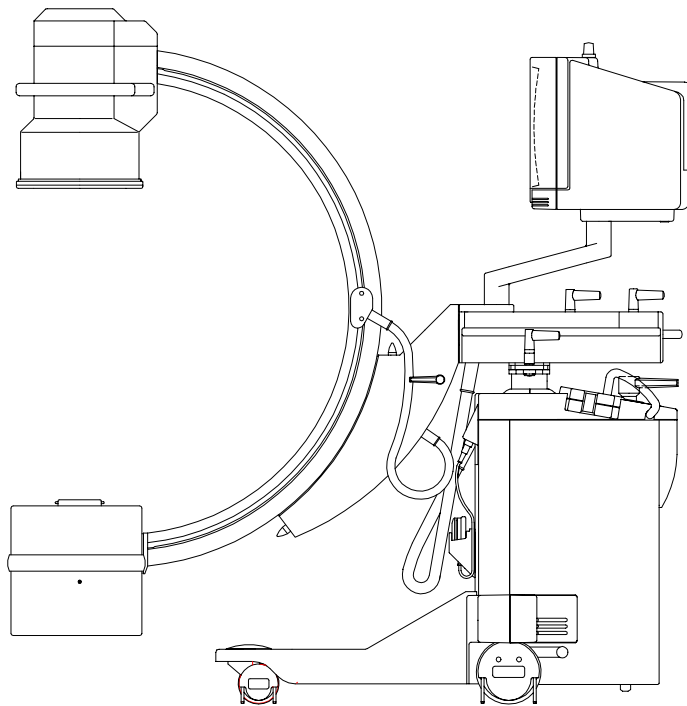


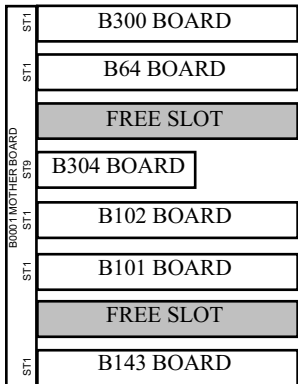
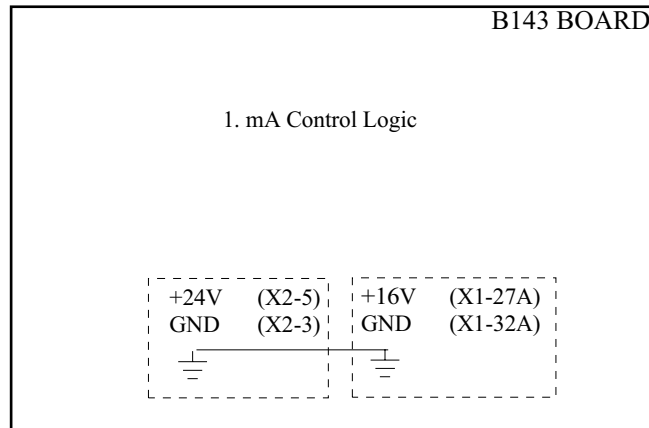
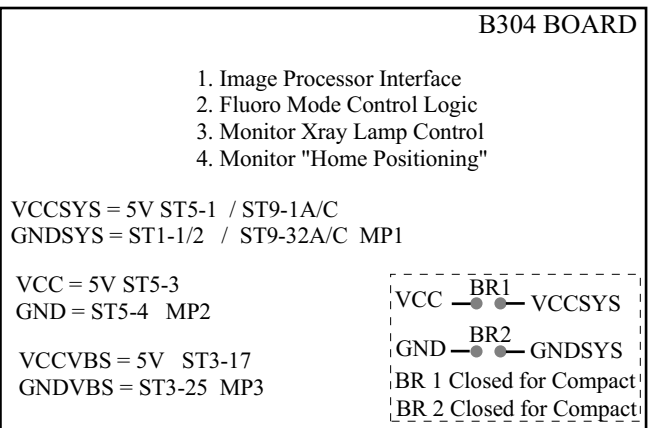
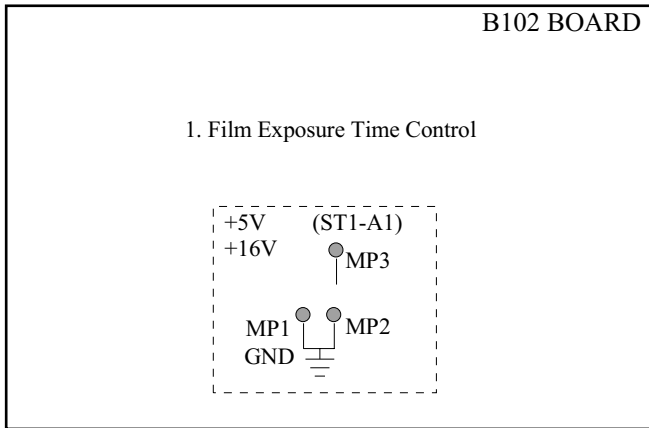
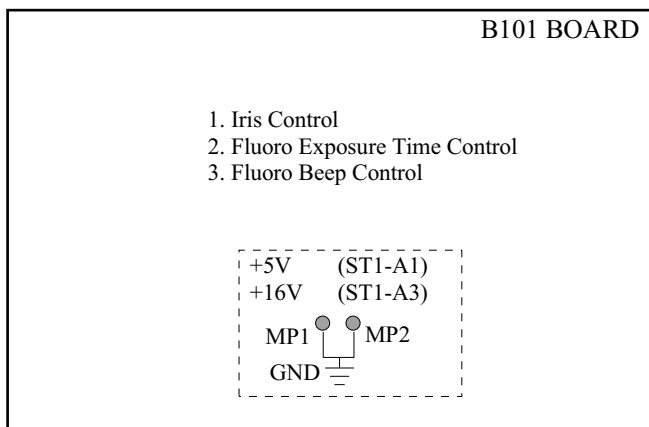
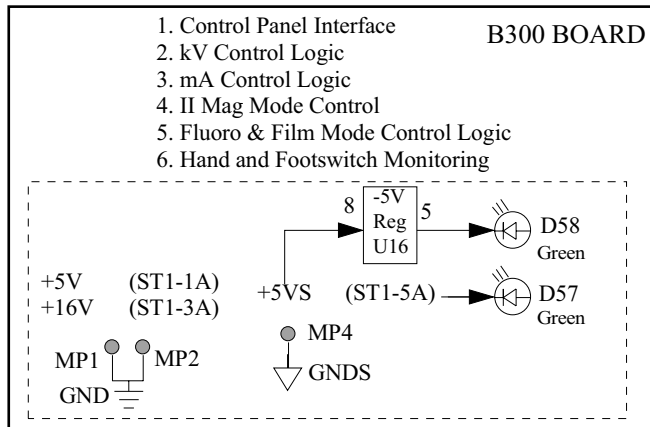
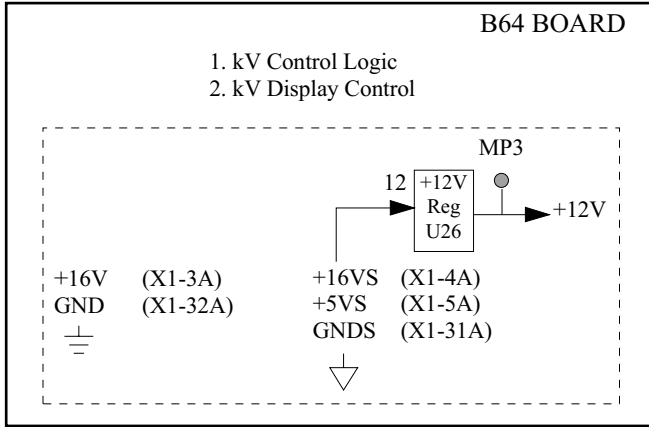
Technical - Documentation

7700 Compact

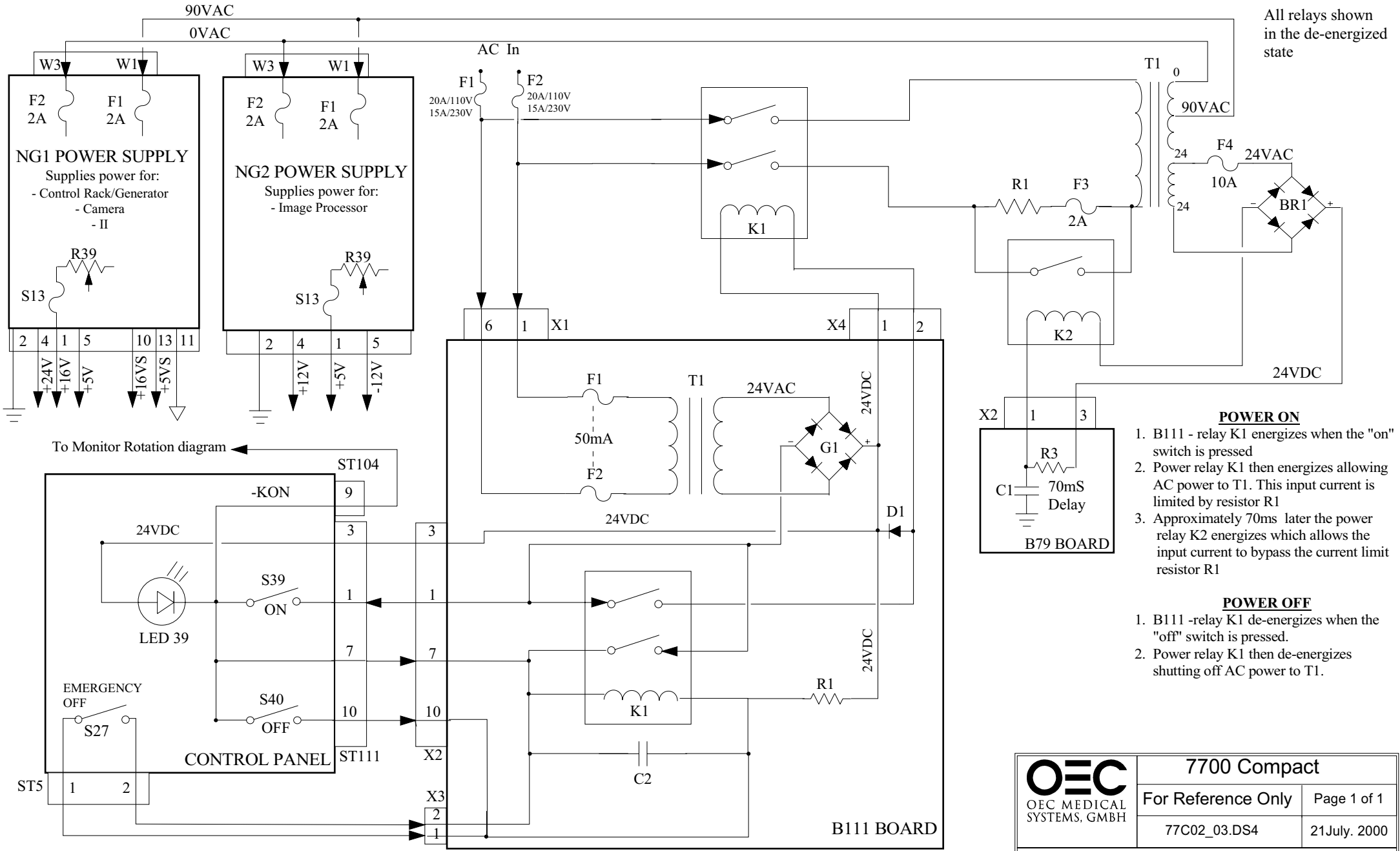


FUSE LIST for 7700

Fuse	Rating	Model	Location	Funktion	Functional Schematic Diagram
F1	15A 20A	200-240V 100-130V	Power Plate Assembly	AC IN	Power On
F2	15A 20A	200-240V 100-130V	Power Plate Assembly	AC IN	Power On
F3	2A		Power Plate Assembly	AC IN	Power On
F4	10A		Power Plate Assembly	24VAC	Power On / Carm Lift / kV Generation & Regulation / mA Generation & Regulation / Interconnect Schematic
F5	1.6A		Power Plate Assembly	220VAC	Monitor Rotation / Interconnect Schematic
F1	500mA		B206-8	AC IN	B206 schematic / Fluoro Mode Control Logic / Film Mode Control Logic / Image System
F1	50mA		B111	AC IN	Power On
F2	50mA		B111	AC IN	Power On
F1	50mA	Compact	B111MR	AC IN	Monitor Rotation
F2	50 mA	Compact	B111MR	AC IN	Monitor Rotation
F1	100mA	Series	B116	AC IN	Power On
F2	315mA	Series	B116	5VDC	B104
F3	315mA	Series	B116	5VDC	B104
F4	315mA	Series	B116	24VAC	Monitor Rotation
F5	315mA	Series	B116	5VDC	B104
F1	2A		NG1 (B420) NG2 B430)	AC IN	Power On
F2	2A		NG1 (B420) NG2 B430)	AC IN	Power On
F1	2.5A		B143	24VDC	mA Generation & Regulation
F1	2.5A		Monitor BG 641	220VAC	Power On
F2	2.5A		Monitor BG 641	220VAC	Power On
F608	1.25A		Monitor WMN		
F	2,5 A		Monitor WM 3819	220VAC	Power On
F	4A	Series	Image Processor	220VAC	Power On
F	4A	Series	Image Processor	220VAC	Power On
F	500mA	Series	Monitor HCC	220VAC	Power On
F	500mA	Series	Monitor HCC	220VAC	Power On
F1	1.6A	Series	B117 HCC2	9VAC	Power Supply for B108
F2	500mA	Series	B117 HCC2	9VAC	Power Supply for B108
F3	100mA	Series	B117 HCC2	220VAC	Power Supply for B108
F4	100mA	Series	B117 HCC1 & HCC2	220VAC	Power Supply for B108
F5	800mA	Series	B117 HCC1 & HCC2	9VAC	Power Supply for B108



 OEC OEC MEDICAL SYSTEMS, GMBH	7700 Compact	
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	77C01_02.DS4	28.July 2000
CONTROL RACK BOARDS		
POWER & FUNCTIONAL DESCRIPTION		



All relays shown in the de-energized state

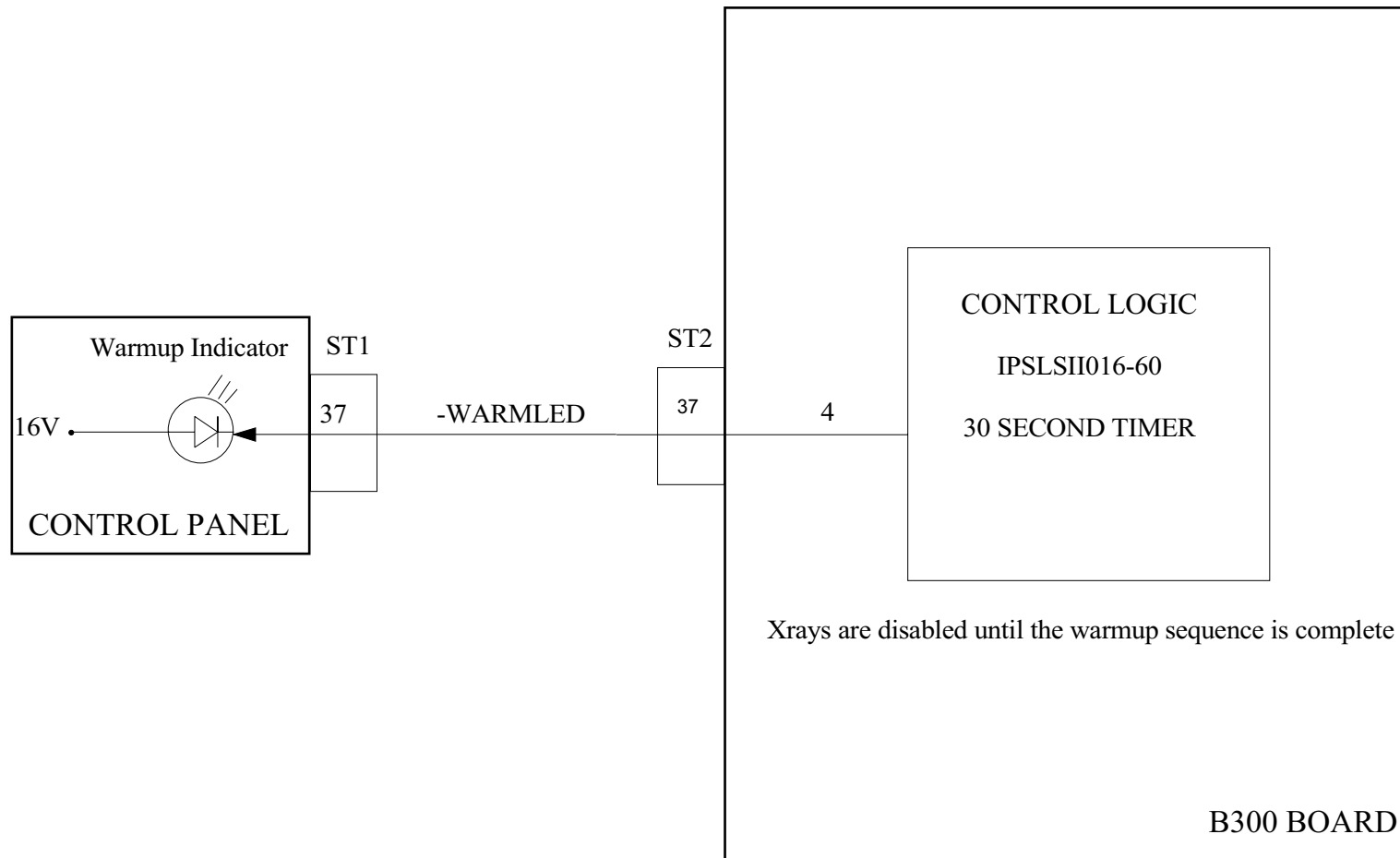
POWER ON


1. B111 - relay K1 energizes when the "on" switch is pressed
2. Power relay K1 then energizes allowing AC power to T1. This input current is limited by resistor R1
3. Approximately 70ms later the power relay K2 energizes which allows the input current to bypass the current limit resistor R1

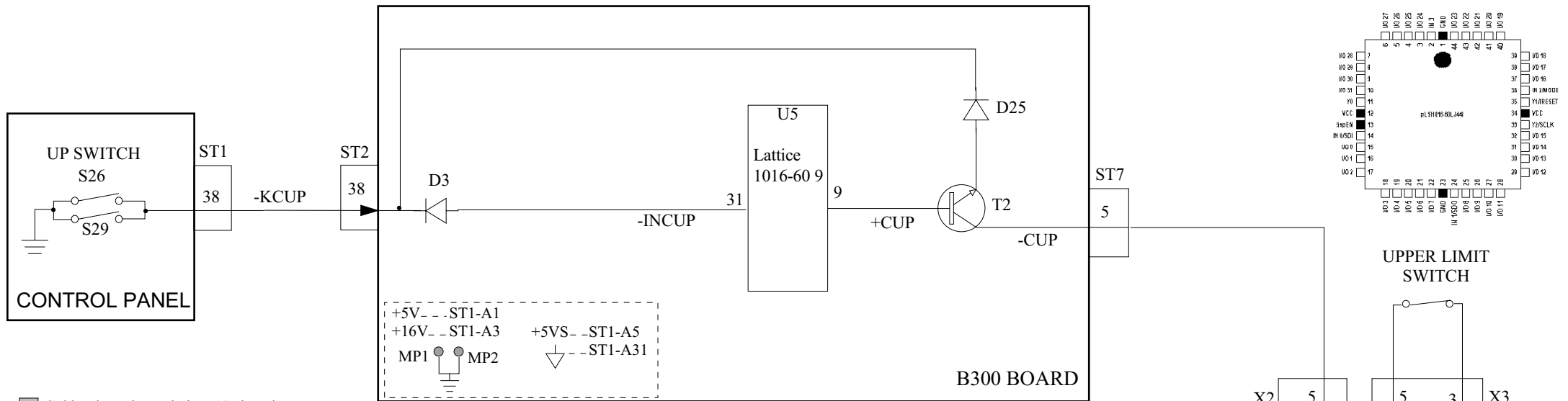
POWER OFF

1. B111 - relay K1 de-energizes when the "off" switch is pressed.
2. Power relay K1 then de-energizes shutting off AC power to T1.

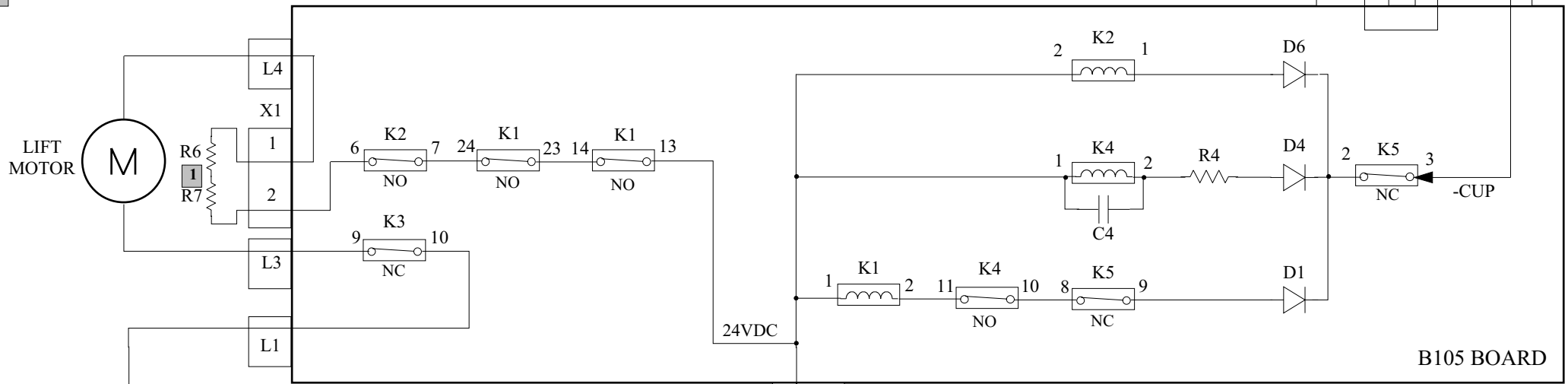
 OEC MEDICAL SYSTEMS, GMBH	7700 Compact	
	For Reference Only	Page 1 of 1
	77C02_03.DS4	21 July, 2000
POWER ON		



 OEC OEC MEDICAL SYSTEMS, GMBH	7700 Compact/Series	
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	77X03_02.DS4	21. July 2000
SYSTEM WARMUP		

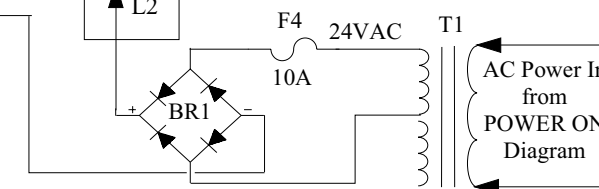


1 Gold resistors beneath the B105 board



- K1 - Current Control ----- Energized
- K2 - Direction Control Up ----- Energized
- K3 - Direction Control Down ----- De-Energized
- K4 - Current Enable Up ----- Energized
- K5 - Current Enable Down ----- De-Energized

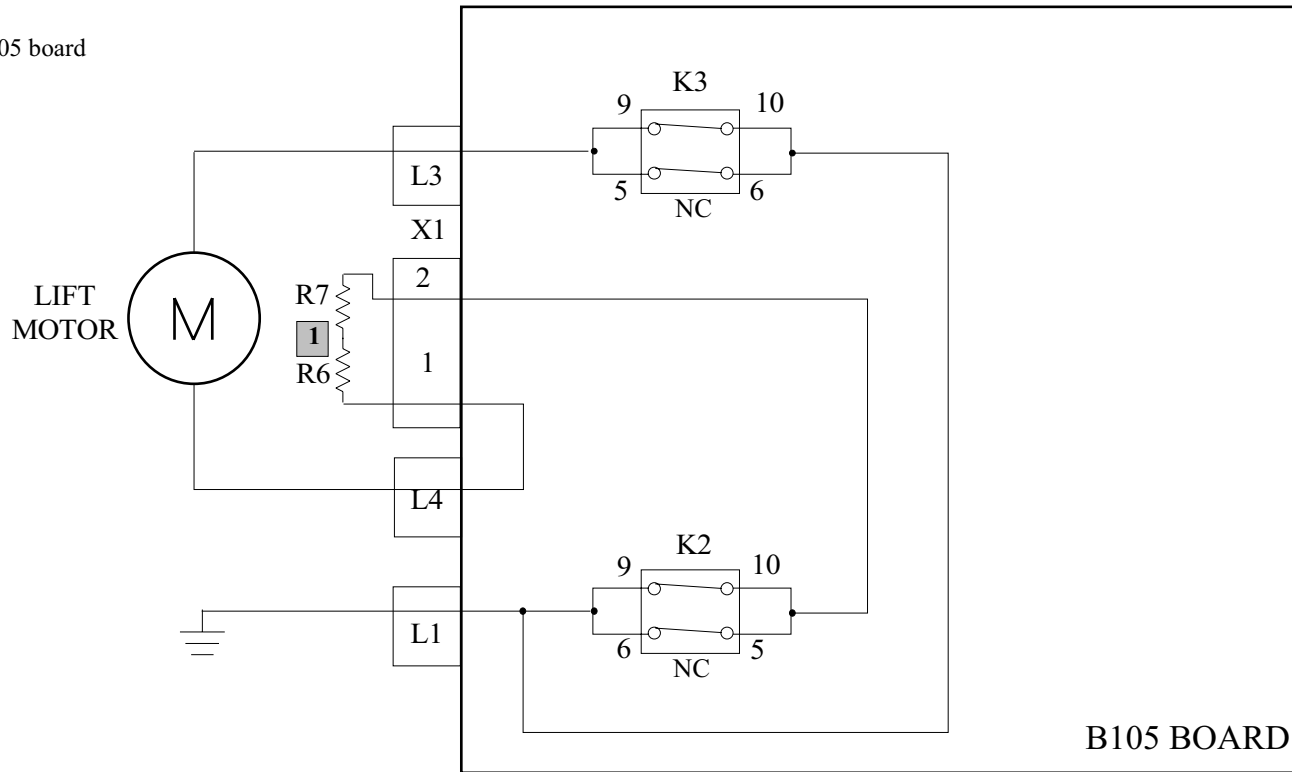
All relay contacts are shown in the proper state for the lift motor to move up



 OEC OEC MEDICAL SYSTEMS, GMBH	7700 Compact / Series	
	For Reference Only	Page 1 of 3
	77X04_02.DS4	18. Jan 2001
C-ARM LIFT C-ARM UP MOVEMENT		

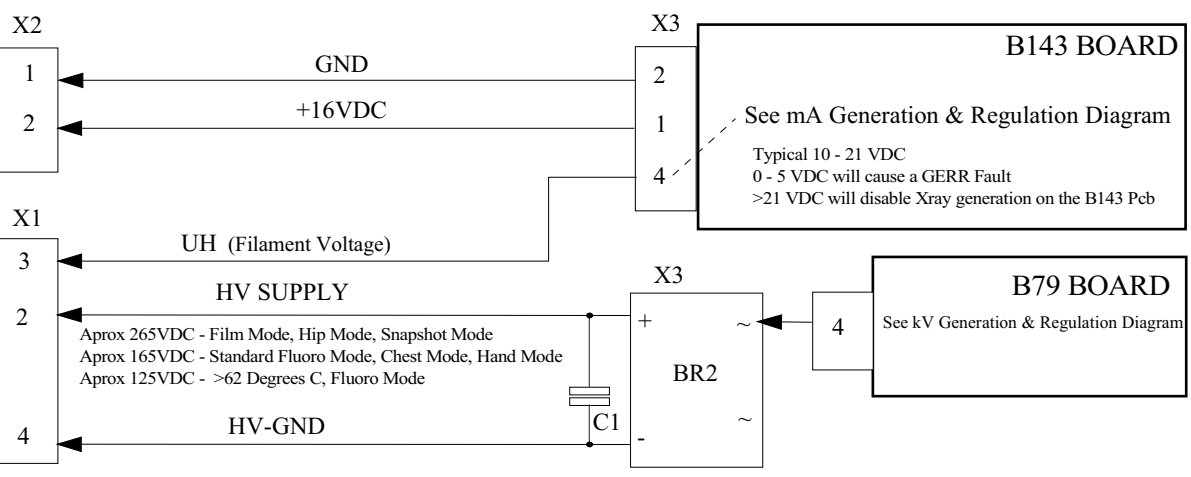
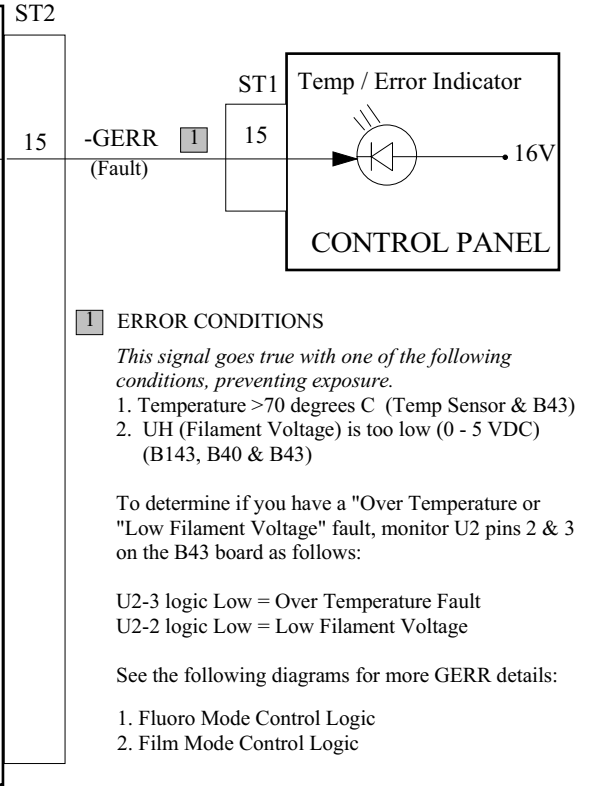
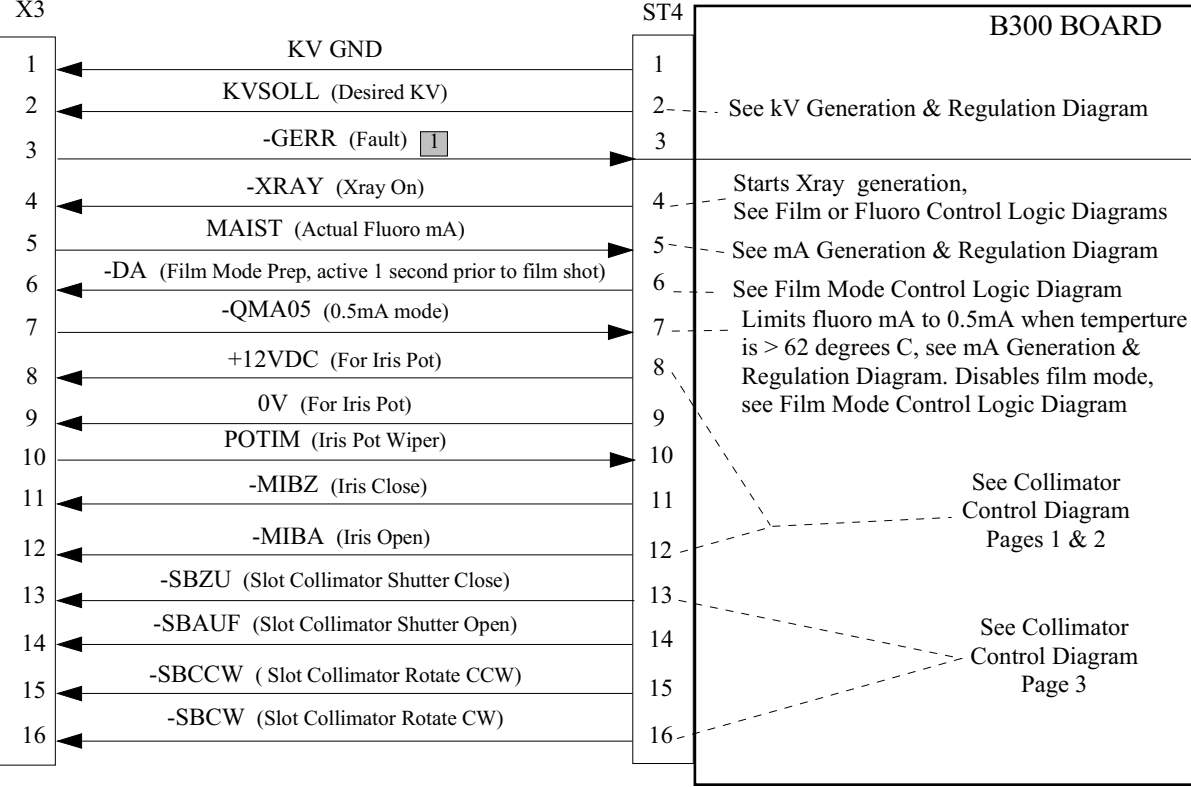
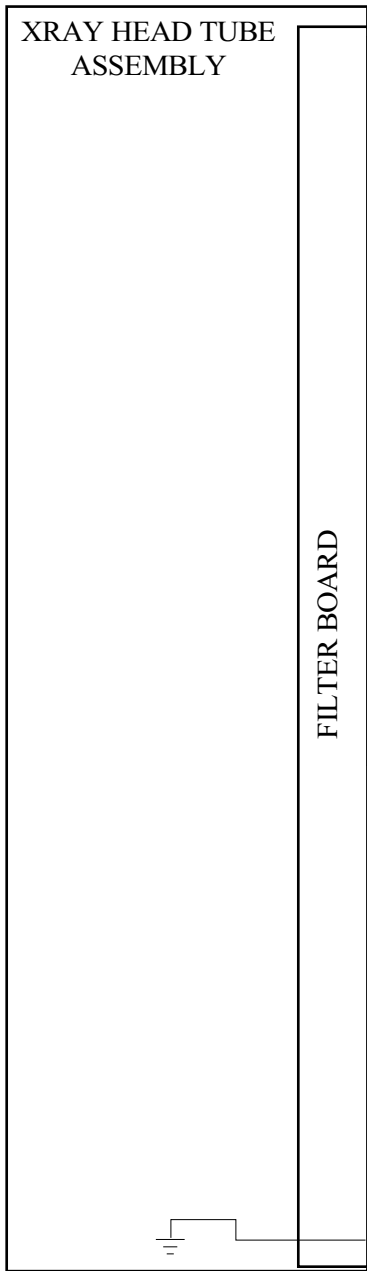
All relay contacts are shown in the proper state for no lift motor movement

1 Gold resistors beneath the B105 board

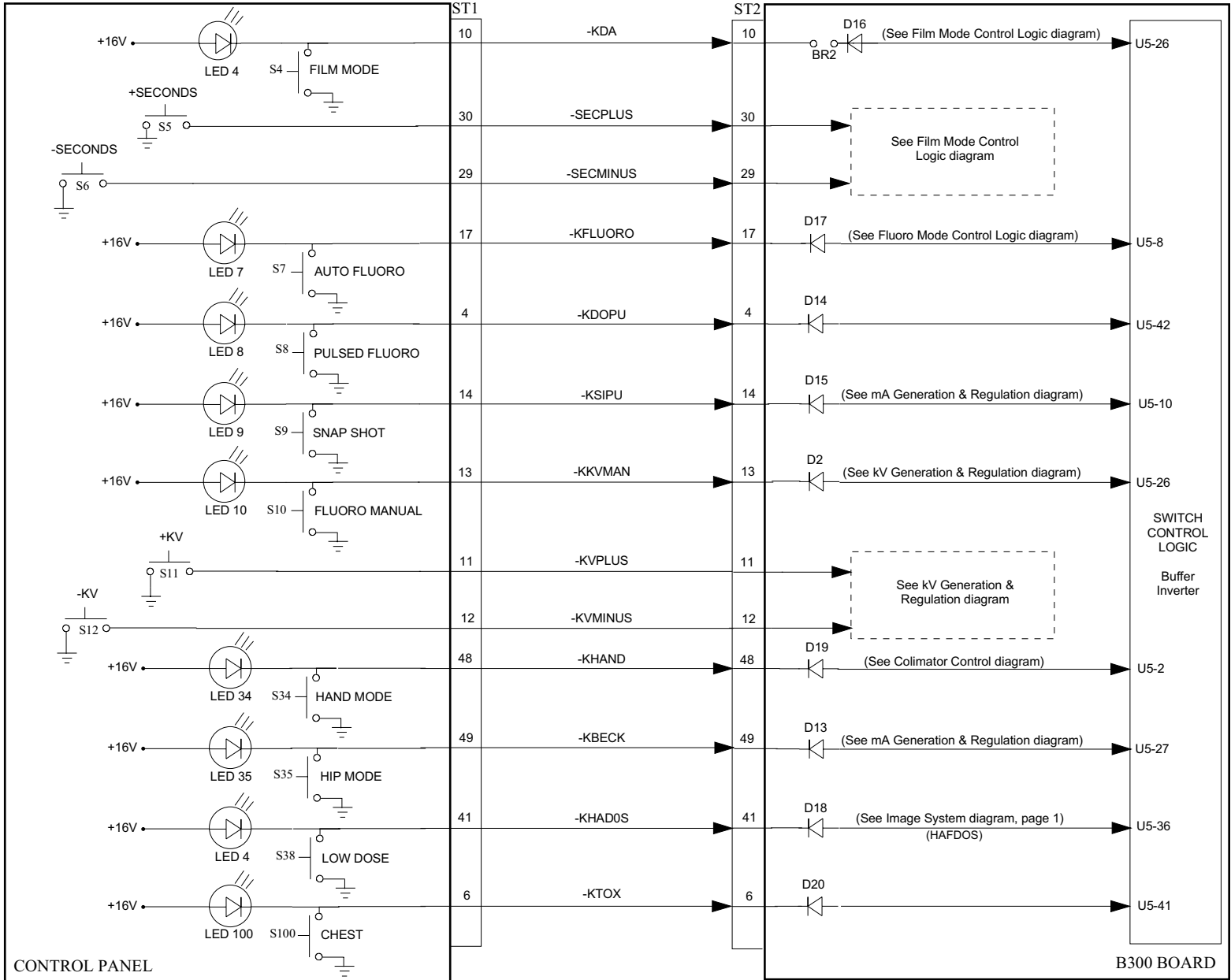


- K1 - Current Control ----- De-Energized
- K2 - Direction Control Up ----- De-Energized
- K3 - Direction Control Down ----- De-Energized
- K4 - Current Enable Up ----- De-Energized
- K5 - Current Enable Down ----- De-Energized

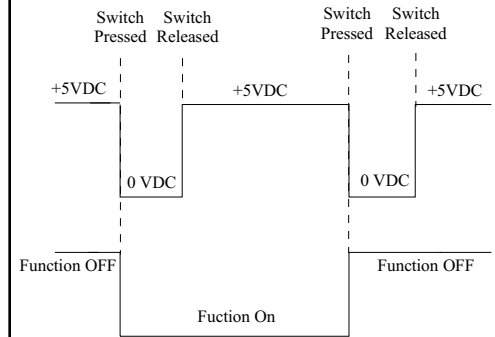
	7700 Compact / Series	
	For Reference Only	Page 3 of 3
	77X04_02.DS4	21.July 2000
C-ARM LIFT NO LIFT MOVEMENT		




 OEC MEDICAL SYSTEMS, GMBH	7700 Compact / Series	
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	77X05_02.DS4	21.July 2000
INTERFACE SIGNALS XRAY TUBE HEAD TO CONTROL ELECTRONICS		

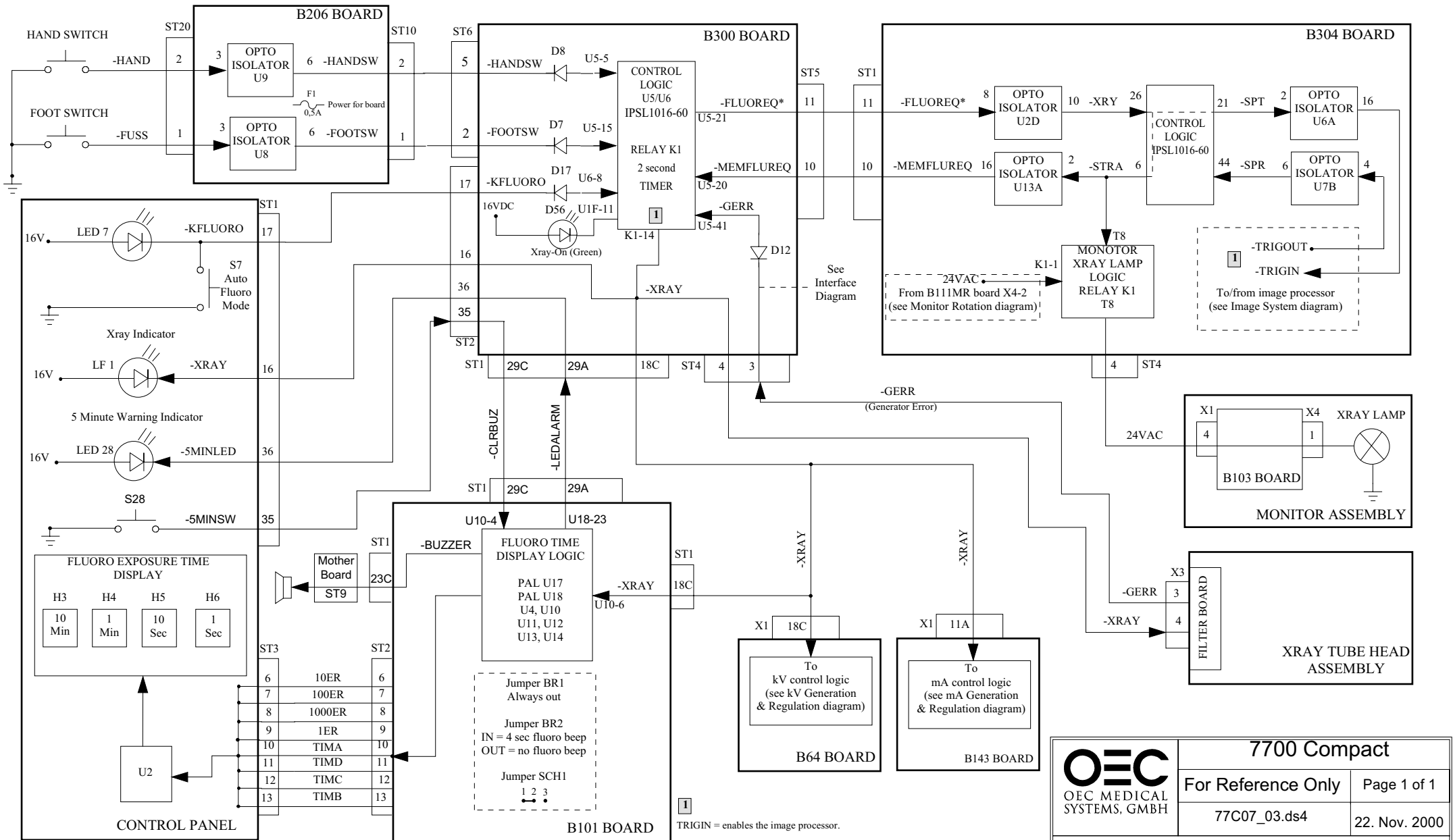


Typical Switch Logic Control



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	77X06_02.DS4	21.July 2000

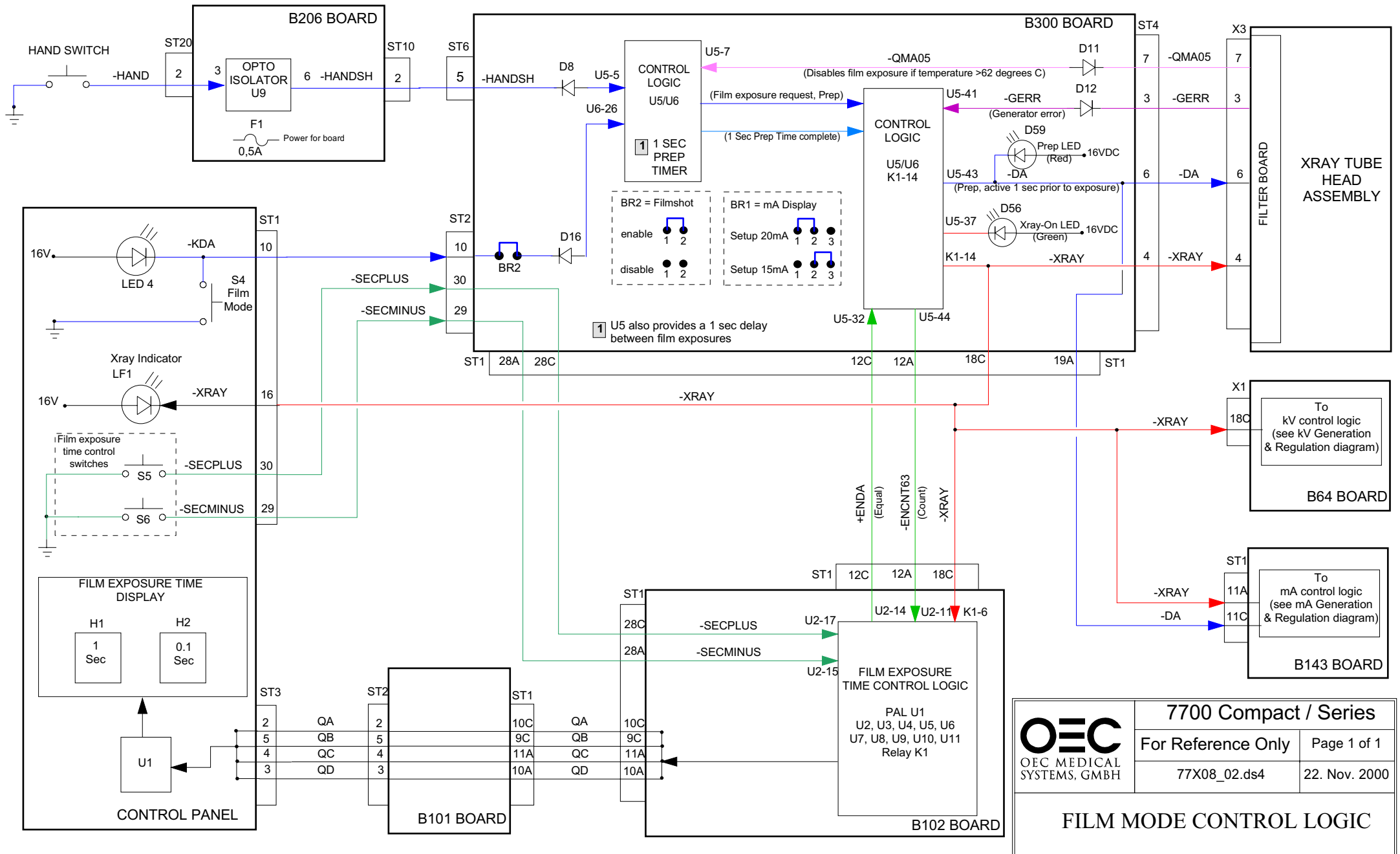
XRAY CONTROL SWITCHES



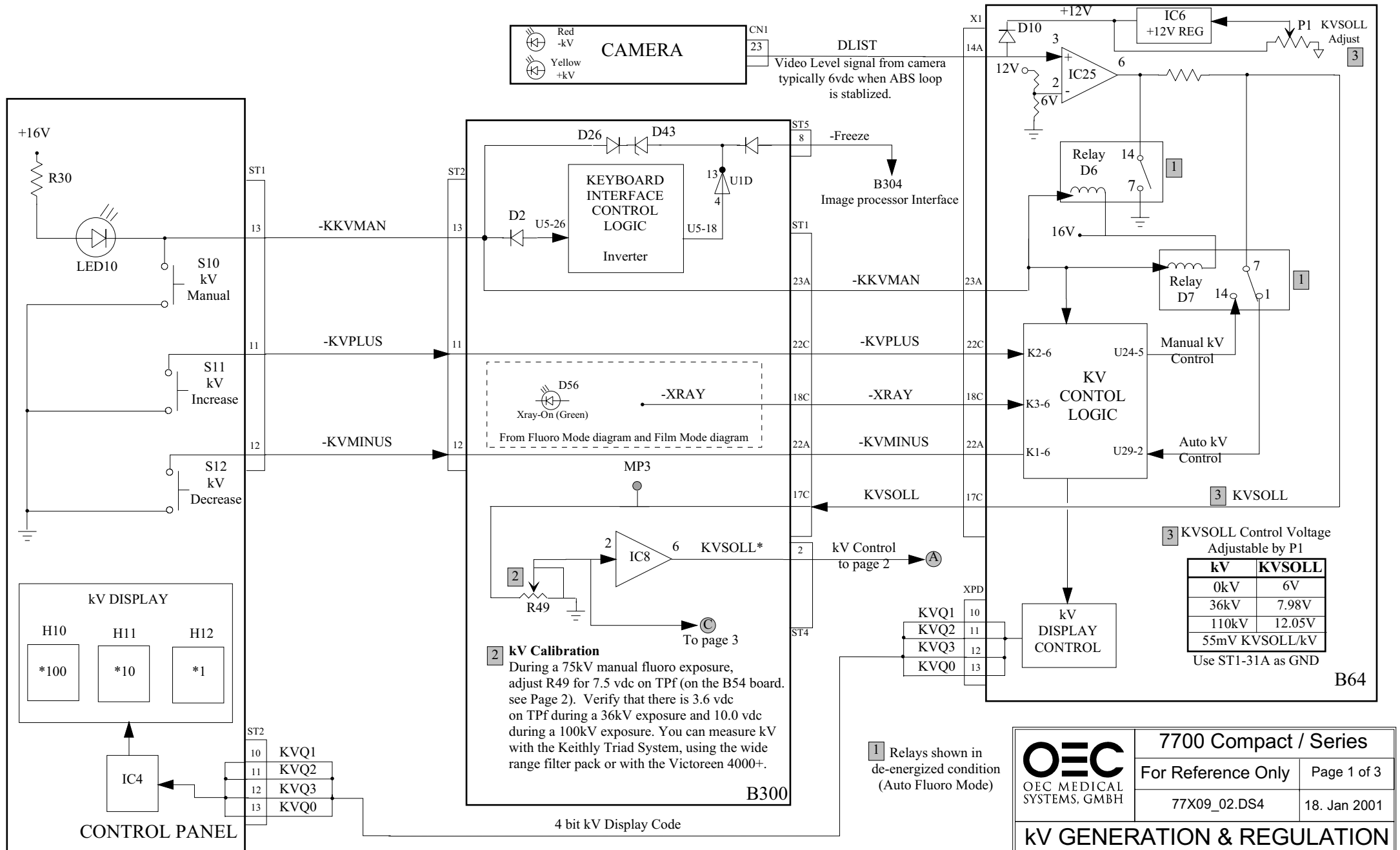
I TRIGIN = enables the image processor.

TRIGOUT = from the image processor stays active, enabling exposure, for 640 msec after the xray switch is released. This ensures sufficient time to for last image hold. The timer on the B300 board terminates exposure after 2 seconds if the TRIGOUT does not terminate after the 640 msec time period.

 OEC OEC MEDICAL SYSTEMS, GMBH	7700 Compact	
	For Reference Only	Page 1 of 1
	77C07_03.ds4	22. Nov. 2000
FLUORO MODE CONTROL LOGIC		

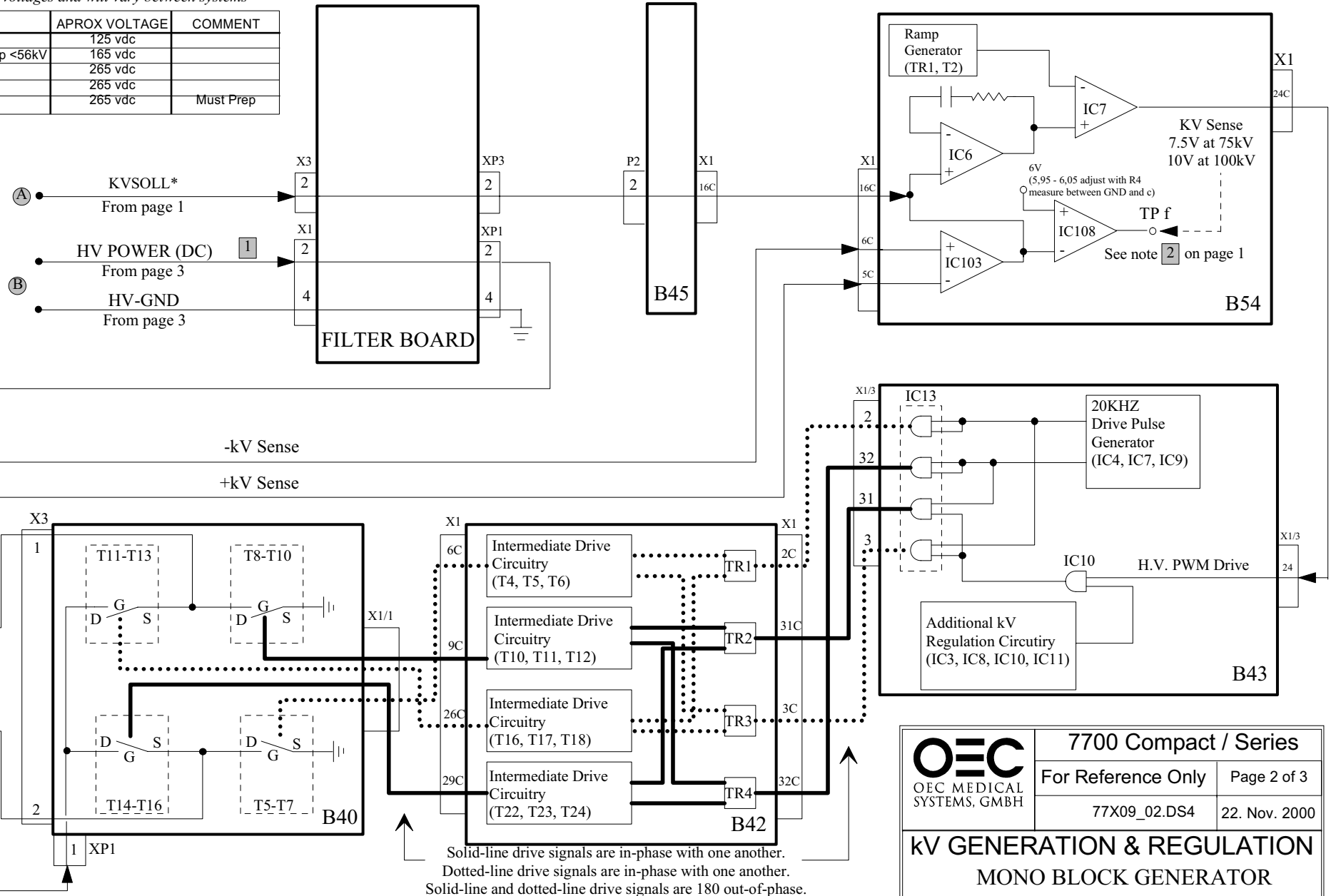



 OEC OEC MEDICAL SYSTEMS, GMBH	7700 Compact / Series	
	For Reference Only	Page 1 of 1
	77X08_02.ds4	22. Nov. 2000
	FILM MODE CONTROL LOGIC	

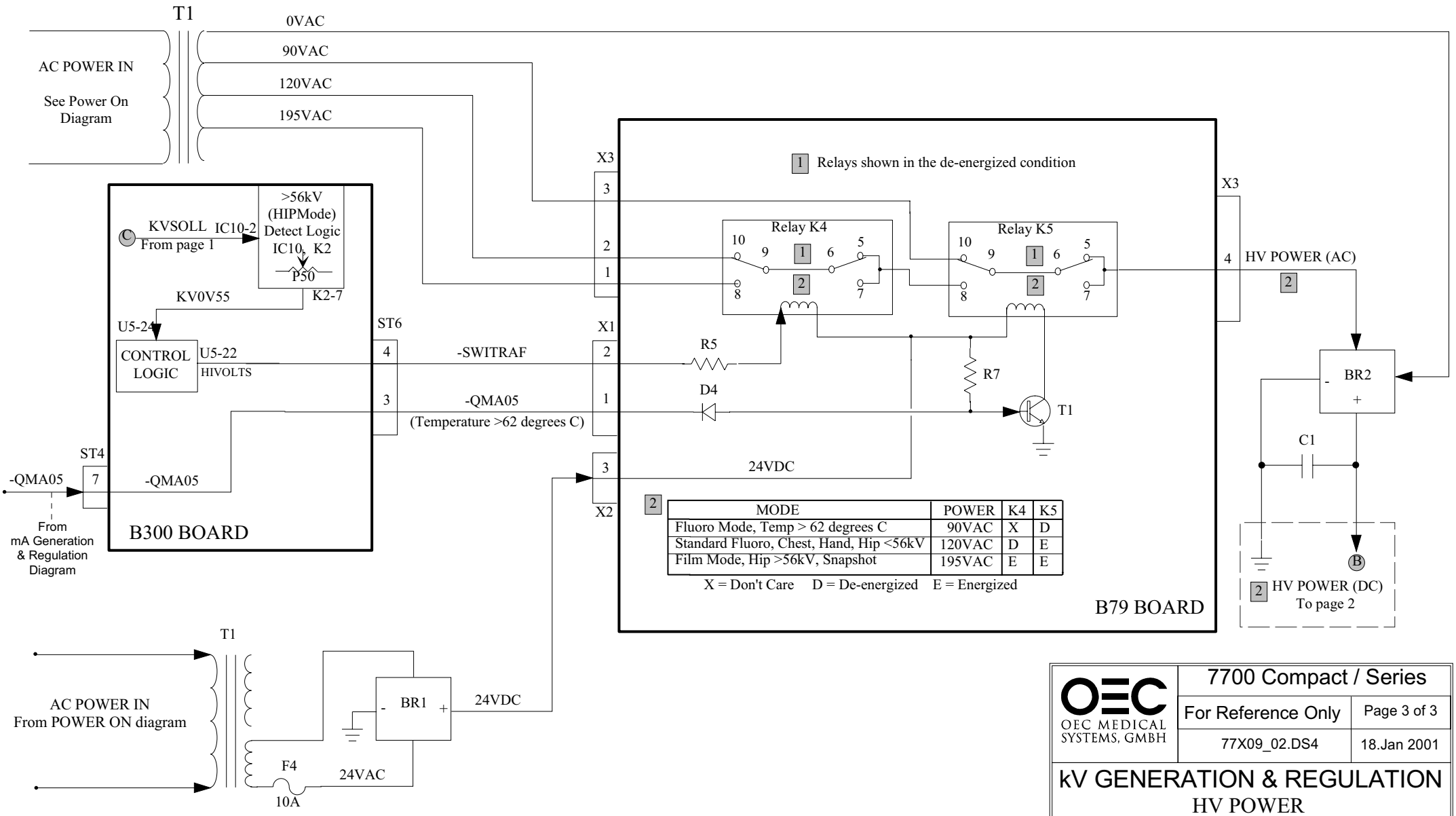


1 These are approximate voltages and will vary between systems

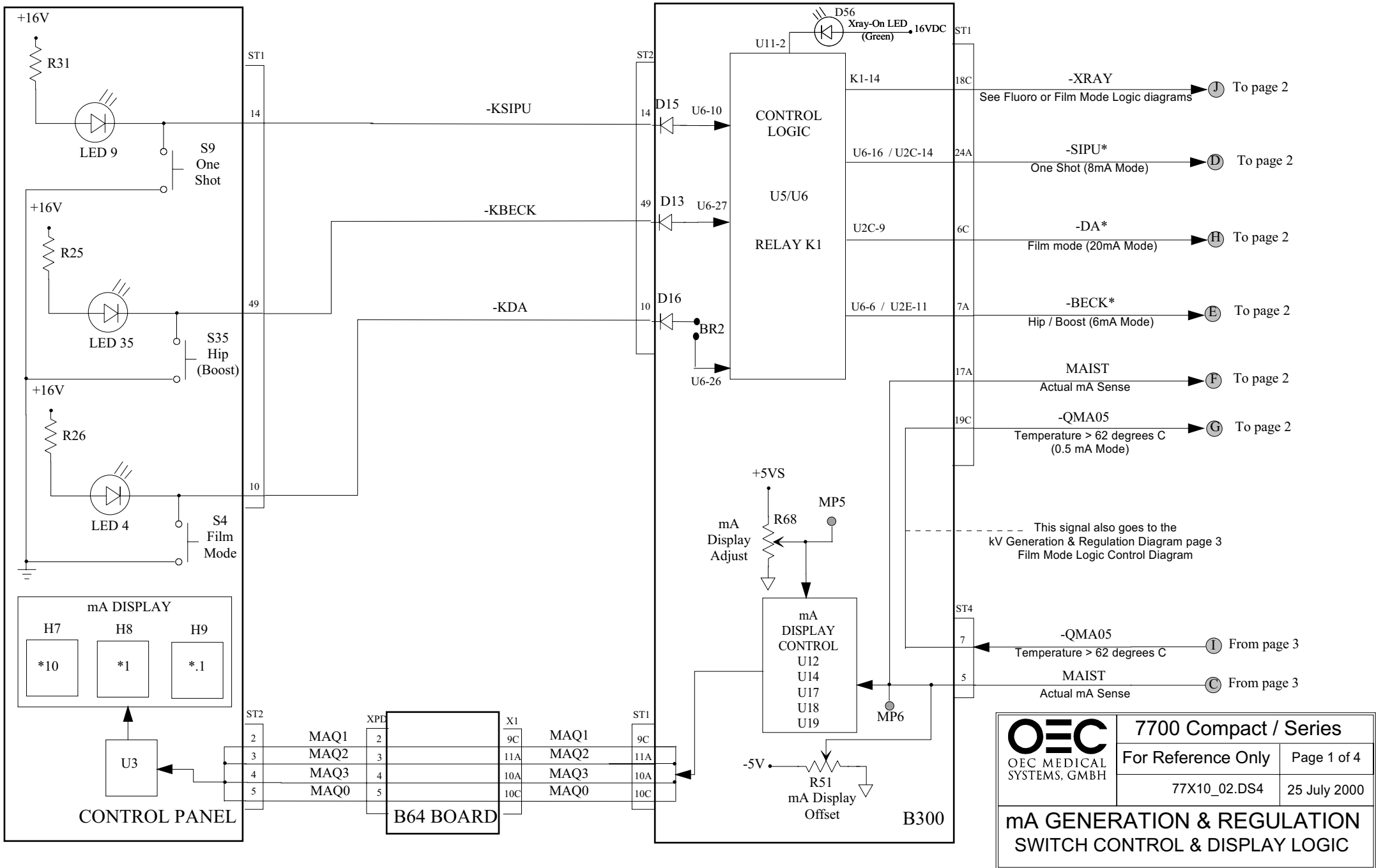
MODE	APROX VOLTAGE	COMMENT
0.5 mA Fluoro (Temp > 62 C)	125 vdc	
Standard Fluoro, Chest, Hand, Hip <56kV	165 vdc	
Snapshot	265 vdc	
Hip >56kV	265 vdc	
Film	265 vdc	Must Prep

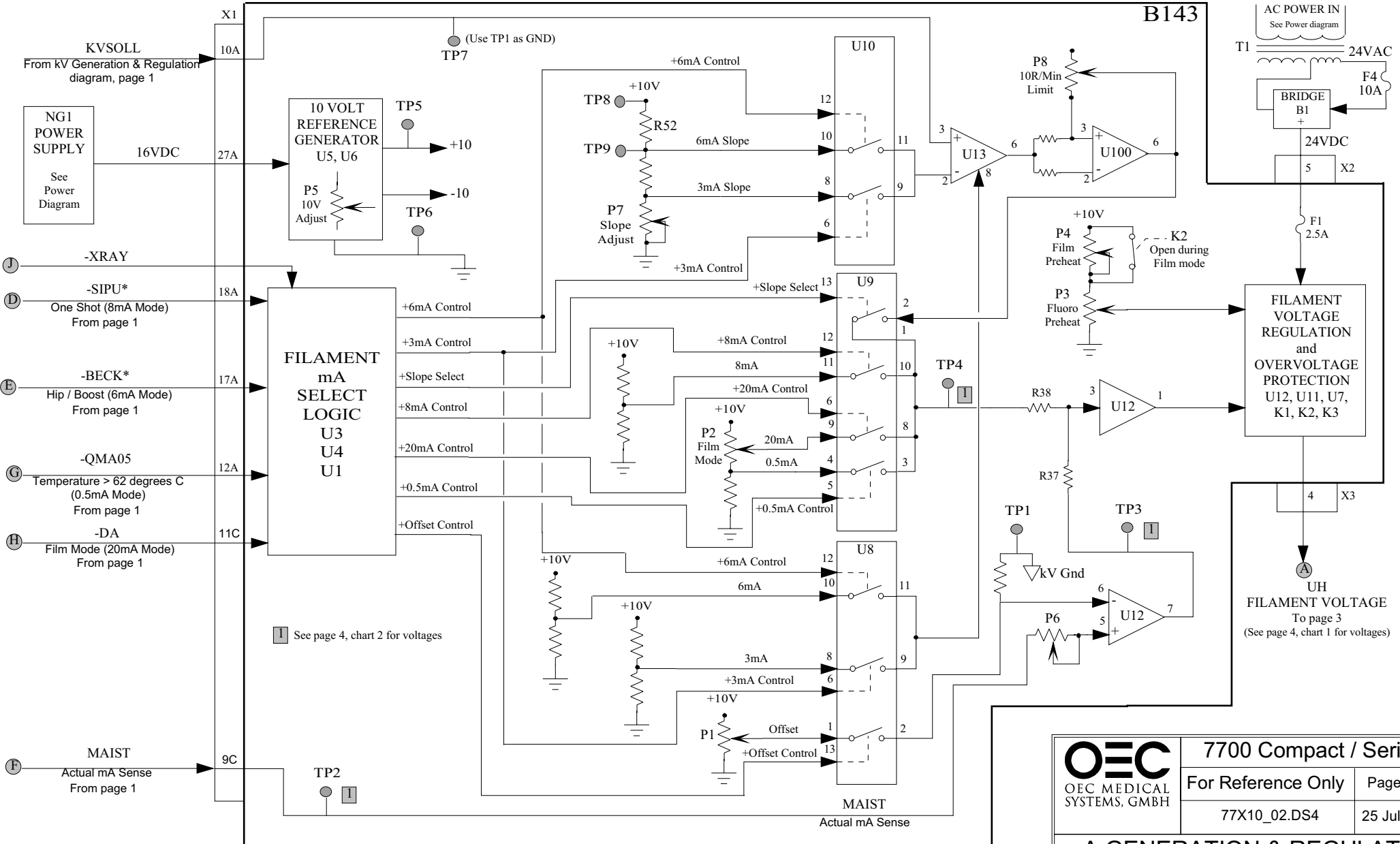



 OEC MEDICAL SYSTEMS, GMBH	7700 Compact / Series	
	For Reference Only	Page 2 of 3
	77X09_02.DS4	22. Nov. 2000
KV GENERATION & REGULATION MONO BLOCK GENERATOR		

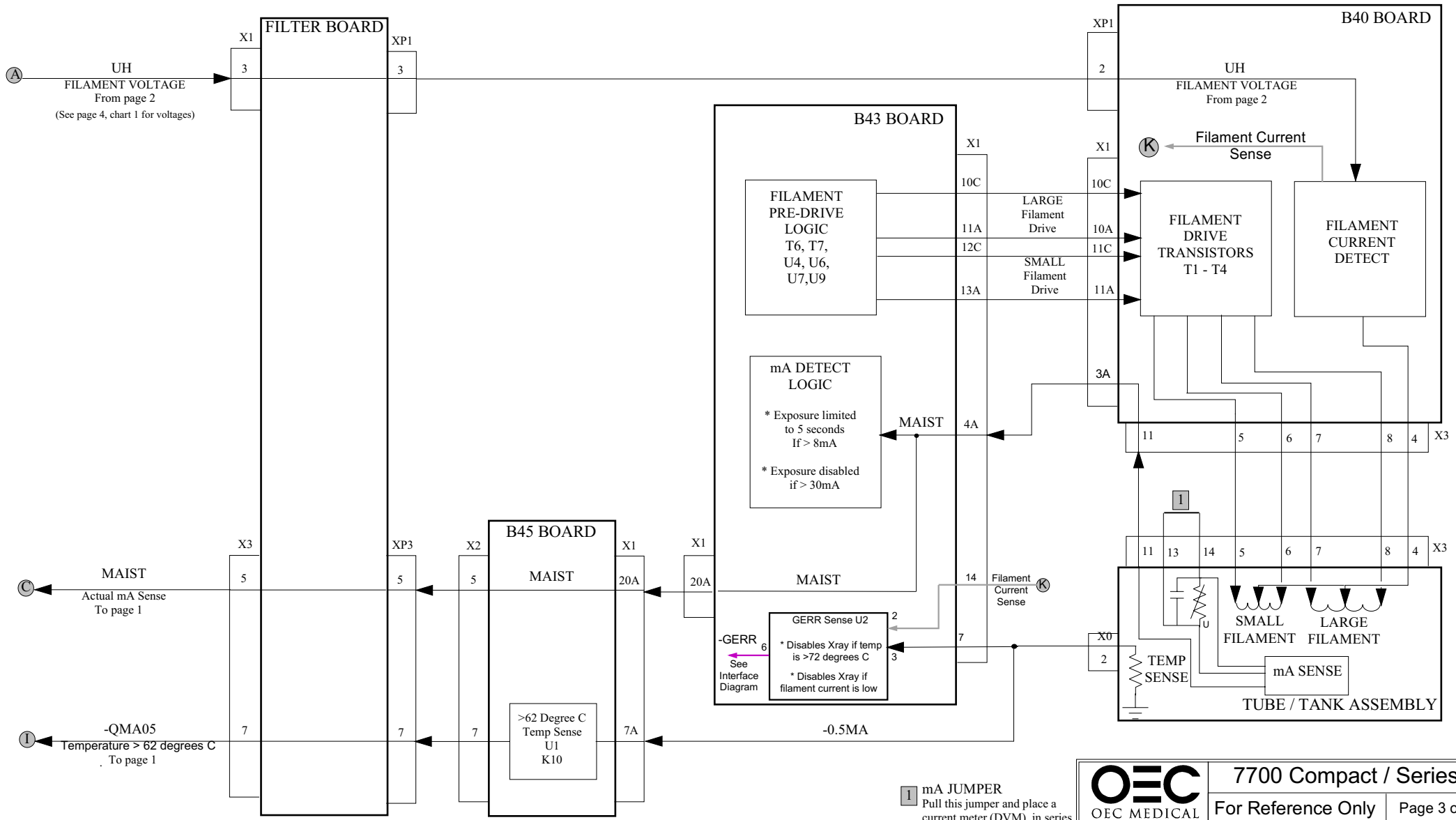


 OEC OEC MEDICAL SYSTEMS, GMBH	7700 Compact / Series	
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	77X09_02.DS4	18.Jan 2001
KV GENERATION & REGULATION HV POWER		





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mA GENERATION & REGULATION B143 FILAMENT CONTROL		



1 mA JUMPER
 Pull this jumper and place a current meter (DVM) in series to measure actual mA

 OEC OEC MEDICAL SYSTEMS, GMBH	7700 Compact / Series	
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77X10_02.DS4		25 July 2000
mA GENERATION & REGULATION MONO BLOCK GENERATOR		

UH - APROXEMENT FILAMENT VOLTAGE

MODE	kV	mA	UH FILAMENT VOLTAGE ** Filter Pcb XP1-3 or B143 Pcb X3-4
Fluoro Standby (Pre-heat)	76		9.8vdc - 10.2vdc
Fluoro Exposure	36	0.2	10.2vdc - 10.6vdc
Fluoro Exposure	110	3.0	11.8v - 12.2vdc
Snapshot	36	8.0	14.0vdc - 15.5vdc
Snapshot	110	8.0	12.5vdc - 13.4vdc
Hip	36	0.2	10.2vdc - 10.6vdc
Hip	110	5.0 - 6.0	11.2vdc - 11.5vdc
Film Mode Prep Press hand switch quickly (less than 1 second).	76		14.9vdc - 15.5 vdc
2 Second Film Exposure	36	20.0	16vdc than dropping to 14.3vdc - 14.8vdc
2 Second Film Exposure	80	20.0	16vdc than dropping to 13.8vdc - 14.3vdc
			<p>** UH Filament Voltage Note **</p> <p>>21vdc = Xray is disabled (B143 Pcb) Fault Indicator Off</p> <p>10vdc - 20vdc = good range</p> <p>6vdc - 9.9vdc = low mA, Fault Indicator Off</p> <p><5vdc = No mA, Fault Indicator illuminated</p> <p>(See Interface Signals Diagram for Fault Indicator)</p>


Chart 1

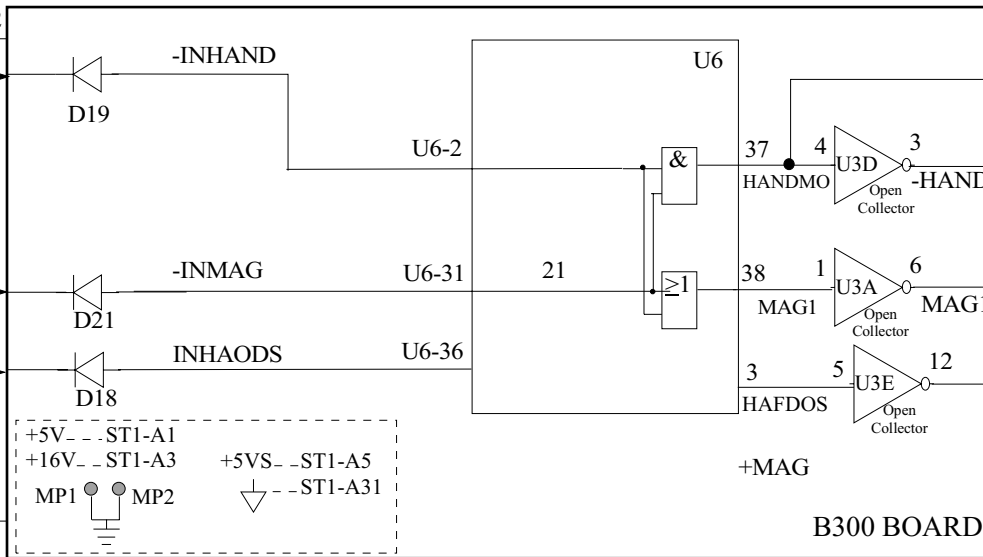
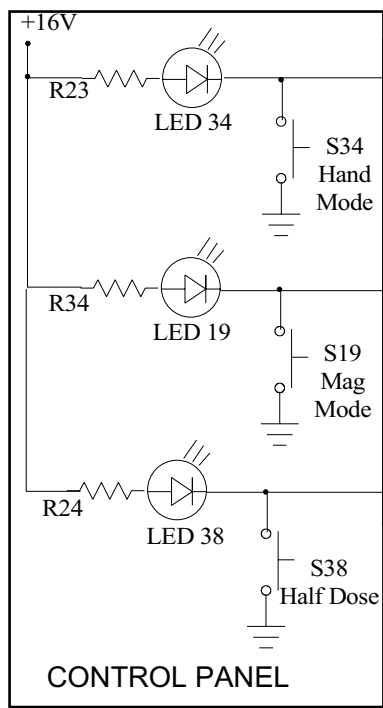
B143 Pcb TROUBLESHOOTING CHART

Approximate voltages
Use TP6 as GND

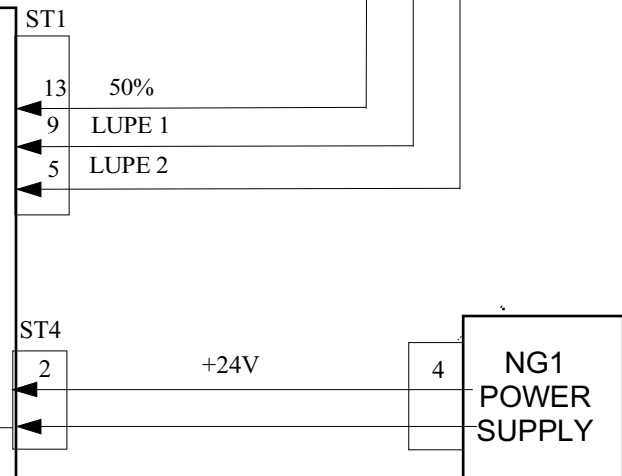
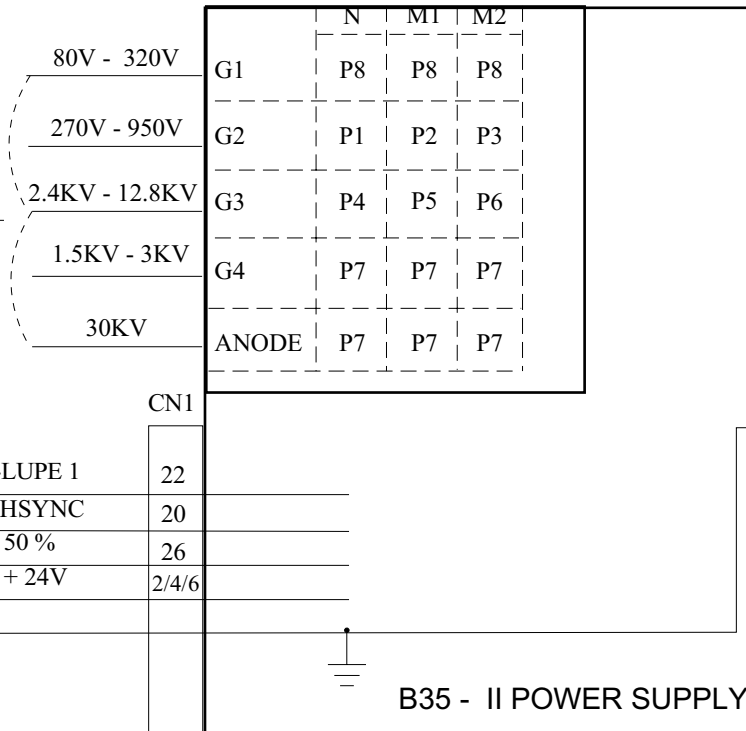
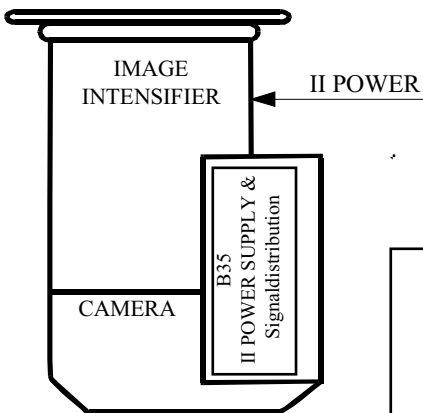
MODE	mA	TP2 MAIST	TP3 Offset	TP4 Filament Regulator Control
76kV Idol Fluoro (No exposure)	0.0	+0.44vdc	0.0vdc	+1.5vdc
36kV Standard Fluoro Exposure	0.2	+0.25vdc	-.103vdc	+0.15
60kV Standard Fluoro Exposure	1.7	-1.1vdc	-.86vdc	+0.94vdc
85kV Standard Fluoro Exposure	3.0	-2.4vdc	-1.5vdc	+1.58vdc

Chart 2

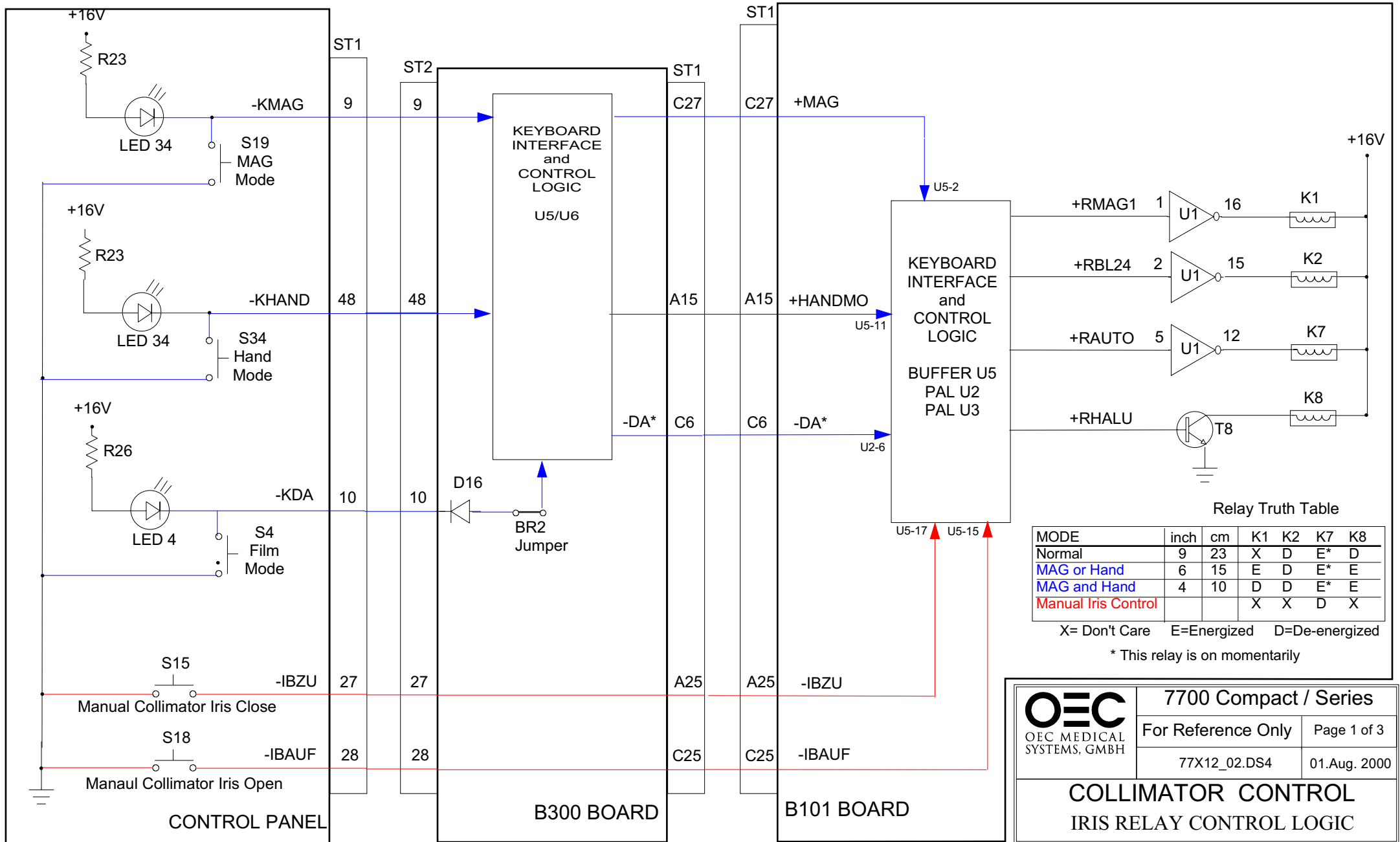
 <p>OEC MEDICAL SYSTEMS, GMBH</p>	7700 Compact / Series	
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	77X10_02.DS4	25 July 2000
<p>mA GENERATION & REGULATION TROUBLESHOOTING CHARTS</p>		



Hand	-MAG1	
0	0	Normal (23cm / 9")
1	0	MAG1 (15cm / 6")
0	1	MAG1 (15cm / 6")
1	1	MAG2 (10cm / 4")



 OEC MEDICAL SYSTEMS, GMBH	7700 Compact / Series	
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	77x11_03.DS4	02.Aug. 2000
IMAGE INTENSIFIER		



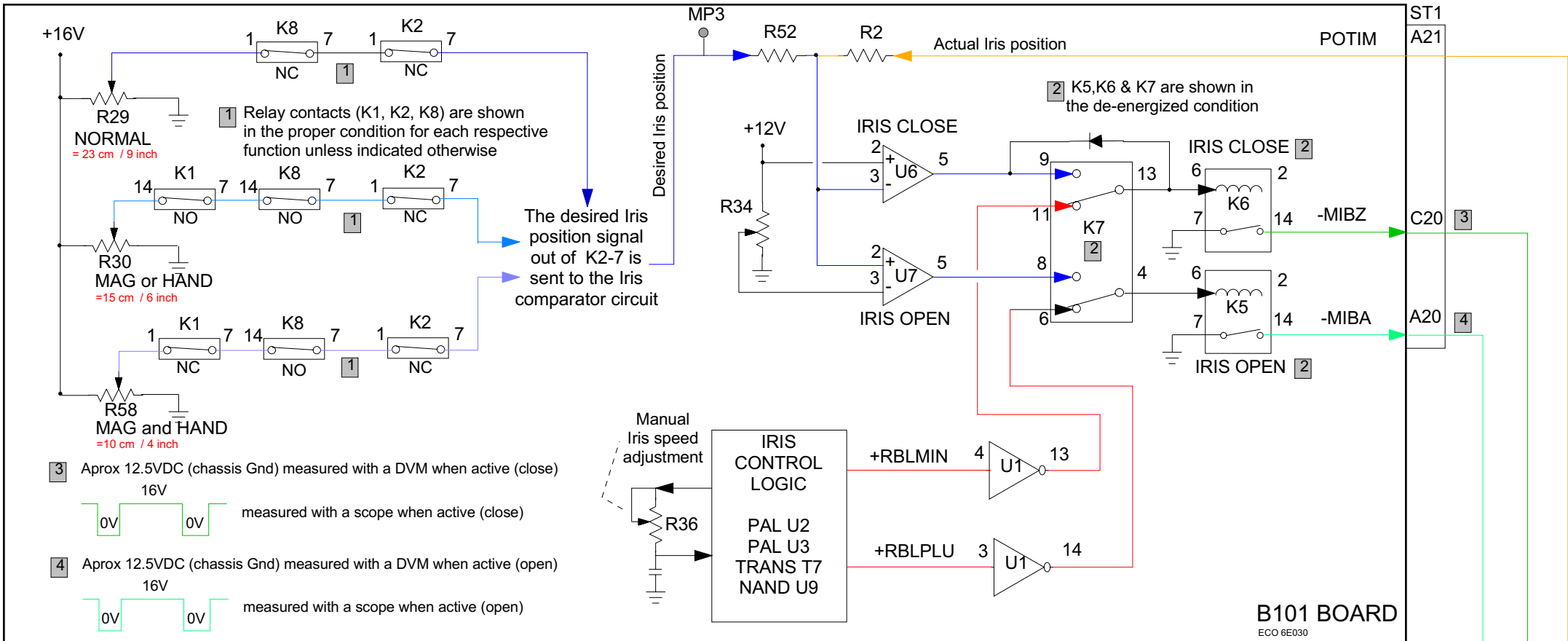
OEC
OEC MEDICAL SYSTEMS, GMBH

7700 Compact / Series

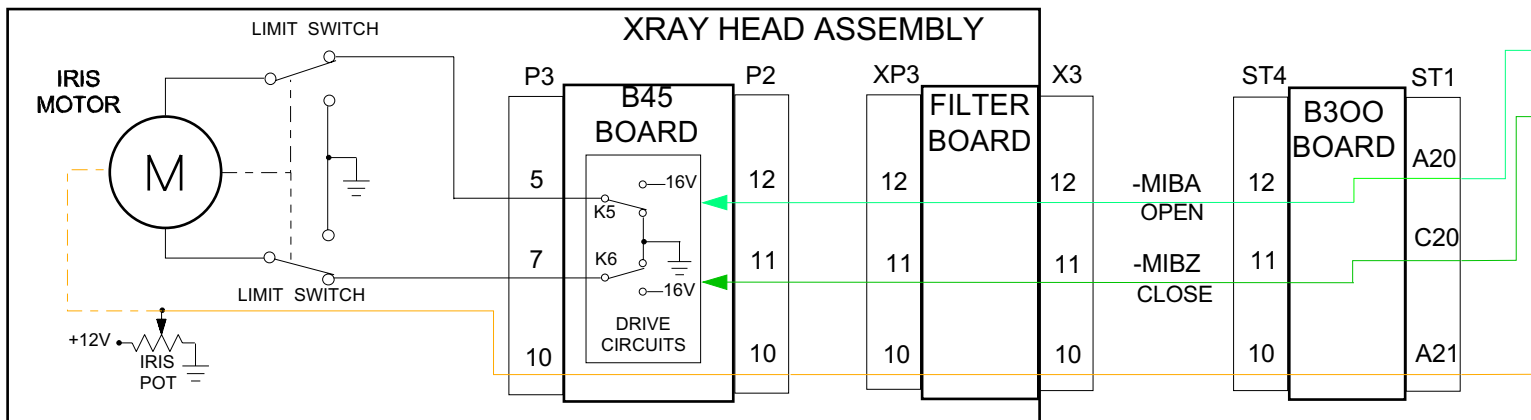
For Reference Only | Page 1 of 3

77X12_02.DS4 | 01.Aug. 2000

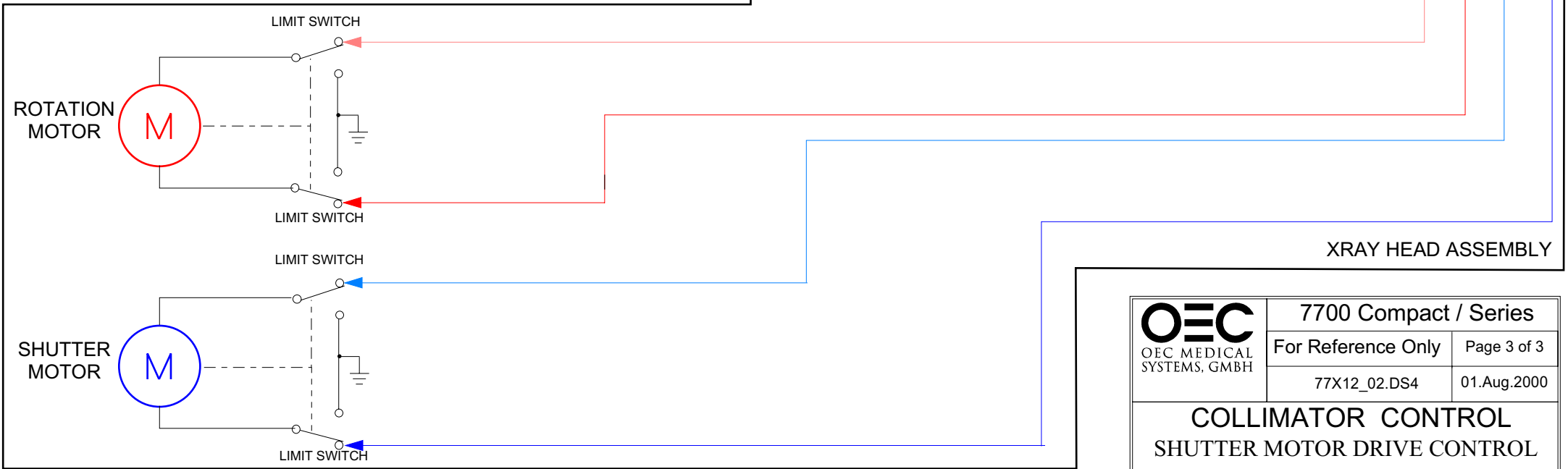
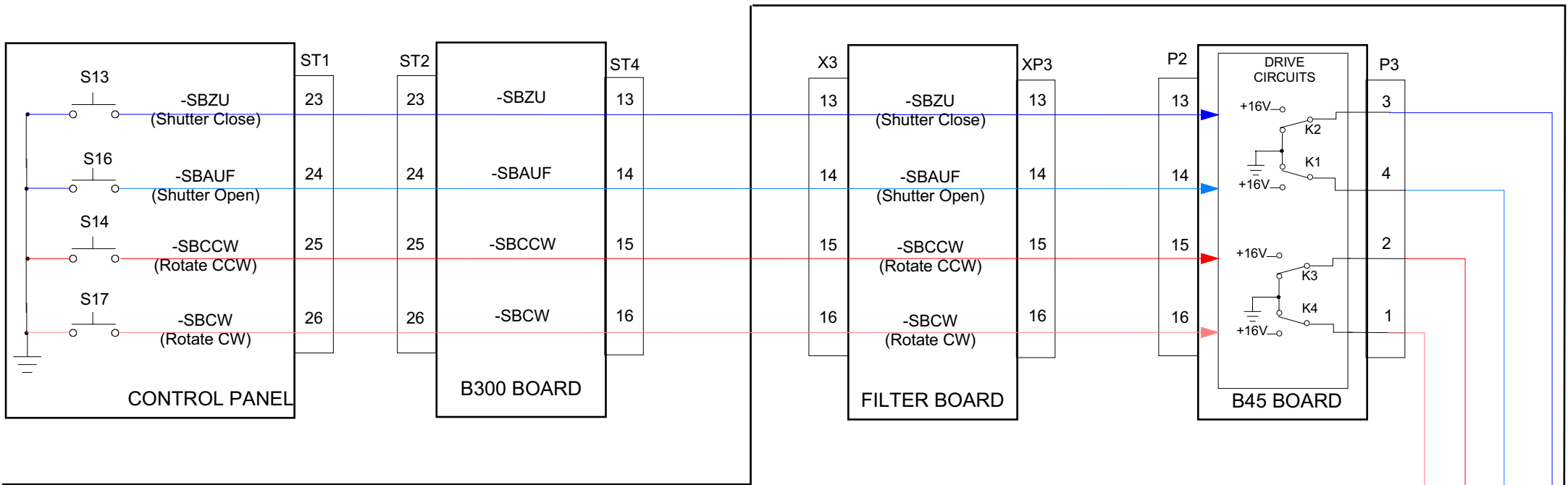
COLLIMATOR CONTROL
IRIS RELAY CONTROL LOGIC



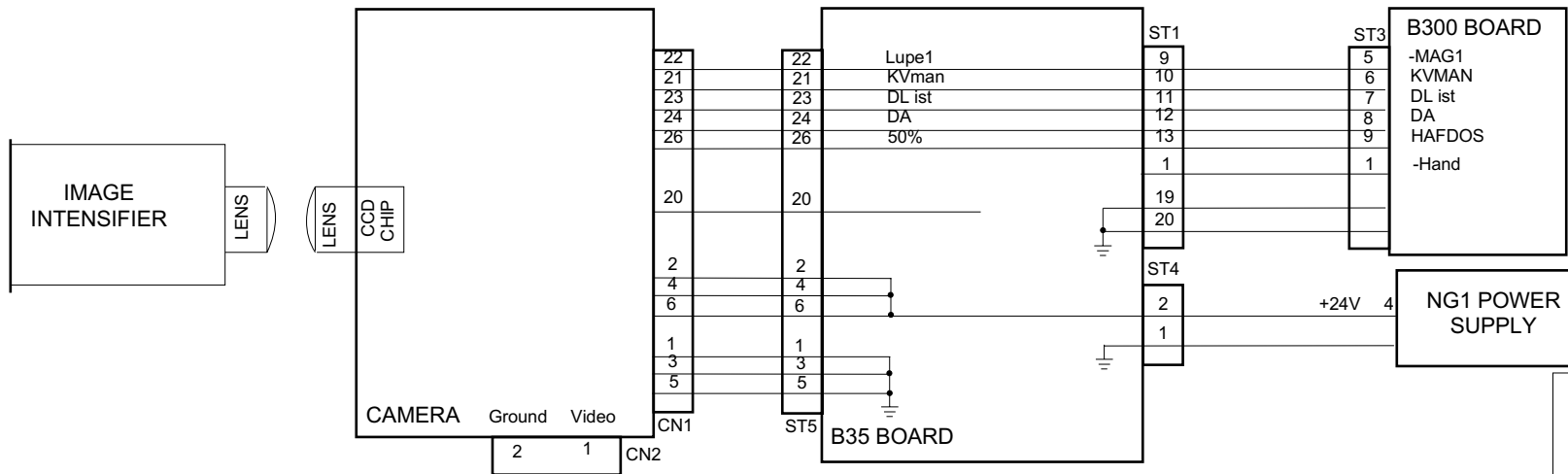
- 3 Aprox 12.5VDC (chassis Gnd) measured with a DVM when active (close)
 - 16V
 - measured with a scope when active (close)
- 4 Aprox 12.5VDC (chassis Gnd) measured with a DVM when active (open)
 - 16V
 - measured with a scope when active (open)



 OEC OEC MEDICAL SYSTEMS, GMBH	7700 Compact / Series	
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	77X12_02.DS4	01.Aug. 2000
COLLIMATOR CONTROL IRIS MOTOR DRIVE LOGIC		



 OEC OEC MEDICAL SYSTEMS, GMBH	7700 Compact / Series	
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	77X12_02.DS4	01.Aug.2000
COLLIMATOR CONTROL SHUTTER MOTOR DRIVE CONTROL		



See Xray Control Switch Diagram

9 INCH II kV / mA TRACKING

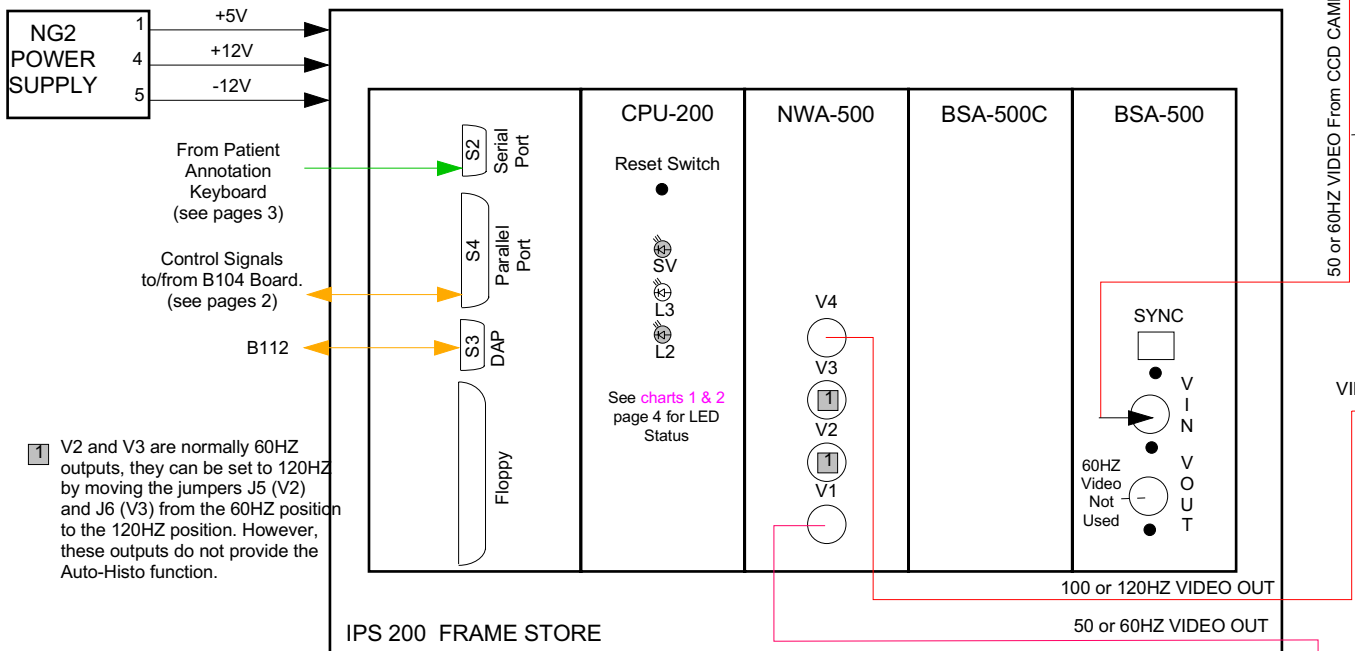
1mm Copper filters	kV	mA
1	59	1.7
2	69	2.3
3	76	2.8

kV specification +/- 3kV mA specification +/- 15%

MONITOR LINE PAIR RESOLUTION

9 INCH II		FUTURE
NORMAL	1.4 Lines/mm	NORMAL
MAG	1.8 Lines/mm	MAG

If video size is reduced to fit inside circular blanking mask, reduce line pair resolution by 10%.

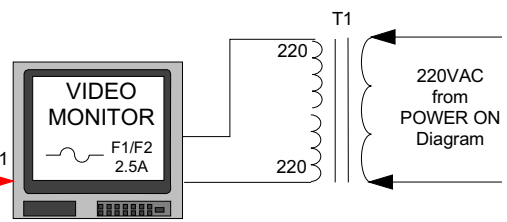


1 V2 and V3 are normally 60HZ outputs, they can be set to 120HZ by moving the jumpers J5 (V2) and J6 (V3) from the 60HZ position to the 120HZ position. However, these outputs do not provide the Auto-Histo function.

See chart 3 page 4

VIDEO BYPASS
only for Monitor BG 641 and not for Monitor L&B VM3819
 To route video directly from the camera to the monitor:

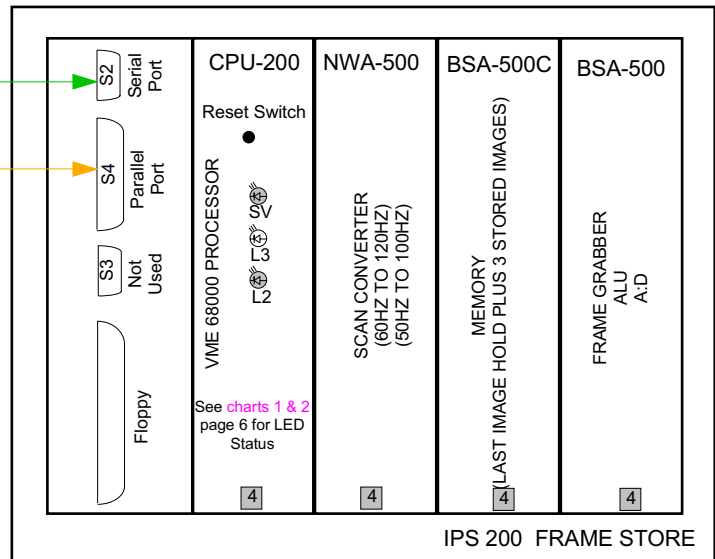
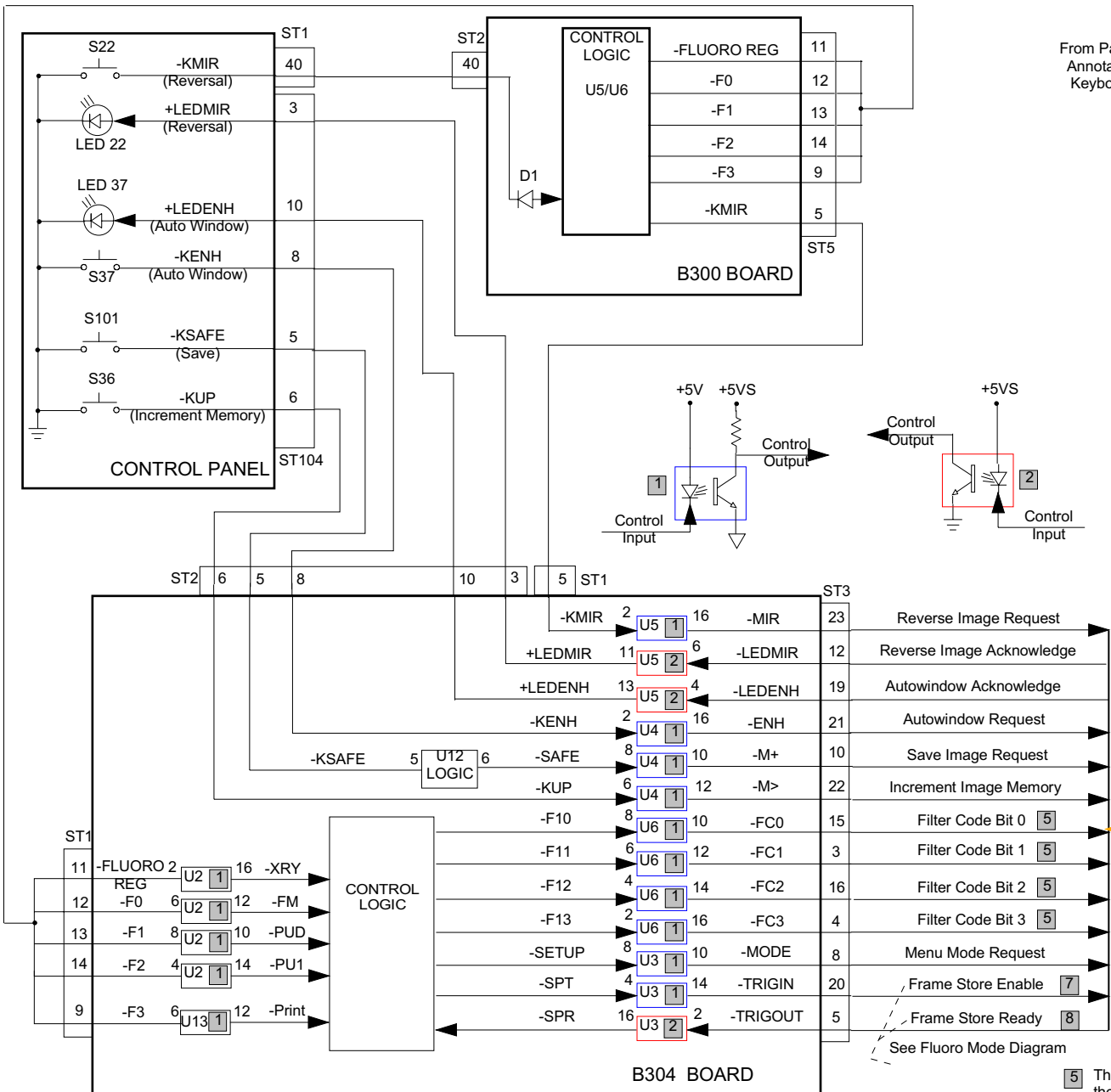
1. Disconnect the BSA-500 'VIN' connector
2. Disconnect the NWA-500 'V4' connector
3. Connect these two cables using a barrel connector
4. Set monitor for 15KHZ operation using the rear panel switches (12")
5. Set monitor for 16KHZ operation using the rear panel switches (17")



	7700 Compact	
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IMAGE SYSTEM VIDEO PATH

Video to Hard Copy printer, see page 3 for details



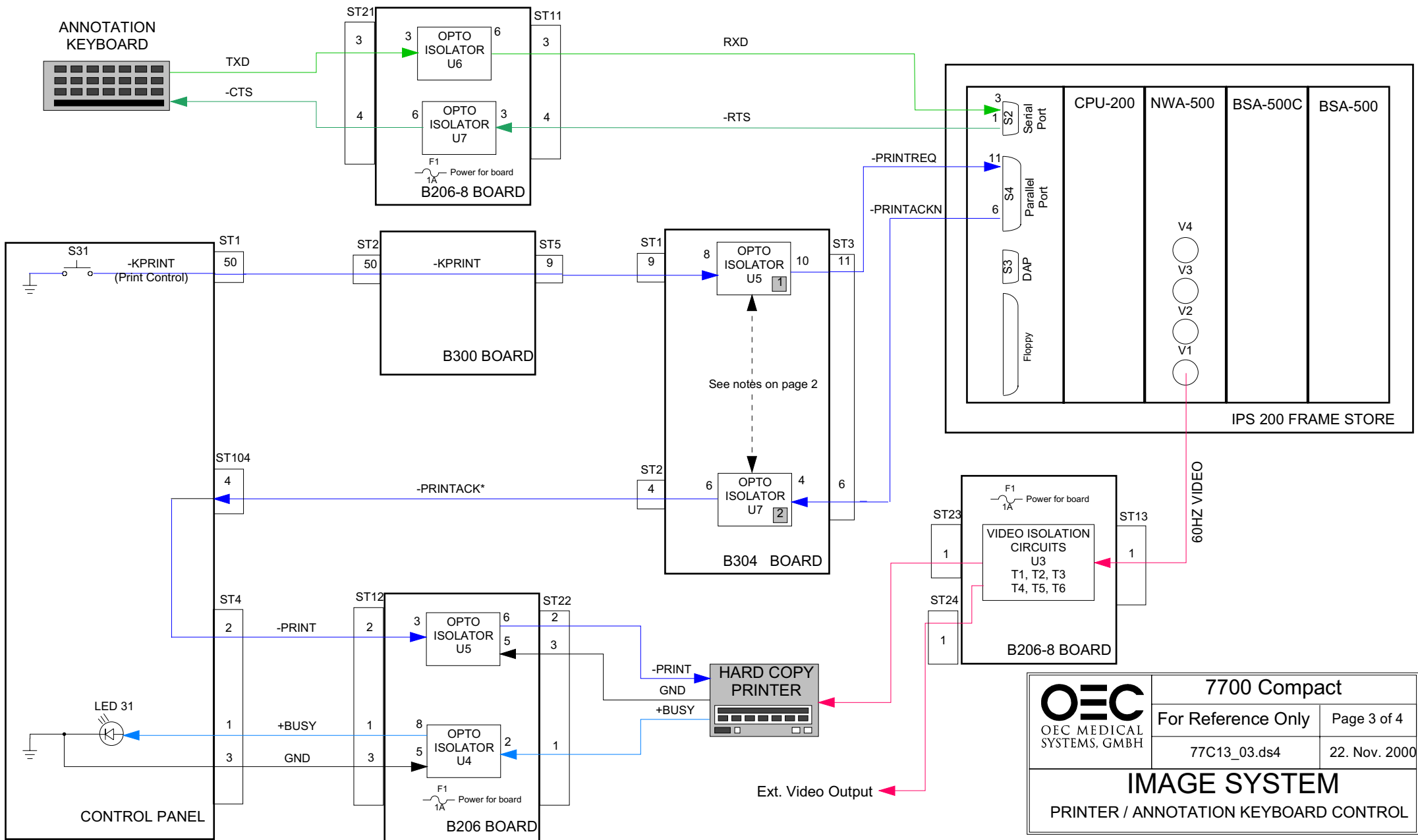
- 7 TRIGIN = enables the image processor.
- 8 TRIGOUT = from the image processor stays active, enabling exposure, for 640 msec after the xray switch is released. This ensures sufficient time to for last image hold.
- 4 See the theory section of the service manual for jumper configurations


ACCESS FRAME STORE SETUP

1. - Press the 'ON' and 'SAVE' switches simultaneously
 - Cycle through menu using the 'M>' switch
 - Toggle selections using the 'SAVE' switch
- Note: If there are more then two selections available the message 'NEW VALUE' will be displayed. You can then use the 'M>' switch to change the value.
2. or use Annotation Keyboard for Setup press Shift and Home

5 The filter code bits control the amount of averaging used. Averaging varies depending on the operating mode. See chart 4, page 6

 OEC MEDICAL SYSTEMS, GMBH	7700 Compact	
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	77C13_03.ds4	22. Nov. 2000
<h2>IMAGE SYSTEM</h2> <h3>FRAME STORE CONTROL</h3>		



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	77C13_03.ds4	22. Nov. 2000
IMAGE SYSTEM PRINTER / ANNOTATION KEYBOARD CONTROL		

LED STATUS

CONDITION	LED SV	LED L3	LED L2
Standby	ON	OFF	ON
Fluoro exposure	ON	OFF	ON
Loss of Camera Sync during Fluoro Exposure	ON	OFF	ON
No Camera Sync during Boot-Up	ON	OFF	OFF

Chart 1

VIDEO & VIDEO LEVEL

Approximate Voltages

(The Xray Head cover should be on for these measurements)

TEST PHANTOM	VIDEO SIGNAL out of camera head 9 pin connector pin 5	VIDEO SIGNAL out of VD01 Pcb pin 17 - white wire	DLIST SIGNAL out of AU01 Pcb TP1	kV
No object in the beam	1.6V - 1.8 V Peak/Peak	0.8V - 1.0 V Peak/Peak	6.0Vdc	39 - 45
Three 1mm copper filters	1.6V - 1.8 V Peak/Peak	0.8V - 1.0 V Peak/Peak	6.0Vdc	79 - 85

Chart 3

LED ERROR INDICATIONS DURING BOOT-UP

BMS 500 Frame Store Board Failures


ERROR CONDITIONS	LED SV	LED 3	LED 2
CPU 100 Failure	OFF		
CPU 100 EPROM/PROM Failure		1 Blink	
CPU 100 RAM Failure		2 Blinks	
CPU 100 Clock Failure		3 Blinks	
BSA 500 Failure			1 Blink
BSA 500C Failure			2 Blinks
BSA 500 RAM Failure			3 Blinks
BSA 500C RAM Failure			4 Blinks
BSA 500 IC Failure			5 Blinks
BSA 500 Controller Failure			6 Blinks
BSA 500 Failure			7 Blinks

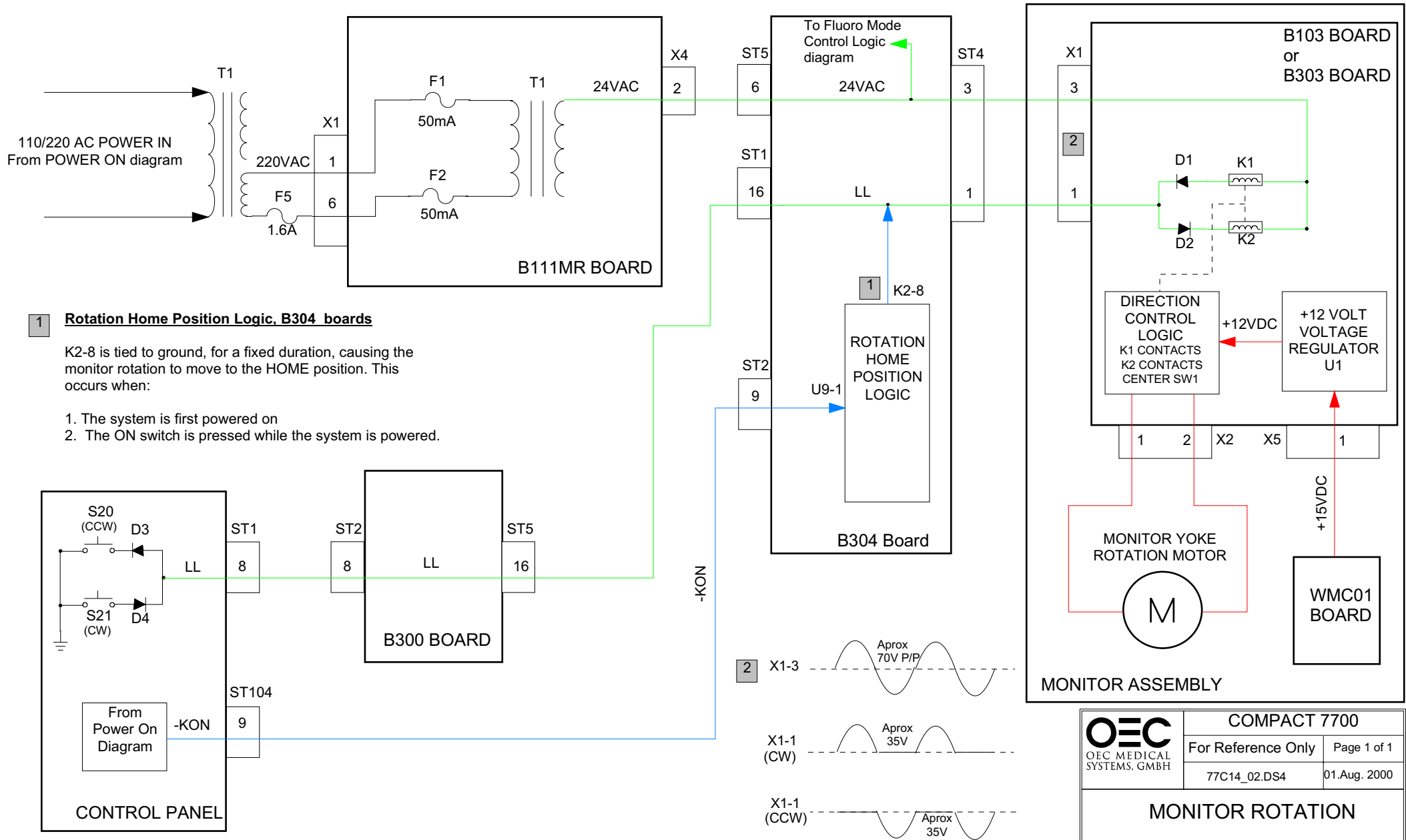
Chart 2

IMAGE PROCESSOR FILTER CONTROL CODES

MODE	FILTER CONTROL CODE					CONTROL LINES		
	FC3	FC2	FC1	FC0		FM	PUD	PU1
Standard Fluoro	0	H	H	0		H	H	H
Pulse	0	H	H	0		H	0	H
Snapshot	H	0	H	H		H	H	0
Hip	0	0	H	H		0	H	H
Hand	0	H	H	0		0	H	0
Thorax	0	H	H	0		H	0	0
Low Dose	0	H	0	H		0	0	0

Chart 4

 OEC MEDICAL SYSTEMS, GMBH	7700 Compact	
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IMAGE SYSTEM TROUBLESHOOTING CHARTS		

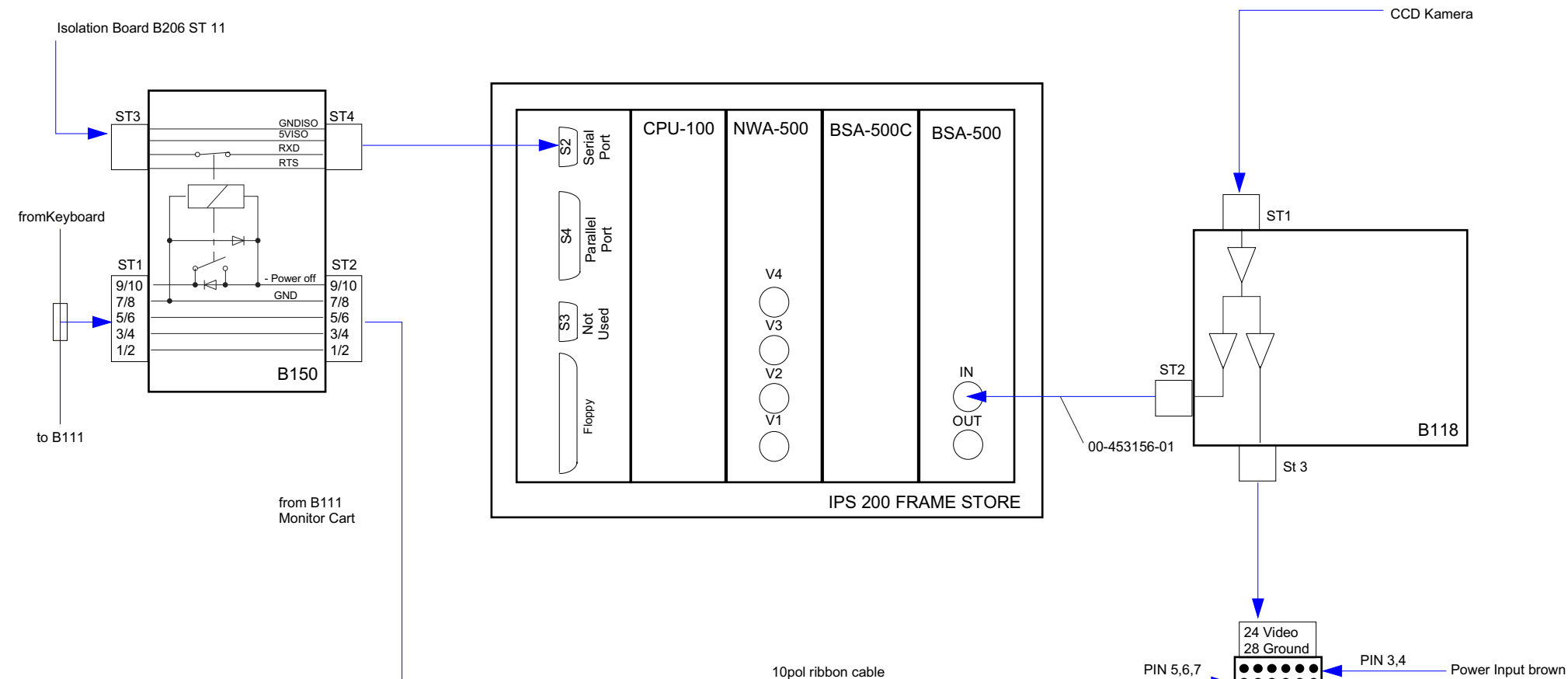


1 Rotation Home Position Logic, B304 boards

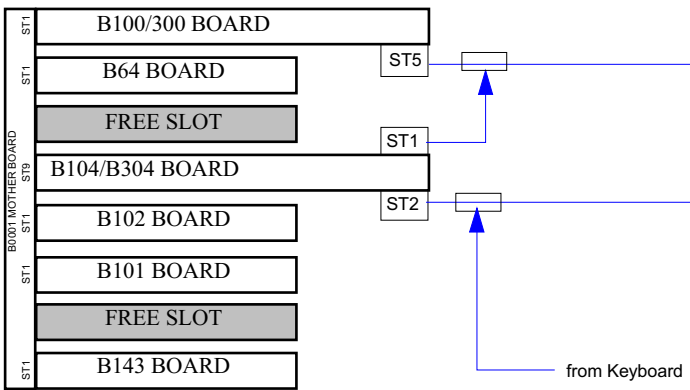
K2-8 is tied to ground, for a fixed duration, causing the monitor rotation to move to the HOME position. This occurs when:

1. The system is first powered on
2. The ON switch is pressed while the system is powered.

 OEC MEDICAL SYSTEMS, GMBH	COMPACT 7700	
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MONITOR ROTATION		



Elektronik Rack



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Interconnect Diagramm Compact Plus		