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Dolby
Model SA10
Digital Surround EX Adapter

Installation Manual

Issue 5

Part No. 91574

Installation Manual

Model SA10 Dolby Digital Surround EX Adapter

Dolby Laboratories Incorporated

U.S. 100 Potrero Avenue, San Francisco, CA 94103-4813
Tel: 415-558-0200; Fax: 415-863-1373; Web: www.dolby.com

U.K. Wootton Bassett, Wiltshire SN4 8QJ
Tel: (44) 1793-842100; Fax: (44) 1793-842101

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INTRODUCTION

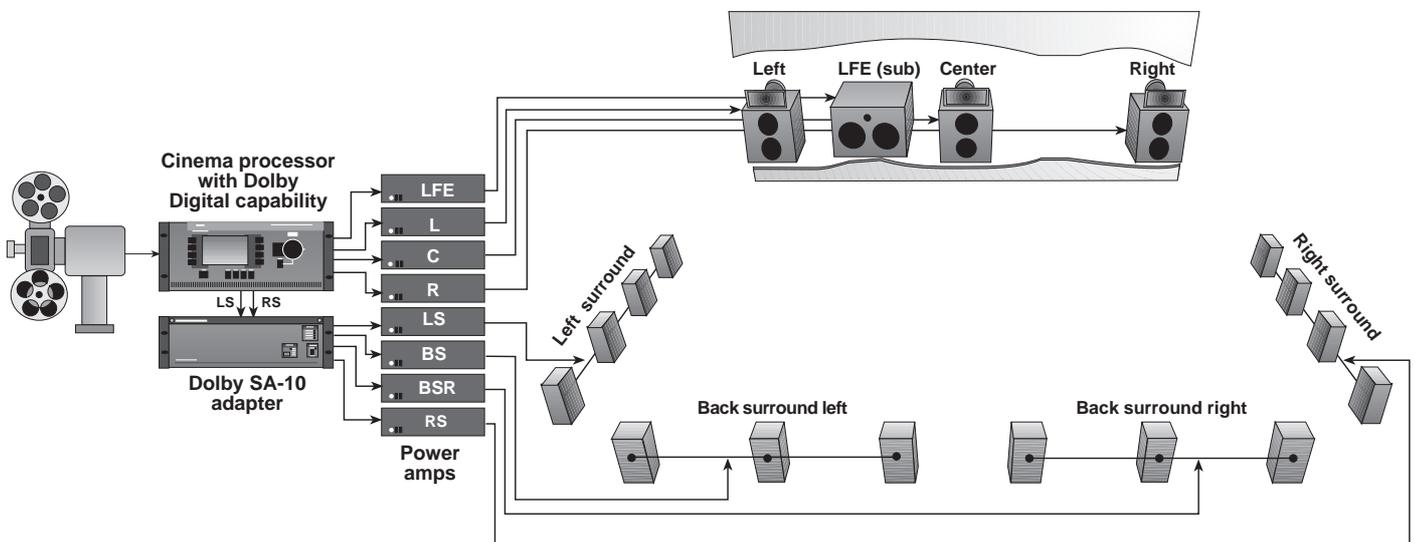
Thank you for purchasing the Dolby Model SA10 Digital Surround EX Adapter. The SA10 combines ease and flexibility of operation with the high performance and quality for which all Dolby products are known around the world.

About Dolby Digital Surround EX

Dolby Digital Surround EX adds a third surround channel to digital film sound, a concept first envisioned by sound designers at Lucasfilm's Skywalker Sound post-production facility. Jointly developed by Dolby Laboratories and Lucasfilm THX, Dolby Digital Surround EX gives sound mixers a new level of creative freedom.

Dolby Digital-Surround EX is fully compatible with all current 5.1 digital sound formats and theatre systems. Prints that use it play normally with current systems, and provide the extra surround channel when played over systems equipped with the Dolby SA10 adapter.

It has long been known that a center screen channel is necessary to ensure the precise localization of front sounds for all viewers, including those seated off to the sides. Dolby Digital Surround EX brings similar benefits to the surround sound field. With Surround EX, a back surround channel is reproduced by the speaker array at the back of the theatre, while left and right surround is reproduced by the side arrays (see illustration). This means that sounds can now be positioned behind the audience, opening the door to exciting new effects such as true 360° pans.



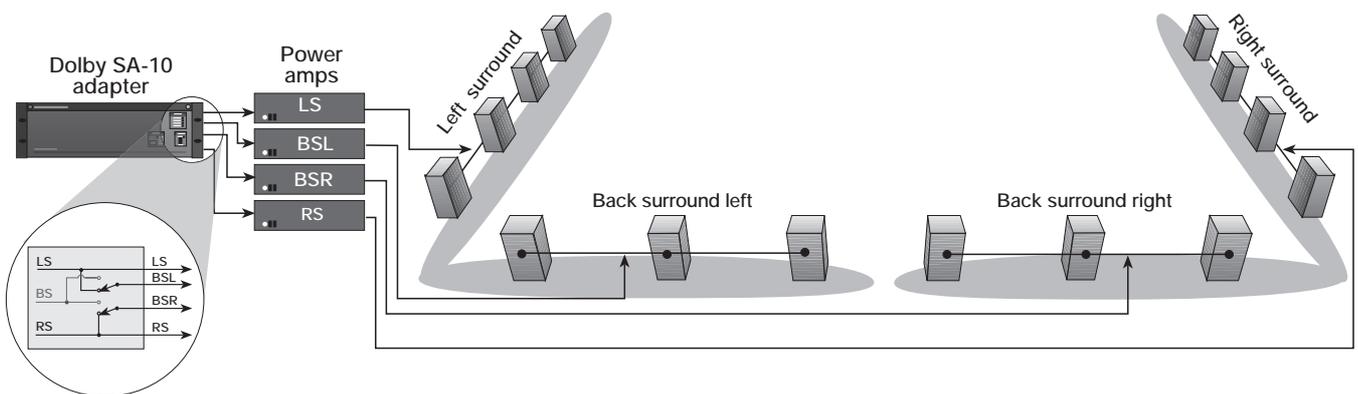
The back surround channel also makes front-to-back and back-to-front transitions more realistic. Flyovers really seem to pass overhead, rather than down the sides of the theatre. Even ambient sound reproduction is improved, being less affected by the width of the theatre. Equally important, the new back surround channel assures that even viewers seated close to the left or right of the theatre experience the total surround ambiance intended by the filmmaker.

SA10 installation requires wiring the surround speakers into **left, back** (split into two groups as shown), and **right** groups; and providing two additional channels of surround

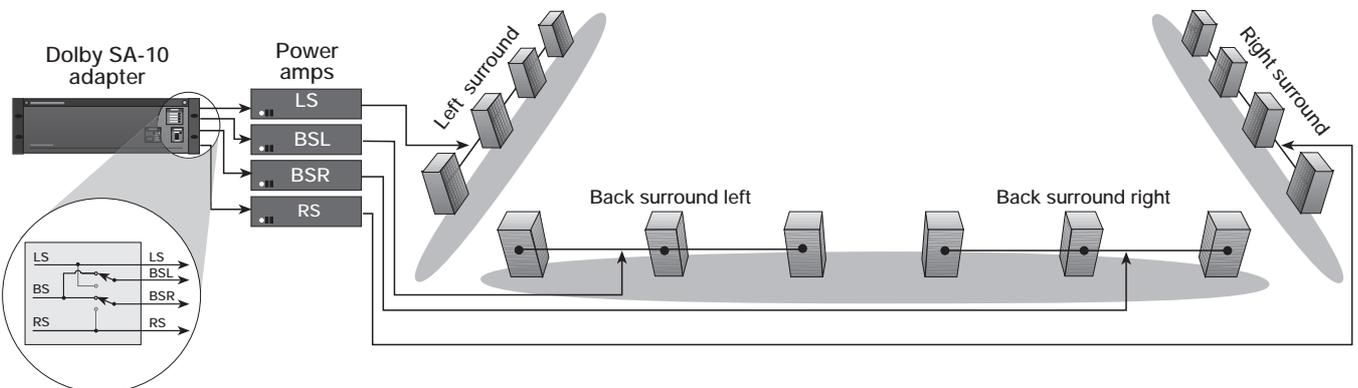
amplification. THX-certified theatres provide the ideal environment for getting the most out of Dolby Digital Surround EX as they meet acoustical requirements specifically developed for movie soundtracks. In addition, they have most of the necessary equipment already in place for proper playback, including speakers on the rear wall of the theatre.

About the SA10 Surround Adapter

The Dolby SA10 Surround Adapter upgrades any existing 5.1-channel digital cinema sound system to three surround channels that can play digital prints prepared with the Dolby Digital Surround EX process. It is easily installed in the booth by inserting in the signal chain between the existing cinema sound processor and the power amplifiers. Two power amplifier channels are required for powering the two groups of back surround channel speakers. The figures below show the surround signal distribution for conventional 5.1 channel surround and for Dolby Digital Surround EX modes.



Conventional 5.1-channel mode



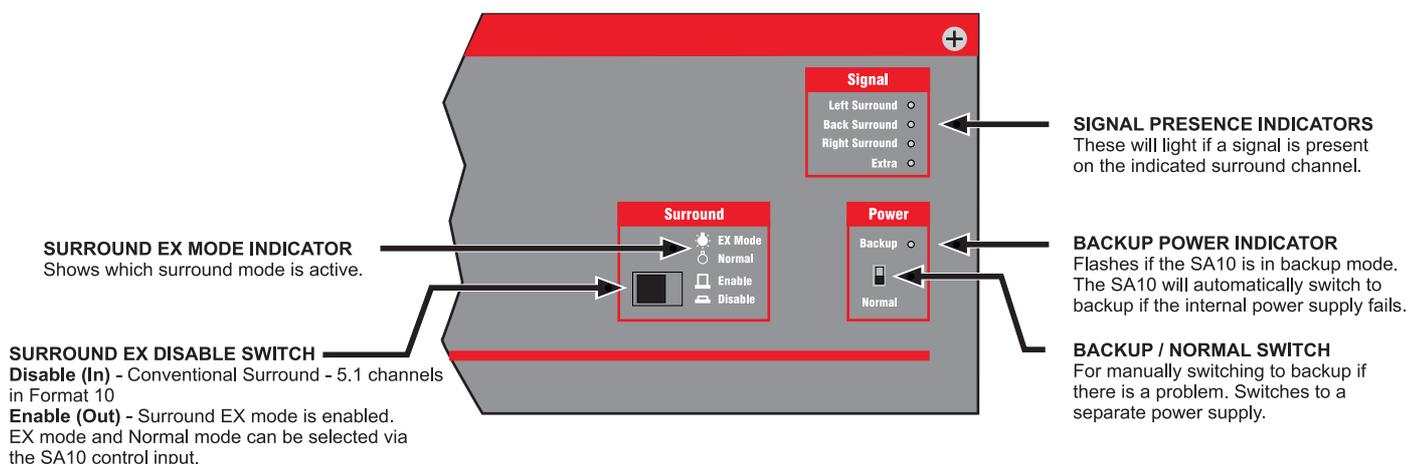
Surround EX mode

In addition to replaying the three surround channels, the SA10 uses three seven-band equalizers operating in conjunction with tunable high- and low-frequency shelves to ensure smooth surround-speaker response to the international standard curve. Front-panel controls include a Dolby Surround EX disable pushbutton, signal-present LEDs, and a backup power supply selector switch. Rear-panel connections make it possible to select the Dolby Digital Surround EX mode remotely with automation systems.

If the Surround EX mode is not disabled while playing a conventional 5.1-channel digital film, there will be a slight change to the surround signal distribution. If the Surround EX mode is not disabled while playing an optical soundtrack, there will be a tendency for the surround information to concentrate in the back wall speakers, resulting in a lower level of surround information heard by the patrons seated at the front of the theatre.

See the SA10 Block Diagram located at the end of this section.

Front-Panel Controls



Specifications

Construction

Rack-mount chassis frame with plug-in circuit boards accessible behind hinged front panel.

Signal Connections

Standard screw-type terminal blocks for audio signal inputs. Output audio signals and automation control signal connection provided via 25-pin D-connectors.

Inputs

Ls and Rs inputs, 10 k Ω nominal input impedance, 120mV nominal input sensitivity for operating level.

Outputs

Output impedance: 150 Ω . Load greater than 600 Ω . Maximum output level +8 dBu. Typical operating level -18 dBu. Operating levels from 10 mV to 200 mV may be accommodated.

Control Input

Mode control provided via 25-pin female D-connector.

Surround Loudspeaker Equalization

Equalizers for Left Surround, Back Surround, and Right Surround speakers provide ± 10 dB high- and low-frequency controls with adjustable turnover frequency, plus seven adjustable ± 6 dB octave band filters covering the range from 120 Hz to 8 kHz.

Distortion (any channel)

1 kHz: typically <0.15% at Dolby level (50% modulation).

Dynamic Range

Typically 88 dB.

Dimensions

3-U rack-mount chassis. Faceplate: 133 mm x 483 mm (5.25" x 19"). Maximum projection behind mounting surface: 308 mm (12.1"). Maximum projection in front of mounting surface: 12.70 mm (0.50").

Weight

10.1 kg (22.3 lbs).

Power Requirements

Power supplied from two outboard transformers (one main, one emergency backup).

Normal supply: 24 VAC at 600 mA.

Backup supply 24 VAC at 200 mA.

No fuse requirements, outboard transformers are self-protecting.

Ambient Operating Temperature

Up to 40° C.

Regulatory Notices

North America: This unit complies with the limits for a Class A digital device, pursuant to Part 15 of the FCC Rules and carries UL listing. The unit complies with Canadian ICES-003 class A.

Europe: This product complies with the requirements of Low Voltage Directive 73/23/EEC and EMC Directive 89/336/EEC and carries the CE marking accordingly.

Specifications subject to change without notice.

SECTION 1

INITIAL SETUP AND INSTALLATION

1.1 Unpacking

Before unpacking the SA10, inspect the outer carton for shipping damage. If the carton shows damage, inspect the unit in those areas.

Carefully remove the unit from its carton, remove the plastic wrapping, and place on a flat surface.

1.2 Equipment Required

The following equipment is required for proper installation and alignment of the SA10:

- 1/3 Octave Real Time Spectrum Analyzer (RTA) with multiple calibrated microphones and a multiplexer, or a single calibrated microphone.
- Sound Pressure Level Meter (with slow time-constant and C-weighting scale).
- Cat. No. 69T Dolby tone test film, shipped with the SA10 packing.
- Cat. No. 1013 Surround EX final alignment check and channel ID test film.
- AC voltmeter.
- Hookup cable kits or individual control cables are available. Check with your dealer or contact Dolby Laboratories for availability.

Part numbers for U.S. customers:

Part No. CSA/500	Cable set for the CP500 Cinema Processor
Part No. CSA/65	Cable set for the CP65 Cinema Processor
Part No. CSA/200	Cable set for the CP200 Cinema Processor (Note: The Cat. No. 845 cable included in this set is required .)
Part No. CSA/55	Cable set for the CP55 Cinema Processor
Part No. CSA/45	Cable set for the CP45 Cinema Processor

1.3 Mounting and Connecting

Disconnect the surround output wiring from the existing cinema processor. These connections will be moved to the SA10 surround output connector. Mark each cable identifying its channel. Leave the cables connected to the power amplifiers and booth monitor.

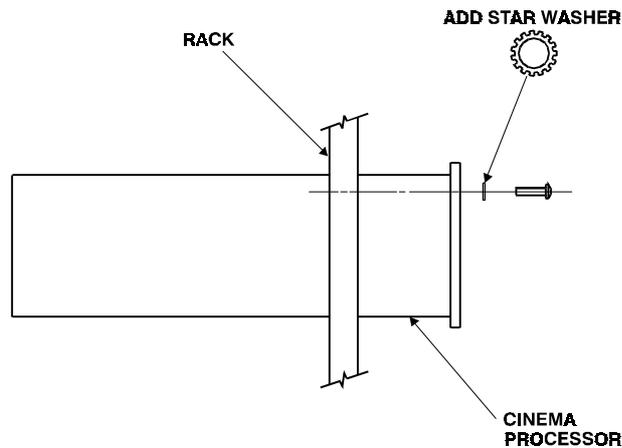
Open the front panel and confirm that all modules and circuit cards are seated properly.

The new surround channel is made up of two separate amplified signals, each requiring a power amplifier. You may need to purchase additional power amplifiers for your installation. To avoid heat problems, do not mount the SA10 immediately above the cinema processor or the power amplifiers. The power amplifiers should be located away from the SA10 to avoid hum pickup problems.

1.3.1 Proper Grounding

Various types of noise may be present in and around the projection booth without audible signs of anything being wrong. Proper mounting and wiring of booth equipment helps ensure trouble-free performance.

We recommend that Star washers be installed on all rack mounting screws to ensure good ground contact. This will aid in the prevention of electrical noise problems.



1.3.2 Connections

Refer to the [fold-out diagrams](#) for installation wiring. The diagrams are located at the end of this section. Use the appropriate page for your cinema processor model.

Make input signal connections (cinema processor output signals Ls and Rs to the SA10) by inserting stripped and tinned leads into the supplied cable connector and tightening each lead in place by means of the integral set screw. The cable connector is then plugged into place at “J5” on the SA10.

Make output signal connections by following the appropriate installation wiring diagram.

Connect the control cable using a “Y” adapter cable supplied by your dealer (for installations with automation). In some countries a flat cable with appropriate connectors is supplied. An adapter for automation connection can be built using these parts.

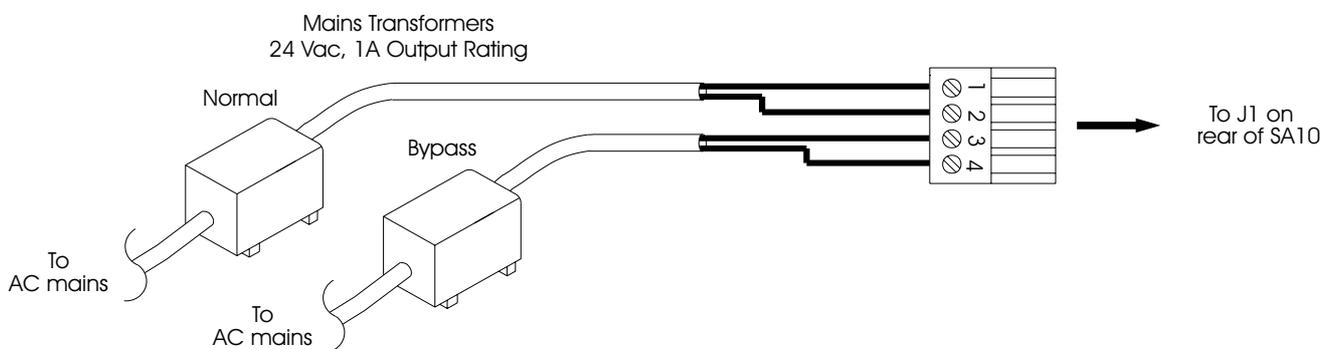
To provide proper operation in locations where there is a large RF or other interference field, ensure that the cable types, lengths, and pin assignments are strictly adhered to. Shields must go only to the chassis connections and should not be paralleled with the “–” side of inputs or outputs.

NOTE: Follow all local codes and regulations covering electrical wiring.

1.4 Mains Power Wiring

The SA10 is supplied with two mains-powered transformers. One is used to power the unit during normal operation and the other is used during emergency bypass operation.

Attach the supplied four-terminal connector to the secondary wires of each transformer as shown. The two wires from one transformer should attach to pins **1 and 2** of the connector, and the two wires from the other transformer should attach to pins **3 and 4** of the connector. Wiring polarity is not a concern because the voltage supplied by each transformer is AC. Plug the connector into mating connector **J1** on the rear panel of the SA10.



If there is any chance that the source of power to the normal transformer might be interrupted, then it is very important to feed the bypass transformer from a separate mains source, preferably through a separate circuit breaker. By using this procedure, the bypass switchover can take place with minimum interruption to the audience.

In some countries the primary mains cable on each transformer may not have a connector fitted. These non-terminated leads must be properly wired to an approved mains connector in accordance with the following international code:

Brown wire	Live or hot
Blue wire	Neutral

NOTE: Do not connect either wire to the earth terminal of a three-pin mains plug. If you are uncertain about the wiring of your mains outlet then do not use it. Consult a qualified electrician.

Do not plug the transformers into mains power until the following steps have been performed.

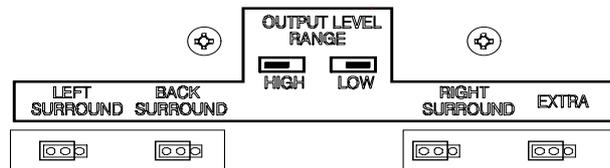
1.5 Jumper and Switch Settings

The Model SA10 allows you to choose options that are configured by jumpers or switches.

WARNING: *The power to the SA10 must be off when the following steps are performed. Ensure that the power transformers are not plugged in to a power source.*

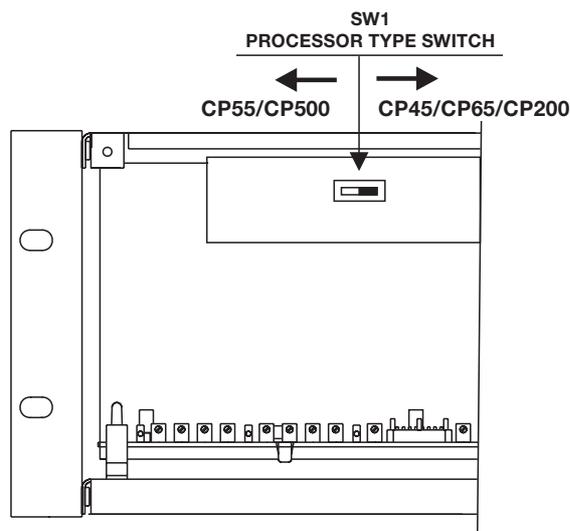
1.5.1 Backpanel Jumpers

Jumper links on the rear panel of the SA10 set the output level range for each surround channel. The links can be changed for more sensitive amplifiers and/or speakers. If your theatre has efficient speakers the SA10 output may be too high. In this case, these jumpers can be set to introduce 14 dB of signal attenuation at the SA10 outputs.



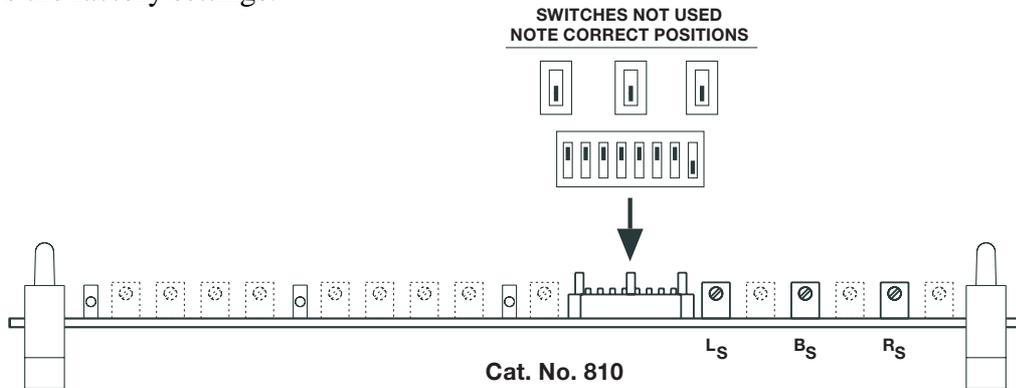
1.5.2 Cinema Processor Type Switch

A switch located on the Cat. No. 814 board is accessible by opening the front panel. The switch is visible when looking through to the back of the unit. This switch should be set to the **left** when the host cinema processor is a **CP55** or a **CP500**, or set to the **right** for the **CP45** or **CP65** or **CP200** cinema processors.



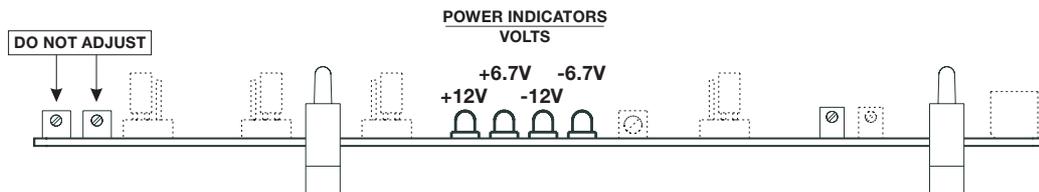
1.5.3 Other Jumpers/Switches/Pots

If your **Cat. No. 810** card contains switches, they should not be moved. The figure below shows the factory settings:



Note: Your Cat. No. 810 may not contain the unused pots shown in this figure.

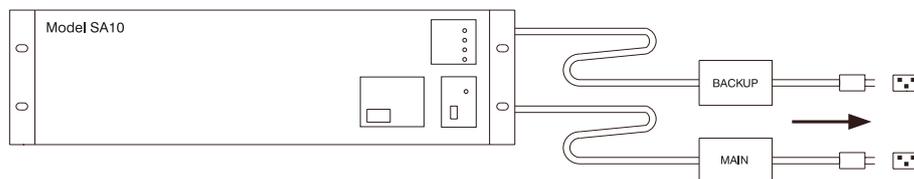
If your **Cat. No. 811** card contains jumpers or pots, they must not be adjusted. Changing the factory settings will affect the calibration of your SA10.



Note: Your Cat. No. 811 may not contain the unused jumpers and pots shown in this figure.

1.6 Connect Power

Plug the transformers into mains power.



1. With the front panel **Power** switch set to the **Normal** position, verify that the **Backup** LED turns off approximately three to five seconds after the application of power.
2. Set the **Power** switch to **Backup** position. The bypass LED on the front panel should blink.
3. Return the **Power** switch back to the **Normal** position and apply power to the other projection room equipment.

1.6.1 Hum Problems

If you hear undesirable hum from the speakers when you apply power to the SA10 and other projection room equipment, check the following list for possible causes:

1. Ground loops caused by audio signal wiring, especially to power amplifiers: Be sure to check the booth monitor wiring.
2. Projector power wiring: All mains wiring should be properly grounded.
3. Room lighting dimmer controls: SCR-type can produce undesirable line noise.
4. Power amplifiers: Disconnect from the SA10 and ground the inputs to determine if the power amplifiers are causing hum problems.
5. Cinema Processor output: Disconnect the cable from the cinema processor to determine if it is the source of hum.

1.7 Perform Alignment

Continue the installation procedure beginning with the appropriate manual section, based on your installed equipment:

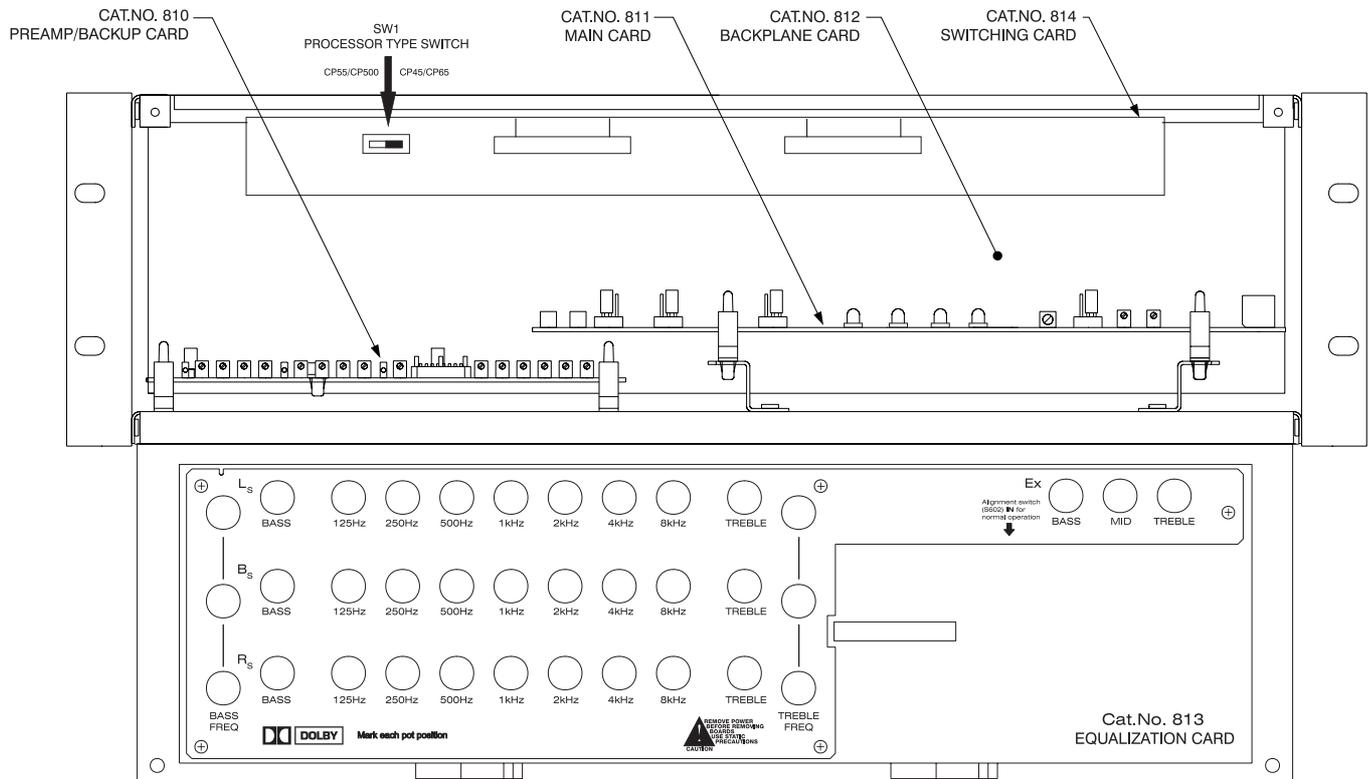
- [Section 2](#) – Alignment with Model CP500 Cinema Processor
- [Section 3](#) – Alignment with Model CP65 Cinema Processor
- [Section 4](#) – Alignment with Model CP200 Cinema Processor
- [Section 5](#) – Alignment with Model CP55 Cinema Processor
- [Section 6](#) – Alignment with Model CP45 Cinema Processor

1.8 SA10 Circuit Card Descriptions

A [system block diagram](#) foldout can be found at the end of this section.

Three circuit cards form the active circuitry of the SA10. They are located on the left side (Cat. No.810), the right side (Cat. No. 811), and the front panel (Cat. No. 813).

All circuit cards are interconnected by the backplane circuit board (Cat. No. 812). The backplane contains EMC filtering along with static protection networks and has no active circuitry.



1.8.1 Cat. No. 810 Output Preamp and Backup Processor Card

This card includes the three main output sections to the power amplifiers. It also has an input circuit that receives a mono mix of the left and right surrounds and applies this mix to all three outputs when the backup system is active. This card also has a completely separate power supply circuit, activated by the backup external mains transformer. The SA10 can function normally with or without this transformer being connected to mains power; however, if a fault develops in the main supply circuitry or any other card in the unit, the backup system will not work if the backup transformer is not attached and powered.

1.8.2 Cat. No. 811 Main Card – Input Switching and Decoder

This card provides all input signal switching along with Surround EX decoding of the incoming left and right surround signals. In conventional 5.1 mode, the left and right surround channels are passed without modification. In 6.1-channel Surround EX mode, the information contained in the two incoming surround signals is decoded to generate the three surround channels. The Cat. No. 811 also carries the main power supply regulators used by all circuits in the unit. Logic interface circuitry, used to switch between conventional 5.1-channel and 6.1-channel Surround EX mode to the host cinema processor is located on this card.

1.8.3 Cat. No. 813 Equalization Card

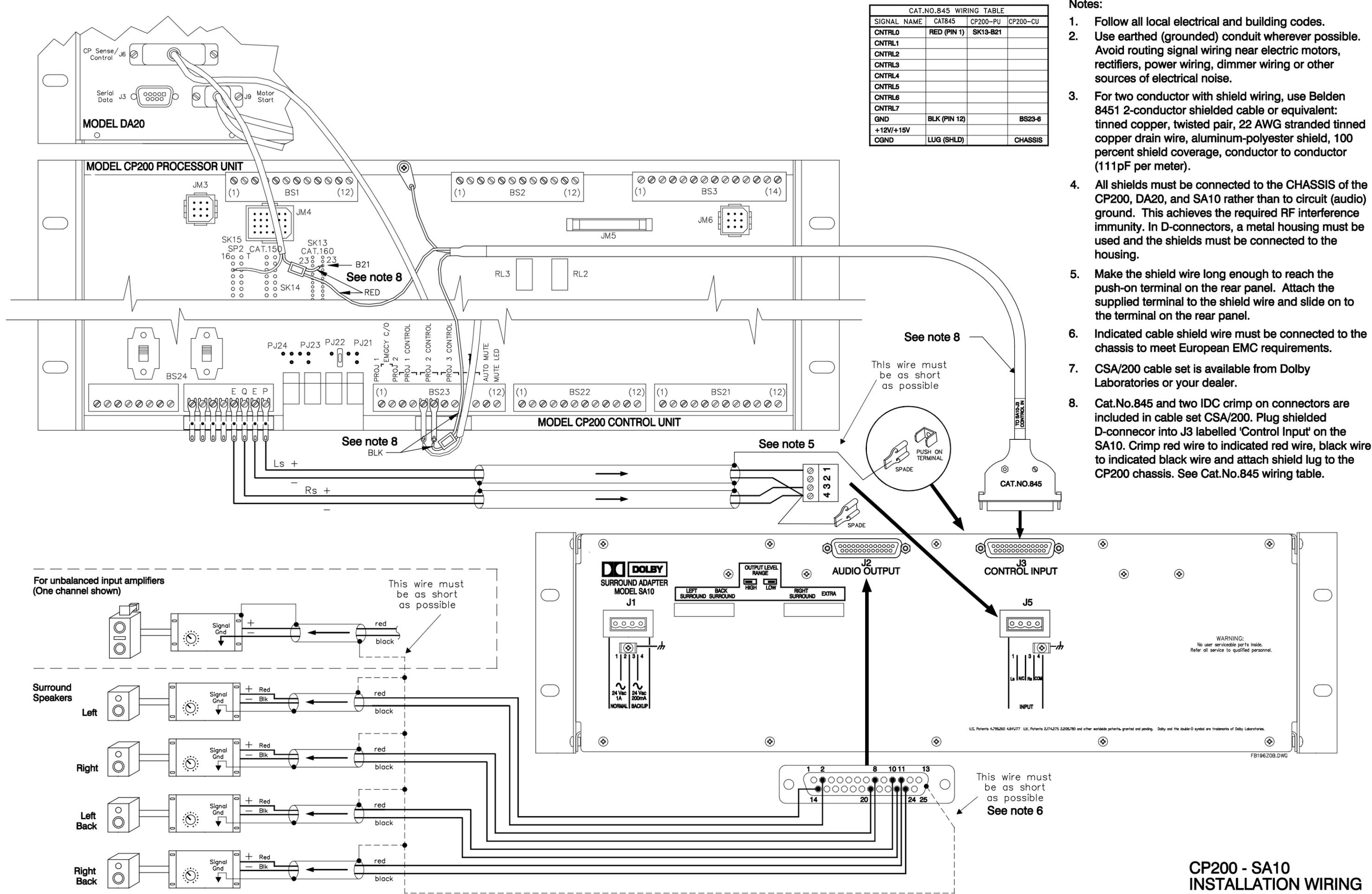
This card carries the equalization channels for left, back, and right surround channels. The equalizer circuit is made up of seven octave-spaced bands at 125, 250, 500, 1k, 2k, 4k, and 8 kHz. It also has variable turnover bass and treble tone controls for each channel. The turnover points can be swept over 1½ octaves (bass) or 3 octaves (treble). This card also contains the signal presence circuits that drive the front panel LEDs. These indicate when audio is passing through the various surround channels.

1.8.4 Cat. No. 814 Switch Card

This card, mounted on the inside face of the backplane card, carries the switching control logic circuitry and output control relay for routing the surround channel signals to the appropriate output connector pins, depending on the surround mode and cinema processor type in use.

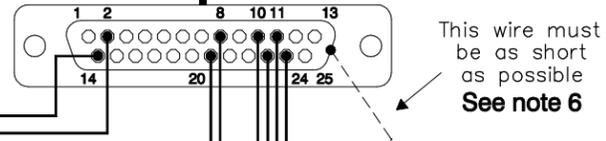
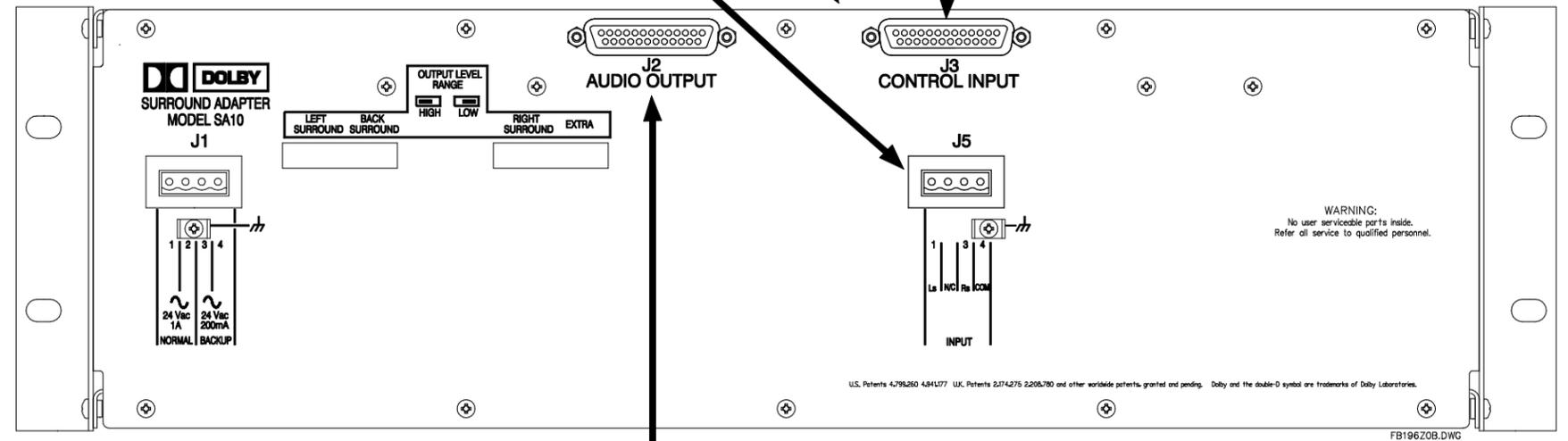
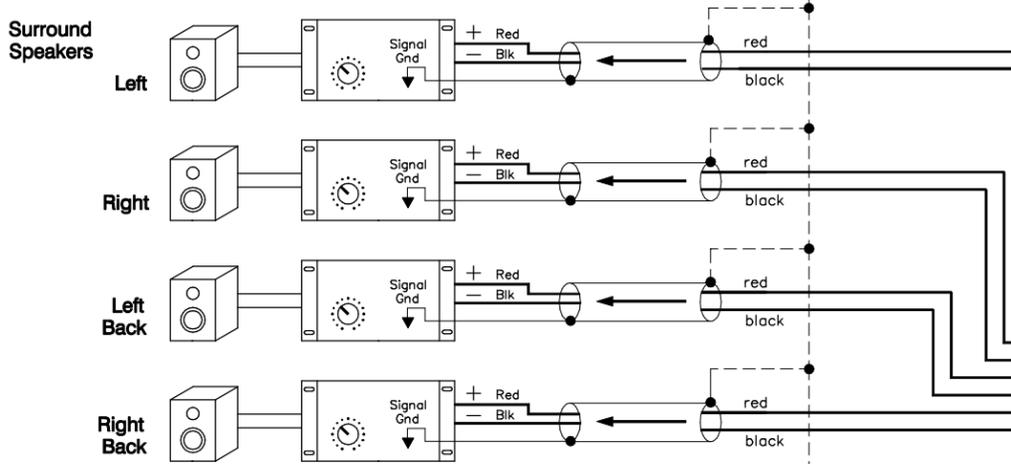
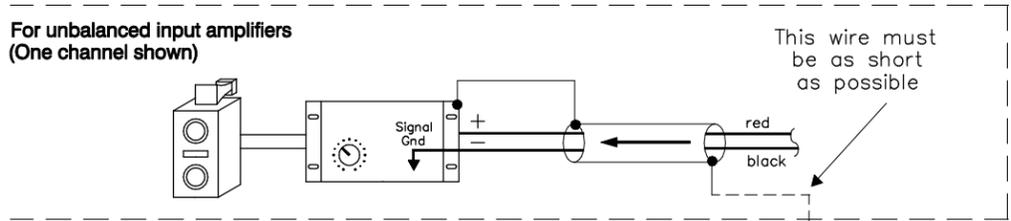
1.8.5 Backup Operation

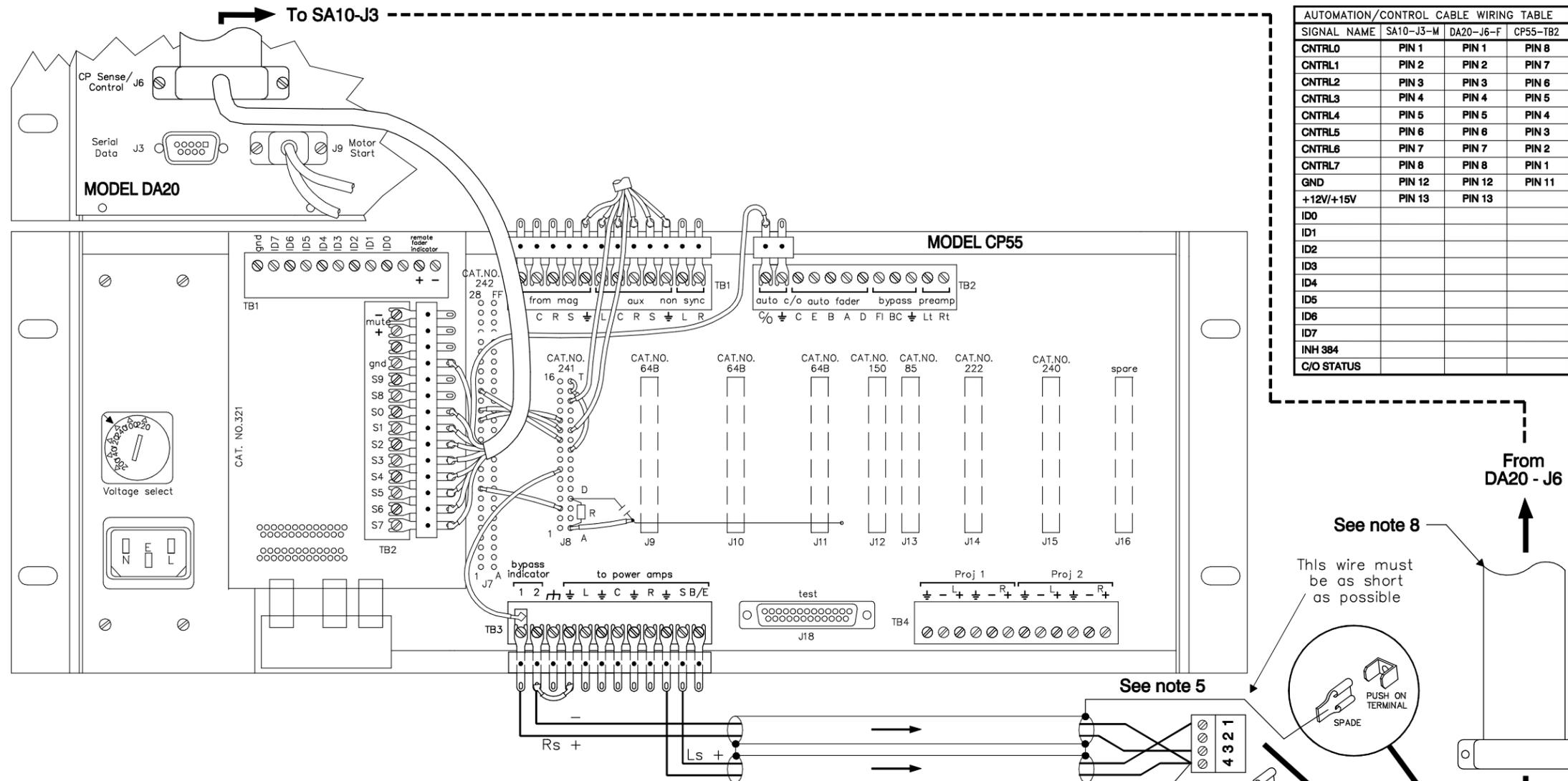
In an emergency, the only card required for sound output is the Cat. No. 810 output card. The other cards can be removed from the unit for service. During backup operation, the surround signals are summed to mono and no audio equalization is applied; however, there is a level-calibrated path through the unit that allows the show to go on. Disconnecting either the Cat. No. 813 or Cat. No. 811 will automatically switch the unit into backup mode.



CAT.NO.845 WIRING TABLE			
SIGNAL NAME	CAT845	CP200-PU	CP200-CU
CNTRL0	RED (PIN 1)	SK13-B21	
CNTRL1			
CNTRL2			
CNTRL3			
CNTRL4			
CNTRL5			
CNTRL6			
CNTRL7			
GND	BLK (PIN 12)		BS23-6
+12V/+15V			
CGND	LUG (SHLD)		CHASSIS

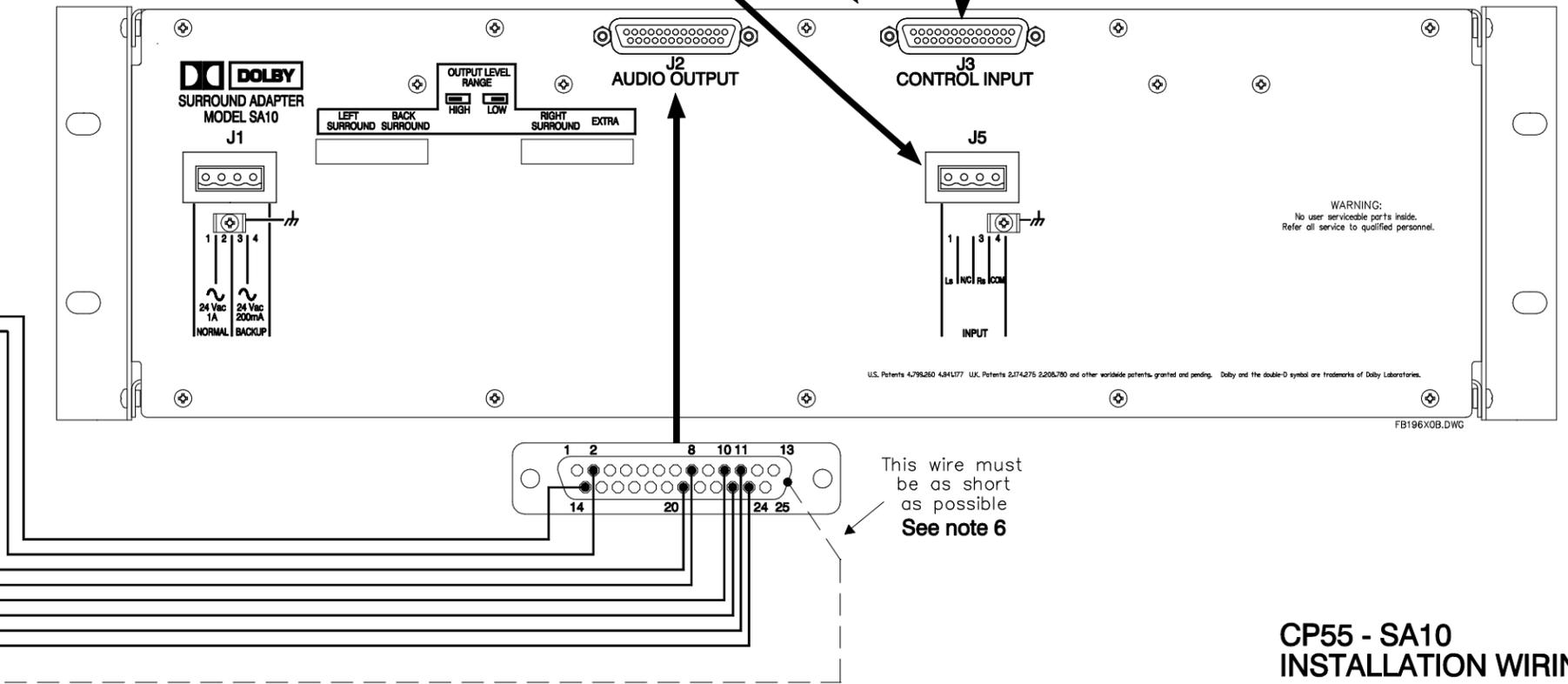
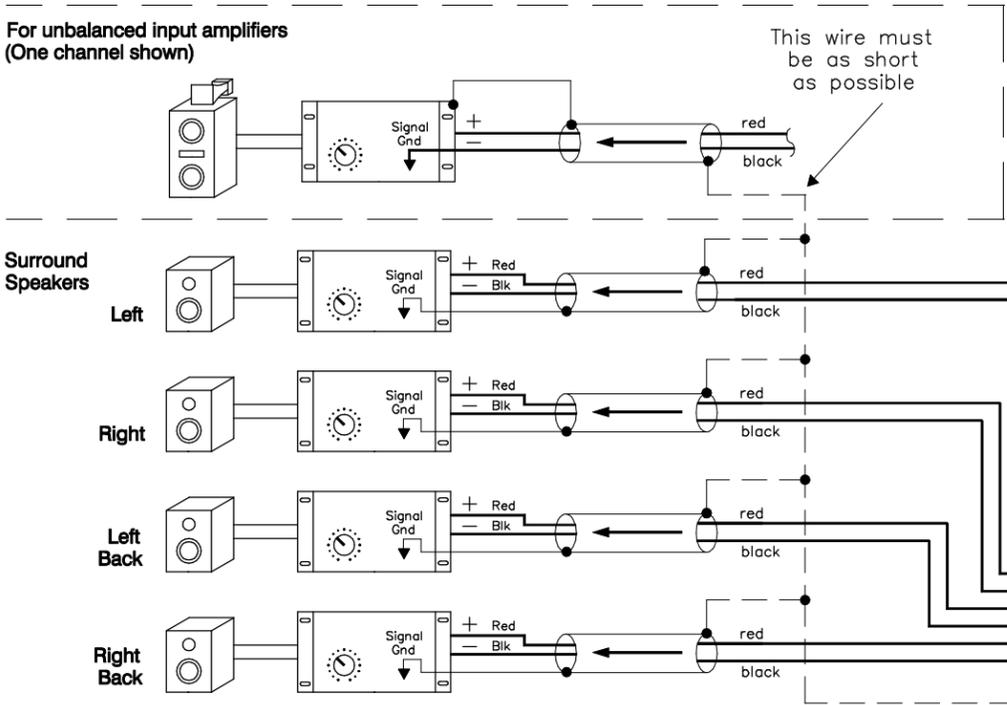
- Notes:**
- Follow all local electrical and building codes.
 - Use earthed (grounded) conduit wherever possible. Avoid routing signal wiring near electric motors, rectifiers, power wiring, dimmer wiring or other sources of electrical noise.
 - For two conductor with shield wiring, use Belden 8451 2-conductor shielded cable or equivalent: tinned copper, twisted pair, 22 AWG stranded tinned copper drain wire, aluminum-polyester shield, 100 percent shield coverage, conductor to conductor (111pF per meter).
 - All shields must be connected to the CHASSIS of the CP200, DA20, and SA10 rather than to circuit (audio) ground. This achieves the required RF interference immunity. In D-connectors, a metal housing must be used and the shields must be connected to the housing.
 - Make the shield wire long enough to reach the push-on terminal on the rear panel. Attach the supplied terminal to the shield wire and slide on to the terminal on the rear panel.
 - Indicated cable shield wire must be connected to the chassis to meet European EMC requirements.
 - CSA/200 cable set is available from Dolby Laboratories or your dealer.
 - Cat.No.845 and two IDC crimp on connectors are included in cable set CSA/200. Plug shielded D-connector into J3 labelled 'Control Input' on the SA10. Crimp red wire to indicated red wire, black wire to indicated black wire and attach shield lug to the CP200 chassis. See Cat.No.845 wiring table.

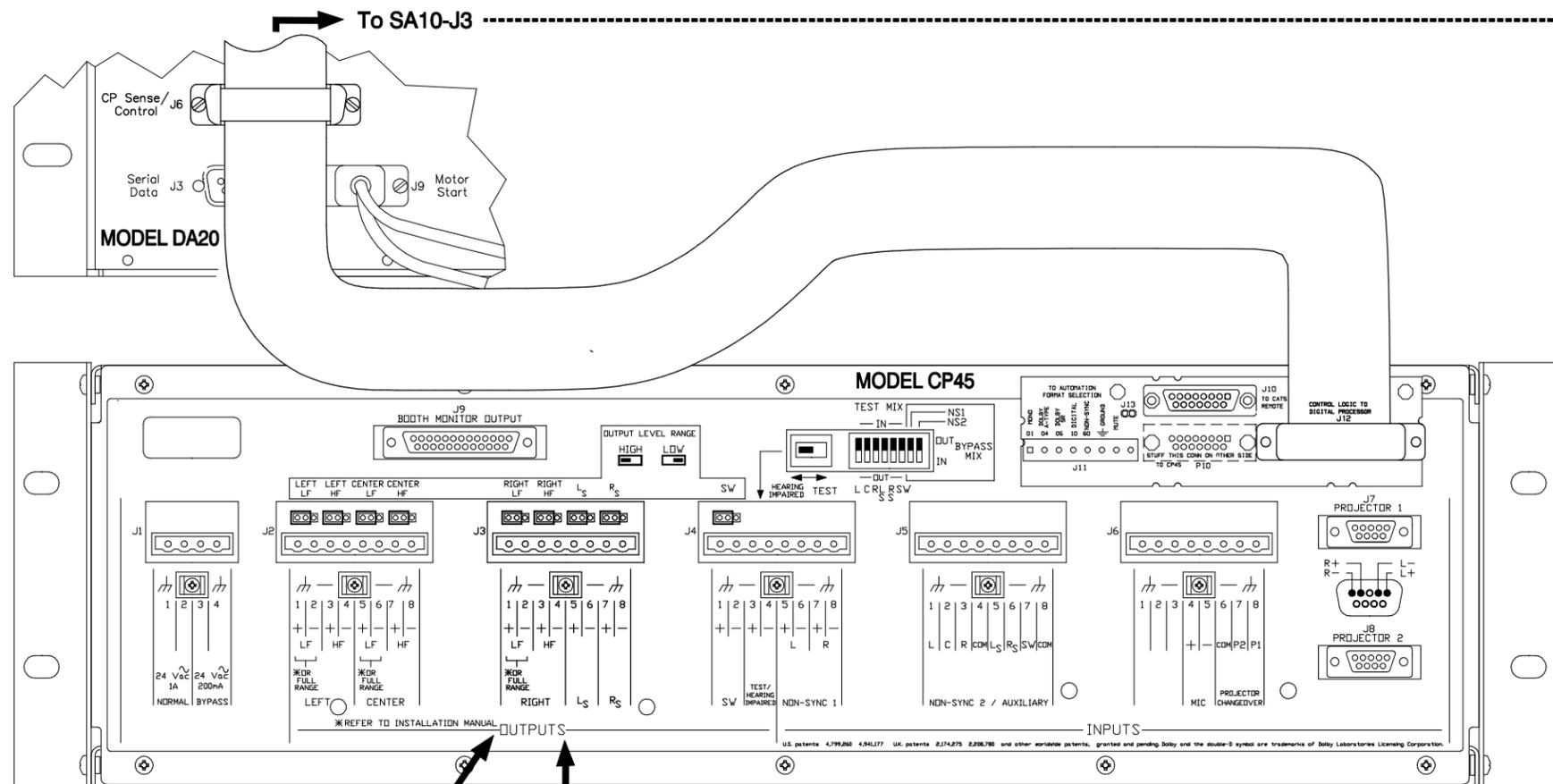




AUTOMATION/CONTROL CABLE WIRING TABLE			
SIGNAL NAME	SA10-J3-M	DA20-J6-F	CP55-TB2
CNTRL0	PIN 1	PIN 1	PIN 8
CNTRL1	PIN 2	PIN 2	PIN 7
CNTRL2	PIN 3	PIN 3	PIN 6
CNTRL3	PIN 4	PIN 4	PIN 5
CNTRL4	PIN 5	PIN 5	PIN 4
CNTRL5	PIN 6	PIN 6	PIN 3
CNTRL6	PIN 7	PIN 7	PIN 2
CNTRL7	PIN 8	PIN 8	PIN 1
GND	PIN 12	PIN 12	PIN 11
+12V/+15V	PIN 13	PIN 13	
ID0			
ID1			
ID2			
ID3			
ID4			
ID5			
ID6			
ID7			
INH 384			
C/O STATUS			

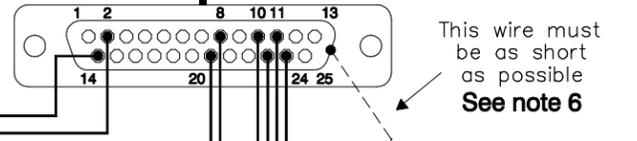
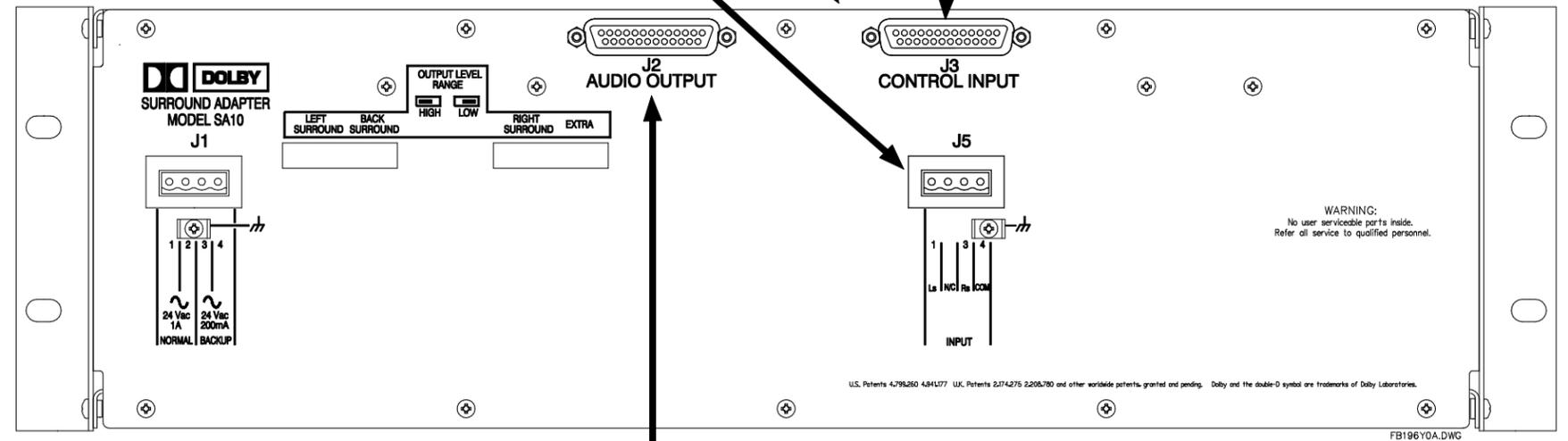
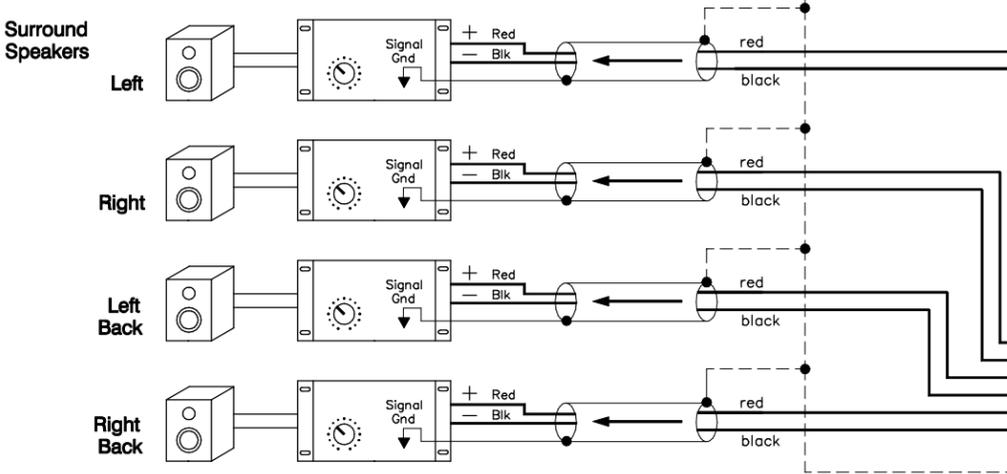
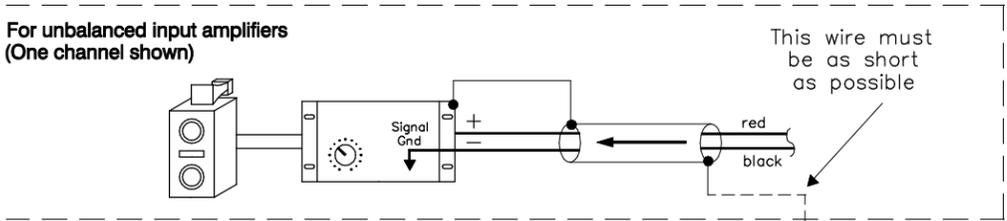
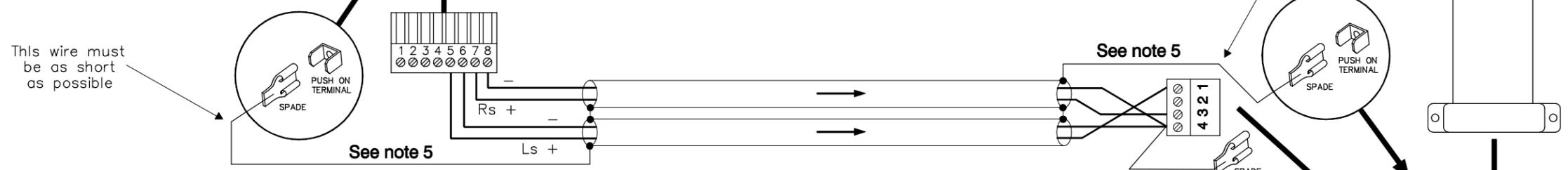
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 - Use earthed (grounded) conduit wherever possible. Avoid routing signal wiring near electric motors, rectifiers, power wiring, dimmer wiring or other sources of electrical noise.
 - For two conductor with shield wiring, use Belden 8451 2-conductor shielded cable or equivalent: tinned copper, twisted pair, 22 AWG stranded tinned copper drain wire, aluminum-polyester shield, 100 percent shield coverage, conductor to conductor (111pF per meter).
 - All shields must be connected to the CHASSIS of the CP55, DA20 or SA10 rather than to circuit (audio) ground. This achieves the required RF interference immunity. In D-connectors, a metal housing must be used and the shields must be connected to the housing.
 - Make the shield wire long enough to reach the push-on terminal on the rear panel. Attach the supplied terminal to the shield wire and slide on to the terminal on the rear panel.
 - Indicated cable shield wire must be connected to the chassis to meet European EMC requirements.
 - CSA/55 cable set is available from Dolby Laboratories or your dealer.
 - Unshielded control cable (Part No. 83378), mounting hardware, and installation note (Part No. 91585) are included in the packing kit for all North American SA10 shipments. A shielded cable (Part No. 83371) is included in the CSA/55 cable set shipped to European countries.

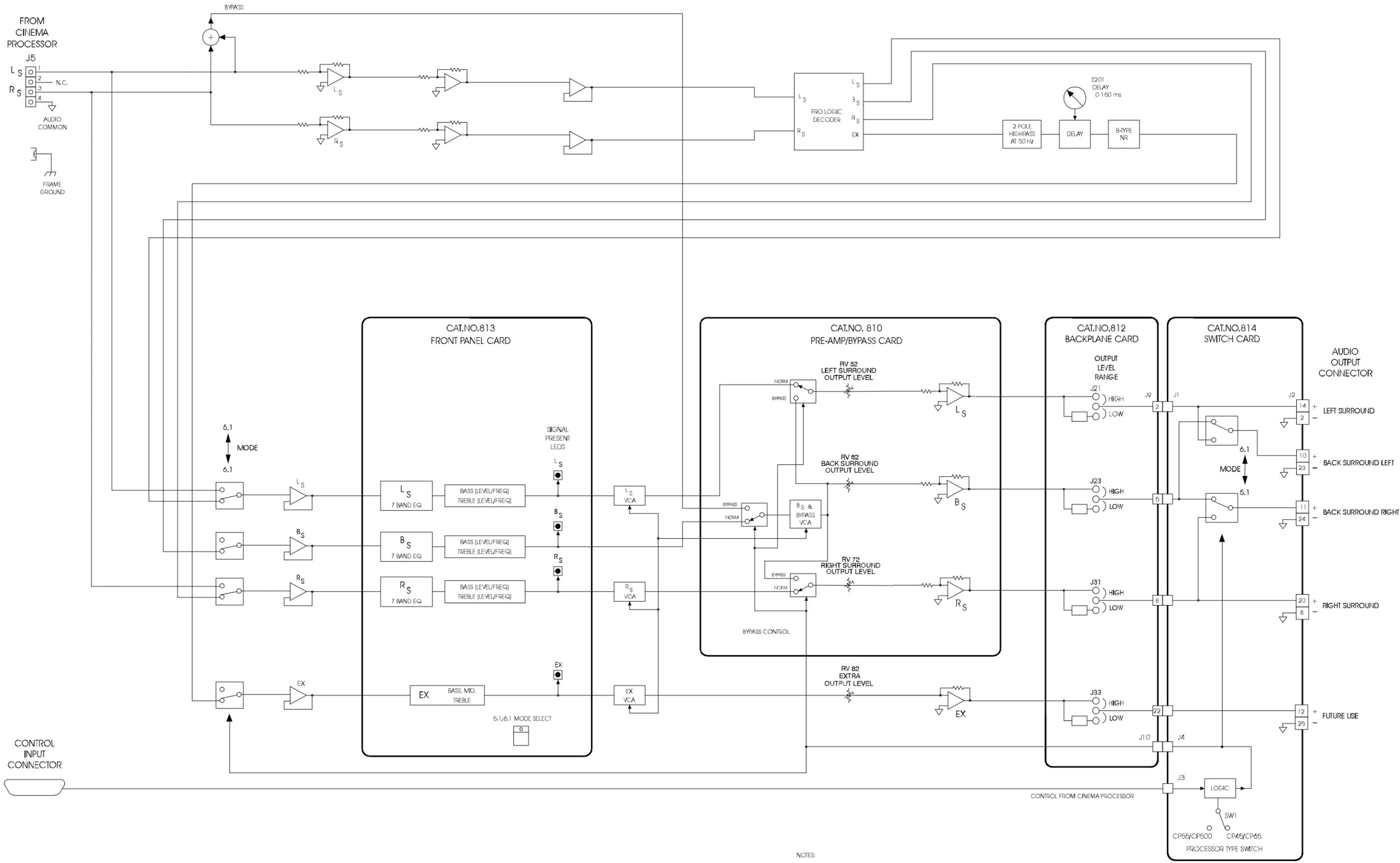




AUTOMATION/CONTROL CABLE WIRING TABLE			
SIGNAL NAME	SA10-J3-M	DA20-J6-F	CP45-J12-M
CNTRL0	PIN 1	PIN 1	PIN 1
CNTRL1	PIN 2	PIN 2	PIN 2
CNTRL2	PIN 3	PIN 3	PIN 3
CNTRL3	PIN 4	PIN 4	PIN 4
CNTRL4	PIN 5	PIN 5	PIN 5
CNTRL5	PIN 6	PIN 6	PIN 6
CNTRL6	PIN 7	PIN 7	PIN 7
CNTRL7	PIN 8	PIN 8	PIN 8
GND	PIN 12	PIN 12	PIN 12
+12V/+15V	PIN 13	PIN 13	PIN 13
ID0		PIN 14	PIN 14
ID1		PIN 15	PIN 15
ID2		PIN 16	PIN 16
ID3		PIN 17	PIN 17
ID4		PIN 18	PIN 18
ID5		PIN 19	PIN 19
ID6		PIN 20	PIN 20
ID7		PIN 21	PIN 21
INH 384		PIN 24	PIN 24
C/O STATUS		PIN 25	PIN 25

- Notes:**
- Follow all local electrical and building codes.
 - Use earthed (grounded) conduit wherever possible. Avoid routing signal wiring near electric motors, rectifiers, power wiring, dimmer wiring or other sources of electrical noise.
 - For two conductor with shield wiring, use Belden 8451 2-conductor shielded cable or equivalent: tinned copper, twisted pair, 22 AWG stranded tinned copper drain wire, aluminum-polyester shield, 100 percent shield coverage, conductor to conductor (111pF per meter).
 - All shields must be connected to the CHASSIS of the CP45, DA20, and SA10 rather than to circuit (audio) ground. This achieves the required RF interference immunity. In D-connectors, a metal housing must be used and the shields must be connected to the housing.
 - Make the shield wire long enough to reach the push-on terminal on the rear panel. Attach the supplied terminal to the shield wire and slide on to the terminal on the rear panel.
 - Indicated cable shield wire must be connected to the chassis to meet European EMC requirements.
 - CSA/45 cable set is available from Dolby Laboratories or your dealer.
 - Unshielded control cable (Part No. 83378), mounting hardware, and installation note (Part No. 91585) are included in the packing kit for all North American SA10 shipments. A shielded cable (Part No. 83371) is included in the CSA/45 cable set shipped to European countries.





- NOTES:
1. ALL CIRCUITRY SHOWN THAT IS NOT ENCLOSED BY A BORDER IS ON MAIN PCB, CAT.NO.811.
 2. AUDIO AND LOGIC INPUT/OUTPUT CONNECTORS AND OUTPUT RANGE JUMPERS ARE ON BACKPLANE PCB, CAT.NO.812.
 3. ■ INDICATES LED.

SA10 SIGNAL PATH BLOCK DIAGRAM

SECTION 2

ALIGNMENT WITH CP500

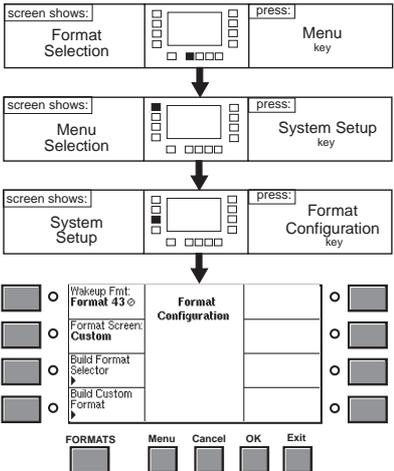
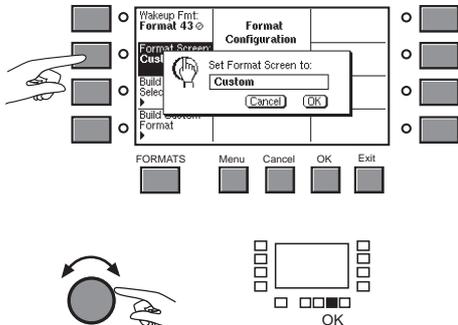
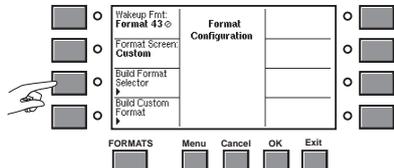
Note:

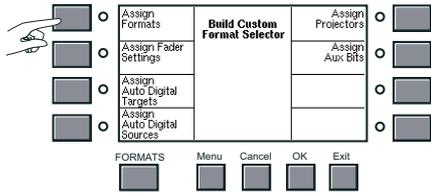
- The installed CP500 software must be version 1.52 or above.
- The Cat. No. 684 card (Horizontal, near the bottom) must be REV 1 or above.
Contact your local distributor if the Cat. No. 684 is Rev E or earlier.

2.1 Programming the CP500 Format Screen for Surround EX Switching

The control connections from the CP500 to the SA10 are wired to send a **Surround EX select** command to the SA10 when softkey SK8 is selected on the CP500. This occurs independently of what **format** is programmed to SK8. Since the default standard and default custom format for SK8 is Format 61 (Non-sync 2), it is necessary to program SK8 as Format 10 (Dolby Digital) on the Custom Format Screen. You must also check that the automation system is set up to allow selection of SK8 for trailers or feature films with Surround EX encoding.

Using this setup, when the feature begins, the automation system will cue SK8. This will select Format 10 and Surround EX mode. If the feature is not an EX print, then simply press the EX disable button (in) on the SA10 to prevent the SA10 from changing modes. The CP500 will then play the feature in Dolby Digital without Surround EX decoding.

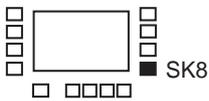
 <p>The diagram shows a sequence of four screens. 1. 'Format Selection' screen with 'Menu key' softkey. 2. 'Menu Selection' screen with 'System Setup key' softkey. 3. 'System Setup' screen with 'Format Configuration key' softkey. 4. 'Format Configuration' screen with various options like 'Wakeup Fmt: Format 43', 'Format Screen: Custom', and 'Build Format Selector'.</p>	<p>Begin the procedure by pressing the MENU key.</p> <p>Press System Setup (SK1).</p> <p>Press Format Configuration (SK3).</p>
 <p>The diagram shows the 'Format Configuration' screen with a pop-up box titled 'Set Format Screen to: Custom' with 'Cancel' and 'OK' buttons. Below the screen, a hand is shown rotating a knob on the front panel.</p>	<p>To switch the Format screen display to Custom:</p> <p>Press Format Screen softkey (SK2). A pop-up box appears.</p> <p>Rotating the front panel knob selects between Standard and Custom modes. Select Custom, then press the OK key to complete the action.</p>
 <p>The diagram shows the 'Format Configuration' screen with a hand pointing to the 'Build Format Selector' key.</p>	<p>Next, press the Build Format Selector key (SK3).</p>



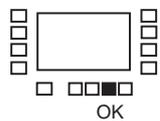
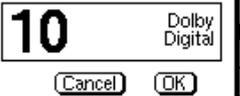
01 Mono	Assign Formats to the Softkeys	11 External 6 Channel
04 Dolby A-type		43 Dolby 70mm split sur
05 Dolby SR	Select a key. Rotate knob to select a format. Press exit when done.	60 Non-sync 1
10 Dolby Digital		61 Non-sync 2

To assign format 10 to softkey SK8, press the Assign Formats key (SK1).

A copy of the existing format selection screen is displayed.



01 Mono	Assign Formats to the Softkeys	11 External 6 Channel
04 Dolby A-type		43 Dolby 70mm split sur
05 Dolby SR	Select a key. Rotate knob to select a format. Press exit when done.	60 Non-sync 1
10 Dolby Digital		61 Non-sync 2

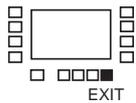


Press SK8.

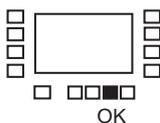
A pop-up box appears, allowing any format to be assigned to softkey 8.

Rotate the front panel knob to move the display through the available formats.

When Format 10 is shown, select it by pressing the OK key.



01 Mono	Assign Formats to the Softkeys	11 External 6 Channel
04 Dolby A-type		43 Dolby 70mm split sur
05 Dolby SR	Select a key. Rotate knob to select a format. Press exit when done.	60 Non-sync 1
10 Dolby Digital		61 Non-sync 2

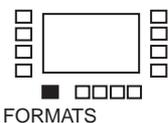


Press the EXIT key to return to the Build Custom Format menu.

A box will appear prompting you to save or discard the changes.

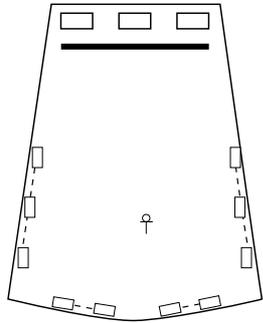
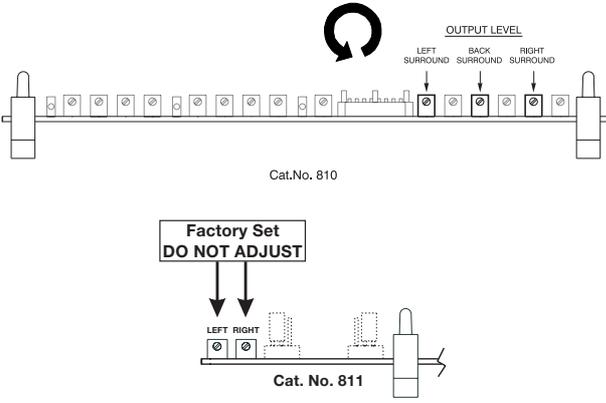
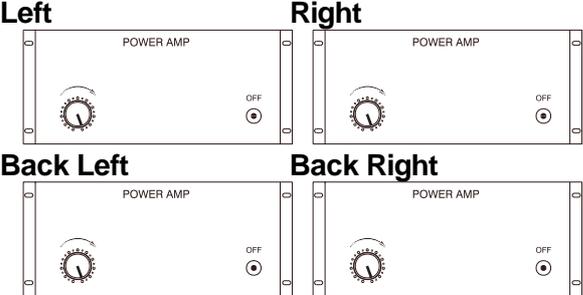
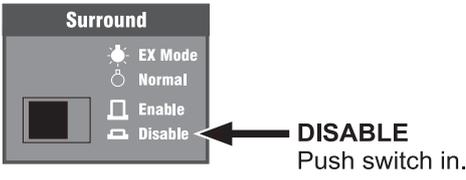
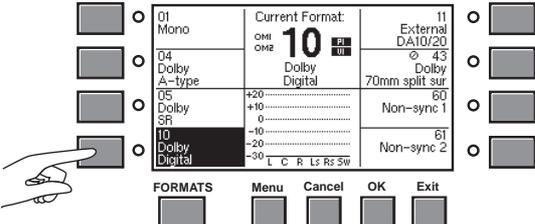
Press the OK key to save the new settings.

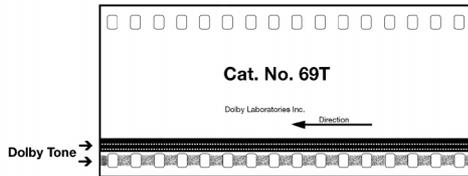
Note: Pressing the CANCEL key discards the new settings and restores the old settings.



Press the Formats button. This completes the programming.

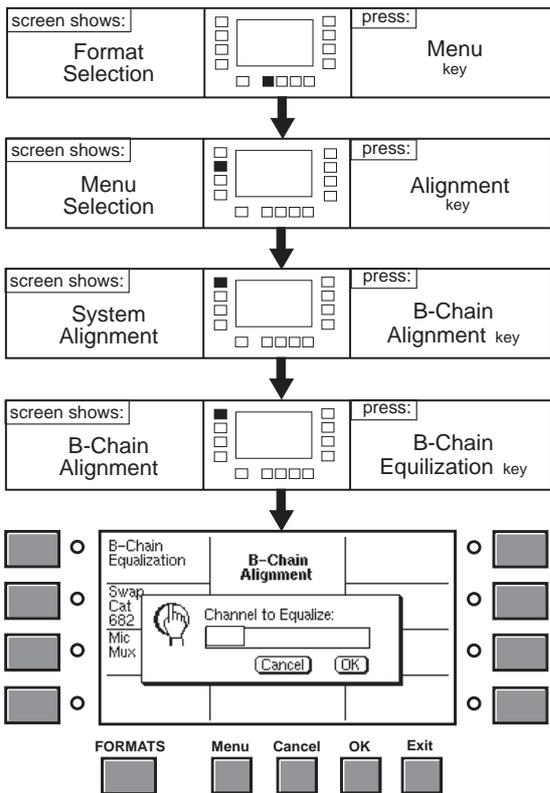
2.2 Initial Setup for System Alignment

	<p>Position a calibrated microphone in the theatre. Connect a real time analyzer (RTA).</p> <p>Note: For a single microphone, the recommended position is 2/3 of the distance from the front speakers to the rear, off the axis of the center front speaker, approximately five feet above the floor, and pointed straight up.</p>
 <p>Cat.No. 810</p> <p>Factory Set DO NOT ADJUST</p> <p>Cat. No. 811</p>	<p>Open the SA10 front panel.</p> <p>Adjust the left surround, back surround and right surround output level trimpots on the Cat. No. 810 to minimum (counterclockwise).</p> <p>Do not move the pots located on the left-hand end of the Cat. No. 811 card.</p>
 <p>Left Right</p> <p>Back Left Back Right</p>	<p>Set all gain controls on the four surround power amplifiers to maximum. If a different setting is required in order to optimize the noise performance of the system, the controls should be locked in position or marked clearly.</p>
 <p>Surround</p> <p>EX Mode</p> <p>Normal</p> <p>Enable</p> <p>Disable ← DISABLE Push switch in.</p>	<p>Set the SA10 front panel Surround EX Mode switch to Disable (switch in, LED off).</p>
 <p>01 Mono</p> <p>04 Dolby A-type</p> <p>05 Dolby SR</p> <p>10 Dolby Digital</p> <p>Current Format: 10</p> <p>External DA10/20</p> <p>0 43</p> <p>70mm split sur</p> <p>60 Non-sync 1</p> <p>61 Non-sync 2</p> <p>L C R L2 R2 SW</p> <p>FORMATS Menu Cancel OK Exit</p>	<p>Select format 10 Dolby Digital. Since the projector is not running, the CP500 may revert to format 05 SR optical.</p>



Thread a loop of Cat. No. 69T Dolby Tone test film on the projector that incorporates a Dolby Digital film reader.

DO NOT start the projector.

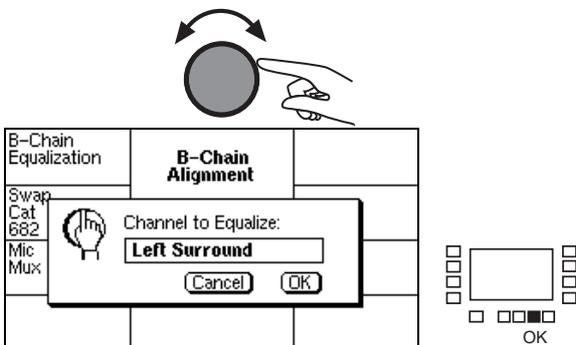


On the CP500, press the **Menu** key.

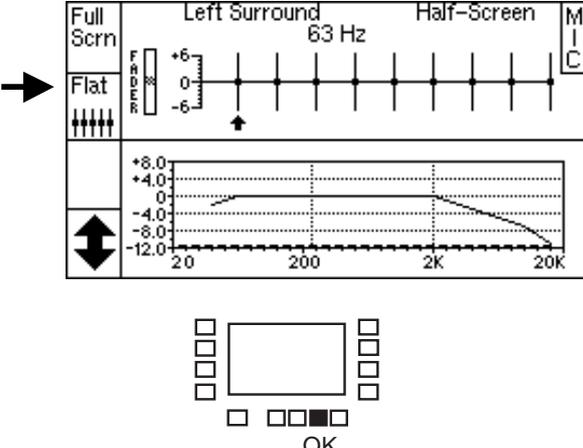
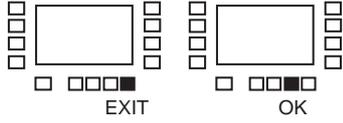
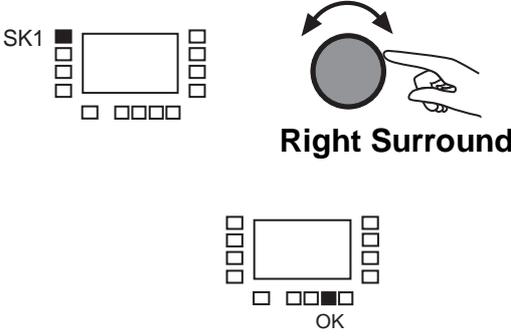
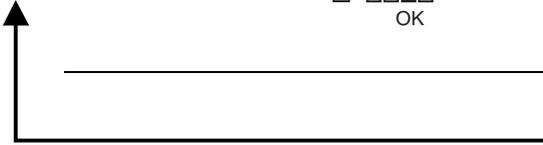
Press **Alignment** (SK2)
(a system password may be required at this point)

Press **B-Chain Alignment** (SK1)

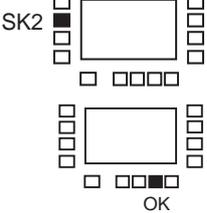
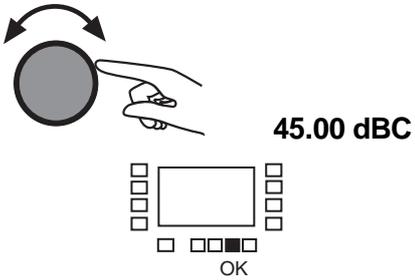
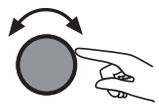
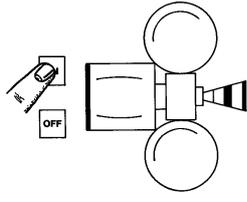
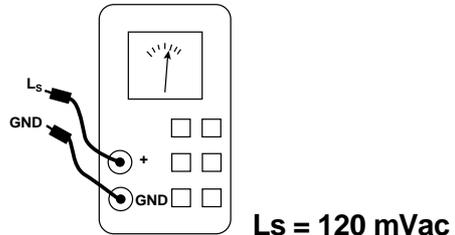
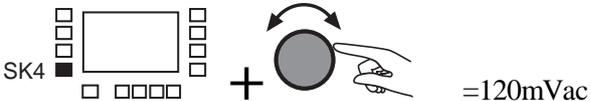
and then **B-Chain Equalization** (SK1).

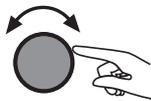
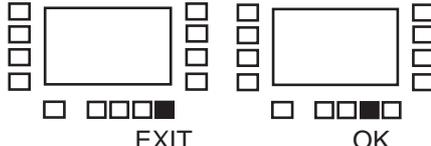


Use the fader knob to select **Left Surround** and then press the **OK** key.

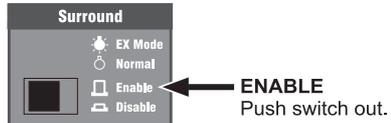
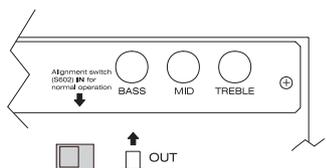
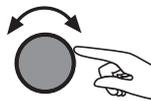
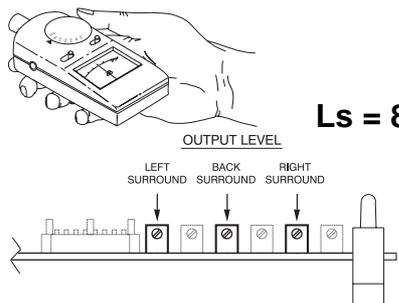
	<p>After the RTA screen appears, press Flat (SK2).</p> <p>A dialogue box will appear. Set the EQ to flat then Press the OK key.</p>
	<p>Press Exit then press OK to save the settings.</p>
	<p>Press B-Chain Equalization (SK1). With the fader knob select Right Surround</p> <p>Press the OK key.</p>
	<p>Repeat the two steps at the top of this page for the Right Surround channel.</p>

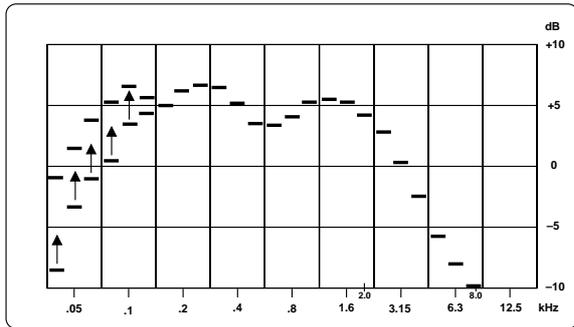
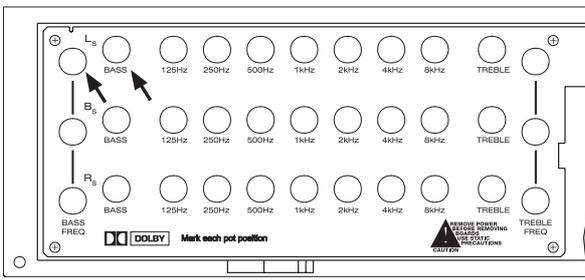
2.3 Set CP500 Output Levels

 <p>SK2</p> <p>OK</p>	<p>Press Output Adjust (SK2). A pop-up box will appear, titled Calibrate SPL.</p> <p>Press the OK key.</p>
 <p>45.00 dBC</p> <p>OK</p>	<p>Rotate the fader knob counter-clockwise until you reach the lowest value (45.00 dBC).</p> <p>Press OK</p>
 <p>Ls Channel</p>	<p>After the CP500 automatically adjusts to no input signal, use the fader knob to highlight the Ls channel.</p>
	<p>Start the projector with the Cat. No. 69T threaded in the digital reader.</p> <p>When the projector comes up to speed, the CP500 will play Dolby Tone from the film loop instead of pink noise.</p>
 <p>Ls = 120 mVac</p>  <p>SK4</p> <p>+ =120mVac</p>	<p>Connect an AC voltmeter to the Ls signal output terminal on the rear of the CP500.</p> <p>The level should read 120mVAC +/- 20 mV.</p> <p>If the level is not within this range then press and hold the Up/Down adjust key (SK4) and use the fader knob to adjust the level to the correct value.</p>

 <p>Rs Channel</p> <p>Rs = 120 mVac</p>	<p>Use the fader knob to select the Rs channel.</p> <p>Repeat the previous step to obtain 120 mV for this channel.</p> <p><i>Note: It is very important to get the Ls and Rs outputs to match levels within 10mV.</i></p>
	<p>Press Exit then press OK to save the settings.</p>
<p>Projector Stop</p>	<p>Stop the projector.</p>

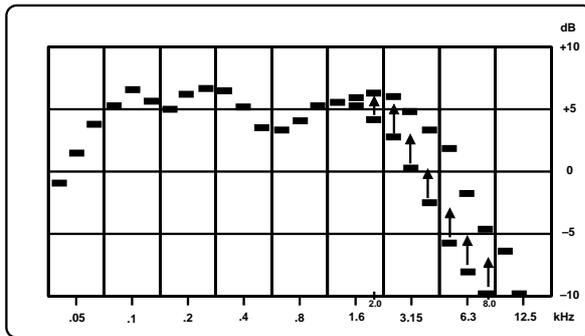
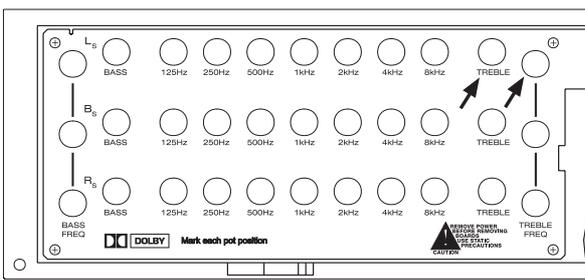
2.4 Equalize Surround Speakers

 	<p>On the SA10 front panel, press the Surround EX Mode switch to the Enable (out) position.</p> <p>On the inside of the SA10 front panel, press the Test/Normal switch to the Test (out) position.</p> <p>The red LED on the front panel should light, indicating that the SA10 is in Surround EX mode.</p>
 <p>Ls Channel</p>	<p>Left Surround Channel</p> <p>On the CP500 select Adjust Output Levels (SK2).</p> <p>Use the CP500 fader knob to select the Ls channel. <u>Do not</u> adjust the output level of the CP500</p>
 <p>Ls = 80-85 dBC</p> <p>OUTPUT LEVEL</p> <p>LEFT SURROUND SURROUND BACK SURROUND RIGHT SURROUND</p> <p>Cat.No. 810</p>	<p>With a sound pressure level meter located in the theatre, adjust the Left Surround output level control on the SA10 to produce a reading of 80 to 85 dBC.</p>



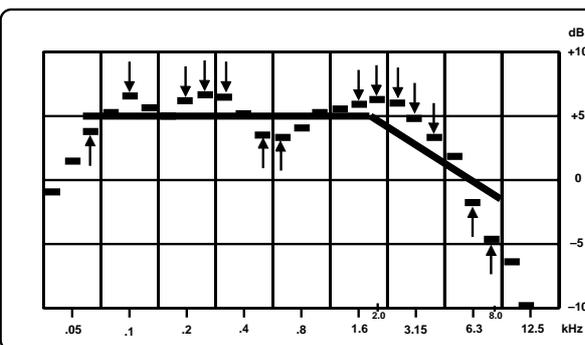
While observing the RTA connected to the microphones in the theatre, adjust the **bass controls** on the SA10 to produce a low frequency response as flat as possible.

The left-hand control sets the **frequency** range, and the right-hand control sets the **level** of boost or cut.



Adjust the **treble controls** to produce a flat high frequency response up to 2 kHz, followed by a 3 dB per octave rolloff above 2 kHz.

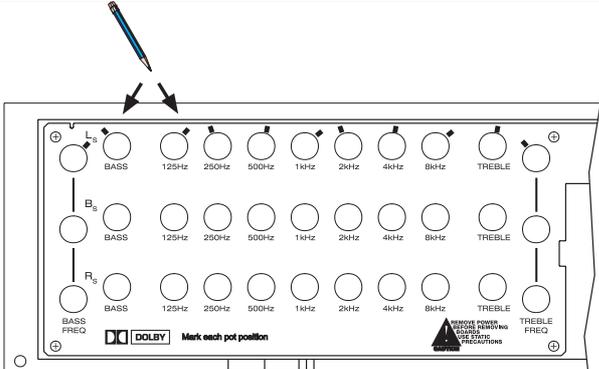
The right-hand control sets the **frequency** range, and the left-hand control sets the **level** of boost or cut.



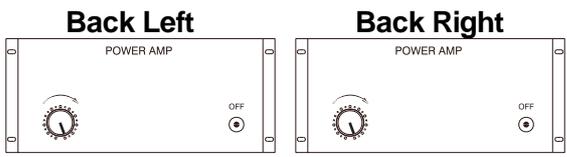
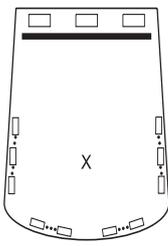
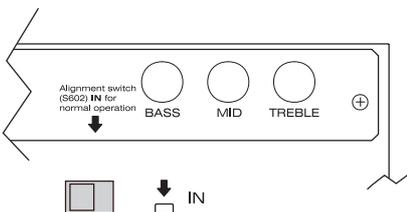
Fine-tune the equalization by adjusting the seven mid-band controls.

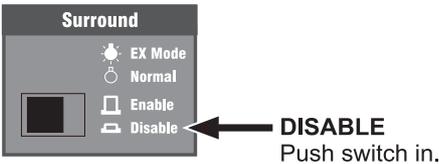
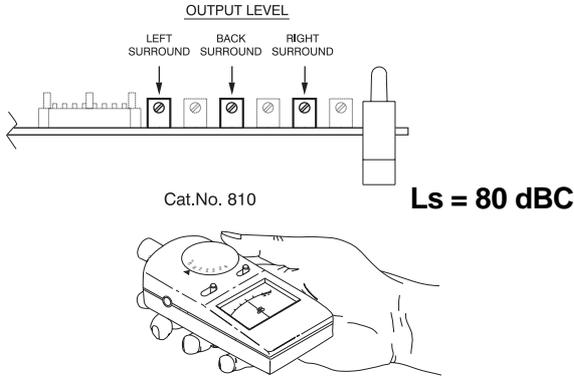
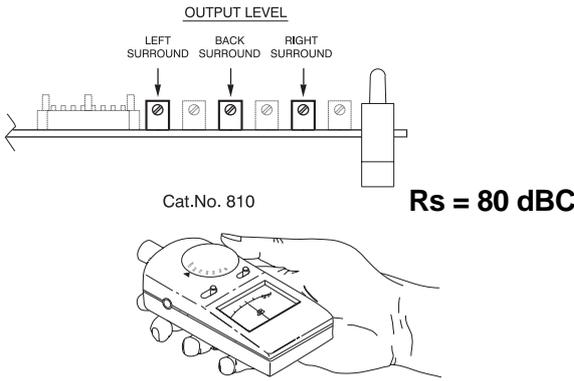
Note: All controls interact with each other. Do not start at the low-frequency end and work your way to the high-frequency end. Start at the center frequency and attempt to achieve results with cut rather than boost. As each control is adjusted, the level of the adjacent band is affected. You may find that a cut at one frequency will require a slight boost at adjacent frequencies.

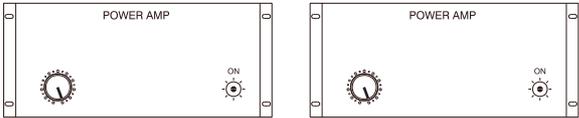
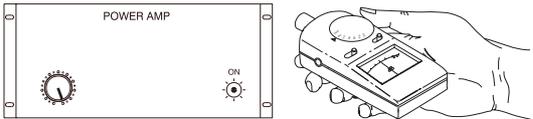
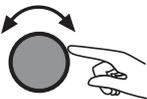
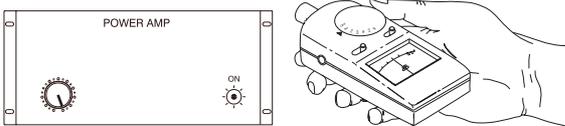
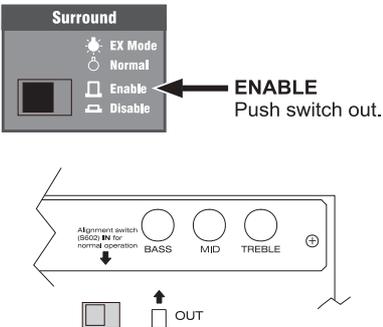
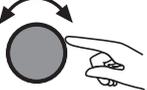
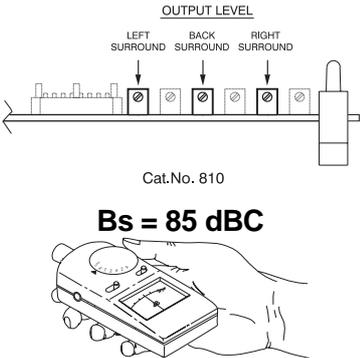
The desired setting is a flat response up to 2 kHz, falling at 3 dB per octave to 8 kHz (1 dB per third-octave band).

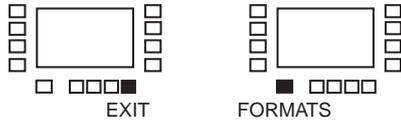
	<p>Right Surround Channel</p> <p>Use the CP500 fader knob to select the Rs channel. <u>Do not</u> adjust the output level of the CP500.</p> <p>Repeat the equalization adjustments for the Right Surround channel.</p>
	<p>Back Surround Channel</p> <p>Use the CP500 fader knob to select the Ms channel. <u>Do not</u> adjust the output level of the CP500.</p> <p>Repeat the equalization adjustments for the Back Surround channel.</p>
	<p>Mark the positions of all equalizer controls with a pencil for future reference.</p>

2.5 Set Surround Output Levels

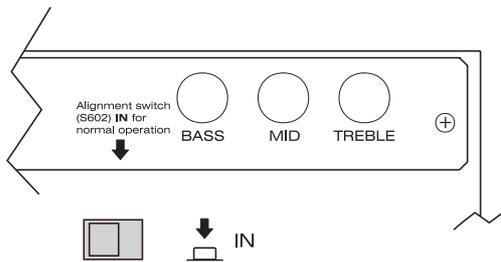
	<p>Confirm that the input level controls of all surround amplifiers are set at maximum.</p> <p>Shut off or disable the output of the Back Surround channel amplifiers.</p>
	<p>Make sure that the SPL meter is in the exact center of the width of the auditorium, i.e., centered between the two side walls. It should also be 2/3 of the length of the theatre away from the screen.</p>
	<p>On the SA10 inside front panel, press the Alignment switch to the normal (in) position.</p>

	<p>On the front panel, press the Surround Enable switch to the disable (in) position. The red LED on the front panel should go off indicating that the SA10 is in conventional 5.1-channel mode.</p>
	<p>Use the CP500 fader knob to select the Ls channel to enable the pink noise for that channel.</p> <p><u>Do not</u> adjust the output level of the CP500.</p>
	<p>On the SA10 adjust the output level control for the Ls channel to obtain 80dBC in the auditorium with the SPL measuring device in the exact center of the width of the theatre.</p>
	<p>Use the CP500 fader knob to select the Rs channel to enable the pink noise for that channel.</p> <p><u>Do not</u> adjust the output level of the CP500.</p>
	<p>On the SA10 adjust the output level control for the Rs channel to obtain 80dBC.</p>

<p>Back Left Back Right</p> 	<p>Turn on or restore the Bs, Back Surround, channel signal.</p>
<p>Back Right Amp Rs+Bs_R = 82 dBC</p> 	<p>Using the level control on the Bs_R (Back Surround Right) amplifier, adjust the level to obtain 82 dBC.</p>
 <p>Ls Channel</p>	<p>Use the CP500 fader knob to select the Ls channel to enable the pink noise for that channel.</p> <p><u>Do not</u> adjust the output level of the CP500.</p>
<p>Back Left Amp Ls+Bs_L = 82 dBC</p> 	<p>Using the level control on the Bs_L (Back Surround Left) amplifier, adjust the level to obtain 82 dBC.</p>
 <p>ENABLE Push switch out.</p>	<p>On the SA10 front panel, press the Surround EX Mode switch to the Enable (out) position.</p> <p>On the inside of the SA10 front panel, press the Test/Normal switch to the Test (out) position.</p> <p>The red LED on the front panel should light, indicating that the SA10 is in Surround EX mode.</p>
 <p>Ms Channel</p>	<p>Use the CP500 fader knob to select the Ms channel.</p>
<p>Bs = 85 dBC</p> 	<p>On the SA10, adjust the output level control for the Bs, Back Surround, channel to obtain 85dBC.</p>



On the CP500 press **Exit** and then **Formats**.

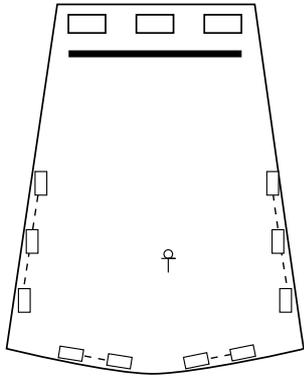


On the SA10 inside front panel, press the **Alignment** switch to the **normal (in)** position.

The SA10 alignment is now complete.

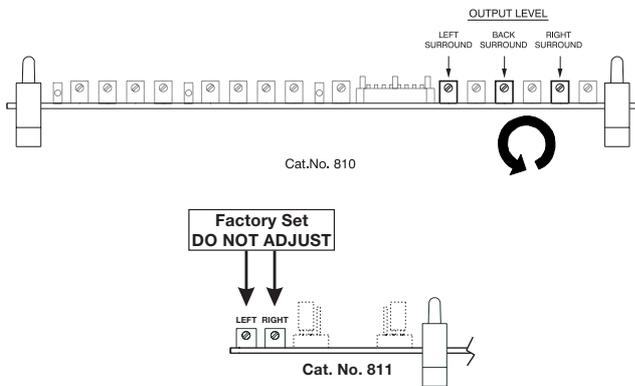
SECTION 3 ALIGNMENT WITH CP65

3.1 Initial Setup



Position a calibrated microphone in the theatre. Connect a real-time analyzer (RTA).

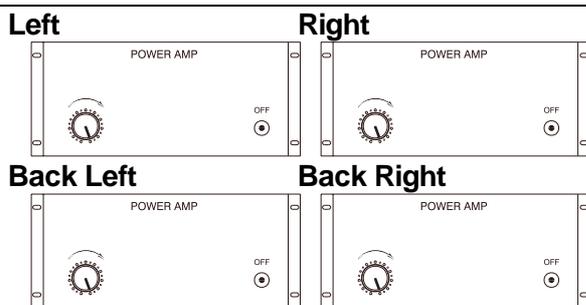
Note: For a single microphone, the recommended position is 2/3 of the distance from the front speakers to the rear, off the axis of the center front speaker, approximately five feet above the floor, and pointed straight up.



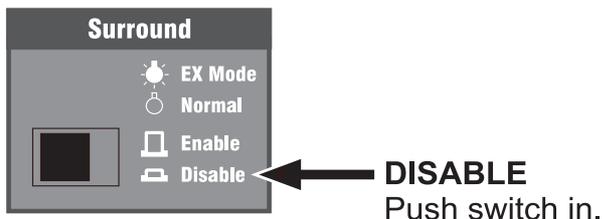
Open the SA10 front panel.

Adjust the **left** surround, **back** surround and **right** surround output level trim pots on the Cat. No. 810 to **minimum** (counterclockwise).

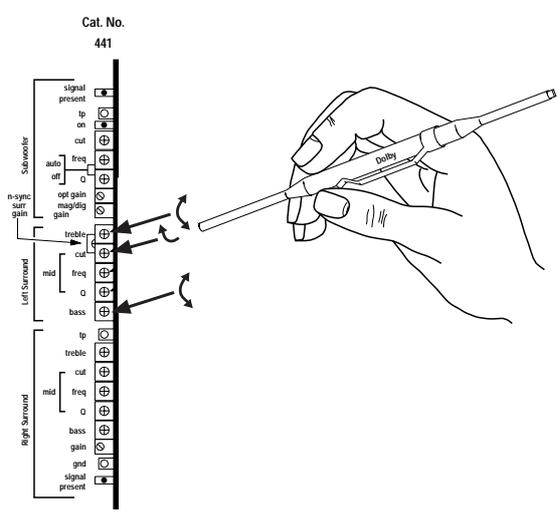
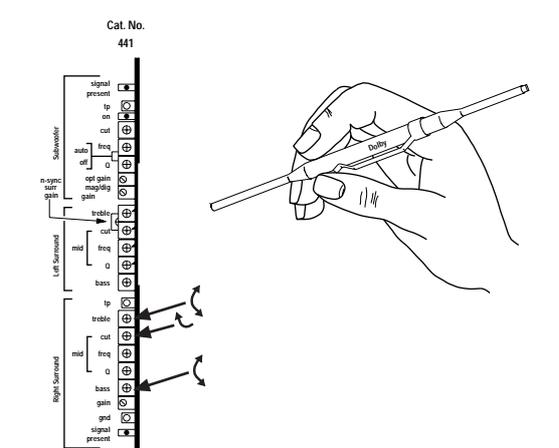
Do not move the pots located on the left-hand end of the Cat. No. 811 card.



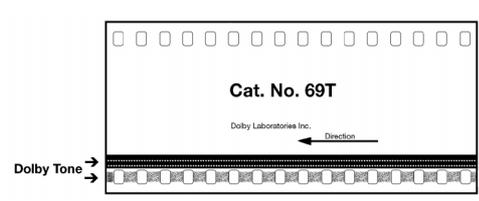
Set all gain controls on the four surround power amplifiers to maximum. If a different setting is required in order to optimize the noise performance of the system, the controls should be locked in position or marked clearly.

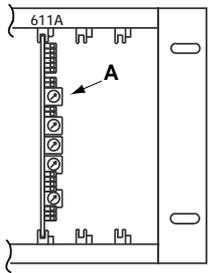


Set the SA10 front panel **Surround** EX Mode switch to **Disable** (switch in, LED off).

	<p>Open the CP65 front panel.</p>
 <p>Cat. No. 441</p>	<p>On the Cat. No. 441 card, turn both the Treble and Bass controls for the Ls channel to the middle of their rotation.</p> <p>Turn the midrange Cut control fully clockwise.</p>
 <p>Cat. No. 441</p>	<p>Repeat the previous step for the Rs channel.</p>

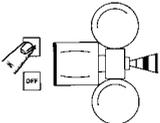
3.2 Set CP65 Output Levels

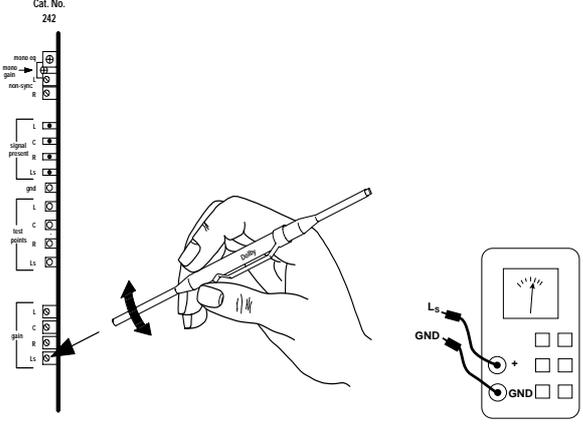
 <p>Cat. No. 69T</p> <p>Dolby Laboratories Inc.</p> <p>Direction</p> <p>Dolby Tone</p>	<p>Thread a loop of Cat. No. 69T Dolby Tone test film on the projector which incorporates a Dolby Digital film reader.</p>
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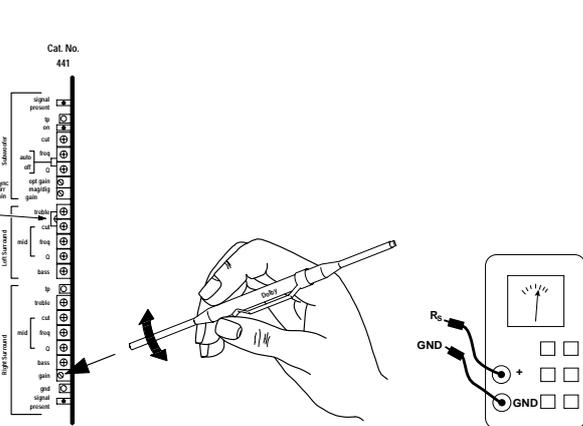
	<p>On the DA20, the CP selector switch located on the Cat. No. 611 card can be seen through the front panel.</p> <p>Note the current CP selector switch setting then turn the switch to position A.</p>
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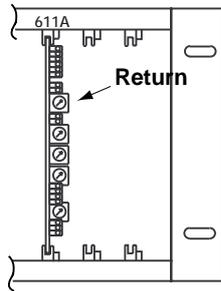
<p>FORMAT 10</p>	<p>On the CP65 front panel, select Format 10 (Digital).</p>
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	<p>Set the front panel fader control to 7.</p>
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	<p>Start the projector.</p>
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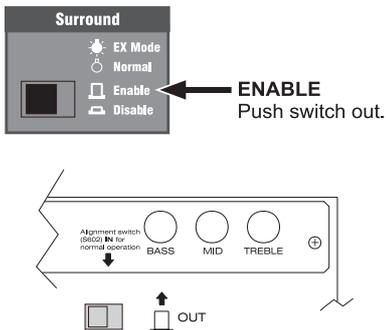
<p>Cat. No. 242</p>  <p>Ls = 120 mVac</p>	<p>Connect an AC voltmeter to the Ls signal output terminal on the rear of the CP65.</p> <p>Adjust the CP65 output level control for the Ls channel on the Cat. No. 242 card to obtain 120 mVAC.</p>
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<p>Cat. No. 441</p>  <p>Rs = 120 mVac</p>	<p>Next, connect the voltmeter to the Rs signal output terminal on the CP65 and adjust the output level control for the Rs channel on the Cat. No. 441 card to obtain 120mVAC.</p> <p><i>Note: It is very important to get the Ls and Rs outputs to match levels within 10mV.</i></p>
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Stop the projector.

Return the DA20 CP selector switch on the Cat. No. 611 card to its original position noted above (**2 or 6**).



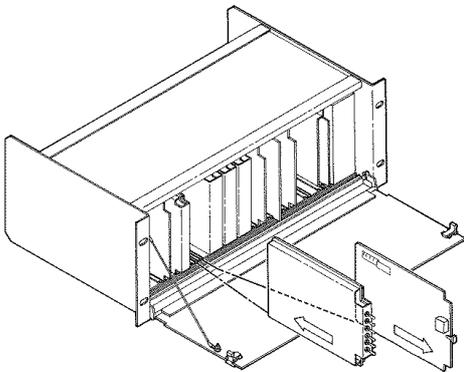
On the SA10 front panel, press the **Surround EX** Mode switch to the **Enable** (out) position.

On the inside of the SA10 front panel, press the Test/Normal switch to the **Test** (out) position.

The red LED on the front panel should light, indicating that the SA10 is in Surround EX mode.

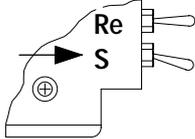
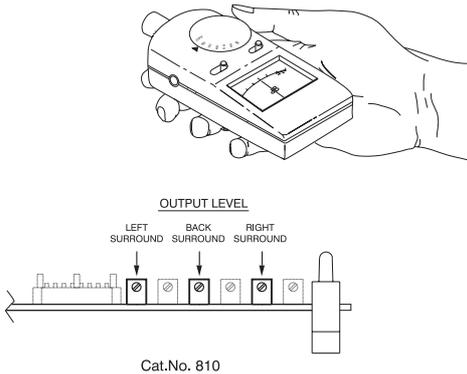
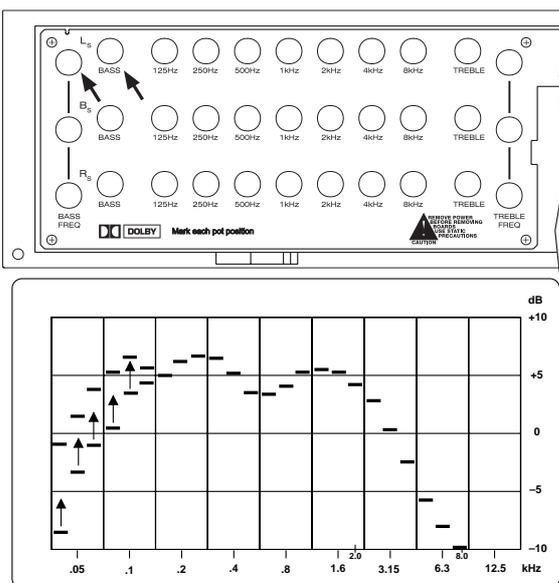
MUTE

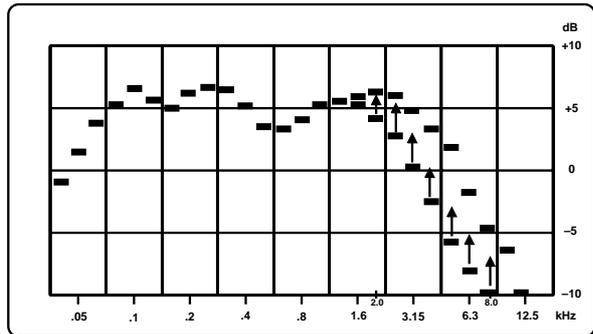
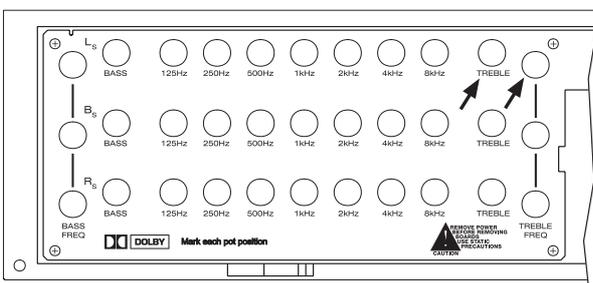
Press Mute on the CP65.



Remove the Cat. No. 150 decoder card and insert a Cat. No. 85C Pink Noise Generator into the slot for it.

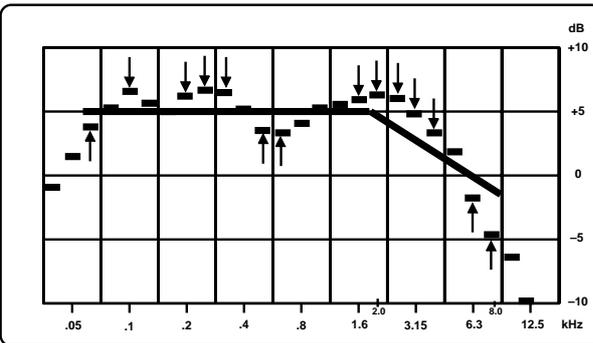
3.3 Equalize Surround Channels

	<p>Turn on the surround switch "S" on the Cat. No. 85.</p>
<p>FORMAT 04</p>	<p>On the CP65 front panel, select Format 04 (A-type).</p>
<p>Cat. No. 441 Rs -- GND Jumper</p>	<p>Left Surround Eq Use a jumper wire to connect the Rs (yellow) test point on the Cat. No. 441 to a ground (black) test point. This will mute the Rs pink noise.</p>
<p>Ls = 80-85 dBC</p> 	<p>With a sound pressure level meter located in the theatre, adjust the Left Surround output level control on the SA10 to produce a reading of 80 to 85 dBC.</p>
	<p>While observing the RTA connected to the microphones in the theatre, adjust the bass controls on the SA10 to produce a low-frequency response that is as flat as possible.</p> <p>The left-hand control sets the frequency range, and the right-hand control sets the level of boost or cut.</p>



Adjust the **treble** controls to produce a flat high-frequency response up to 2 kHz, followed by a 3 dB per octave roll-off above 2 kHz.

The right-hand control sets the **frequency** range, and the left-hand control sets the **level** of boost or cut



Fine-tune the equalization by adjusting the seven mid-band controls.

Note: All controls interact with each other. Do not start at the low-frequency end and work your way to the high-frequency end. Start at the center frequency and attempt to achieve results with cut rather than boost. As each control is adjusted, the level of the adjacent band is affected. You may find that a cut at one frequency will require a slight boost at adjacent frequencies.

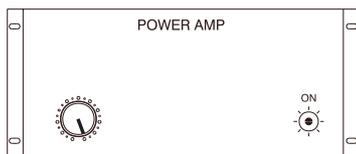
The desired setting is a flat response up to 2 kHz, falling at 3 dB per octave to 8 kHz (1 dB per third-octave band).

**Cat. No. 242
Ls -- GND Jumper**

Right Surround Eq

Use a jumper wire to connect the Ls (white) test point on the Cat. No. 242 to a **ground** (black) test point. This will mute the Ls pink noise.

Right Surround

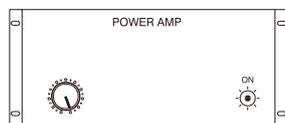
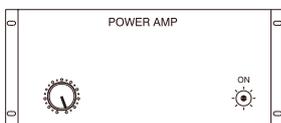


Turn **on** the **Right Surround** power amp.

Repeat the previous equalization adjustments for the **Right Surround** channel.

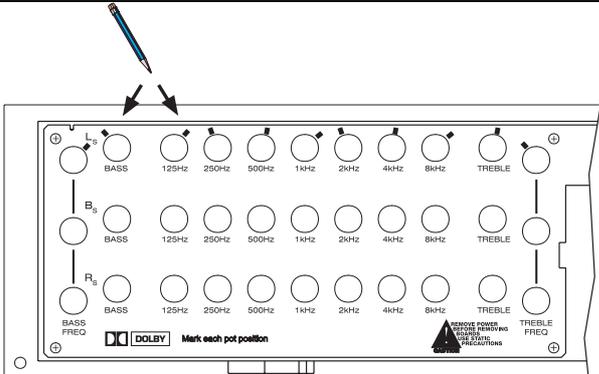
Back Left

Back Right

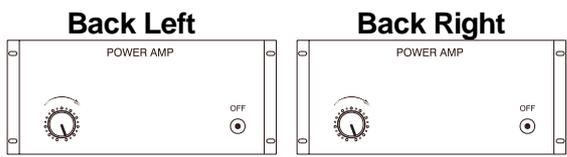
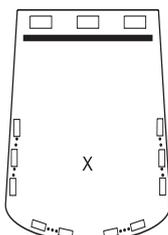
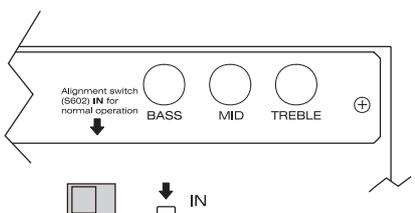


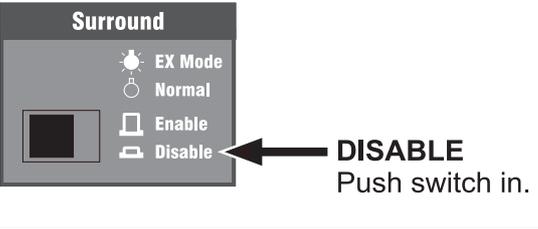
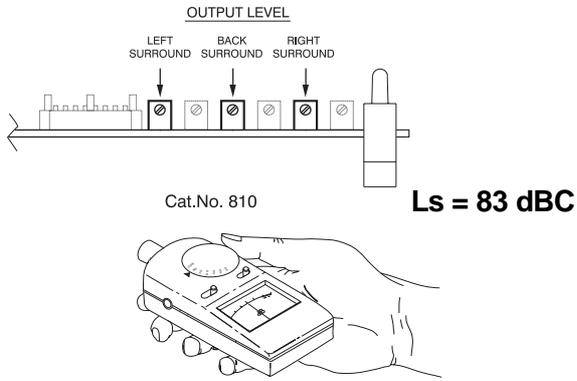
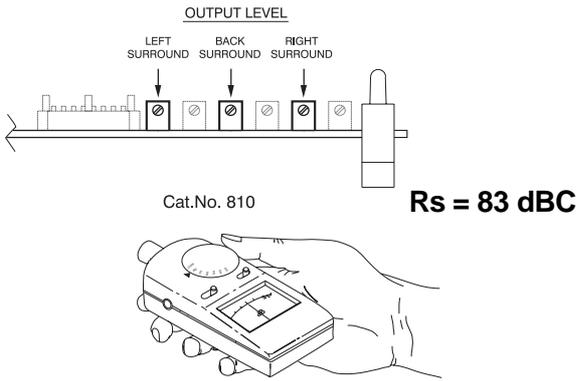
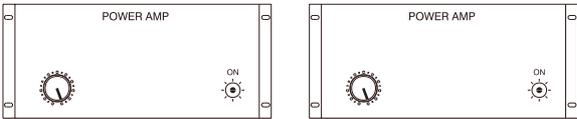
Back Surround Eq

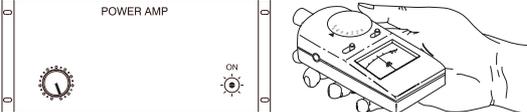
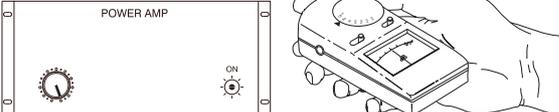
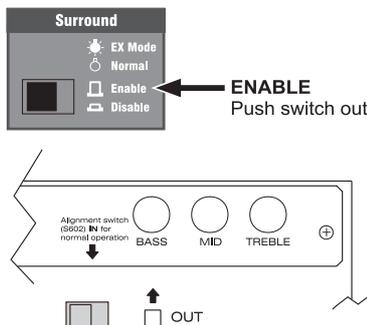
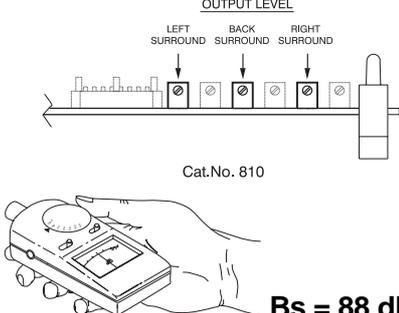
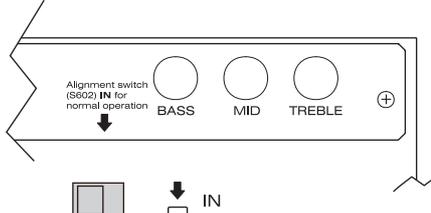
Turn on the **Back Surround Left** and **Back surround Right** power amps.

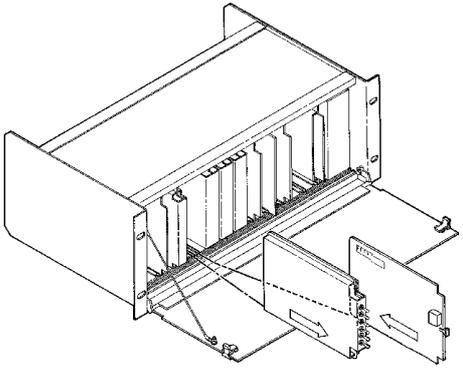
<p style="text-align: center;">Remove Jumper</p>	<p>Remove the jumper wire from the Ls (white) test point on the Cat. No. 242. Leave the other end connected to the ground test point. This will send pink noise to the Back Surround channel.</p> <p>Repeat the equalization adjustments for the Back Surround channel.</p>
	<p>Mark the positions of all equalizer controls with a pencil for future reference.</p>

3.4 Set Surround Output Levels

	<p>Confirm that the input level controls of all surround amplifiers are set at maximum.</p> <p>Shut off or disable the output of the Back Surround channel amplifiers.</p>
	<p>Make sure that the SPL meter is in the exact center of the width of the auditorium, i.e., centered between the two side walls. It should also be 2/3 of the length of the theatre away from the screen.</p>
	<p>On the SA10 inside front panel, press the Alignment switch to the normal (in) position.</p>

	<p>On the front panel, press the Surround Enable switch to the disable (in) position. The red LED on the front panel should go off indicating that the SA10 is in conventional 5.1-channel mode.</p> <p>Confirm that the front panel fader is set to 7.</p>
<p>Cat. No. 441 Rs -- GND Jumper</p>	<p>Connect the grounded jumper wire to the Rs (yellow) test point on the Cat. No. 441. This will mute the Rs pink noise.</p>
	<p>Adjust the SA10 output level control for the Ls channel to obtain 83 dBC in the theatre.</p>
<p>Cat. No. 242 Ls -- GND Jumper</p>	<p>Move the jumper wire to the Ls (white) test point on the Cat. No. 242. This will mute the Ls pink noise.</p>
	<p>Adjust the SA10 output level control for the Rs channel to obtain 83 dBC in the auditorium.</p>
<p>Back Left (Bs_R) Back Right (Bs_L)</p> 	<p>Turn on the Back Surround channel amplifiers.</p>

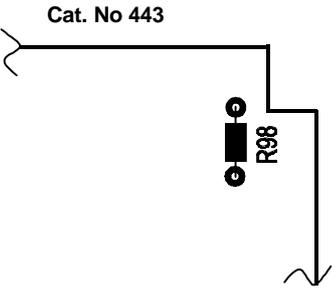
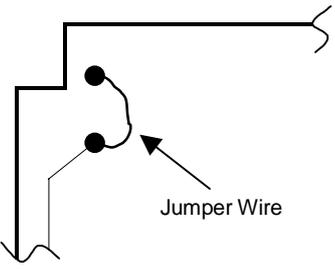
<p>Back Right Amp $R_s + B_{sR} = 85 \text{ dBC}$</p> 	<p>Using the level control on the B_{sR} (Back Surround Right) amplifier, adjust the level to obtain 85 dBC.</p>
<p>Cat. No. 441 R_s -- GND Jumper</p>	<p>Connect the grounded jumper wire to the R_s (yellow) test point on the Cat. No. 441. This will mute the R_s pink noise.</p>
<p>Back Left Amp $L_s + B_{sL} = 85 \text{ dBC}$</p> 	<p>Using the level control on the B_{sL} (Back Surround Left) amplifier, adjust the level to obtain 85 dBC.</p>
<p>Remove Jumper</p> 	<p>Remove the jumper wire from both test points.</p> <p>On the front panel, press the Surround Enable switch to the enable (out) position</p> <p>On the SA10 inside front panel, press the Alignment switch to the alignment (out) position. The red LED on the front panel should light indicating that the SA10 is in Surround EX mode.</p>
<p>OUTPUT LEVEL</p>  <p>Cat.No. 810</p> <p>$B_s = 88 \text{ dBC}$</p>	<p>Adjust the SA10 Back Surround output level control to obtain a reading of 88dBC.</p>
	<p>On the SA10 inside front panel, press the Alignment switch to the normal (in) position.</p>

MUTE	Press Mute on the CP65
	Remove the Cat. No. 85 and reinstall the Cat. No. 150 card.

The alignment is now complete.

3.5 Wakeup Format Fix

Regardless of the wake-up format previously selected via the Cat. No. 443 jumper, after the SA10 is installed the CP65 wakes up in Mag /Aux format with mute on. Since, in any practical theatre, a film format is selected for the start of the show; this should cause no problems with the presentation of the show. If, however, you prefer that the CP65 wake up in the jumper-selected mode, such as for playing music before the first show of the day, you will need to do the following.

	Remove the Cat. No. 443 card from the CP65. Hold the card with the component side up and the edge connector to the left. Locate resistor R98, 1/2W 2.2KΩ, on the upper right corner of the card.
	On the other side of the board, solder a jumper wire across the resistor, shorting it out. There is no need to actually remove the resistor. Be careful to avoid any shorts with solder splashes. Reinstall the board into the processor, and check that the wake-up format is correct and the processor is not muted after power-up.

SECTION 4

ALIGNMENT WITH CP200

4.1 Initial Setup

1. On the rear panel of the SA10, unplug the Control Input connector at location J3.
2. Position a calibrated microphone in the theatre. Connect a real time analyzer (RTA).

Note: For a single microphone, the recommended position is 2/3 of the distance from the front speakers to the rear, off the axis of the center front speaker, approximately five feet above the floor, and pointed straight up.

3. Open the SA10 front panel.
4. Adjust the **left** surround, **back** surround and **right** surround output level trimpots on the Cat. No. 810 to **minimum** (counterclockwise). **Do not** move the pots located on the left-hand end of the Cat. No. 811 card. They are factory calibrated.
5. Set all gain controls on the four surround power amplifiers to maximum. If a different setting is required in order to optimize the noise performance of the system, the controls should be locked in position or marked clearly.
6. Set the SA10 front panel **Surround EX** Mode switch to **Disable** (switch in, LED off).
7. Set the front panel fader control to **7**.

4.2 Set CP200 P(Ls) and Q(Rs) Channel Eq to Flat

1. If the CP200 uses the Cat. No. 560 card for surround EQ, remove the wire that connects SK13 pin B7 (Cat. No. 160 slot) on the Processor Unit to SK28 pin K (Cat. No. 117 slot, 9th pin up from bottom on right row) on the Control Unit. This will bypass the Q channel surround EQ on the Cat. No. 560. The wire is labeled "F" on page 2-49 in the DA20 manual.
2. Remove the wire that connects SK13 pin B3 on the Processor Unit to SK30 pin K on the Control Unit. This wire is labeled "H" in the DA20 manual and will bypass the P channel surround EQ.
3. If the CP200 uses two Cat. No. 64 modules in an Accessory Unit for P and Q surround EQ, locate jumpers **PJ37** and **PJ38** on the backplane of the Accessory Unit. Move both jumpers to the **Bypass** position.

4.3 Set CP200 Output Levels

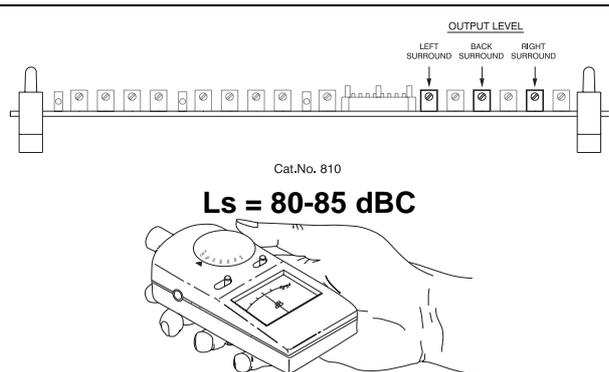
1. Set one of the preselect (A-D) lever switches to **format 66** and then press that **preselect button**.
2. Press the **GO** button.
3. With a voltmeter set to AC volts, measure the signal at the output terminal **P** located on the rear of the control unit. Adjust the output level control for the P (Ls) channel on the right side Cat. No. 517 to obtain 120 mVAC.
4. Measure the signal at the output terminal **Q** on the rear of the control unit. Adjust the output level control for the Q (Rs) channel on the left side Cat. No. 517 to obtain 120 mVAC.

Note: It is very important to get the Ls and Rs outputs levels to match within +/- 10 mV.

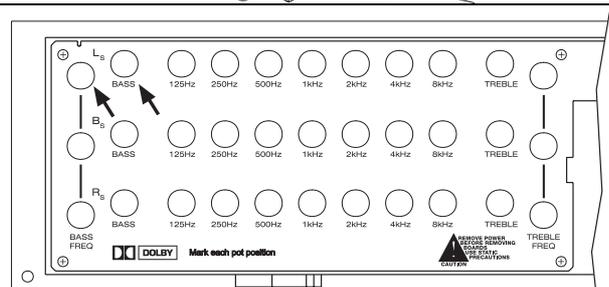
4.4 Equalize Surround Channels

1. Set one of the preselect (A-D) lever switches to **format 42** and then press that preselect button.
2. Press the **GO** button.
3. On the SA10 front panel, press the **Surround EX Mode** switch to the **Enable** (out) position.
4. On the inside of the SA10 front panel, press the Test/Normal switch to the **Test** (out) position. The red LED on the front panel should go on, indicating that the SA10 is in Surround EX mode.
5. Mute the CP200.
6. Remove the Cat. No. 141 from the last slot on the right in the processor unit and install a Cat. No. 85 Pink Noise Generator into the slot.
7. Un-mute the CP200.
8. Turn on the switch **C** on the Cat. No. 85; this will send pink noise to the Ls channel.

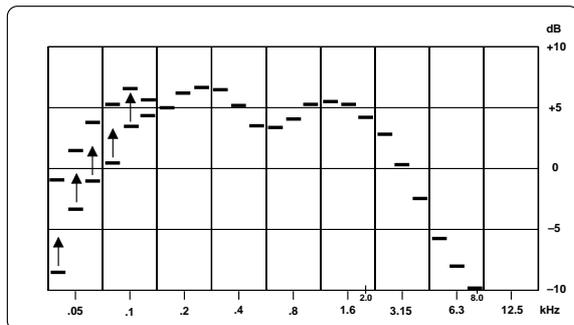
Left Surround EQ



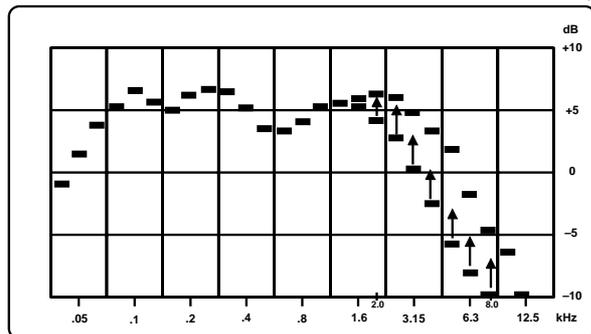
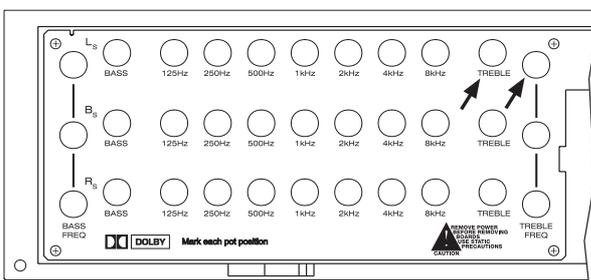
With a sound pressure level meter located in the theatre, adjust the Left Surround output control level **on the SA10** to produce a reading of 80 to 85 dBC.



While observing the RTA connected to the microphones in the theatre, adjust the **bass controls** on the SA10 to produce a low-frequency response as flat as possible.

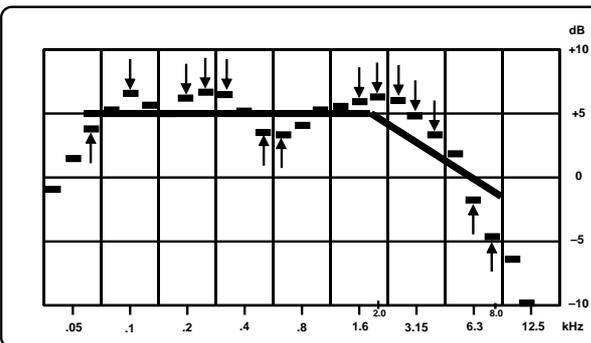


The left-hand control sets the **frequency** range, and the right-hand control sets the **level** of boost or cut.



Adjust the **treble** controls to produce a flat high-frequency response up to 2 kHz, followed by a 3 dB per octave rolloff above 2 kHz.

The right-hand control sets the **frequency** range, and the left-hand control sets the **level** of boost or cut.



Fine-tune the equalization by adjusting the seven mid-band controls.

Note: All controls interact with each other. Do not start at the low-frequency end and work your way to the high-frequency end. Start at the center frequency and attempt to achieve results with cut rather than boost. As each control is adjusted, the level of the adjacent band is affected. You may find that a cut at one frequency will require a slight boost at adjacent frequencies.

The desired setting is a flat response up to 2 kHz, falling at 3 dB per octave to 8 kHz (1 dB per third-octave band).

Right Surround EQ

1. Shut off switch **C** on the Cat. No. 85. Turn on the **S** switch; This will send pink noise to the Rs channel.
2. Repeat the steps previous table of steps to set equalization for the Rs channel.

Back Surround EQ

1. Leave switch **S** on, turn on switch **C** on the Cat. No. 85. Make sure that both switches are together up or down.
2. Repeat the steps previous table of steps to set equalization for the Bs channel.
3. Mark the positions of all equalizer controls with a pencil for future reference.

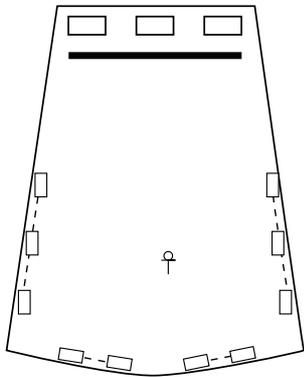
4.5 Set Surround Output Levels

1. Confirm that the input level controls of all of the surround amplifiers are set at maximum.
2. Confirm that the front panel fader is set to **7**.
3. Shut off or disable the output of the **Bs** channel amplifiers.
4. Make sure that the SPL meter is in the exact center of the width of the auditorium, i.e., centered between the two side walls. It should also be located 2/3 of the distance away from the screen to the rear of the theatre.
5. On the SA10 inside front panel, press the **Alignment** switch to the **normal** (in) position.
6. On the SA10 front panel, press the **Surround** Enable switch to the **disable** (in) position. The red LED on the front panel should go off indicating that the SA10 is in conventional 5.1 channel mode.
7. Turn off switch **S** on the Cat. No. 85, leaving only switch **C** on.
8. On the SA10 adjust the output level control for the Ls channel to obtain 80dBC in the theatre.
9. Shut **off** switch **C** on the Cat. No. 85. Turn **on** switch **S**.
10. On the SA10, adjust the output level control on the Cat. No. 810 for the **Rs** channel to obtain 80 dBc in the auditorium.
11. Turn on or restore the **Bs** channel amplifiers.
12. Using the level control on the **Bs_R** amplifier, adjust the level to obtain 82 dBC.
13. Shut off switch **S** on the Cat. No. 85. Turn on switch **C**.
14. Using the level control on the **Bs_L** amplifier, adjust the level to obtain 82 dBC.
15. On the front panel, press the **Surround** Enable switch to the **enable** (out) position.
16. On the SA10 inside front panel, press the **Alignment** switch to the **alignment** (out) position. The red LED on the front panel should light indicating that the SA10 is in Surround EX mode.
17. Turn on switch **S** on the Cat. No. 85.
18. On the SA10 adjust the output level control on the Cat. No. 810 for the **Bs** channel to obtain 85dBC.
19. On the SA10 inside front panel, press the **Alignment** switch to the **normal** (in) position.
20. Mute the CP200.
21. Remove the Cat. No. 85 and reinstall the Cat. No. 141 card in its slot.
22. On the rear panel of the SA10, re-plug the Control Input connector at location J3.

The alignment of the SA10 is complete.

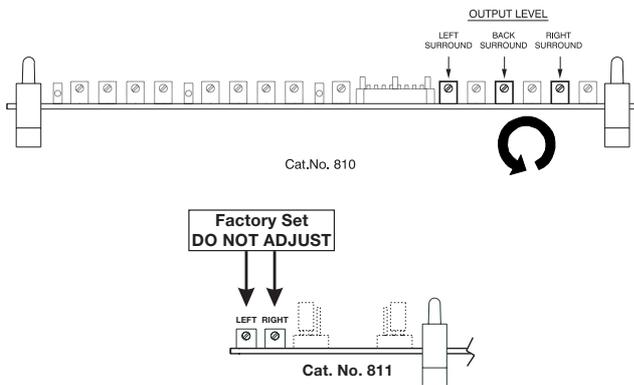
SECTION 5 ALIGNMENT WITH CP55

5.1 Initial Setup



Position a calibrated microphone in the theatre. Connect a real time analyzer (RTA).

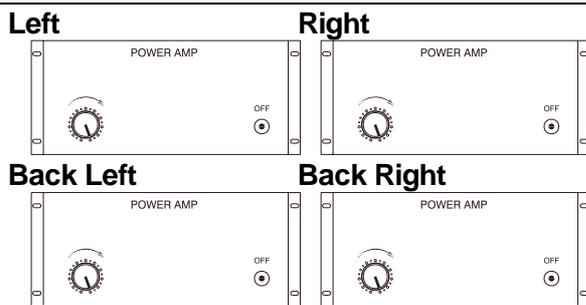
Note: For a single microphone, the recommended position is 2/3 of the distance from the front speakers to the rear, off the axis of the center front speaker, approximately five feet above the floor, and pointed straight up.



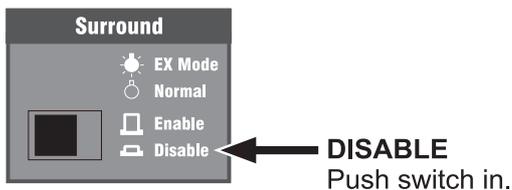
Open the SA10 front panel.

Adjust the **left** surround, **back** surround and **right** surround output level trimpots on the Cat. No. 810 to **minimum** (counterclockwise).

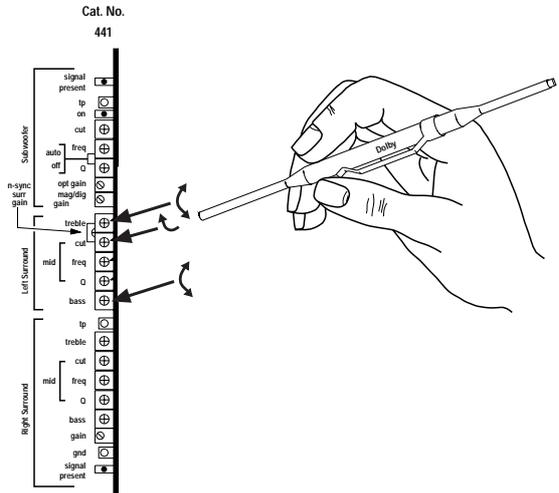
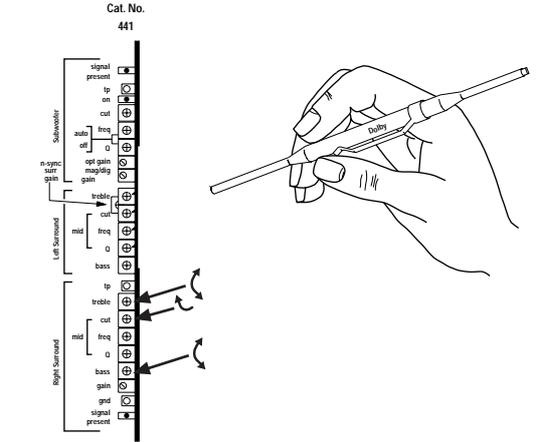
Do not move the pots located on the left-hand end of the Cat. No. 811 card.



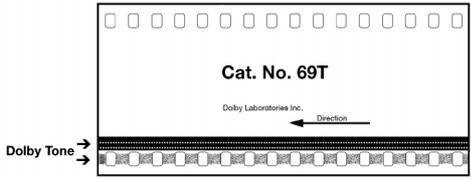
Set all gain controls on the four surround power amplifiers to maximum. If a different setting is required in order to optimize the noise performance of the system, the controls should be locked in position or marked clearly.

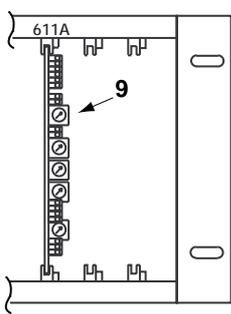


Set the SA10 front panel **Surround** EX Mode switch to **Disable** (switch in, LED off).

	<p>Open the CP55 front panel.</p>
 <p>Cat. No. 441</p>	<p>On the Cat. No. 441 card, turn both the Treble and Bass controls for the Ls channel to the middle of their rotation.</p> <p>Turn the midrange Cut control fully clockwise.</p>
 <p>Cat. No. 441</p>	<p>Repeat the previous step for the Rs channel.</p>

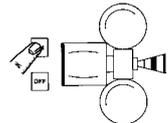
5.2 Set CP55 Output Levels

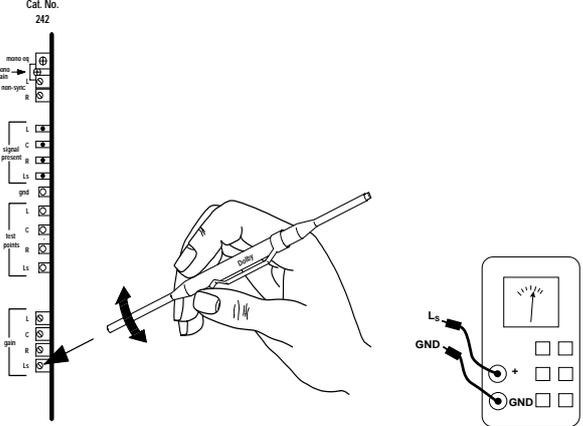
 <p>Cat. No. 69T</p> <p>Dolby Laboratories Inc.</p> <p>Direction</p> <p>Dolby Tone</p>	<p>Thread a loop of Cat. No. 69T Dolby Tone test film on the projector which incorporates a Dolby Digital film reader.</p>
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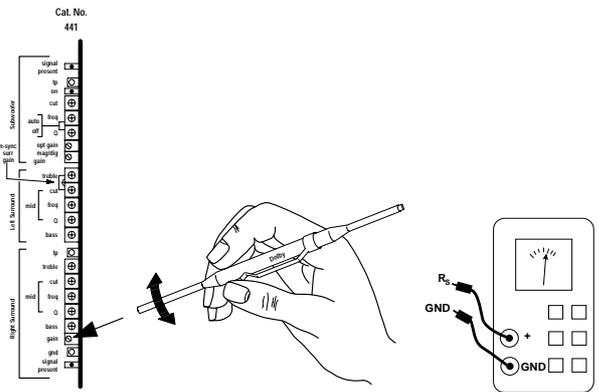
	<p>On the DA20, the CP selector switch located on the Cat. No. 611 card can be seen through the front panel.</p> <p>Note the current CP selector switch setting then turn the switch to position 9.</p>
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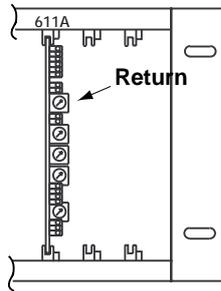
<p>FORMAT 10</p>	<p>On the CP55 front panel, select Format 10 (Digital).</p>
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	<p>Set the front panel fader control to 7.</p>
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	<p>Start the projector.</p>
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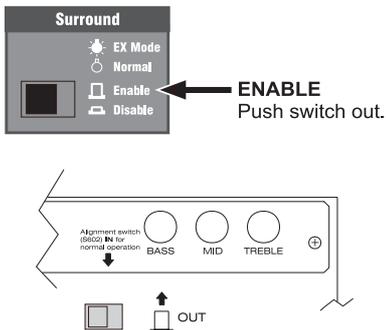
<p>Cat. No. 242</p>  <p>Ls = 120 mVac</p>	<p>Connect an AC voltmeter to the Ls signal output terminal on the rear of the CP55.</p> <p>Adjust the CP55 output level control for the Ls channel on the Cat. No. 242 card to obtain 120 mVAC.</p>
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<p>Cat. No. 441</p>  <p>Rs = 120 mVac</p>	<p>Next, connect the voltmeter to the Rs signal output terminal on the CP55 and adjust the output level control for the Rs channel on the Cat. No. 441 card to obtain 120mVAC.</p> <p><i>Note: It is very important to get the Ls and Rs outputs to match levels within 10mV.</i></p>
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Stop the projector.

Return the DA20 CP selector switch on the Cat. No. 611 card to its original position noted above (**1 or 5**).



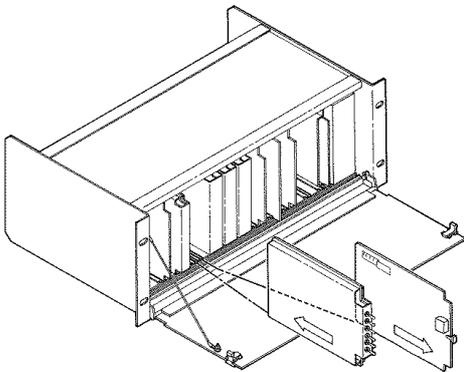
On the SA10 front panel, press the **Surround EX Mode** switch to the **Enable** (out) position.

On the inside of the SA10 front panel, press the Test/Normal switch to the **Test** (out) position.

The red LED on the front panel should light, indicating that the SA10 is in Surround EX mode.

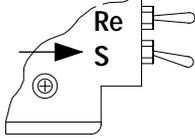
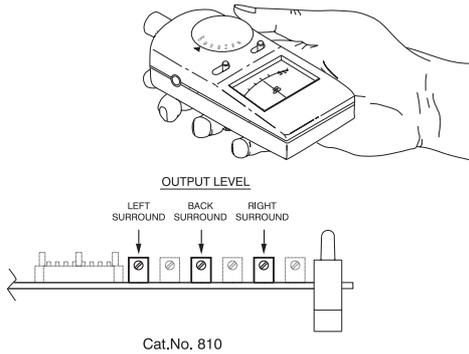
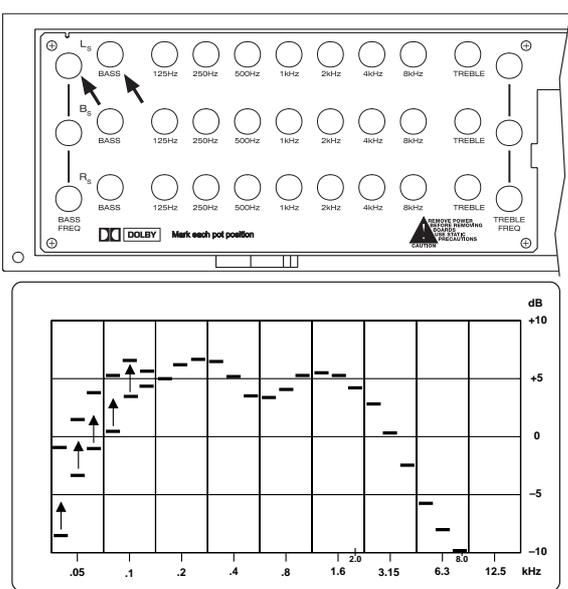
MUTE

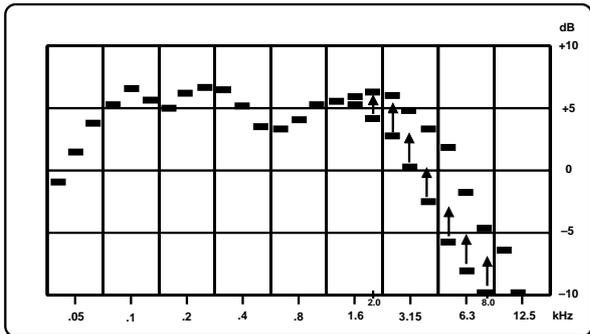
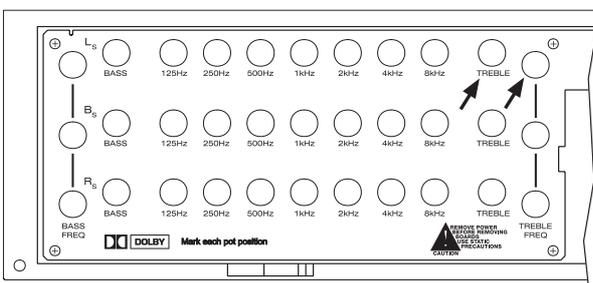
Press Mute on the CP55.



Remove the Cat. No. 150 decoder card and insert a Cat. No. 85C Pink Noise Generator into the slot for it.

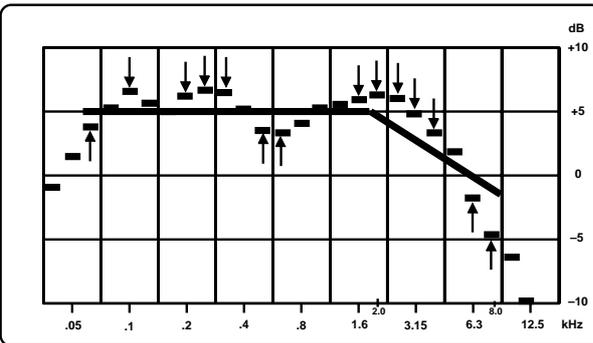
5.3 Equalize Surround Channels

	<p>Turn on the surround switch "S" on the Cat. No. 85.</p>
<p>FORMAT 04</p>	<p>On the CP55 front panel, select Format 04 (A-type).</p>
<p>Cat. No. 441 Rs -- GND Jumper</p>	<p>Left Surround Eq Use a jumper wire to connect the Rs (yellow) test point on the Cat. No. 441 to a ground (black) test point. This will mute the Rs pink noise.</p>
<p>Ls = 80-85 dBC</p> 	<p>With a sound pressure level meter located in the theatre, adjust the Left Surround output level control on the SA10 to produce a reading of 80 to 85 dBC.</p>
	<p>While observing the RTA connected to the microphones in the theatre, adjust the bass controls on the SA10 to produce a low-frequency response that is as flat as possible.</p> <p>The left-hand control sets the frequency range, and the right-hand control sets the level of boost or cut.</p>



Adjust the **treble** controls to produce a flat high-frequency response up to 2 kHz, followed by a 3 dB per octave roll-off above 2 kHz.

The right-hand control sets the **frequency** range, and the left-hand control sets the **level** of boost or cut.



Fine-tune the equalization by adjusting the seven mid-band controls.

Note: All controls interact with each other. Do not start at the low-frequency end and work your way to the high-frequency end. Start at the center frequency and attempt to achieve results with cut rather than boost. As each control is adjusted, the level of the adjacent band is affected. You may find that a cut at one frequency will require a slight boost at adjacent frequencies.

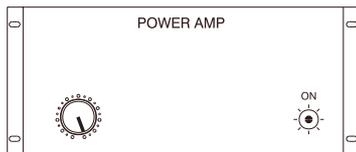
The desired setting is a flat response up to 2 kHz, falling at 3 dB per octave to 8 kHz (1 dB per third-octave band).

**Cat. No. 242
Ls -- GND Jumper**

Right Surround Eq

Use a jumper wire to connect the Ls (white) test point on the Cat. No. 242 to a **ground** (black) test point. This will mute the Ls pink noise.

Right Surround

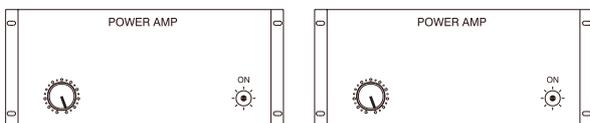


Turn **on** the **Right Surround** power amp.

Repeat the previous equalization adjustments for the **Right Surround** channel.

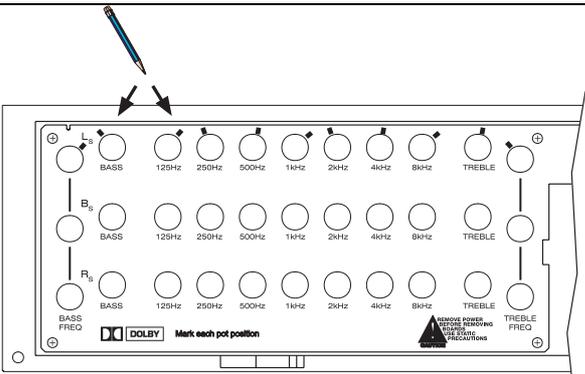
Back Left

Back Right

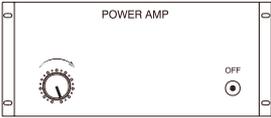
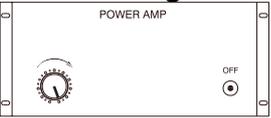
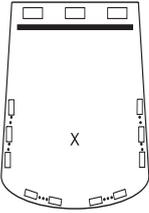
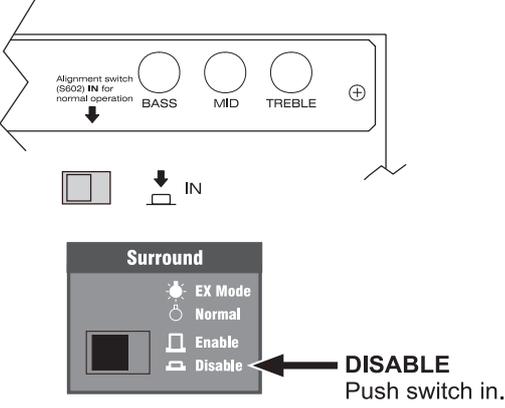


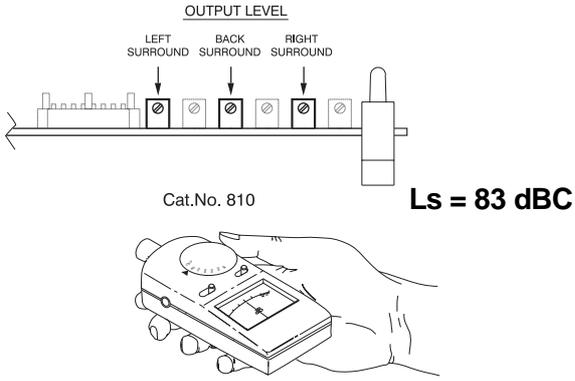
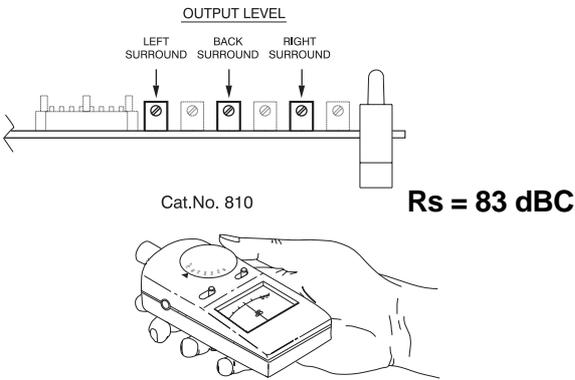
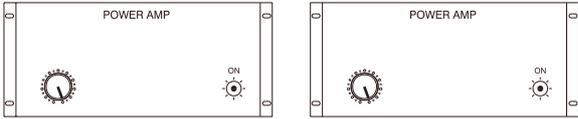
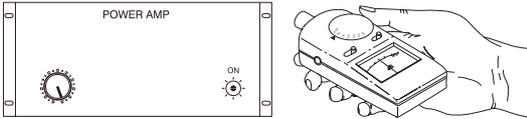
Back Surround Eq

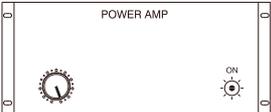
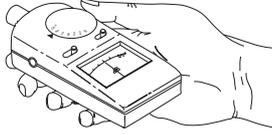
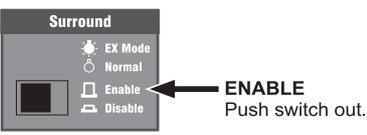
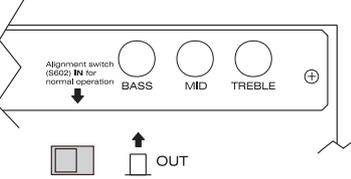
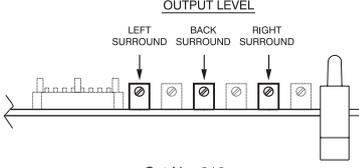
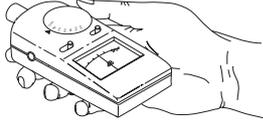
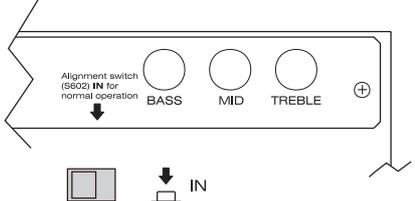
Turn on the **Back Surround Left** and **Back surround Right** power amps.

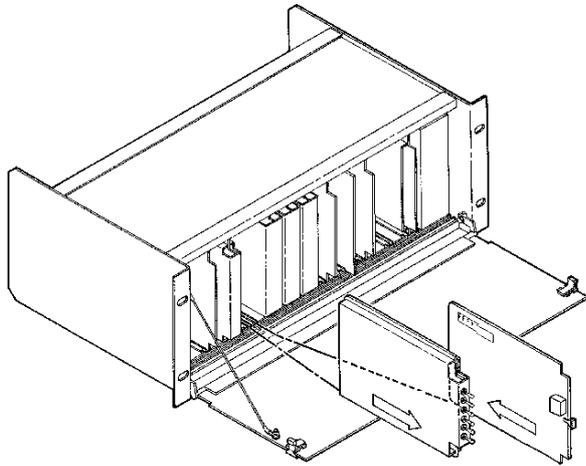
<p style="text-align: center;">Remove Jumper</p>	<p>Remove the jumper wire from the Ls (white) test point on the Cat. No. 242. Leave the other end connected to the ground test point. This will send pink noise to the Back Surround channel.</p> <p>Repeat the equalization adjustments for the Back Surround channel.</p>
	<p>Mark the positions of all equalizer controls with a pencil for future reference.</p>

5.4 Set Surround Output Levels

<div style="display: flex; justify-content: space-around;"> <div style="text-align: center;"> <p>Back Left</p>  </div> <div style="text-align: center;"> <p>Back Right</p>  </div> </div>	<p>Confirm that the input level controls of all surround amplifiers are set at maximum.</p> <p>Confirm that the CP55 front panel fader is set to 7.</p> <p>Shut off or disable the output of the Back Surround channel amplifiers.</p>
	<p>Make sure that the SPL meter is in the exact center of the width of the auditorium, i.e., centered between the two side walls. It should also be 2/3 of the length of the theatre back from the screen.</p>
	<p>On the SA10 inside front panel, press the Alignment switch to the normal (in) position.</p> <p>On the front panel, press the Surround Enable switch to the disable (in) position. The red LED on the front panel should go off indicating that the SA10 is in conventional 5.1-channel mode.</p>

<p align="center">Cat. No. 441 Rs -- GND Jumper</p>	<p>Connect the grounded jumper wire to the Rs (yellow) test point on the Cat. No. 441. This will mute the Rs pink noise.</p>
	<p>Adjust the SA10 output level control for the Ls channel to obtain 83 dBC in the theatre.</p>
<p align="center">Cat. No. 242 Ls -- GND Jumper</p>	<p>Move the jumper wire to the Ls (white) test point on the Cat. No. 242. This will mute the Ls pink noise.</p>
	<p>Adjust the SA10 output level control for the Rs channel to obtain 83 dBC in the auditorium.</p>
<p>Back Left (Bs_R) Back Right (Bs_L)</p> 	<p>Turn on the Back Surround channel amplifiers.</p>
<p>Back Right Amp Rs+Bs_R = 85 dBC</p> 	<p>Using the level control on the Back Surround Right amplifier, adjust the level to obtain 85 dBC.</p>
<p align="center">Cat. No. 441 Rs -- GND Jumper</p>	<p>Connect the grounded jumper wire to the Rs (yellow) test point on the Cat. No. 441.</p>

<p>Back Left Amp Ls+Bs_L = 85 dBC</p>  	<p>Using the level control on the Back Surround Left amplifier adjust the level to obtain 85 dBC.</p>
<p style="text-align: center;">Remove Jumper</p>  	<p>Remove the jumper wire from both test points.</p> <p>On the front panel, press the Surround Enable switch to the enable (out) position.</p> <p>On the SA10 inside front panel, press the Alignment switch to the alignment (out) position. The red LED on the front panel should light indicating that the SA10 is in Surround EX mode.</p>
<p style="text-align: center;">OUTPUT LEVEL</p>  <p style="text-align: center;">Cat.No. 810</p> <p style="text-align: center;">Bs = 88 dBC</p> 	<p>Adjust the SA10 Back Surround output level control to obtain a reading of 88 dBC.</p>
	<p>On the SA10 inside front panel, press the Alignment switch to the normal (in) position.</p>
<p style="text-align: center;">MUTE</p>	<p>Press Mute on the CP55.</p>

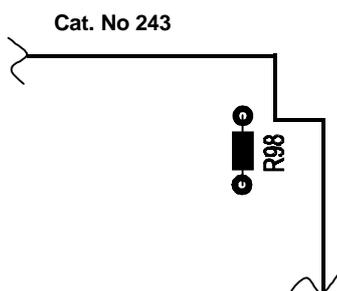


Remove the Cat. No. 85 and reinstall the Cat. No. 150 card.

The alignment is now complete.

5.5 Wakeup Format Fix

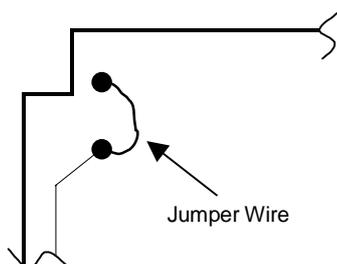
Regardless of the wake-up format previously selected via the Cat. No. 243 jumper, after the SA10 is installed the CP55 wakes up in digital format with mute on. Since, in any practical theatre, a film format is selected for the start of the show; this should cause no problems with the presentation of the show. If, however, you prefer that the CP55 wake up in the jumper-selected mode, such as for playing music before the first show of the day, you will need to do the following.



Remove the Cat. No. 243 card from the CP55.

Hold the card with the component side up and the edge connector to the left.

Locate resistor R98, 1/2W 2.2KΩ, on the upper right corner of the card.

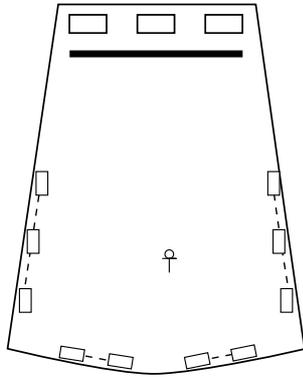


On the other side of the board, solder a jumper wire across the resistor, shorting it out. There is no need to actually remove the resistor. Be careful to avoid any shorts with solder splashes.

Reinstall the board into the processor, and check that the wake-up format is correct and the processor is not muted after power-up.

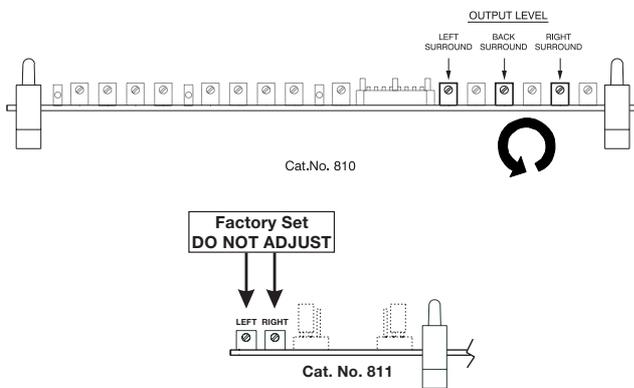
SECTION 6 ALIGNMENT WITH CP45

6.1 Initial Setup



Position a calibrated microphone in the theatre.
Connect a real time analyzer (RTA).

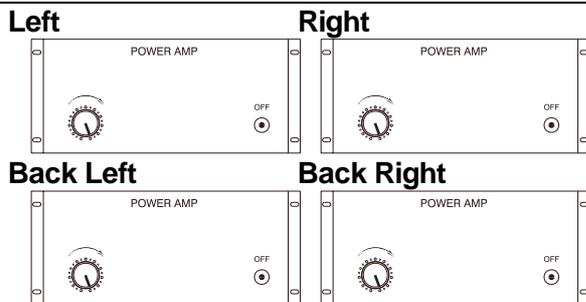
Note: For a single microphone, the recommended position is 2/3 of the distance from the front speakers to the rear, off the axis of the center front speaker, approximately five feet above the floor, and pointed straight up.



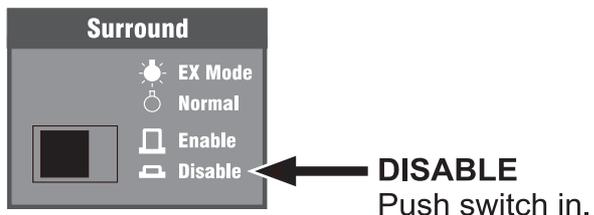
Open the SA10 front panel.

Adjust the **left** surround, **back** surround and **right** surround output level trimpots on the Cat. No. 810 to **minimum** (counterclockwise).

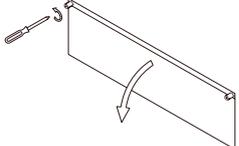
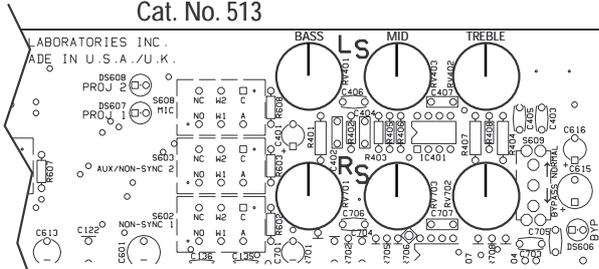
Do not move the pots located on the left-hand end of the Cat. No. 811 card.



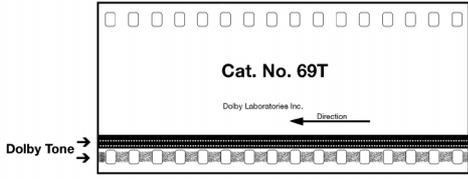
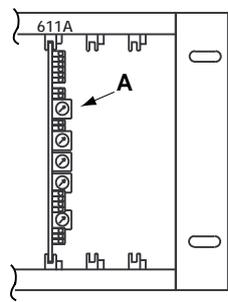
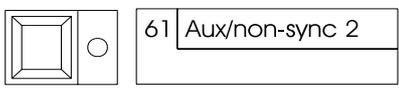
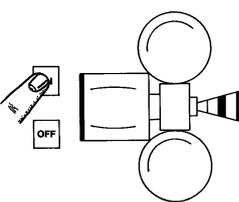
Set all gain controls on the four surround power amplifiers to maximum. If a different setting is required in order to optimize the noise performance of the system, the controls should be locked in position or marked clearly.



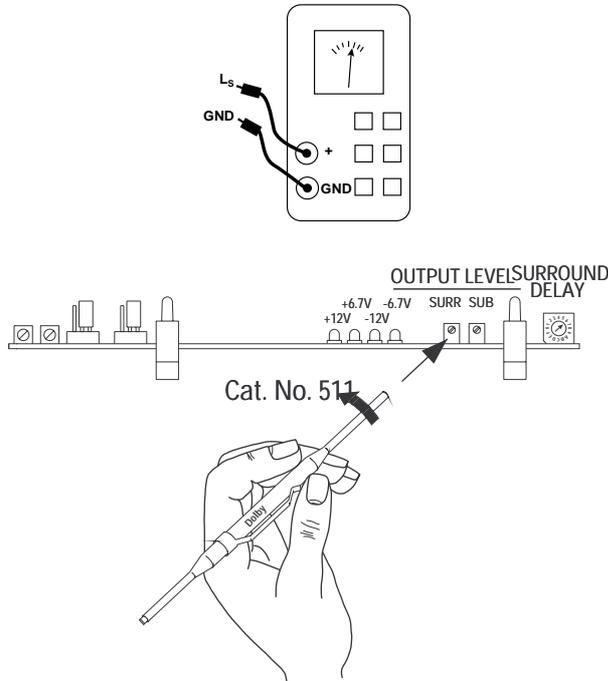
Set the SA10 front panel **Surround** EX Mode switch to **Disable** (switch in, LED off).

	<p>Open the CP45 front panel.</p>
	<p>On the inside front panel of the CP45, adjust the bass, mid, and treble controls for the Ls and Rs channels to their midway position (arrow up).</p>

6.2 Set CP45 Output Levels

	<p>Thread a loop of Cat. No. 69T Dolby Tone test film on the projector which incorporates a Dolby Digital film reader.</p>
	<p>On the DA20, the CP selector switch located on the Cat. No. 611 card can be seen through the front panel.</p> <p>Note the current CP selector switch setting then turn the switch to position A.</p>
	<p>On the CP45 front panel, select Format 61 (Aux/Non-sync 2).</p>
	<p>Set the front panel fader control to 7.</p>
	<p>Start the projector.</p>

Ls and Rs = 120 mVac

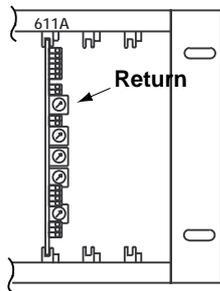


Connect an **AC voltmeter** to the **Ls** signal **output** terminal on the rear of the CP45.

Adjust the CP45 output level control for the **Ls** channel on the Cat. No. 511 card to obtain 120mVAC.

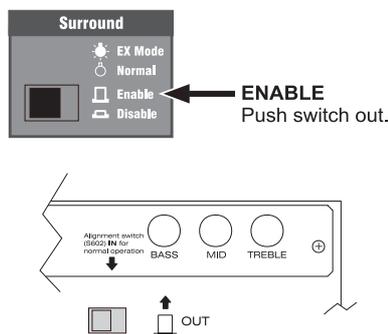
Next, connect the voltmeter and adjust the CP45 output level control for the **Rs** channel on the Cat. No. 515 card to obtain 120mVAC.

Note: It is very important to get the Ls and Rs outputs to match levels within 10mV.



Stop the projector.

Return the DA20 CP selector switch on the Cat. No. 611 card to its original position noted above (**2 or 6**).

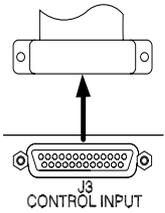
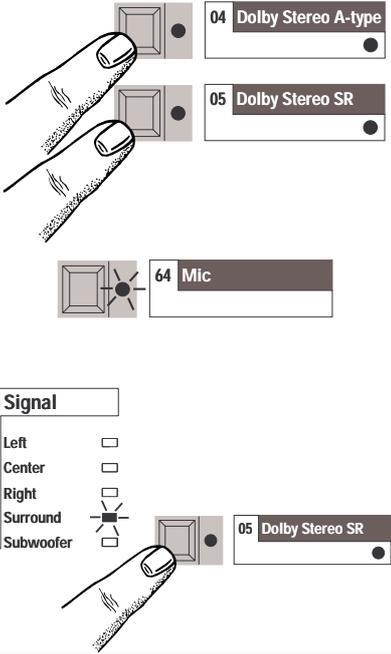
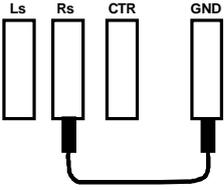


On the SA10 front panel, press the **Surround EX Mode** switch to the **Enable** (out) position.

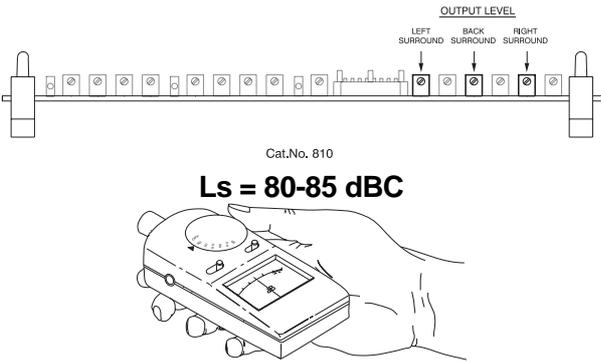
On the inside of the SA10 front panel, press the **Test/Normal** switch to the **Test** (out) position.

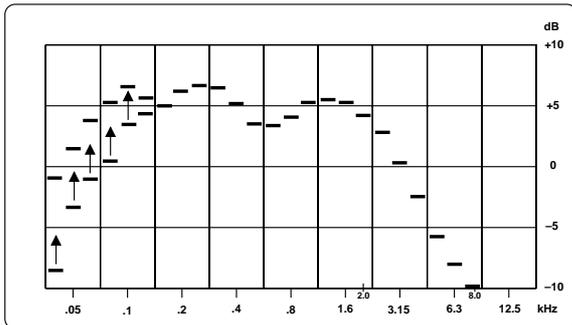
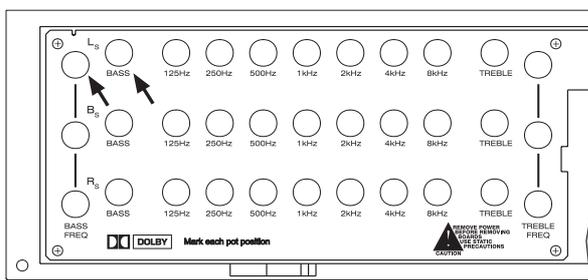
The red LED on the front panel should light, indicating that the SA10 is in Surround EX mode.

6.3 Run Pink Noise

 <p style="text-align: center;">J3 CONTROL INPUT</p>	<p>Unplug the control cable connected to J3 on the SA10 rear panel.</p> <p><i>Note: This step ensures that erroneous signals are not sent to the SA10 from the CP45 front panel pink noise command buttons.</i></p>
 <div style="border: 1px solid black; padding: 5px; width: fit-content;"> <p>Signal</p> <p>Left <input type="checkbox"/></p> <p>Center <input type="checkbox"/></p> <p>Right <input type="checkbox"/></p> <p>Surround <input checked="" type="checkbox"/></p> <p>Subwoofer <input type="checkbox"/></p> </div>	<p>On the CP45, press and hold both the 04 and 05 format buttons simultaneously until the Mic LED lights.</p> <p>Release switch 05, then release switch 04.</p> <p>The Mic LED will start flashing and pink noise will begin cycling to the various channels.</p> <p>When Surround channel LED lights, press the 05 button. This will halt pink noise cycling.</p> <p><i>Note: Pressing the 04 button will resume pink noise cycling. Pressing the Mic button will turn off the pink noise.</i></p>
 <p style="text-align: center;">Ls Rs CTR GND</p>	<p>On the CP45, connect a jumper wire between the Rs (yellow) test point on the Cat. No. 513 card to the ground (black) test point. This will mute the Right Surround pink noise signal.</p>

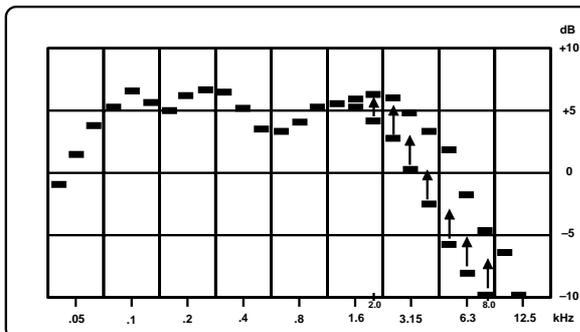
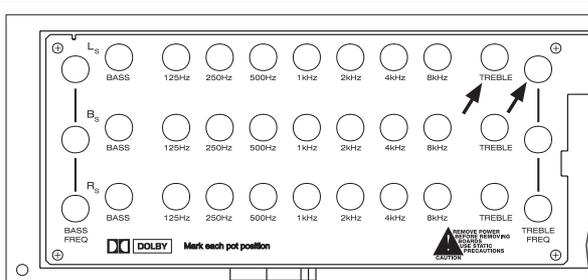
6.4 Equalize Surround Channels

 <p style="text-align: center;">Cat.No. 810</p> <p style="text-align: center;">Ls = 80-85 dBC</p>	<p>With a sound pressure level meter located in the theatre, adjust the Left Surround output level control on the SA10 to produce a reading of 80 to 85 dBC.</p>
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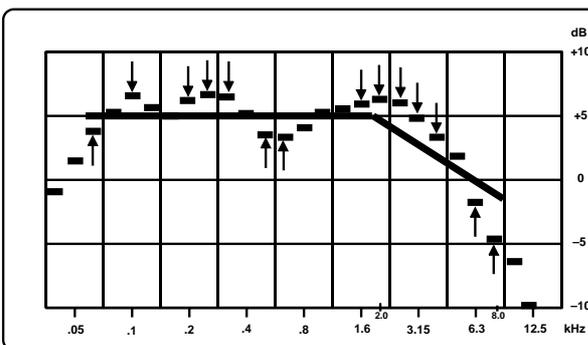
While observing the RTA connected to the microphones in the theatre, adjust the **bass controls** on the SA10 to produce a low-frequency response that is as flat as possible.

The left-hand control sets the **frequency** range, and the right-hand control sets the **level** of boost or cut.



Adjust the **treble** controls to produce a flat high-frequency response up to 2 kHz, followed by a 3 dB per octave roll-off above 2 kHz.

The right-hand control sets the **frequency** range, and the left-hand control sets the **level** of boost or cut

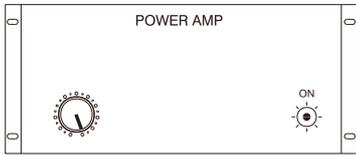


Fine-tune the equalization by adjusting the seven mid-band controls.

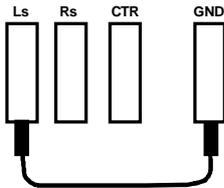
Note: All controls interact with each other. Do not start at the low-frequency end and work your way to the high-frequency end. Start at the center frequency and attempt to achieve results with cut rather than boost. As each control is adjusted, the level of the adjacent band is affected. You may find that a cut at one frequency will require a slight boost at adjacent frequencies.

The desired setting is a flat response up to 2 kHz, falling at 3 dB per octave to 8 kHz (1 dB per third-octave band).

Right Surround



Turn on the **Right Surround** power amp.

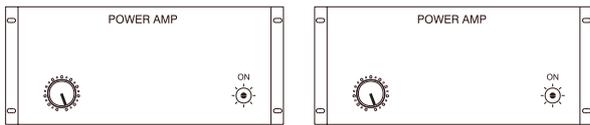


Move the jumper to the **Ls** (white) test point on the Cat. No. 513. This will mute the Ls pink noise.

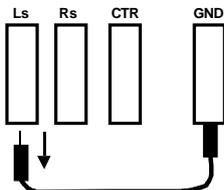
Repeat the equalization adjustments for the **Right Surround** channel.

Back Left

Back Right

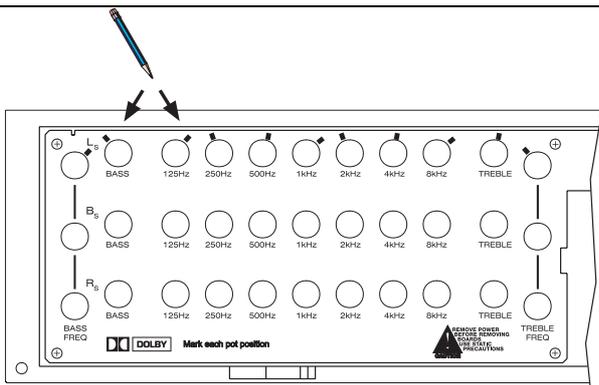


Turn on the **Back Surround Left** and **Back surround Right** power amps.



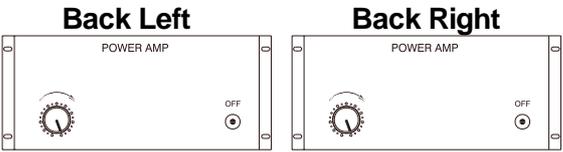
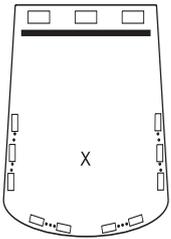
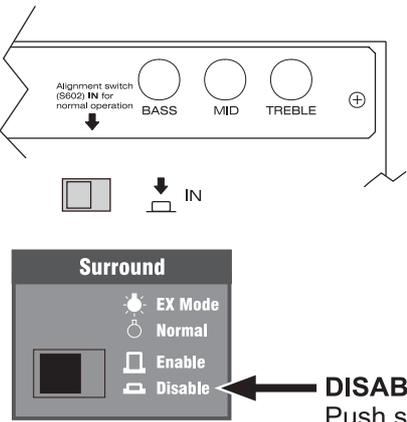
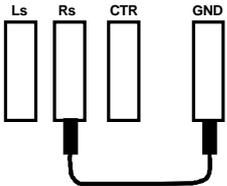
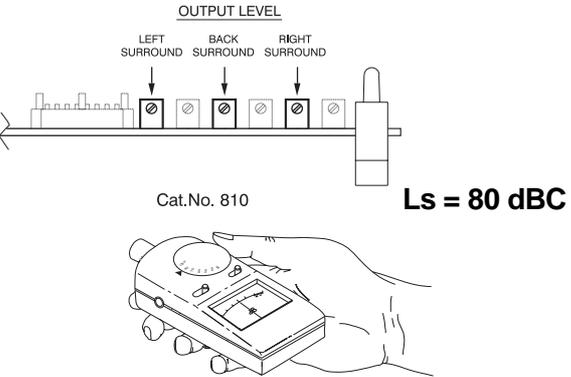
Remove the jumper wire from the Ls (white) test point on the Cat. No. 513. Leave the other end connected to the ground test point. This will send pink noise to the Back Surround channel.

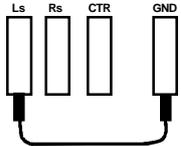
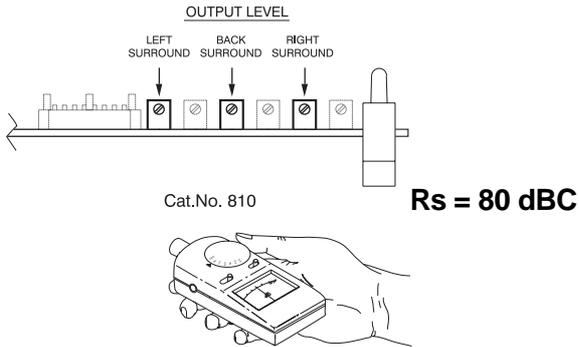
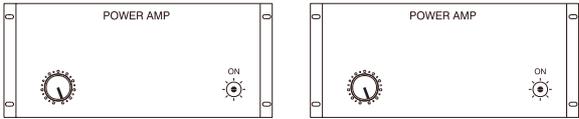
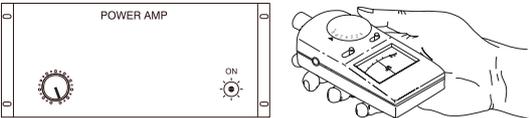
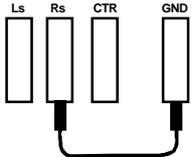
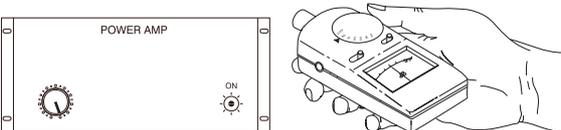
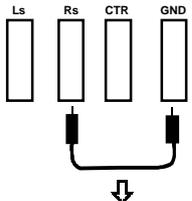
Repeat the equalization adjustments for the **Back Surround** channel.

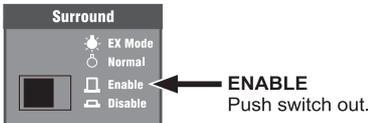
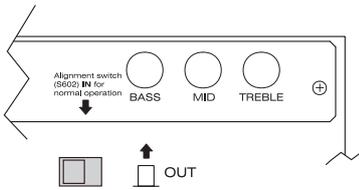
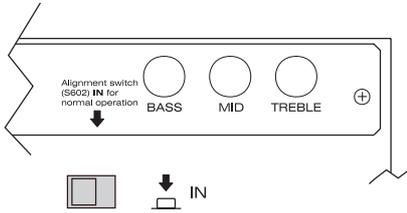
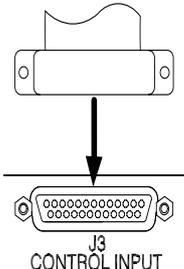


Mark the positions of all equalizer controls with a pencil for future reference.

6.5 Set Surround Output Levels

	<p>Confirm that the input level controls of all surround amplifiers are set at maximum.</p> <p>Confirm that the CP45 front panel fader is set to 7.</p> <p>Shut off or disable the output of the Back Surround channel amplifiers.</p>
	<p>Make sure that the SPL meter is in the exact center of the width of the auditorium, i.e., centered between the two side walls. It should also be 2/3 of the length of the theatre away from the screen.</p>
	<p>On the SA10 inside front panel, press the Alignment switch to the normal (in) position.</p> <p>On the front panel, press the Surround Enable switch to the disable (in) position. The red LED on the front panel should go off indicating that the SA10 is in conventional 5.1-channel mode.</p>
	<p>Connect the grounded jumper wire to the Rs (yellow) test point on the Cat. No. 513. This will mute the Rs pink noise.</p>
	<p>Adjust the SA10 output level control for the Ls channel to obtain 80 dBC in the auditorium.</p>

	<p>Move the jumper wire to the Ls (white) test point on the Cat. No. 513. This will mute the Ls pink noise.</p>
	<p>Adjust the SA10 output level control for the Rs channel to obtain 80 dBC in the auditorium.</p>
<p>Back Left Back Right</p> 	<p>Turn on the Back Surround channel amplifiers.</p>
<p>Back Right Amp Rs+Bs_R = 82 dBC</p> 	<p>Using the level control on the Back Surround Right amplifier, adjust the level to obtain 82 dBC.</p>
	<p>Move the jumper wire to the Rs (yellow) test point on the Cat. No. 513. This will mute the Rs pink noise.</p>
<p>Back Left Amp Ls+Bs_L = 82 dBC</p> 	<p>Using the level control on the Back Surround Left amplifier adjust the level to obtain 82 dBC.</p>
	<p>Remove the jumper wire from both test points.</p>

	<p>On the front panel, press the Surround Enable switch to the enable (out) position.</p>
	<p>On the SA10 inside front panel, press the Alignment switch to the alignment (out) position. The red LED on the front panel should light indicating that the SA10 is in Surround EX mode.</p>
	<p>Adjust the SA10 Back Surround output level control to obtain a reading of 85dBC.</p>
	<p>On the SA10 inside front panel, press the Alignment switch to the normal (in) position.</p>
	<p>On the CP45 press the format 64 (Mic) button to shut off the pink noise.</p>
	<p>Plug the control cable back into the SA10 rear panel connector J3</p>

The alignment is now complete.