external pushbutton (for example, a guest turret in the studio) is deactivated and with Mic A selected, the module will turn OFF.
- **Cough A** An external "cough" switch (momentary pushbutton) may be connected to the MIS Module to mute the signal, if needed. When this pin is pulled low with the proper input selected, the signal will mute until the pushbutton is released.
- **External ON B, External OFF B, Cough B** These are identical in function to those mentioned above except that they operate when the 'B' input is selected.

Logic Outputs

There are two Logic Outputs on the 210-MIS Module: The External Lamp ON and External Lamp OFF. They are accessible on Connector "C" and may be used to trigger a device such as an "ON AIR" lamp. The pin assignments for this connector follow:

"C" Connector

13. Stu. A Mute Select	14. CRM Mute Select	15. Mic B Mute Out
10. Stu. B Mute Select	11. Common	12. Mic A Mute Output
7. Common	8. Ext. Lamp ON	9. Ext. Lamp OFF
4. Ext. OFF 'A'	5. Cough 'A'	6. Cough 'B'
1. Ext. OFF 'B'	2. Ext. ON 'A'	3. Ext. ON 'B'

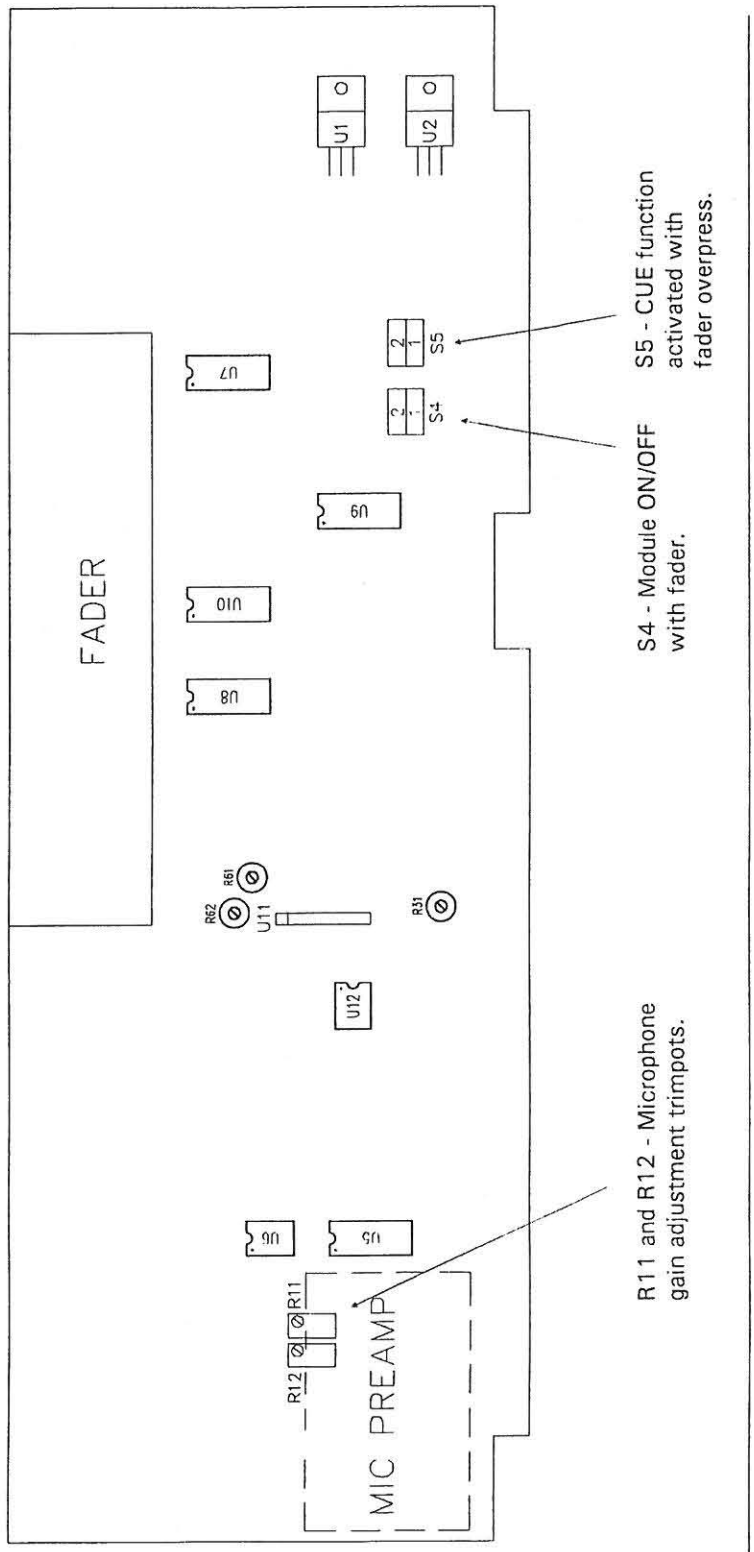


Figure 3, 210-MLI Mic Module Component Location Map.

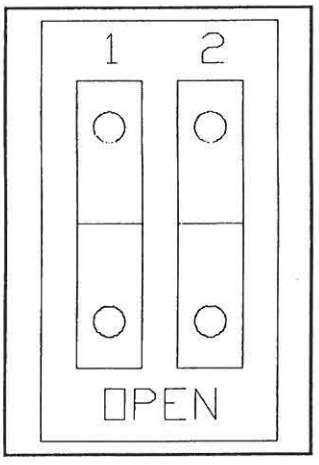


Figure 4, DIP Switch.

FIELD OPTIONS

The 210-MIS Module contains two "DIP" Switches and several shorting pins which allow the module to assume several different configurations. The switches, S4 and S5, are located near the lower right corner of the module main board (see Figure 3, Location Art) and are easily identifiable by their red or blue color (See *Figure 4* on *Page 4-7*). The pins to be shorted are located on the "C" Connector in the Module/Motherboard assembly in the input position in which the desired module is located. If a given function is desired, a lead must be run between the pins named under *Selection* in the *Shorting Plug Configuration* section below. Directions concerning construction of the shorting plug may be found under *Crimping Instructions* in *Chapter 3*. Explanations of the functions along with switch positions/shorting configurations required to affect the functions follow:

DIP Switch Configuration

Description	Switch	Selection	Function
Determines whether fader will turn module On and/or Off	S4	Section 1 open Section 2 closed	When fader is moved up from infinity the module will turn On, but "OFF" switch must be pressed to turn module Off.
		Section 1 closed Section 2 open	"ON" switch must be pressed to turn module On but bringing fader down to infinity will turn module Off.
		Section 1 closed Section 2 closed	When fader is moved up from infinity module will turn On - when returned to infinity, module will turn Off.
Determines whether pulling fader down past infinity will activate CUE function.	S5	Section 1 closed Section 2 closed	Both sections must be closed for Overpress CUE to function. Moving the fader up from infinity will deactivate the CUE function.

Shorting Plug Configuration

Description	Plug	Selection	Function
Determines whether A or B mic will mute in Control Room or Studio monitors when the module is On.	C	Pin 12 - Pin 14	Mic A Mutes Control Room
	"	Pin 12 - Pin 13	Mic A Mutes Studio A
	"	Pin 12 - Pin 10	Mic A Mutes Studio B
	"	Pin 15 - Pin 14	Mic B Mutes Control Room
	"	Pin 15 - Pin 13	Mic B Mutes Studio A
	"	Pin 15 - Pin 10	Mic B Mutes Studio B

Phantom Power Connection

Description	Plug	Selection	Function
Determines whether Phantom Power will be sent to Mic A, Mic B, or both.	A	Pin 3 - Pin 14	Supplies +50V to Mic A
	"	Pin 3 - Pin 15	Supplies +50V to Mic B
	"	Pin 3 - Pins 14&15	Supplies +50V to both A and B

ALIGNMENT PROCEDURES

Microphone Gain Adjustment

Equipment Required: One 210/200 E14 PC Extender Card (Part Number 90X00290).

To perform this adjustment, first remove the module with the console main power OFF, and install an extender card. This will allow access to the necessary trimpots without interrupting power to the module.

Toward the middle left of the module main board (as viewed with the front panel upward and the component side toward the user), are two trimpots, R11 and R12. As this and all other adjustments are made at the factory, none should be required. If, however, any supporting circuitry is replaced, a gain level adjustment may become necessary. **NOTE:** These trimpots are partially hidden by the Mic Preamp Board, but the adjustments are accessible without having to remove the Preamp Board.

Alignment Procedure

The microphone gain level may be changed by simply adjusting R11 (Mic A) or R12 (Mic B) as desired. No particular test equipment is required for this procedure as measurement may be made on the PGM or AUD (depending upon which output is selected) VU Meter.

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NOTE: P10 AND P11 CONNECT TO CORRESPONDING S10 AND S11 ON THE MP2 PLUG-ON ASSEMBLY

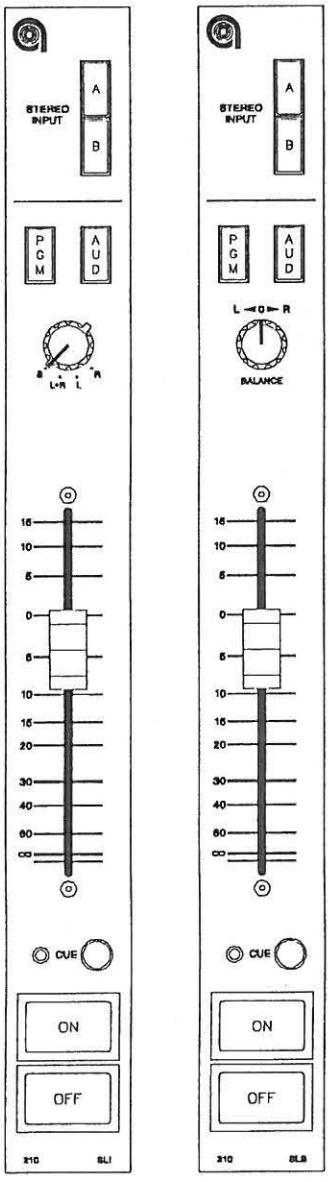
NOTES:
- ALL RESISTANCE VALUES ARE IN OHMS, EXCEPT AS MARKED
- ALL CAPACITANCE VALUES ARE IN MICROFARADS, EXCEPT AS MARKED
- PIN NUMBERS SEPARATED BY COMMAS ARE CONNECTED TOGETHER
- SHADED CONTACT OF CMOS SWITCH IS CLOSED WHEN CONTROL IS HIGH
- % IS A 1% METAL FILM RESISTOR
- CR'S ARE 1N4148 DIODES EXCEPT AS MARKED
- RS'S ARE 2% SIP RESISTOR NETWORKS
- UNLESS OTHERWISE NOTED, ALL P (PLUG) PIN NUMBERS ARE ASSUMED TO MATE WITH CORRESPONDING S (SOCKET) PINS

Filename: SCH-MIS2

DRAWN: NONE	auditronics, inc.
TRACED: JAP	
DESIGNED: JDP	SCHEMATIC DRAWING 210-MIS MICROPHONE INPUT MODULE
APPROVED:	
DATE: 8/23/88	SHEET 1 OF 1 — 88D00684-

Chapter 5

210-Series Stereo Line Input Modules - 210-SLI and 210-SLB



INTRODUCTION

The 210-SLI and -SLB Stereo Line Input Modules are two more of the 210-Series group of modules designed for stereo broadcast applications. Among the features of the 210-SLI and -SLB Modules are:

- Provisions for the selection of either of two stereo lines by way of the input selector switches 'A' and 'B'.
- The active, transformerless, balanced inputs which permit individual gain control settings for each left and right channel of both inputs. This allows precise level and balance adjustment of the stereo signal into the module.
- A Mode Selector switch (SLI Module only) which permits selection of the input source as stereo, summed left and right mono,right source only, or left source only to be sent to the stereo outputs.
- A Balance control (SLB Module only) which permits balancing of the stereo signal.
- A stereo insert point which is post-preamplifier and pre-fader allowing insertion of stereo signal processing equipment, if desired.
- A Penny + Giles conductive-plastic fader, which does not directly carry audio, rather, it carries a DC voltage which controls a VCA (Voltage-Controlled Amplifier). This allows a high degree of protection against dirty faders, thereby avoiding associated noise.
- An extensive, user-programmable logic system designed into the module. It may be programmed to provide external Start/Stop control of an external device (e.g., cart machine), to permit the external device to activate the module On/Off functions, or to control the On/Off functions with fader up/down into the detent. It may also be programmed for timer and CUE activation upon fader-detent overpress.
- Output assignment to the Program and/or Audition busses via the two push-on, push-off switches labeled "PGM" and "AUD". A "Direct" stereo output from the module is also included for special applications.
- On/Off switching using illuminated switches controlling CMOS circuitry.

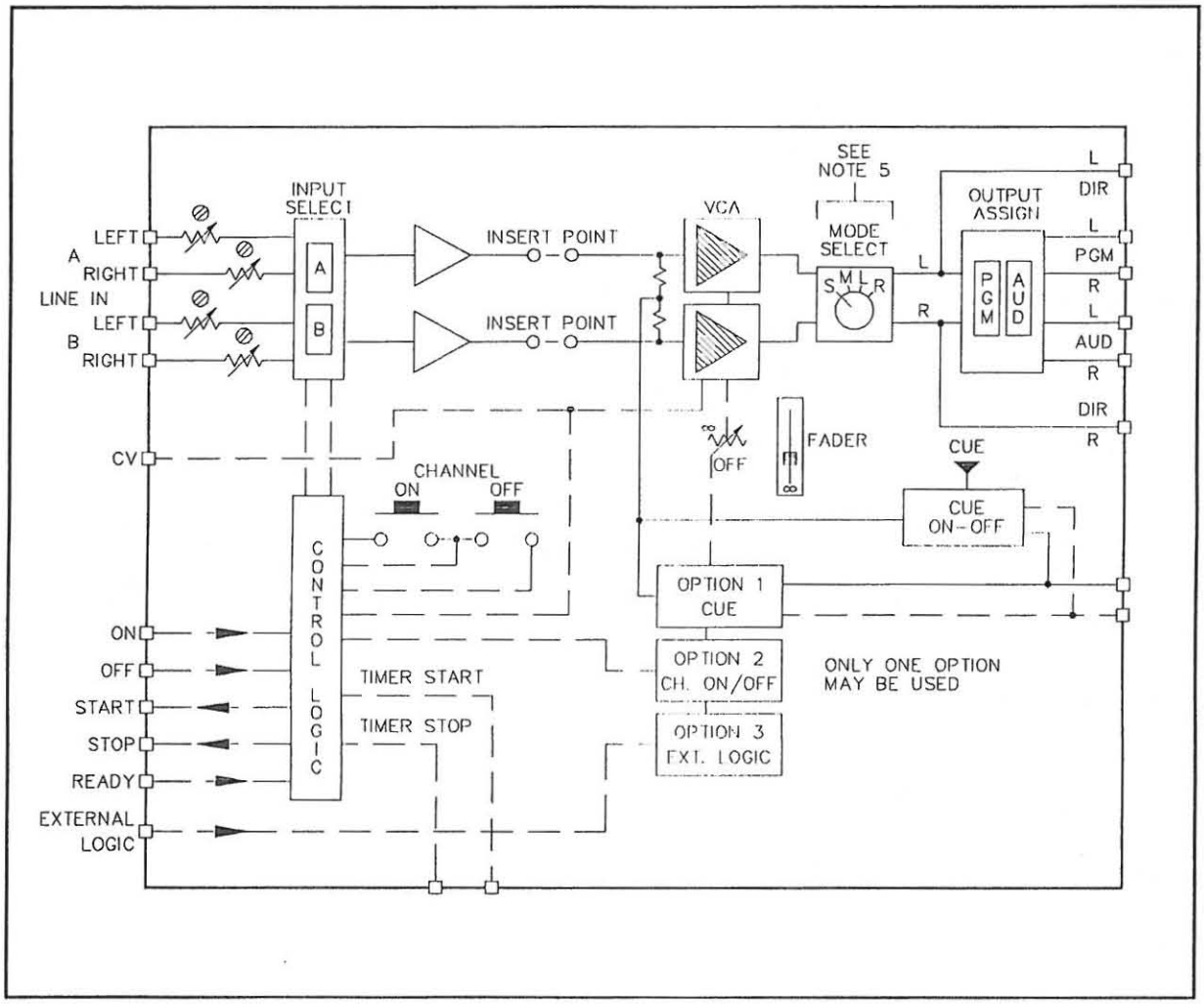


Figure 1, Stereo Line Input Module Signal Flow.

CONTROL AND PUSHBUTTON OVERVIEW

The following is a brief summary of the features and functions of the 210-Series SLI Stereo Line Input Module. This section is intended to familiarize the Service/Installation Technician with the controls of this module, as reference to these controls is frequently made in the text.

1. Input Select

The 210-MIS Module has two line-level stereo inputs: A and B. The **Input Select** pushbuttons simply select between the two. If both pushbuttons are depressed, the module will go into the OFF setting, remaining there until this is corrected.

2. Output Assign Selectors

The pushbuttons labeled "PGM" and "AUD" are the **Output Assign Selectors**, which assign the signal to the Program and Audition busses. Either or both of these may be selected. A "Direct" output from the module is also included.

3. Mode Select Switch (SLI Module)

A **Mode Select** switch is provided to permit selection of the input source as stereo, summed left and right mono,right source only, or left source only to be sent to the stereo outputs.

3a. Balance (not shown - SLB Module only)

The 210-SLB has a rotary **Balance** control for balancing the stereo signal. The Balance control is center-detented for normal stereo balance when set at the detent.

4. VCA Fader

The **VCA Fader** has two functions: In its primary function, it acts as a level control for the selected source. When moved down beyond infinity, and overpress switch is activated, enabling the CUE function, if the module is configured as such. This allows the user to audition the incoming signal through the CUE speaker located in the meterbridge or the headphones without routing it to the main program outputs.

5. CUE

The **CUE** pushbutton allows the user to listen to a signal on the console-mounted loudspeaker or headphones while a signal from another module is broadcast.

6. Module ON/OFF

The **Module ON and OFF** pushbuttons, located at the very bottom of the module activate and deactivate the module. Depending on the configuration of the DIP switch(es) on the module's circuit board, the ON pushbutton can also activate the Timer and External Logic functions. This will be discussed in detail in the *Field Options* section of this chapter.

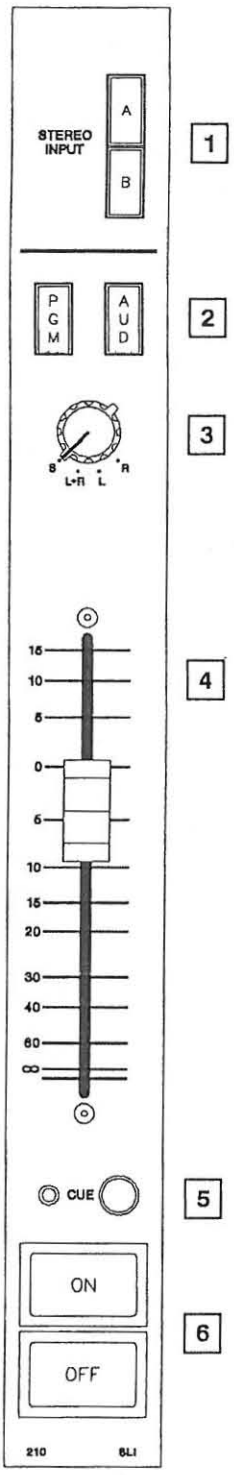


Figure 2, 210-SLI Module Front Panel.

AUDIO AND LOGIC SIGNALS

Audio Signals

The 210-Series Stereo Line Input Modules are capable of accepting two separate stereo line-level signals: the A Input and the B Input. These signals may be processed for broadcast and routed to either or both of the assign busses.

Audio Inputs

Both signals appear on the input motherboard at the 15-pin MR connector labeled "A" in the position of the input module motherboard. See *Console Connector Location* drawing at the end of *Chapter 3*. The pin assignments follow:

"A" Connector

13. Line B Input Right Shield	14. Line B Input Right (–)	15. Line B Input Right (+)
10. Line B Input Left Shield	11. Line B Input Left (–)	12. Line B Input Left (+)
7. Line A Input Right Shield	8. Line A Input Right (–) – WHT	9. Line A Input Right (+) – GRN
4. Line A Input Left Shield – CLEAR	5. Line A Input Left (–) – BLK	6. Line A Input Left (+) – RED
1. Common	2. Common	3. +50V (Phantom Power)

Audio Outputs

These signals appear on Connector "B" of the Input Motherboard on any input position in which a Stereo Input Module is fitted. See the *Console Connector Location* diagram at the end of *Chapter 3* for location of these connectors. The pin assignment may be found below.

The only accessible audio outputs on the 210-SLI/SLB Module are the **Direct Outs** and the **Insert Points.**

The direct out is a 0dBu post-fader/pre-pan, output from the module and is intended primarily for multitrack application. It is accessible on Pins 8 and 9 of the module position's "B" Connector.

The insert points may also be found on Connector "B". This is a "Pre-Fader" signal and may be used to send a sample of the input signal through a signal processing device such as a reverb/delay, compressor, etc. The insert point is unbalanced low impedance, and operates at a nominal level of -5 to 0dBu. The Insert Point Send signals are located on Pins 5 and 6 of the "B" Connector.

NOTE: If no such external device is in use, a shorting plug must be in place on this connector. See *Line-Level Interconnection* on *Page 3 - 10* for details.

"B" Connector

13. Ground	14. +24 Volts	15. -24 Volts
10. Ground	11. Ext. VCA Ctl. Voltage Input	12. Ext. VCA Ctl. Current Input
7. Ground	8. Direct Out Left	9. Direct Out Right
4. Ground	5. Insert Point Send Right	6. Insert Point Send Left
1. Ground	2. Insert Point Return Right	3. Insert Point Return Left

NOTE: Each row of three pins, 1 - 3, 4 - 6, etc., contains a shield or common. A given shield pin is intended for use with the other two pins in that row. The shield on Pin 1, for example, is intended for use with the signals on Pins 2 and 3; The shield on Pin 4 is intended for use with the signals on Pins 5 and 6, etc.

Logic Signals

Each Input source, when selected, has its own individual logic interface. These interfaces may be broken down into two types of signals: Logic Inputs and Logic Outputs.

Logic Inputs

There are six **Logic Inputs** on the 210-Series Stereo Input Modules: Three for the A side and three for the B side. A brief description follows:

- **A Module ON Input** This logic input is used to activate the module from an external source, for example, a piece of equipment such as a cart machine or CD player. When this pin is brought low with the desired input (A or B) selected, the module will turn ON.
- **A Module OFF Input** This logic input is used to deactivate the module from an external source, for example, a piece of equipment such as a cart machine or CD player. When this pin is brought low with the desired input (A or B) selected, the module will turn OFF.
- **A External Ready Input** This logic input is used to tell the module that an external piece of equipment is ready to function, (for example, that a cart machine is loaded and ready to run), when the A Input Signal is selected. This Logic Input will light the OFF switch when it's held low.
- **B Module ON Input, B Module OFF Input, B External Ready Input** These are identical in function to those mentioned above except that they operate with the 'B' input selected.

These signals appear on Connector "C" of the Input Motherboard on any input position in which a Stereo Line Input Module (SLI or SLB) is fitted. See the *Console Connector Location* diagram at the end of *Chapter 3* for location of these connectors. The pin assignments follow the *Logic Outputs* text.

Logic Outputs

There are four **Logic Outputs** on the 210-Series Stereo Line Input Modules: Two for the A side and two for the B side. A brief description follows:

- **A External Start Output** This Logic Output sends a momentary low-going pulse any time the module's A Input is selected and the module is activated, for the purpose of signaling an external piece of equipment (i.e., to tell a cart machine to start).
- **A External Stop Output** This Logic Output sends a momentary low-going pulse any time the module's A Input is selected and the module is deactivated, for the purpose of signaling an external piece of equipment (i.e., to tell a cart machine to stop).
- **B External Start Output, B External Stop Output** These are identical in function to those mentioned above except that they operate with the 'B' input selected. As always, See the *Console Connector Location* diagram at the end of *Chapter 3* for location of these connectors. The pin assignments follow:

"C" Connector

13. -N/C-	14. -N/C-	15. "B" Remote Stop Output
10. -N/C-	11. Common	12. "A" Remote Stop Output
7. Common	8. "A" External Start Output	9. "B" External Start Output
4. "A" Module Off Input	5. "A" External Ready Input	6. "B" External Ready Input
1. "B" Module Off Input	2. "A" Module On Input	3. "B" Module On Input

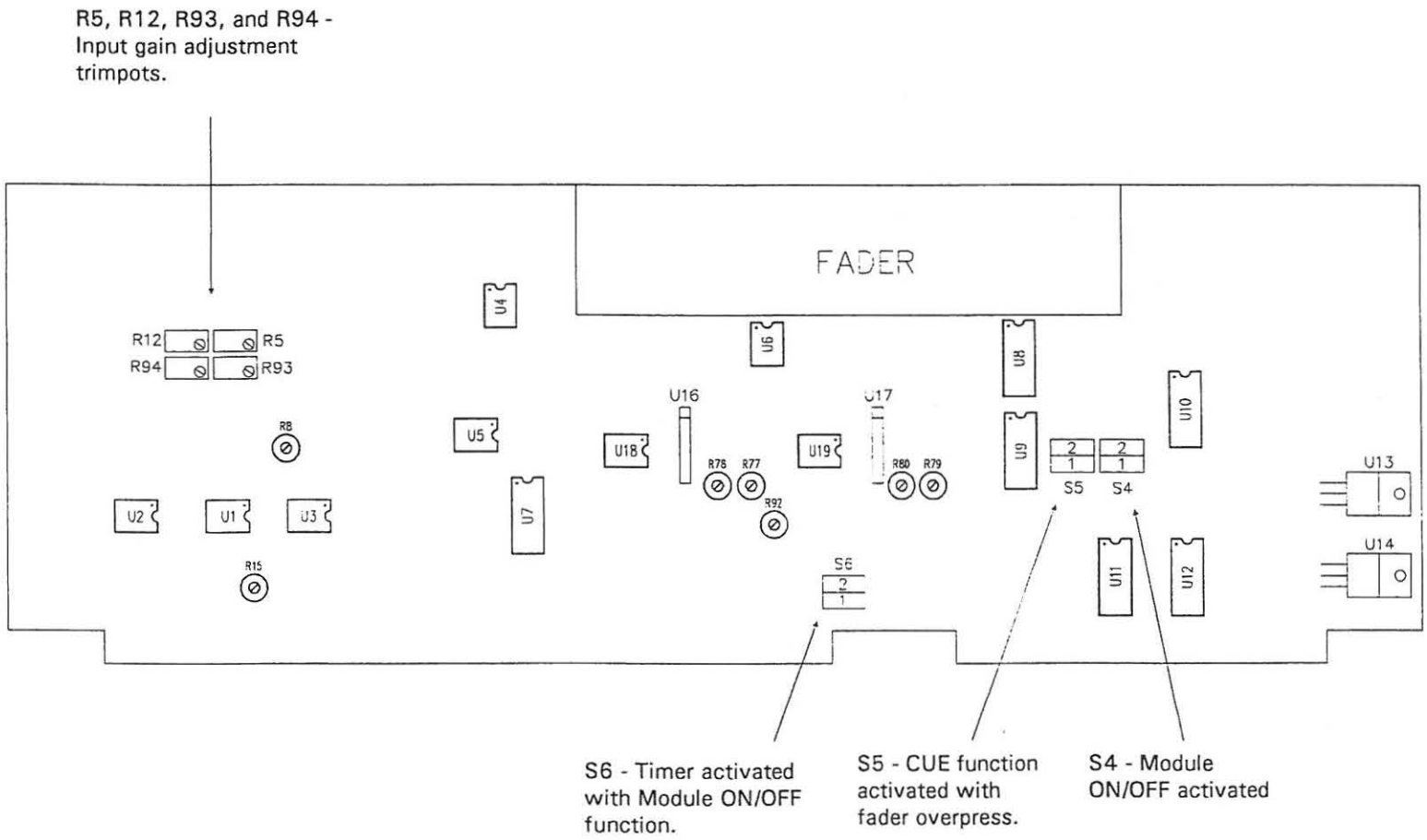


Figure 3, 210 SLI/SLB Module Component Location Map.

FIELD OPTIONS

The 210-SLI Module contains three "DIP" Switches which allow the module to assume several different configurations. These switches, S4, S5 and S6, are located near the lower right corner of the module main board (as viewed with the front panel upward and the component side toward the user), and are easily identifiable by their red or blue color (see *Figure 4* on *Page 4-7*). Explanations of the functions of these switches along with switch positions required to affect the functions follow:

Description	Switch	Selection	Function
Determines whether fader will turn module On and/or Off*	S4	Section 1 Open Section 2 Closed	When fader is moved up from ∞ the module will turn On, but "OFF" switch must be pressed to turn module Off.
		Section 1 Closed Section 2 Open	"ON" switch must be pressed to turn module On but bringing fader down to ∞ will turn module Off.
		Section 1 Closed Section 2 Closed	When fader is moved up from ∞ module will turn On - when returned to ∞, module will turn Off.
Determines whether CUE functions may be activated with fader overpress.	S5	Section 1 Open Section 2 Closed	Pulling fader down below ∞ (overpress) will activate CUE function; the CUE pushbutton is required to deactivate the CUE function.
		Section 1 Closed Section 2 Open	The CUE pushbutton is required to activate the CUE function; moving the fader up from ∞ will deactivate CUE.
		Section 1 Closed Section 2 Closed	CUE function is activated when fader is pulled down below ∞ and de-activated when fader is moved up.
Determines whether digital timer will start and stop with Module ON function.*	S6	Section 1 Closed Section 2 Open	When module is turned On, timer will start, but must be stopped manually
		Section 1 Closed Section 2 Closed	When module is turned On, timer will start - when module is turned off, timer will stop
		Section 1 Open Section 2 Closed	Timer must be started manually but will stop when module is turned OFF.

* If S4 is configured for Module ON with fader-up, the timer can be configured to operate with the fader as well.

ALIGNMENT PROCEDURES

Input Gain Adjustment

Equipment Required: Fluke Model 8020A 4-digit multimeter (or equivalent) and one 210/200 E14 PC Extender Card (Part Number 90X00290).

Before beginning this procedure, be sure that the console power is OFF. Now,remove the module, install an extender card, and re-apply power to the console. This will allow access to the necessary trimpots without interrupting power to the module.

Toward the middle left of the module main board (as viewed with the front panel upward and the component side toward the user), are four trimpots, R5, R12, R93, and R94. As this and all other adjustments are made at the factory, none should be required. If, however, any supporting circuitry is replaced, a gain level adjustment may become necessary.

Alignment Procedure

With the console power OFF, remove the module and install the extender card. Plug the module onto the card. This will allow the technician to gain access to the trimpots without interrupting power to the module.

Feed a balanced +4 signal at 2k into the desired input ('A' or 'B'). Connect a dB-reading AC voltmeter to the 'A' insert point or 'B' insert point and ground. Adjust the appropriate trimpot (R5 and R12 for Channel 'A' left and right, respectively; R93 and R94 for Channel 'B' left and right, respectively) for 0dBu when measured at the insert point. Be sure to measure at both the left and right insert points.

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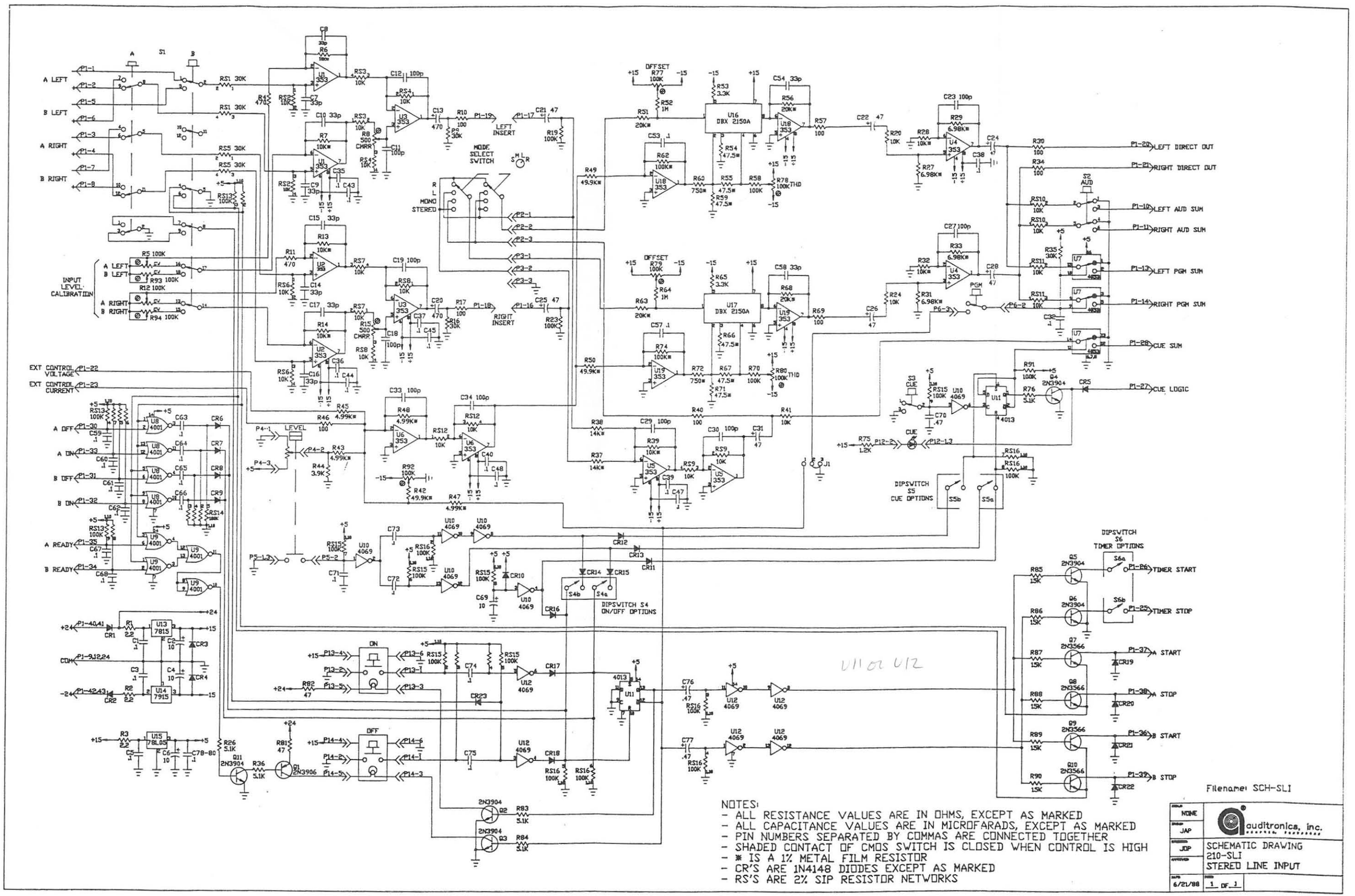
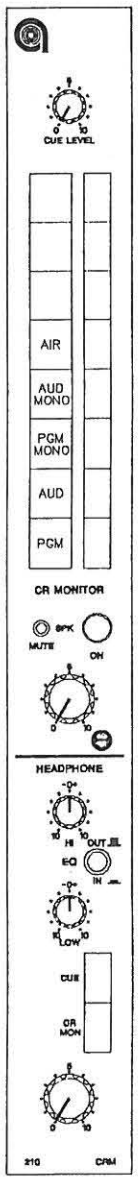

A LEFT
B LEFT
A RIGHT
B RIGHT
INPUT LEVEL CALIBRATION
EXT CONTROL VOLTAGE
EXT CONTROL CURRENT
A OFF
A ON
B OFF
B ON
A READY
B READY
MODE SELECT SWITCH
LEFT INSERT
RIGHT INSERT
LEVEL
DIPSWITCH S4 ON/OFF OPTIONS
DIPSWITCH S5 CUE OPTIONS
DIPSWITCH S6 TIMER OPTIONS
LEFT DIRECT OUT
RIGHT DIRECT OUT
LEFT AUD SUM
RIGHT AUD SUM
LEFT PGM SUM
RIGHT PGM SUM
CUE SUM
CUE LOGIC
TIMER START
TIMER STOP
A START
A STOP
B START
B STOP
NOTES:
- ALL RESISTANCE VALUES ARE IN OHMS, EXCEPT AS MARKED
- ALL CAPACITANCE VALUES ARE IN MICROFARADS, EXCEPT AS MARKED
- PIN NUMBERS SEPARATED BY COMMAS ARE CONNECTED TOGETHER
- SHADED CONTACT OF CMOS SWITCH IS CLOSED WHEN CONTROL IS HIGH
- * IS A 1% METAL FILM RESISTOR
- CR'S ARE 1N4148 DIODES EXCEPT AS MARKED
- RS'S ARE 2% SIP RESISTOR NETWORKS
Filename: SCH-SLI
auditronics, inc.
SCHEMATIC DRAWING
210-SLI
STEREO LINE INPUT
6/21/88
1 OF 1

Chapter 6

210-Series Control Room Monitor Module - 210-CRM



INTRODUCTION

The 210-CRM control room monitor is a stereo module providing all facilities for monitor source selection, VCA level control, and control room muting. The cue speaker level control is located at the top and the headset equalizer, source selection, and level control is located in the lower portion of the module. Among the features of the 210-CRM Module are:

- Eight monitor sources which are available via push button selection. These are Program output (PGM), Audition output (AUD), Mono Program (MONO PGM), Mono Audition (MONO AUD), AIR (an off-air feed), and 3 user-definable inputs. These last three inputs are balanced, bridging, and transformerless.
- A Speaker On/Off button with an associated LED which permits the operator to manually mute the monitor when desired. The monitor will also automatically mute during a "Live Mic" situation in the control room. The LED will illuminate indicating either situation. The headphone feed will not be affected.
- A "Dim" function with a recessed level control. This "dim" function is activated during CUE or when the Intercom system located on the 210-CSM module is in use. This will cause the selected stereo source to be summed and sent to the left Control Room monitor at a reduced level predetermined by the setting of the recessed "dim" control.
- User designated studio microphone inputs which are routed to the CUE circuitry during intercom operation.
- A built-in CUE amplifier and associated level control. This permits the operator to set the level of his CUE speaker at a comfortable level.
- A stereo headphone amplifier section which provides source selection of either the Control Room Monitor, or the CUE bus, or both by depressing both source buttons simultaneously. When both are selected, the control room monitor source is combined and sent to one channel while CUE is sent to the other.
- The two-band equalizer with In/Out switch, providing headset equalization without affecting any console outputs.

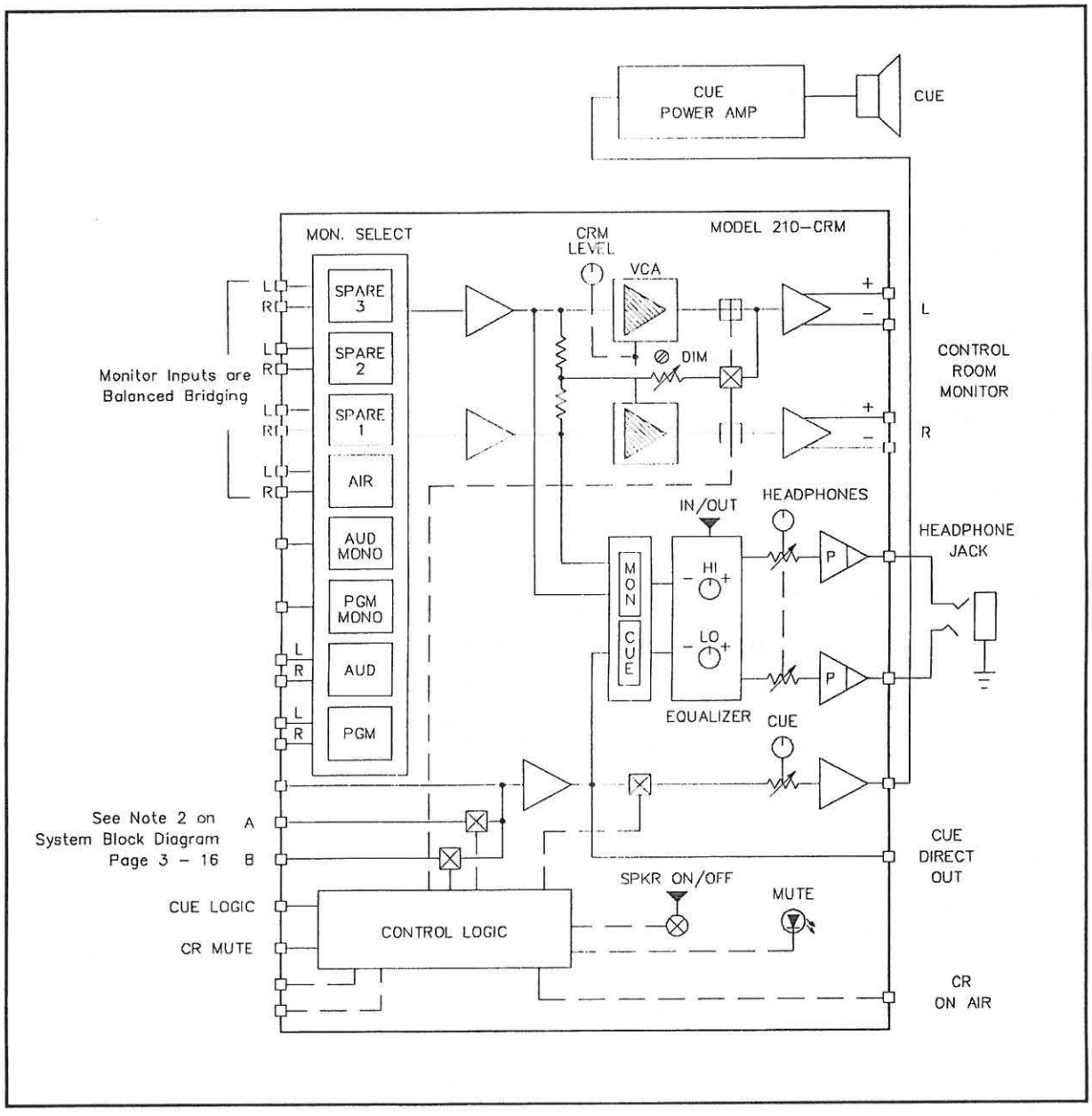


Figure 1, Control Room Monitor Module Signal Flow.

CONTROL AND PUSHBUTTON OVERVIEW

The following is a brief summary of the features and functions of the 210-Series CRM Control Room Monitor Module. This section is intended to familiarize the Service/Installation Technician with the controls, as reference to same is frequently made in the text.

1. CUE Level

The **CUE Level Control** permits the operator to set the level of his/her CUE speaker to a comfortable level.

2. Monitor Select Switch

The **Monitor Select** switch array allows the operator to choose the source for monitoring on the Control Room speakers and headphones. The first four stations are connected within the console; the remaining four stations are user-assignable. Inputs are balanced bridging and paralleled with those in the optional 210-CSM Module.

3. Speaker On/Off

The **Speaker On/Off** pushbutton may be used to manually mute the control room monitors. When muted, the adjacent LED will illuminate to indicate this state. The Control Room monitors will also mute when a microphone input module is in operation, causing the LED to illuminate.

4. Control Room Level and DIM

The **Control Room Level** is used to set the level of the Control Room monitor speakers. The gain of the control room power amplifier (not part of the 210-Series Console) should be set according to the instructions found under the heading *Audio Outputs*, later in this Chapter. Directly below and to the right of the Level Control is the recessed **DIM Control**. This reduces the level of the monitor signal (user preference) when the CUE function is in use.

5. Headphone EQ

The **Headphone Equallzer** section consists of three user controls: "HI" EQ, "LOW" EQ, and EQ Enable. The HI and LOW EQ controls are essentially Bass and Treble controls and the EQ Enable is used to activate the controls. When EQ Enable is in the OUT position, the frequency response in the headphones is flat. The equalization in the headphones will not affect any of the console outputs.

6. Headphone Source Select

Two **Headphone Source Select** switches are located in the headphone section of the 210-CRM Module. Depressing the pushbutton labeled "CR MON" will send the Control Room monitor source to the headphones. Depressing the pushbutton labeled CUE will send the CUE source to the headphones. When both pushbuttons are depressed simultaneously, the control room monitor source is combined and sent to one earphone and the CUE is sent to the other.

7. Headphone Level

The **Headphone Level** control, located at the very bottom of the module, is used to set the level of the headphones. The headphone amplifier circuitry is located on the main board of the CRM Module and serves both headphone outputs.

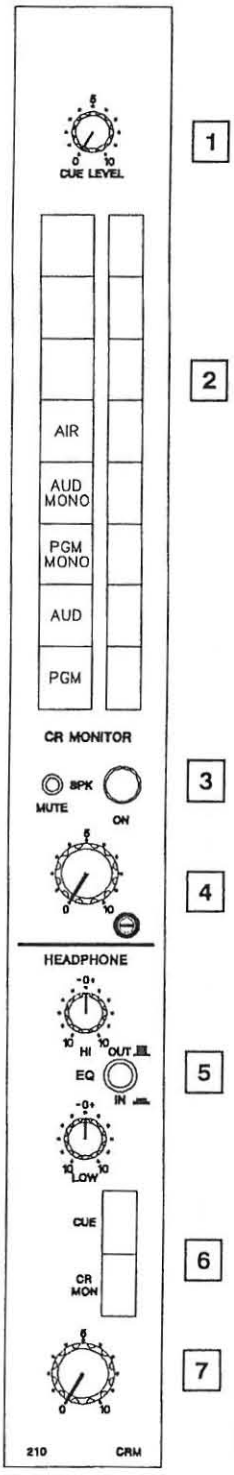


Figure 2, 210-CRM Module Front Panel.

AUDIO AND LOGIC SIGNALS

Audio Signals

The 210-CRM Module allows the monitoring of the main console outputs which may be connected directly to the CRM Module's motherboard connectors and selected on the CRM Module itself. These signals appear on the module/motherboard assembly, in the 15-pin MR connectors labeled "A" and "B" in the module position in which the CRM Module is fitted. See the *Console Connector Location* diagram at the end of Chapter 3 for location of these connectors. The pin assignments follow:

Audio Inputs

There are four stereo inputs on the 210-CRM Module that may be accessed by the user for purposes of monitoring: AUX 1, AUX 2, AUX 3, and AIR. The AIR inputs are typically used for a radio receiver for the purpose of monitoring the actual broadcast. The AUX inputs may be used for any signal that may require monitoring. Signals brought in on these connectors can not, however, be broadcast.

"A" Connector

13. Shield	14. Aux 1 Input Left (–)	15. Aux 1 Input Left (+)
10. Shield	11. Aux 2 Input Right (–)	12. Aux 2 Input Right (+)
7. Shield	8. Aux 2 Input Left (–)	9. Aux 2 Input Left (+)
4. Shield	5. Aux 3 Input Right (–)	6. Aux 3 Input Right (+)
1. Shield	2. Aux 3 Input Left (–)	3. Aux 3 Input Left (+)

"B" Connector

13. -N/C-	14. Common	15. AUD Mono
10. -N/C-	11. Common	12. AUD Mono
7. Shield	8. AIR Input Right (–)	9. AIR Input Right (+)
4. Shield	5. AIR Input Left (–)	6. AIR Input Left (+)
1. Shield	2. Aux 1 Input Right (–)	3. Aux 1 Input Right (+)

Audio Outputs

The audio outputs to the power amplifiers for the Control Room monitor loudspeakers are found on Connector 'D'. The pin assignments follow:

The Control Room Monitor outputs of the 210-CRM are actively balanced, with a maximum output of +24 dBm. Actively balanced outputs provide the utmost in signal quality, but require special considerations before connections. **Be sure to read the** *Introduction* under *Audio Interconnection* on *Page 3 - 10* of before connecting the 210-CRM outputs. See also *Power Amplifier Interconnection* on *Page 3 - 12*. Speakers should be connected to amplifiers as per amplifier instructions.

"D" Connector

13. Shield	14. Left Headphone Output	15. Right Headphone Output
10. Shield	11. Out to CUE Amp (common)	12. Out to CUE Amp (+)
7. Common	8. Common	9. CUE Direct Output
4. Shield	5. Right CRM Output (–)	6. Right CRM Monitor Output (+)
1. Shield	2. Left CRM Output (–)	3. Left CRM Monitor Output (+)

NOTE: Each row of three pins, 1 - 3, 4 - 6, etc., contains a shield or common. A given shield pin is intended for use with the other two pins in that row. The shield on Pin 1, for example, is intended for use with the signals on Pins 2 and 3; The shield on Pin 4 is intended for use with the signals on Pins 5 and 6, etc.

Logic Signals

"F" Connector

13. Common	14. Studio B Listen Logic	15. Studio B Listen Logic
10. Common	11. Studio A Listen Logic	12. Studio A Listen Logic
7. Common	8. Studio B On-Air Logic	9. Studio B On-Air Logic
4. Common	5. Studio A On-Air Logic	6. Studio A On-Air Logic
1. Common	2. CRM On-Air Logic	3. CRM On-Air Logic

FIELD OPTIONS

DIM Trim

The only real field adjustment on this module is the DIM Trim, located on the front panel. The recessed control is located below and to the right of the Control Room Level control.

When the CUE pushbutton is pressed on an input module, the DIM function is activated. The stereo source material in the Control Room monitors will be summed and sent to the left monitor while the CUE signal is heard through the console-mounted CUE speaker.

The summed signal may be set to a desirable level. By its nature, the recessed control reduces the chances of accidental readjustment.

No test equipment is required for this adjustment.

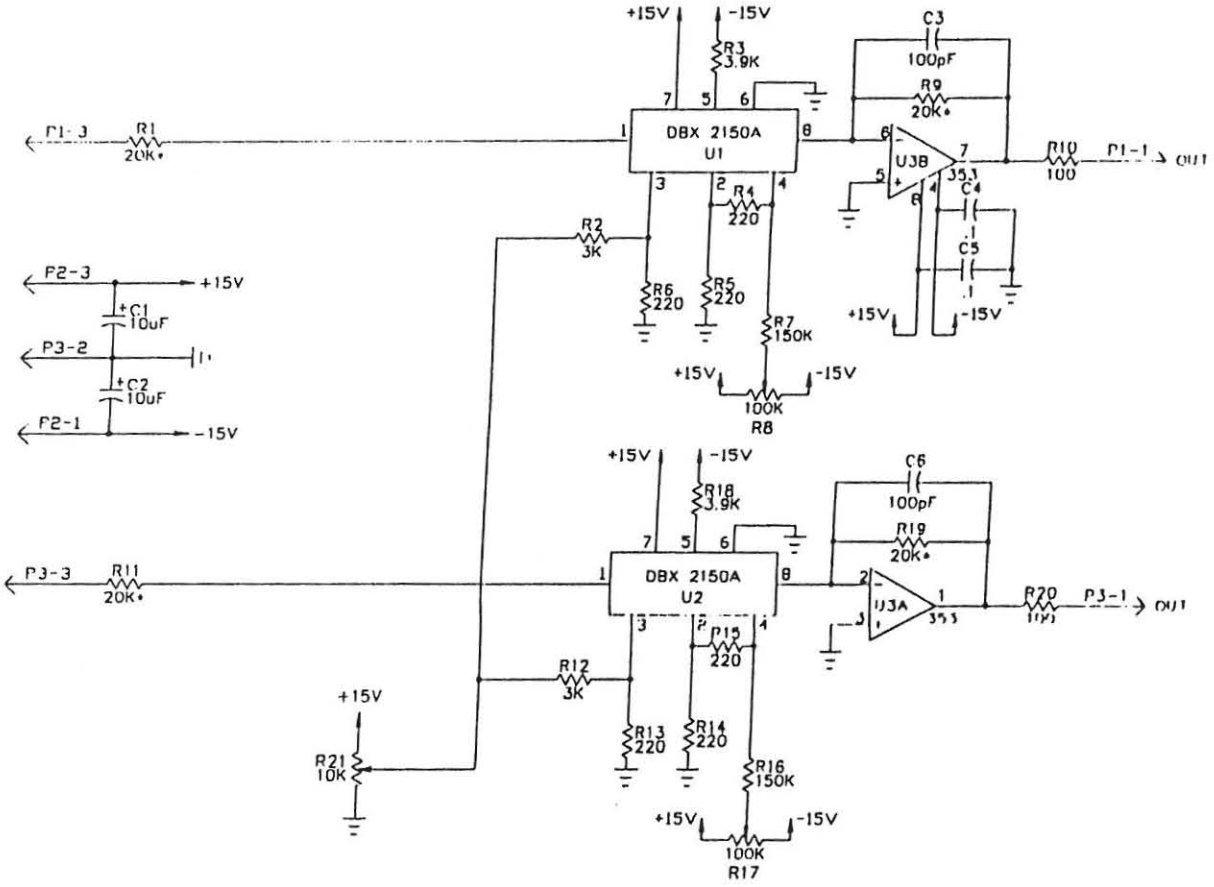
Alignment Procedure

Feed a stereo signal into a chosen SLI or SLB Module. It is suggested that normal program material (music or speech) be used rather than a tone. This will give the user a more accurate situation in which to set the DIM level. Test tones will work, but may not give as accurate an impression.

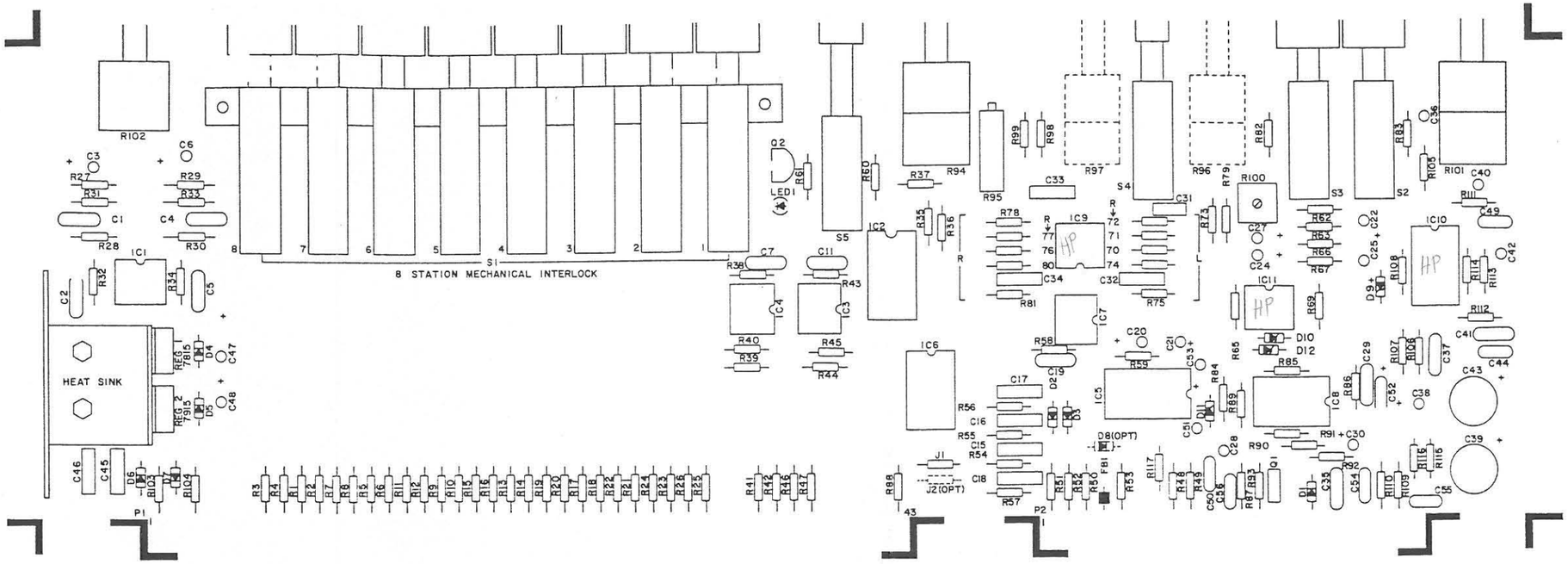
Feed another signal into a second input module. This, too, should be normal program material.

As the signal from the first module is heard in the Control Room Monitor speakers, press the CUE pushbutton on the second input module. If the module is configured such that the fader overpress activates the CUE function, this may be done instead of using the pushbutton. The program material should now be summed and heard in the left monitor only.

With a small-blade screwdriver, adjust the recessed DIM Level Control until the signal in the monitor speaker is at the desired level in relation to that in the CUE speaker. **NOTE:** The CUE level may be set with the rotary control at the top of the CRM Module.



NONE	AUDITRONICS
210VCA3	
DJE	SCHEMATIC
DJE	200/210-CRM VCA
DJE	
1/11/93	1 OF 1 — 88A00805



SCALE: NONE	auditronics, inc. MEMPHIS, TENNESSEE, U.S.A.
DRAWN:	
ENGINEER:	LOCATION ART
APPROVED:	210-CRM CONTROL ROOM
DATE: 12/6/90	MONITOR MODULE
PAGE: 1 OF 1	

NOTE:
1. UNLESS OTHERWISE SPECIFIED:
RESISTANCE VALUES ARE IN OHMS.
CAPACITANCE VALUES ARE IN MICROFARADS.

S1 8 STATION MECH. INTERLOCK — PGM, AUD, MONO, AIR, AUX 1, AUX 2, AUX 3, AUX 4 — LEFTS, RIGHTS

PGM, AUD, MONO, AIR, AUX 1, AUX 2, AUX 3, AUX 4

R1–R20 = 3.92K, 1%
R21–R26 = 10Ω

CUE AUDIO FROM BUS — FB1
STUDIO 1 FROM STUDIO MIC — STUDIO 2 — CUE LOGIC BUS — STUDIO 1 TALK LOGIC — STUDIO 2 — C.R. MUTE BUS — TO CSM T.B. — ON AIR

IC1A 353 — IC1B 353 — IC2A 4053 — IC2B 4053 — IC2C 4053 — IC3A 5532 — IC3B 5532 — IC4A 5532 — IC4B 5532

FRONT PANEL — DIM TRIM MON — LO EQ — HI EQ — S4 EQ. IN/OUT — IC8A 377 — IC8B 377

S3 CUE — S2 CRM — CUE LEVEL — R100 10K CUE TRIM — S5 SPKR ON — J1 0 OHM — J2 (OPT.)

IC5A 4053 — IC5B 4053 — IC5C 4053 — IC6A 4001 — IC6C 4001 — IC7B 353 — IC8B 4001

Q1 MJE802 — Q2 2N3566 — LED 1

IC9A 353 — IC9B 353 — IC10A 377 — IC10B 377 — IC11A 353 — IC11B 353

REG 1 7815 — REG 2 7915

H.P. LEVEL — HEADPHONE OUT

CRM MON — LEFT OUT — RIGHT OUT — CUE DIRECT OUT — CUE SPEAKER — COMMON

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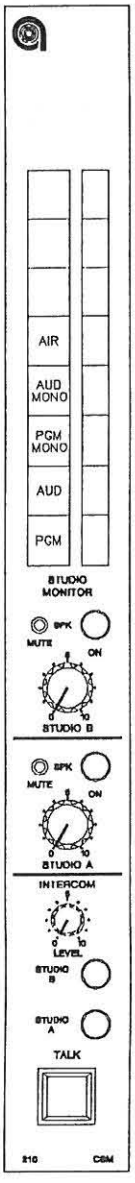
DATE	12/6/90
PAGE	1 OF 1

auditronics, inc.
MEMPHIS, TENNESSEE, U.S.A.

SCHEMATIC DIAGRAM
210-CRM CONTROL ROOM
MONITOR MODULE

Chapter 7

210-Series Communications/Studio Monitor Module - 210-CSM



INTRODUCTION

The 210-CSM Communications and Studio Monitor is a stereo module for two studios which provides all facilities for studio monitor source selection, level control, and studio speaker muting. Intercom facilities for both studios are also located on this module. Among the features of the 210-CSM Module are:

- Eight monitor sources available via pushbutton selection. These are Program output (PGM), Audition output (AUD), Mono Program (MONO PGM), Mono Audition (MONO AUD), AIR (an off-air feed), and 3 user-definable inputs. These last three inputs are balanced, bridging, and transformerless.
- A Speaker On/Off switch, with a Speaker-On LED, for each studio to permit the operator to manually mute the monitor when desired. The associated monitor will also automatically mute during a user-designated "Live Mic" situation in the studio. The mute LED will illuminate indicating this situation.
- An independent level control for speaker volume adjustment in each studio.
- An intercom to both studios which incorporates logic to allow a user-designated control room microphone to talk to either studio. Provision is also made for a user-designated studio microphone, one from each studio, to talk into the console CUE system. Auditronics recommends use of the companion 210-SRC Studio Remote Control panel for this function (see *Chapter 13* for details).

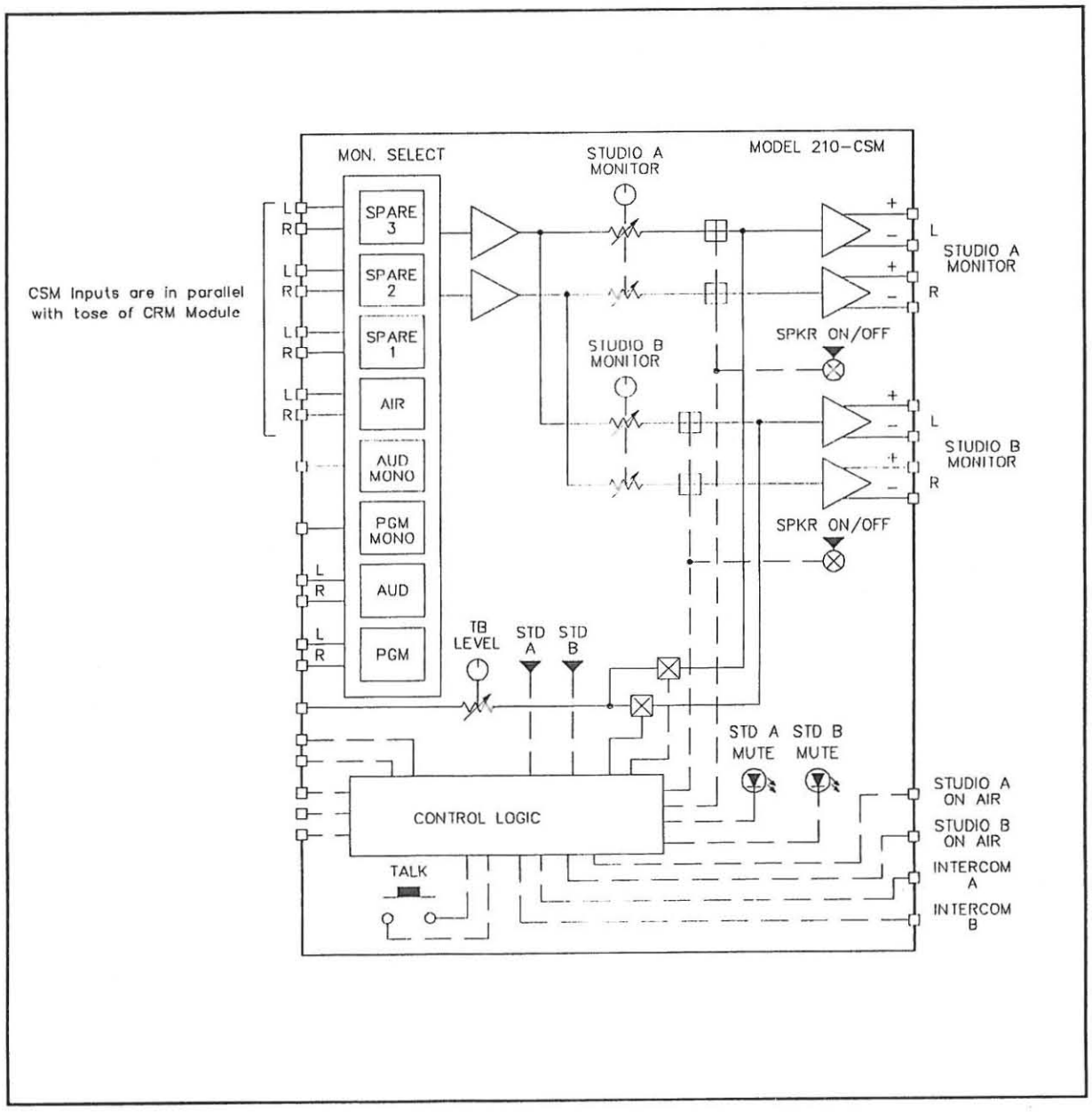


Figure 1, Communication/Studio Monitor Module Signal Flow

CONTROL AND PUSHBUTTON OVERVIEW

The following is a brief summary of the features and functions of the 210-Series CSM Communications/Studio Monitor Module. This section is intended to familiarize the Service/Installation Technician with the controls of this module, as reference to these controls is frequently made in the text.

1. Monitor Selector Switch

The **Monitor Select** switch array allows the operator to choose the source for monitoring on the Studio monitor speakers. The first four stations are connected within the console; the remaining four stations are user-assignable. Inputs are balanced, bridging and transformer-less.

2. Studio B Select

The **Studio B** section of this module contains a rotary potentiometer, an "ON" pushbutton, and an LED. The rotary potentiometer determines the level of the signal sent to the Studio B monitor speakers, the "ON" pushbutton, when depressed, turns the Studio B monitor speakers ON, and the LED, when illuminated, indicated the Muted status of the Studio B monitor speakers.

3. Studio A Select

The **Studio A** section of this module contains a rotary potentiometer, an "ON" pushbutton, and an LED. The rotary potentiometer determines the level of the signal sent to the Studio A monitor speakers, the "ON" pushbutton, when depressed, turns the Studio A monitor speakers ON, and the LED, when illuminated, indicated the Muted status of the Studio A monitor speakers.

4. "Intercom" Rotary Potentiometer

When the talent in either studio is speaking to the Control Room via the intercom function, they will be heard on the CUE speaker in the console. The **Intercom** rotary potentiometer is used to set the level of the intercom signal in the studio monitor speakers.

5. Talk/Studio A/Studio B

The **Talk** pushbutton, when pressed, mutes the Control Room monitors and sends a signal from the user-designated Control Room microphone to either Studio A or Studio B. The **Studio A/Studio B** pushbuttons are used to determine which studio receives the intercom signal from the Control Room. In this situation, the Talk signal replaces the signal in the studio monitor speakers.

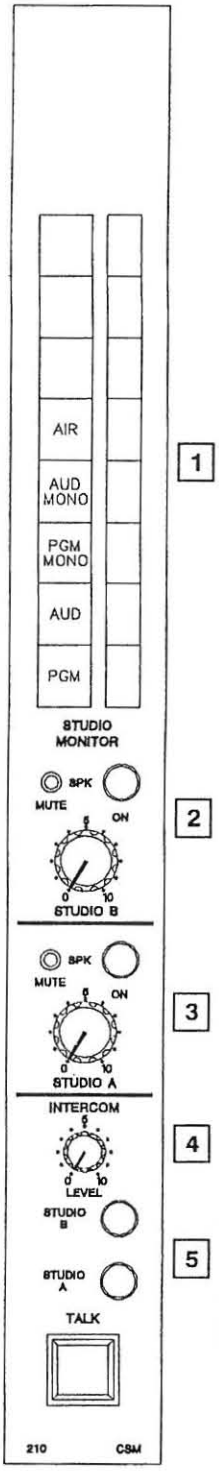


Figure 2, 210-CSM Module Front Panel.

AUDIO AND LOGIC SIGNALS

Audio Signals

The 210-CSM Module allows the monitoring of the main console outputs which may be connected directly to the CSM Module's motherboard connectors and selected on the CSM Module itself. These signals appear on the module/motherboard assembly, in the 15-pin MR connector labeled "E" in the module position in which the CSM Module is fitted. See the *Console Connector Location* diagram at the end of Chapter 3 for location of these connectors. The pin assignments follow:

Audio Inputs

All inputs to the 210-CSM Module come internally from the 210-CRM Control Room Monitor Module. In other words, any signals running to the audio inputs of the CRM Module, will also show up in the CSM Module. For this reason, Connectors "A" through "D" are non-existent for the CSM Module. See *Connectors "A" and "B"* under *Audio and Logic Signals* in *Chapter 6* for pin assignments.

Audio Outputs

The audio outputs to the power amplifiers for the Studio A and B monitor loudspeakers are found on Connector 'E'. The pin assignments follow:

The Studio Monitor outputs of the 210-CSM are actively balanced, with a maximum output of +24 dBm. Actively balanced outputs provide the utmost in signal quality, but require special considerations before connections. **Be sure to read the** *Introduction* under *Audio Interconnection* on *Page 3 - 10* of before connecting the 210-CSM outputs. See also *Power Amplifier Interconnection* on *Page 3 - 12*. Speakers should be connected to amplifiers as per amplifier instructions.

"E" Connector

13. Studio A Right Output Shield	14. Studio A Right Output (–)	15. Studio A Right Output (+)
10. Studio A Left Output Shield	11. Studio A Left Output (–)	12. Studio A Left Output (+)
7. Common	8. Common	9. Common
4. Studio B Right Output Shield	5. Studio B Right Output (–)	6. Studio B Right Output (+)
1. Studio B Left Output Shield	2. Studio B Left Output (–)	3. Studio B Left Output (+)

NOTE: Each row of three pins, 1 - 3, 4 - 6, etc., contains a shield or common. A given shield pin is intended for use with the other two pins in that row. The shield on Pin 1, for example, is intended for use with the signals on Pins 2 and 3; The shield on Pin 4 is intended for use with the signals on Pins 5 and 6, etc.

Logic Signals

"F" Connector

13. Common	14. Studio B Listen Logic	15. Studio B Listen Logic
10. Common	11. Studio A Listen Logic	12. Studio A Listen Logic
7. Common	8. Studio B On-Air Logic	9. Studio B On-Air Logic
4. Common	5. Studio A On-Air Logic	6. Studio A On-Air Logic
1. Common	2. CRM On-Air Logic	3. CRM On-Air Logic

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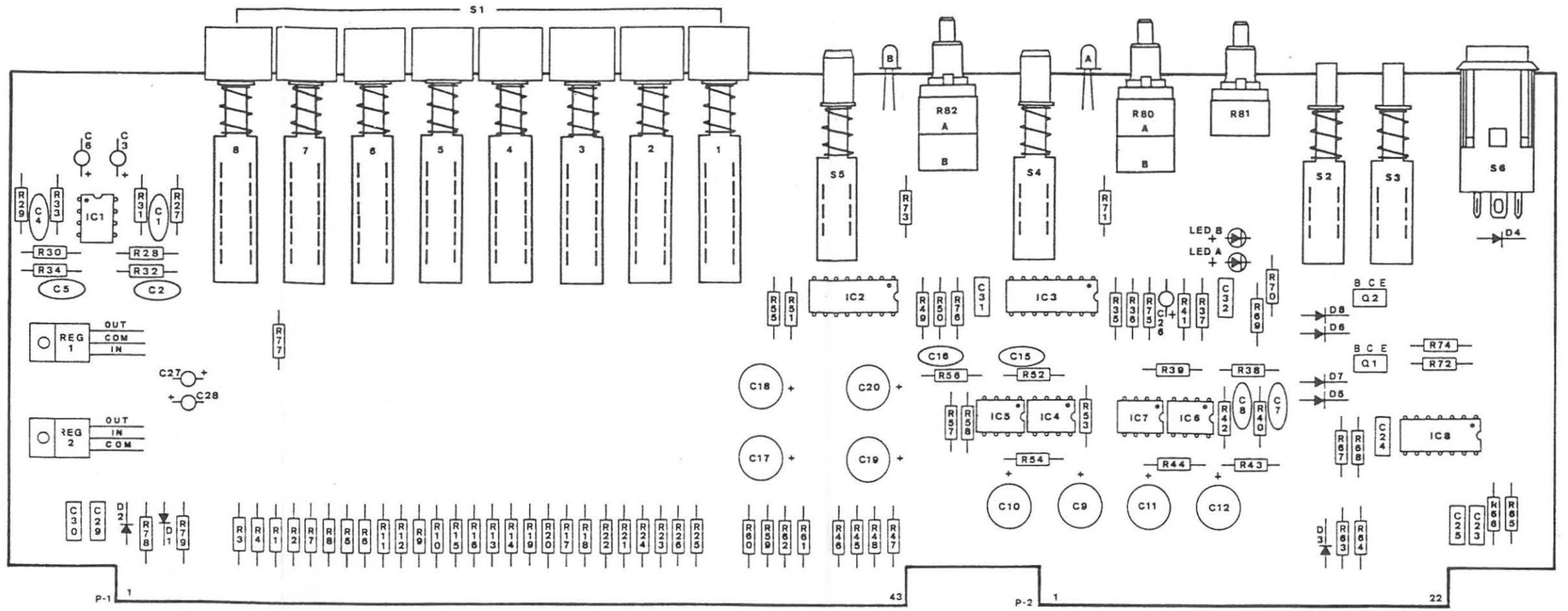

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DRAWN:	
ENGINEER:	LOCATION ART
APPROVED:	210-CSM CONNUMICATION/ STUDIO MONITOR MODULE
DATE: 12/6/90	PAGE: 1 OF 1

NOTE:
L UNLESS OTHERWISE SPECIFIED:
RESISTANCE VALUES ARE IN OHMS.
CAPACITANCE VALUES ARE IN MICROFARADS.

S1
8 STATION
MECH. INTERLOCK

PGM AUD MONO AIR AUX 1 AUX 2 AUX 3 AUX 4

LEFTS

RIGHTS

PGM
AUD
MONO
AIR
AUX 1
AUX 2
AUX 3
AUX 4

* R1–R20 = 3.92K, 1%
** R21–R26 = 10Ω

FRONT PANEL
DIM TRIM
MON

S4
EQ. IN/OUT

S3
CUE

S2
CRM

CUE TRIM

CUE LEVEL

S5
SPKR ON

LO EQ
HI EQ

H.P. LEVEL

CRM MON

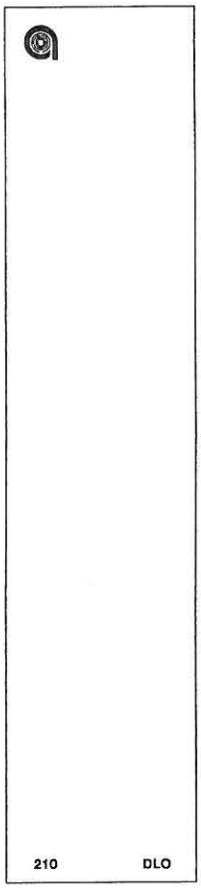
HEADPHONE OUT

CUE AUDIO FROM BUS
FROM STUDIO MIC
STUDIO 1
STUDIO 2
CUE LOGIC BUS
TALK LOGIC
C.R. MUTE BUS
TO CSM T.B.
ON AIR
CUE DIRECT OUT
CUE SPEAKER
COMMON

SCALE: NONE	auditronics, inc. MEMPHIS, TENNESSEE, U.S.A.
DRAWN:	
ENGINEER:	SCHEMATIC DIAGRAM 210-CRM CONTROL ROOM MONITOR MODULE
APPROVED:	
DATE: 12/6/90	PAGE 1 OF 1

Chapter 8

210-Series Dual Line Output Module- 210-DLO



INTRODUCTION

The 210-DLO Module is designed to sum and provide line-level outputs for stereo and mono assignments.

Three such modules are standard in the 210-Series Consoles; one for the main stereo Program signal, one for the stereo Audition signal and one for the PGM Mono and AUD Mono signals. Each are essentially stereo line amplifiers with internal level adjustment and capable of producing a +24dBm output level.

This chapter will differ somewhat in style from the previous module chapters in that there is no real user contact once the proper interconnections have been made. Interconnection information may be found in *Chapter 3, System Installation* under *Main Output Interconnection* in the *Audio Interconnection* section on *Page 3 - 13.*

This chapter contains a signal flow diagram, location art diagram and an *Alignment Procedures* section.

As there are no controls on the front panel of this Module, a *Control and Pushbutton Overview* will not be necessary in this chapter.

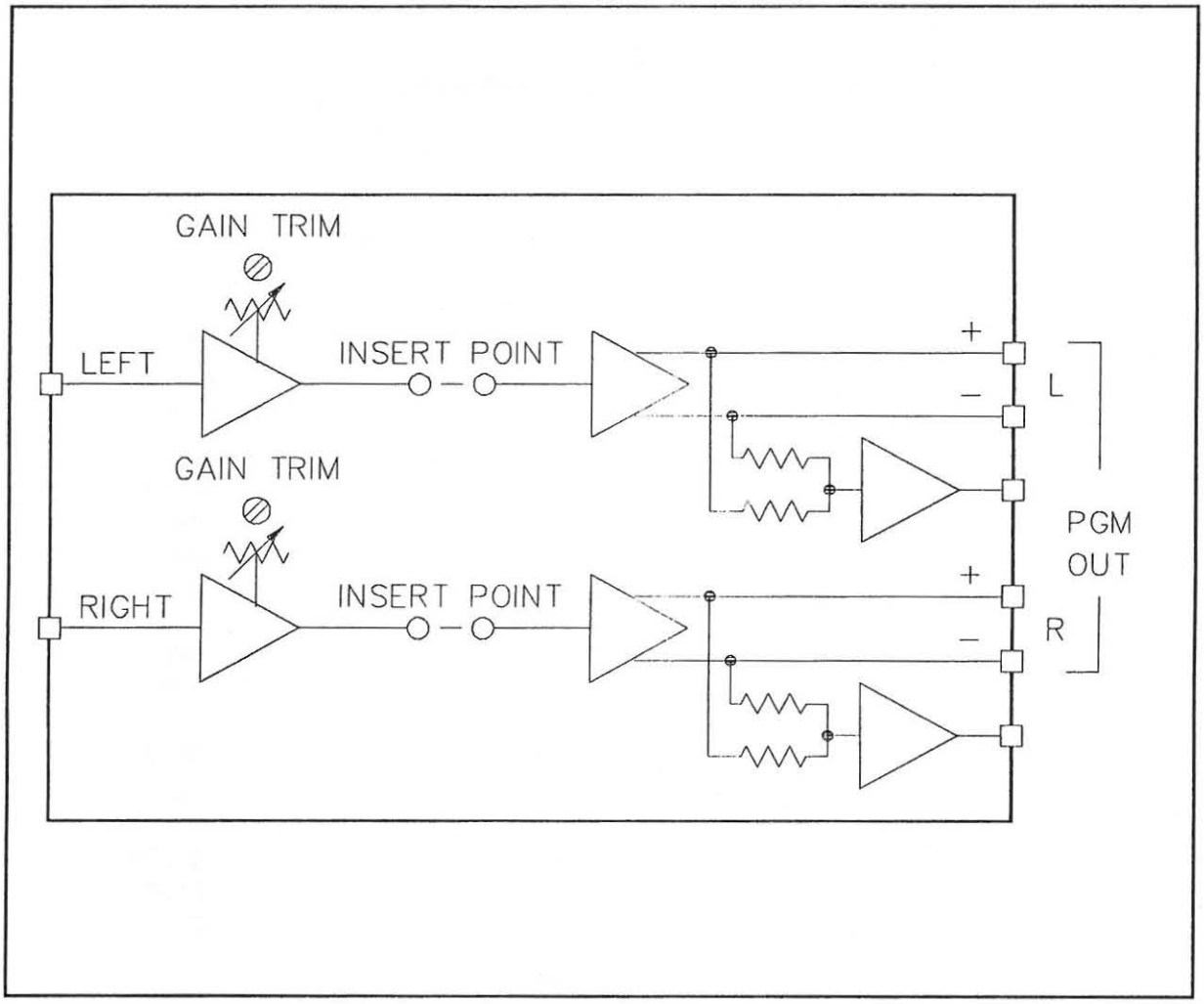


Figure 1, 210-DLO Dual Line Output Module Signal Flow.

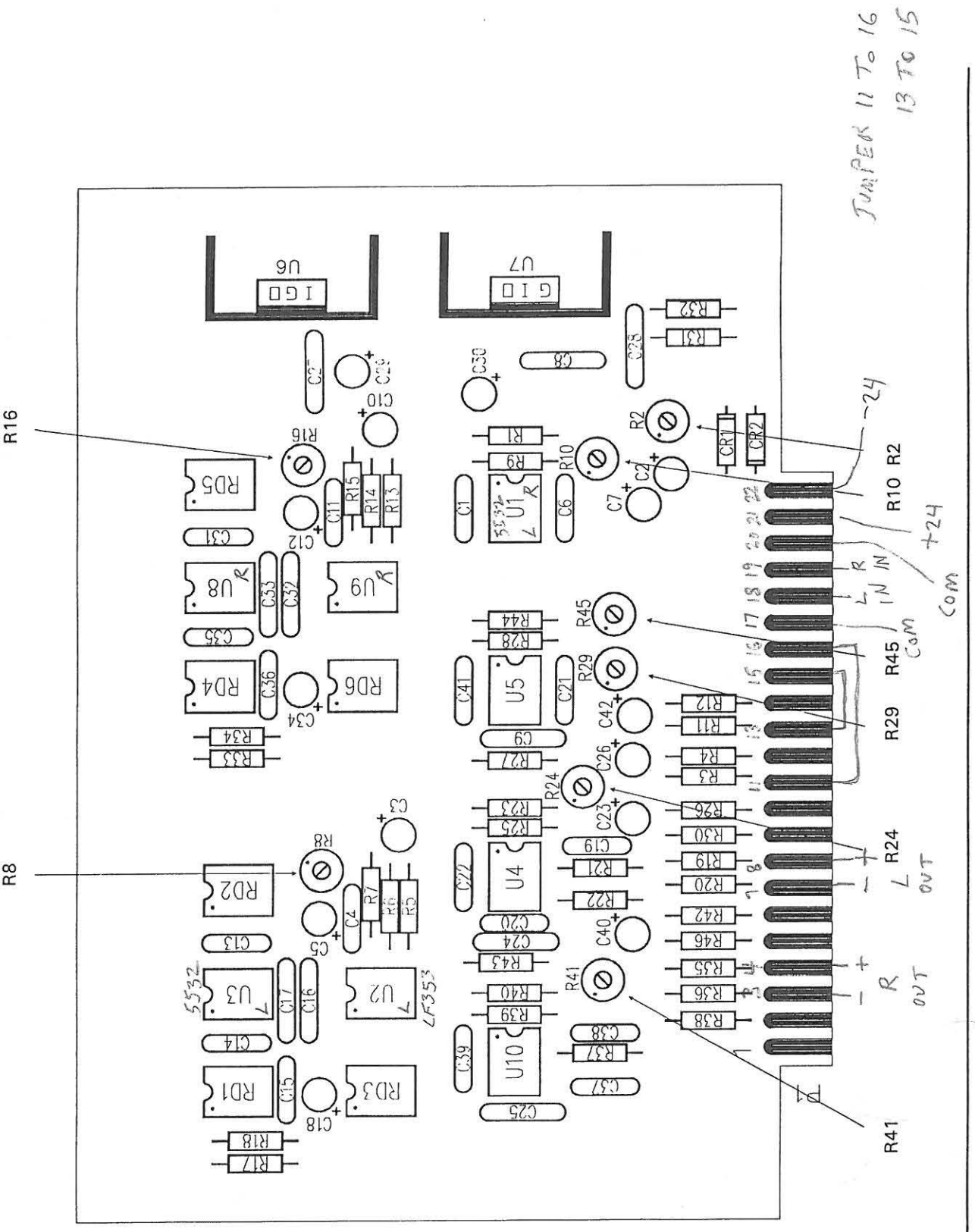


Figure 2, 210-DLO, Dual Line Output Module Location Map.

ALIGNMENT PROCEDURES

NOTE: As this and all other adjustments are made at the factory, none should be required. If, however, any supporting circuitry is replaced, these adjustments may become necessary.

Output Level Settings

General Information

Test equipment required: Fluke Model 8020A 4-digit multimeter (or equivalent), Hewlett-Packard 204D oscillator (or equivalent), and a 210/200 E14 PC Extender Card (Part Number 90X00290).

To perform this adjustment, the module must be removed and an extender card installed. This will allow the service technician to access the trimpots without interrupting power to, and output from, the module.

Eight trimpots (R2, R8, R10, R16, R24, R29, R41, and R45) may be found in various spots on the printed circuit board (See *Figure 2*). These are the assorted level and trim adjustments.

Alignment Procedure

For all measurements, feed a +4dB stereo signal ref: 0.775VRMS at 2kHz into a selected Stereo Input (SLI or SLB) Module with the fader set at 0 (zero). Different adjustments will be measured at different points on the console.

Insert Points

The internal operating level in the 210-Series Console is 0dBu. Feed the signal as described above into a chosen Input Module and measure at both insert points for 0dBu. Adjustments may be made at R2 (left) and R10 (right).

Main Outputs

The console's main outputs are set for +8dBu at the factory. If your equipment requires a different level, the following adjustment may be made:

Meter Adjust

In the event that the meters need adjustment, first, be sure that the main outputs are set at +8dBu. Adjust the meters for 0VU. These adjustments may be made at R29 (left) and R45 (right).

Monitor Trim

This is a somewhat less than precise adjustment. Set the main level control on the CRM Module to approximately "2 o'clock". Feed the signal as described above into a chosen Input Module and measure at the outputs of the Control Room Monitor (CRM) Module for 0dBu. Adjustments may be made at R24 (left) and R41 (right).

Feed the signal as described above into a chosen Input Module and measure at the main outputs. This measurement should be made with a 600W load across the outputs and adjusted for +8dBu. Adjustments may be made at R8 (left) and R16 (right). This will necessitate a re-calibration of all of the above except the insert points.

PIN ASSIGNMENT

Three Dual Line Output Modules are included with the 210-Series Console System and are in place in the Module/Motherboard Assembly. One serves the Main Program Outputs, one serves the Audition Outputs, and one serves the Mono Outputs. The pin assignments for each DLO position follow:

PGM Assignment

The Module in the Program position handles the main output signals

"A" CONNECTOR

13. Common	14. Right PGM Mult (–)	15. Right PGM Mult (+)
10. Common	11. Left PGM Mult (–)	12. Left PGM Mult (+)
7. Common	8. Left Meter Send	9. Right Meter Send
4. Common	5. Right Dir Out	6. Right Mon Send
1. Common	2. Left Dir Out	3. Left Mon Send

"B" CONNECTOR

13. PGM Left Out Shield	14. PGM Left Out (–)	15. PGM Left Out (+)
10. PGM Left Out Shield	11. PGM Left Out (–)	12. PGM Left Out (+)
7. Ground	8. Ground	9. Ground
4. PGM Right Out Shield	5. PGM Right Out (–)	6. PGM Right Out (+)
1. PGM Right Out Shield	2. PGM Right Out (–)	3. PGM Right Out (+)

"C" CONNECTOR

13. Common	14. +24V	15. -24V
10. Common	11. Common	12. Common
7. Common	8. PGM Left Insert Point Return	9. PGM Right Insert Point Return
4. Common	5. PGM Left Insert Point Send Mult.	6. PGM Right Insert Point Send Mult.
1. Common	2. PGM Left Insert Point Send	3. PGM Right Insert Point Send

"D" CONNECTOR

13. Common	14. +24V	15. -24V
10. Common	11. +24V	12. -24V
7. Common	8. +24V	9. -24V
4. Common	5. +24V	6. -24V
1. Common	2. +24V	3. -24V

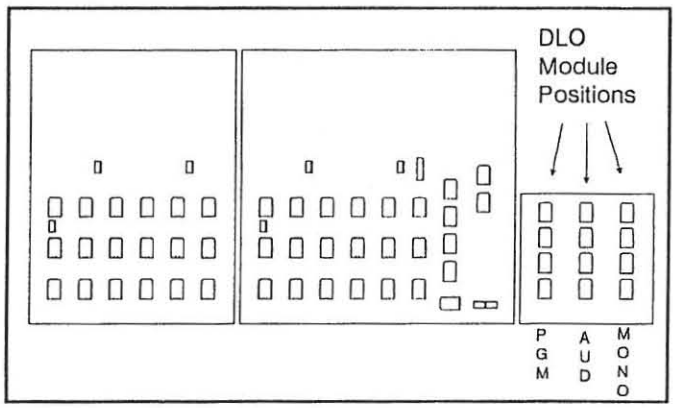


Figure 3, 210-Series Module/Motherboard Assembly.
For a detailed view of this assembly, see the *Console Connector Location Map* on *Page 3 - 15.*

Audition

"D" CONNECTOR

13. Common	14. AUD Input Right (–)	15. AUD Input Right (+)
10. Common	11. AUD Input Left (–)	12. AUD Input Left (+)
7. Common	8. Common	9. Common
4. Common	5. PGM Input Right (–)	6. PGM Input Right (+)
1. Common	2. PGM Input Left (–)	3. PGM Input Left (+)

"C" CONNECTOR

13. Common	14. +24V	15. -24V
10. Common	11. Common	12. Common
7. Common	8. AUD Left Insert Point Return	9. AUD Right Insert Point Return
4. Common	5. AUD Left Insert Point Send Mult.	6. AUD Right Insert Point Send Mult.
1. Common	2. AUD Left Insert Point Send	3. AUD Right Insert Point Send

"B" CONNECTOR

13. AUD Left Out Shield	14. AUD Left Out (–)	15. AUD Left Out (+)
10. AUD Left Out Shield	11. AUD Left Out (–)	12. AUD Left Out (+)
7. Ground	8. Ground	9. Ground
4. AUD Right Out Shield	5. AUD Right Out (–)	6. AUD Right Out (+)
1. AUD Right Out Shield	2. AUD Right Out (–)	3. AUD Right Out (+)

"A" CONNECTOR

13. Common	14. Right AUD Mult (–)	15. Right AUD Mult (+)
10. Common	11. Left AUD Mult (–)	12. Left AUD Mult (+)
7. Common	8. Left Meter Send	9. Right Meter Send
4. Common	5. Right Dir Out	6. Right Mon Send
1. Common	2. Left Dir Out	3. Left Mon Send

Mono

"D" CONNECTOR

13. Common	14. Mono AUD Input Right (–)	15. Mono AUD Input Right (+)
10. Common	11. Mono AUD Input Left (–)	12. Mono AUD Input Left (+)
7. Common	8. Common	9. Common
4. Common	5. Mono PGM Input Right (-)	6. Mono PGM Input Right (+)
1. Common	2. Mono PGM Input Left (–)	3. Mono PGM Input Left (+)

@PINHEAD = "C" CONNECTOR

13. Common	14. +24V	15. -24V
10. Common	11. Common	12. Common
7. Common	8. PGM Insert Return	9. AUD Insert Return
4. Common	5. PGM Insert Send Mult	6. AUD Insert Send Mult.
1. Common	2. PGM Insert Point Send	3. AUD Insert Point Send

"B" CONNECTOR

13. AUD (Mult) Shield	14. AUD Out (Mult) (–)	15. AUD Out (Mult) (+)
10. AUD Shield	11. AUD Out (–)	12. AUD Out (+)
7. Common	8. Common	9. Common
4. PGM (Mult) Shield	5. PGM Out (Mult) (–)	6. PGM Out (Mult) (+)
1. PGM Shield	2. PGM Out (–)	3. PGM Out (+)

"A" CONNECTOR

13. Common	14. PGM Out Mult (–)	15. PGM Out Mult (+)
10. Common	11. AUD Out Mult (–)	12. AUD Out Mult (+)
7. Common	8. AUD Meter Send	9. PGM Meter Send
4. Common	5. PGM Dir Out	6. PGM Monitor Send
1. Common	2. AUD Dir Out	3. AUD Monitor Send

C=Common = Hard GND S=Shield = .47 μF Cap to GND

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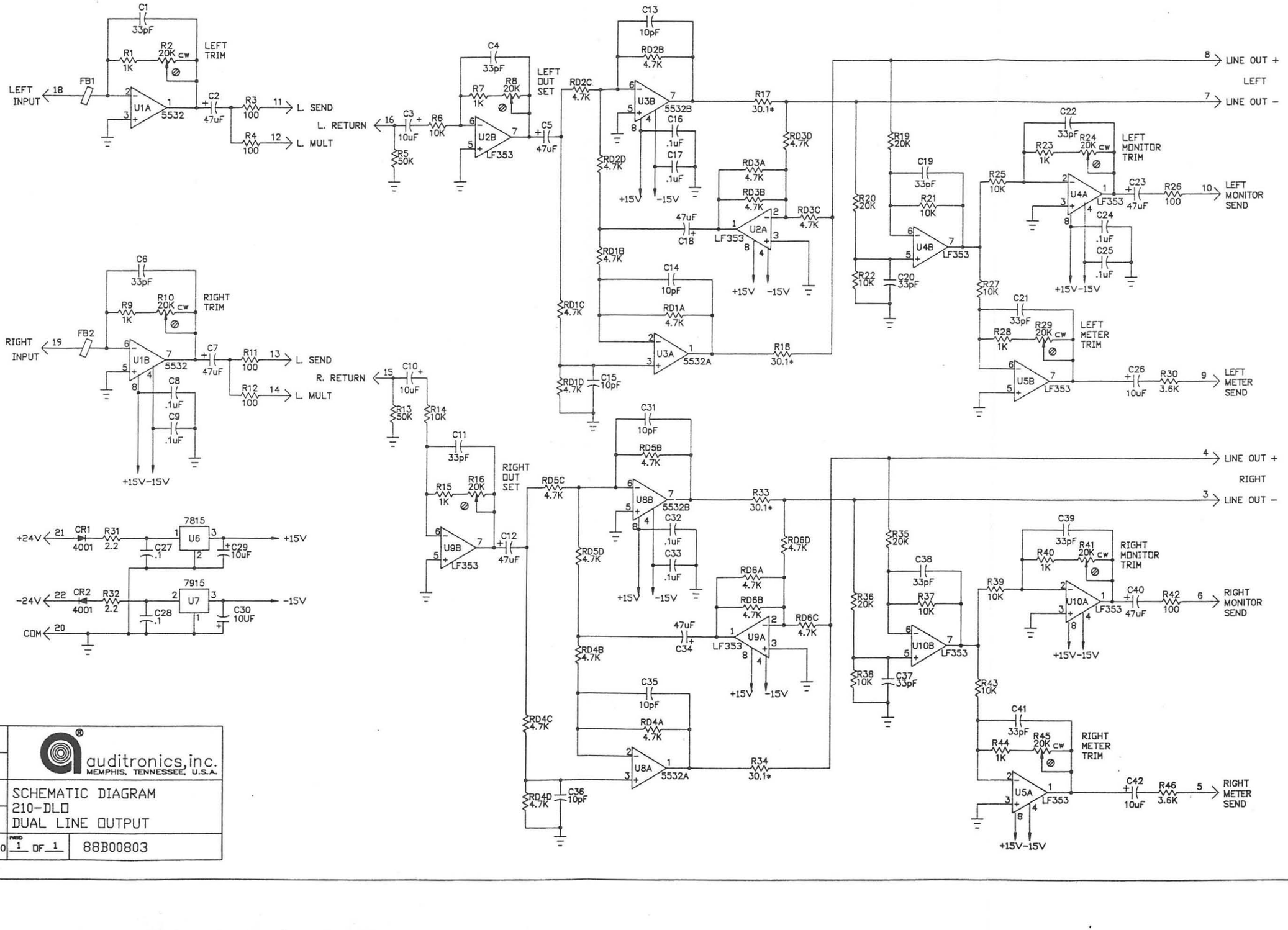
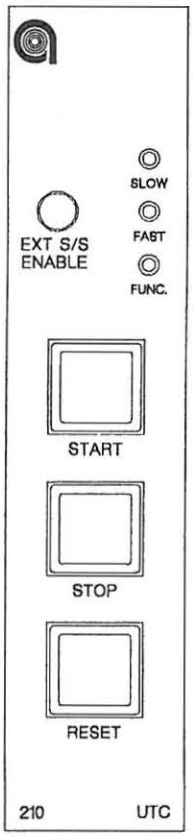


SCALE: NONE	auditronics, inc. MEMPHIS, TENNESSEE, U.S.A.
DRAWN: JFP	SCHEMATIC DIAGRAM
CHECKED: JFP	210-DLO
APPROVED:	DUAL LINE OUTPUT
DATE: 10/15/90	SHEET 1 OF 1 — 88B00803

Chapter 9

210-Series Universal Timer/Clock Module - 210-UTC



INTRODUCTION

The 210-UTC Timer/Clock feature consists of two displays located at the left of the meterbridge and a control module located in the optional module section, on the left or right side of the console (user-defined). The lower window contains the timer, reading in hours, minutes, seconds, and hundredths of seconds; the upper window contains the time-of-day clock, reading in hours (12- or 24-hour format), minutes, and seconds.

There are seven user controls on the 210-UTC Module: The single pushbutton labeled "EXT S/S ENABLE" causes the start and stop functions to operate with any appropriately-configured Input or TEL Module (see Field Options in any Input or TEL Module Chapter). The three pushbuttons labeled, "START", "STOP", and "RESET" are mainly related to the timer, while the other three recessed pushbuttons are primarily for the clock. These pushbuttons, in varying combinations, are used to set operating parameters and modes of both the clock and the timer, and to start, stop, and reset the timer.

OPERATION

Setting the Clock

To set the clock, a small, blunt-tipped instrument is required (a mechanical pencil with the lead retracted, the blade end of a small screwdriver, the wooden end of a single-ended tape head-cleaning swab, etc.). **NOTE:** The timer must be off and cleared in order for settings to be made. If this is not done, the module will simply not respond. After clearing the timer, insert the aforementioned blunt object into the bottom of the three recessed switches (Function Select). Notice that the timer window will now display the choices. Each press of the Function Select will cause the display to scroll through its functions. In order: YEAR, MONTH, DATE, DAY, HOUR, MINUTE, BRIGHT, and START?. On each function, the recessed pushbutton labelled "Slow" cycles in increments of 1, affecting the right character. The pushbutton labelled "Fast" cycles in increments if 10 , affecting the left character (year, month, hours, and minutes are all affected this way). For our example, we will begin by setting the year to 1991. Press the Function Select until the lower window reads "YEAR XX" (XX indicating the last two digits of the year (91) in numbers). Press the "SLOW" pushbutton until the right character reads "1". Now, press the "FAST" pushbutton until the left character reads "9". Of course, setting the slow and fast functions may be reversed.

Continue this process with the subsequent settings. Notice that the "FAST" setting will have no effect on the Day function. In addition, both the "FAST" and "SLOW" pushbuttons will step through the brightness settings from brightest to dimmest.

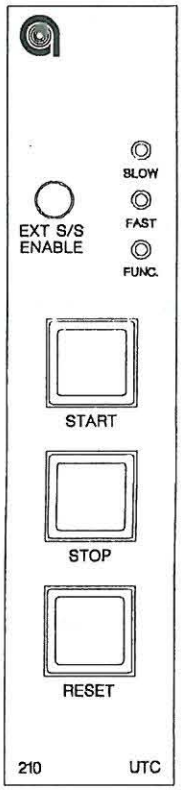


Figure 1, 210-UTC Operation Module.

Setting the Time

There are a few details involved in setting the time on the 210-UTC Module. First, the brightness setting follows the minute setting, so it may be advisable to set the brightness and then scroll through to the minutes, making this the last one to be set.

To set the time, follow the above procedure. If the minutes are to be set to the precise second, set the hours first, then set the 'minutes' display to one minute past the present time. The readout in the clock window will continue to run, but when "RESET" is pressed, the seconds will return to zero. When the present time arrives at zero seconds, press the "RESET" pushbutton and the clock will go to the correct time..

When setting the clock, the left window (where choices are made) will read in a 24-hour (military) time format. The right window will read in the format for which the Dipswitch is set (see *12- or 24-Hour Operation*, later in this chapter).

NOTE: If power is interrupted to this module, the time and date will be saved, however, the year will not.

Operating the Timer

The three pushbuttons toward the bottom of the module, labeled "START", "STOP", and "RESET", are for operation of the timer. This timer operates much like any digital stopwatch. Upon power-up of the console, the timer will read "0:00: ". Pressing the "START" pushbutton will cause the timer to begin running forward. It will continue to do so until one of the other pushbuttons is pressed. The timer reads in minutes, seconds, and hundredths of seconds, and runs up to 9:59:59 and will then reset to "0:00" and continue unless otherwise interrupted.

When the timer is not in use, the current day and date will display alternately in the timer window.

- Pressing the "STOP" pushbutton will stop the timer, holding the current time in the display. If the "START" pushbutton is pressed, the timer will continue counting forward from where it was stopped.
- If "RESET" is pressed while the timer is running, the display will clear to "0:00" and stop.
- If the "START" pushbutton is pressed while the timer is running, the display will clear to "0:00" and continue running from there.
- If the "STOP" pushbutton is pressed and the "RESET" pushbutton is pressed while stopped, the display will clear to "0:00" and remain stopped.

- The External Start/Stop Enable pushbutton, when depressed, will allow the Timer to function when Input Modules are used. For example, if a given Input Module is configured to activate the timer (either by pressing the "ON" pushbutton or moving the fader, see Field Options for the desired Input or TEL Module) the timer will start. If, while running, a second fader is moved up from ∞, the display will clear to "0:00" and continue running from there, exactly the same as if the Timer Module's START pushbutton is pressed while the timer is running (this can be avoided by disabling the EXT S/S function immediately after the initial module is turned on). If several properly-configured modules are ON at a given time and one is turned OFF, the timer will stop (this can be avoided by disabling the EXT S/S function until the last module is turned OFF). In essence, the Start/Stop functions and results are duplicated by the ON/OFF selection of the modules when the EXT S/S function is enabled.

12- or 24-Hour Operation

There is a 2-position Dipswitch located on the circuit board of the 210-UTC module. It is positioned such that it is accessible from the underside of the console and may be set without removing the module.

First, open the console's belly panel. This panel is held shut with 4 to 6 turn latches, depending upon frame size, located near the front of the underside of the console. Rotating these latches 90° will release the door and it may be carefully dropped open, allowing access.

Locate the Dipswitch, DS1. This Dipswitch has two rocker switches, numbered 1 and 2. This operation involves Switch #2 *only*. In the open position, as set at the factory, the clock section will read in the 12-hour format. If Switch 2 is closed, the clock will read in the 24-hour (military time) format.

NOTE: As the UTC is a Universal Timer Clock Module, it may be used in a number of Auditronics consoles. Switch #1 is used to set the UTC for the particular console in which it is installed. It is properly set for the 210-Series console and should not be changed.

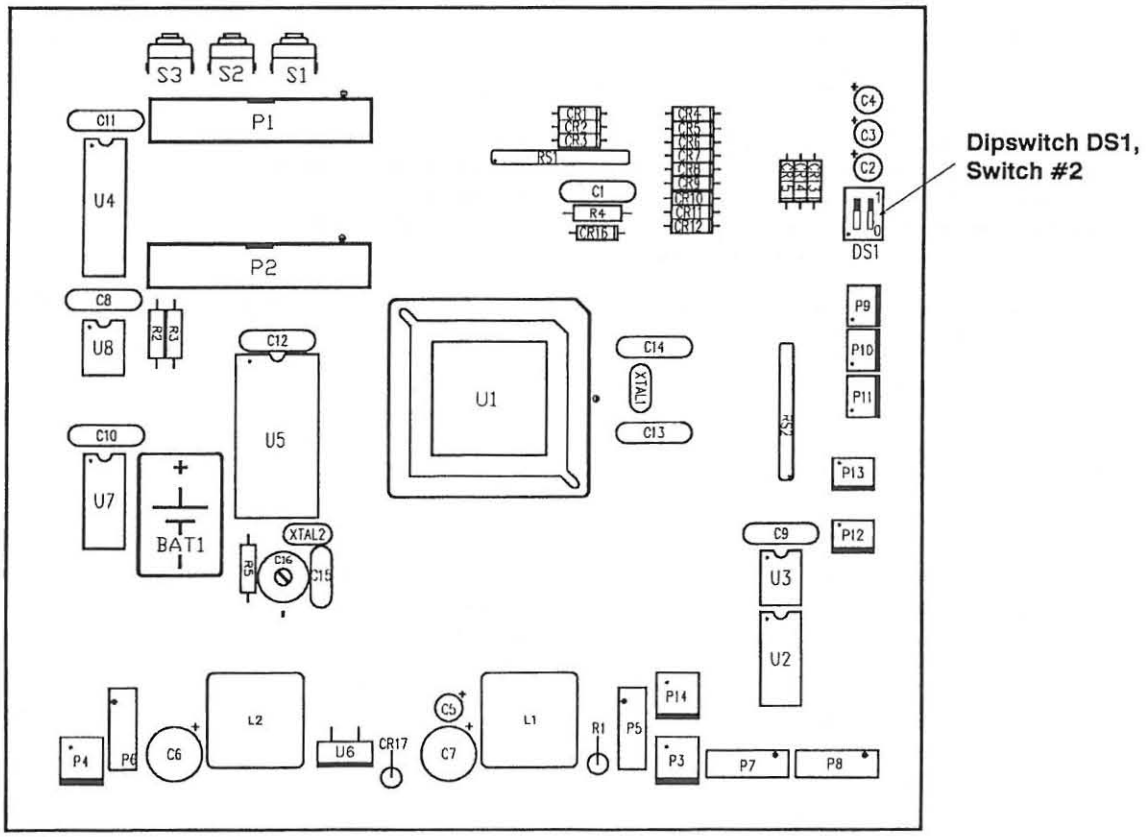
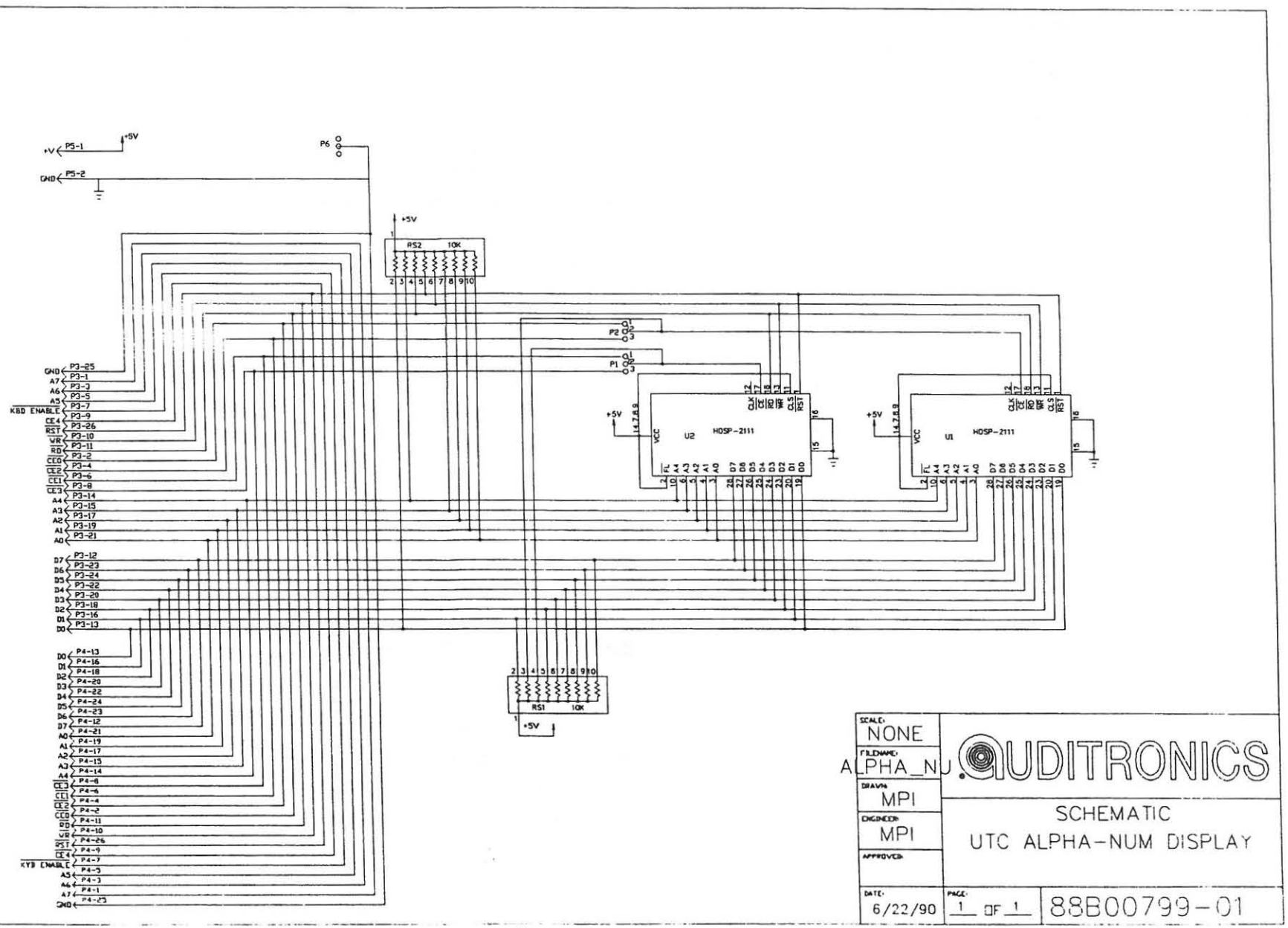
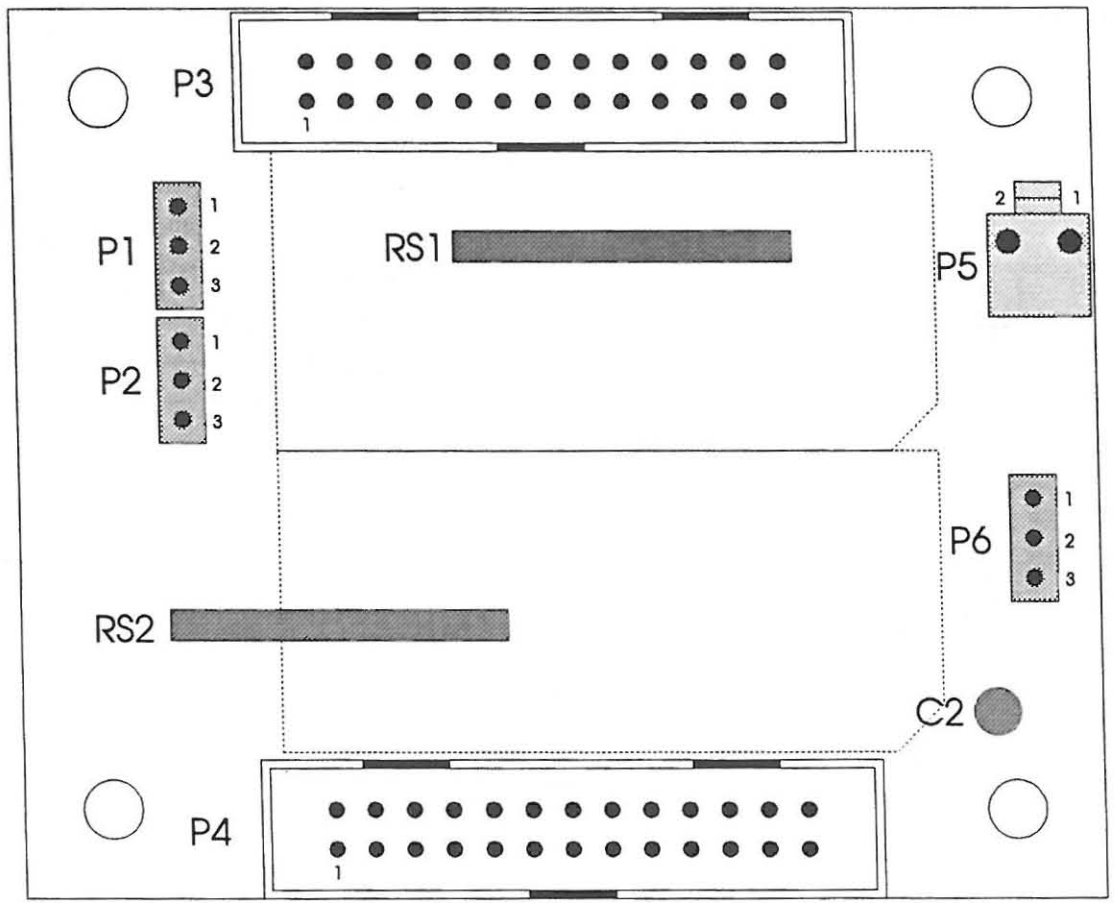


Figure 2, 210-UTC Module Component Location Diagram.


+V P5-1
GND P5-2
P6
+5V
RS2 10K
P2
P1
U2 HOSP-2111
U1 HOSP-2111
VCC
KBD ENABLE
KYB ENABLE
RS1 10K
SCALE: NONE
FILENAME: ALPHA_NU
DRAWN: MPI
ENGINEER: MPI
APPROVED:
DATE: 6/22/90
PAGE: 1 OF 1
AUDITRONICS
SCHEMATIC
UTC ALPHA-NUM DISPLAY
88B00799-01



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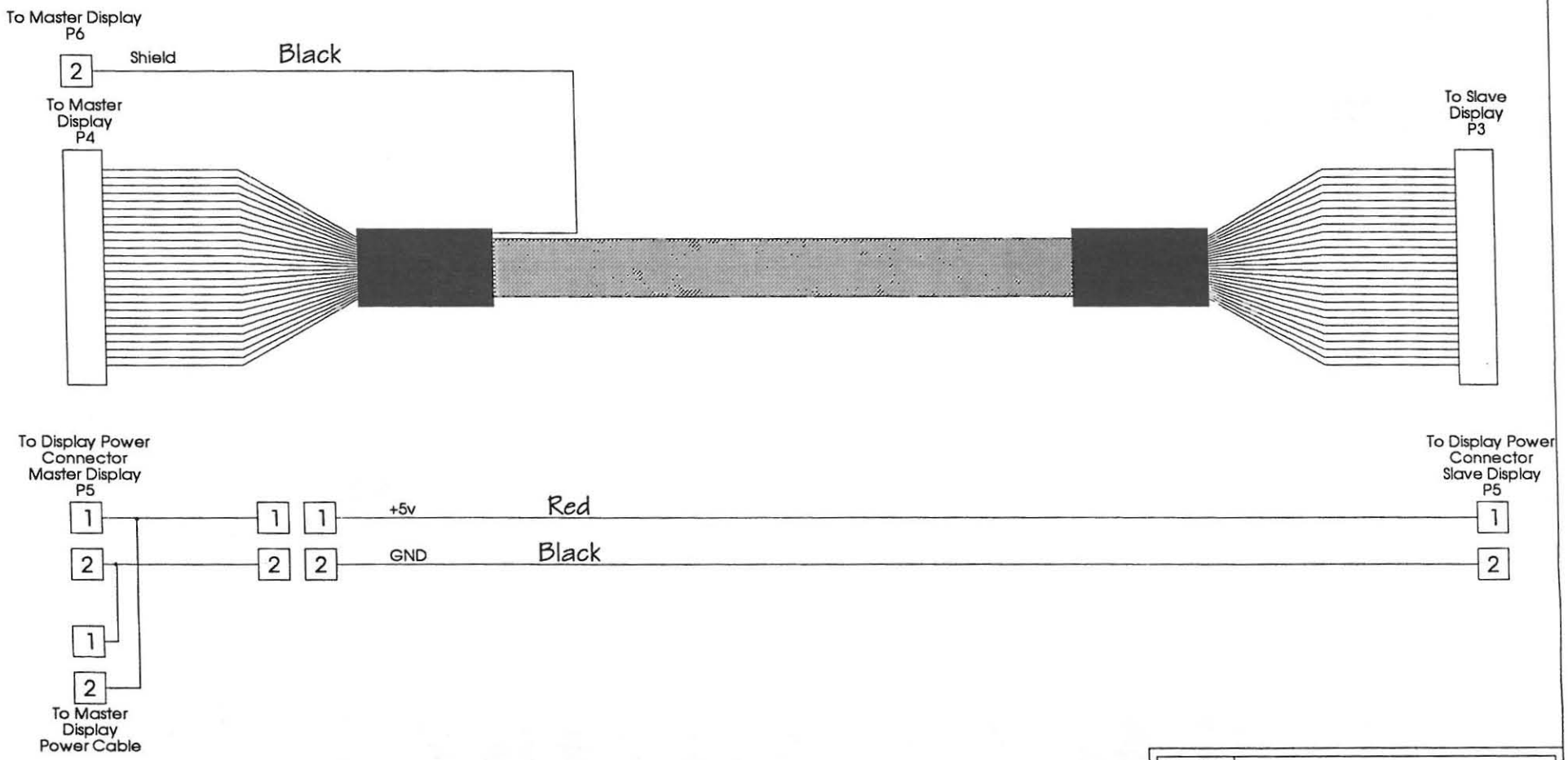
ENGINEER: DJE	210 Clock/Timer Display	
APPROVED: DJE		
DATE: 12/18/92	PAGE: 1 of 1	87A60755



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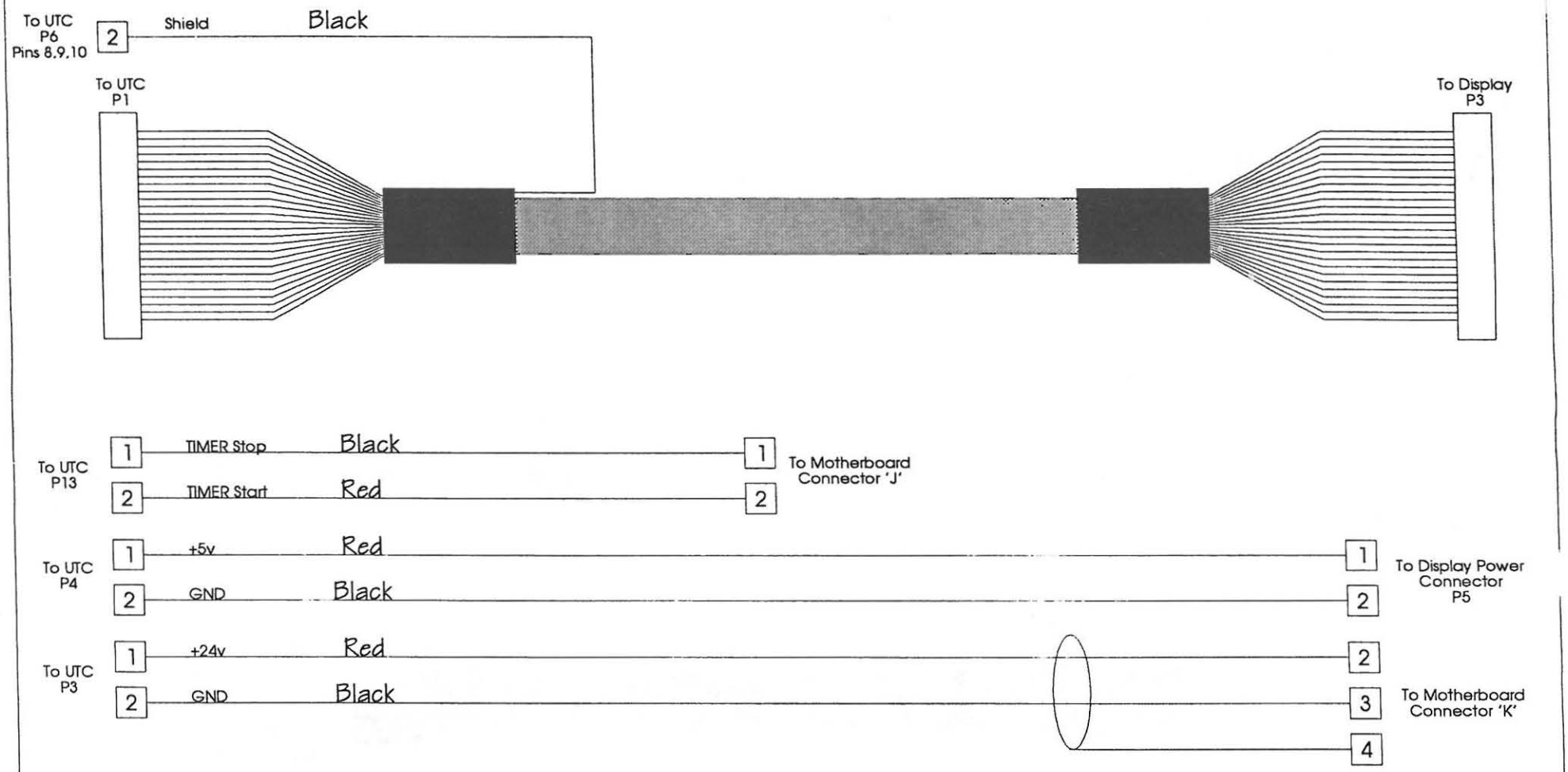
DRAWN: DJE	
ENGINEER: DJE	210-UTC Master Display to Slave Display Cable Drawing
APPROVED: DJE	
DATE: 12/18/92	PAGE: 1 of 1
	84A19443



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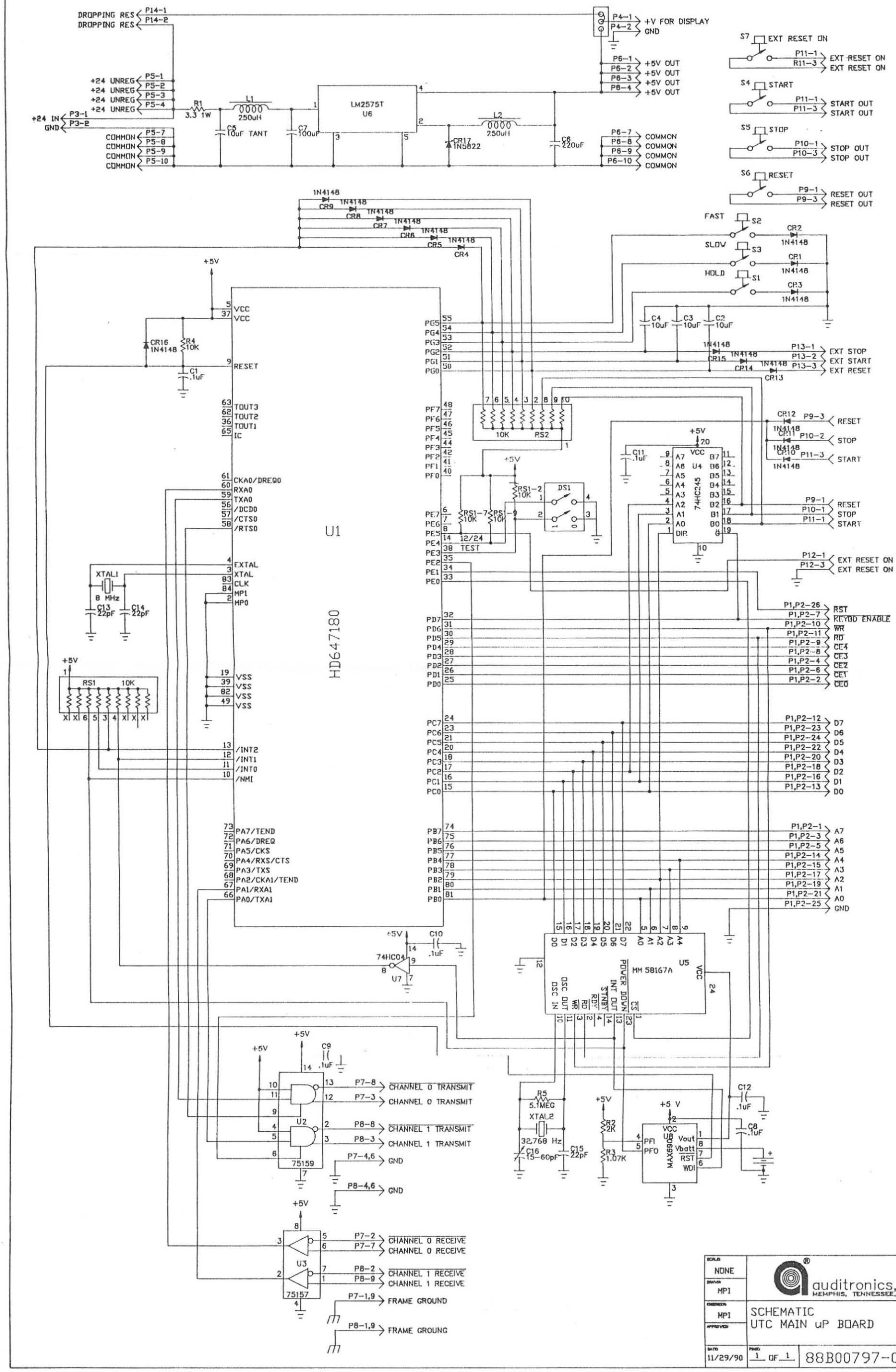
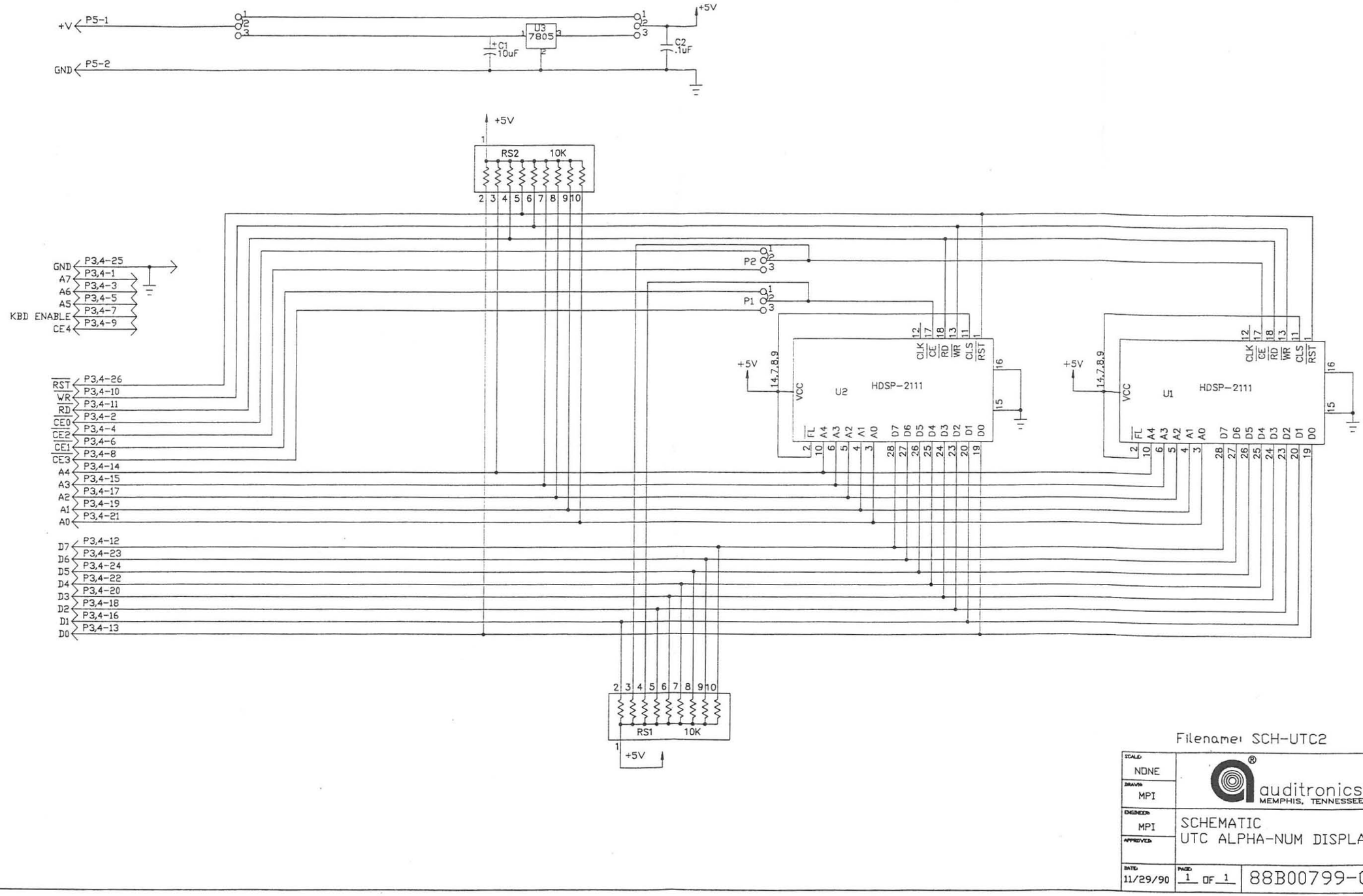
ENGINEER: DJE	210-UTC to Display Cable Drawing
APPROVED: DJE	
DATE: 12/22/92	PAGE: 1 of 1
	84A19392


DROPPING RES P14-1
DROPPING RES P14-2
+24 UNREG P5-1
+24 UNREG P5-2
+24 UNREG P5-3
+24 UNREG P5-4
+24 IN P3-1
GND P3-2
COMMON P5-7
COMMON P5-8
COMMON P5-9
COMMON P5-10
R1 3.3 1W
L1 250uH
C5 10uF TANT
C7 100uF
LM2575T U6
CR17 1N5822
L2 250uH
C6 220uF
P4-1 +V FOR DISPLAY
P4-2 GND
P6-1 +5V OUT
P6-2 +5V OUT
P6-3 +5V OUT
P6-4 +5V OUT
P6-7 COMMON
P6-8 COMMON
P6-9 COMMON
P6-10 COMMON
S7 EXT RESET ON
P11-1 EXT RESET ON
R11-3 EXT RESET ON
S4 START
P11-1 START OUT
P11-3 START OUT
S5 STOP
P10-1 STOP OUT
P10-3 STOP OUT
S6 RESET
P9-1 RESET OUT
P9-3 RESET OUT
1N4148 CR9 CR8 CR7 CR6 CR5 CR4
FAST S2 CR2
SLOW S3 CR1
HOLD S1 CR3
+5V
VCC VCC
CR16 1N4148
R4 10K
RESET
C1 .1uF
C4 10uF C3 10uF C2 10uF
CR15 CR14 CR13
P13-1 EXT STOP
P13-2 EXT START
P13-3 EXT RESET
PG5 PG4 PG3 PG2 PG1 PG0
RS2 10K
CR12 P9-3 RESET
CR11 P10-2 STOP
CR10 P11-3 START
C11 .1uF
74HC245 U4
P9-1 RESET
P10-1 STOP
P11-1 START
RS1-2 10K
DS1
RS1-7 10K
12/24 TEST
P12-1 EXT RESET ON
P12-3 EXT RESET ON
U1
HD647180
TOUT3 TOUT2 TOUT1 IC
CKA0/DREQ0 RXA0 TXA0 /DCD0 /CTS0 /RTS0
EXTAL XTAL CLK MP1 MP0
XTAL1 8 MHz C13 22pF C14 22pF
VSS VSS VSS VSS
RS1 10K
/INT2 /INT1 /INT0 /NMI
PA7/TEND PA6/DREQ PA5/CKS PA4/RXS/CTS PA3/TXS PA2/CKA1/TEND PA1/RXA1 PA0/TXA1
PD7 PD6 PD5 PD4 PD3 PD2 PD1 PD0
PC7 PC6 PC5 PC4 PC3 PC2 PC1 PC0
PB7 PB6 PB5 PB4 PB3 PB2 PB1 PB0
P1,P2-26 RST
P1,P2-7 KEYBD ENABLE
P1,P2-10 WR
P1,P2-11 RD
P1,P2-9 CE4
P1,P2-8 CE3
P1,P2-4 CE2
P1,P2-6 CE1
P1,P2-2 CE0
P1,P2-12 D7
P1,P2-23 D6
P1,P2-24 D5
P1,P2-22 D4
P1,P2-20 D3
P1,P2-18 D2
P1,P2-16 D1
P1,P2-13 D0
P1,P2-1 A7
P1,P2-3 A6
P1,P2-5 A5
P1,P2-14 A4
P1,P2-15 A3
P1,P2-17 A2
P1,P2-19 A1
P1,P2-21 A0
P1,P2-25 GND
74HC04 U7 C10 .1uF
MM 58167A U5
R5 5.1MEG
XTAL2 32.768 Hz
C16 15-60pF C15 22pF
R2 2K
R3 1.07K
MAX690 U8
C12 .1uF
C8 .1uF
C9 .1uF
U2 75159
P7-8 CHANNEL 0 TRANSMIT
P7-3 CHANNEL 0 TRANSMIT
P8-8 CHANNEL 1 TRANSMIT
P8-3 CHANNEL 1 TRANSMIT
P7-4,6 GND
P8-4,6 GND
U3 75157
P7-2 CHANNEL 0 RECEIVE
P7-7 CHANNEL 0 RECEIVE
P8-2 CHANNEL 1 RECEIVE
P8-9 CHANNEL 1 RECEIVE
P7-1,9 FRAME GROUND
P8-1,9 FRAME GROUNG
SCALE NONE
MPI
MPI
DATE 11/29/90
auditronics, inc.
MEMPHIS, TENNESSEE, U.S.A.
SCHEMATIC
UTC MAIN uP BOARD
SHEET 1 OF 1
88B00797-01

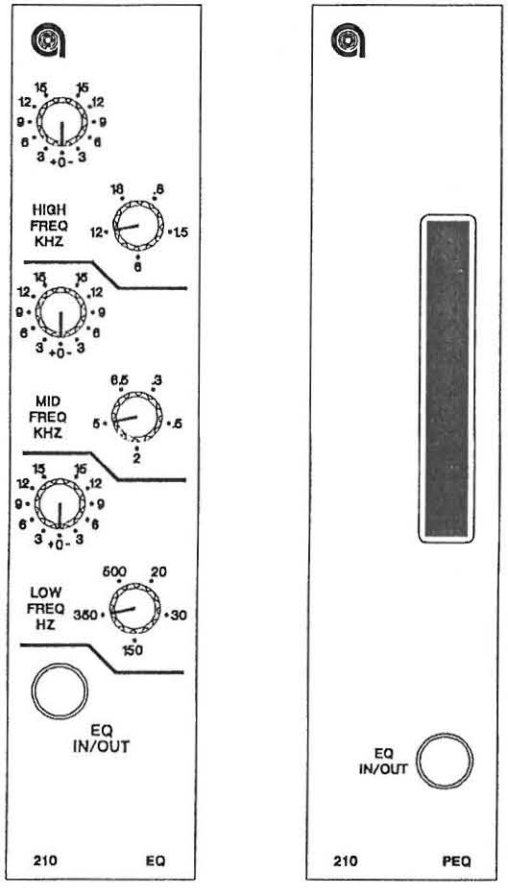


Filename: SCH-UTC2

SCALE: NONE	auditronics, inc. MEMPHIS, TENNESSEE, U.S.A.
DRAWN: MPI	
ENGINEER: MPI	SCHEMATIC UTC ALPHA-NUM DISPLAY
APPROVED:	
DATE: 11/29/90	PAGE: 1 OF 1 — 88B00799-01

Chapter 10

210-Series Equalizer Modules - 210-EQ and 210-PEQ



INTRODUCTION

This chapter deals with two related accessory modules; the 210-PEQ Personality Equalizer and the 210-EQ Sweep Equalizer Modules.

Both are intended primarily for use on the MIS Microphone Input Module(s) and both perform similar functions.

The 210-PEQ is a monaural five-band graphic equalizer which utilizes a plug-in EQ card, the 210-EQP, with individualized EQ settings stored on it. One EQP plug-in card is supplied with each PEQ as standard equipment. Additional cards may be ordered. Each On-Air talent is normally supplied with a personal EQ card with their individual EQ settings. When it is his/her turn on air, the card is simply inserted into the module, the EQ enabled with the ON/OFF pushbutton, and the mic is uniquely equalized for the specified user.

The 210-EQ is a monaural, three band, continuously variable equalizer with overlapping bands of equalization. An In/Out switch is provided to bypass the equalizer when desired.

The 210-EQ is typically used in conjunction with, and is factory wired to, the channel insert of a user-designated 210-MIS (microphone input module). It may be used with monaural line inputs or in conjunction with other accessories.

In the usual circumstance, these were ordered with the console and are in place. In the event that they are ordered later, instructions for retrofitting may be found at the end of this chapter under *Installation*.

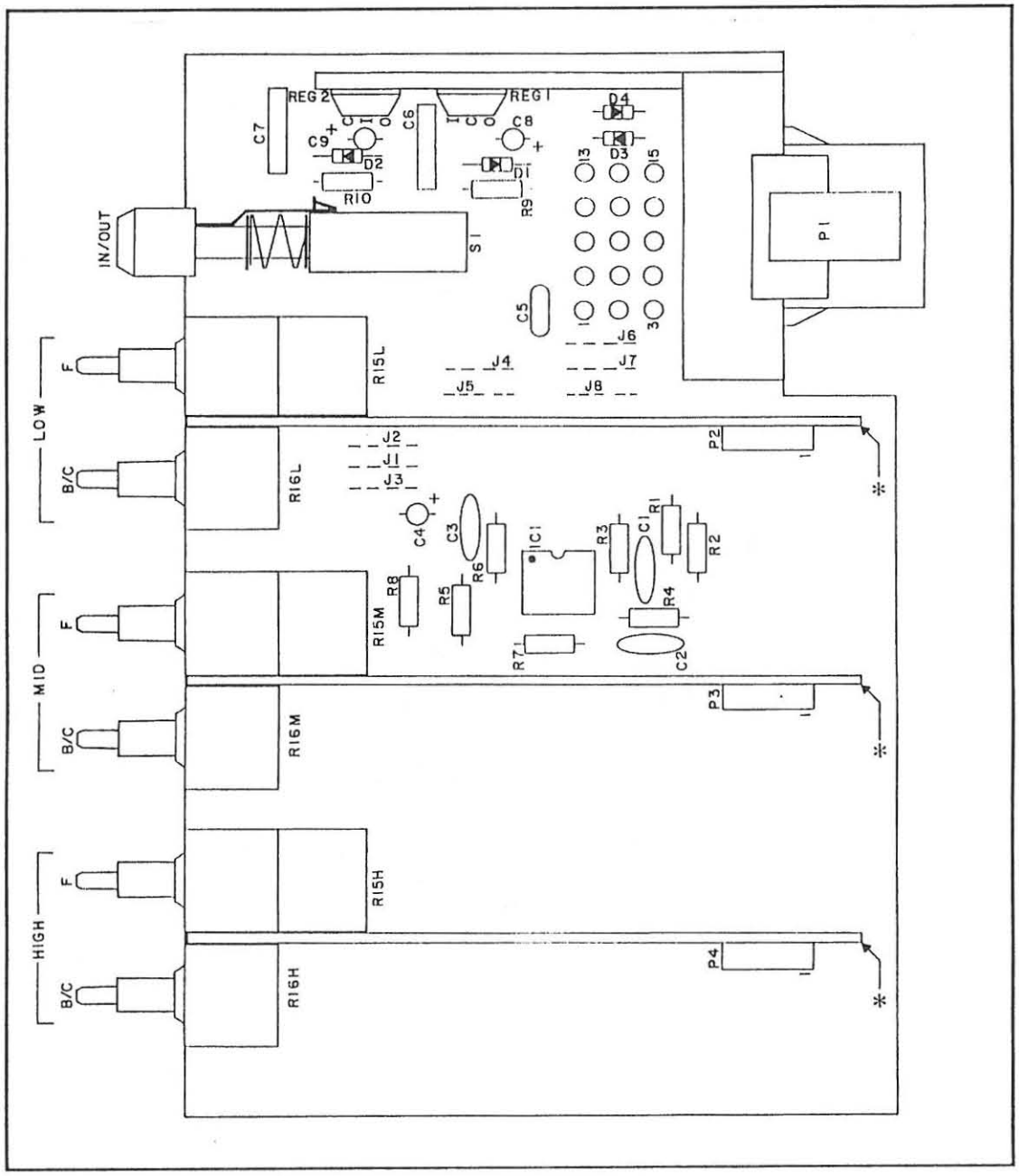


Figure 1, 210-EQ Component Location Diagram.

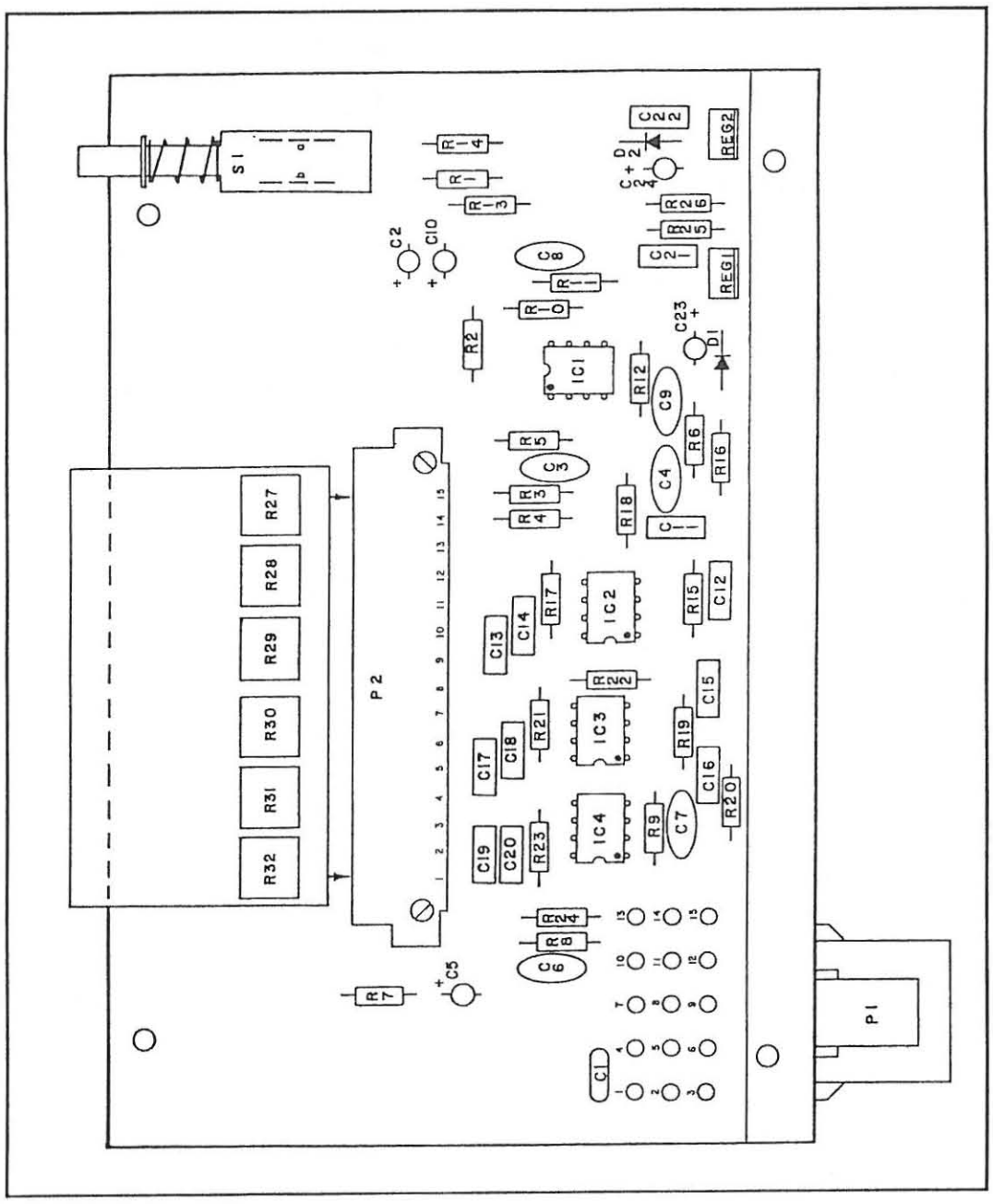


Figure 2, 210-PEQ Component Location Diagram.

CONTROL AND PUSHBUTTON OVERVIEW

The following is a brief summary of the features and functions of the 210-Series Equalizer Modules. This section is intended to familiarize the Service/Installation Technician with the controls of these modules, as reference to these controls is frequently made in the text.

1. Low Freq., Mid Freq., and High Freq.

These controls, on the 210-EQ, Sweep Equalizer Module, are the main frequency controls. The frequency range of the "Low" control is 20 to 500Hz, the "Mid" has a range of 300Hz to 6.5kHz, and the "High" has a range of 800Hz to 18kHz.

2. Boost/Cut

Above and slightly to the left of each of the three frequency controls is the associated Boost/Cut control. These controls afford 15dB of boost or cut to each frequency setting.

3. In/Out

This pushbutton simply enables the equalization or bypasses the module.

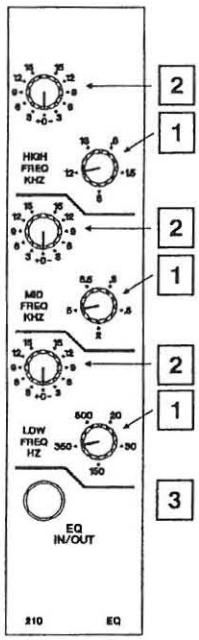


Figure 4,
210-EQ, Sweep
EQ Module.

1. EQP Card Insert (210-PEQ Only)

this is the slot into which the 210-EQP Card is inserted.

2. In/Out

This pushbutton simply enables the equalization or bypasses the module.

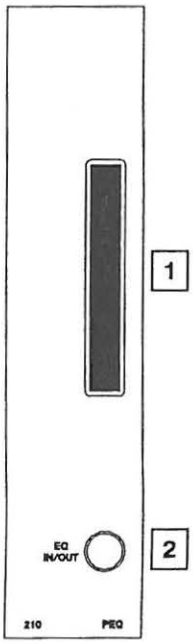


Figure 3,
210-PEQ,
Personality EQ
Module.

210-PEQ PERSONALITY EQUALIZER MODULE

Specifications

The five bands are centered at 200, 400, 700, 1500, and 2500Hz with a boost/cut range of ±9dB. Each filter of the equalizer has approximately one octave bandwidth with a minimal audible effect of adjacent bands. Outside the frequency range affected by the individual trimpot level controls, the response is flat from 20Hz to 20kHz. Signal to noise ratio referred to +4dBu (1.23V) with controls flat and gain at unity is 0dB. THD is less than .1% and typically below .06%. The module will handle up to +20dBu level output, taking into account the individual frequency level controls, and the overall gain control, all of which are on the plug-in programming unit.

EQ Settings (210-PEQ only)

The plug-in card (EQP) may be inserted and removed with console power ON.

- With the PEQ IN/OUT pushbutton set to "OUT" (to avoid audible pops and clicks), remove the EQP Card from the PEQ Module and insert the extender card (210-EPE) with the foil side facing right. Now, reinsert the EQP Card onto the extender. This will allow access to the necessary trimpots while the module is operating, enabling the signal to be heard while equalization adjustments are being made.
- Adjust all trimpots on the EQP to the center position; this is unity gain and zero dB boost/cut.
- Switch the 210-PEQ Module to the "IN" setting.
- Adjust microphone monitoring to normal level.
- With a small, flat-blade screwdriver, adjust the EQ of the five bands to the desired frequency response, turning clockwise for boost and counter-clockwise for cut.
- When the desired response is set, push the IN/OUT pushbutton and adjust the gain control, R27, so that the level and meter readings are the same in both the "IN" and "OUT" settings.
- With the PEQ IN/OUT pushbutton set to "OUT", remove the extender and replace the EQP Card to its normal position.

The 210-PEQ is normally wired to the channel insert of a user-designated Microphone Input Module. It may also be used in conjunction with other accessories.

P1 Connector

13. Common	14. +24VDC	15. -24VDC
10. Shield	11. VCA Control	12. VCA Control
7. Common	8. +24VDC	9. -24VDC
4. Shield	5. Audio Input	6. -N/C-
1. Shield	2. Audio Output	3. Audio Output Mult

210-EQ SWEEP EQUALIZER MODULE

Specifications

The 210-EQ is a monaural, three band, continuously variable equalizer with overlapping bands of equalization. The Low Frequency band has a range of 20 Hz to 500 Hz. The Mid-range is 300Hz to 6.5kHz . The High Frequency range is 800 Hz to 18 kHz. Each band is capable of +/-15 dB of boost and cut. An In/Out switch is provided to bypass the equalizer when desired.

The 210-EQ is typically used in conjunction with, and is factory wired to the channel insert of a user-designated 210-MIS (microphone input module). It may be used with monaural line inputs or in conjunction with other accessories.

P1 Connector

13. Common	14. +24VDC	15. -24VDC
10. Shield	11. VCA Control	12. VCA Control
7. Common	8. +24VDC	9. -24VDC
4. Shield	5. Audio Input +	6. Audio Input (–)
1. Shield	2. Audio Output +	3. Audio Output (–)

INSTALLATION (of either EQ Module)

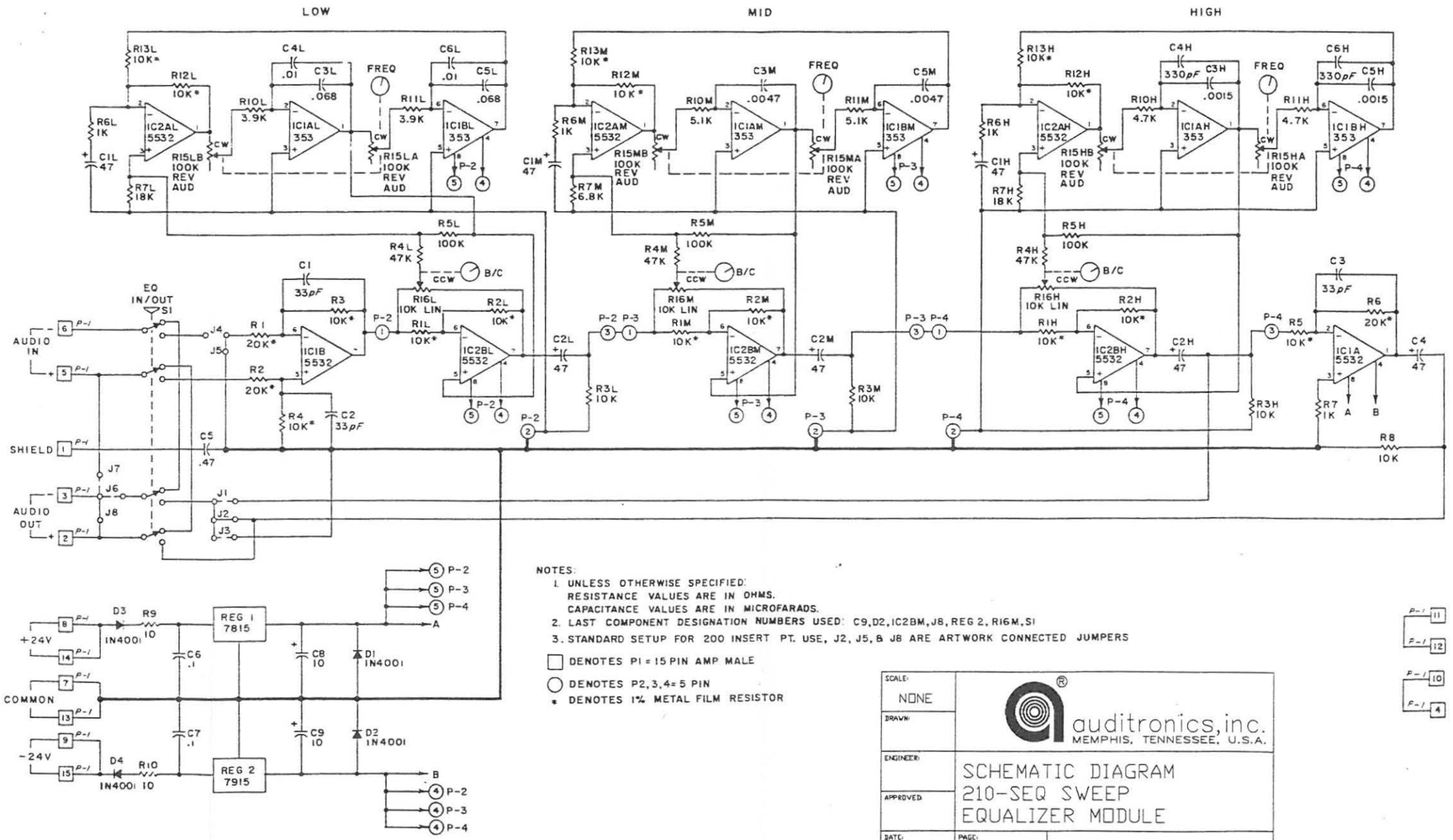
Normally the 210-Series EQ Modules are supplied pre-wired into the console mainframe from the factory, however, the case may arise that one or more is added after the console is in service or that the user wishes to change its assigned input module to another position.

Like all other 210-Series optional modules, the EQ modules have their input, output, and power connections mounted directly on the rear of the module. This allows the optional module to be interfaced to any microphone module in the console through the use of the appropriate connector harness, which is supplied with the module. Power to the console should be turned off during installation.

After the EQ Module has been physically mounted into its desired position in the console mainframe, the meter turret should be opened and the motherboard connectors mounted on its underside.

Referring to the console connector location drawing in *Chapter 3, Installation*, the installer should remove the jumper plug at location "B" of the input to which the EQ Module is being connected. Harness #19075 should be used to join connector "B" to the EQ Module. This completes installation. Normal professional wire dress standards should be applied.

NOTE: If a 210-VC is to be connected to a MIS Module along with the EQ Module, cable harness #19080 is required. One end of the harness is plugged into the input position's "B" connector, the other end into the VC connector, and the center connector to the EQ connector. This completes installation.



NOTES:

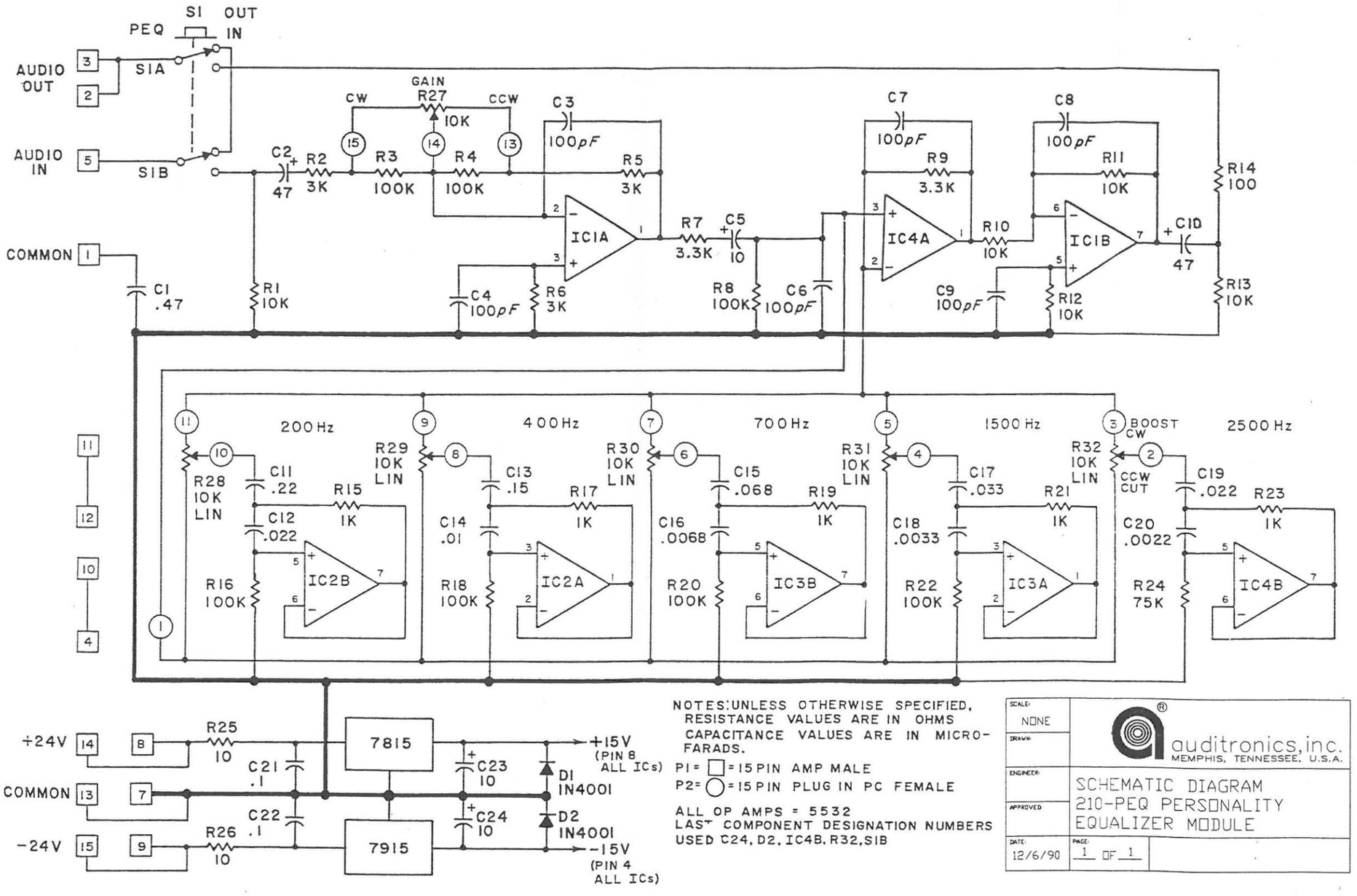
1. UNLESS OTHERWISE SPECIFIED:
   RESISTANCE VALUES ARE IN OHMS.
   CAPACITANCE VALUES ARE IN MICROFARADS.
2. LAST COMPONENT DESIGNATION NUMBERS USED: C9, D2, IC2BM, J8, REG 2, R16M, S1
3. STANDARD SETUP FOR 200 INSERT PT. USE, J2, J5, & J8 ARE ARTWORK CONNECTED JUMPERS

□ DENOTES P1 = 15 PIN AMP MALE

○ DENOTES P2, 3, 4 = 5 PIN

* DENOTES 1% METAL FILM RESISTOR

SCALE: NONE	auditronics, inc. MEMPHIS, TENNESSEE, U.S.A.
DRAWN:	
ENGINEER:	SCHEMATIC DIAGRAM 210-SEQ SWEEP EQUALIZER MODULE
APPROVED:	
DATE: 12/6/90	PAGE: 1 OF 1



NOTES: UNLESS OTHERWISE SPECIFIED, RESISTANCE VALUES ARE IN OHMS CAPACITANCE VALUES ARE IN MICROFARADS.

P1 = □ = 15 PIN AMP MALE

P2 = ○ = 15 PIN PLUG IN PC FEMALE

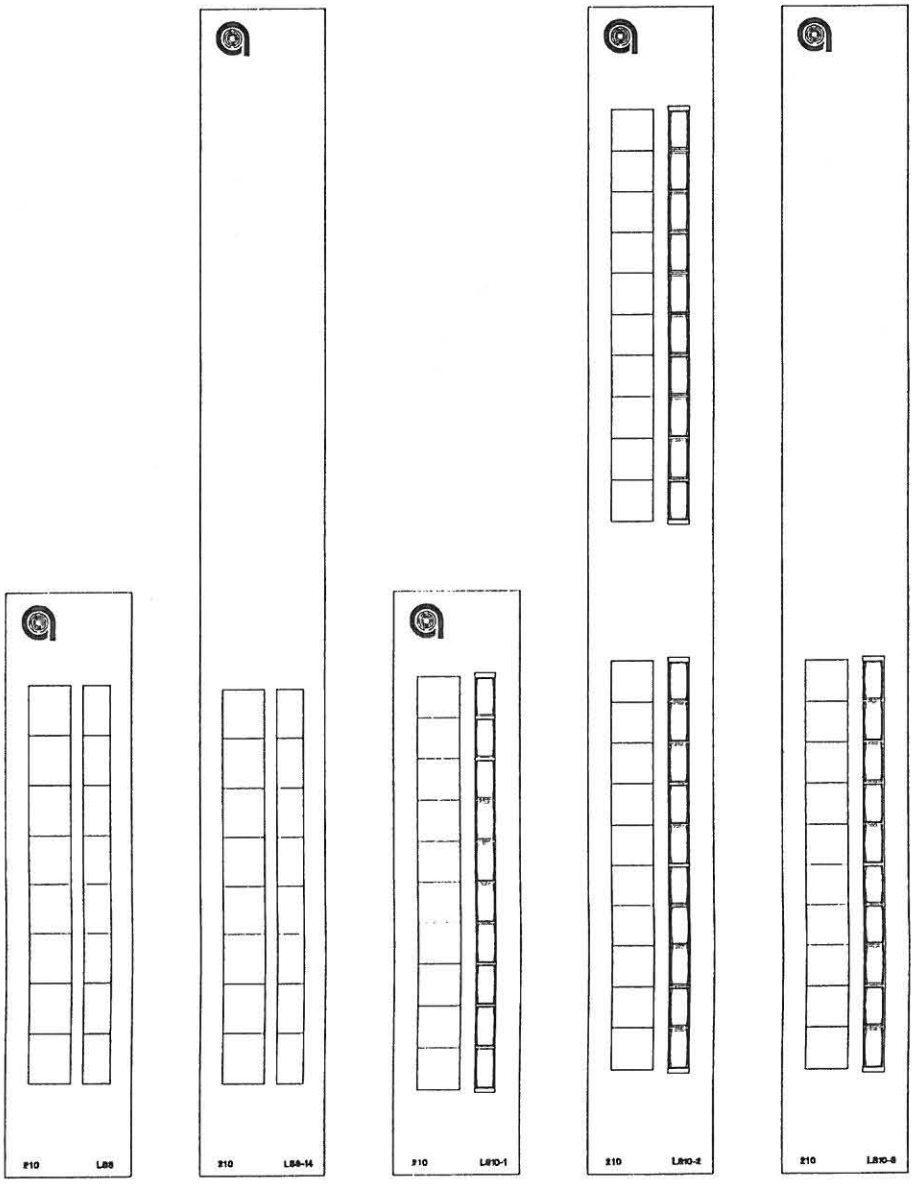
ALL OP AMPS = 5532

LAST COMPONENT DESIGNATION NUMBERS USED C24, D2, IC4B, R32, S1B

SCALE: NONE	auditronics, inc. MEMPHIS, TENNESSEE, U.S.A.
DRAWN:	
ENGINEER:	SCHEMATIC DIAGRAM 210-PEQ PERSONALITY EQUALIZER MODULE
APPROVED:	
DATE: 12/6/90	PAGE: 1 OF 1

Chapter 11

210-Series Input Select Modules - 210-LS8, -LS14, LS10-1, -2 and -3



INTRODUCTION

The 210-Series Console System employs a number of **Stereo Input Selector modules.** Because of their basic similarity in use and operation, all will be covered in this chapter with their similarities and differences pointed out.

210-LS8 and LS8-14 Stereo Line Selector Module

The 210-LS8 allows multiple (up to eight) line-level sources to be introduced into one selector unit in the console permitting pushbutton selection of any one of the eight sources to a Stereo LIne Input Module. The LS8 is a 7" module for location in one of the accessory positions. The LS8-14 is identical but mounted on a 14" panel and must be physically mounted in an input module position.

210-LS10-1, -2, and -3 Stereo Line Selector Module

The 210-LS10-1 allows multiple (up to ten) line-level sources to be introduced into one selector unit in the console permitting pushbutton selection of any one of the ten sources to a Stereo Line Input Module. This is a 7" module for placement in one of console accessory positions.

The 210-LS10-2 is a dual ten input selector matrix providing two independent banks of ten switches each. The output of each switch set is typically assigned to a different input module (or possibly one set to the 'A' input and one to the 'B' input of the same module). This permits pushbutton selection of any one of the ten sources to the input of the stereo line module to which it is assigned. This is a 14" module for placement in one of the console input positions.

The 210-LS10-3 is a single ten input selector matrix similar to the 210-LS10-1 but mounted on a 14" panel. It must also be physically mounted in an input module position.

A *Control and Pushbutton Overview* will not be necessary in this chapter. Suffice to say that each pushbutton selects a source, whose name may be written either on or beneath the strip next to said pushbuttons.

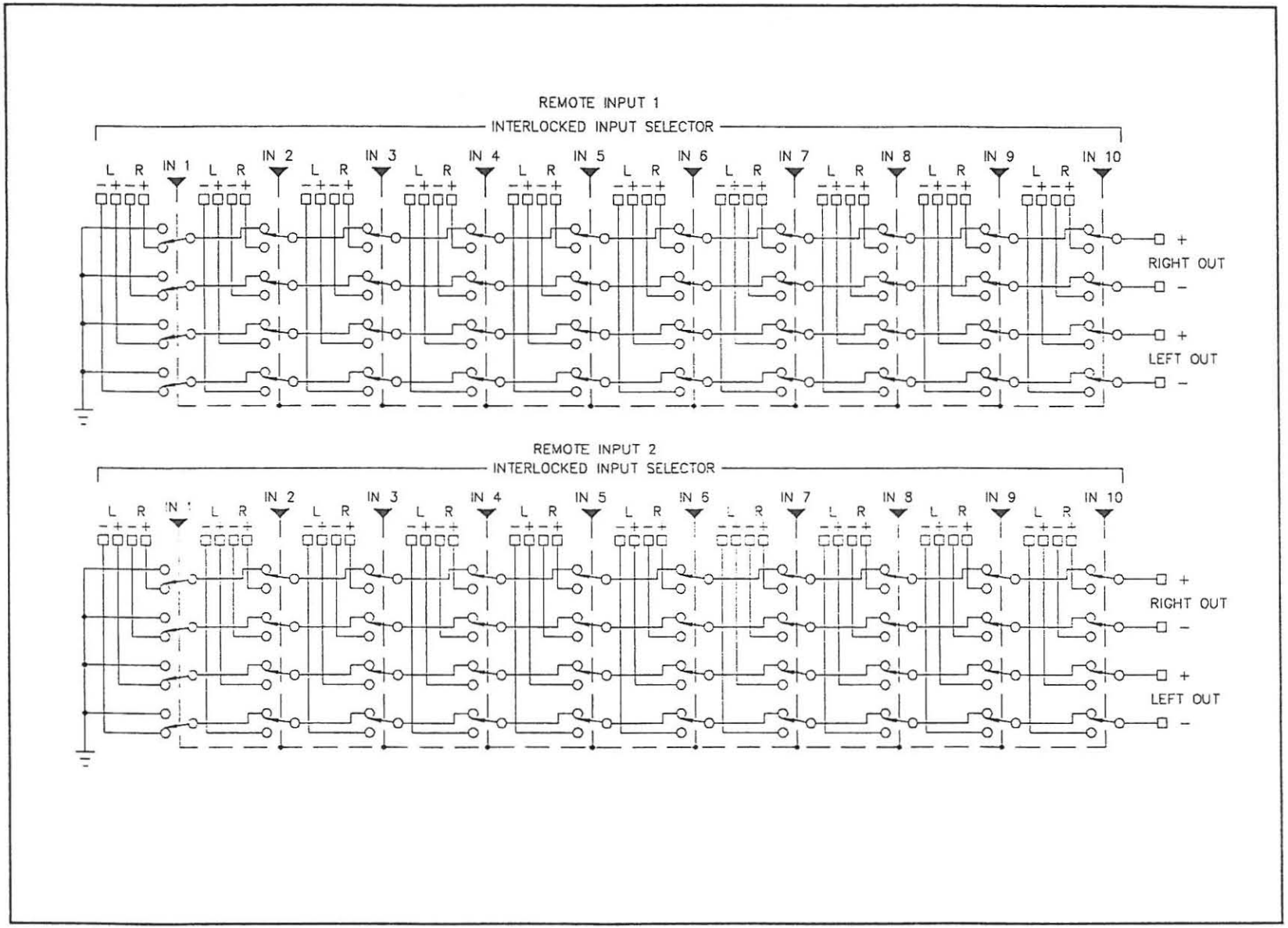


Figure 1, 210-LS10-2 Signal Flow Diagram.

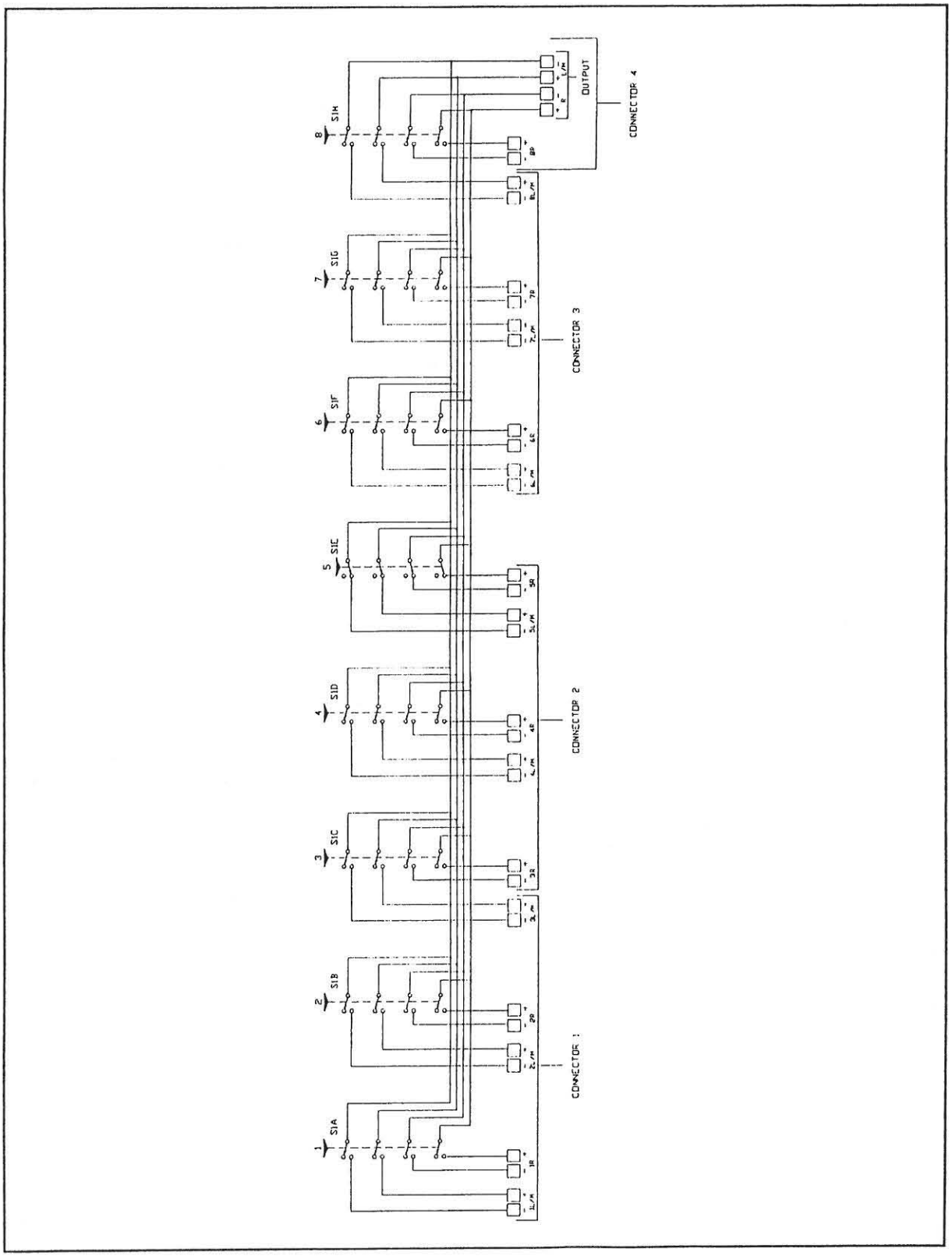


Figure 2, 210-LS8 Signal Flow Diagram.

INSTALLATION

General Information

This section consists of two parts: Connection of an existing LS Series Module and retrofitting an LS Series Module into an operational console.

To introduce multiple stereo signals into a Stereo Line Input Module, first, locate the connector bracket. This bracket is located inside the console against the rear wall and holds four 15-pin MR connectors which lead to the LS Module in question. This bracket is accessible by lifting the meter turret cover. **NOTE:** On the LS8 and LS14 Modules, the connections are made directly on the rear of the modules; the above-mentioned bracket does not exist.

Installation Instructions

According to the *Crimping Instructions* in *Chapter 3*, construct cables with appropriate connectors on one end for the equipment from which the stereo signal originates (cart machine, CD player, etc.) and with 15-pin MR connectors on the other for connection to the inputs to the LS Module. Pin assignment may be found later in this chapter.

NOTE: The pin assignment table deals with one set of four connectors. These four connectors serve one bank of ten (10) selector switches. In the case of an LS10-2 Module, there will be two sets of four input connectors in two brackets. They will be labeled accordingly.

There is a series of 1.5" diameter access holes in the bottom of the console. When completed, these cables may be run into the console through the access hole nearest the connector bracket and the connections made. The output to the desired Stereo Line Input Module will have already been made at the factory.

Retrofit Instructions

General Information

Normally, these modules are part of the original order, however, if one is desired in a console that is currently in use (or the user wishes to reassign an existing module, the following section will supply step-by-step installation instructions for same.

IMPORTANT: It is NOT recommended that any preliminary work (especially drilling) be done before the module and associated peripherals are in hand. This will significantly reduce the chances of error in calculation, both in the choice of location of the module and of its associated hardware.

Supplied in the LS Series kit is: One LS Series Module (as per order), all connector cables, connector bracket(s), appropriate mounting hardware.

A given LS Module comes equipped with all **input** wiring intact. This input wiring consists of a series of cables originating on the circuit board of the module (connectors P1 through P20 - see *Figure 3, Location Diagram*) and terminating with four (4) 15-pin MR connectors (eight MRs in the case of an LS10-2 Module). **All connectors are labeled for ease in identification.** Each group of four MR connectors will attach to a connector bracket secured to the inside of the console body. Signals from outside will enter the LS Module through these 15-pin MR connectors (pin assignment for the input connectors follows this section).

The output of this module is configured in a fashion similar to the inputs, in that the signal originates on the main board of the module at connectors P21 and P22 and terminates at a 15-pin MR connector. **NOTE:** If an LS Series Module is ordered for retrofit to an already-installed console, it is important that its location and the input module to which it is assigned be decided in advance. The LS Series Module may be mounted in a variety of places and the output cable must be of sufficient length to reach its destination module.

Installation Procedure

NOTE: Console power should be "OFF" during the installation process.

After the Input Selector Module has been physically mounted into its desired position in the console mainframe, the console should be opened and the connector bracket mounted. Three 11/64" holes must be drilled (according to included template) for mounting of the connector bracket. This bracket may be mounted basically any place that there is room and that the cables reach. The lower inside rear wall or inside bottom of the console are preferable. If the inside rear wall is chosen, access may be gained by opening the top of the meter turret. If the inside bottom is chosen, access may be gained by lifting the module/motherboard assembly. The only restriction for placement of this bracket is the length of the input cables from the module itself and the existence of other components that may be in the way of a direct connection. Sharp turns of the cables should be avoided.

If, due to the physical location of the console, drilling is impractical, a strong double-sided tape such as Scotch® Brand VHB (Very High Bond) may be used. The bracket should be mounted as close to the LS Module as possible. Once installed, the four input connectors may be snapped into the bracket.

According to the *Crimping Instructions* in *Chapter 3*, construct cables with appropriate connectors on one end for the equipment from which the stereo signal originates (cart machine, CD player, etc.) and with 15-pin MR connectors on the other for connection to the inputs to the LS Module. Pin assignment may be found later in this chapter.

NOTE: The pin assignment table deals with one set of four connectors. These four connectors serve one bank of ten (10) selector switches. In the case of an LS10-2 Module, there will be two sets of four input connectors in two brackets. They will be labeled accordingly.

There is a series of 1.5" diameter access holes in the bottom of the console. When completed, these cables may be run into the console through the access hole nearest the connector bracket and the connections made. The output to the desired Stereo Line Input Module will have already been made at the factory.

The output cable must now be connected to the Stereo Line Input Module. Lift the module/motherboard assembly, exposing the connectors.

WARNING!! Be sure that the module/motherboard assembly is securely locked in the UP position. Serious injury can result if the assembly is accidentally closed while hands or fingers are inside the console shell.

Referring to the console connector location drawing in *Chapter 3, Installation*, locate the "A" Connector in the Input Module position to which the LS Module will be connected. If this module has been previously in use, the existing cable must be removed. This will be replaced with the output connector from the LS Module.

This output cable will be configured at the factory as ordered. If, however, this is not the case, use the "A" Connector table under *Audio Signals in Chapter 5 to determine pin assignments.* This cable is constructed in the same manner as described above.

LS10 Pinouts

"A" Connector

1. Shield	2. 1 In Left (–)	3. 1 In Left (+)
4. Shield	5. 1 In Right (–)	6. 1 In Right (+)
7. Shield	8. 2 In Left (–)	9. 2 In Left (+)
10. Shield	11. 2 In Right (–)	12. 2 In Right (+)
13. Shield	14. 3 In Left (–)	15. 3 In Left (+)

"B" Connector

1. Shield	2. 3 In Right (–)	3. 3 In Right (+)
4. Shield	5. 4 In Left (–)	6. 4 In Left (+)
7. Shield	8. 4 In Right (–)	9. 4 In Right (+)
10. Shield	11. 5 In Left (–)	12. 5 In Left (+)
13. Shield	14. 5 In Right (–)	15. 5 In Right (+)

"C" Connector

1. Shield	2. 6 In Left (–)	3. 6 In Left (+)
4. Shield	5. 6 In Right (–)	6. 6 In Right (+)
7. Shield	8. 7 In Left (–)	9. 7 In Left (+)
10. Shield	11. 7 In Right (–)	12. 7 In Right (+)
13. Shield	14. 8 In Left (–)	15. 8 In Left (+)

"D" Connector

1. Shield	2. 8 In Right (–)	3. 8 In Right (+)
4. Shield	5. 9 In Left (–)	6. 9 In Left (+)
7. Shield	8. 9 In Right (–)	9. 9 In Right (+)
10. Shield	11. 10 In Left (–)	12. 10 In Left (+)
13. Shield	14. 10 In Right (–)	15. 10 In Right (+)

NOTE: The LS10-2 Module is essentially two LS10s grouped into one face plate, therefore, each group of four input connectors is represented by this table.

LS8 Pinouts

"#1" Connector

1. Shield	2. 1 Left/Mono (–)	3. 1 Left/Mono (+)
4. Shield	5. 1 Right (–)	6. 1 Right (+)
7. Shield	8. 2 Left/Mono (–)	9. 2 Left/Mono (+)
10. Shield	11. 2 Right (–)	12. 2 Right (+)
13. Shield	14. 3 Left/Mono (–)	15. 3 Left/Mono(+)

"#2" Connector

1. Shield	2. 3 Right (–)	3. 3 Right (+)
4. Shield	5. 4 Left/Mono (–)	6. 4 Left/Mono (+)
7. Shield	8. 4 Right (–)	9. 4 Right (+)
10. Shield	11. 5 Left/Mono (–)	12. 5 Left/Mono (+)
13. Shield	14. 5 Right (–)	15. 5 Right (+)

"#3" Connector

1. Shield	2. 6 Left/Mono (–)	3. 6 Left/Mono (+)
4. Shield	5. 6 Right (–)	6. 6 Right (+)
7. Shield	8. 7 Left/Mono (–)	9. 7 Left/Mono (+)
10. Shield	11. 7 Right (–)	12. 7 Right (+)
13. Shield	14. 8 Left/Mono (–)	15. 8 Left/Mono (+)

"#4" Connector

1. Shield	2. 8 Right (–)	3. 8 Right (+)
4. Ground	5. Left/Mono Out (–)	6. Left/Mono Out (+)
7. Ground	8. Right Out (–)	9. Right Out (+)
10. Ground	11. -N/C-	12. -N/C-
13. -N/C-	14. -N/C-	15. -N/C-

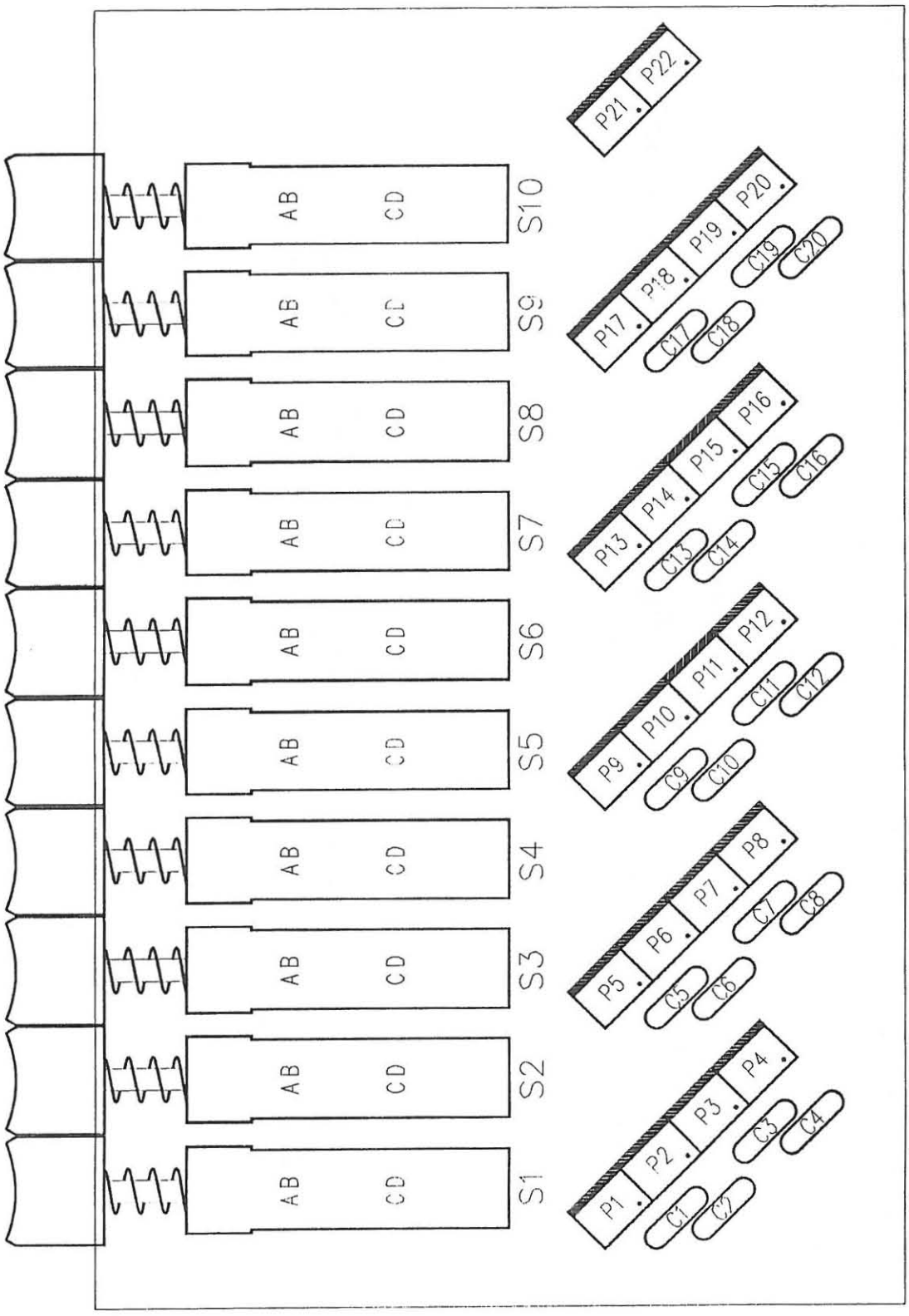
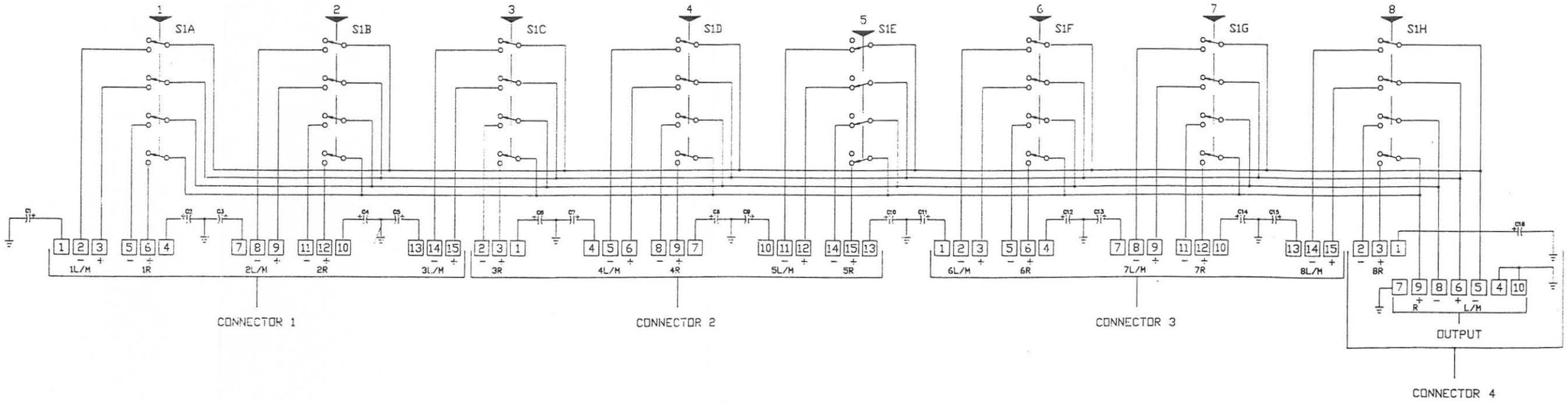
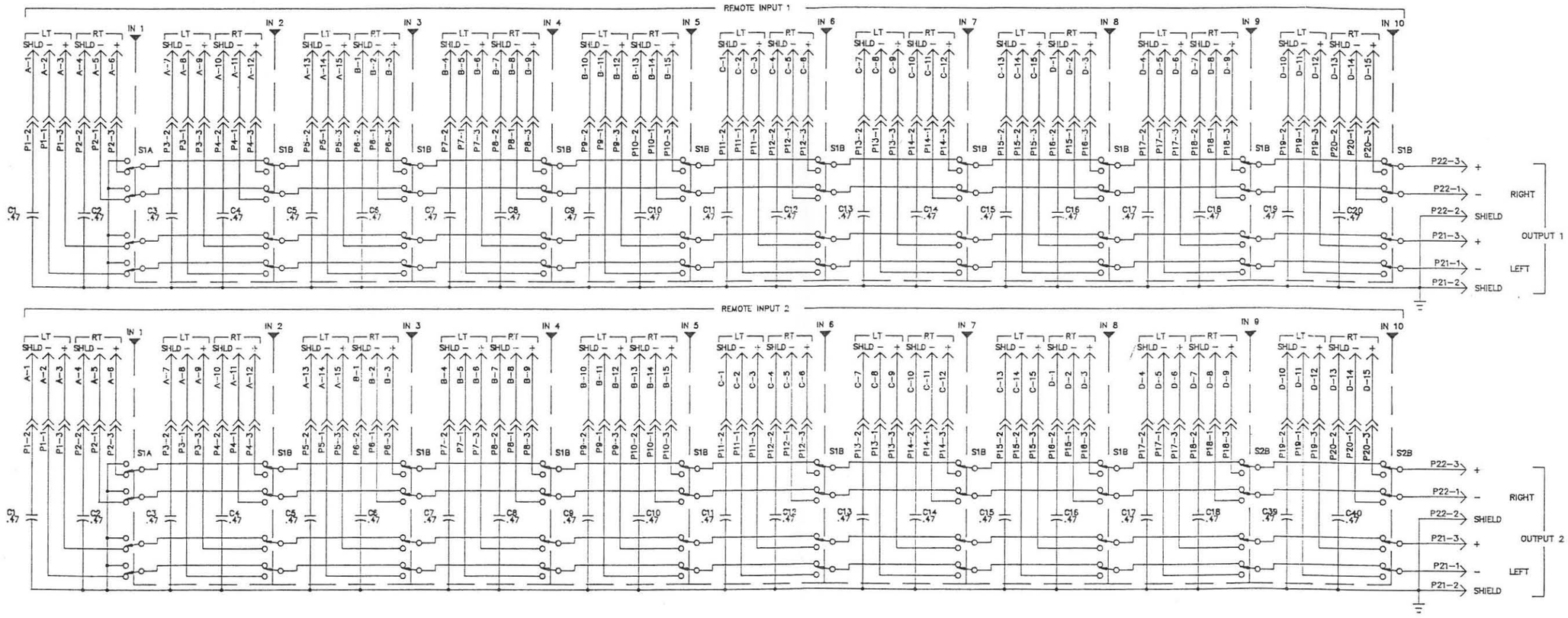


Figure 3, 210-LS10 Component Location Diagram.



SCALE: NONE	auditronics, inc. MEMPHIS, TENNESSEE, U.S.A.
DRAWN: MWS	
ENGINEER:	SCHEMATIC DIAGRAM 210-LS8, INPUT SELECTOR
APPROVED:	
DATE: 11/29/90	PAGE: 1 OF 1

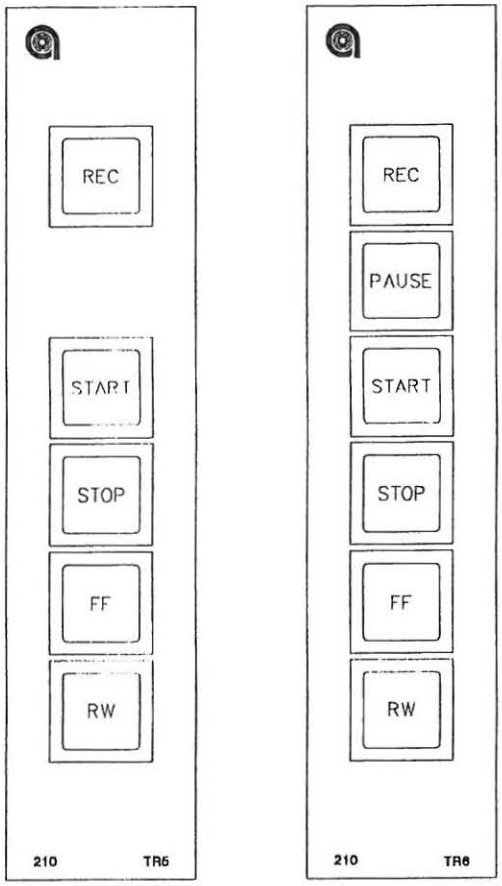


FILENAME: SCH-LS10

SCALE: NONE	auditronics, inc. MEMPHIS, TENNESSEE, U.S.A.
DRAWN: MVS	
CHECKED: RCG	SCHEMATIC DIAGRAM 210-LS10-2 INPUT SELECTOR
APPROVED:	
DATE: 11/29/90	PAGE 1 OF 1

Chapter 12

210-Series Tape Remote Modules - 210-TR5 and 210-TR6



INTRODUCTION

The 210-TR5 and -TR6 Modules are available for controlling tape machines directly from the console. Mounted in one of the accessory module positions at either end of the console, the TR6 is identical to the TR5, with the exception of an additional switch for a "Pause" control. The switch leads in both modules are terminated in connectors mounted on their rear panels.

Complete installation instructions may be found on *Page 12-3*.

As the controls are rather self-explanatory, the *Abbreviated Control and Pushbutton Overview* will not be necessary in this chapter.

INSTALLATION

The 210-TR5 and -TR6 Tape Remote Switches are identical in function, the only difference being the addition of the "Pause" pushbutton in the TR6. Either module can be supplied with the console or ordered for field retrofitting. Like all 210-Series optional modules, the input and output connections are found on the rear of the module. The TR5 and TR6 schematics will show the installer the configuration of the switches and their connector pins. Note that connector J1 is the one located at the top rear of the module. Installation of the module can then be undertaken by simply mounting the module in the desired location on the console and using the remote control data taken from the tape machine owner's manual.

All switches are supplied with illuminating lamps, which may be accessed by snapping off the switch caps with a fingernail. The lamps may be removed by pulling up on the small brass tab inside the switch body.

A fourth connector with no pins installed has been provided in the event that the user may wish to connect the extra set of contacts on each switch for secondary uses.

210-TR5 Connector Pinouts

J1

13. Lamp 5	14. Lamp 5	15. -N/C-
10. Lamp 4	11. Lamp 4	12. -N/C-
7. Lamp 3	8. Lamp 3	9. -N/C-
4. Lamp 2	5. Lamp 2	6. -N/C-
1. Lamp 1	2. Lamp 1	3. -N/C-

J2

13. Sw. 5 Common	14. Sw. 5 Normally Open	15. Sw. 5 Normally Closed
10. Sw. 4 Common	11. Sw. 4 Normally Open	12. Sw. 4 Normally Closed
7. Sw. 3 Common	8. Sw. 3 Normally Open	9. Sw. 3 Normally Closed
4. Sw. 2 Common	5. Sw. 2 Normally Open	6. Sw. 2 Normally Closed
1. Sw. 1 Common	2. Sw. 1 Normally Open	3. Sw. 1 Normally Closed

J3

Connector Body mounted with pins but not wired at the factory.

210-TR6 Connector Pinouts

J1

13. -N/C-	14. -N/C-	15. -N/C-
10. Lamp 5	11. Lamp 6	12. Lamp 6
7. Lamp 4	8. Lamp 4	9. Lamp 5
4. Lamp 2	5. Lamp 3	6. Lamp 3
1. Lamp 1	2. Lamp 1	3. Lamp 2

J2

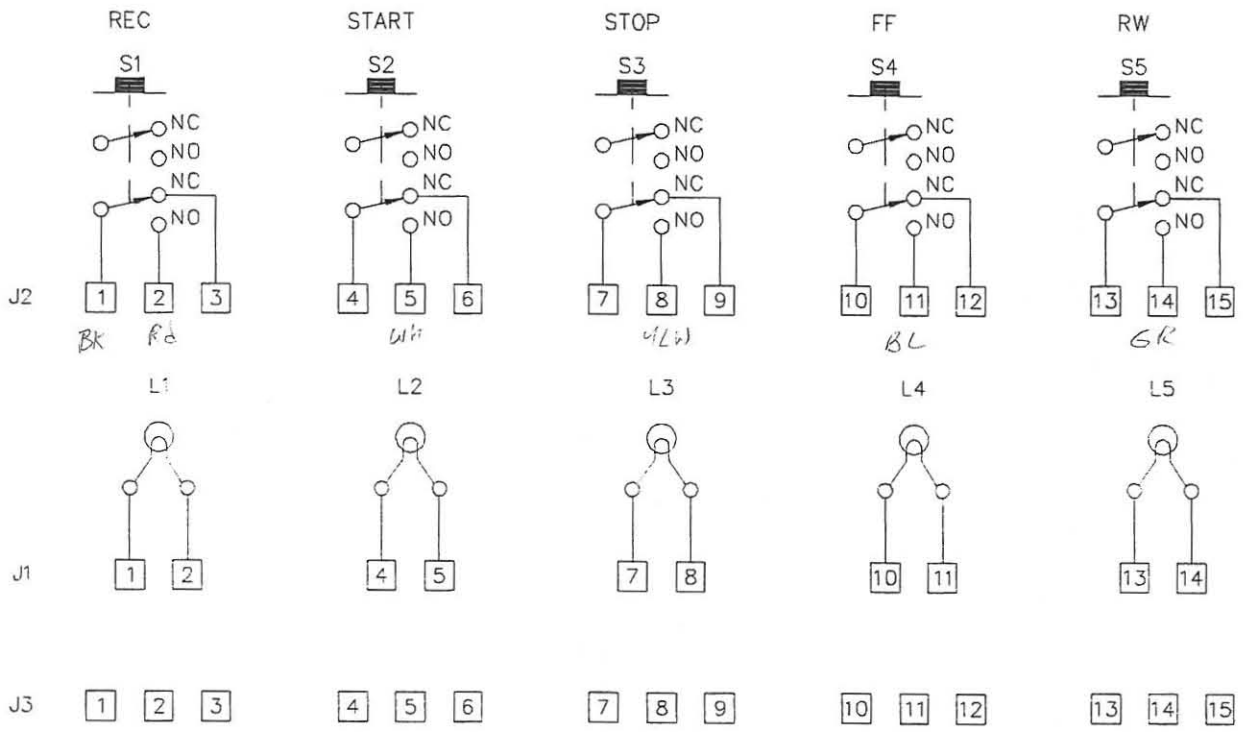
13. Sw. 5 Common	14. Sw. 5 Normally Open	15. Sw. 5 Normally Closed
10. Sw. 4 Common	11. Sw. 4 Normally Open	12. Sw. 4 Normally Closed
7. Sw. 3 Common	8. Sw. 3 Normally Open	9. Sw. 3 Normally Closed
4. Sw. 2 Common	5. Sw. 2 Normally Open	6. Sw. 2 Normally Closed
1. Sw. 1 Common	2. Sw. 1 Normally Open	3. Sw. 1 Normally Closed

J3

13. -N/C-	14. -N/C-	15. -N/C-
10. -N/C-	11. -N/C-	12. -N/C-
7. -N/C-	8. -N/C-	9. -N/C-
4. -N/C-	5. -N/C-	6. -N/C-
1. Sw. 6 Common	2. Sw. 6 Normally Open	3. Sw. 6 Normally Closed

J4

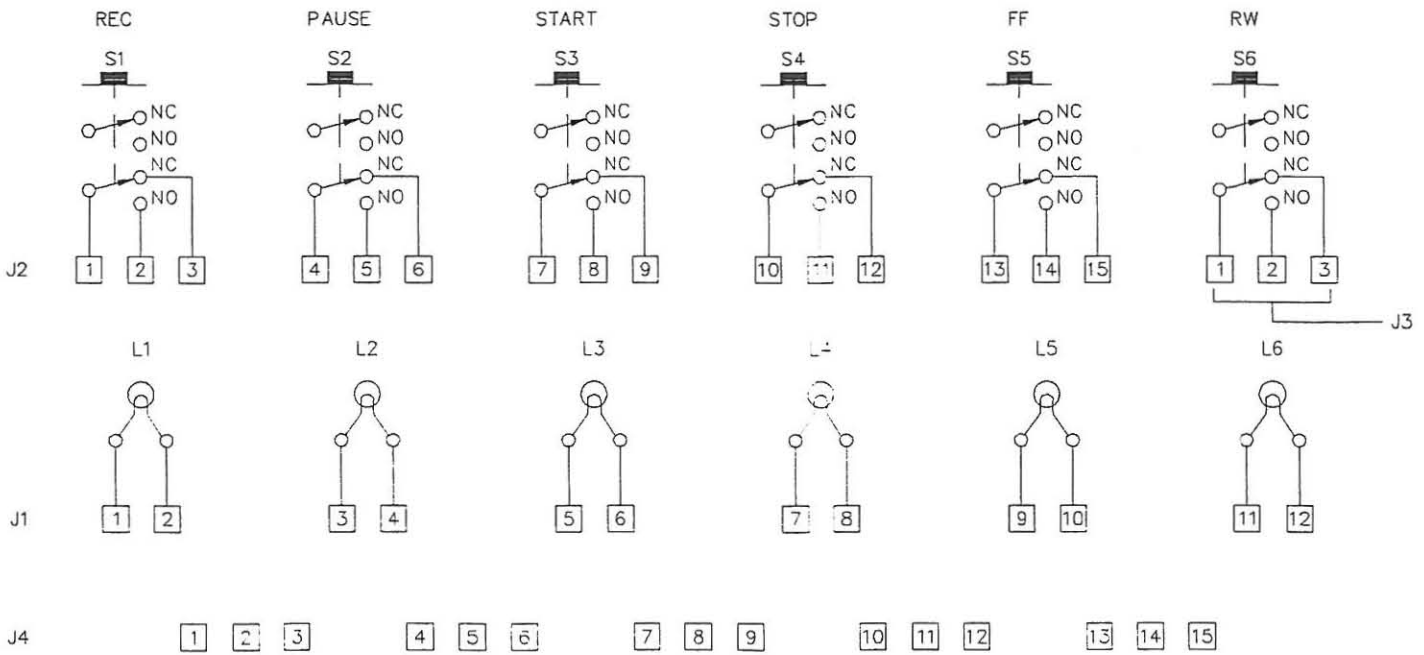
Connector Body mounted with pins but not wired at the factory.



NOTES:

1. L1 – L6 = 28V Lamp, No. 85, Wedge Base
2. S1 – S5 = Momentary, DPDT, Break-Out Clicker
3. Pins of J4 are user-assignable
4. The abbreviations "NO" and "NC" stand for "Normally Open" and "Normally Closed", respectively

SCALE: NONE	auditronics, inc. MEMPHIS, TENNESSEE, U.S.A.	
DRAWN: MWS		
ENGINEER: MWS	SCHEMATIC DIAGRAM 210-TR5 TAPE REMOTE CONTROL	
APPROVED:		
DATE: 10/2/90	PAGE: 1 OF 1	88A00308



NOTES:

1. L1 – L6 = 28V Lamp, No. 85, Wedge Base
2. S1 – S5 = Momentary, DPDT, Break-Out Clicker
3. Pins of J4 are user-assignable
4. The abbreviations "NO" and "NC" stand for "Normally Open" and "Normally Closed", respectively

SCALE: NONE	auditronics, inc. MEMPHIS, TENNESSEE, U.S.A.	
DRAWN: MWS		
ENGINEER: MWS	SCHEMATIC DIAGRAM 210-TR6 TAPE REMOTE CONTROL	
APPROVED:		
DATE: 10/2/90	PAGE: 1 OF 1	S8100412

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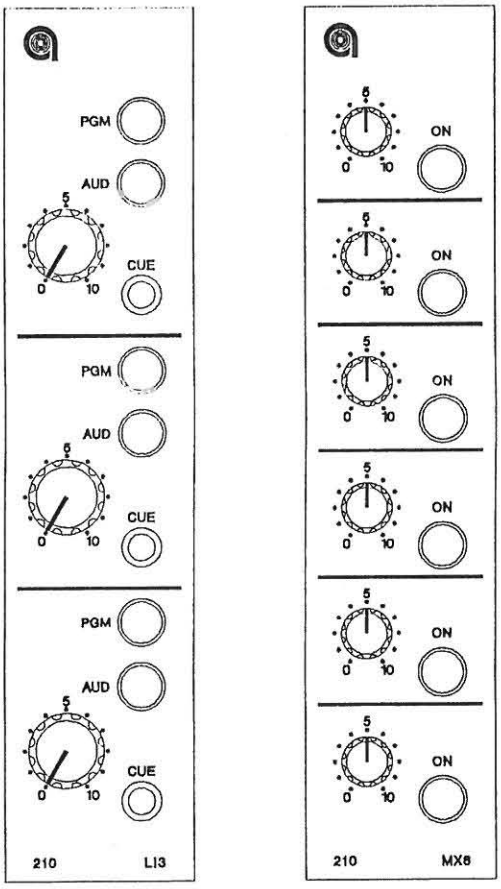
Chapter 13

210-Series Mixer Modules - 210-LI3 and 210-MX6



INTRODUCTION

The **210-MX6** is designed as an alternate mixing module to interface with a given 210-MIS Module . It allows the operator to mix line-level inputs from six sources to the 210-TEL or to some other line-level source.

Input Characteristics are:

Input Type: Active unbalanced
Input Impedance: 3kΩ
Nominal Input Level: +4dBu (1.228V RMS)

Due to the nature of the cable harness involved, this module is intended primarily for factory installation at the time of console manufacture. The Auditronics, Inc. Customer Service Department will be happy to provide a quote for special retrofit cable harnesses upon receipt of the detailed information necessary for application design.

Designed as an auxiliary mixing input for the 210-Series consoles, the **210-LI3** provides three (3) stereo mixing inputs to the Program and Audition Busses.

Note that the connections to the mixing busses of the console do not occupy the send/return points in the output modules, but instead tie directly to the motherboard busses by way of standard connectors.

Input Characteristics are:

Input Type: Balanced transformerless
Input Impedance: 20kΩ
Nominal Input Level: +4dBm

Complete installation instructions may be found later in this chapter under *Installation*.

CONTROL AND PUSHBUTTON OVERVIEW

The following is a brief summary of the features and functions of the 210-Series Mixer Modules. This section is intended to familiarize the Service/Installation Technician with the controls of these modules, as reference to the controls is frequently made in the text.

210-MX6

There are essentially two controls on the 210-MX6 Module. These two controls appear on each of the six channels.

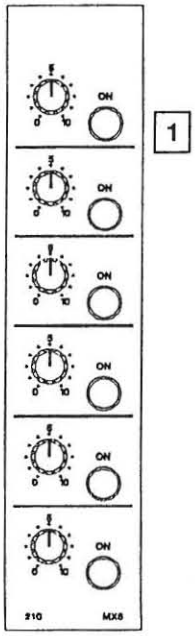


Figure 1, 210-MX6 Mono Mixer Module.

1. ON/OFF

The **ON/OFF** pushbutton, when depressed, simply enables or disables the selected channel.

2. Level

The **Level Control** adjusts same for the selected channel.

210-LI3

There are three channels on the 210-LI3 Module, each identical to the other. We will therefore describe one channel only.

1. PGM

This pushbutton, when depressed, assigns the output of the LI3 Module to the Program bus.

2. AUD

This pushbutton, when depressed, assigns the output of the LI3 Module to the Audition bus.

NOTE: The PGM and AUD on any channel may both be depressed, sending the signal to both busses.

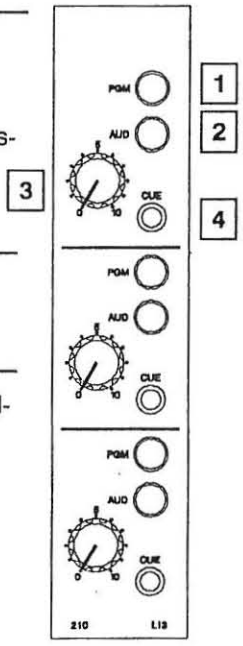


Figure 2, 210-LI3 Line Level Stereo Mixer Module.

3. Level

This rotary potentiometer simply controls the level of the signal to the chosen bus.

4. CUE

This pushbutton, when depressed, assigns the signal in the chosen channel to the CUE system, allowing the signal to be previewed through the console-mounted CUE speaker or in the headphones.

INSTALLATION

210-MX6

There is a number of options available for the wiring of the 210-MX6 Module depending upon its intended use. In its most basic function, the 210-MX6 Module might be used to mix several mono microphone signals into one module such as the 210-TEL Module. As this module requires a line-level signal, connections from microphone modules must be made from either the mic module's **Insert point send** or the **Insert point send mult** pins (see *Connector "B"* in *Chapter 4* for pin assignments). External line-level sources may be used as well.

There are two 15-pin MR connectors on the rear of the 210-MX6 Module. These connectors contain all input and output signals, power, etc. If you are following these instructions, you are apparently retrofitting this module to your operational system. In the introduction to this chapter, it was suggested that the specific intentions for this module be explained to our Customer Service Department so that Auditronics, Inc. might make up the cables for your particular application. This is highly recommended. If, however, you are making the cables yourself, the MX6 Pinouts below will be of assistance.

If the 210-MX6 Module is to be connected to an MIS Module, it may be introduced through the insert point. See the pinout list for the "B" Connector on *Page 4 - 5*.

As in all installations of this kind, refer to the Crimping Instructions in Chapter 3. Normal professional wire dress standards should be applied.

MX6 Pinouts

"#1" Connector

13. Shield 5	14. Input 5	15. Input 6
10. Shield 4	11. Input 4	12. Shield 6
7. Shield 3	8. Input 3	9. Common
4. Shield 2	5. Input 2	6. Common
1. Shield 1	2. Input 1	3. Common

"#2" Connector

13. Common	14. -15VDC Output	15. +15VDC Output
10. Common	11. Common	12. Common
7. Common	8. Audio Out	9. Audio Out Mult
4. Common2	5. Common	6. Common
1. Common1	2. +24VDC	3. -24VDC

210-LI3

This module allows the user to mix three (3) stereo line-level sources into the Audition, Program, or Cue busses of the 210-Series Console.

Input connections are in P1 and P2, located on the rear panel of the module chassis. Connector P1 is located closest to the meter panel. See the Pinout table below.

One of two cable harnesses is used to wire the outputs to the console motherboard, depending upon whether the module is to be mounted on the left or right side of the console.

If the 210-LI3 Module is mounted on the left side of the console, harness connections are as follows:

The 15-in AMP connector plugs into P3 on the LI3.

P1 on the harness plugs into motherboard connector "J". (See *Console Connector Location Diagram* at the end of *Chapter 3*).

P2 on the wiring harness plugs into motherboard connector "H".

P3 on the wiring harness plugs into the connector located between the "B" and "C" connectors at the left edge of the motherboard.

The remaining white wire with a terminal lug on the end should connect to common via a screw in the console mainframe.

Double check all connections before applying power. Pay particular attention to the "H" connector, the power connector. Wires should be connected to Pins 1 and 3 (+24VDC and -24VDC). Be sure all plugs are properly oriented in their sockets with the locking tab properly seated.

If the 210-LI3 Module is situated on the right side of the console, harness connections are made as follows:

The 15-pin AMP connector plugs into P3 on the rear of the LI3 Module.

P1 on the wiring harness plugs into motherboard connector "J".

The three unshielded wires must be inserted into the motherboard Program "D" connector as follows:

Purple	Pin 3 (-24VDC)
Red	Pin 2 (+24VDC)
White	Pin 1 (Common)

The four shielded wires must be inserted into the motherboard Audition "D" connector as follows:

Program Left	Pin 2
Program Right	Pin 5
Audition Left	Pin 11
Audition Right	Pin 14

Double check all connection before applying power to the console, especially the power connections to the Program "D" connector.

Installing the output wiring completes installation. Apply power to the console. Using an external oscillator set for +4dBm output at 2kHz, verify proper operation of all inputs, assign switches, level controls and CUE switches.

Improper operation is most likely due to wiring errors during installation.

LI3 Pinouts

"#1" Connector

13. -N/C-	14. -N/C-	15. -N/C-
10. -N/C-	11. -N/C-	12. -N/C-
7. Common	8. Common	9. Common
4. Shield	5. Input 1 Right (–)	6. Input 1 Right (+)
1. Shield	2. Input 1 Left (–)	3. Input 1 Left (+)

"#2" Connector

13. Shield	14. Input 3 Right (–)	15. Input 3 Right (+)
10. Shield	11. Input 3 Left (–)	12. Input 3 Left (+)
7. Common	8. Common	9. Common
4. Shield	5. Input 2 Right (–)	6. Input 2 Right (+)
1. Shield	2. Input 2 Left (–)	3. Input 2 Left (+)

"#3" Connector

13. Common	14. +24VDC	15. -24VDC
10. Common	11. CUE Audio Output	12. CUE Logic Output
7. Common	8. AUD Right Output	9. Common
4. Common	5. AUD Left Output	6. Common
1. Common	2. PGM Left Output	3. PGM Right Output

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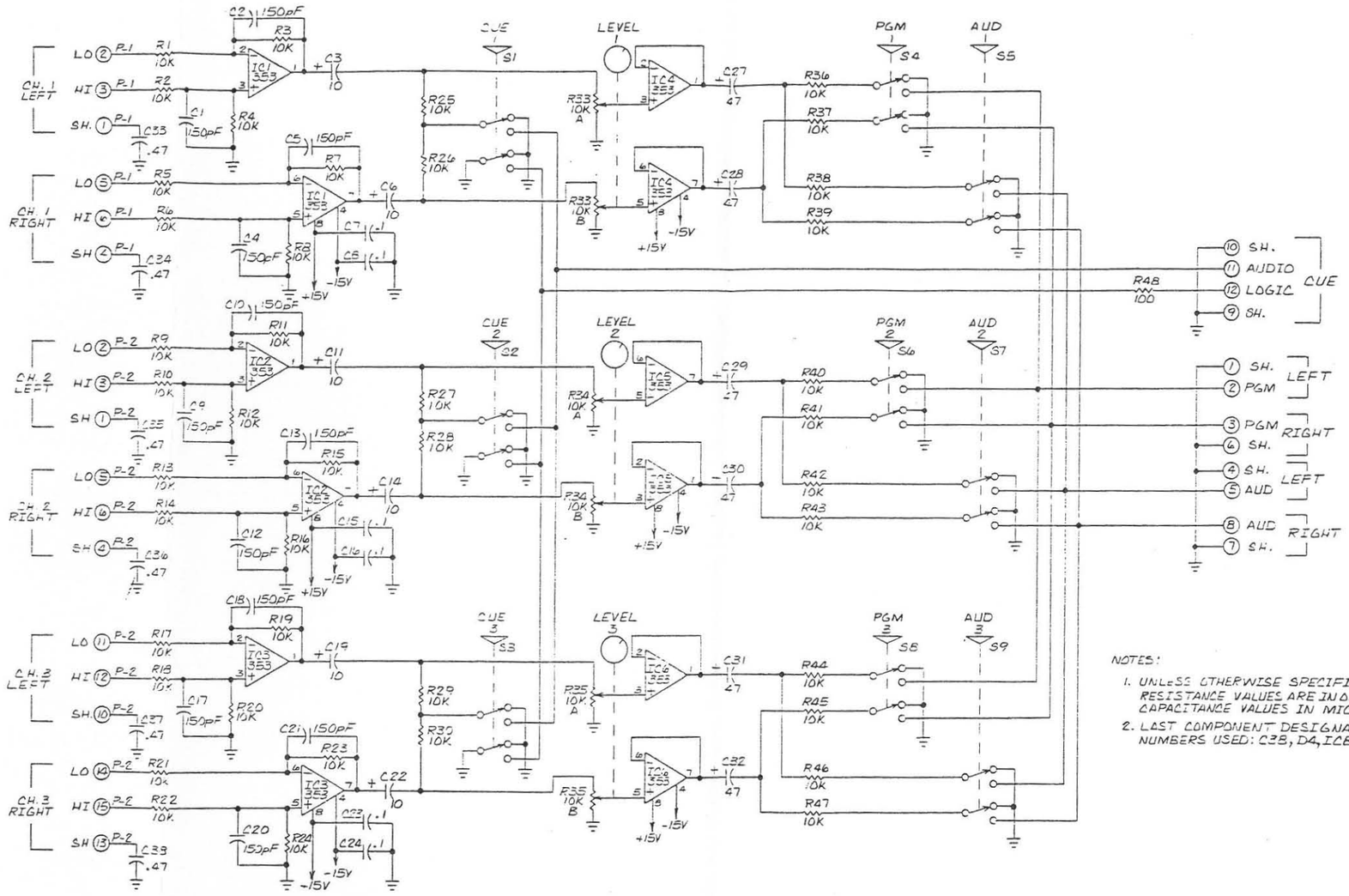
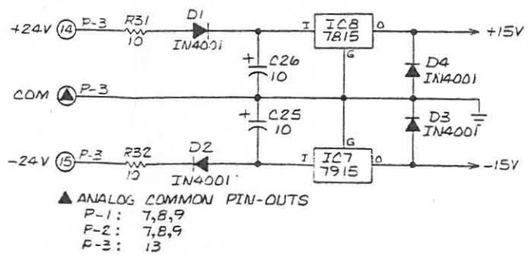


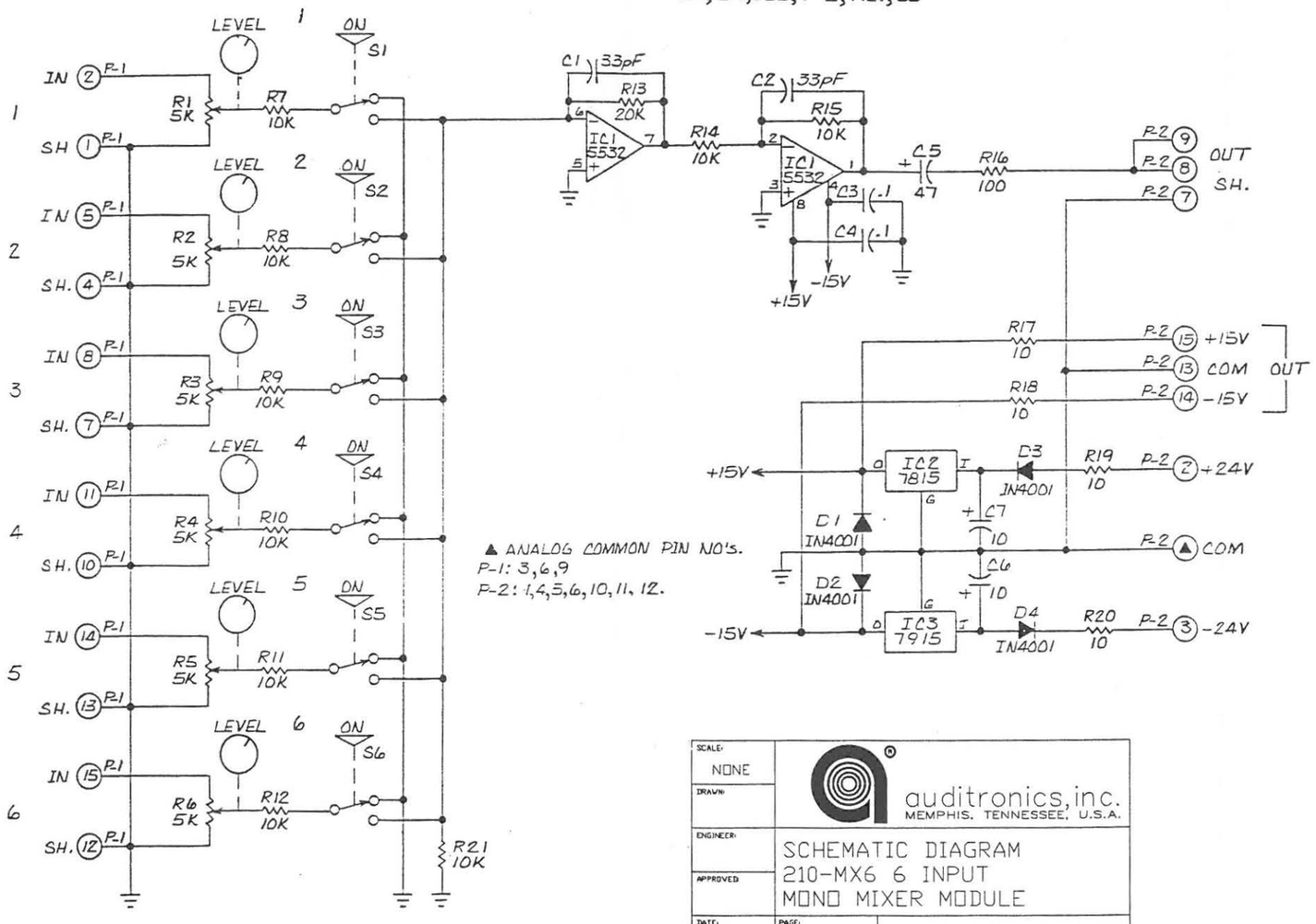


NOTES:

1. UNLESS OTHERWISE SPECIFIED: RESISTANCE VALUES ARE IN OHMS CAPACITANCE VALUES IN MICROFARADS
2. LAST COMPONENT DESIGNATION NUMBERS USED: C38, D4, IC8, P-3, R48, S9

SCALE: NONE	auditronics, inc. MEMPHIS, TENNESSEE, U.S.A.
DRAWN:	
ENGINEER:	SCHEMATIC DIAGRAM 210-LI3 3-LINE INPUT MIXER
APPROVED:	
DATE: 12/7/90	PAGE: 1 OF 1

NOTES:
1. RESISTANCE VALUES ARE IN OHMS. CAPACITANCE VALUES ARE IN MICROFARADS.
2. LAST COMPONENT DESIGNATIONS USED: C7, D4, IC3, P-2, R21, S6

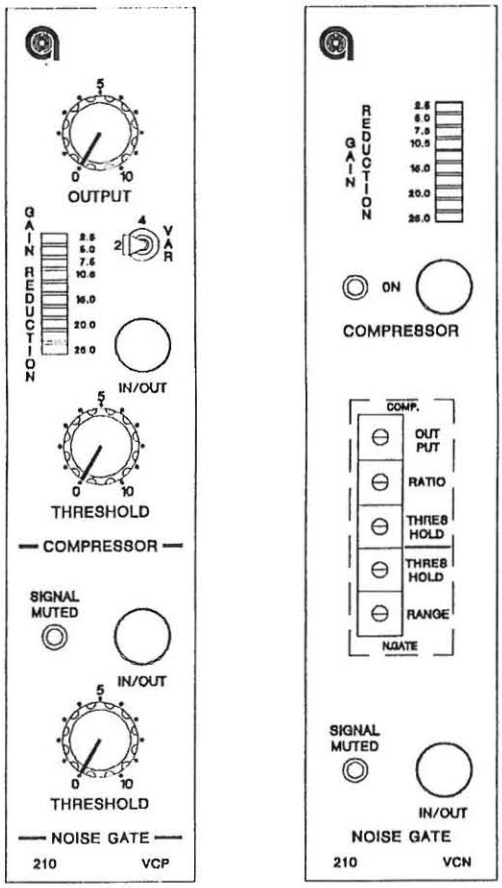


▲ ANALOG COMMON PIN NO's.
P-1: 3,6,9
P-2: 1,4,5,6,10,11,12.

SCALE: NONE	auditronics, inc. MEMPHIS, TENNESSEE, U.S.A.
DRAWN:	
ENGINEER:	SCHEMATIC DIAGRAM
APPROVED	210-MX6 6 INPUT MONO MIXER MODULE
DATE: 12/7/90	PAGE: 1 OF 1

Chapter 14

Voice Controller Modules - 210-VCP and -VCN



INTRODUCTION

The 210-Series Voice Controller Module is a stereo signal processing device comprised of a **Noise Gate** and a **Compressor/Limiter**, each section being capable of operating independently or in unison with the other. The module's design uses peak sensing circuitry to control fast transients along with log release characteristics to allow long release times with fast initial recovery. Both of these features are ideal for maximizing average audio levels.

Input to the module is left and right stereo, and the output is a 20dB/Volt control voltage to be used on the VCA in an associated input module (210-MIS or 210-SLI/SLB). Since, in stereo operation, only one control voltage is generated and applied to both the left and right VCAs, stereo matching is better than 1%.

The 210-VCP and -VCN are essentially the same, the main difference being that the -VCN Module's controls are recessed under a blank panel, ensuring that control calibrations are not changed.

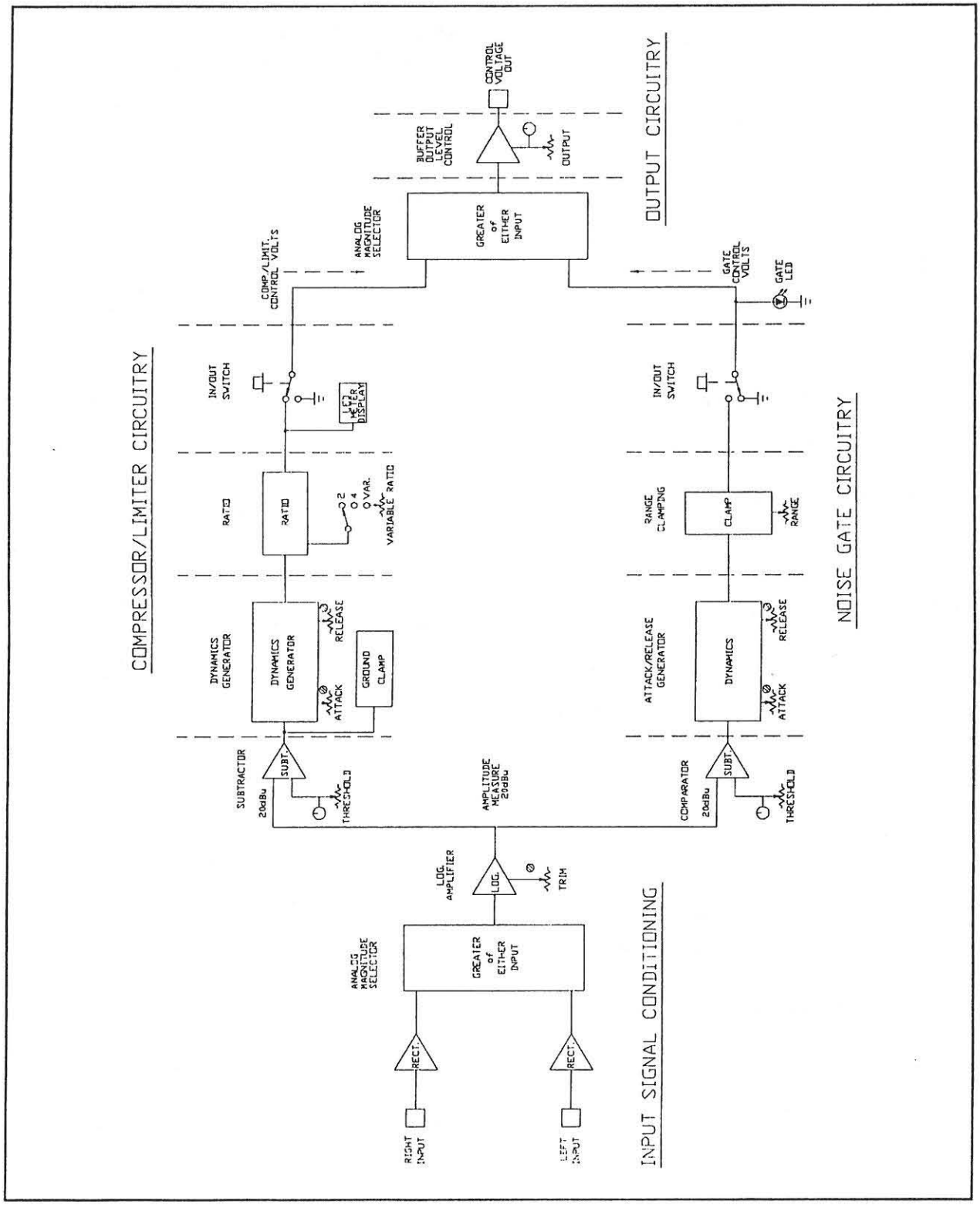


Figure 1, 210-VCP, Voice Controller Module Signal Flow.

CONTROL AND PUSHBUTTON OVERVIEW

1. Output Control

The **Output Control** controls the main output signal of the module. After an input signal has been processed by the module, this control is used to maintain nominal unity gain through the input module.

2. Gain Reduction Display

This bargraph meter (which operates regardless of the module's IN/OUT status) indicates the difference between input and output level, assuming no gain has been added (output control at "0").

3. Ratio Switch (VCP only)

The **Ratio** switch allows the operator to select the ratio of change between input and output.

4. Threshold (Compressor section)

With approximately 50dB of range, the **Threshold** control sets the audio reference level above which compression or limiting is to occur.

5. "Signal Muted" LED

This LED illuminates any time that the Noise Gate calls for muting of the signal.

6. Threshold (Noise Gate section)

The **Threshold** control varies the audio reference level; if the audio input level is below the reference, the signal is muted.

7. IN/OUT Pushbuttons

Both the Compressor/Limiter and Noise Gate sections of the Voice Controller Mocules have an **IN/OUT Pushbutton**. This simply enables or disables its respective section within the module.

The Noise Gate and Compressor/Limiter sections of this module may be used independently of one another or simultaneously.

8. Ratio Control (VCN only)

The **Ratio** control allows the operator to select the ratio of change between input and output.

9. Range Control (VCN only)

The **Range** control sets the amount of attenuation applied to the input signal whenever it is below the threshold reference level.

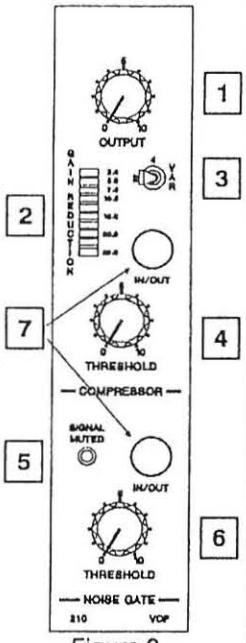


Figure 2, 210-VCP Voice Controller Module.

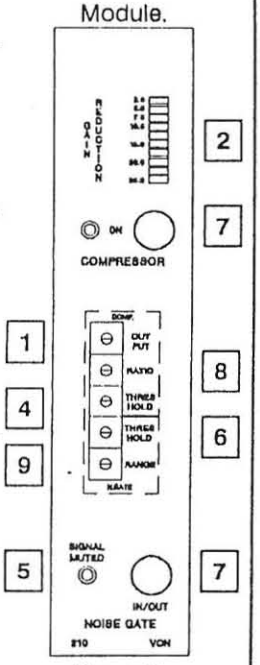


Figure 3, 210-VCN Voice Controller Module.

INSTALLATION

Normally, the 210-VC is supplied pre-wired in the console mainframe from the factory. A situation may exist, however, where the module is ordered for retrofit or the user wishes to change its assigned input module to another position or add another optional module such as a 210-PEQ, for example.

As all 210-Series Modules, the 210-VC has its input, output, and power connections mounted directly on the rear of the module. This allows the module to be interfaced to any module location in the console through the use of the appropriate connector harness, which is supplied with the module. As always, power to the console should be OFF during installation.

After mounting the module into its desired position in the console mainframe, the meter turret should be opened and the module/motherboard assembly flipped up to reveal the motherboard connectors mount on its underside.

WARNING!! Be sure that the module/motherboard assembly is securely locked in the UP position. Serious injury can result if the assembly is accidentally closed while hands or fingers are inside the console shell.

Referring to the *Console Connector Location* drawing at the end of *Chapter 3*, the installer should remove the shorting plug on Connector "B" of the input location to which the VC Module is to be connected. If the input module is an SLI Module, cable harness #19079 is required to join Connector "B" to the VC connector.

If the VC is to be connected to an MIS Module with no other modules in use, cable harness #19075 is required between the input's "B" Connector and the VC connector. Again, connection of this wiring harness completes installation.

If the VC is to be connected to an MIS Module in conjunction with a 210-EQ or -PEQ Module, cable harness #19080 is required. One end of the harness is plugged into the input position's "B" Connector, the other end into the VC's connector, and the center connector to the EQ or PEQ's connector. This completes installation.

The installer may now refer to the 210-VC *Checkout Procedures* detailed later in this chapter and to the *Set-Up and Operation* section, earlier in this chapter.

A schematic diagram of the 210-VC Module may be found at the end of this chapter.

P1 Connector

13. Common	14. +24VDC	15. -24VDC
10. -N/C-	11. -N/C-	12. VCA Control Output
7. -N/C-	8. -N/C-	9. -N/C-
4. -N/C-	5. Audio Input 'A' Mult	6. Audio Input 'B'
1. -N/C-	2. Audio Input 'A'	3. -N/C-

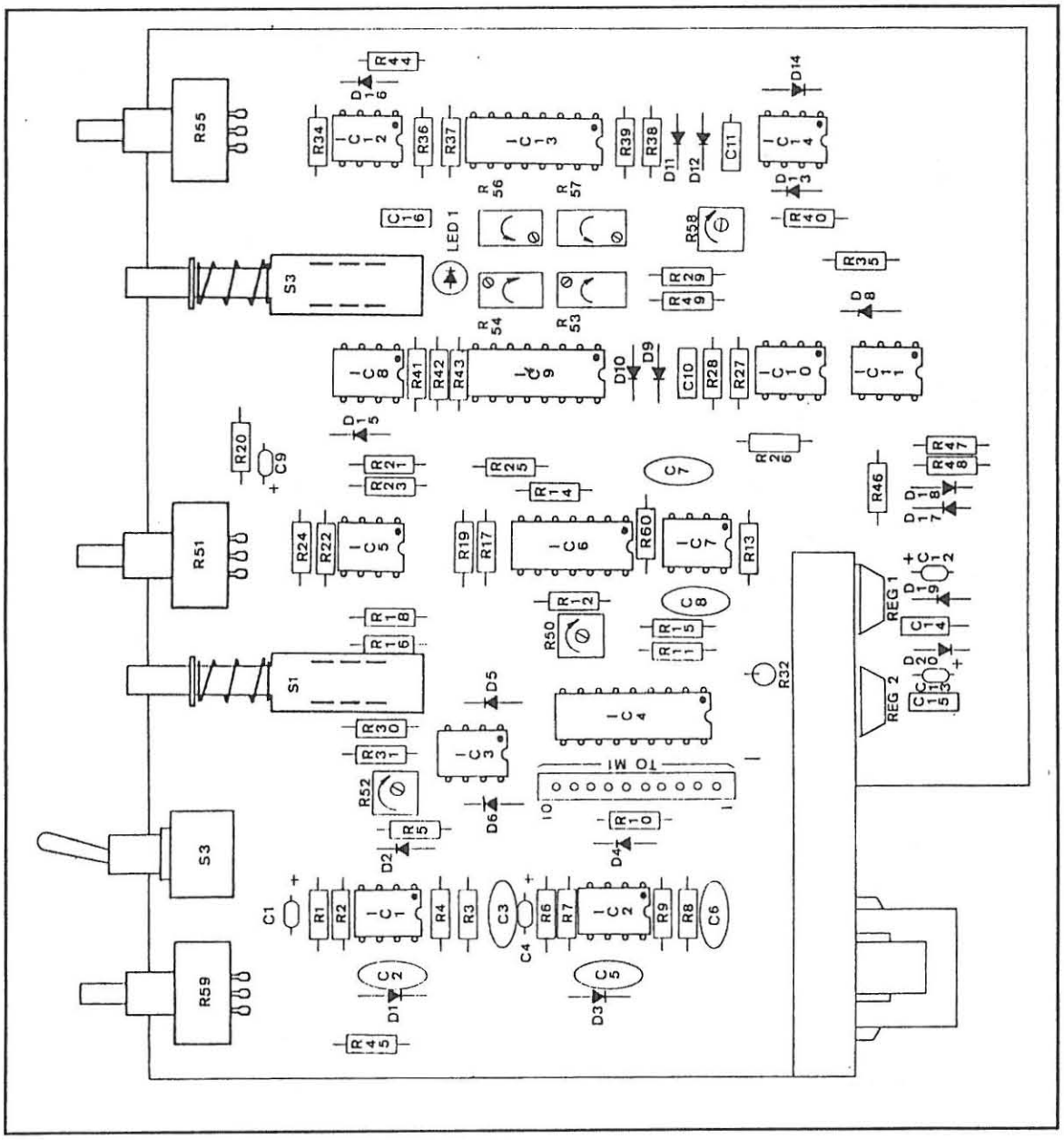


Figure 2, 210-VCP Component Location Diagram.

SETUP AND OPERATION

In that it is rather difficult to adjust this unit with both sections operating simultaneously, it is suggested that the operator set up the Noise Gate first, followed by the Compressor/Limiter.

Adjust the console for normal operation. If the 210-VC's associated input module is an MIS Module, use a live microphone as the source. If an SLI Module is used, the suggested source material is pre-recorded music with medium to high dynamic range.

Noise Gate

The Noise Gate's function is to remove all audio below a given, user-designated threshold. The **Threshold** control on the VCP Module is front panel-mounted due to the fact that voice levels vary from person to person, as well as from music source to source. The unit should be adjusted for each situation, this adjustment best being done by ear. The red **Signal Muted LED** will illuminate any time the module audio is OFF.

On the 210-VCN Module, this (and all other controls) is located beneath the blank panel.

Adjustment

Depress the **Noise Gate's** "IN/OUT" pushbutton (to the "IN" position). Release the Compressor/Limiter's "IN/OUT" pushbutton (to the "OUT" position). Set the Noise Gate Threshold control to "0" (zero) (full CCW on the VCN Module).

Stop the input material so that the only signal in the input module is noise from the source reproduce electronics, or studio background noise if a microphone is used.

Rotate the **Threshold** control clockwise until the Signal Muted LED just barely illuminates. Now rotate the control just a bit farther so that it stays lit brightly.

Re-introduce the program material. The LED should extinguish and natural-sounding program material should be heard. It is recommended that the user take this opportunity to experiment with different settings and to take note of their effect on the program material. This is the best way to become familiar with the unit's general operation.

NOTE: If background noise is particularly high, the action of the Noise Gate may cause a "swooshing" sound as the gate comes in and out. In such cases, the gating range may be adjusted via R58 on the module's printed circuit board (see *Figure 2*).

On the 210-VCN Module, the Range control is located with the other adjustments under the panel (see Control and Pushbutton Overview on Page 14 - 4).

Compressor/Limiter

The Compressor/Limiter acts to suppress transient signals above a given threshold in order to keep the output of its associated input module from exceeding a desired level. This portion of the 210-VCP Module operates in three basic stages: First, a **Threshold** control on the front panel determines the level at which compression is to begin; Second, a compression **Ratio** control determines the amount of compression applied; Third, an **Output Level** control varies the overall signal level after processing.

Adjustment

Release the Noise Gate's "IN/OUT" pushbutton (to the "OUT" position). Depress the Compressor/Limiter's "IN/OUT" pushbutton (to the "IN" position).

Set **Compressor/Limiter Threshold** and **Output** controls to "0" (zero) (full CCW on the VCN Module). Set the Ratio switch (VCP Module) to "2". This provides for a mild compression ratio of 2:1. Gradual CW movement of the trimpot on the VCN Module will increase the compression ratio.

ALIGNMENT PROCEDURES

Although the front panel controls have been reduced to the bare minimum to reduce the likelihood of operator and confusion, all controls associated with each device are available for adjustment. Those controls most capable of signal degradation due to improper setting are set via circuit board trimpots. Following are the internal controls and their factory settings:

Noise Gate

Attack 3ms/20dB
Release 5 sec/20dB
Range 60dB

Compressor/Limiter

Attack 3ms/20dB
Release 5 sec/20dB
Variable Ratio . . . . Infinity (hard limiting)

Due to the fact that field adjustment of these controls is extremely difficult to achieve without seriously degrading signal quality, Auditronics, Inc. recommends that units be returned to the factory for recalibration if/when required.

Field Alignments

Situations may arise wherein the user may decide that the particular application of the 210-VCP Module will require a departure from the factory settings. **NOTE:** The attack and release trimpots for the Noise Gate and Compressor/Limiter are extremely sensitive even though they are 20-turn devices. Note the following recommendations:

1. Attack trim adjustments should NOT be attempted. Even if the factory setting of 3ms is doubled or halved, no audible difference will result. Realignment to 3ms requires a sophisticated pulse generator and a dual-trace storage oscillator.

2. Release trim adjustments should be undertaken with utmost care. Although they are best executed with a pulse generator and a storage scope, they may be attempted by ear. Be sure, however, to mark the factory set starting position and to keep track of all adjustment turns so that the trimpot may be returned to its original position if necessary.

3. Be sure to check and double-check that the pot to be trimmed is the correct one. They are located quite close to one another and may be mistaken.

Refer to the component location diagram at the end of this chapter for the location of the trimpots and the direction they should be turned.

Noise Gate

The gating attack time should be fast (3ms - factory setting) and the release time should be long (.5 sec - factory setting). If the audio sounds choppy, it is usually due to an overly short release time. Also, an excessively fast attack time tends to blur beginning syllables, due to the abrupt interruption of the wave front. The range control determines the depth of attenuation of the audio signal when the input module is gated off. This is factory set to 60dB. In instances where the background noise level is very high, the action of the noise gate may cause a "swooshing" sound. This may be alleviated by decreasing the amount of gate attenuation through adjustment of the **Range** control:

1. Using an external oscillator set for 2kHz, set the console up for +4dBu IN/+8dBu OUT for SLI Modules, or -50dBu IN/+8dBu OUT for MIS Modules.

2. Depress the Noise Gate ON/OFF pushbutton to the ON position and release the Compressor/Limiter ON/OFF pushbutton to the OFF position.

3. Rotate the Noise Gate Threshold control to "0" (zero). With only the test signal assigned to the PGM output, verify the\at the console's PGM output is +8dBu.

4. Rotate the Threshold control clockwise; stop rotation at the point where the **Signal Muted LED** illuminates.

5. With a voltmeter across the console's PGM output, adjust the **Range** trim until the console output reflects the level of desired attenuation. For example, for -25dB of attenuation, the range control should be adjusted until the console's output reads -17dBu (25dB below +8dBu).

Compressor/Limiter

Attack times are adjustable between 100 μseconds and 10 seconds, and release times from 2 mSec to 2 minutes. Adjustment of attack and release times are factory set to 3ms and .5 sec, respectively, a combination which covers the vast majority of requirements.

While the VAR position of the ratio selector switch is factory set to a ratio of infinity:1 for hard limiting, the user may wish to set this control to some other ratio:

1. Using an external oscillator set for 2kHz, set the console up for +4dBu IN/+8dBu OUT for SLI Module, or -50dBu IN/+8dBu OUT for MIS Modules.

2. Release the Noise Gate ON/OFF pushbutton to the OFF position and depress the Compressor/Limiter ON/OFF pushbutton to the ON position.

3. Rotate the Compressor/Limiter Output and **Threshold** controls to "0" (zero) (full CCW on the VCN Module). Place the **Ratio** switch on "**VAR.**" **NOTE:** On the VCN Module, the ratio is preset at the factory for 2:1.

4. Rotate the Threshold control until the top segment of the **Gain Reduction Display** begins to illuminate, then back off slightly.

5. Increase the external oscillator output by 10dB. The Gain Reduction Display should indicate 10dB of gain reduction and the console's PGM meter should indicate no change in output level. This is due to the action of the factory-set infinity:1 hard limiting ration on the VAR position.

6. Adjust the VAR trim to achieve the desired ratio setting using the 10dB oscillator increase as a reference point. For example, for a 10:1 ratio, adjust the VAR trim so that the console output indicates +9dBu, i.e. the input has increased 10dB and the output increases 1dB. For a 5:1 ratio, the output would increase 2dB, and so on.

In the event that unqualified personnel may have tampered with the settings of the 210-VCP and the user is unable to return the variable settings to their proper levels by physical realignment, the user may implement the following procedure to return the controls to a close approximation of the original settings:

1. Place a 3.5-digit digital voltmeter from ground to the wiper of the trimpot being adjusted.

2. Adjust the control so that the proper DC voltage shown on the chart below is indicated on the wiper of said trimpot.

Noise Gate	Attack	-13.57VDC
	Release	-13.86VDC
	Range	+ 2.98VDC
Comp./Limiter	Attack	-13.36VDC
	Release	-13.93VDC

If satisfactory performance cannot be obtained after these adjustments, the module must then be returned to the factory for recalibration. This procedure is not covered under the standard One-Year Parts and Labor Warranty. Return authorization must be secured from Customer Service before returning any goods to the factory to prevent any shipment from being returned unopened.

Contact: Auditronics' Customer Service Department
3750 Old Getwell Rd.
Memphis, TN 38118
(901) 362-1350

CHECKOUT OF THE 210-VCP

Prior to checkout, it is assumed that the service/installation technician will have selected and completed all module option wiring as described in the module wiring section. The console should be properly grounded and interconnected with all auxillary systems.

Test equipment required: AC Voltmeter, Calibrated Oscilloscope, Audio Frequency Test Oscillator terminated with 600Ω.

Turn console power ON.

Referring to the console connector pinout tables, connect the oscillator to the input of the SLI or MIS Module associated with the VCP.

Adjust the oscillator to produce a 2kHz sine wave at +4dBu (1.9v RMS) for the SLI; -50dBu (2.45mv RMS) for the MIS.

Turn the associated input module ON and set the fader to "0" attenuation. This should put a -2dBu output at the input module's direct out. If not, adjust the fader accordingly.

Engage the PGM assign switch. PGM left and right meters should read 0dBm.

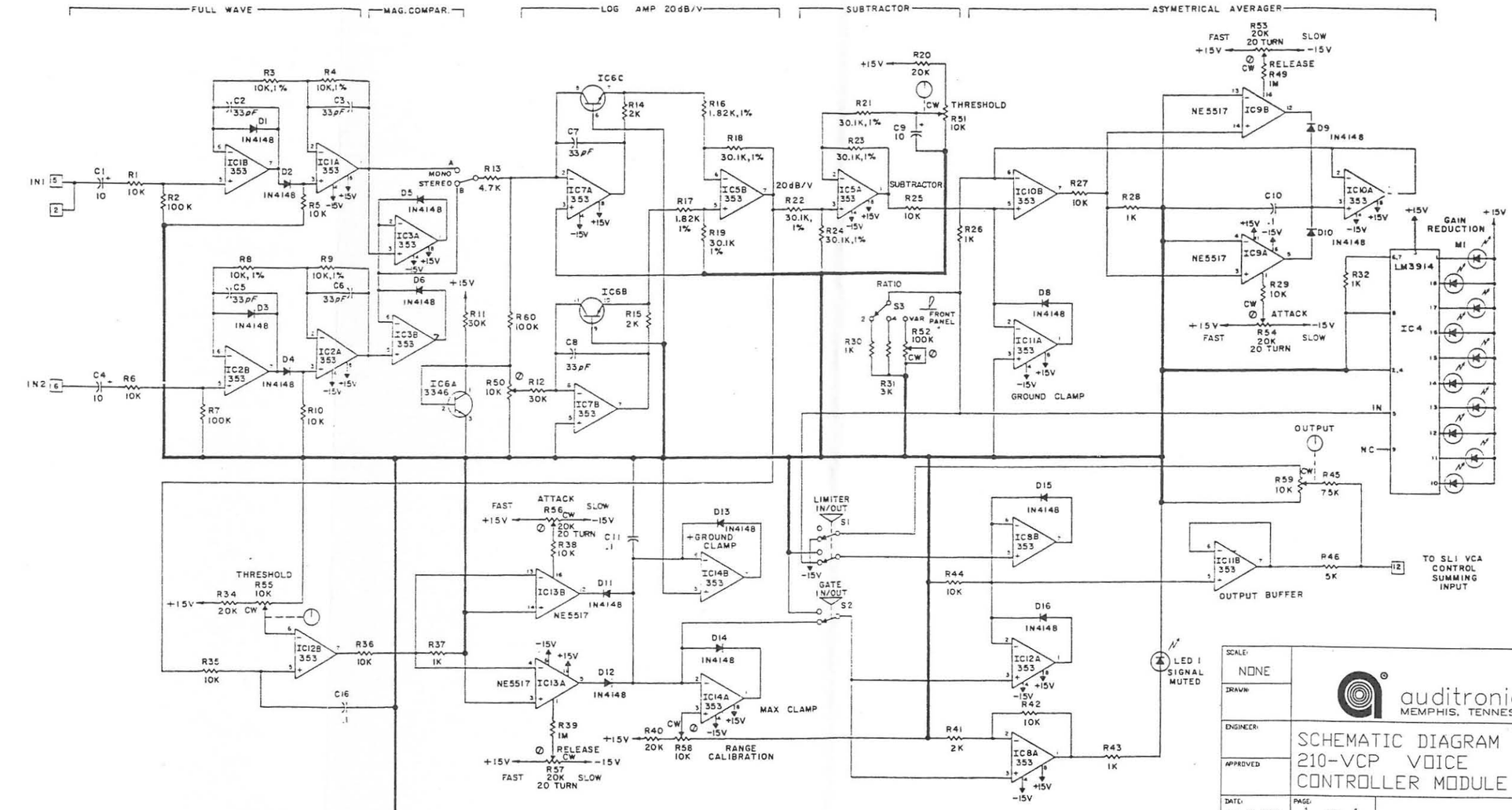
Depress the Noise Gate IN/OUT pushbutton to the "IN" position; release the Compressor/Limiter IN/OUT pushbutton to the "OUT" position. Rotate the **Noise Gate Threshold** control back and forth slowly fro "0" to "10". The **Signal Muted** LED should illuminate slowly and extinguish quickly as the threshold reference level passes through the actual input level. The PGM output meters should go down slowly and come back to "0 VU" quickly, indicating that the VCP module is, in fact, controlling its associated input module.

Now, release the Noise Gate IN/OUT pushbutton to the "OUT" position and depress the Compressor/Limiter IN/OUT pushbutton to the "IN" position. Set the **Output** control to "0" (zero) and **Ratio** switch to "VAR". Rotate Compressor/Limiter Threshold control from "10" to "0". At a point near "5", the **Gain Reduction Display** will begin to illuminate, one segment at a time from the top down, indicating increasing gain reduction. Stop rotating the control when the display indicates 20.0dB. Note also that the PGM meters have been dropping and should now read "-20 VU". This verifies that the Compressor/Limiter is, in fact, controlling the associated input module.

'Flip' the Ratio switch to "4"; the Gain Reduction Display should now read 15.0dB and the PGM meters "-15 VU". Flip the Ratio switch to "2"; the Gain Reduction Display should now read 10.0dB and the PGM meters "-10 VU"

Rotate the Output control clockwise and observe that the PGM meter is increasing its reading. Stop rotation when the meter indicates 0 VU.

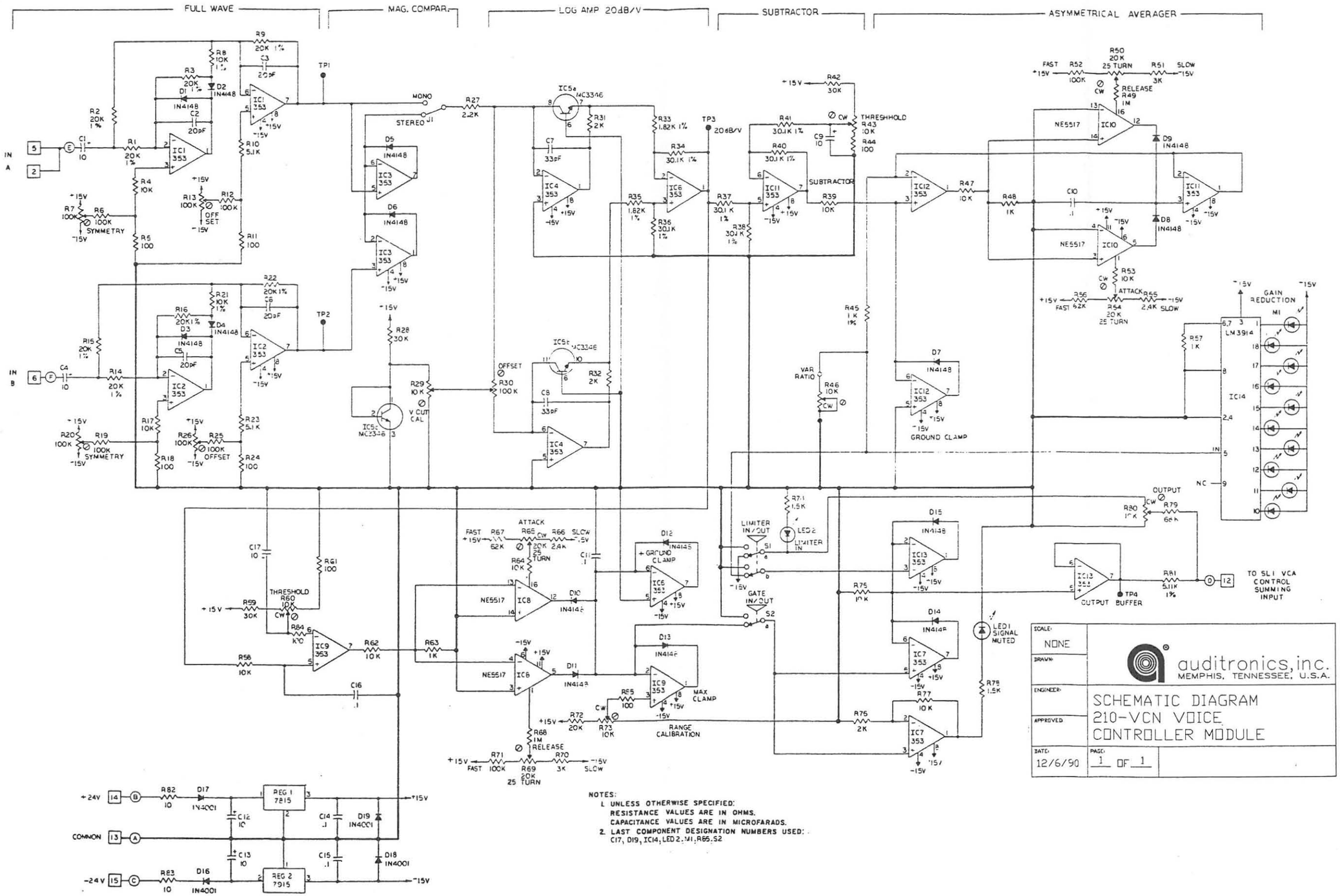
Release the Compressor/Limiter IN/OUT pushbutton (to the "OUT" position) and note that the PGM meter still indicates 0 VU, while the Gain Reduction Display still indicates 10dB. This is because the amount of gain reduction is always displayed even if the Compressor/Limiter is not in control of its associated input module. Note that moving the Compressor/Limiter Threshold control will change the Gain Reduction Display but not the PGM meter reading.



NOTES

UNLESS OTHERWISE SPECIFIED: ALL DIODES IN4148
RESISTANCE VALUES ARE IN OHMS.
CAPACITANCE VALUES ARE IN MICROFARADS.
LAST COMPONENT DESIGNATION NUMBERS USED:
C16, D20, IC14, LED 1, M1, R60, S3
COMPONENT DESIGNATIONS NOT USED: D7

SCALE: NONE	auditronics, inc. MEMPHIS, TENNESSEE, U.S.A.
DRAWN:	
ENGINEER:	SCHEMATIC DIAGRAM 210-VCP VOICE CONTROLLER MODULE
APPROVED:	
DATE: 12/6/90	PAGE: 1 OF 1



NOTES:

1. UNLESS OTHERWISE SPECIFIED:
   RESISTANCE VALUES ARE IN OHMS.
   CAPACITANCE VALUES ARE IN MICROFARADS.
2. LAST COMPONENT DESIGNATION NUMBERS USED:
   C17, D19, IC14, LED 2, Q1, R86, S2

Chapter 15

210-Series Line Output Selector Module - 210-LOS

Introduction

The 210-LOS Module provides the ability to feed Program and/or Audition output to two destinations, for example, an AM and an FM transmitter.

The "B" connectors associated with the DLO Modules in the Program and Audition positions are the output connectors on the 210 Console (see *Connector Location Map* on *Page 3 - 15*). The 210-LOS Module is essentially an extension of these connectors in that it allows the user to split the signals and send them to two destinations rather than just one.

As there are essentially only two self-explanitory controls on the front panel of this module, a *Control and Pushbutton Overview* will not be necessary in this chapter.

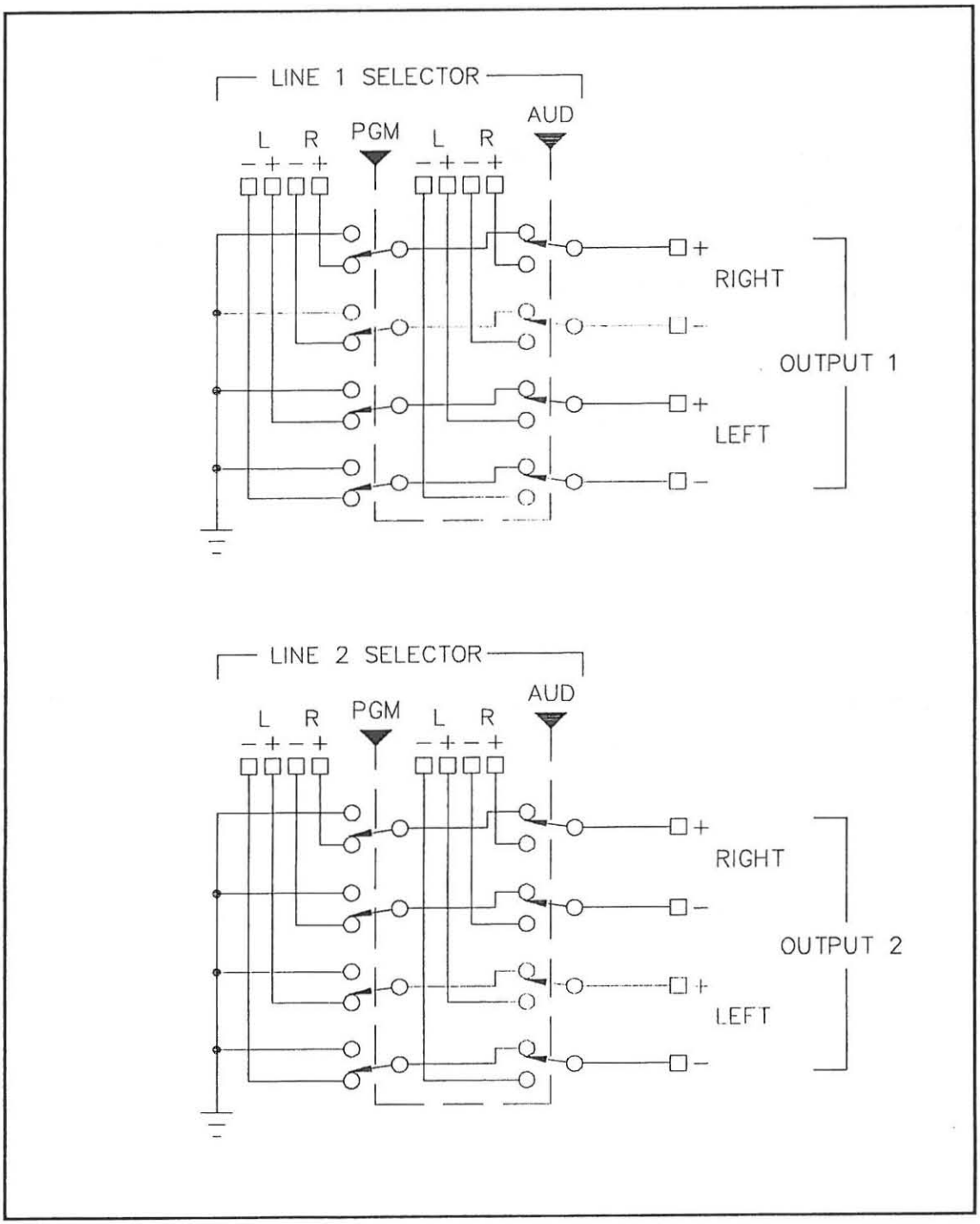


Figure 1, 210-LOS, Line Output Selector Signal Flow.

INSTALLATION

INPUT CONNECTIONS

After physically mounting the module in a suitable position in the console, a cable must be constructed to run between the DLO Modules (main console outputs) and the LOS Module. See *Crimping Instructions* on *Page 3 - 6* of this manual.

There are two variations on the wiring of the 210-LOS Module, both of which are covered in the following text.

Using the Program DLO Connector Pinouts on page 8 - 6, the Audition DLO Connector Pinouts on Page 8 - 7, the *Connector Location Map* on *Page 3 - 15,* and the LOS Module Connector Pinouts (immediately following), construct a cable connecting the PGM Left and Right outputs on the DLO to the PGM Left and Right Inputs on the LOS.

PGM "B" CONNECTOR	LOS CONNECTORS
B13	P1 - 1
B14	P1 - 2
B15	P1 - 3
B10	P3 - 1
B11	P3 - 2
B12	P3 - 3
B4	P1 - 4
B5	P1 - 5
B6	P1 - 6
B1	P3 - 4
B2	P3 - 5
B3	P3 - 6

AUD "B" CONNECTOR	LOS CONNECTORS
B13	P1 - 7
B14	P1 - 8
B15	P1 - 9
B10	P3 - 7
B11	P3 - 8
B12	P3 - 9
B4	P1 - 10
B5	P1 - 11
B6	P1 - 12
B1	P3 - 10
B2	P3 - 11
B3	P3 - 12

OUTPUT CONNECTIONS

Output 1	Output 2
P2-6. Line 1 Right (+)	P4-6. Line 2 Right (+)
P2-5. Line 1 Right (–)	P4-5. Line 2 Right (–)
P2-4. Line 1 Right Shield	P4-4. Line 2 Right Shield
P2-3. Line 1 Left (+)	P4-3. Line 2 Left (+)
P2-2. Line 1 Left (–)	P4-2. Line 2 Left (–)
P2-1. Line 1 Left Shield	P4-1. Line 2 Left Shield

A variation on this wiring configuration would be to jumper the signals from the Line 1 Selector on the LOS Module to the Line 2 Selector rather than to run two sets of signals from the DLO Modules as described above. In essence, run the first set of signals (Program and Audition Left, Right, and Shield) to the Line 1 Selector as described above, then, jumper the signals on the LOS P1 connector to the same pins on the LOS P3 connector. This will achieve the same final results.

OUTPUT CONNECTIONS

The P2 and P4 connectors on the LOS Module are now the main output connections, P2 is Line 1 and P4 is Line 2. By selecting either PGM or AUD on the LOS Module, the Program or Audition signal will be sent to the outputs of the module and to the devices to which it is connected.

Construct a cable (for each output) with a 15-pin MR connector on one end and the appropriate connector(s) on the other for the device to which this cable will be connected. See *Crimping Instructions* on *Page 3 - 6* of this manual for details.

Output 1

3. Left Out (+)	2. Left Out (–)	1. Left Out Shield
6. Right Out (+)	5. Right Out (–)	4. Right Out Shield
9. -N/C-	8. -N/C-	7. -N/C-
12. -N/C-	11. -N/C-	10. -N/C-
15. -N/C-	14. -N/C-	13. -N/C-

Output 2

3. Left Out (+)	2. Left Out (–)	1. Left Out Shield
6. Right Out (+)	5. Right Out (–)	4. Right Out Shield
9. -N/C-	8. -N/C-	7. -N/C-
12. -N/C-	11. -N/C-	10. -N/C-
15. -N/C-	14. -N/C-	13. -N/C-

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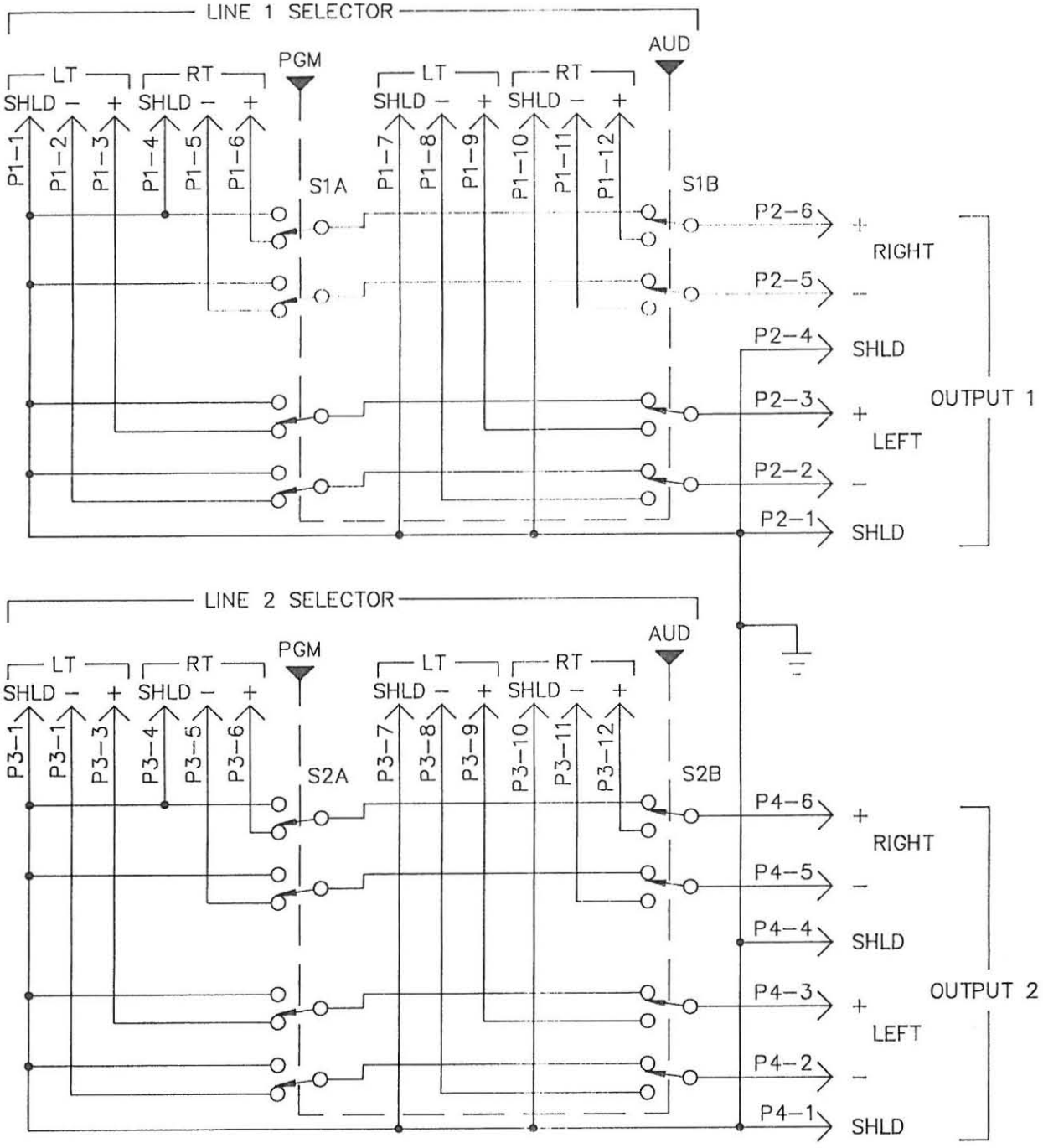
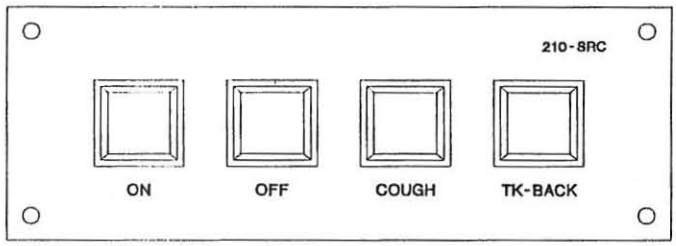


SCALE: NONE	auditronics, inc. MEMPHIS, TENNESSEE, U.S.A.
DRAWN: RCG	
CHECKED: RCG	SCHEMATIC DIAGRAM 210-LDS, LINE OUTPUT SWITCHING, VER.1
APPROVED:	
DATE: 11/28/90	SHEET 1 OF 1 — 88A00792-01

Chapter 16

210-Series Studio Remote Module
210-SRC



INTRODUCTION

Designed as an accessory to the 210-CSM Module, the 210-SRC is user-installed in the studio for remote control of a microphone input module and the console's intercom system.

The "ON", "OFF", and "Cough" pushbuttons externally control a designated 210-MIS Module. The "Talkback" pushbutton interfaces with the 210-CSM talkback system, allowing talent in the studio to alert the console operator that intercom communication is desired. A mounting plate holds the four momentary switches which are prewired and easily installed.

Complete installation instructions may be found on the following page.

INSTALLATION

The 210-SRC Panel may be mounted in the studio in a location convenient to the talent. The leads to the switches are brought together in a connector for easy installation.

It is recommended that the usual variety of shielded cable for audio circuits be used to interconnect between the 210-SRC and the console. Normal professional wire dress standards should be applied.

The "ON", "OFF", and "COUGH", remote controls should be connected to the MIS Module corresponding to the talent's microphone; the lamps in the ON and OFF switches may be connected to parallel the indicators on the module itself. The "Talk Back" remote control switch should be wired to the 210-CSM.

Schematic diagram and pinouts follow:

13. -N/C-
10. -N/C-
7. Remote Cough
4. +24VDC
1. Common

14. -N/C-
11. -N/C-
8. Remote Talk Back
5. Remote ON Lamp
2. Remote OFF

15. -N/C-
12. -N/C-
9. -N/C-
6. Remote OFF Lamp
3. Remote ON

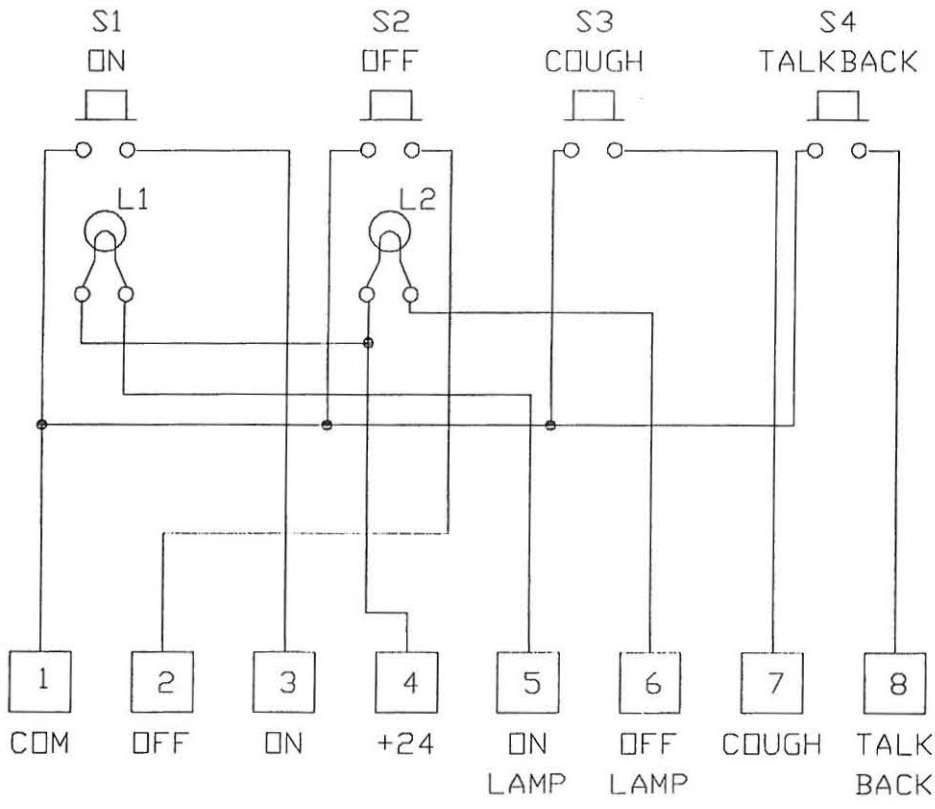


Figure 1, 210-SRC, Studio Remote Panel Schematic Diagram.

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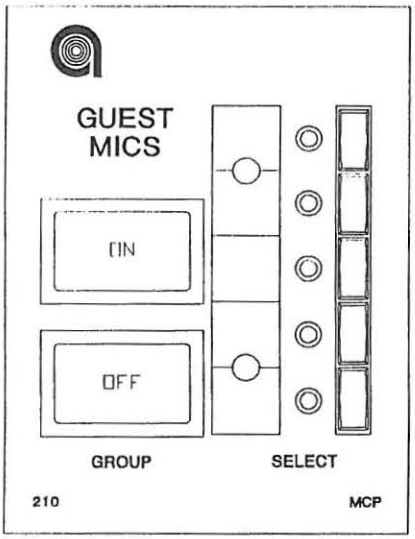
Chapter 17

210-Series Microphone Control Panel - 210-MCP



Introduction

210-MCP MICROPHONE CONTROL PANEL

The 210-MCP is a guest microphone selector control panel which provides external control of up to five 210-MIS microphone input channels in the console. This module may be located in either the studio itself or in the 210 Overbridge.

Those microphones which are selected on the control panel are activated or deactivated via the illuminated "ON" and "OFF" switch. Mics may be added or deleted from those already "ON" as required, up to the maximum of five. The panel size is 3.0" wide by 4.0" high. Power is obtained from the console.

Inasmuch as there are only the select buttons and the Module ON/OFF pushbuttons, a Control and Pushbutton Overview will not be necessary in this chapter. Additional insight may be found in *Appendix A, 210 Series Overbridge*.

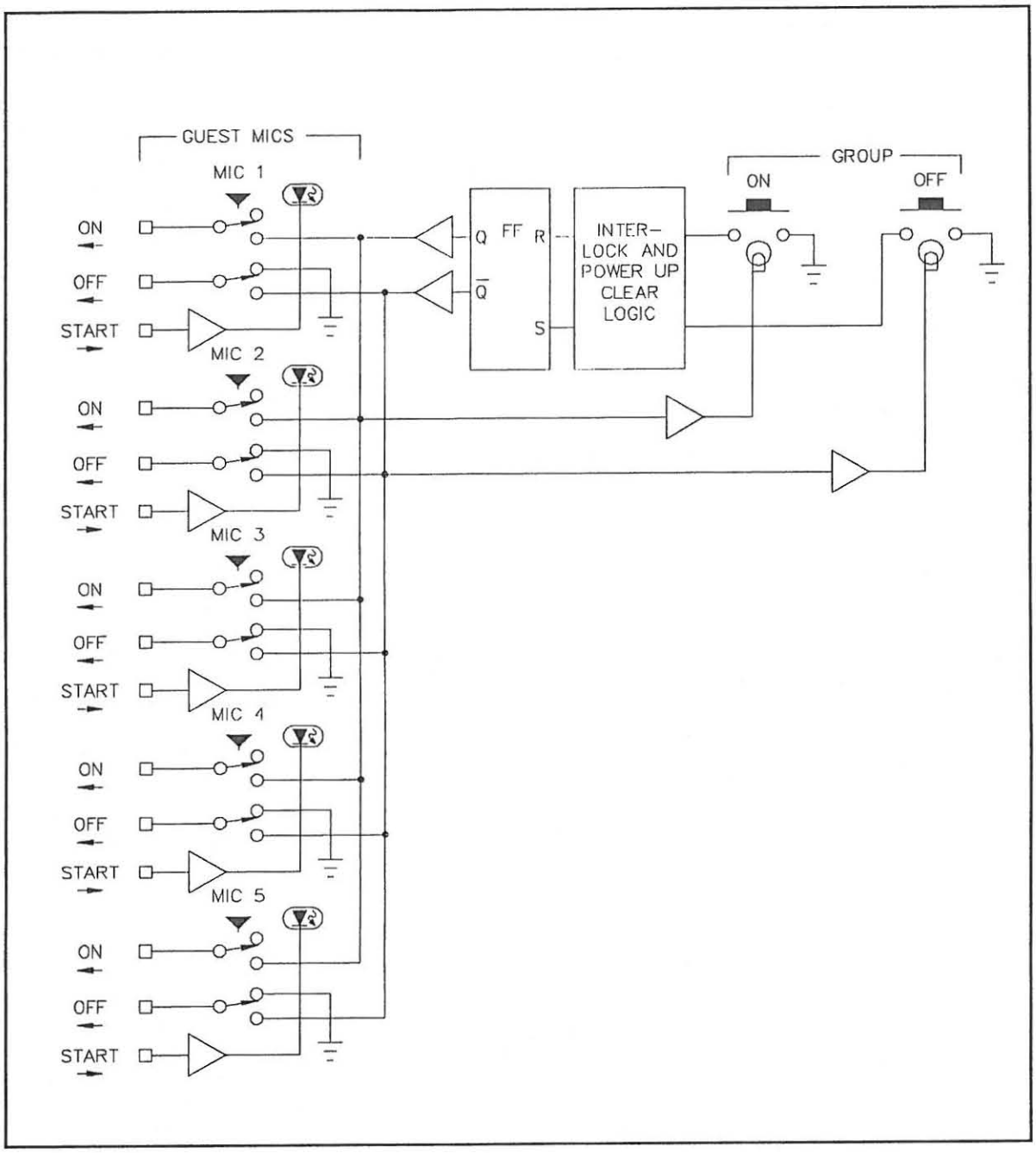


Figure 1, 210-MCP Signal Flow Diagram.

INSTALLATION

The following will be broken down into several possibilities:

First, if this module is ordered for mounting into the 210 Overbridge, it will ship with the module, the mating interconnect cable (Part Number 19283), the bracket for internally mounting the 15-pin MR connectors (already in place if part of original order), and the appropriate mounting hardware. If specified at the time of order, a second harness will be included for interconnection between the above-mentioned bracket and the "C" Connectors on the module/motherboard assembly, sending logic signals to the input modules. If this is not specified, this cable will have to be constructed. Refer to the following instructions.

Retrofit Instructions

If the MCP Module is to be fitted in a console already in service, a few considerations must be made: Location of the module itself, location of the connector bracket, and length of cables. The MCP Module is designed to fit into the 210-Series Overbridge, however it may be installed in a remote area such as a studio in either a "guest turret or a custom installation. The following text will attempt to cover all of the above situations as succinctly as possible.

Supplied in the MCP kit is: One 210-MCP Module (as per order), all connector cables (if ordered), connector bracket(s), and appropriate mounting hardware.

NOTE: This procedure should take place with the console power OFF.

The first consideration is a suitable location for the connector bracket. The MCP mating interconnect cable terminates on one end with a 30-pin edge connector and on the other with two 15-pin MR connectors and one 6-pin Molex connector. The Molex connector mates to another which runs to the PGM "D" connector for the MCP's power requirements while the MR connectors, P1 and P2, will mount in the connector bracket. The bracket is mounted internally and may be placed virtually anywhere, provided the cables reach and it isn't in the way of any of the console's internal components. When choosing a location, be sure that the meterbridge/overbridge and the module/motherboard assembly may be closed without interference. In addition, sharp turns of the cables should be avoided. The best location for the connector bracket is the inside rear panel of the console, mounted in a vertical position.

When a suitable location has been established, simply peel the protective backing from one side of the two-sided tape (included with installation kit) and fix it securely to the connector bracket. Now, remove the backing from the other surface and position the bracket. **NOTE:** The tape included with the installation kit is extremely effective, so be sure the bracket is in the proper place because removal of same is no picnic.

The next step is to mount the P1 and P2 connectors into the bracket. These simply push into the holes in the bracket and "click" into place. The third 15-pin MR connector on this cable goes to the PGM "D" Connector. See Figure 1.

Installation of the MCP Logic Cable is next. This cable terminates on one end with two 15-pin MR connectors and on the other with as many as five (5) of same, depending upon the number of input modules to be controlled. The end with two MR connectors attaches to the mounting bracket in the P1 and P2 position. If this cable was ordered from the factory, it will be clearly labelled. The opposite end of this cable will run to the "C" Connectors in the positions of the modules to be controlled. These connectors are located on the module/motherboard assembly area, accessible by lifting the entire module assembly. This is achieved by lifting the wooden armrest. The entire assembly will lift open and when fully extended, it will lock in an upright position via a spring pin located near the hinge.

WARNING!! Be sure that the module/motherboard assembly is securely locked in the UP position. Serious injury can result if the assembly is accidentally closed while hands or fingers are inside the console shell.

Figure 1 in this chapter is an approximation of the connector arrangement as it appears when the module/motherboard assembly is open. A more detailed view may be found on *Page 3 - 15*.

The module is now operable. The console may be powered up and normal operation resumed.

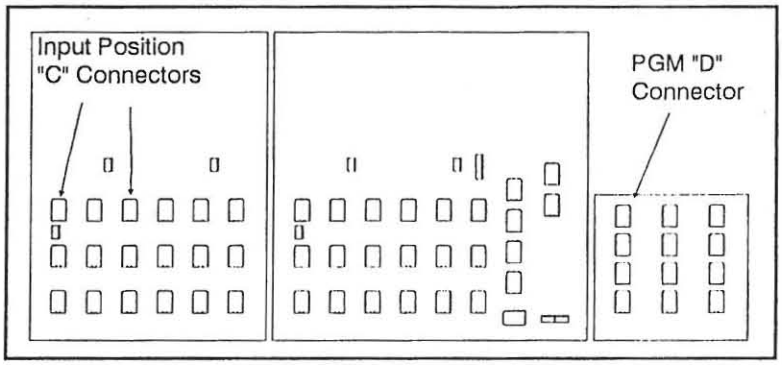


Figure 2, 210-Series Module/Motherboard Assembly. For a detailed view of this assembly, see the Console Connector Location Map on Page 3 - 15.

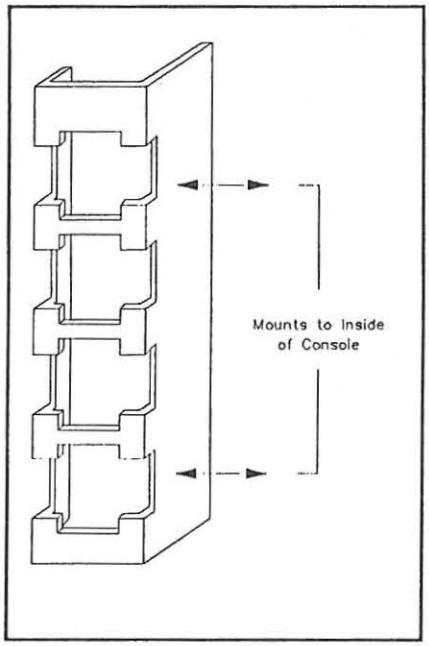


Figure 3, 15-Pin MR Connector Bracket.

Construction of Logic Interconnect Cable

Construct a cable with two 15-pin MR connectors on one end (for connection to the bracket) and as many MRs as needed on the other (i.e. if five microphone modules are to be used in conjunction with the MCP Module, five MR connectors will be required) for logic connections. For each microphone module to be connected to the MCP Module, only three pins on the module/motherboard end of the harness will be utilized; Module ON, Module OFF, and External Lamp ON. The Module ON and OFF connections (Pins 2 and 4 for the 'A' input; Pins 3 and 1 for the 'B' input) go to the P1 MR connector while the External Lamp ON (Pin 8) will go to the P2 connector (causing the LEDs in the MCP Module to illuminate when a module is On. For specific pin assignments, see the schematic diagram entitled *210-MCP Logic Interconnection Cable* in *Appendix B*.

The main connections required are logic and power connections between the module itself and the console. The logic connectors are located on the module/motherboard assembly and are labeled "C". There are three 15-pin MR connectors for each input module, labeled "A", "B", and "C". The connections mentioned above go the "C" connectors in the positions occupied by the microphone modules to be controlled by the MCP Module (see *Figure 2, Console Connector Location*, on *Page 3 - 15*).

After the MCP Module has been physically mounted into the desired location, the console should be opened and the connector bracket mounted.

This bracket may be mounted basically any place that there is room and that the cables reach. The lower inside rear wall or inside bottom of the console are preferable. If the inside rear wall is chosen, access may be gained by opening the top of the meter turret. If the inside bottom is chosen, access may be gained by lifting the module/motherboard assembly. The only restriction for placement of this bracket is the length of the input cables from the module itself and the existence of other components that may be in the way of a direct connection. Sharp turns of the cables should be avoided. Mounting of the bracket is achieved with Scotch® Brand VHB (Very High Bond) double-sided tape. Once installed, the MR connector coming from the MCP Module may be snapped into the bracket in the P1 position.

Auditronics strongly recommends that interconnection cables be ordered from the factory, however, if for some reason they were not part of the order, they must now be constructed. Two cables must be built; one to be run from the module itself to the interconnection bracket (mounted inside the console), and one that runs from the bracket to the module/motherboard assembly. Remember that these cables *can* be ordered from the factory at any time.

P1 Connector (to "C" Connector in Input Positions)

13. -N/C-	14. Mic 5 ON	15. Mic 5 OFF
10. -N/C-	11. Mic 4 ON	12. Mic 4 OFF
7. -N/C-	8. Mic 3 ON	9. Mic 3 OFF
4. -N/C-	5. Mic 2 ON	6. Mic 2 OFF
1. -N/C-	2. Mic 1 ON	3. Mic 1 OFF

Interconnection

Interconnection of this module should be performed with the console OFF. First, run the cable from the MCP Module to the console, connecting P1 to the mounting bracket and P2 to the PGM "D" connector (see Figure 1).

Now, the cable joining the logic connectors on the module/motherboard assembly to the bracket may be installed. If this cable was ordered at the factory, it will be clearly labelled concerning the destination of each connector. If it has been constructed, it is recommended that the same be done to avoid confusion when it is time to use it. The single 15-pin MR connector goes to the P1 position in the mounting bracket while the multiple ends go to their respective input modules via the "C" Connectors in the underside of the module/motherboard assembly

The console may now be powered up and the MCP tested.

Simply depress pushbuttons on the MCP Module that correspond to the microphone modules to be activated. When the "ON" pushbutton (MCP Module) is pressed, the selected microphone modules will turn On. The LEDs adjacent to the pushbuttons in the MCP Module will illuminate to indicate the modules' On status. Modules may be added or subtracted from the selection whether or not the MCP Module is On.

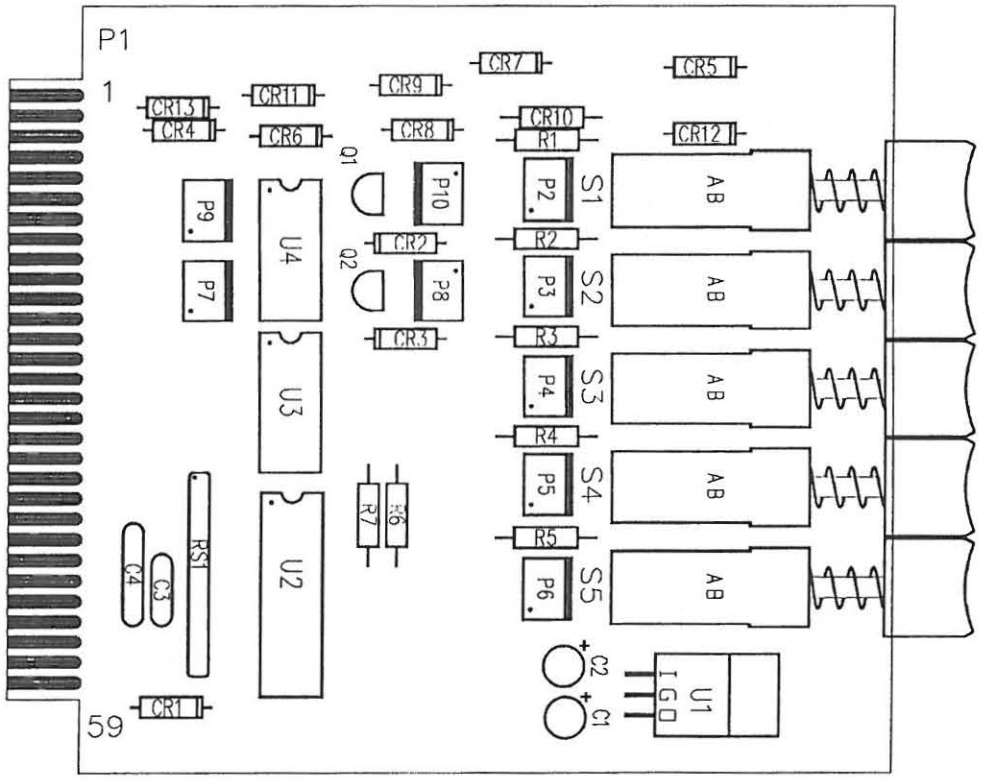
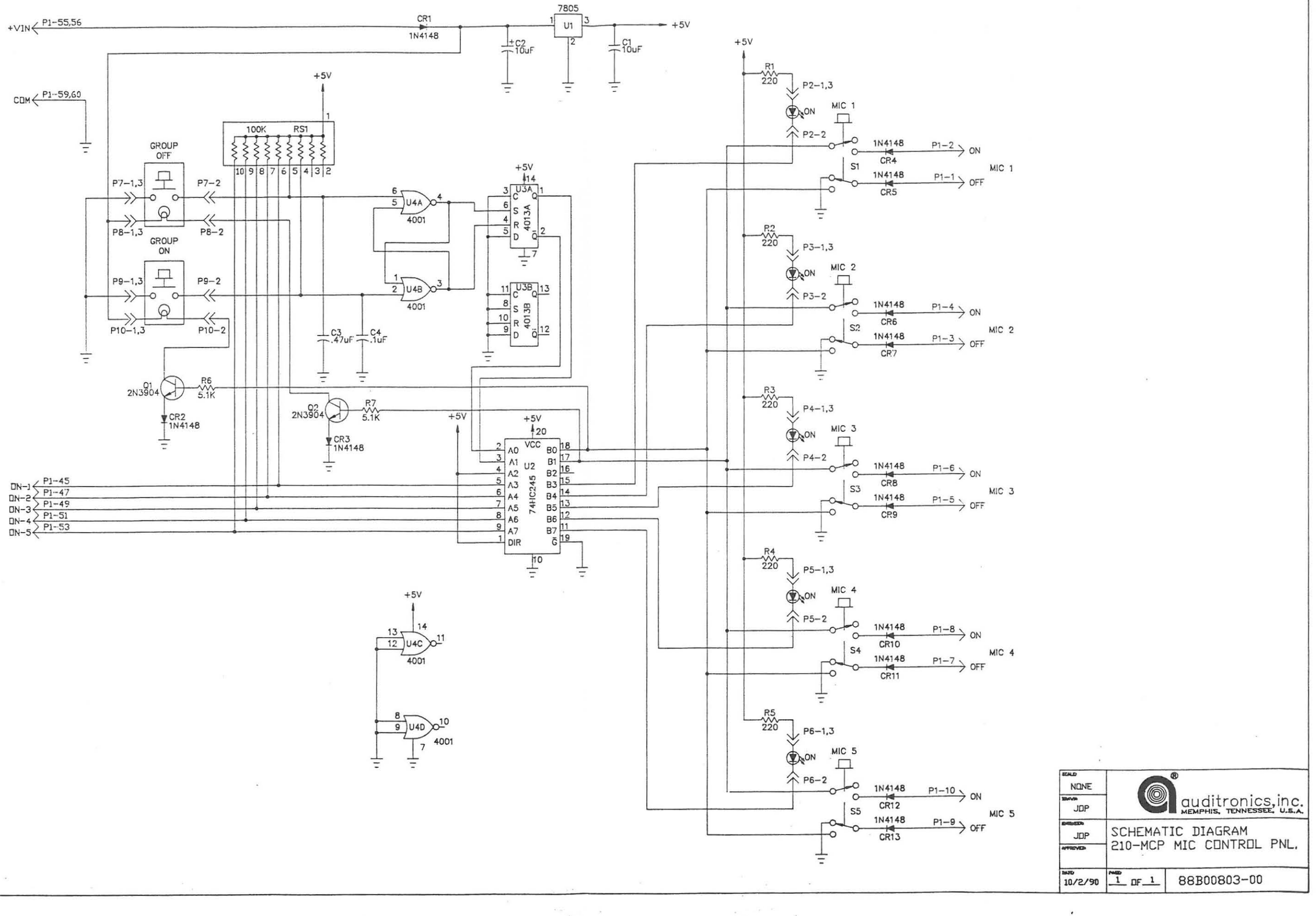


Figure 4, 210-MCP Module Location Art Diagram.



SCALE: NONE	auditronics, inc. MEMPHIS, TENNESSEE, U.S.A.	
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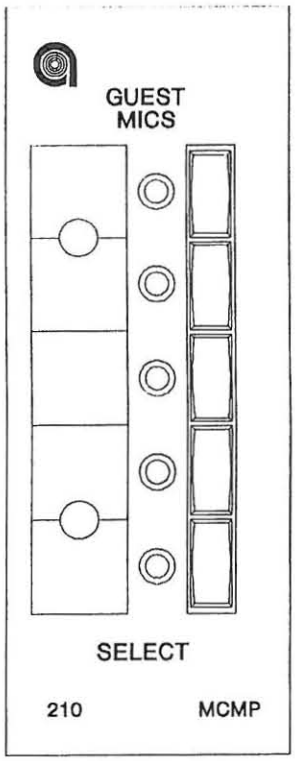
ENGINEER: JDP	SCHEMATIC DIAGRAM 210-MCP MIC CONTROL PNL.	
APPROVED:		
DATE: 10/2/90	PAGE 1 OF 1	88B00803-00

Chapter 18

210-Series Microphone Control Mixing Panel - 210-MCMP



INTRODUCTION

The 210-MCMP functions essentially as an input mixer. It is capable of introducing up to five microphones to one input module through the selection of any or all pushbuttons on the panel.

Mics may be added or deleted as required, up to the maximum of five.

Inasmuch as there are only the select pushbuttons, a Control and Pushbutton Overview will not be necessary in this chapter. Additional insight may be found in *Appendix A, 210 Series Overbridge*.

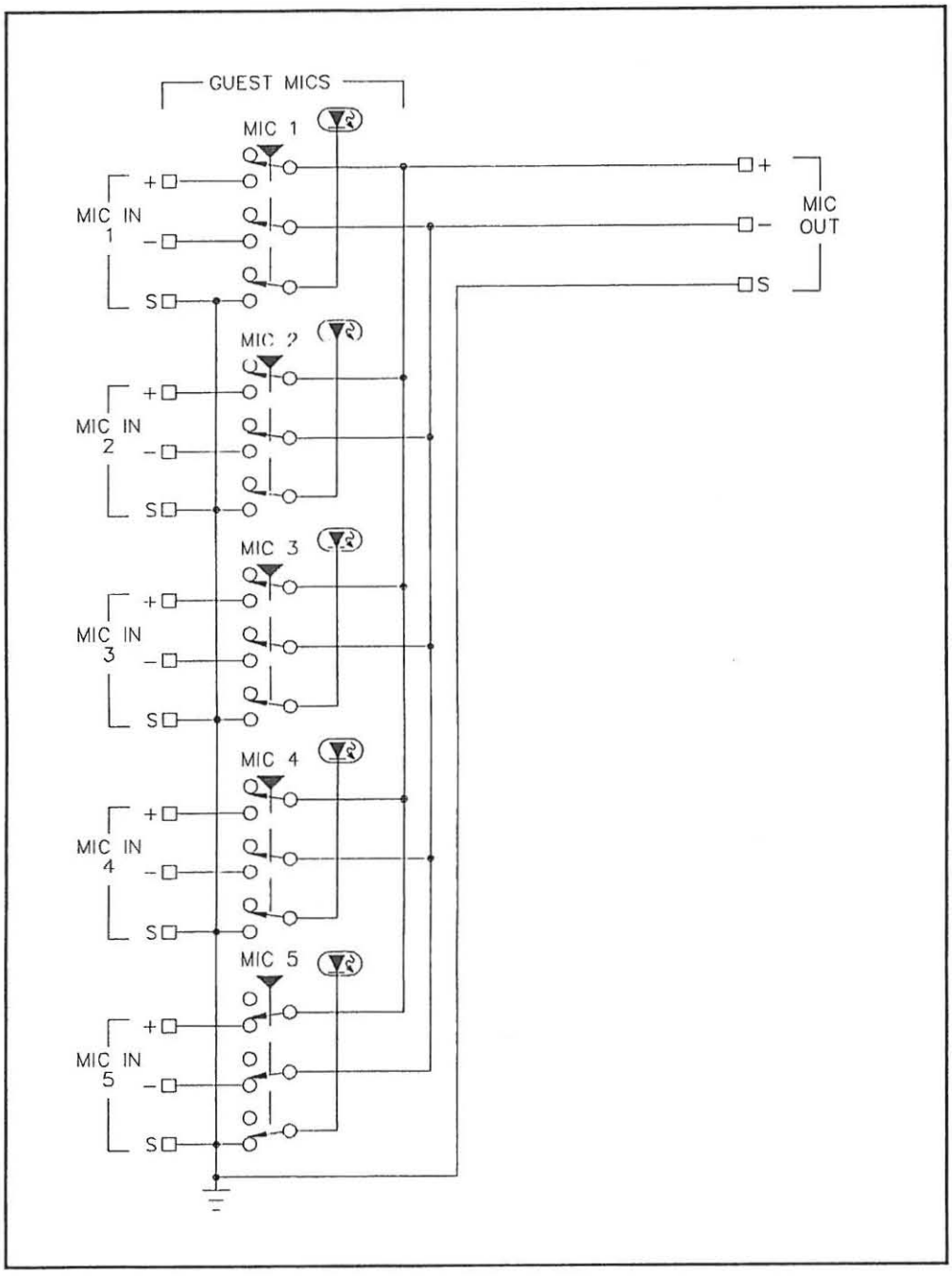


Figure 1, 210-MCMP Signal Flow Diagram.

INSTALLATION

Up to five microphones may be connected to this module by way of the P1 connector found in the associated user connector bracket. The output of this module may be found in the P2 connector which connects, via a 3-conductor cable to the "A" Connector in the Module/Motherboard assembly in the same manner as a single microphone. See Cable Schematic, *Figure 2*. **NOTE**: The pin numbers shown on the Connector "A" end are for the 'A' input of the microphone module. If the 'B' input is to be used, use Pin 12 (+), Pin 11 (–), and Pin 1 (Shield).

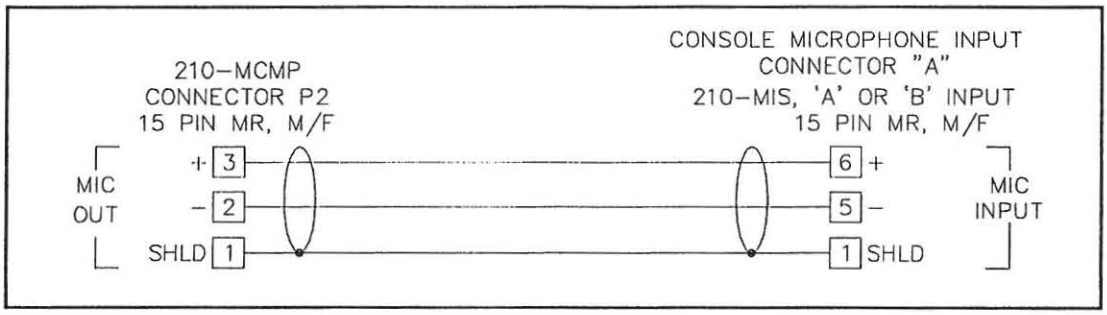


Figure 2, Schematic, Input Module Interconnection Cable.

Interconnection

As usual, if this module was part of the original order, all cables will be included and clearly labelled. The only connections required will be the interconnection of the microphones and the installation and hook-up of the overbridge. Instructions for mounting the overbridge may be found in *Appendix A*.

After physically mounting the overbridge, locate the P1 and P2 cables running from the 30-pin edge connector joined to the MCMP Module (a schematic of this cable may be found in *Appendix B*; Cable #19284). These snap into the user connector bracket (*Figure 3*). Also in this harness is a 6-pin Molex in-line connector which connects to another which runs to the PGM "D" Connector for power requirements.

Now, join one end of the Input Module Interconnection Cable to P2 and the other end to the "A" Connector in the Module/Motherboard assembly assigned to the MIS Module to be used.

The only connection remaining is from the microphones themselves to the P1 connector, which sends the mic signals to the MCMP Module. **NOTE:** Auditronics highly recommends that identical microphones be connected to this module. If several different types are used, the resulting imbalance in levels may produce less than satisfying results.

The following pin assignment will assist in the connection of microphones to the P1 connector.

13. Shield	14. Mic 5 (–)	15. Mic 5 (+)
10. Shield	11. Mic 4 (–)	12. Mic 4 (+)
7. Shield	8. Mic 3 (–)	9. Mic 3 (+)
4. Common	5. Mic 2 (–)	6. Mic 2 (+)
1. Common	2. Mic 1 (–)	3. Mic 1 (+)

Please refer to *Crimping Instruction* on *Page 3 - 6* for assistance in connecting microphones.

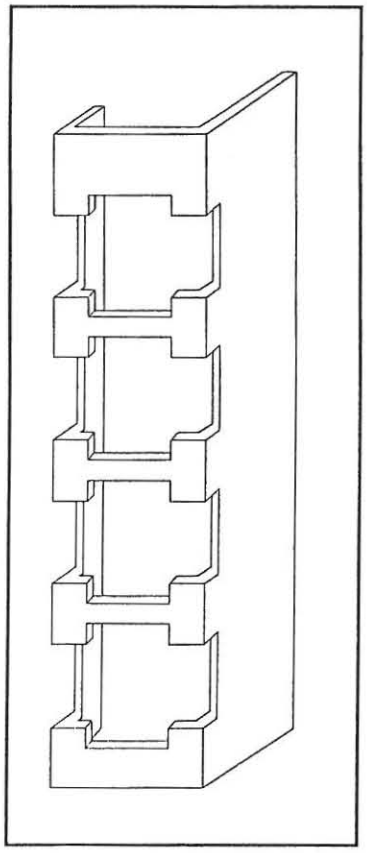


Figure 3, User Connector Bracket.

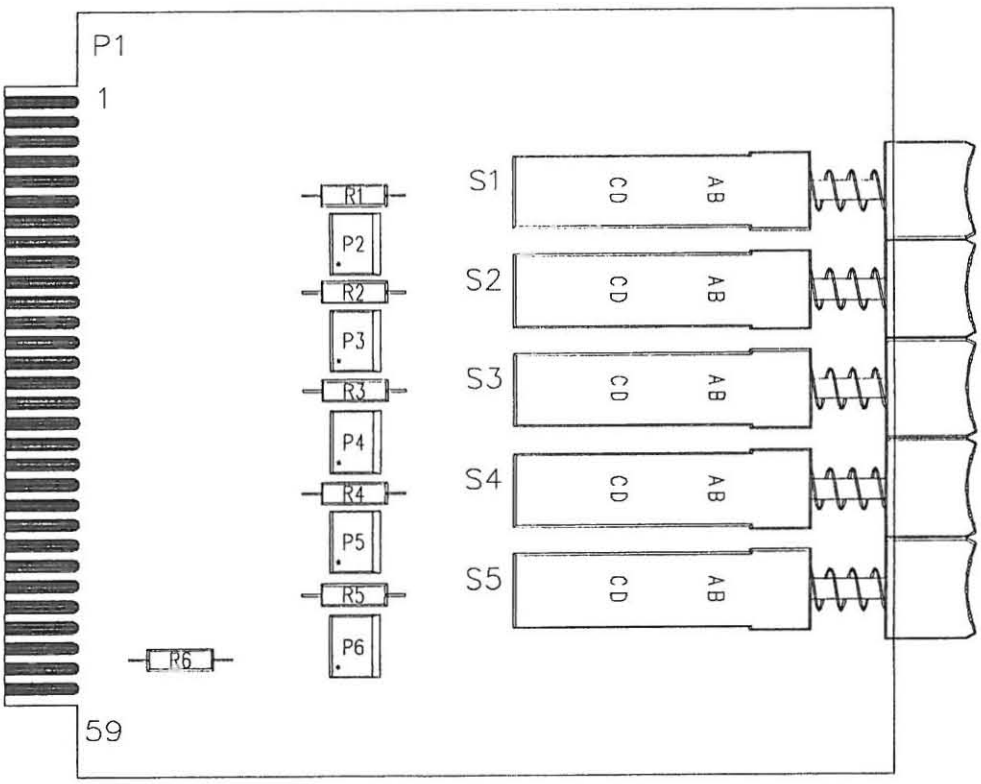


Figure 4, 210-MCMP Module Location Art Diagram.

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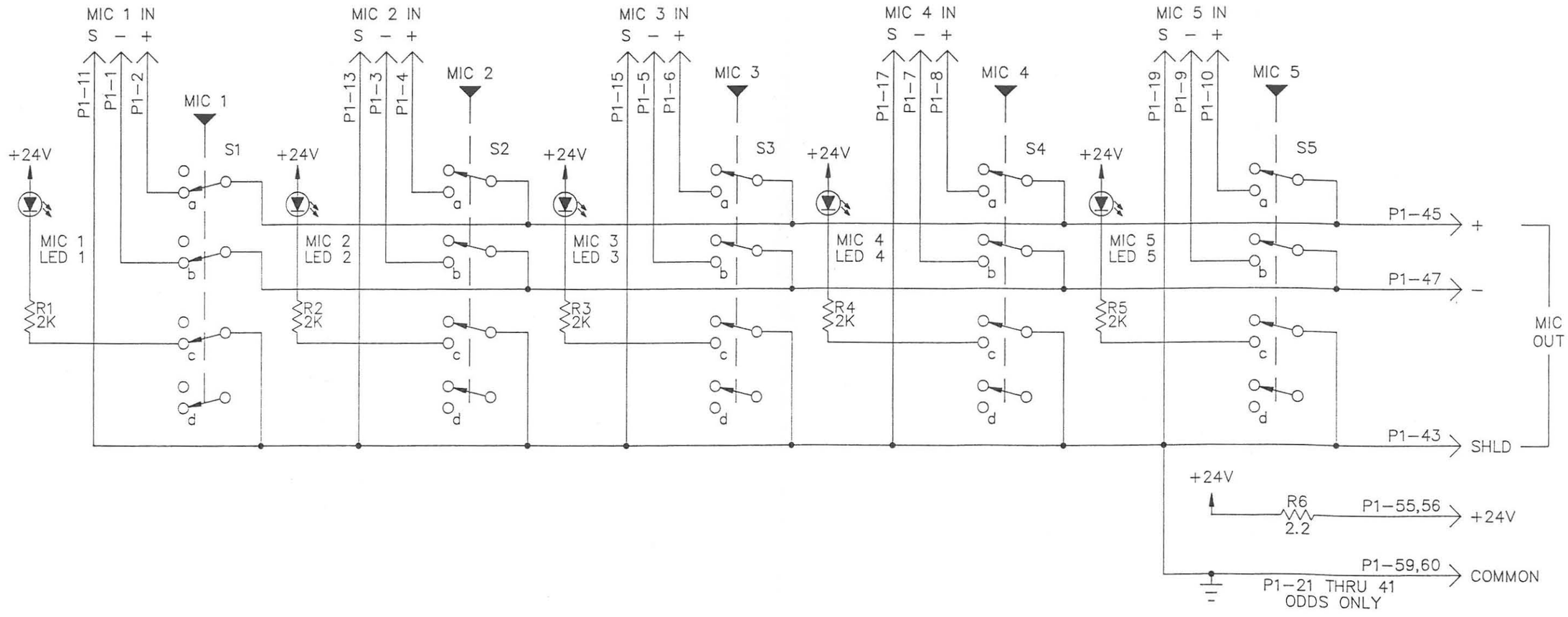
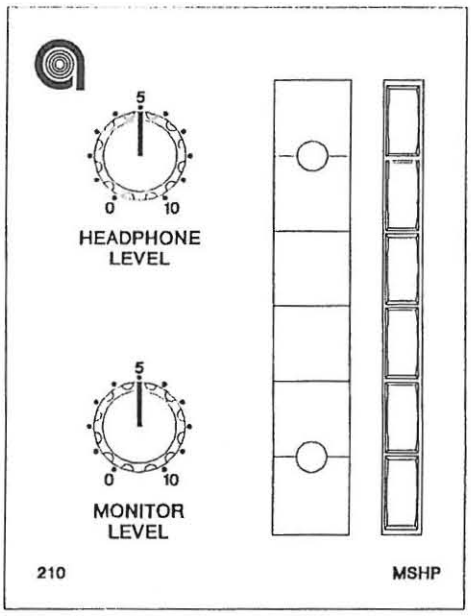


SCALE: NONE	auditronics, inc. MEMPHIS, TENNESSEE, U.S.A.	
DRAWN: RCG		
ENGINEER: RCG	SCHEMATIC DIAGRAM 210-MCMP, MIC CONTROL MIXER PANEL	
APPROVED:		
DATE: 12/13/90	PAGE: 1 OF 1	88A00811

Chapter 19

210-Series Monitor Speaker/ Headphone Control - 210-MSHP



INTRODUCTION

The 210-MSHP monitor speaker and headphone control panel is a stereo studio monitor system panel. The system includes a five position input monitor selector with a sixth "OFF" position. Separate level controls are provided for the speaker and the headphone outputs. Stereo operation is maintained throughout the system, with optional mono operation selected via an internal jumper.

The monitor portion is capable of receiving console talkback audio and logic. A monitor speaker mute logic function is also provided.

This panel is designed as an in-studio replacement for the 210-CSM module optionally available with, and mounted in, the 210 console. This system panel gives the "host", or guest, control over the speaker/headphone source to be monitored. Separate monitor and headphone amplifiers are required externally for the system to function.

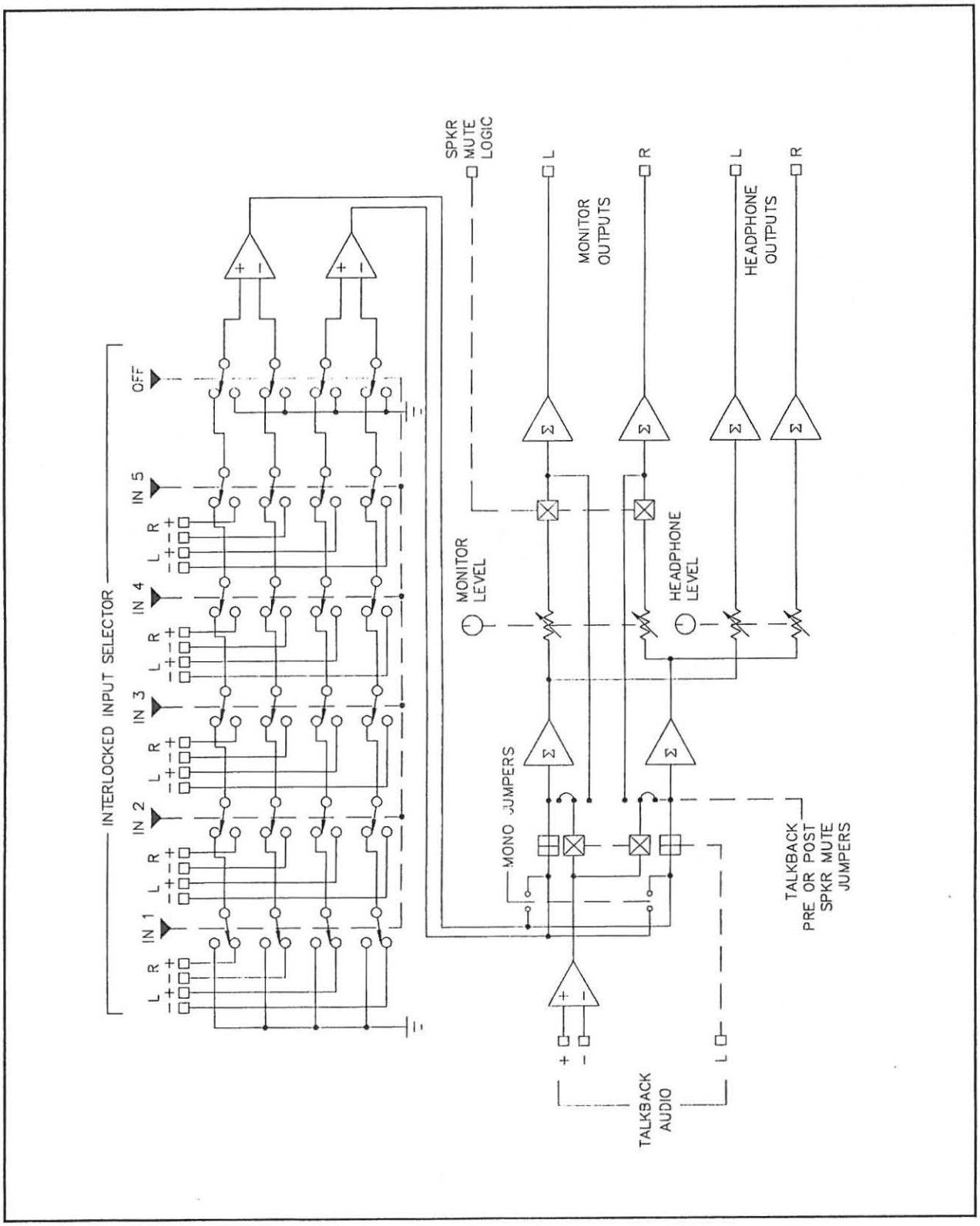


Figure 1, 210-MSHP Signal Flow Diagram.

CONTROL AND PUSHBUTTON OVERVIEW

The following is a brief summary of the features and functions of the 210-MSHP Module. This section is intended to familiarize the Service/Installation Technician with the controls of these modules, as reference to these controls is frequently made in the text.

1. Monitor Select Switch

The **Monitor Select** switch array allows the operator to choose the source for monitoring on the speakers and headphones. There are five selectors, all of which are user-assignable.

2. Off Pushbutton

What appears as the sixth pushbutton in the Monitor Select Switch array is actually the **On/Off Switch** for the module. When depressed, this switch turns the module Off.

3. Headphone Level

The **Headphone Level** control, located at the top left of the module, is used to set the level of the signal sent to the external headphone amplifier.

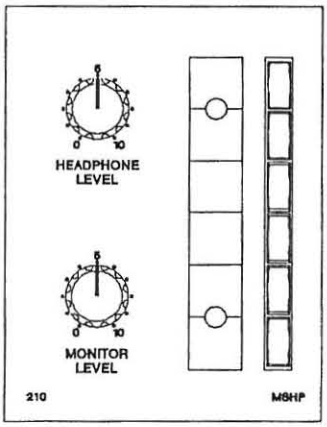


Figure 2, 210-MSHP Module Front Panel.

4. Monitor Level

The **Monitor Level** control, located at the bottom left of the module, is used to set the level of the signal sent to the external monitor amplifier.

INSTALLATION

In spite of the similarities between this module and the CSM Module, the connection is quite different. While the CSM gets its main signals from the motherboard, all of the input signals to the MSHP Module are through the P1 and P2 MR connectors found in the user connector bracket.

There are several scenarios concerning the hook-up of this module: 1) Included with original order; 2) Ordered later for retrofit; 3) Changing assignments to an existing module. In all three cases, the basic connections are quite similar.

If this was ordered with the console (Example 1), the required connections will be installing the P1 through P4 connectors into the user connector bracket, connecting power, introducing the signals to the module through P1 and P2, and connecting the outputs of the module to the speaker and/or headphone amplifier(s)..

The following procedures should be performed with console power **OFF**.

After physically installing the overbridge as per instructions in *Appendix A*, locate the MSHP User Connection Cable, #19282. This cable has a 30-pin edge connector on one end for connection to the MSHP Module and 4 15-pin MR connectors and a 6-pin Molex in-line connector at the opposite end. The MR connectors are labelled P1 through P4. These snap into the connector bracket. Running from the PGM "D" Connector is a 4-conductor power cable with the mating end for the 6-pin Molex connector in this harness.

Next, introduce the signals to the MSHP Module via the P1 and P2 connectors in the bracket. These signals may come from any source, the most typical being the Program and Audition signals, accessible at the "A" Connectors of the 210-DLO modules, located on the Module/Motherboard assembly (See *Figure 2* on *Page 3 - 15*). All audio mult sources are accessible from the motherboard as well. See the individual chapters for specifics concerning the pin assignments of these connectors. Another source might be from an FM receiver to monitor the signal directly from the air. Essentially, any audio signals may be fed into this module. The following pin assignments will assist in the connection of these signals.

P1

13. Shield	14. Left 3 In (–)	15. Left 3 In (+)
10. Shield	11. Right 2 In (–)	12. Right 2 In (+)
7. Shield	8. Left 2 In (–)	9. Left 2 In (+)
4. Shield	5. Right 1 In (–)	6. Right 1 In (+)
1. Shield	2. Left 1 In (–)	3. Left 1 In (+)

P2

13. Shield	14. Right 5 In (–)	15. Right 5 In (+)
10. Shield	11. Left 5 In (–)	12. Left 5 In (+)
7. Shield	8. Right 4 In (–)	9. Right 4 In (+)
4. Shield	5. Left 4 In (–)	6. Left 4 In (+)
1. Shield	2. Right 3 In (–)	3. Right 3 In (+)

P3

13. -N/C-	14. -N/C-	15. -N/C-
10. R Monitor Out Shield	11. R Monitor Out Shield	12. R Monitor Out (+)
7. L Monitor Out Shield	8. L Monitor Out Shield	9. L Monitor Out (+)
4. R Phones Out Shield	5. R Phones Out Shield	6. R Phones Out (+)
1. L Phones Out Shield	2. L Phones Out Balanced	3. L Phones Out (+)

P4

13. -N/C-	14. -N/C-	15. -N/C-
10. -N/C-	11. -N/C-	12. -N/C-
7. -N/C-	8. -N/C-	9. -N/C-
4. -N/C-	5. Mute Logic	6. TB Logic
1. Shield	2. TB Audio (–)	3. TB Audio (+)

Please refer to *Crimping Instruction* on *Page 3 - 6* for assistance in connecting audio inputs.

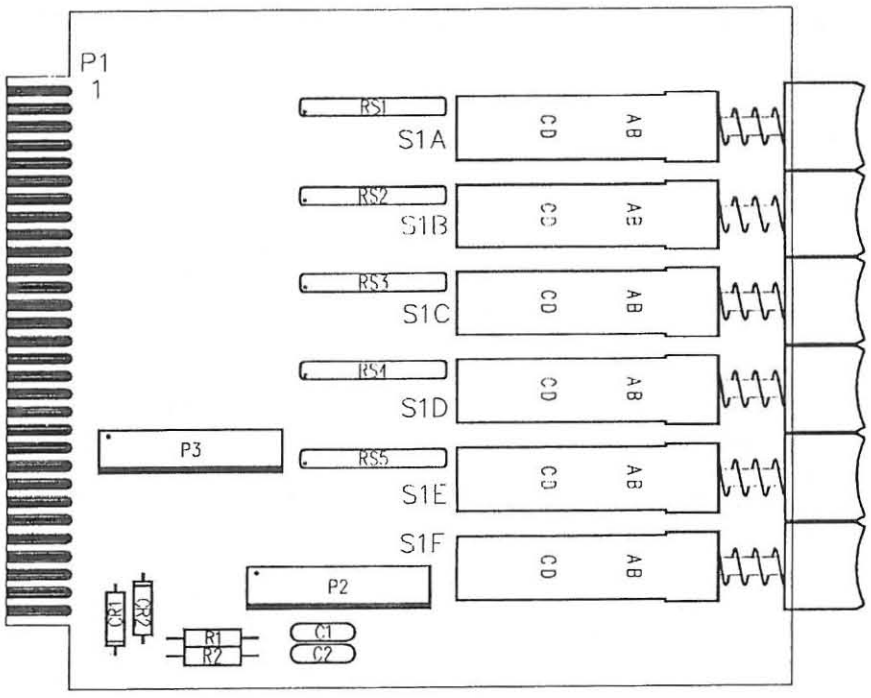


Figure 4, 210-MSHP Middle Board Location Art Diagram.

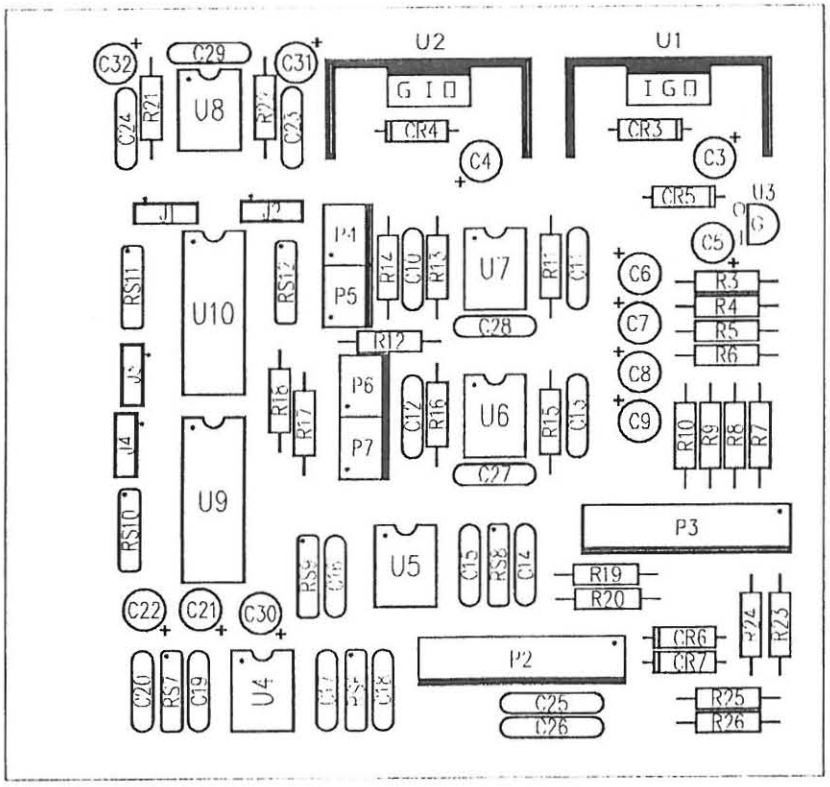
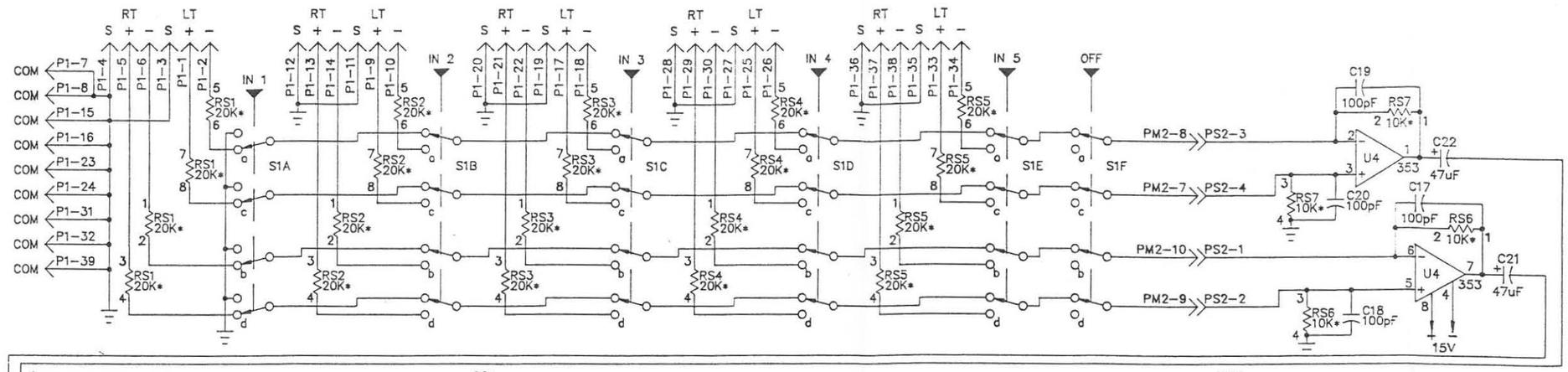
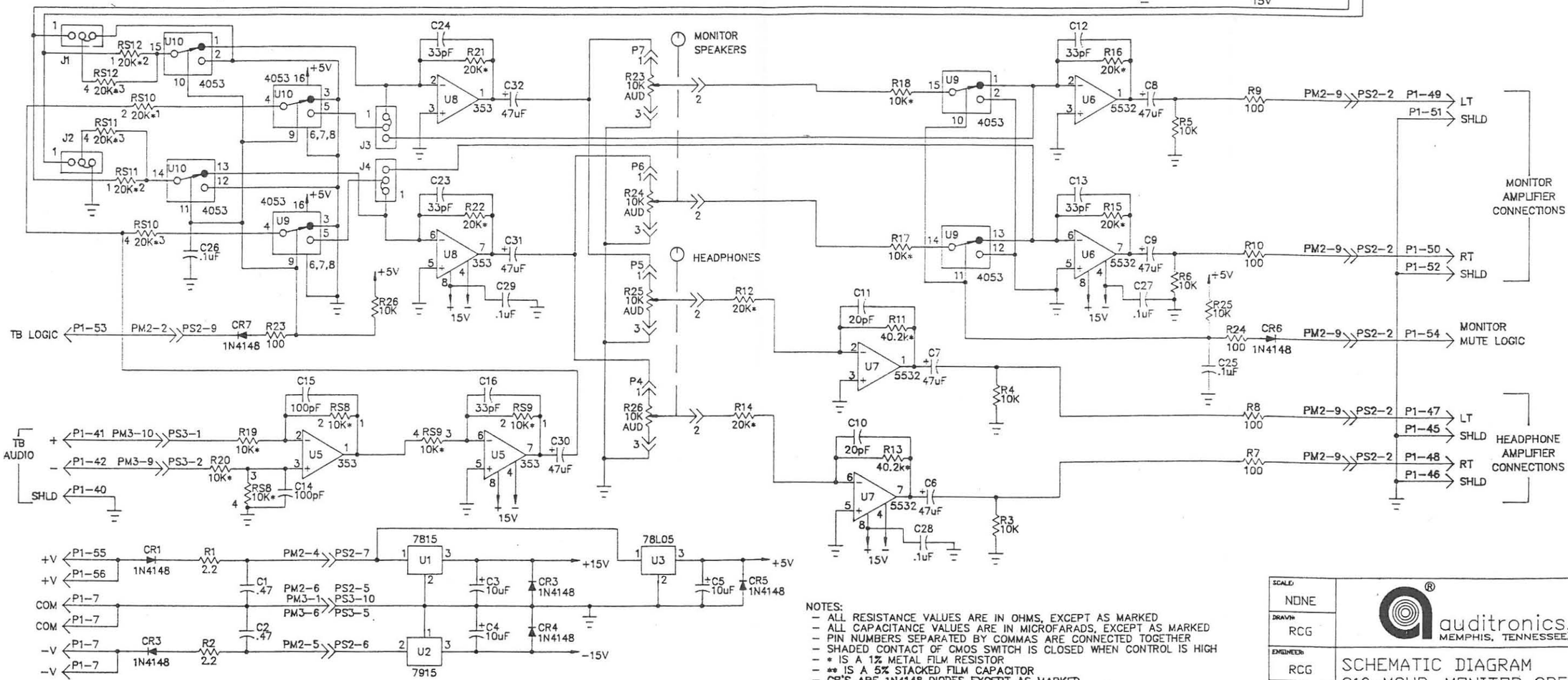


Figure 3m 210-MSHP Side Board Location Art Diagram.



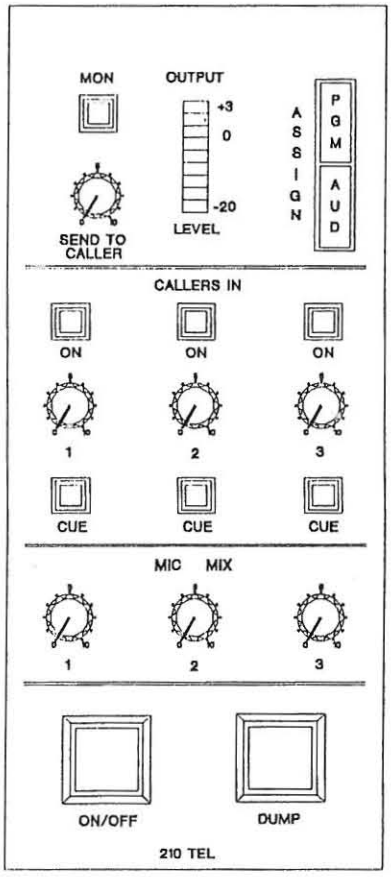


NOTES:
- ALL RESISTANCE VALUES ARE IN OHMS, EXCEPT AS MARKED
- ALL CAPACITANCE VALUES ARE IN MICROFARADS, EXCEPT AS MARKED
- PIN NUMBERS SEPARATED BY COMMAS ARE CONNECTED TOGETHER
- SHADED CONTACT OF CMOS SWITCH IS CLOSED WHEN CONTROL IS HIGH
- * IS A 1% METAL FILM RESISTOR
- ** IS A 5% STACKED FILM CAPACITOR
- CR'S ARE 1N4148 DIODES EXCEPT AS MARKED
- RS'S ARE 2% SIP RESISTOR NETWORKS
- RD'S ARE .1% DIP RESISTOR NETWORKS

SCALE: NONE	auditronics, inc. MEMPHIS, TENNESSEE, U.S.A.
DRAWN: RCG	
ENGINEER: RCG	SCHEMATIC DIAGRAM 210-MSHP, MONITOR SPEAKER AND HEADPHONE CONTROL
APPROVED:	
DATE: 11/19/90	PAGE 1 OF 1 — 88B00806

Chapter 20

210-Series Telephone Interface Module - 210-TEL



INTRODUCTION

The 200-TEL (Telephone Interface) Module provides complete handling and processing of up to three incoming calls without compromising other console functions. Each line develops its own mix-minus within the TEL module permitting each caller to hear and talk to the other callers but without hearing his/her own voice returned.

The TEL module interfaces directly with up to 3 announce Microphones, and the selected output bus, permitting a 6-way conversation - 3 callers and 3 announcer/guests. With its unique design providing the mix-minus for each of the callers, it removes the need for the third console bus usually required for Telephone operation. And since it is an input module in its own right, it does not need an additional input module for bus insertion and mixing.

Standard factory installation wires the 210-TEL to the Program output, it may be ordered for wiring to the Audition output, or, if desired, can be easily retrofitted in the field to either or both outputs.

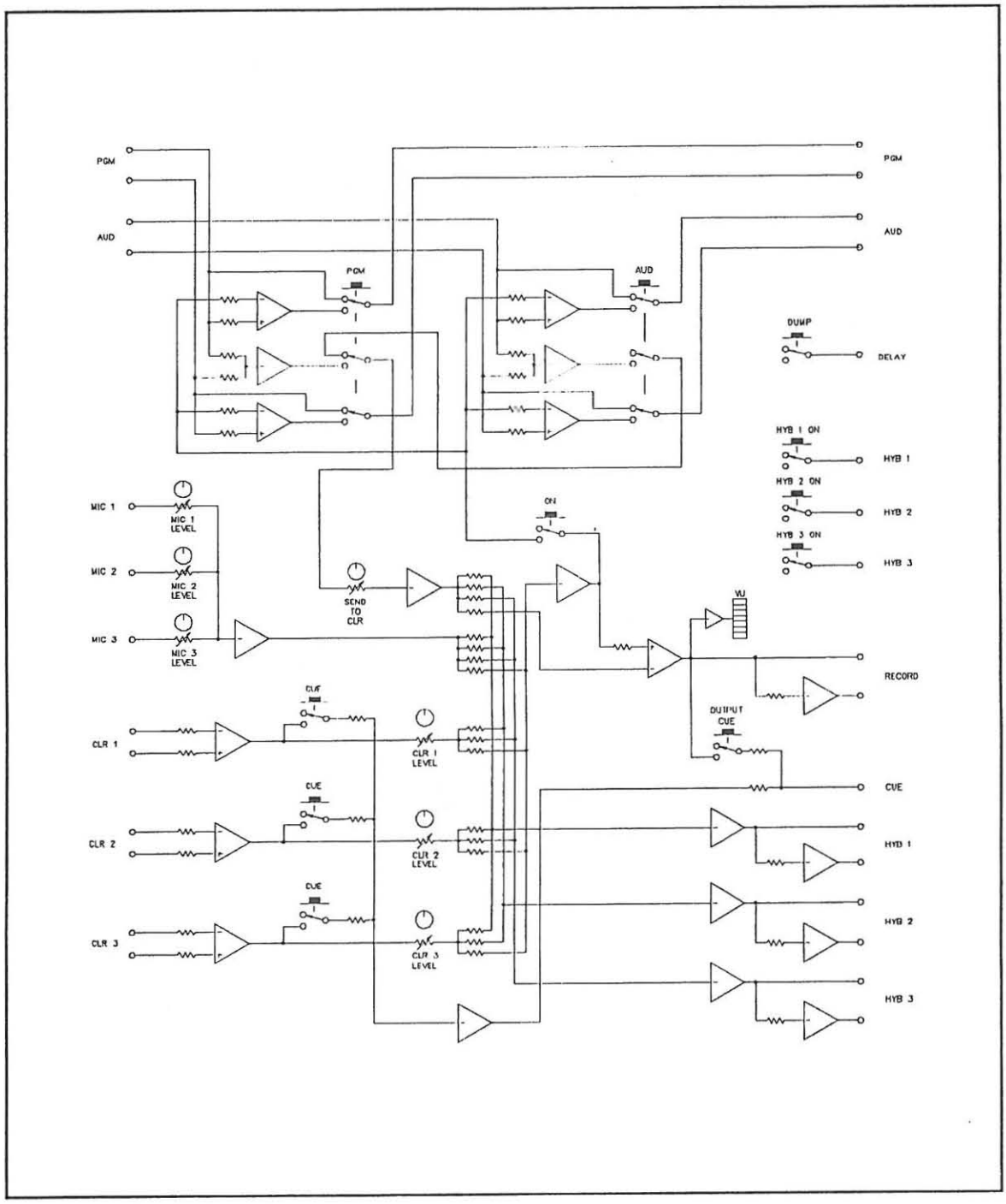


Figure 1, 210-TEL Signal Flow Diagram.

CONTROL AND PUSHBUTTON OVERVIEW

The following is a brief summary of the features and functions of the 210-Series TEL Telephone Interface Module. This section is intended to familiarize the Service/Installation Technician with the controls of this module, as reference to these controls is frequently made in the text.

1. Monitor Switch

The **Monitor** pushbutton, when depressed, sends a sample of the TEL signal to the CUE speaker in the console. The level of this signal is controlled by the CUE Level control on the CRM Module.

2. Send to Caller *

The rotary potentiometer labelled "**Send to Caller**" sends a sample of the entire console mix to the caller. This function is operable even with the module Off, unless the logic controls the telephone hybrid. This is a 'pre mix-minus' signal which may be sent to the caller(s).

3. Output Level

The **Output Level** bargraph meter permits the operator to ensure that the correct signal level is being sent tho the hybrids and the recorder.

4. Output Assignment

The TEL Module may be assigned to either or both of the main output busses on the 210 Console by depressing the desired pushbutton(s).

5. Caller ON, Level, and CUE

The **ON** pushbuttons, when depressed, simply turn that caller's channel On, allowing that signal into the 210-TEL Module.

Each caller's signal has an individual **Level Control**, allowing complete control over the mix. Each caller's signal may be previewed through the **CUE** system in the same manner as the CUE feature on the regular input modules.

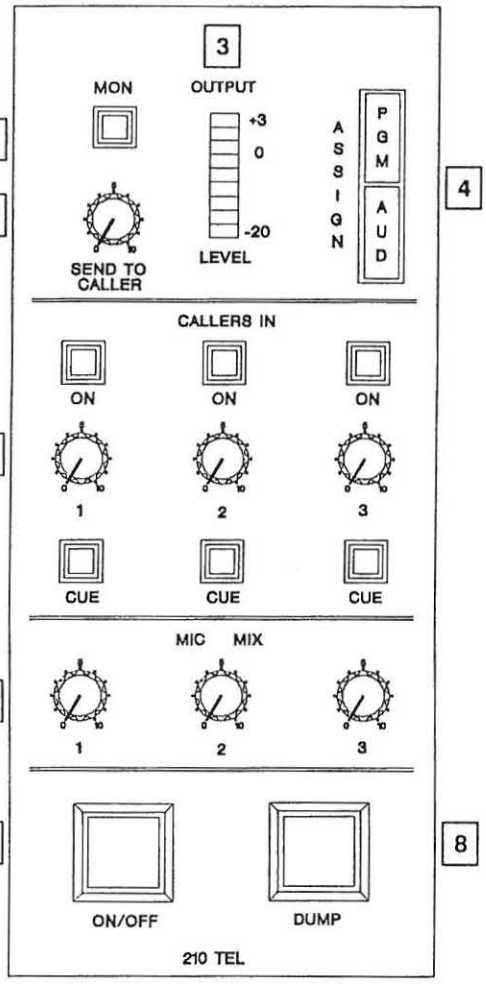


Figure 2, 210-TEL Module Front Panel.

6. Mic Mix *

The level (to the caller(s)) of each guest/announcer microphone may be individually controlled by way of the **Mic Mix** potentiometers.

7. ON/OFF

This is the main **On/Off** control for the 210-TEL Module. This returns the caller and/or the mic mix to the console output(s). The switchcap illuminates to indicate the module's On status.

8. Dump

The **Dump** switch is built-in to allow the operator to instantly defeat the incoming caller signal should the need arise. This will operate only of a delay system is in use.

* **NOTE:** The send to caller and Mic Mix may be set to follow the "ON" switch to alternate the feed to caller and return to console

INSTALLATION

There are four 15-pin MR connectors labelled P1 through P4 on the rear panel of the 210-TEL Module. All incoming and outgoing connections interface with this module through these MR connectors. The following installation procedure will begin with P1 and continue through P4. Pinouts of these connectors may be found at the end of this section.

P1 Connector

The TEL's P1 connector deals primarily with the audio interconnection between the TEL Module and the 210 Console. Most connections are to the "C" Connectors on the motherboard in the PGM and AUD positions. These "C" Connectors are located on the bottom of the module/motherboard assembly and may be accessed by lifting the assembly (see *Figure 2, Console Connector Location*, on *Page 3 - 15*). This is done by lifting the armrest. The entire assembly will lift open and, when fully extended, it will lock in an upright position via a spring pin located near the hinge.

NOTE: The module/motherboard assembly of the Model 210-24 is bolted in place and does not flip up, primarily due to the weight. Removeable panels have been provided in the bottom pan of the console to provide access.

WARNING!! Be sure that the module/motherboard assembly is securely locked in the UP position. Serious injury can result if the assembly is accidentally closed while hands or fingers are inside the console shell.

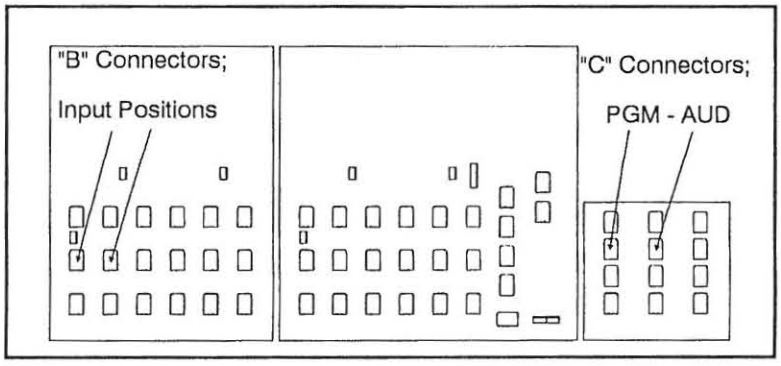


Figure 3, 210-Series Module/Motherboard Assembly.
For a detailed view of this assembly, see the *Console Connector Location Map* on *Page 3 - 15*.

A schematic drawing of this cable may be found on *Page 9* of *Appendix B, 210-Series Cable Diagrams*. This drawing is entitled *210-TEL, P1 USER CONNECTION CABLE*.

P2 Connector

The P2 Connector deals with the TEL Module's Logic signals and the microphone inputs. The microphone signal comes from the direct out located on the "B" Connectors on the motherboard in the input positions of the microphone channels to be used. A schematic drawing of this cable may be found on *Page 10* of *Appendix B*. This drawing is entitled *210-TEL, P2 USER CONNECTION CABLE.*

P3 Connector

The P3 connector deals with the TEL Module's outputs to hybrids, outputs to recorder and start logic output. Construct a cable with one 15-pin MR connector on one end for connection to P3 and with the appropriate connectors on the other end for the devices to be interfaced. A schematic drawing of this cable may be found on *Page 11* of *Appendix B*. This drawing is entitled *210-TEL, P3 USER CONNECTION CABLE.*

P4 Connector

P4 deals with the input from the hybrid, hybrid On/Off logic. Construct a cable with one 15-pin MR connector on one end for connection to P4 and with the appropriate connectors on the other end for the devices to be interfaced. A schematic drawing of this cable may be found on *Page 12* of *Appendix B*. This drawing is entitled *210-TEL, P4 USER CONNECTION CABLE.*

Connector Pin Assignments

P1

3. L PGM Insert Ret	2. L PGM Insert Send	1. Common
6. R PGM Insert Ret	5. R PGM Insert Send	4. Common
9. L AUD Insert Ret	8. L AUD Insert Send	7. Common
12. R AUD Insert Ret	11. R AUD Insert Send	10. Common
15. -24VDC	14. +24VDC	13. Common

P2

3. Mic Mute Logic	2. CUE Logic	1. Common
6. Ext. On Logic	5. Cue Audio Sum	4. Shield
9. Mic 2 (+)	8. Mic 1 (+)	7. Shield
12. Mic 3 (+)	11. -N/C-	10. Shield
15. Dump Logic	14. Common	13. Common

P3

3. Hybrid 1 Hi	2. Hybrid 1 Lo	1. Common
6. Hybrid 2 Hi	5. Hybrid 2 Lo	4. Common
9. Hybrid 3 Hi	8. Hybrid 3 Lo	7. Common
12. -N/C-	11. Start Logic (Pulse)	10. Common
15. Rec Out Hi	14. Rec Out Lo	13. Common

P4

3. Caller In 1 HI	2. Caller In 1 LO	1. Common
6. Caller In 2 HI	5. Caller In 2 LO	4. Common
9. Caller In 3 HI	8. Caller In 3 LO	7. Common
12. Hybrid ON Logic 3	11. -N/C-	10. Common
15. Hybrid ON Logic 2	14. Hybrid ON Logic 1	13. Common

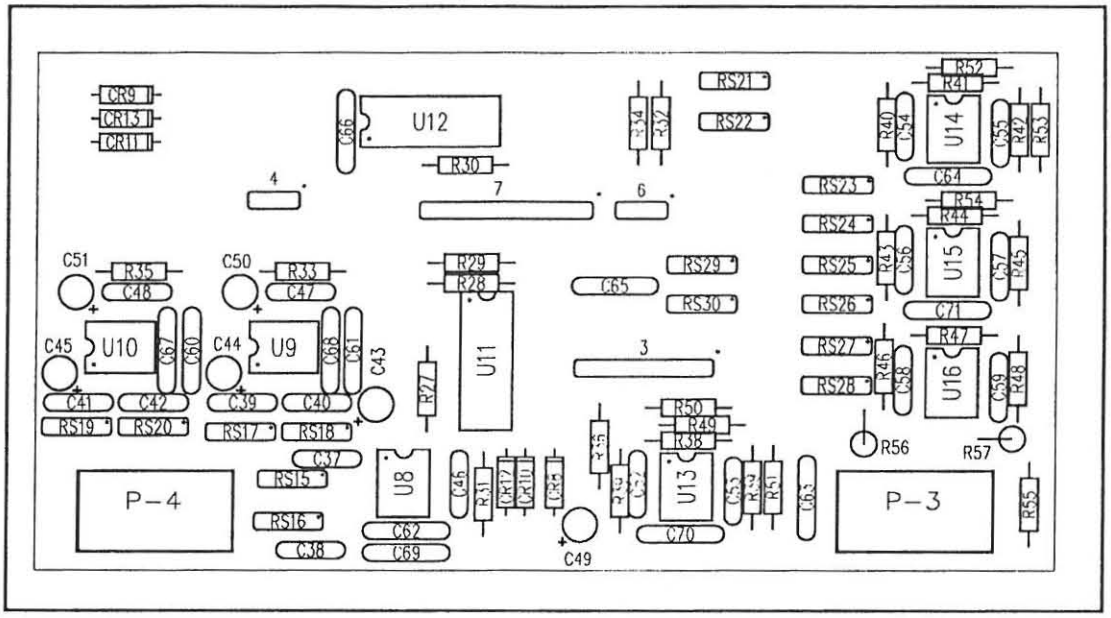


Figure 5, 210-TEL Left PC Board Location Art Diagram.

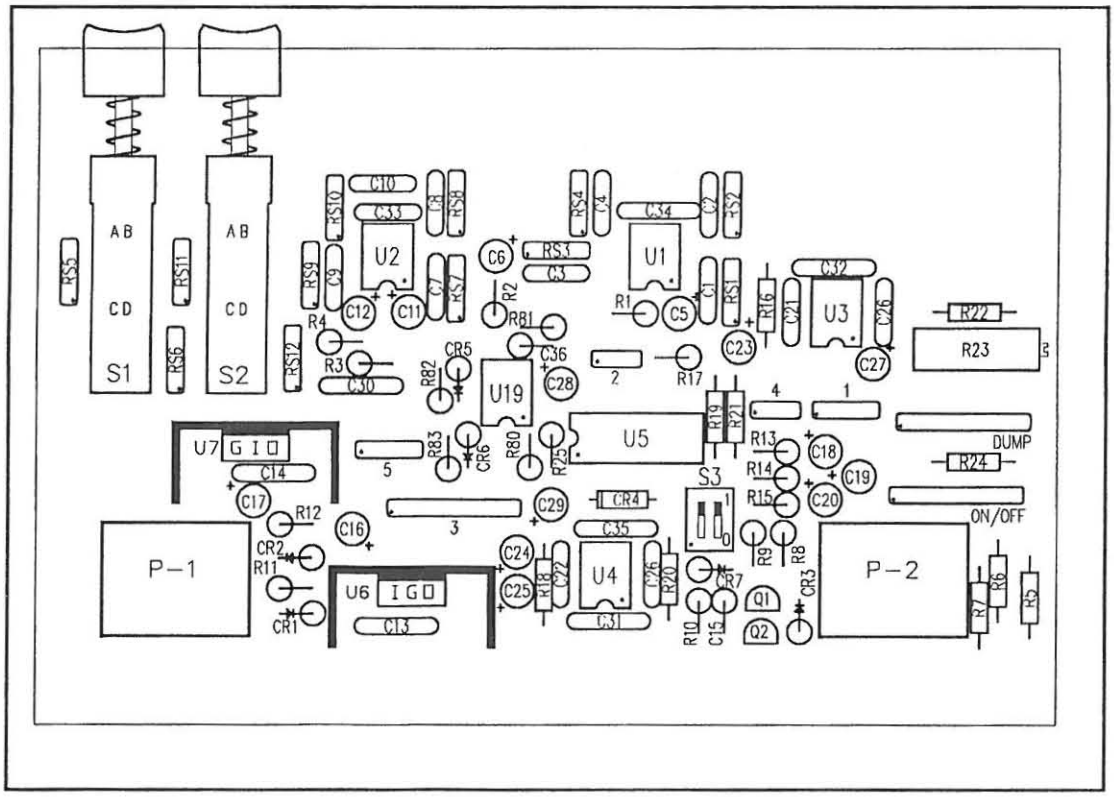


Figure 4, 210-TEL Right PC Board Location Art Diagram.

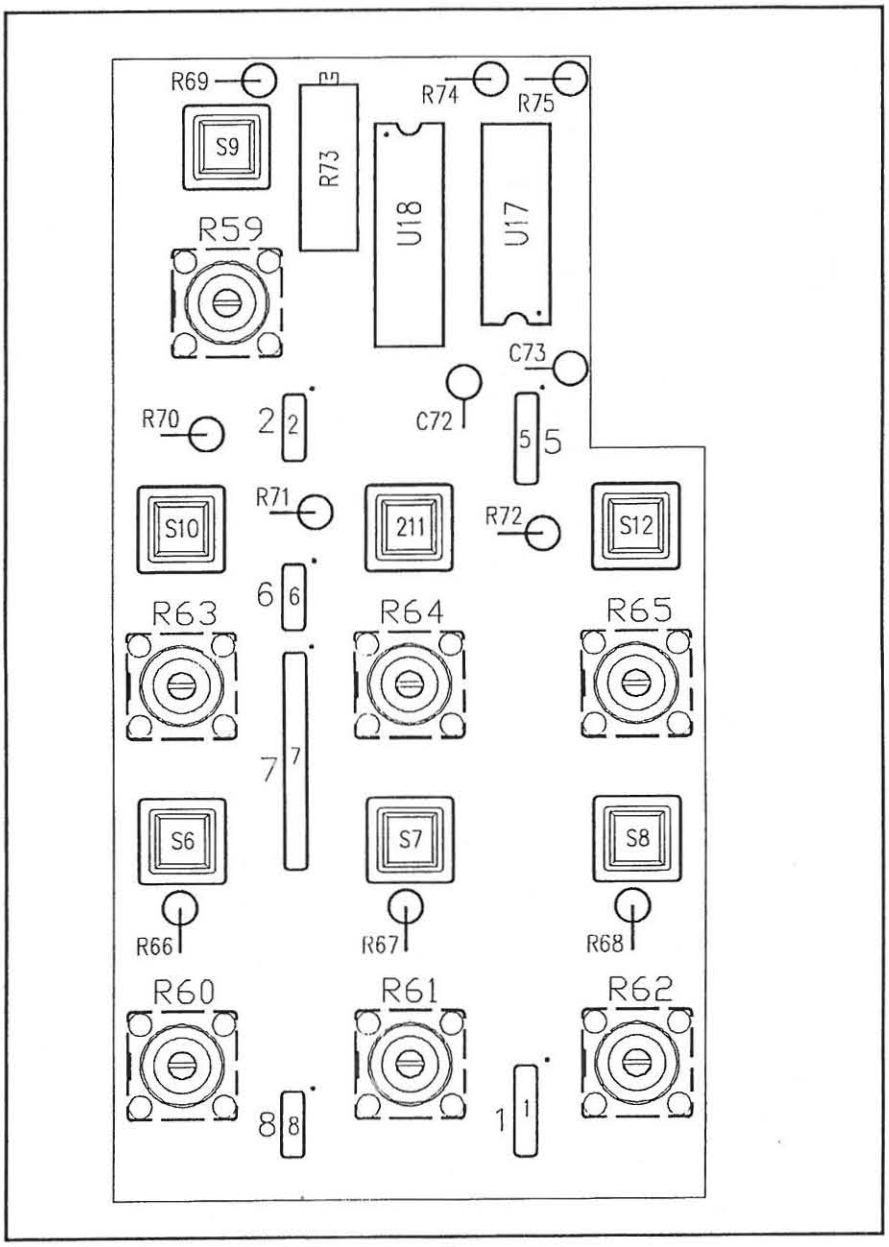
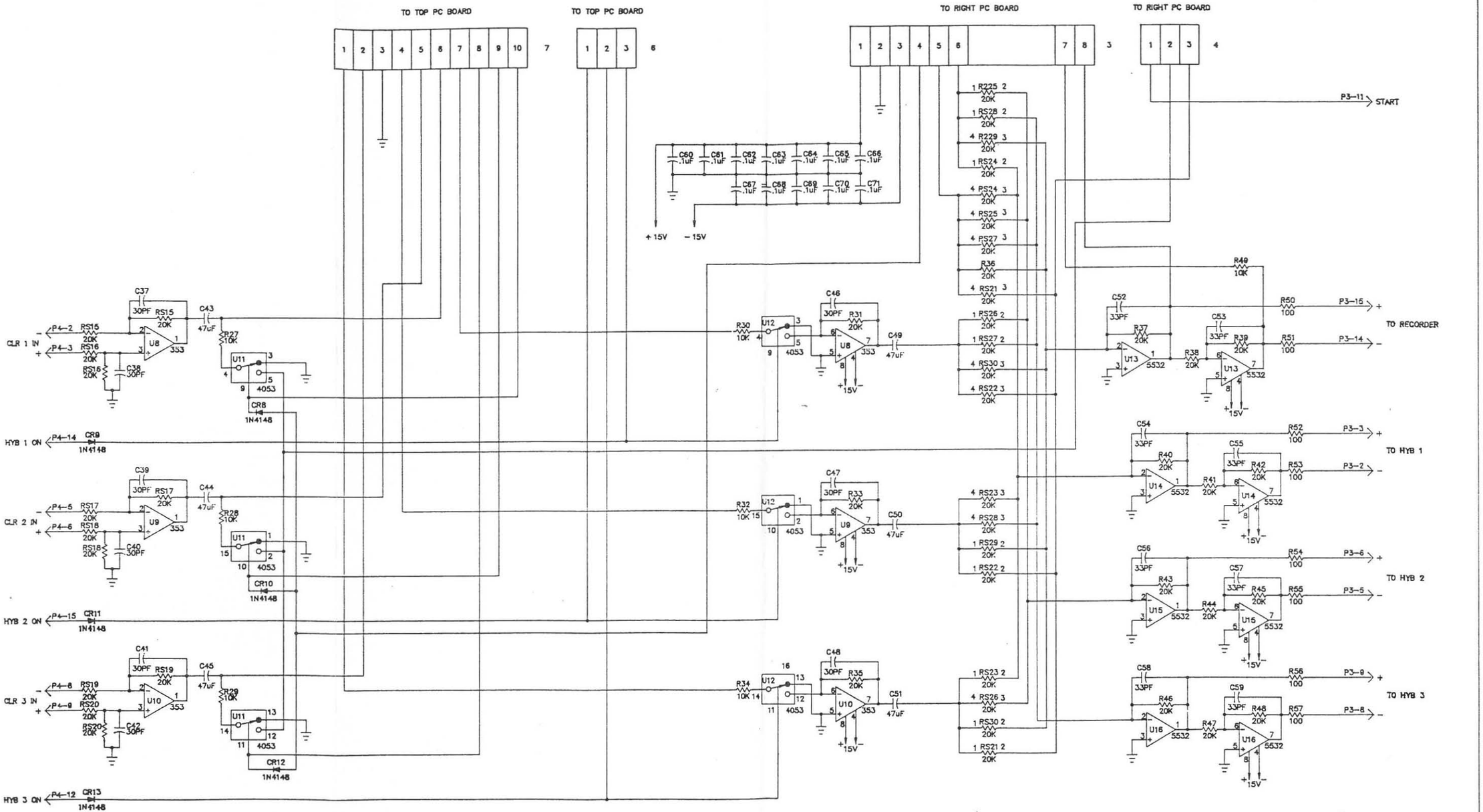


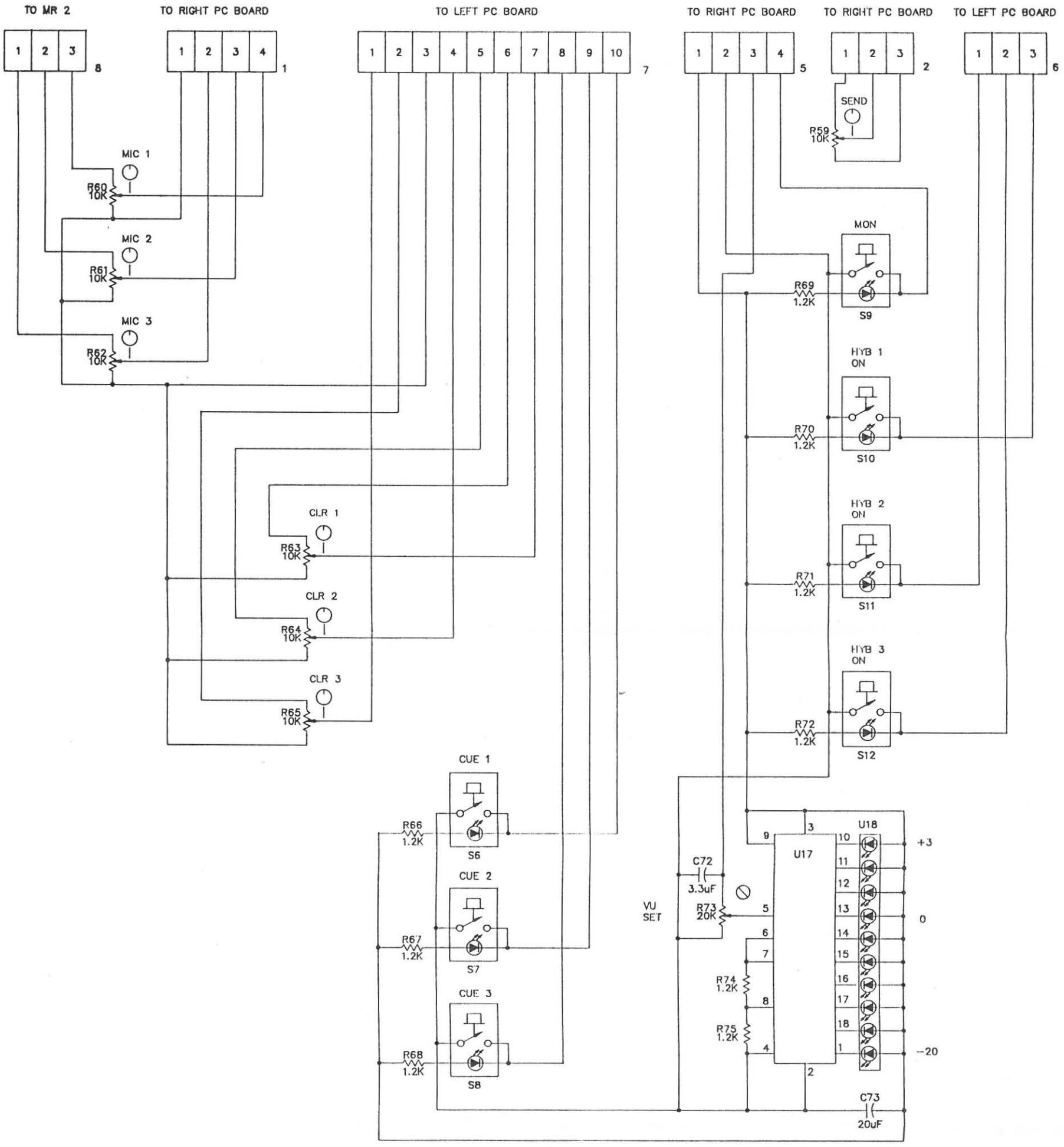
Figure 6, 210-TEL Top PC Board Location Art Diagram.



NOTES:
- ALL RESISTANCE VALUES ARE IN OHMS, EXCEPT AS MARKED
- ALL CAPACITANCE VALUES ARE IN MICROFARADS, EXCEPT AS MARKED
- PIN NUMBERS SEPARATED BY COMMAS ARE CONNECTED TOGETHER
- SHADED CONTACT OF CMOS SWITCH IS CLOSED WHEN CONTROL IS HIGH
- * IS A 1% METAL FILM RESISTOR
- ** IS A 5% STACKED FILM CAPACITOR
- CR'S ARE 1N4148 DIODES EXCEPT AS MARKED
- RS'S ARE 2% SIP RESISTOR NETWORKS
- RD'S ARE .1% DIP RESISTOR NETWORKS

REFER TO RELATED SCHEMATICS:
88B00825 RIGHT PC.BOARD
88B00827 TOP PC.BOARD
88B00820 210–TEL

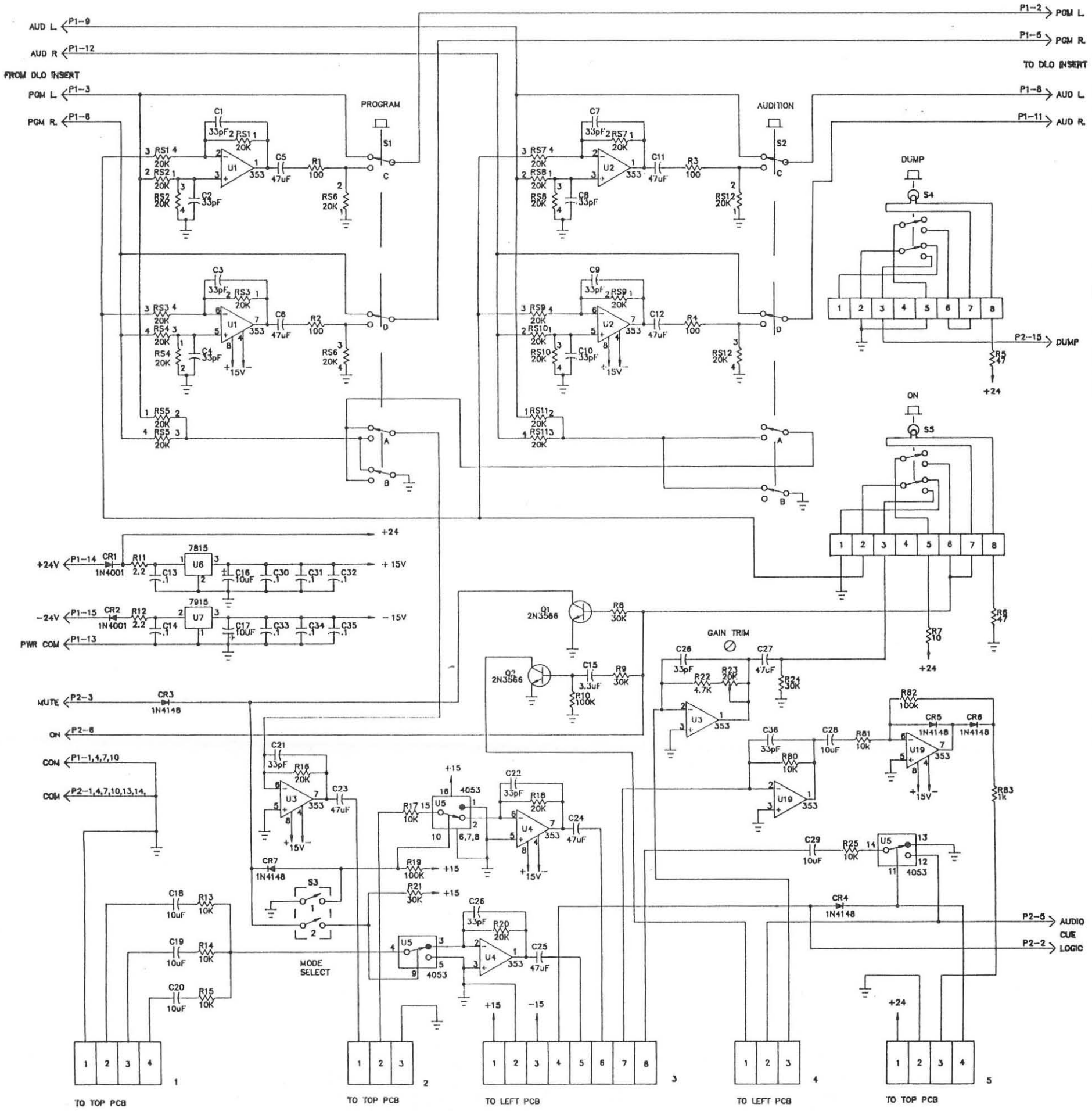
NONE	auditronics, inc. MEMPHIS, TENNESSEE, U.S.A.
JFP	
JFP	SCHEMATIC DIAGRAM 210–TEL LEFT PC BOARD
11/28/90	2 OF 3 — 88B00826



NOTES:
- ALL RESISTANCE VALUES ARE IN OHMS, EXCEPT AS MARKED
- ALL CAPACITANCE VALUES ARE IN MICROFARADS, EXCEPT AS MARKED
- PIN NUMBERS SEPARATED BY COMMAS ARE CONNECTED TOGETHER
- SHADED CONTACT OF CMOS SWITCH IS CLOSED WHEN CONTROL IS HIGH
- * IS A 1% METAL FILM RESISTOR
- ** IS A 5% STACKED FILM CAPACITOR
- CR'S ARE 1N4148 DIODES EXCEPT AS MARKED
- RS'S ARE 2% SIP RESISTOR NETWORKS
- RD'S ARE .1% DIP RESISTOR NETWORKS

REFER TO RELATED SCHEMATICS:
88B00825 RIGHT PC.BOARD
88B00826 LEFT PC.BOARD
88B00820 210-TEL

SCALE: NONE	auditronics, inc. MEMPHIS, TENNESSEE, U.S.A.
DRAWN: JFP	
ENGINEER: JFP	SCHEMATIC DIAGRAM 210-TEL TOP PC BOARD
APPROVED:	
DATE: 11/28/90	PAGE 3 OF 3 — 88B00827



MODE
SELECT

S3-1 OPEN SEND TO CALLER FOLLOWS THE ON SWITCH
CLOSED SEND TO CALLER IS ON

S3-2 OPEN MIC FEED IS ON
CLOSED MIC FEED FOLLOWS THE ON SWITCH

OPERATION
S3-1 OPEN / S3-2 CLOSED >> MIC FEED WILL GO OFF AND SEND TO CALLER WILL COME ON WHEN THE "ON SWITCH" IS ACTIVATED

NOTES:
- ALL RESISTANCE VALUES ARE IN OHMS, EXCEPT AS MARKED
- ALL CAPACITANCE VALUES ARE IN MICROFARADS, EXCEPT AS MARKED
- PIN NUMBERS SEPARATED BY COMMAS ARE CONNECTED TOGETHER
- SHADED CONTACT OF CMOS SWITCH IS CLOSED WHEN CONTROL IS HIGH
- * IS A 1% METAL FILM RESISTOR
- ** IS A 5% STACKED FILM CAPACITOR
- CR'S ARE 1N4148 DIODES EXCEPT AS MARKED
- RS'S ARE 2% SIP RESISTOR NETWORKS
- RD'S ARE .1% DIP RESISTOR NETWORKS

REFER TO RELATED SCHEMATICS:
88B00826 LEFT PC.BOARD
88B00827 TOP PC.BOARD
88B00820 210-TEL

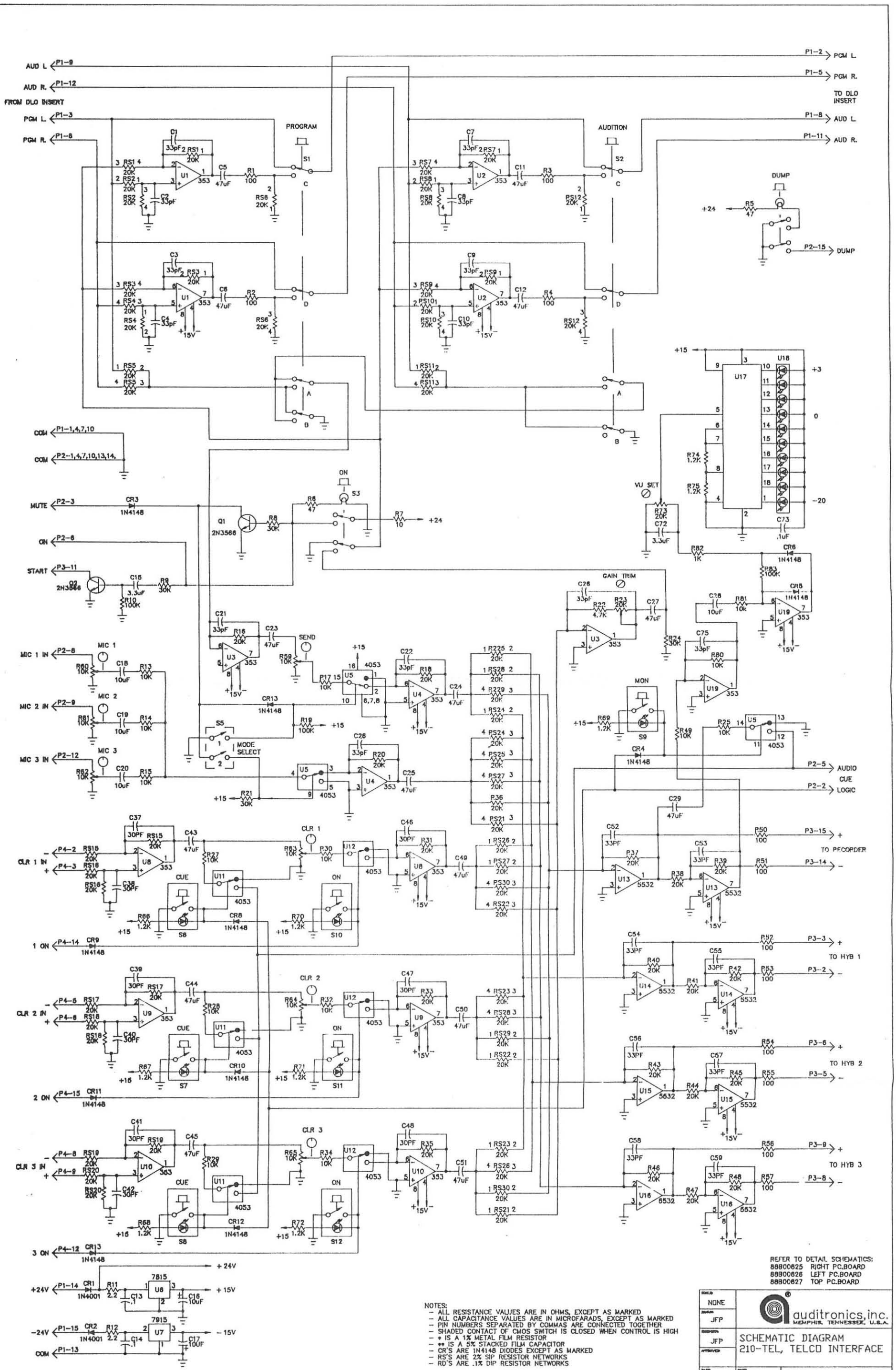
SCALE	NONE
DRAWN	JFP
ENGINEER	JFP
APPROVED	
DATE	12/1/90

auditronics, inc. MEMPHIS, TENNESSEE, U.S.A.

SCHEMATIC DIAGRAM
210-TEL RIGHT PC BOARD

PAGE 1 OF 3

88B00825


AUD L P1-9
AUD R. P1-12
FROM DLO INSERT
PGM L. P1-3
PGM R. P1-6
P1-2 PGM L.
P1-5 PGM R.
TO DLO INSERT
P1-8 AUD L.
P1-11 AUD R.
PROGRAM
AUDITION
DUMP
P2-15 DUMP
+24
COM P1-1,4,7,10
COM P2-1,4,7,10,13,14,
MUTE P2-3
ON P2-6
START P3-11
ON
VU SET
GAIN TRIM
MIC 1 IN P2-8
MIC 2 IN P2-9
MIC 3 IN P2-12
SEND
MODE SELECT
MON
P2-5 AUDIO CUE
P2-2 LOGIC
CLR 1 IN P4-2 P4-3
CLR 2 IN P4-5 P4-6
CLR 3 IN P4-8 P4-9
CUE
ON
1 ON P4-14
2 ON P4-15
3 ON P4-12
P3-15 +
TO RECORDER
P3-14 -
P3-3 +
TO HYB 1
P3-2 -
P3-6 +
TO HYB 2
P3-5 -
P3-9 +
TO HYB 3
P3-8 -
+24V P1-14
-24V P1-15
COM P1-13
+24V
+15V
-15V
REFER TO DETAIL SCHEMATICS:
88800825 RIGHT PC.BOARD
88800826 LEFT PC.BOARD
88800827 TOP PC.BOARD
NOTES:
- ALL RESISTANCE VALUES ARE IN OHMS, EXCEPT AS MARKED
- ALL CAPACITANCE VALUES ARE IN MICROFARADS, EXCEPT AS MARKED
- PIN NUMBERS SEPARATED BY COMMAS ARE CONNECTED TOGETHER
- SHADED CONTACT OF CMOS SWITCH IS CLOSED WHEN CONTROL IS HIGH
- * IS A 1% METAL FILM RESISTOR
- ** IS A 5% STACKED FILM CAPACITOR
- CR'S ARE 1N4148 DIODES EXCEPT AS MARKED
- RS'S ARE 2% SIP RESISTOR NETWORKS
- RD'S ARE .1% DIP RESISTOR NETWORKS
auditronics, inc.
MEMPHIS, TENNESSEE, U.S.A.
SCHEMATIC DIAGRAM
210-TEL, TELCO INTERFACE
NONE
JFP
JFP
1/5/91
1 OF 1
88B00820

Chapter 21

210-Series Relay Interface Accessory - 210-RY2

200/210-RY2 Relay Interface Accessory

As originally designed, the 200/210-RY2 was intended to serve as an interface between the 200 Series of consoles, and "ON AIR" lights used with a studio or control room. Today, innovative engineers find many other applications for this popular accessory.

The relay contacts are rated at 5A, 120V, and can be used to control a great assortment of external equipment, not just the "ON AIR" lights(s). Due to the fact that in many of these applications the relays may be switching high voltage alternating current, this accessory is intended to be mounted only outside the console mainframe.

By following the connector pinout chart and schematic, many common switching needs in a studio may be met. The 200/210-RY2 utilizes the same connector as is commonly used for all other in/out wiring connections to the 200/210 Series consoles.

As the standard logic output of the 200/210 Console Series is a ground closure (100ma. 24V maximum), the relays of the 200/210-RY2 need only to be furnished +24VDC for operation

P1 Connector

1. Relay 1; A -N/C-
2. Relay 1; A Common
3. Relay 1; A NO
4. Relay 1; B -N/C-
5. Relay 1; B Common
6. Relay 1; B NO
7. Relay 2; A -N/C-
8. Relay 2; A Common
9. Relay 2; A NO
10. Relay 2; B -N/C-
11. Relay 2; B Common
12. Relay 2; B NO
13. +24VDC
14. Relay #2 Coil
15. Relay #1 Coil

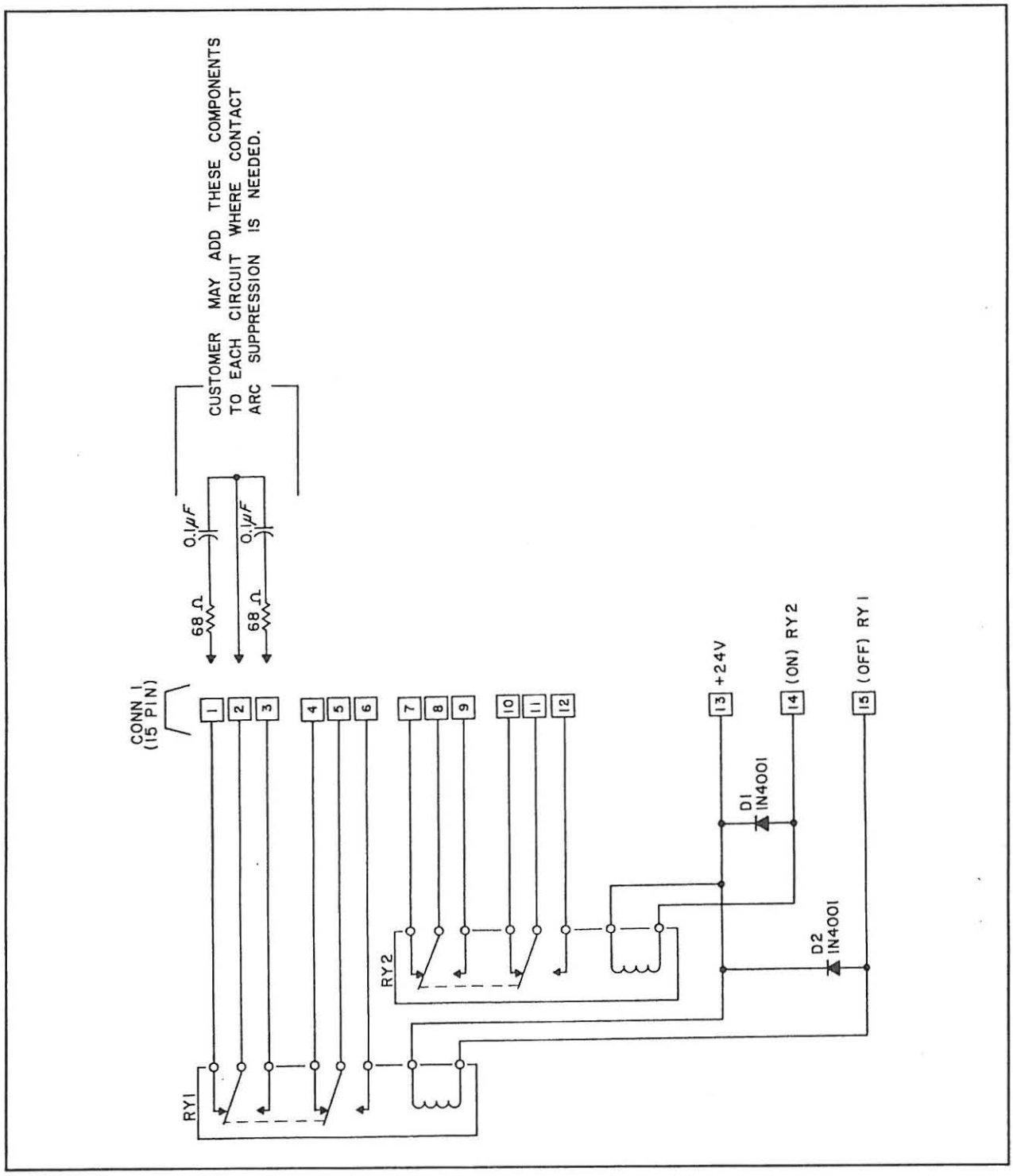


Figure 1, Schematic Diagram - 200/210-RY2 Relay Box.

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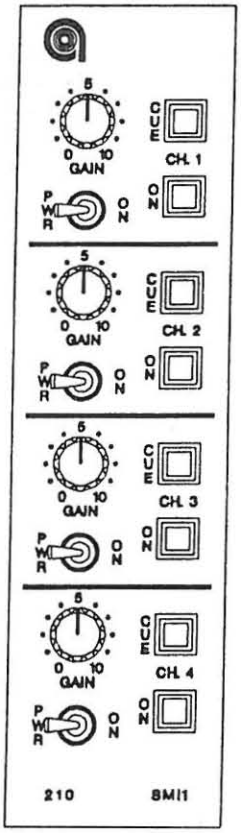
Chapter 22

210-Series Submixer Input Module 210-SMI1



INTRODUCTION

The 210-SMI1 is a 7" module mountable in any accessory slot in a 210 console. It is a 4 in x 1 out mic mixer sub-system whose output may be connected to any mic-level or line-level input.

The balanced mic inputs are suitable for any lo-z type microphone with a nominal -50 dBu level. A front panel mounted pot is provided for each of the 4 pre-amps for gain trim of 20 to 60dB. In addition, a front panel PWR switch provides +48V phantom power for each mic input.

The lighted alternate action front panel ON switch adds the associated mic signal to the composite output mix. All 4 ON/OFF switches form a mute bus capable of being jumpered by the installer to mute the appropriate monitor system in the console. For operator convenience, there is an associated lighted CUE switch which is wired into the console's cue speaker system.

The installation of the module includes the mounting of a 4-position connector bracket at the back base of the console. These connectors use the same MR pins and shells as are used in the rest of the console. All mic inputs, outputs, and muting selections are made with these connectors.

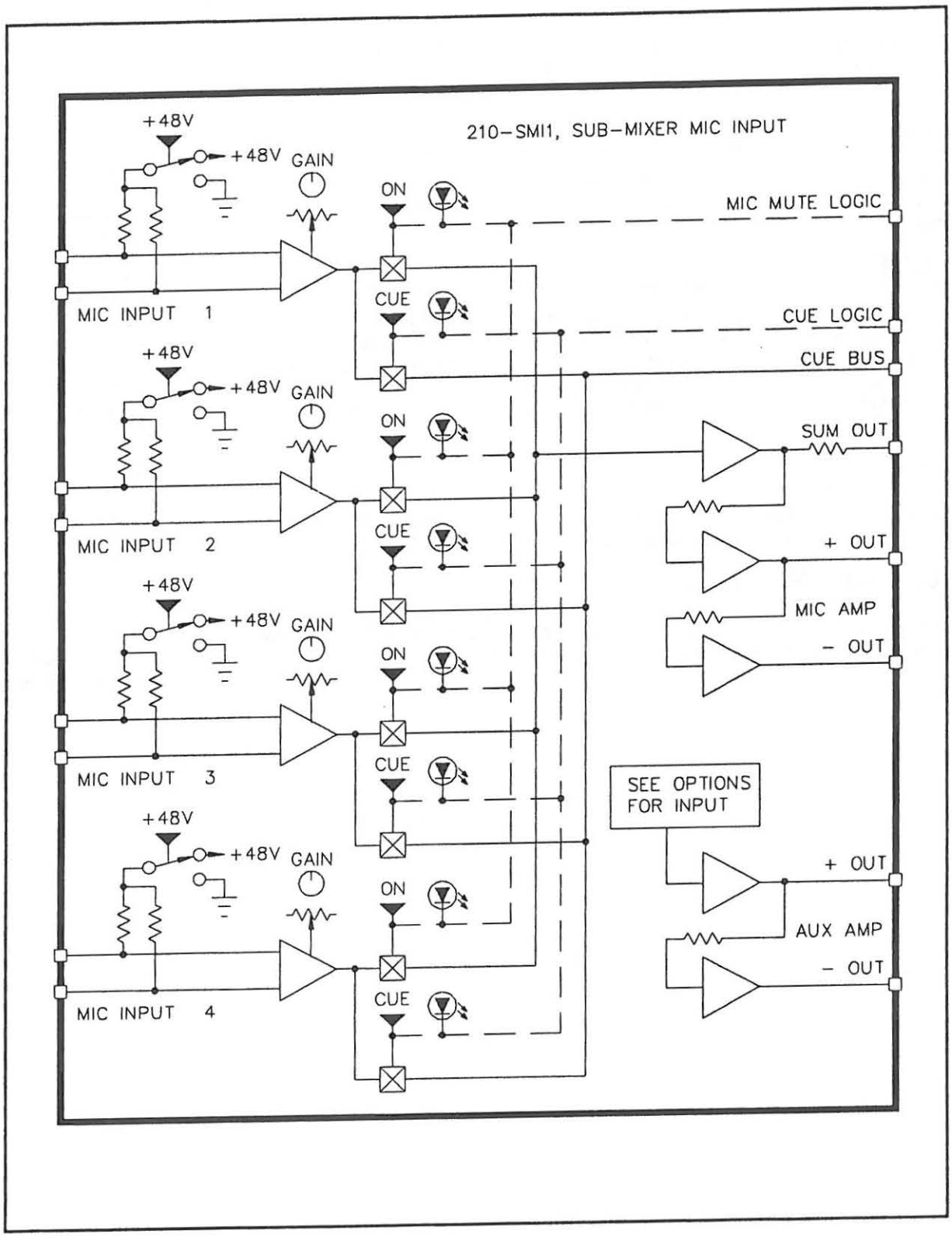


Figure 1, 210-SMI Module Signal Flow Diagram.

CONTROL AND PUSHBUTTON OVERVIEW

The following is a brief summary of the features and functions of the 210-Series Submixer Input Module. This section is intended to familiarize the Service/Installation Technician with the controls, as reference to same is frequently made in the text.

1. Gain

Each input on the SMI Module has its own **rotary gain control** as a means of level setting within the module. In reality, it is not a true level control and thereby can only be turned completely off with the On/Off pushbutton (#4).

2. CUE

When the **CUE** pushbutton is pressed, the selected channel signal is fed to the cue bus. The signals on the cue bus may be heard on the cue speaker or the headphones. This signal is in a post gain, pre On/Off configuration. This is an alternate action (push-push) illuminated switch. When pressed once, the internal LED illuminates, indicating that the CUE function is enabled; when pressed again, the LED extinguishes, indicating that the CUE function is disabled.

3. PWR

The toggle switch labelled "PWR" is the **Phantom Power** enable switch, supplying +48VDC to a condenser microphone, if required.

4. Channel ON Pushbutton

The ON pushbutton, when pressed, illuminates, indicating the channel's ON status. When pressed again, it extinguishes, indicating that that channel is OFF.

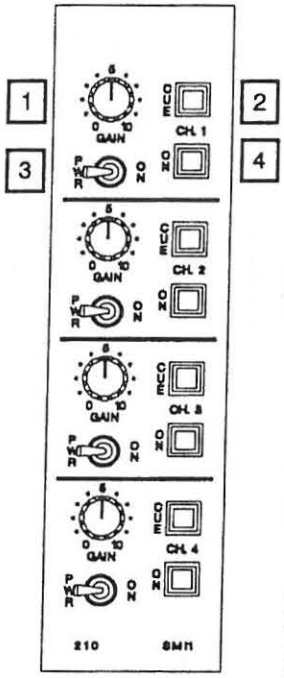


Figure 2, 210-SMI Module - Front Panel.

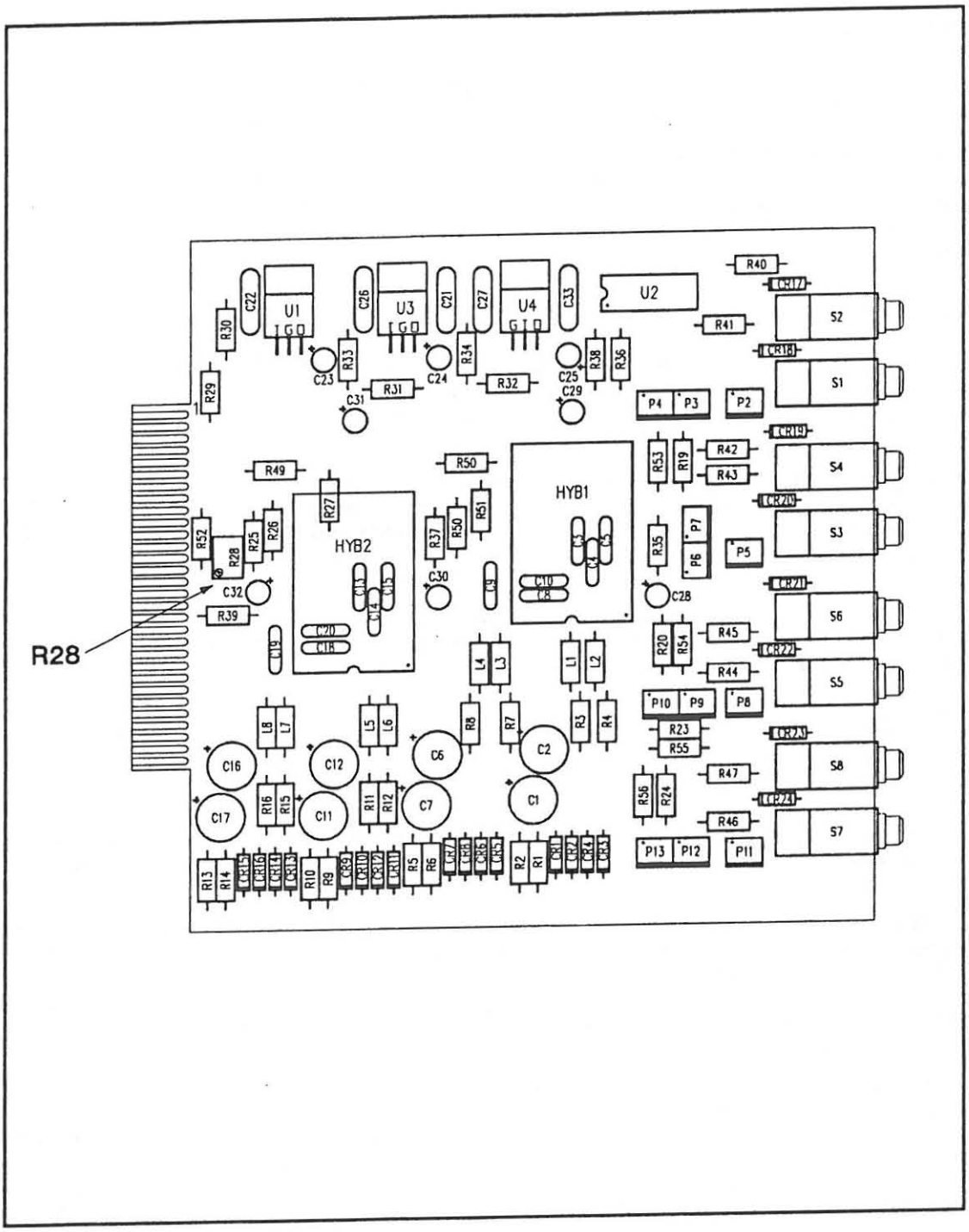


Figure 3, 210-SMI1 Input Module Location Art.

INSTALLATION

General Information

This section consists of two parts: Connection of an existing SMI Module and retrofitting an SMI Module into an operational console.

To introduce multiple microphone signals into a single Mono Input Module, first, locate the connector bracket. This bracket is located inside the console against the rear wall and holds four 15-pin MR connectors which lead to the SMI Module in question. This bracket is accessible by lifting the meter turret cover.

Installation Procedure

According to the *Crimping Instructions* in *Chapter 3*, construct a cable with appropriate connectors on one end for the microphones and with a 15-pin MR connector on the other for connection to the inputs of the SMI Module. Pin assignment may be found later in this chapter.

NOTE: The 15-pin 'MR' connectors are mounted such that P1 is at the top of the connector bracket, P2 follows, and so on. All four microphones connect to the P1 connector while the output and the logic signals are handled by the P2 connector. P3 and P4 are not connected.

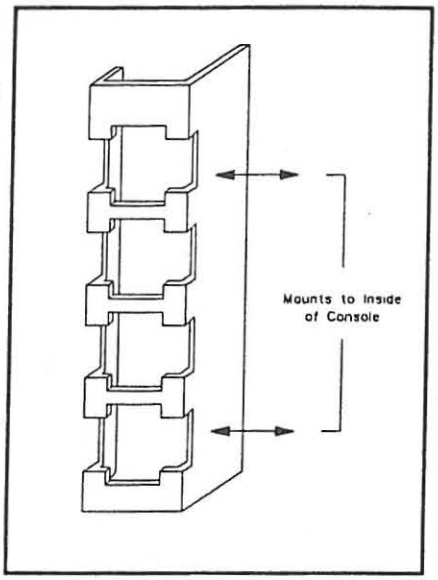


Figure 4, 15-Pin MR Connector Bracket.

There is a series of 1.5" diameter access holes in the bottom of the console. The mic cables may be run into the console through the access hole nearest the connector bracket. The output from the SMI Module to the desired Input Module, along with all power and logic connections, will have already been connected at the factory.

Retrofit Instructions

General Information

Normally, this module is part of the original order, however, if one is desired in a console that is currently in operation, or the user wishes to reassign an existing module, the following section will supply step-by-step installation instructions for same.

IMPORTANT: It is NOT recommended that any preliminary work (be done before the module and associated peripherals are in hand. This will significantly reduce the chances of error in calculation, both in the choice of location of the module and of its associated hardware.

Supplied in the SMI installation kit is: One SMI Module (as per order), all connector cables, connector bracket(s), appropriate mounting hardware, and extra MR connector shells and pins.

A given SMI Module comes with a complete wiring harness (#19426) which terminates on one end with a 60-pin edge connector for the module itself, and on the other with four (4) 15-pin MR connectors and Molex connectors of varying pin count. The lengeh of the wiring harness is determined by the user at the time of order. Two of the MR connectors, P1 and P2, serve as input connections to the SMI Module. **All connectors are labeled for ease in identification.** The four MR connectors must be attached to the connector bracket secured to the inside of the console body. Signals from outside will enter the SMI Module through these 15-pin MR connectors (pin assignment for the input connectors follows this section).

The output of this module is configured in a fashion similar to the inputs, in that the signal originates on the main board of the module and terminates at the P2 connector. **NOTE:** The SMI Module may be mounted in a variety of places and the output cable must be of sufficient length to reach its destination module. For this reason, the output cable must be constructed by the user. This procedure will be described in the *Installation Procedure* section, immediately following

Installation Procedure

NOTE: Console power should be "OFF" during the installation process.

To begin, find a suitable blank accessory space, preferably one near the destination input module. Remove the blank panel, setting the mounting screws aside for re-use. Attach the supplied cable harness (#19426) to the module's 60-pin edge connector (P1) and feed the opposite end of the cable toward the inside rear area of the console. Secure the module in place with the above-mentioned mounting screws.

The next consideration is a suitable location for the connector bracket. The SMI mating interconnect cable terminates on one end with a 60-pin edge connector for the module itself, and on the other with four (4) 15-pin MR connectors and four Molex connectors of varying pin count. Two of the MR connectors, P1 and P2, serve as input connections to the SMI Module. P3 and P4 are not connected.

The bracket must be mounted internally and may be placed virtually anywhere, provided the cables reach and it isn't in the way of any of the console's internal components. When choosing a location for the bracket, be sure that the meterbridge/overbridge and the module/motherboard assembly may be closed without interference. In addition, sharp turns of the cables should be avoided. **The best location for the connector bracket is the inside rear panel of the console, mounted in a vertical position.**

When a suitable location has been established, simply peel the protective backing from one side of the two-sided tape (included with installation kit) and attach it securely to the wider side of the connector bracket. Now, remove the backing from the opposite surface of the tape and position the bracket inside the console. **NOTE:** The tape included with the installation kit is extremely effective, so be sure the bracket is in the proper place because removal of same is no picnic.

Once the bracket is in place, the MR connectors (P1 through P4) can be mounted. P1 mounts in the top position, P2 in the next position, and so on. Guide the connectors through the openings in the bracket from the rear, pushing them through until they 'click' into place. **NOTE:** The MR connectors can be mounted in this bracket with Pin 1 at the top or at the bottom. We recommend that they be installed such that Pin 1 is at the top.

There is a series of 1.5" diameter access holes in the bottom of the console. The microphone cables may be run into the console through the access hole nearest the connector bracket.

Output Interconnection

The output cable must now be constructed for connection to the destination input module. It should terminate on each end with a 15-pin 'MR' connector (female shell with male pins); one for the SMI Module's output (P2) connector and one for the destination module's input (A) connector. Use the *Connector Pinouts* section of this chapter and *Figure 5* for assistance.

Lift the module/motherboard assembly and lock it in the open position.

WARNING!! Be sure that the module/motherboard assembly is securely locked in the UP position. Serious injury can result if the assembly is accidentally closed while hands or fingers are inside the console shell.

Referring to the console connector location map, *Chapter 3, Page 15*, locate the "A" Connector for the Input Module position to which the SMI Module will be connected. If this module has been previously in use, the existing cable must be removed. This must be replaced with the output connector from the SMI Module.

Remaining Connections

The various other connections may now be made. With the module/motherboard assembly open and the Console Connector Location map (Page 3-15) handy, connect P5 (8-pin in-line Molex connector) to a convenient **H** connector on the module/motherboard assembly. Connect P6 (4-pin in-line Molex) to a convenient **J** connector; connect P9 (2-pin in-line Molex) to the **M** connector found near the Channel 1 **A** connector..

P8 appears as a bundle of 4 female MR-type pins. These are the main power connections which run to the **PGM D** connector on the module/motherboard assembly. They are inserted into an existing MR shell according to *Crimping Instructions* in *Chapter 3*.

Each row of three pins on the PGM D connector is identical. Specific pins are named in Figure 5 (SMI Interconnect Cable Drawing); however, any available pin with the appropriate signal may be used. The table below illustrates the PGM D pin assignment.

PGM D Connector

3. –24V	2. +24V	1. Common
6. –24V	5. +24V	4. Common
9. –24V	8. +24V	7. Common
12. –24V	11. +24V	10. Common
15. –24V	14. +24V	13. Common

The *Console Connector Pinout* sheet at the end of *Chapter 3* will also be helpful in identifying all signals on all connectors.

Field Options

There is one jumper option on the 210-SMI Module. Unlike the usual shorting plug configuration, this takes place between pins on the P2 MR connector on the wiring harness.

Depending upon the specific use of the SMI Module in your installation, monitor muting may be desireable in the location of the microphones. This option makes it possible to mute the monitors in either the Control Room, Studio A, or Studio B whenever the SMI Module is active.

A jumper must be constructed for this option. According to the *Crimping Instructions* in *Chapter 3*, crimp a male MR-type pin to either end of a single lead no more than two inchesin length. Connect one end of the lead to Pin 12 of the P2 connector and the other to the appropriate pin for the desired mute as follows:

Control Room Mute . . . . . P2-12 to P2-15
Studio A Mute . . . . . P2-12 to P2-14
Studio B Mute . . . . . P2-12 to P2-13

Alignment Procedures

The only alignment on this module is the main output alignment. **NOTE:** All alignments are made at the factory and should not require adjustment. If, however, a particular component in the circuitry is replaced for any reason, such adjustments may become necessary.

General Information

Test Equipment Required: Fluke Model 8020A 4-digit multimeter (or equivalent) and a Select Section Extender Card.

NOTE: Never remove or install a module with the main power ON. This may result in damage that will not be covered in your warranty.

Alignment Procedure

The first step in this alignment is to remove the module in question (main power OFF), install the Module Extender Card, and plug the module onto the card. This will allow the technician to gain access to the trimpot without interrupting power to the module.

Introduce a balanced 1kHz signal at –60dB into an input. Set the gain on that channel to full and measure at User Connector P1, across Pins 3 & 2, adjusting R28 (if necessary) for +4dB.

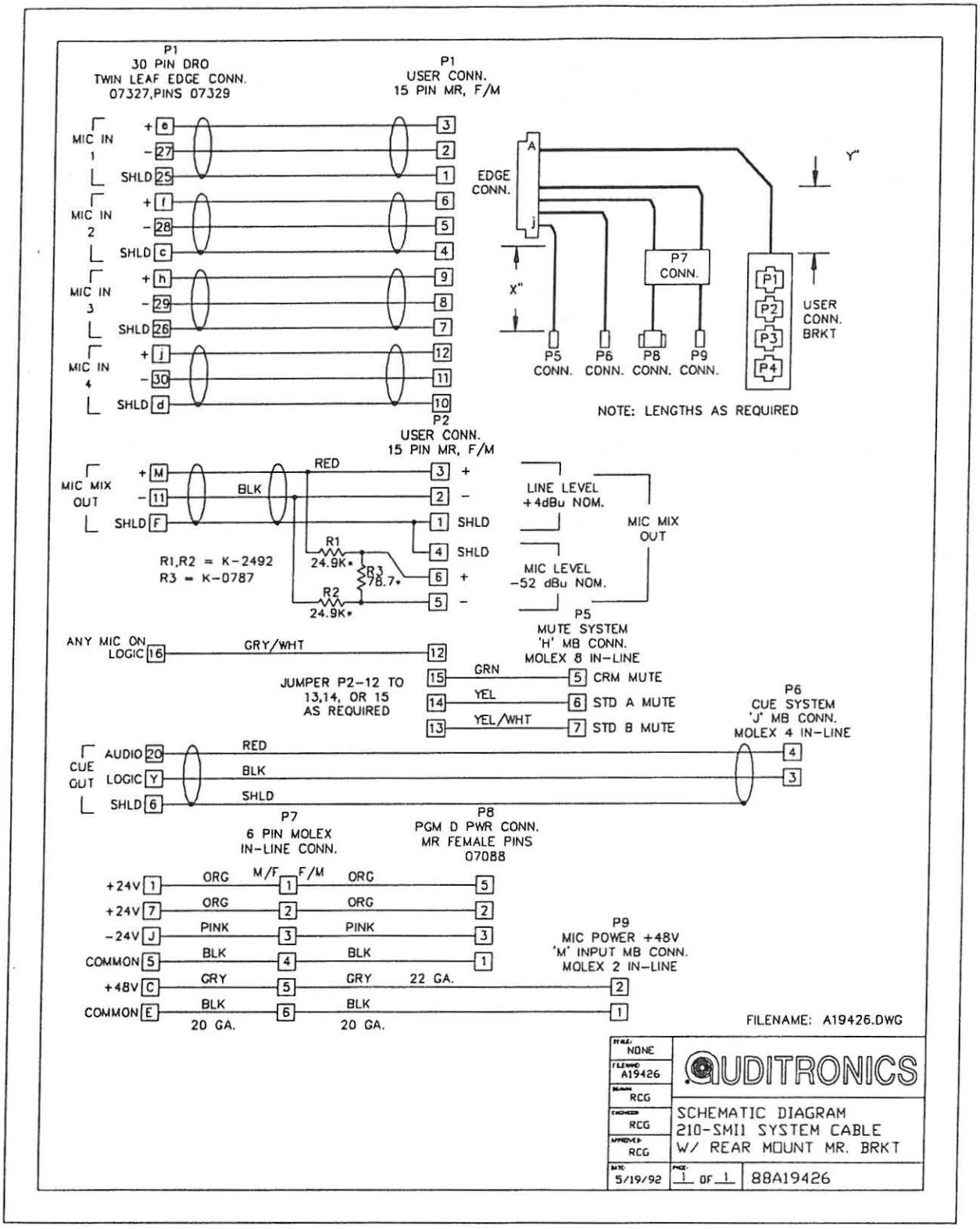


Figure 5, 210-SMI1 Interconnection Cable (#19426).

210-SMI1 P1 Connector Pinouts

+10V	1	A	+10V
+10V	2	B	+10V
+48V	3	C	+48V
+48V	4	D	+48V
COMMON	5	E	COMMON
COMMON	6	F	COMMON
+15V	7	H	+15V
–15V	8	J	–15V
Aux In	9	K	-N/C-
Aux Out (+)	10	L	Aux Out (–)
Mic Audio Out (+)	11	M	Mic Audio Out (–)
-N/C-	12	N	-N/C-
-N/C-	13	P	-N/C-
-N/C-	14	R	-N/C-
-N/C-	15	S	-N/C-
Mic On Logic (+)	16	T	Mic On Logic (+)
-N/C-	17	U	-N/C-
-N/C-	18	V	-N/C-
-N/C-	19	W	-N/C-
Cue Audio (+)	20	X	Cue Audio (+)
Cue Logic (+)	21	Y	Cue Logic (+)
-N/C-	22	Z	-N/C-
-N/C-	23	a	-N/C-
-N/C-	24	b	-N/C-
-N/C-	25	c	-N/C-
-N/C-	26	d	-N/C-
Mic Input 1/5 (+)	27	e	Mic Input 1/5 (–)
Mic Input 2/6 (+)	28	f	Mic Input 2/6 (–)
Mic Input 3/7 (+)	29	h	Mic Input 3/7 (–)
Mic Input 4/8 (+)	30	j	Mic Input 4/8 (–)

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HY-1

INPUT PRE-PATCH HYBRID

HY-2

INPUT PRE-PATCH HYBRID

SEE INPUT OPTIONS
REF: R49, R50, R51, R52

NOTE: L1-L4,C3,C5,C8,C10,C13,C15,C18,C20 USED ONLY IN HIGH RF ENVIRONMENT

MIC GAIN OPTION

MIC CH.	R NUM.	P NUM.	SERIES R #'S
1	R17	P3,4	R19,R53
2	R18	P8,7	R20,R54
3	R21	P9,10	R23,R55
4	R22	P12,13	R24,R56

NOTES:
- ALL RESISTANCE VALUES ARE IN OHMS, EXCEPT AS MARKED
- ALL CAPACITANCE VALUES ARE IN MICROFARADS, EXCEPT AS MARKED
- PIN NUMBERS SEPARATED BY COMMAS ARE CONNECTED TOGETHER
- SHADED CONTACT OF CMOS SWITCH IS CLOSED WHEN CONTROL IS HIGH
- * IS A 1% METAL FILM RESISTOR
- ** IS A 5% STACKED FILM CAPACITOR
- CR'S ARE 1N4148 DIODES EXCEPT AS MARKED
- RS'S ARE 2% SIP RESISTOR NETWORKS
- RD'S ARE .1% DIP RESISTOR NETWORKS

NONE	AUDITRONICS
SC210SMI	
RCG	SCHEMATIC DIAGRAM 210-SMI1, MIC INPUT FOR SUBMIXER, CH.1-4
RCG	
RCG	
5/21/92	1 OF 1 — 88B00878

Chapter 23

210-Series Phantom Power Supply - 210-PPS

INTRODUCTION

An optional plug-in accessory card (210-PPS) is available for use with the PS-60 Power Supply.

Field installation of the 210-PPS may be accomplished easily within the chassis of the PS-60 Power Supply.

Installation

First, turn off the supply and remove the cabling to the unit. Remove the chassis from the equipment rack and move it to a suitable work area.

Remove the bottom cover of the supply. Inside, note the existance of a 5-pin in-line connector, and four (4) mounting holes in the adjacent end panel of the chassis. Snap the nylon circuit board standoffs into the four holes with the long pin facing into the power supply. Snap the board onto the standoffs and plug the connector onto the board, taking care to note the polarity of the pins.

All other necessary wiring is already installed in the PS-60; installation is complete.

Connector 1 Pinout

1. 55VAC Input
2. -N/C-
3. reg. 48V Output
4. reg. 48V Output
5. 55VAC Input

210-PPS Parts List

Description	Part No.	Quantity
Pin MLX Female	07003	3
Pin MLX Male	07004	1
Conn MLX Recpt	07036	1
PS 48V Regulator Assy(Mic)	40667	1
(Assembly Includes:)		
Res Carb Film 2.7K 2W 5%	M-272	1
Cap Elect 25μF 50V NA	00031	1
Cap Elect .1KμF 150V NA	00059	1
Conn MLX 5-Pin	07039	1
PCB 48V Reg Board	12089	1
Diode 1N4004	16039	4
Diode Zener 1N4752	16085	1
Diode Zener 1N5359	16127	2
Xstr Power MJE3055T	16190	1
IC Voltage Reg. MC78M24CT	16195	1
Nylon Ckt Bd Support	17034	4
Headsink for Plast Pwr Xstr	24198-02	2

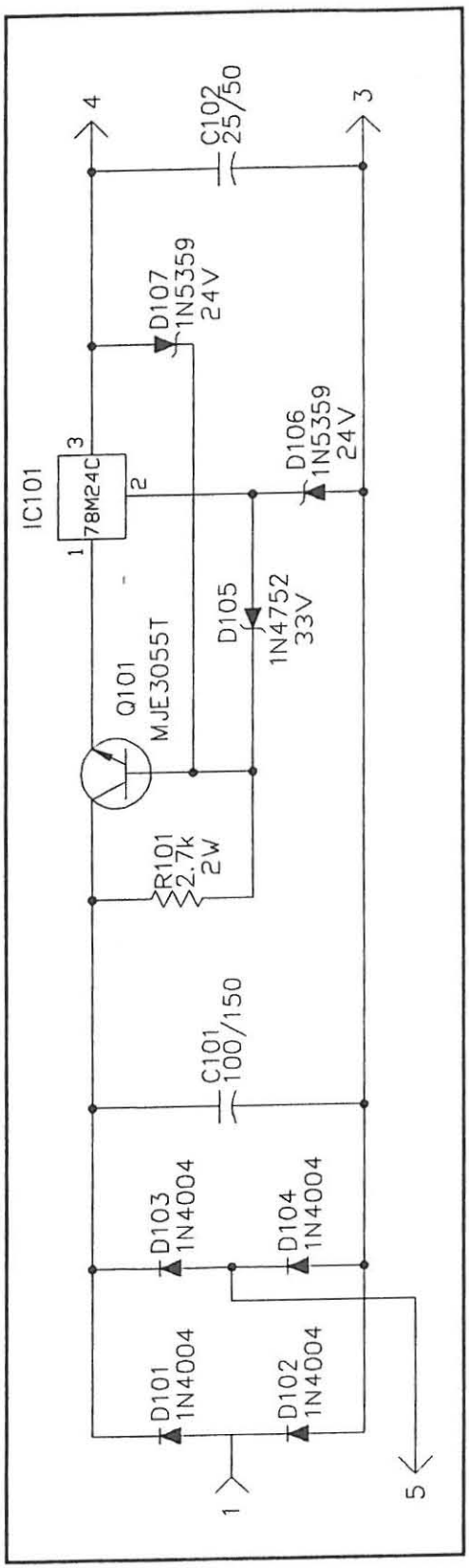

Figure 1, 210-PPS Schematic Diagram,
DWG #88A00318-01

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Chapter 24

PS-60 Power Supply and PSI-60 Power Supply Isolator

PS-60 Power Supply

The Model PS-60 Power Supply is designed to mount in a standard 19-inch equipment rack, and requires three vertical rack spaces (5.25"). As the 210-Series Consoles feature regulation on each module, the PS-60 supplies the console with unregulated ±24VDC, reducing ventilation requirements.

An optional PSI-60 (Power Supply Isolator) is available for redundant powering requirements. An optional 210-PPS (Phantom Power Supply) card to supply 48VDC may also be ordered. Documentation for the PSI-60 may be found later in this chapter; documentation for the 210-PPS may be found in *Chapter 23*.

Prior to installing the PS-60, the manner of system grounding must be determined (see *Grounding* in *Chapter 3, System Installation*). If the power ground of the PS-60 is to be opened, refer to *Paragraph 2* on *Page 3 - 8* under *Installing the Power Supply*.

The PS-60 is factory-configured for 115VAC operation. If 230VAC operation is desired, refer to *Paragraphs 3* and *4* on *Page 3 - 8* under *Installing the Power Supply*.

PS-60 Specifications

INPUT POWER REQUIREMENTS:	110/220VAC (Internal Jumper Selectable): 50/60 Hz
OUTPUT:	±24VDC (Nominal); 3A (Max.)
Optional Phantom Power Supply (200/210 PPS):	
	+48VDC (Nominal); .1A (Max.)

J4 Connector (to Console or Optional PSI-60).

1. Common
2. +24VDC
3. (–)24VDC
4. Common
5. +24VDC
6. (–)24VDC
7. Common
8. +24VDC
9. (–)24VDC
10. -N/C-
11. Common
12. 48V Phantom Power Supply*
13. -N/C-
14. -N/C-
15. 48V Phantom Power Supply*

* (Optional 210-PPS Card Required)

PS-60 POWER SUPPLY PARTS LIST

Description	Part No.	Ref #
Circuit Breaker, 2A, 1)	05174	CB1
Transformer, Power	09019	T1
Rectifier, Bridge	16003	BR1
Resistor, Carbon, 100W, .25W.,5%	E101	R1
Resistor, Carbon, 100W, .25W.,5%	E101	R2
Resistor, Carbon, 4.7kW,. 25W.,5%	E472	R3
Resistor, Carbon, 4.7kW, .25W.,5%	E472	R4
Capacitor, Ceramic Disk, .1μF, 600V	00051	C1
Capacitor, Ceramic Disk, .1μF, 600V	00051	C2
Capacitor, Electrolyitc, 9000μF, 50V	00022	C3
Capacitor, Electrolyitc, 9000μF, 50V	00022	C4
Light-Emitting Diode, Red	16029	LED1

PSI-60

The Auditronics PSI-60 provides for automatic switching between redundant power supplies. Installation instructions for the PS-60 will be slightly altered from standard procedures if two supplies and the PSI-60 are used.

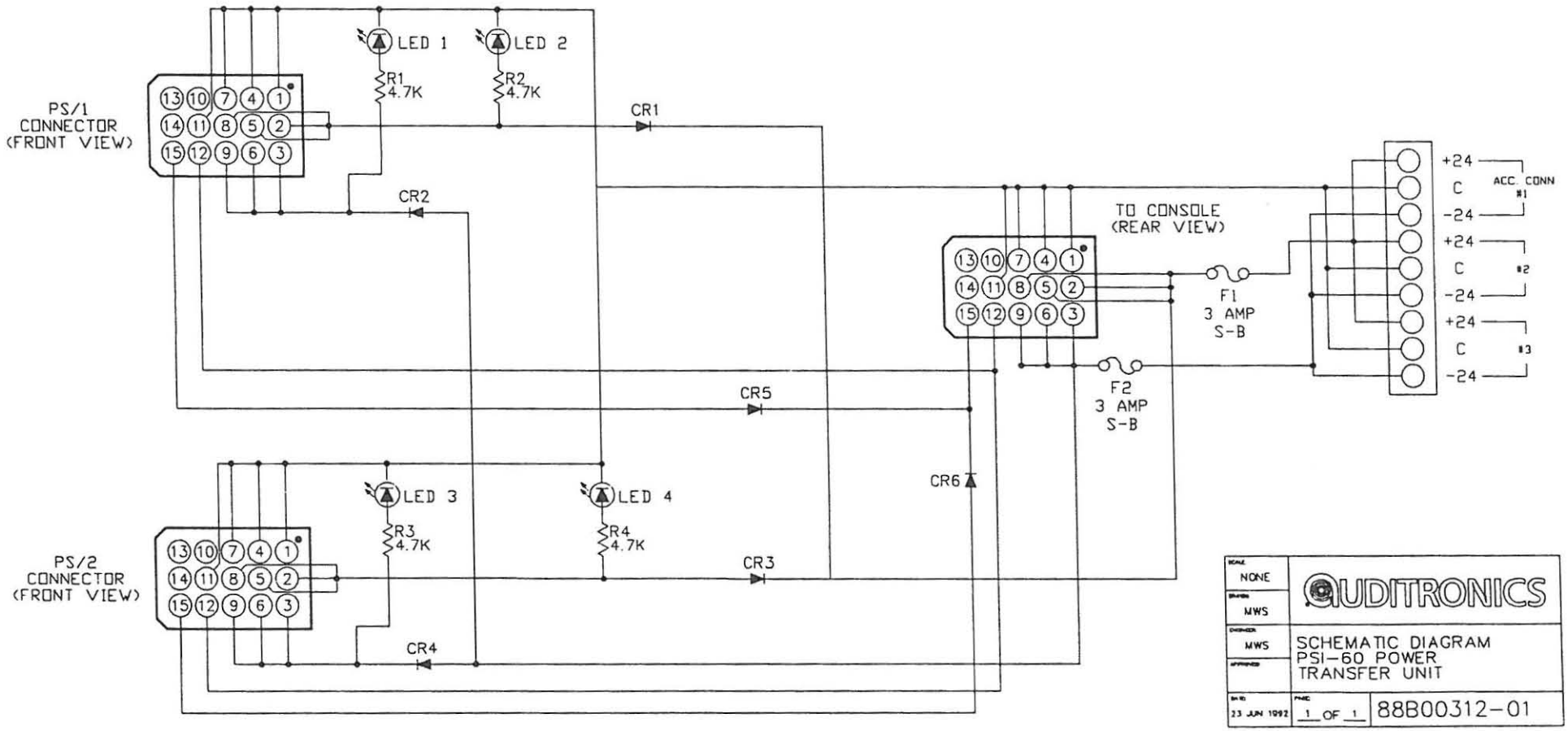
Follow the checkout procedure for each supply as described under the installation instructions for the PS-60 in Chapter 3. The first PS-60 should be rack mounted in the desired location, the PSI-60 is designed to be "sandwiched" between the two supplies; upon mounting the PSI-60, the second PS-60 may be added to the rack.

The "pigtail" connections from the rear of the PSI-60 plug into the PS-60 output connectors with the supply cable to the console being plugged into the connector mounted in the rear panel of the PSI-60.

Operation of the PSI-60 may be verified by turning on both supplies. The plus (+) and minus (–) LED indicators for each supply should illuminate. While monitoring the output of the PSI-60 accessory terminals, turn off one of the supplies. Little or no change should occur in the output voltage. Turn the supply back on and repeat with the other supply. Please note that the PSI-60 must be tested with a dummy load or while wired to the console.

The PSI-60 also monitors the optional 48VDC Phantom Power Supply, if present. In the event of a failure in the 48V supply, the PSI-60 will change over the 48V supplies independently of the ±24VDC supply.

Any fault conditions (short or overload) will cause both power supplies to shut down via their panel-mounted circuit breaker/power switches. Also note that if there is no load on the power supply, the discharge time will be quite lengthy.



NONE	AUDITRONICS	
MWS		
MWS	SCHEMATIC DIAGRAM PSI-60 POWER TRANSFER UNIT	
23 JUN 1992	1 OF 1	88B00312-01

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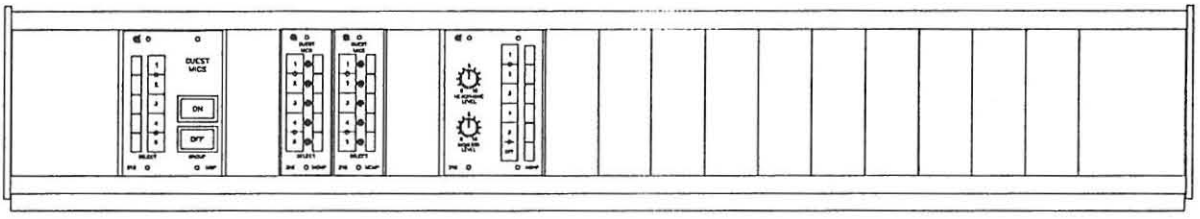
Appendix A

210-Series Overbridge Installation



INTRODUCTION

If ordered, the overbridge section of your 210-Series Console has been removed for shipping. The following text will assist in the mounting of the overbridge to the console.

The overbridge is removed from the console and is usually shipped in a separate carton. The following instructions will explain how to mount the physical overbridge as well as give some generic instructions for cable connection. More specific information concerning cable connection may be found in the chapters concerning the specific overbridge modules.

NOTE: It is strongly advised that at least two people be used whenever any operation involving the overbridge is performed. This includes installation of the bridge and any later operations where the bridge must be held open. See 'WARNING' inside overbridge.

The only tool needed for this installation is a #2 Phillips screwdriver.

Physical Installation of Overbridge

The first step is to attach the overbridge to the console itself. Because of the weight and center of balance of the overbridge, it is recommended that two persons be involved in this procedure, one to hold the overbridge from the rear while the other lines it up with the frame from the front of the console.

At the hinge points on the overbridge are spring pins. Align the hinges with the receptacles on the main body of the console, pull the spring pins inward and, when they line up with the holes in the frame, simply let go of the pins. The overbridge is now in place. **IMPORTANT:** DO NOT ALLOW THE OVERBRIDGE TO FALL PAST ITS BALANCE POINT INTO THE FULLY OPEN POSITION. ITS WEIGHT MAY CAUSE IT TO SLIP OUT OF THE HINGES IF ALLOWED TO FALL INTO THIS POSITION, CAUSING DAMAGE THAT WILL NOT BE COVERED IN YOUR WARRANTY. When the overbridge is opened for any reason, it is strongly advised that it be held upright or *gently laid open*.

Securing Cables

The cables must now be secured. Cable interconnection will vary depending upon the modules present in the overbridge. Many of these module connect to the main console via 15-pin MR connectors. In most cases, these connectors mount into a 'user connector bracket' mounted against inside rear panel of the main console. The connectors are clearly marked and their counterparts in the console, are also marked, so this should be a simple procedure.

The MR connectors from a given overbridge module will snap into the above-mentioned connector bracket. They are usually labeled P1, P2, etc., and it is advised that they be inserted into the bracket in order, P1 on top, and so on. The counterparts to these connectors may now be joined to them. In most cases, this is all that is required. **NOTE:** Depending on the number of modules in your overbridge, there may be several user connector brackets. It is best to use the bracket closest to the overbridge module in each case. Whenever possible, the bracket will be mounted directly below its intended module.

Those overbridge modules that require power will receive same by way of 6-pin Molex in-line connectors. These are polarized so that no error in connection can be made. As above, they will be clearly marked as will their counterparts inside the console.

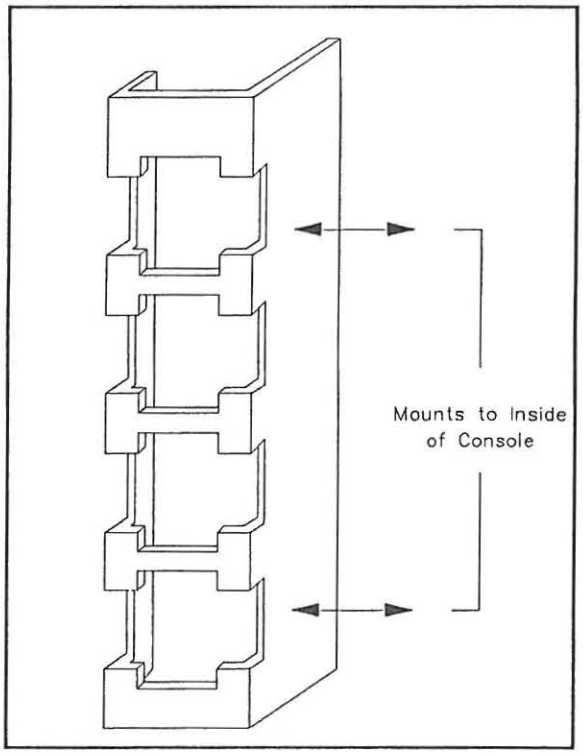


Figure 1, User Connector Bracket.

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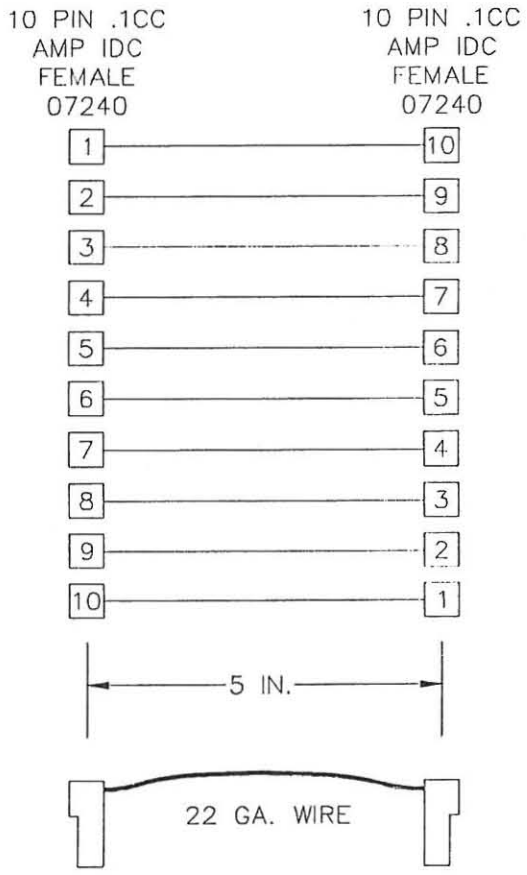
Appendix B

210-Series Cable Diagrams

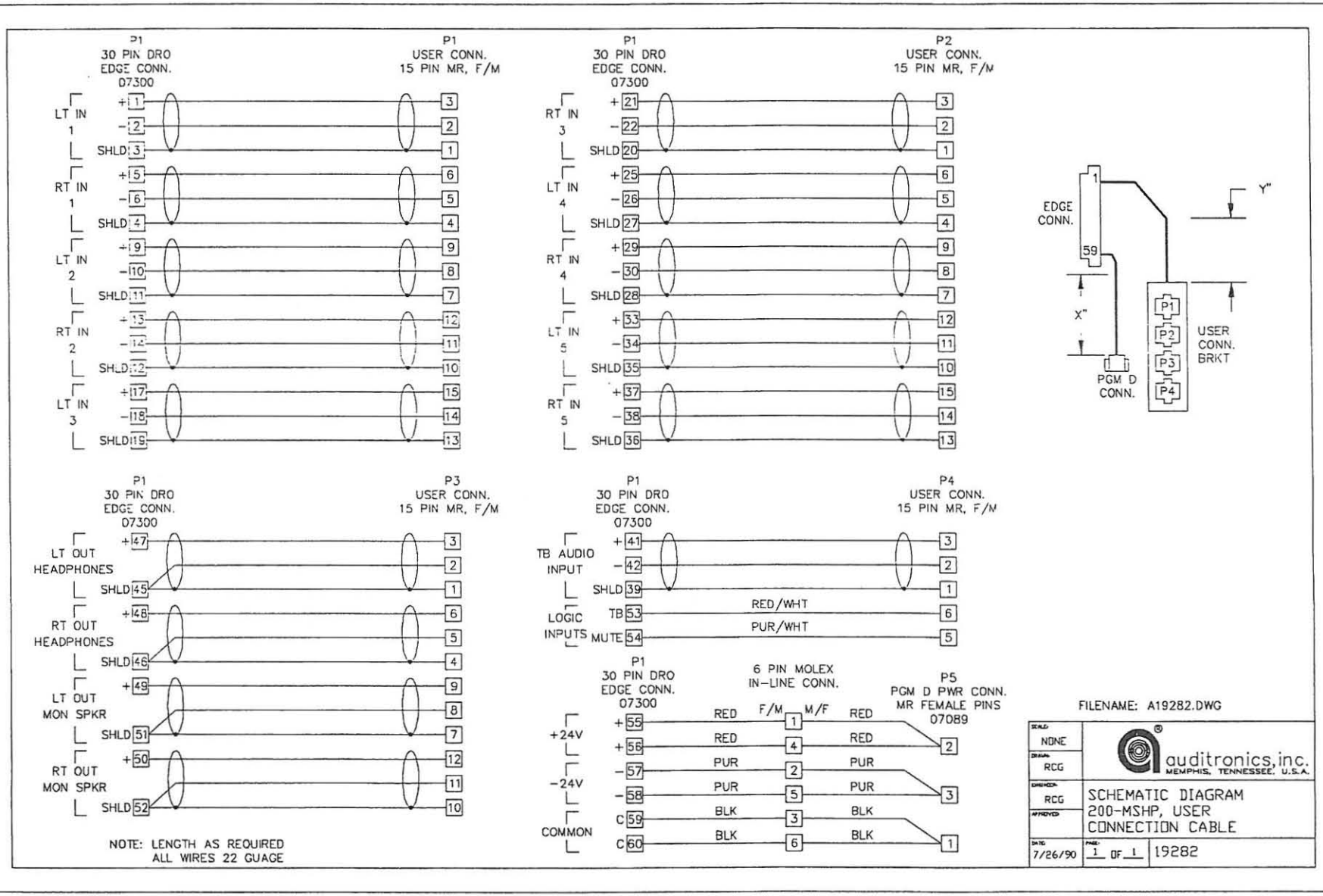
INTRODUCTION

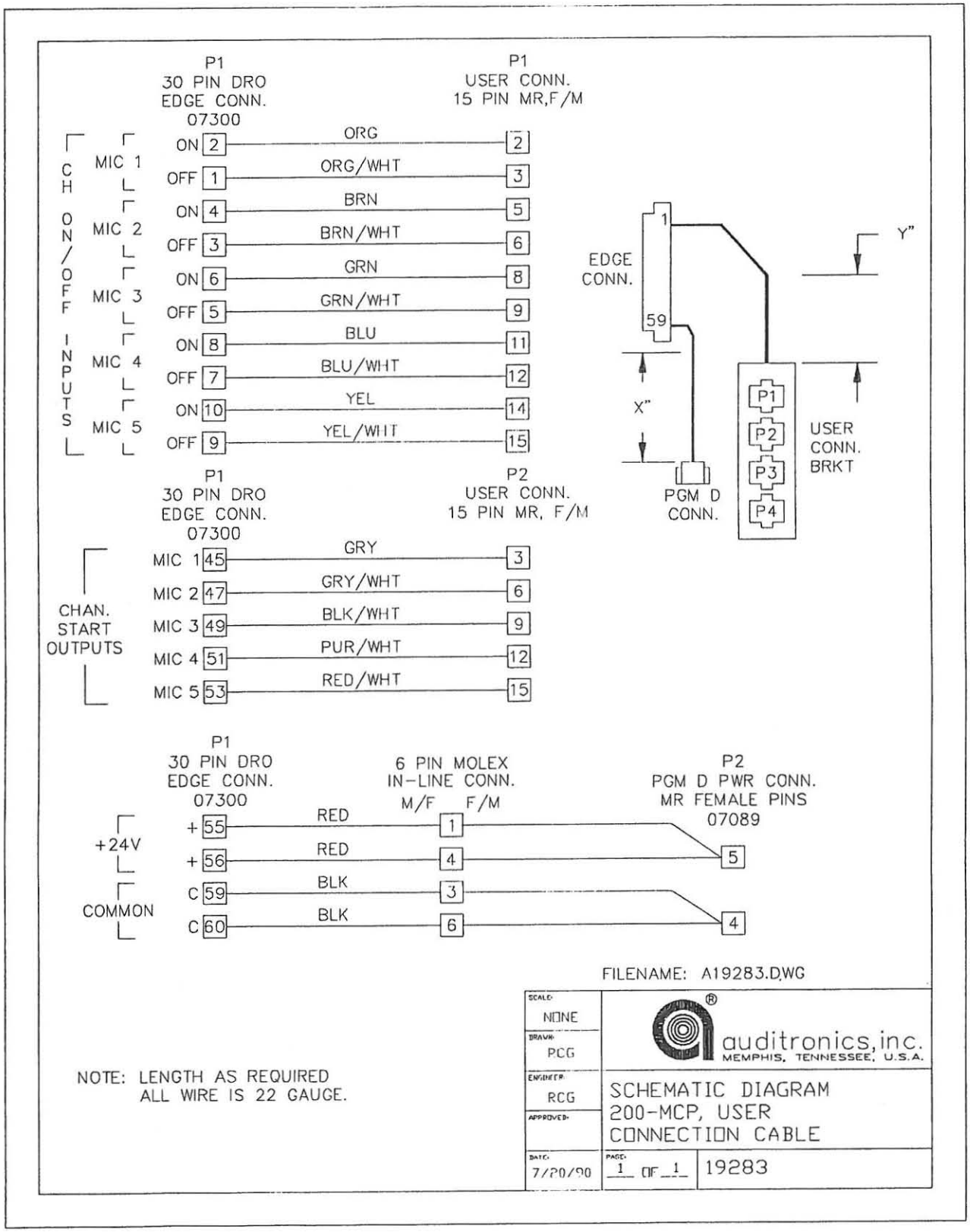
This appendix contains information concerning the various interconnection cables, both factory-supplied and user-constructed, required in the 210-Series Console System.

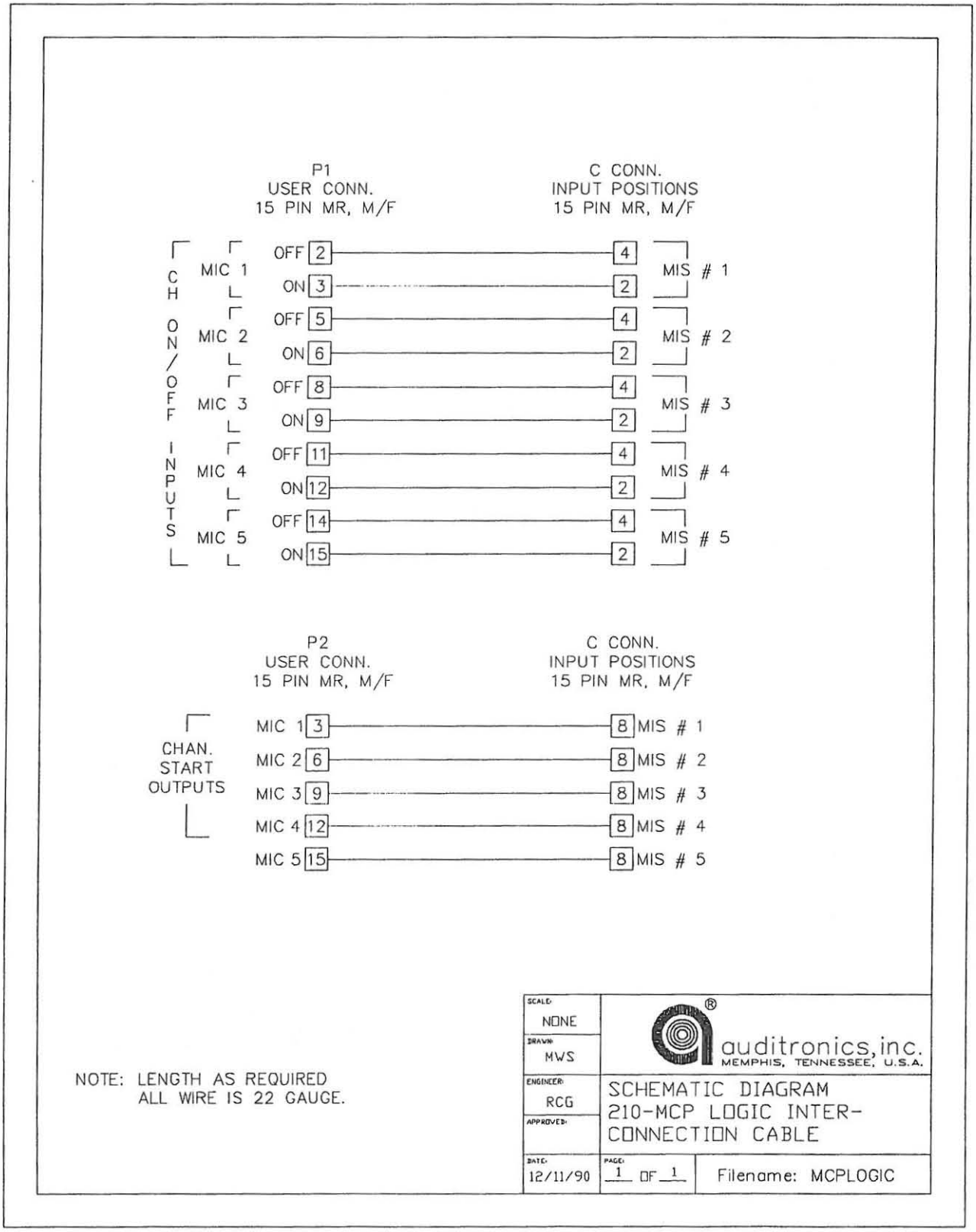
All factory-supplied cables are clearly labelled with their destination connectors' names, so matching is easily accomplished.

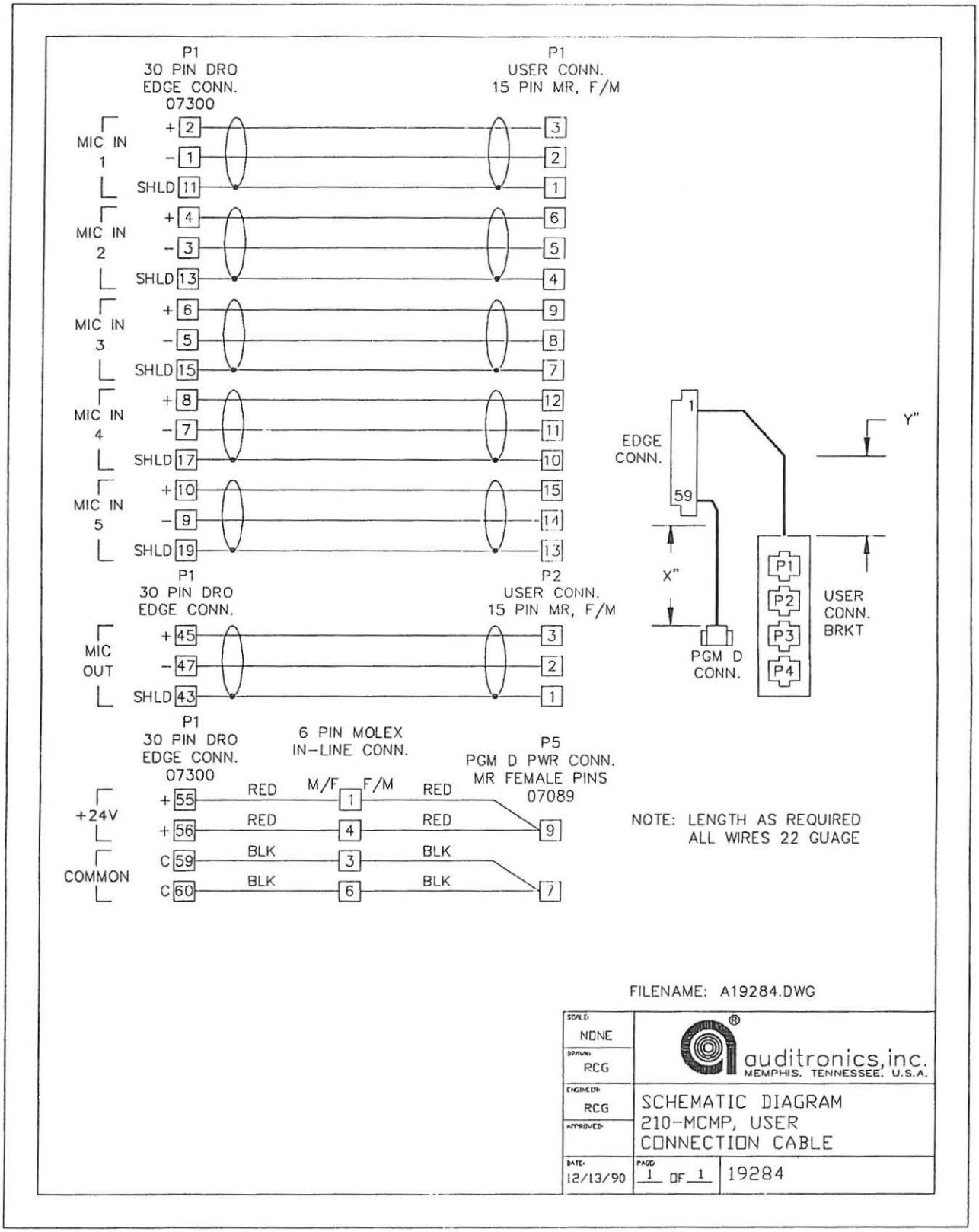


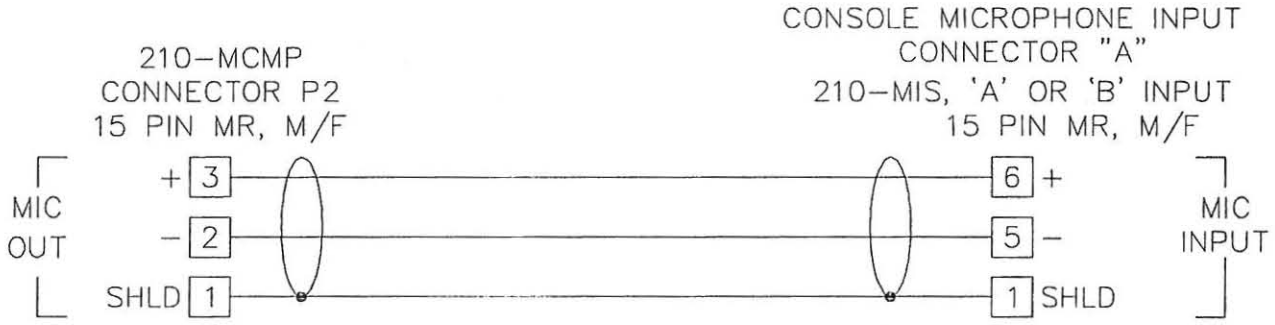
SCALE: NONE	auditronics, inc. MEMPHIS, TENNESSEE, U.S.A.
DRAWN: RCG	
ENGINEER: RCG	SCHEMATIC DIAGRAM 210-MSHP PCB INTER-CONNECT CABLE
APPROVED:	
DATE: 7/18/90	PAGE: 1 OF 1 — 19281

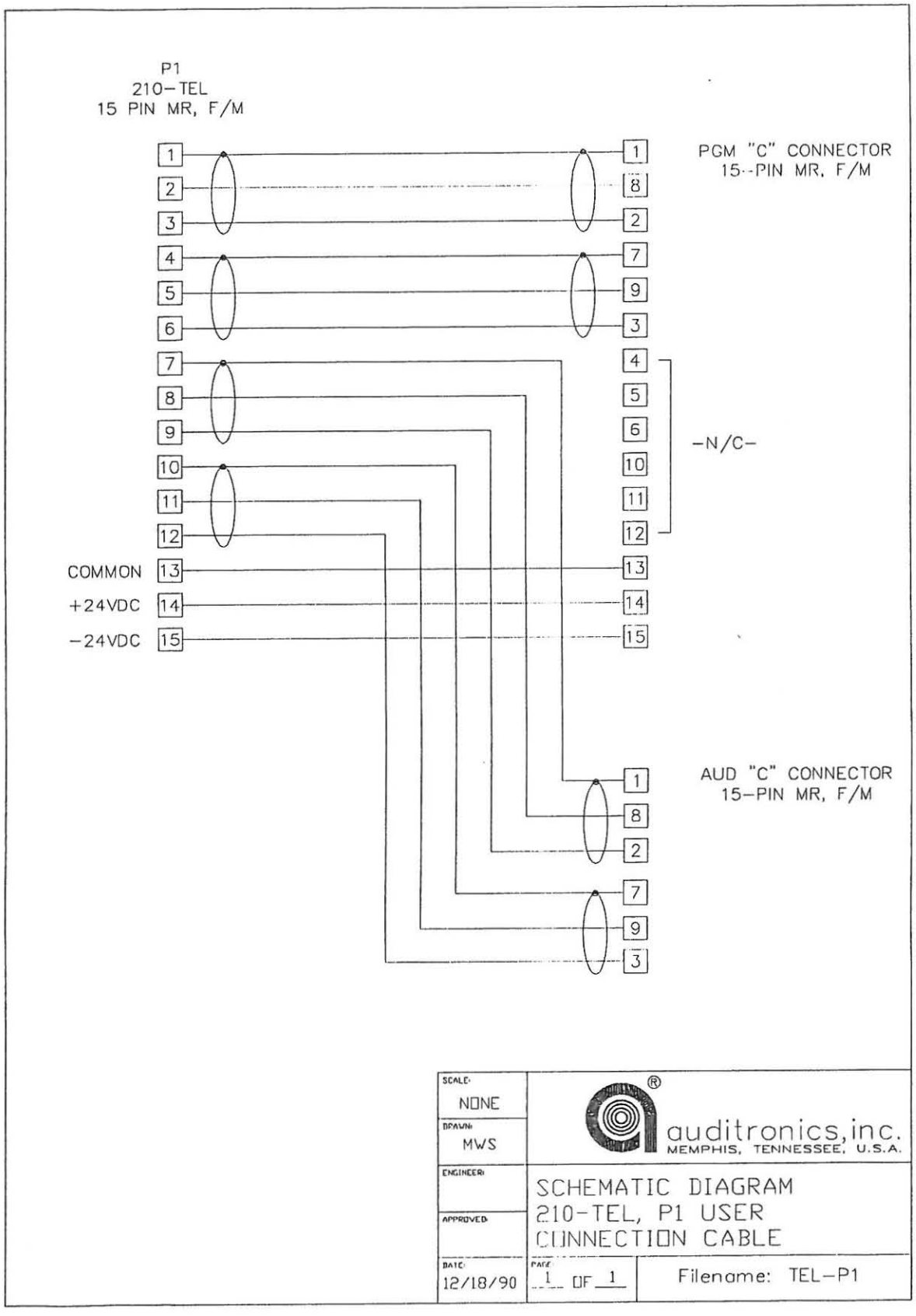

P1
30 PIN DRO
EDGE CONN.
07300
P1
USER CONN.
15 PIN MR, F/M
LT IN 1
RT IN 1
LT IN 2
RT IN 2
LT IN 3
SHLD
P1
30 PIN DRO
EDGE CONN.
07300
P2
USER CONN.
15 PIN MR, F/M
RT IN 3
LT IN 4
RT IN 4
LT IN 5
RT IN 5
P1
30 PIN DRO
EDGE CONN.
07300
P3
USER CONN.
15 PIN MR, F/M
LT OUT HEADPHONES
RT OUT HEADPHONES
LT OUT MON SPKR
RT OUT MON SPKR
NOTE: LENGTH AS REQUIRED
ALL WIRES 22 GUAGE
P1
30 PIN DRO
EDGE CONN.
07300
P4
USER CONN.
15 PIN MR, F/M
TB AUDIO INPUT
LOGIC INPUTS
TB
MUTE
RED/WHT
PUR/WHT
P1
30 PIN DRO
EDGE CONN.
07300
6 PIN MOLEX
IN-LINE CONN.
P5
PGM D PWR CONN.
MR FEMALE PINS
07089
+24V
-24V
COMMON
RED
PUR
BLK
F/M
M/F
EDGE CONN.
PGM D CONN.
USER CONN. BRKT
X"
Y"
P1
P2
P3
P4
FILENAME: A19282.DWG
NONE
RCG
RCG
auditronics, inc.
MEMPHIS, TENNESSEE, U.S.A.
SCHEMATIC DIAGRAM
200-MSHP, USER
CONNECTION CABLE
7/26/90
1 OF 1
19282

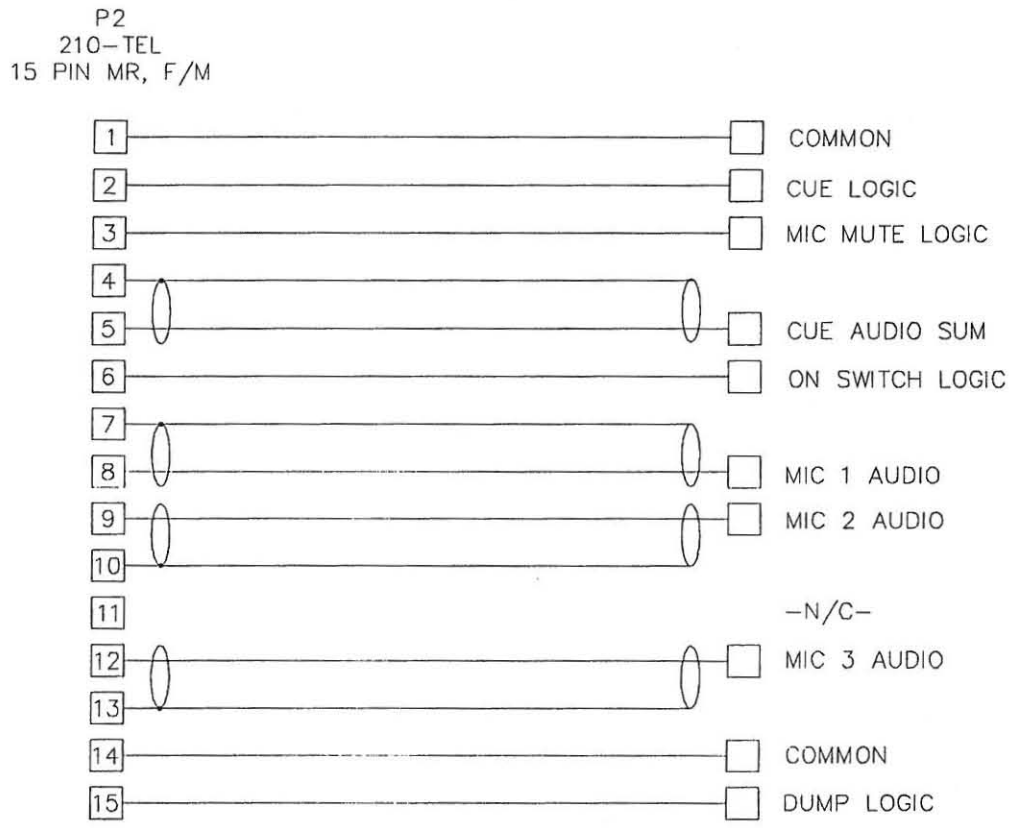

P1
30 PIN DRO
EDGE CONN.
07300
P1
USER CONN.
15 PIN MR,F/M
CH ON/OFF INPUTS
MIC 1
MIC 2
MIC 3
MIC 4
MIC 5
ON 2 ORG 2
OFF 1 ORG/WHT 3
ON 4 BRN 5
OFF 3 BRN/WHT 6
ON 6 GRN 8
OFF 5 GRN/WHT 9
ON 8 BLU 11
OFF 7 BLU/WHT 12
ON 10 YEL 14
OFF 9 YEL/WHT 15
EDGE CONN.
1
59
Y"
X"
PGM D CONN.
P1
P2
P3
P4
USER CONN. BRKT
P1
30 PIN DRO
EDGE CONN.
07300
P2
USER CONN.
15 PIN MR, F/M
CHAN. START OUTPUTS
MIC 1 45 GRY 3
MIC 2 47 GRY/WHT 6
MIC 3 49 BLK/WHT 9
MIC 4 51 PUR/WHT 12
MIC 5 53 RED/WHT 15
P1
30 PIN DRO
EDGE CONN.
07300
6 PIN MOLEX
IN-LINE CONN.
M/F F/M
P2
PGM D PWR CONN.
MR FEMALE PINS
07089
+24V
COMMON
+ 55 RED 1
+ 56 RED 4 5
C 59 BLK 3
C 60 BLK 6 4
FILENAME: A19283.DWG
NOTE: LENGTH AS REQUIRED
ALL WIRE IS 22 GAUGE.
SCALE: NONE
DRAWN: RCG
ENGINEER: RCG
APPROVED:
DATE: 7/20/90
auditronics, inc.
MEMPHIS, TENNESSEE, U.S.A.
SCHEMATIC DIAGRAM
200-MCP, USER
CONNECTION CABLE
PAGE: 1 OF 1
19283


P1
USER CONN.
15 PIN MR, M/F
C CONN.
INPUT POSITIONS
15 PIN MR, M/F
CH ON/OFF INPUTS
MIC 1
MIC 2
MIC 3
MIC 4
MIC 5
OFF 2
ON 3
OFF 5
ON 6
OFF 8
ON 9
OFF 11
ON 12
OFF 14
ON 15
4
2
MIS # 1
MIS # 2
MIS # 3
MIS # 4
MIS # 5
P2
USER CONN.
15 PIN MR, M/F
C CONN.
INPUT POSITIONS
15 PIN MR, M/F
CHAN. START OUTPUTS
MIC 1 3
MIC 2 6
MIC 3 9
MIC 4 12
MIC 5 15
8
MIS # 1
MIS # 2
MIS # 3
MIS # 4
MIS # 5
NOTE: LENGTH AS REQUIRED
ALL WIRE IS 22 GAUGE.
SCALE: NONE
DRAWN: MWS
ENGINEER: RCG
APPROVED:
DATE: 12/11/90
auditronics, inc.
MEMPHIS, TENNESSEE, U.S.A.
SCHEMATIC DIAGRAM
210-MCP LOGIC INTER-
CONNECTION CABLE
PAGE: 1 OF 1
Filename: MCPLOGIC


P1
30 PIN DRO
EDGE CONN.
07300
P1
USER CONN.
15 PIN MR, F/M
MIC IN 1
+ 2
- 1
SHLD 11
3
2
1
MIC IN 2
+ 4
- 3
SHLD 13
6
5
4
MIC IN 3
+ 6
- 5
SHLD 15
9
8
7
MIC IN 4
+ 8
- 7
SHLD 17
12
11
10
MIC IN 5
+ 10
- 9
SHLD 19
15
14
13
P1
30 PIN DRO
EDGE CONN.
P2
USER CONN.
15 PIN MR, F/M
MIC OUT
+ 45
- 47
SHLD 43
3
2
1
P1
30 PIN DRO
EDGE CONN.
07300
6 PIN MOLEX
IN-LINE CONN.
P5
PGM D PWR CONN.
MR FEMALE PINS
07089
+24V
+ 55
RED
M/F 1
F/M
RED
+ 56
RED
4
RED
9
COMMON
C 59
BLK
3
BLK
C 60
BLK
6
BLK
7
EDGE CONN.
1
59
Y"
X"
P1
P2
P3
P4
USER CONN. BRKT
PGM D CONN.
NOTE: LENGTH AS REQUIRED
ALL WIRES 22 GUAGE
FILENAME: A19284.DWG
SCALE: NONE
DRAWN: RCG
ENGINEER: RCG
APPROVED:
DATE: 12/13/90
auditronics, inc.
MEMPHIS, TENNESSEE, U.S.A.
SCHEMATIC DIAGRAM
210-MCMP, USER
CONNECTION CABLE
PAGE 1 OF 1
19284


210–MCMP
CONNECTOR P2
15 PIN MR, M/F
CONSOLE MICROPHONE INPUT
CONNECTOR "A"
210–MIS, 'A' OR 'B' INPUT
15 PIN MR, M/F
MIC
OUT
+ 3
– 2
SHLD 1
6 +
5 –
1 SHLD
MIC
INPUT


P1
210-TEL
15 PIN MR, F/M
PGM "C" CONNECTOR
15-PIN MR, F/M
-N/C-
COMMON
+24VDC
-24VDC
AUD "C" CONNECTOR
15-PIN MR, F/M
SCALE: NONE
DRAWN: MWS
ENGINEER:
APPROVED:
DATE: 12/18/90
auditronics, inc.
MEMPHIS, TENNESSEE, U.S.A.
SCHEMATIC DIAGRAM
210-TEL, P1 USER
CONNECTION CABLE
PAGE 1 OF 1
Filename: TEL-P1



SCALE: NONE	auditronics, inc. MEMPHIS, TENNESSEE, U.S.A.	
DRAWN: MWS		
ENGINEER:	SCHEMATIC DIAGRAM 210-TEL, P2 USER CONNECTION CABLE	
APPROVED:		
DATE: 12/18/90	PAGE: 1 OF 1	Filename: TEL–P2