Film-Tech

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Dolby *Information*

Model CP500 Cinema Processor
Reference Diagrams

Grounding Details
Installation Wiring
Connector Pin Assignments
System Block Diagram
Card Locations and Signal Flow
Menu Structure

Issue 02
Part No. 91497
S98/11512/12084

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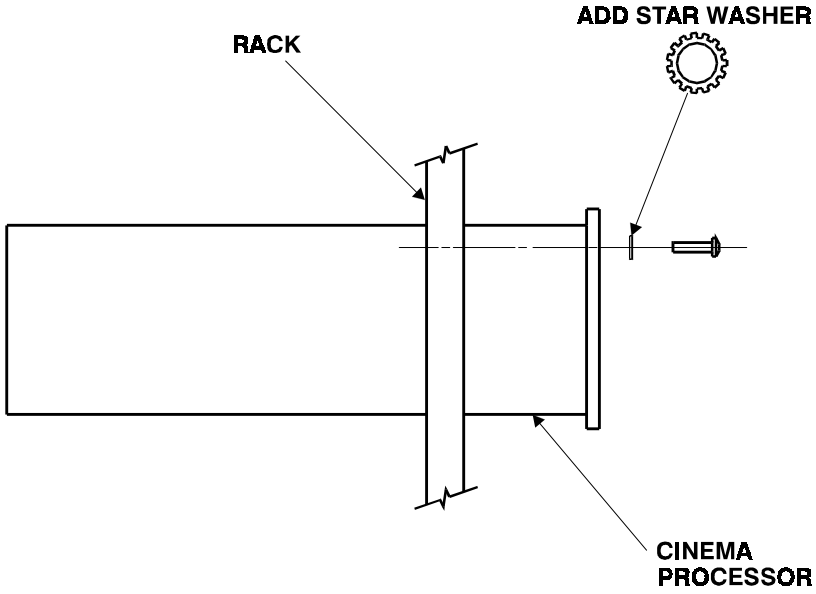
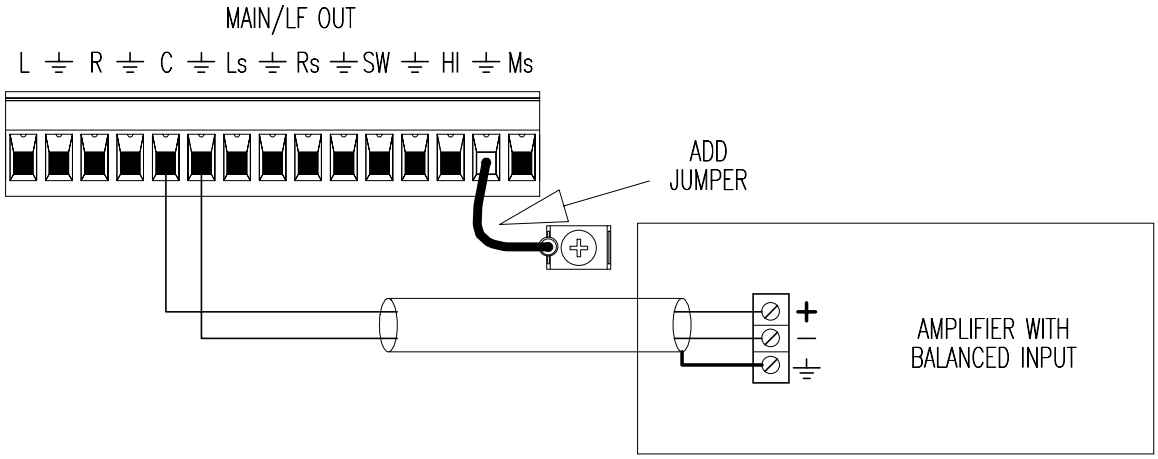
Proper Grounding of Equipment

(For non-EC countries only)

In the past it was assumed that if the units were mounted in the same rack that they would be bonded together by way of the rack rails to the mounting ears. The paint used on professional products has gotten much better in the last few years and this assumption is generally no longer true. To ensure a good ground connection between units in the rack and therefore a quiet system with no hum or noise it is highly recommended installing at least one star washer for every piece of equipment. Insulating nylon or plastic washers on the rack screws should not be used with the star washer. See figure below:



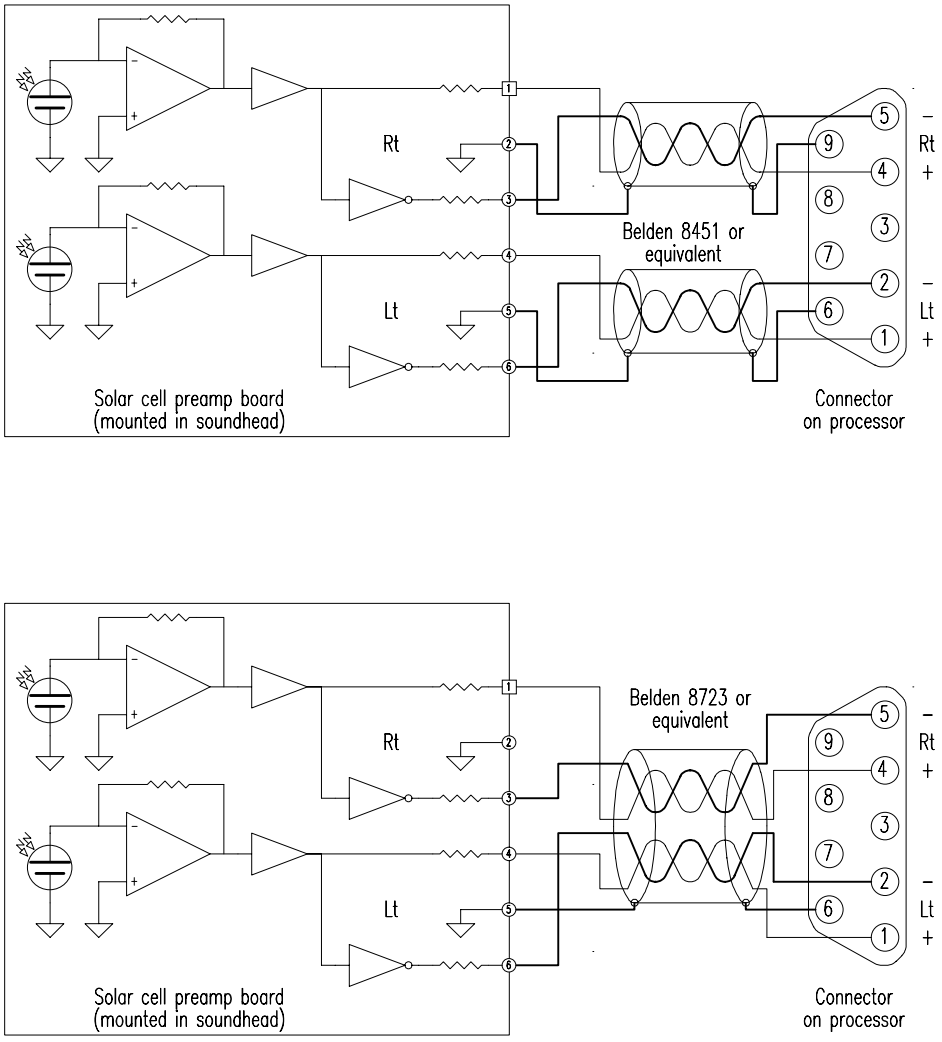
To optimize the grounding of the system you must add a jumper between signal ground of the CP500 and the chassis. See figure below:



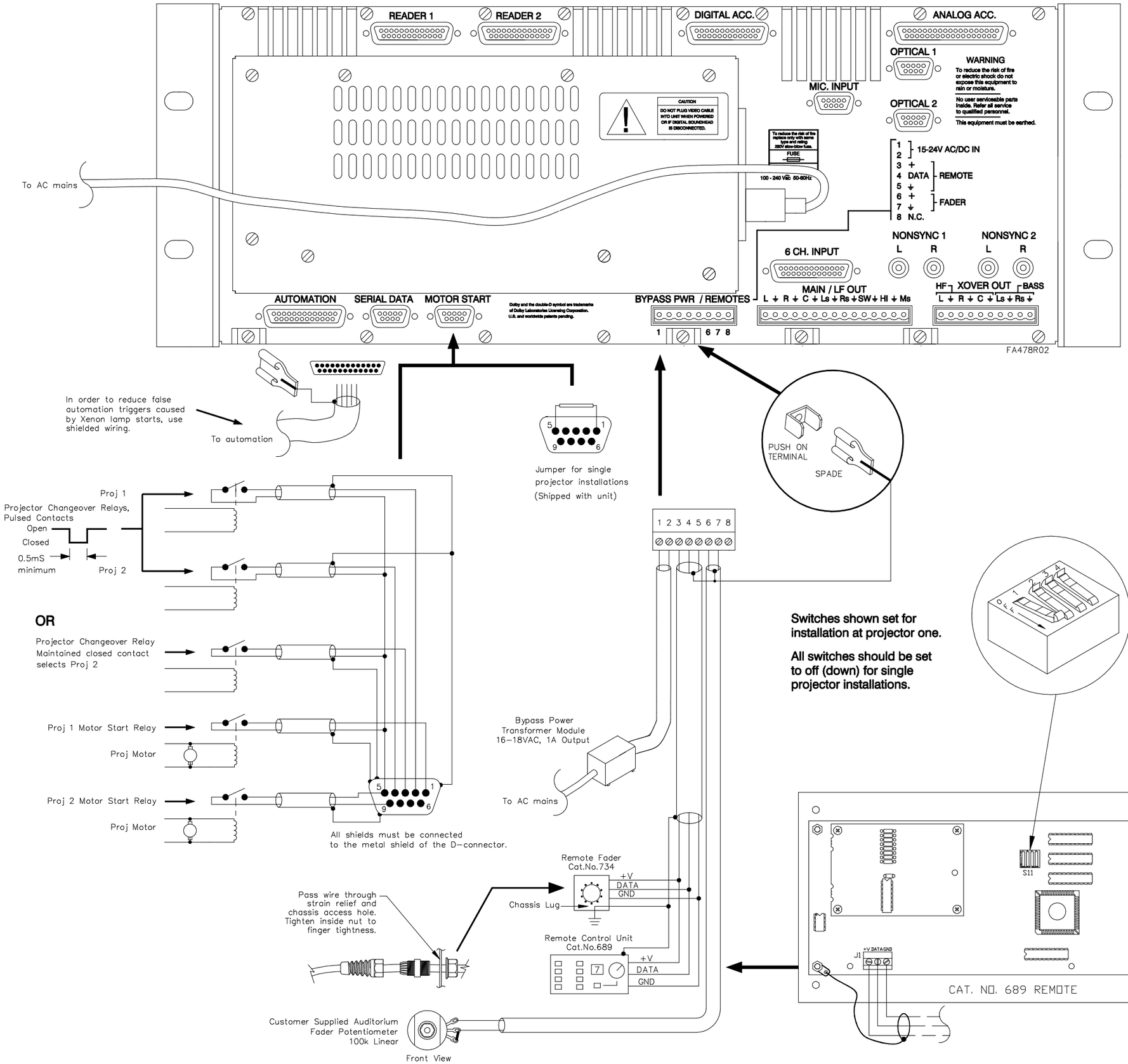
Connection of ground jumper and amplifier

Most projectors sold in North America come with the new reverse scan LED analog soundhead readers installed. In addition, many existing projectors are being upgraded to include this superior method of playing back SVA soundtracks. The output of the solar cell from this system is at a somewhat lower level than a normal incandescent exciter lamp solar cell. In order to provide the correct signal level for the cinema processor a small preamp board is needed and is mounted in the soundhead.

Since this is an active circuit it must have its signal ground connected to the cinema processor ground for correct operation. Failure to connect the board ground to the cinema processor can result in a noisy optical system or no sound at all. In some instances the signal ground from the board has been connected to the ground of the projector; this method should be avoided as it is not the best way to make this connection The preferred way is to connect the shield at both ends of the signal path. See figure below:



Proper connection of Reverse Scan LED Readers to Cinema Processor



Notes:

1. Follow all local electrical and building codes.

2. Use earthed (grounded) conduit wherever possible. Avoid routing signal wiring near electric motors, rectifiers, power wiring, dimmer wiring or other sources of electrical noise.

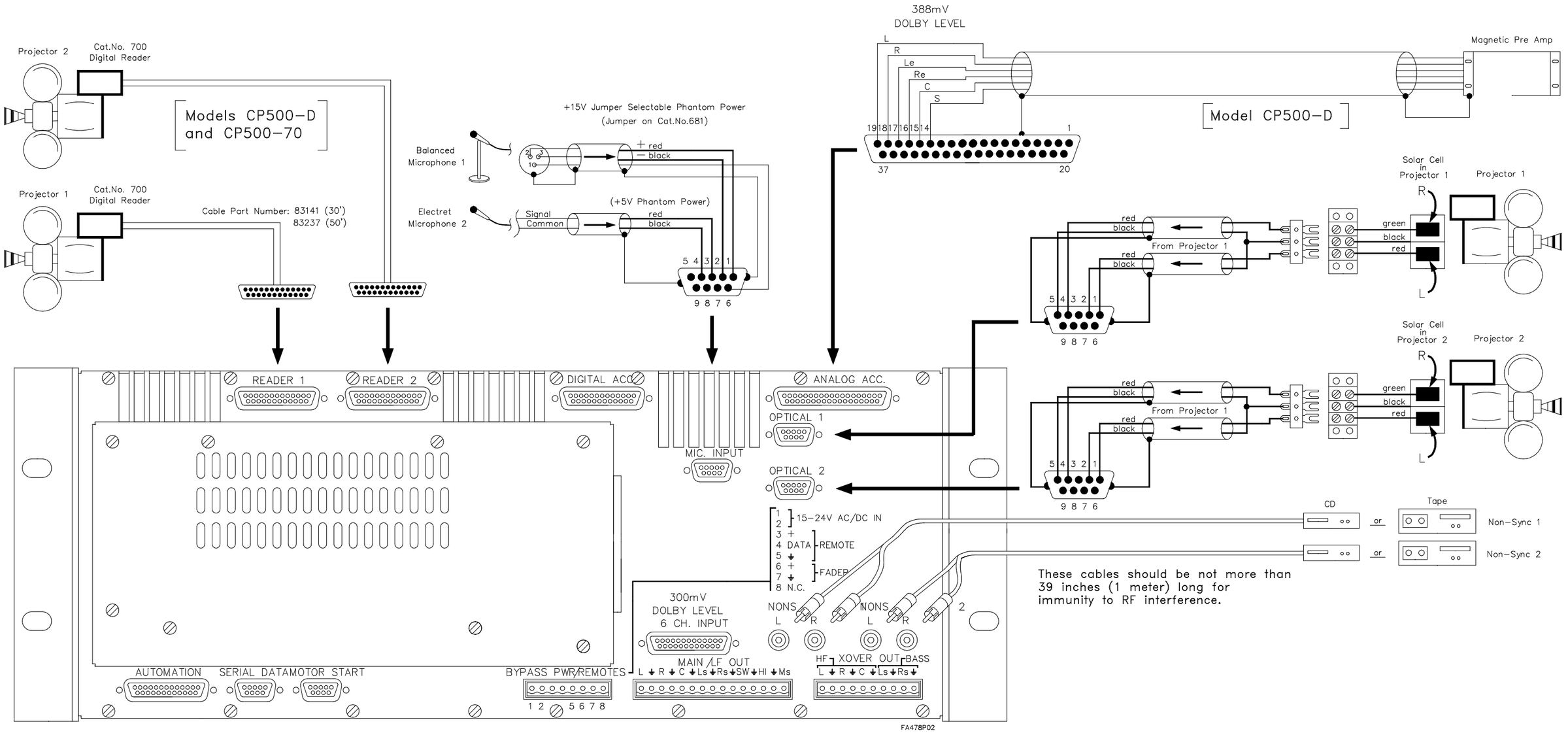
3. For two conductor with shield wiring, use Belden 8451 2-conductor shielded cable or equivalent: tinned copper, polypropylene insulated, twisted pair, 22 AWG stranded tinned copper drain wire, aluminum-polyester shield, paper wrap, 100 percent shield coverage, conductor to conductor (111pF per meter).

4. For three conductor with shield wiring, use Belden 8771 3-conductor shielded cable or equivalent: tinned copper, polypropylene insulated, twisted triplet, 22 AWG stranded tinned copper drain wire, aluminum-polyester shield, paper wrap, 100 percent shield coverage, conductor to conductor (75pF per meter).

5. All shields must be connected to the CHASSIS of the CP500 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.

6. In order to provide maximum protection against electrostatic discharge and conform to European EMC standards, the green plastic housings included in the shipping materials MUST be installed over the rectangular connectors. Assemble the cables so that the shield wire exits the rear of the plastic housing. Make the shield wire long enough to reach the push-on terminal on the rear panel. Attach the supplied terminal. Slide the shield wire on to the push-on terminal on the rear panel. If any of the rectangular connectors are not used, assemble the plug and green housing and install the plug into the unused backplane connector.

CP500 INSTALLATION WIRING
POWER AND CONTROL



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6. For connection details using red led-type analog readers, see manual section 3.

CP500 Backplane Connector Pin Assignments

1. Automation Connector:

Pin Number	Function
1	SK1 Format Select Input
2	SK2 Format Select Input
3	SK3 Format Select Input
4	SK4 Format Select Input
5	SK5 Format Select Input
6	SK6 Format Select Input
7	SK7 Format Select Input
8	SK8 Format Select Input/or STEP (in Automation Sequential mode)
9	Mute On/Off Input
18	Format Status Bit 0
19	Format Status Bit 1
20	Format Status Bit 2
25	Projector Status Output
12	Signal Ground

2. Serial Data Connector:

Pin Number	Signal Name
1	N/C
2	Transmitted Data
3	Received Data
4	Looped back to pin 6
5	Signal Ground
6	Looped back to pin 4
7	Looped back to pin 8
8	Looped back to pin 7
9	N/C

3. Motor Start Connector:

Pin Number	Signal Name
1	Motor Start Relay, Proj 1
2	Proj 1 Changeover, pulsed contacts
3	Changeover relay, closed selects Proj 2
4	Proj 2 Changeover, pulsed contacts
5	Ground
6	N/C
7	N/C
8	N/C
9	Motor Start Relay, Proj 2

4. Bypass / Remote Connector:

Pin Number	Signal Name
1	Bypass Power Transformer Connection, 16-18 Vac
2	Bypass Power Transformer Connection, 16-18 Vac
3	Remote Control Unit V+
4	Remote Control Unit Data
5	Remote Control Unit Ground
6	Remote Auditorium Fader +
7	Remote Auditorium Fader Ground
8	N/C

5. Main / LF Output Connector:

Pin Number	Signal Name
1	Left Channel
2	Signal Ground
3	Right Channel
4	Signal Ground
5	Center Channel
6	Signal Ground
7	Left Surround Channel
8	Signal Ground
9	Right Surround Channel
10	Signal Ground
11	Sub Woofer Channel
12	Signal Ground
13	Hearing Impaired Channel
14	Signal Ground
15	Mono Surround Channel

6. Crossover Output Connector **(Used With Cat. No. 683 Installed):**

Pin Number	Signal Name
1	Left Channel HF
2	Signal Ground
3	Right Channel HF
4	Signal Ground
5	Center ChannelHF
6	Signal Ground
7	Left Surround Channel LF
8	Signal Ground
9	Right Surround Channel LF
10	Signal Ground

7. Optical 1 Input Connector:

Pin Number	Signal Name
1	Projector 1 Left Channel +
2	Projector 1 Left Channel -
3	Signal Ground
4	Projector 1 Right Channel +
5	Projector 1 Right Channel -
6	Signal Ground
7	N/C
8	N/C
9	Signal Ground

8. Optical 2 Input Connector:

Pin Number	Signal Name
1	Projector 2 Left Channel +
2	Projector 2 Left Channel -
3	Signal Ground
4	Projector 2 Right Channel +
5	Projector 2 Right Channel -
6	Signal Ground
7	N/C
8	N/C
9	Signal Ground

9. Mic. Input Connector:

Pin Number	Signal Name
1	Mic1+
2	Mic1-
3	Mic2 signal
4	Mic2 ground
5	N/C
6	Mic1 ground
7	Mic Multiplexer V+
8	Mic Multiplexer Gnd
9	Mic Multiplexer Data

10. Accessory Rack Analog Connector:

Pin Number	Signal Name	Signal Description
1	AccOptByp	Mono input to Cat 682 for Bypass Operation
2	X15	Direct Input to Cat 682
3	X14	Direct Input to Cat 682
4	X13	Direct Input to Cat 682
5	X12	Direct Input to Cat 682
6	X11	Direct Input to Cat 682
7	X10	Direct Input to Cat 682
8	AccSW	Ouput to Acc Rack from Cat 662
9	AccC	Ouput to Acc Rack from Cat 662
10	AccRS	Ouput to Acc Rack from Cat 662
11	AccLS	Ouput to Acc Rack from Cat 662
12	AccR	Ouput to Acc Rack from Cat 662
13	AccL	Ouput to Acc Rack from Cat 662
14	AccNRS	Input to noise reduction resources*
15	AccNRC	Input to noise reduction resources*
16	AccNRRe	Input to noise reduction resources*
17	AccNRLe	Input to noise reduction resources*
18	AccNRR	Input to noise reduction resources*
19	AccNRL	Input to noise reduction resources*
20	Ground	Signal Ground
21	Ground	Signal Ground
22	Ground	Signal Ground
23	Ground	Signal Ground
24	Ground	Signal Ground
25	Ground	Signal Ground
26	Ground	Signal Ground
27	Ground	Signal Ground
28	Ground	Signal Ground
29	Ground	Signal Ground
30	+13VDC	Power Supply
31	+13VDC	Power Supply
32	-12VDC	Power Supply
33	-12VDC	Power Supply
34	Ground	Signal Ground
35	OPTBUSSR	Optical Pre Amp Output Right Channel
36	Ground	Signal Ground
37	OPTBUSSL	Optical Pre Amp Output Left Channel

* Dolby Level is 388 mV.

11. Accessory Rack Digital Connector:

Pin Number	Signal Name	Signal Description
1	Signal Ground	Signal Ground
2	OPTLRCK	Left / Right Clock from Optical A/D
3	RETSD2	Serial Data 2 Return
4	RETSD1	Serial Data 1 Return
5	RETSD0	Serial Data 0 Return
6	RETWCK	Word Clock Return
7	RETBCK	Serial Bit Clock Return
8	ACCBAUD	Baud Rate Clock
9	ACCLINK	Accessory Rack Present
10	RET256FS	256 X Sample Rate Clock Return
11	ACCRXD	Accessory Rack Received Data
12	ACCTXD	Accessory Rack Trasmitted Data
13	Signal Ground	Signal Ground
14	OPTBCK	A/D Bit Clock form Optical A/D
15	OPTDAT	Serial Data from Optical A/D
16	RETOPTDAT1	Spare Data Line 1
17	RETOPTDAT2	Spare Data Line 2
18	!ACCEN	Enable Accessory Rack
19	ACCSD2	Accessory Rack Serial Data 2
20	ACCWCK	Accessory Rack Word Clock
21	ACCBCK	Accessory Rack Bit Clock
22	ACCSD1	Accessory Rack Serial Data 1
23	ACC256FS	Accessory Rack 256 X Sample Rate Clock
24	ACCSD0	Accessory Rack Serial Data 0
25	ACC512FS	Accessory Rack 512 X Sample Rate Clock

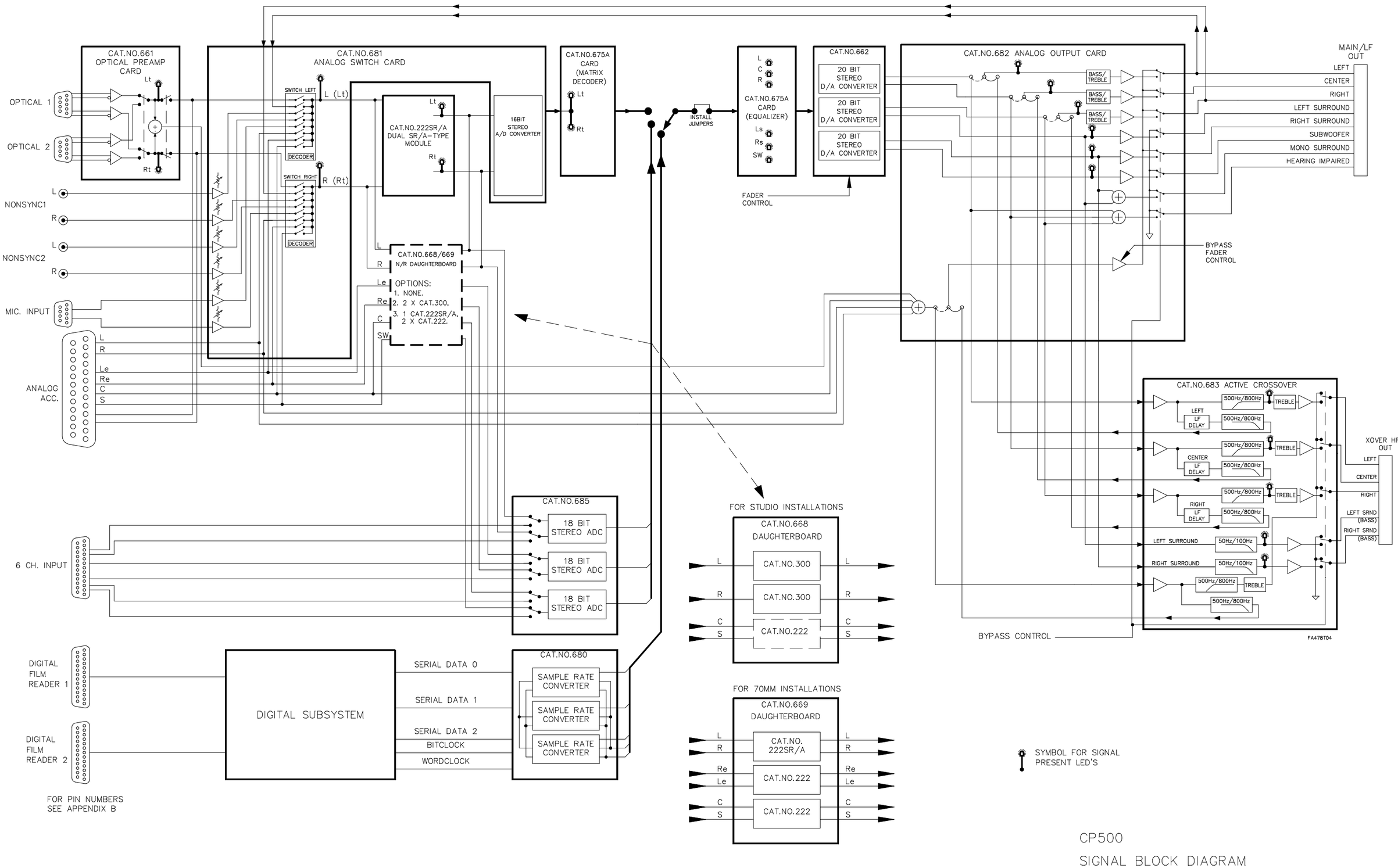
12. 6 Channel Input Connector* :

Pin Number	Signal Name	Signal Description
1	Signal Ground	
2	EXT3	Right Surround Channel External Input
3	Signal Ground	
4	Signal Ground	
5	Signal Ground	
6	Signal Ground	
7	Signal Ground	
8	Signal Ground	
9	Signal Ground	
10	Signal Ground	
11	Signal Ground	
12	Signal Ground	
13	Signal Ground	
14	EXT0	Left Channel External Input
15	EXT2	Left Surround Channel External Input
16	Signal Ground	
17	EXT1	Right Channel External Input
18	Signal Ground	
19	Signal Ground	
20	EXT4	Center Channel External Input
21	Signal Ground	
22	Signal Ground	
23	Signal Ground	
24	EXT5	Sub Woofer Channel External Input
25	Signal Ground	

* Dolby Level is 300 mV at these set of inputs.

13. Reader 1 and Reader 2 Input Connector:

Pin Number	Signal Name	Signal Description
1	N/C	
2	N/C	
3	N/C	
4	TTCO	Row Clock Return
5	TCOGND	Row Clock Common
6	FTCO	Row Clock Send
7	TSCO	Pixel Clock Return
8	SCOGND	Pixel Clock Common
9	FSCO	Pixel Clock Send
10	N/C	
11	N/C	
12	N/C	
13	N/C	
14	VO	Differential Video V0
15	VOGND	V0 Common
16	+15VIDEO	+15VDC
17	V1	Differential Video V1
18	V1GND	V1 Common
19	-15VIDEO	-15VDC
20	N/C	
21	N/C	
22	N/C	
23	N/C	
24	N/C	
25	N/C	



CP500

SIGNAL BLOCK DIAGRAM

ENGINEERING FOLD

FOLD

THESE MODULES ARE NECESSARY FOR BYPASS OPERATION

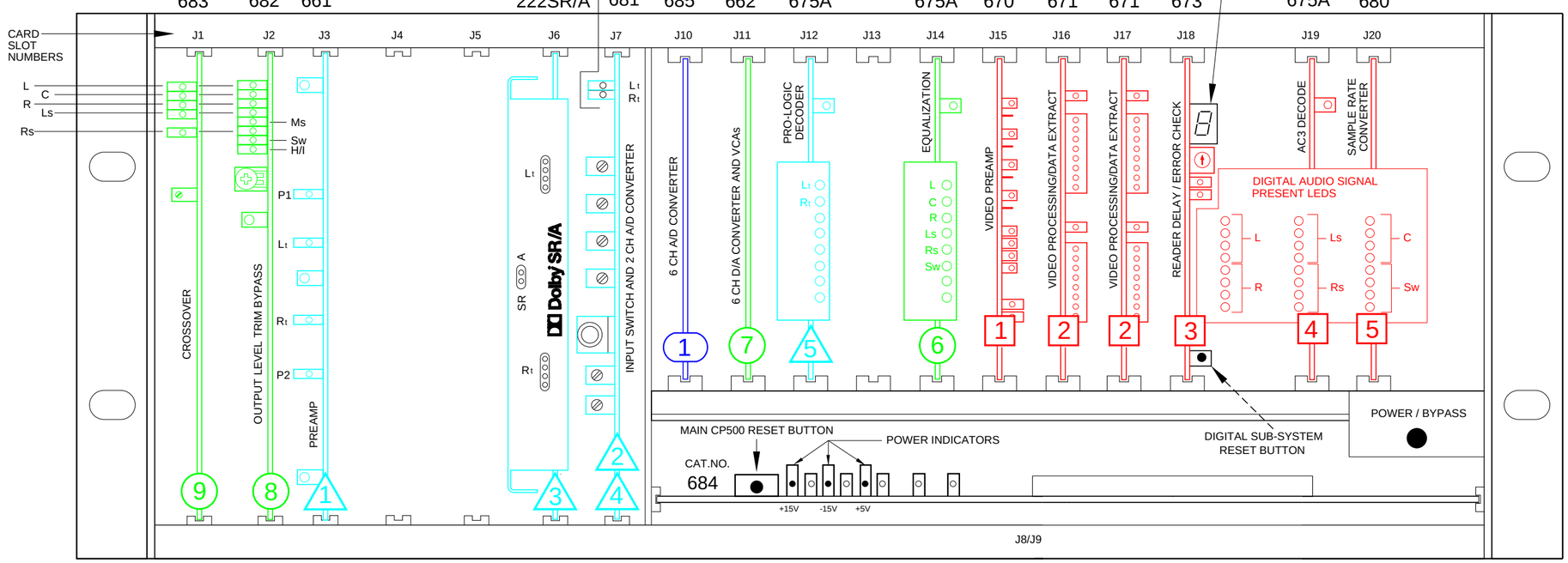
OPTIONAL FOR BI-AMP SYSTEMS

ANALOG SWITCH OUTPUT SIGNAL

OPTIONAL

DOLBY DIGITAL FILM ERROR RATE
0 = EXCELLENT
8 = ACCEPTABLE
F = FAIL

CAT.NO.	CAT.NO.	CAT.NO.	CAT.NO.	CAT.NO.	CAT.NO.	CAT.NO.	CAT.NO.	CAT.NO.	CAT.NO.	CAT.NO.	CAT.NO.	CAT.NO.	CAT.NO.
683	682	661	222SR/A	681	685	662	675A	675A	670	671	671	673	675A	680



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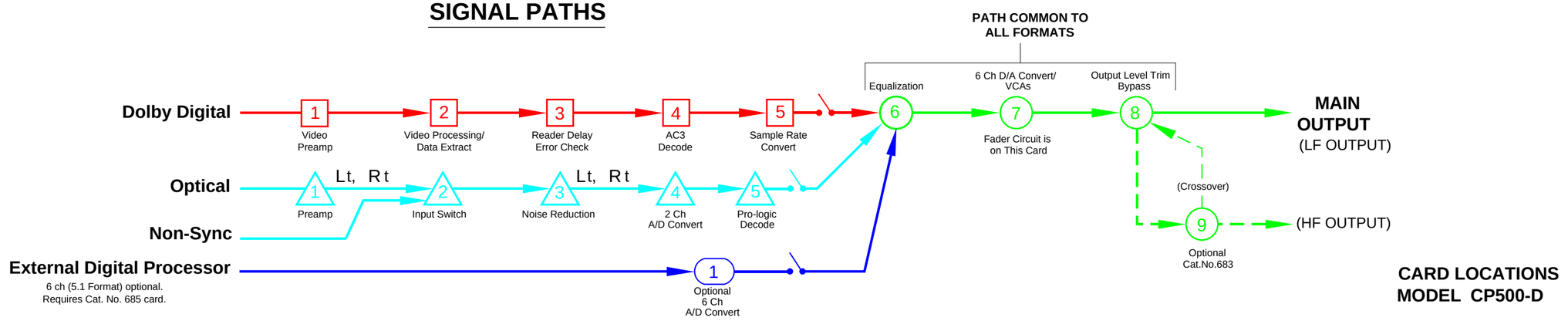
SIGNAL PATHS



CARD LOCATIONS
MODEL CP500-D

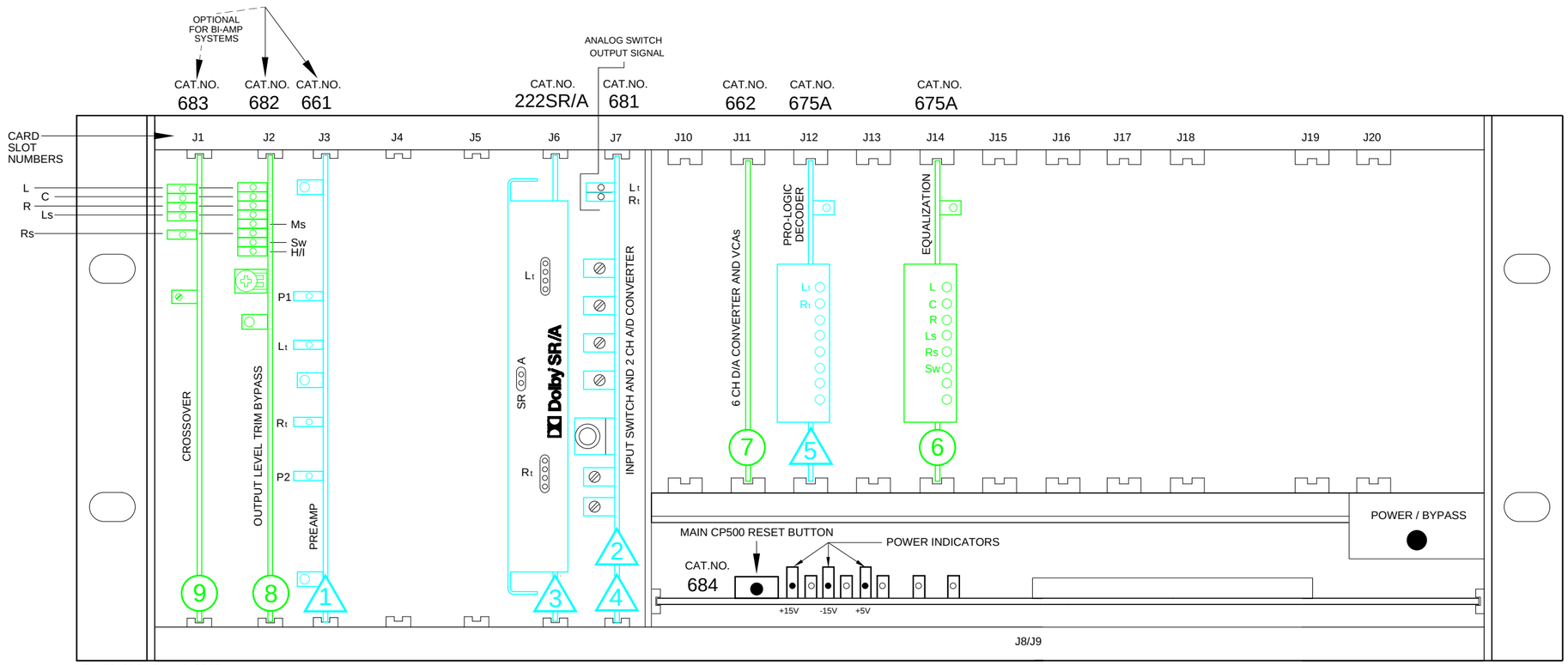
FOLD

FOLD

ENGINEERING FOLD

FOLD

THESE MODULES ARE NECESSARY FOR BYPASS OPERATION



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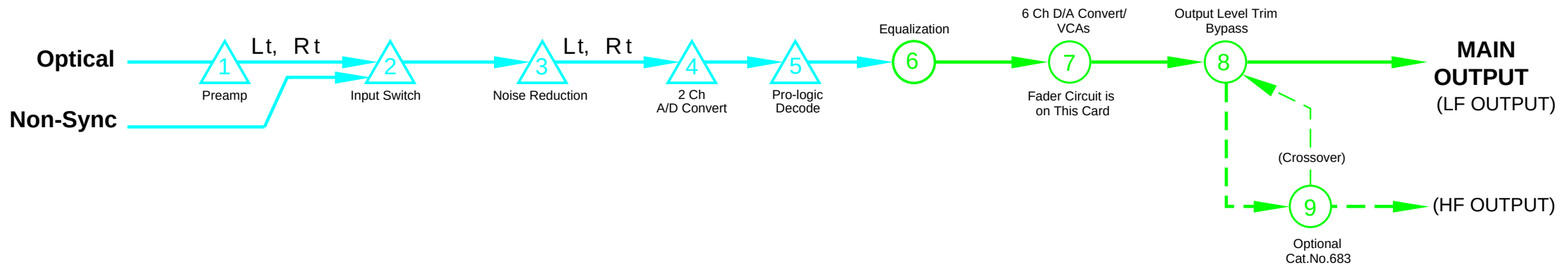
SIGNAL PATH



CARD LOCATIONS
MODEL CP500-SR

FOLD

FOLD

ENGINEERING FOLD

FOLD

THESE MODULES ARE NECESSARY FOR BYPASS OPERATION

THESE MODULES PLUG INTO CAT.NO.669 BACKPLANE ADAPTER BOARD

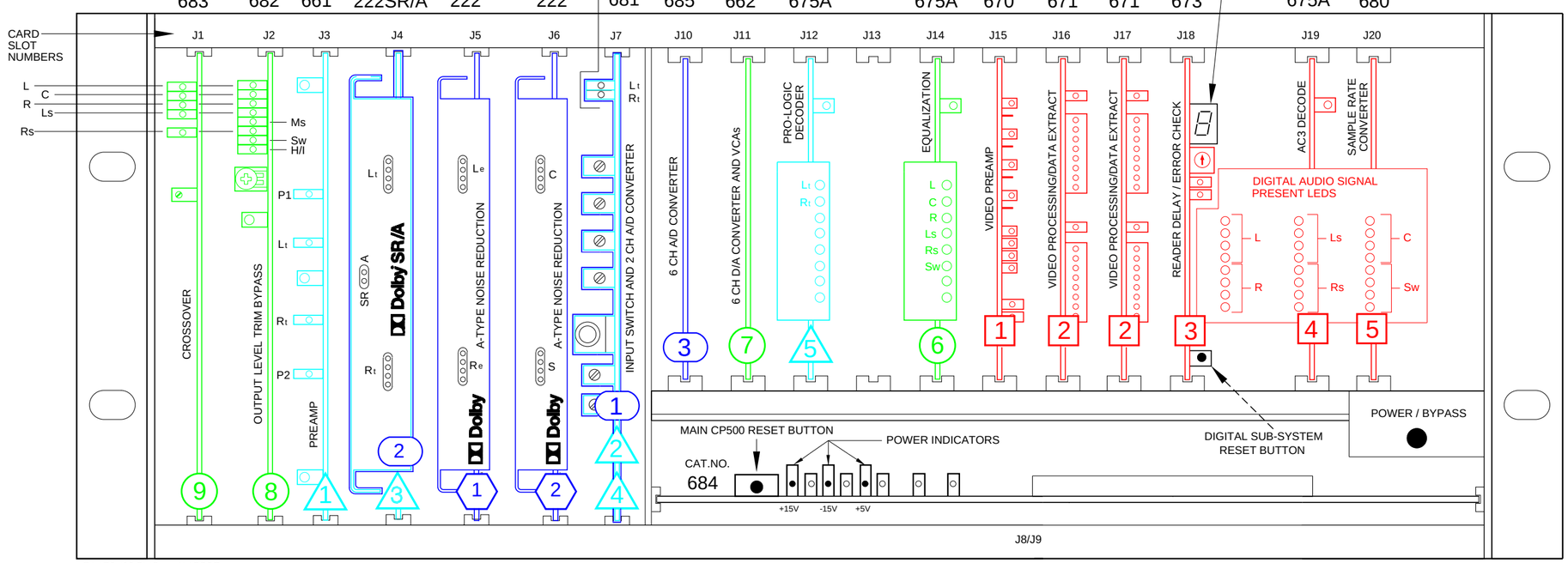
OPTIONAL FOR BI-AMP SYSTEMS

ANALOG SWITCH OUTPUT SIGNAL

OPTIONAL

DOLBY DIGITAL FILM ERROR RATE
0 = EXCELLENT
8 = ACCEPTABLE
F = FAIL

CAT.NO.	CAT.NO.	CAT.NO.	CAT.NO.	CAT.NO.	CAT.NO.	CAT.NO.	CAT.NO.	CAT.NO.	CAT.NO.	CAT.NO.	CAT.NO.	CAT.NO.	CAT.NO.	CAT.NO.	CAT.NO.	CAT.NO.
683	682	661	222SR/A	222	222	681	685	662	675A	675A	670	671	671	673	675A	680
J1	J2	J3	J4	J5	J6	J7	J10	J11	J12	J13	J14	J15	J16	J17	J18	J19	J20



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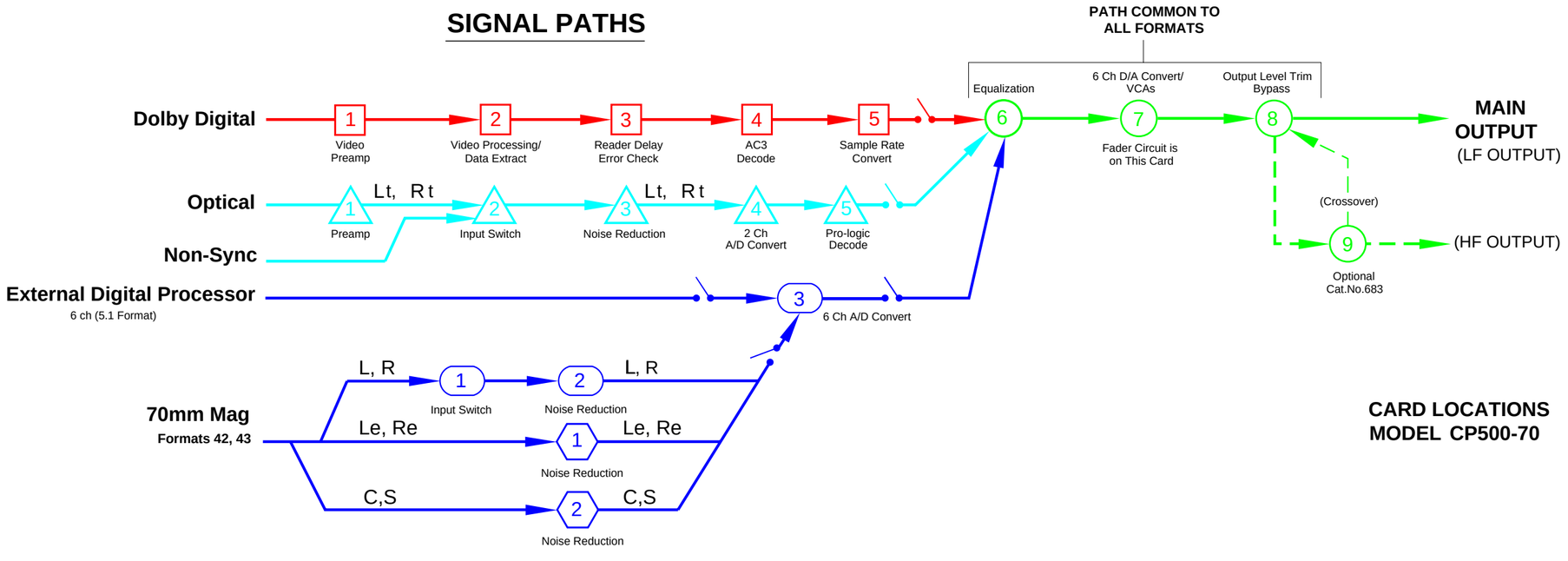
SIGNAL PATHS



CARD LOCATIONS
MODEL CP500-70

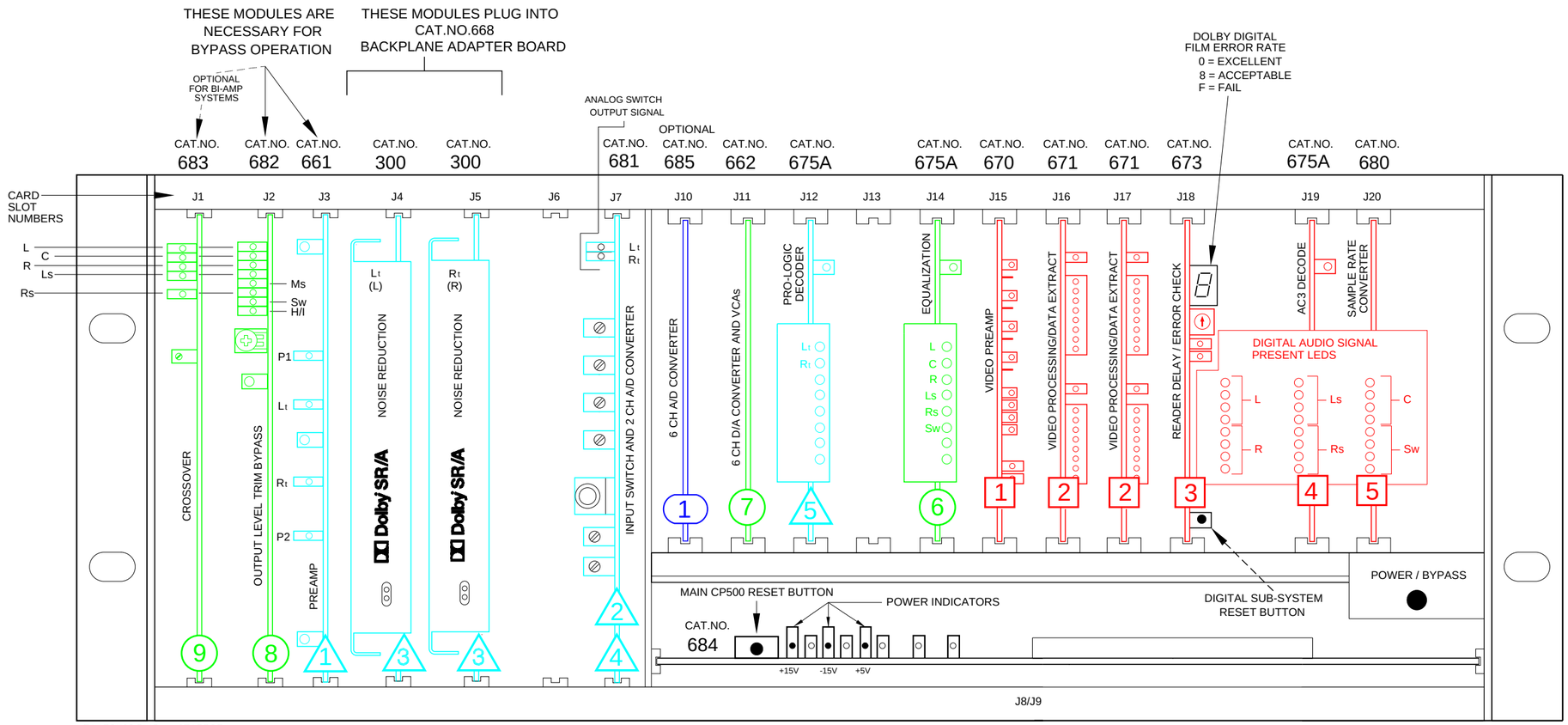
FOLD

FOLD

ENGINEERING

FOLD

FOLD



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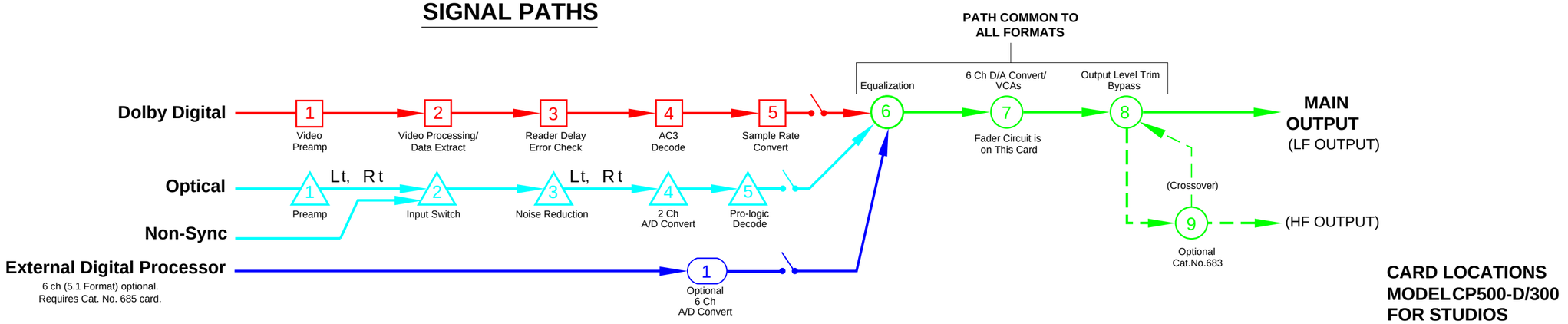
SIGNAL PATHS



FOLD

FOLD

Current Formats Menu

MENU

FORMATS

Auditorium Fader Enable

Auto Digital Enable Proj. 1

Auto Digital Enable Proj. 2

SK 6

SK 7

SK 8

Menu Selections Menu

SK 2 → TO SHEET 2 (ALIGNMENT)

SK 3 → TO SHEET 2 (DIAGNOSTICS)

SK 1

EXIT

System Setup Menu

Soft Keys:

SK1 → CP500 Controls Menu

- SK 1 → LCD Contrast
- SK 2 → Data Transfer
- SK 3 → Automation
- SK 4 → Auditorium Fader Enable
- SK 6 → UART Selector
- SK 7 → Mute Speed Adjust

SK2 → Audio Adjustments Menu

- SK 1 → Mono Level Trim
- SK 2 → Mono EQ Adjust

SK3 → Format Configuration Menu

- SK 1 → Wakeup Format
- SK 2 → Format Screen Type
- SK 3 → Build Format Selector Menu
  - SK 1 → Assign Formats (to Soft Keys)
  - SK 2 → Assign Fader Settings
  - SK 3 → Assign Auto Digital Targets
  - SK 4 → Assign Auto Digital Sources
  - SK 5 → Assign Projectors
  - SK 6 → Assign Aux Bits

SK → Build Custom Format → Rotate Knob ← Select Format name

Build Custom Format Menu Page 1

- SK 1 → Copy From Existing Format
- SK 2 → Fader Value
- SK 3 → Projector Number
- SK 4 → NR Source
- SK 5 → NR Type
  - SK 1 → NR Channels L & R
  - SK 2 → NR Channels Ls & Rs
  - SK 3 → NR Channels C & SW
  - SK 8 → Back
- SK 6 → B-Chain Input
- SK 7 → Accessory Rack Enable

SK 8 (MORE) → Build Custom Format Menu Page 2 (SK8 (BACK) returns)

- SK 1 → OPU Output Enable
- SK 2 → Channel Mute (SK 4)
- SK 3 → Optical Decoder Configuration (SK 8)
- SK 4 → Equalizer Configuration (SK 8)
- SK 5 → Save New Format
- SK 6 → X-Point (Crosspoints) (SK 4)

SK5 → About This CP500

EXIT → More about this CP500 → EXIT

SK8 → Bypass → CANCEL

Decoder Mode (SK 1)

- SK 1 → Sub Woofer LPF Cutoff
- SK 2 → Surround/SW Source
- SK 3 → Sub Woofer Gain
- SK 4 → Bass Extension
- SK 8 → Back

Signal Type (SK 4)

- SK 5 → Bass Re-direction
- SK 6 → Signal Output Channel
- SK 7 → Signal Level
- SK 8 → Back

SYSTEM SETUP MENU TREE v1.3 (SHEET 1)

TREE1_03.FLO

Current Formats Menu

MENU

FORMATS

Soft Keys:

SK1

SK2

SK3

SK4

TO SHEET 1
(SYSTEM SETUP)

SK 1

Menu Selections Menu

SK 3

EXIT

SK2

PASSWORD PROTECTED

EXIT

Alignment Menu

Diagnostics Menu

SK1

SK2

B-Chain Alignment Menu

Select Channel
L, C, R, Ls, Rs, Sw

Output Adjust Menu

SK3

Optical Surround Adjust

SK 1

B-Chain Noise Sequence

SK 2

Set Dolby Level

SK 3

Event Log

SK 4

Dolby Diagnostics (for future use)

SK1

B-Chain EQ

Rotate Knob

Bypass

SK 5

Calibrate SPL (Set Room SPL)

SK2

Subwoofer Level

SK2

Swap Cat. 682

SK 3

Mic Mux

SK 5

Noise Gating

SK5

Microphone Enable 1-4

SK 1-4

Enable / Disable

SK 5

Set Scan Rate

SK 6

Scan (Start scan)

SK 8

Mono Level Trim

SK 6

Full / Split Screen

SK 1

Flat

SK 2

Treble / Bass

SK 3

Adjust

SK 4

Adjust Bypass

SK 6

Rotate Knob

Left Output Level

Center Output Level

Right Output Level

Left Surround Output Level

Right Surround Output Level

Mono Surround Output Level

SK 1

Center Channel Noise

SK 2

Digital SW Level

SK 3

Optical SW Level

SK 4

Optical SW Polarity

SK 8

Optical SW Bandwidth

SK4

Reversion Mode

SK 5

Digital Surround Delay

SK 6

Optical Surround Delay

SK 7

Digital Soundhead Delay

SK 8

Set System Password

SK 3

A-Chain Alignment Menu

SK 1

Adjust Optics

SK 2

Manual EQ

SK 3

Manual Level

SK 3

SK 5

Swap Cat. 661

SK 5

SK 6

Auto EQ OPU

SK 7

Auto Level OPU

SK 7

ALIGNMENT AND DIAGNOSTICS MENU TREE v1.3 (SHEET 2)

TREE2_03.FLO