Film-Tech

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PG-2120
AUTOMATION

Strong International, Inc.
4350 McKinley Street • Omaha, Nebraska 68112
Telephone: **402-453-4444** • FAX: **402-453-7238**

SECTION 1 - PREFACE

1.1 SCOPE

This manual provides installation and operating instructions for the Strong International **PG-2100 Series** Automation. This system is designed to be installed in any Strong Xenon Projection Console as an integrated package. It may also be mounted into a user-supplied 19 inch rack, or it may be supplied in a wall-mount cabinet.

1.2 GENERAL DESCRIPTION

The Strong PG-2100 Series automation offers comprehensive and cost-effective technology for controlling all booth and auditorium functions. Designed with an EPROM, this solid-state automation provides standard programmable sequences, eight manual switches, prominently illuminated START and STOP buttons, and four sound format selections.

When requesting information or technical support for this unit, please furnish *model number* and *serial number*.

SECTION 2 - INSTALLATION

2.1 RECEIVING & HANDLING

Remove all packing material and carefully inspect for possible shipping damage. claims for loss or damage that may have occurred in transit must be filed by the buyer with the carrier. Copy of the bill of lading and freight bill will be furnished on request. When requesting information, be sure to furnish serial and model numbers.

2.2 MECHANICAL INSTALLATION-RACK MOUNT AUTOMATION

Mount automation to 19" rack using four appropriate size screws. Install terminal panel securely in back of rack.

2.2.1 MECHANICAL INSTALLATION - WALL MOUNT AUTOMATION

!!!WARNING!!!

IF ANY DRILLING OR METAL WORK IS TO TAKE PLACE NEAR THE AUTOMATION. COVER AUTOMATION TO PREVENT ANY METAL CHIPS FROM ENTERING.

Mount the enclosure on a solid wall, close to the normal operating position with three 1/4"mounting bolts.

2.2 ELECTRICAL INSTALLATION

!!!-WARNING-!!!

EXCEPT FOR THE PROJECTOR MOTOR, SLIDE PROJECTOR, EXCITOR SUPPLY AND THE DOUSER. ALL OTHER CONTACTS ARE RATED FOR A MAXIMUM OF .5 AMP. AT 120VAC. IF A HIGHER CURRENT RATING IS NEEDED AN EXTERNAL RELAY IS REQUIRED.

All electrical connections are made at the terminal panel. In the ORC console, the terminal panel is located behind the non-operating side panel

2.3.1 **DOUSER** **RATED 5 AMP AT 120VAC**

INPUT POWER L1(HOT)	TB1-17
INPUT POWER L2(NEUTRAL)	TB1-18
DOUSER OPEN OUTPUT	TB1-1
DOUSER COMMON	TB1-2
DOUSER CLOSE OUTPUT	TB1-3

This circuit supplies 120VAC pulses for standard douser coils. If a maintained or cold type contacts are required, consult ORC.

2.3.2 **AUXILIARY** **RATED .5 AMP AT 120VAC**

NORMALLY OPEN OUTPUT	TB1-4
NORMALLY CLOSED OUTPUT	TB1-5
COMMON	TB1-6

This SPDT circuit can be programmed to customer specifications.

2.3.3 **SLIDE PROJECTOR** **RATED 5 AMP AT 120VAC**

L1(HOT) OUTPUT	TB1-4
L2(NEUTRAL) OUTPUT	TB1-5

This circuit supply 120VAC whenever the exciter supply is off. This can conflict with the curtains. If both curtains and slide projector are to be used, consult ORC.

2.3.4 **EXCITER SUPPLY** **RATED 10 AMP AT 120VAC**

EXCITER SUPPLY	TB1-9
EXCITER SUPPLY	TB1-10

This cold contact closure is used to switch the exciter supply.

2.3.5 **PROJECTOR MOTOR** **RATED 10 AMP-1/4HP AT 120VAC**

INPUT POWER L1(HOT)	TB1-15
INPUT POWER L2(NEUTRAL)	TB1-16
PROJECTOR MOTOR OUTPUT L1	TB1-13
PROJECTOR MOTOR OUTPUT L2	TB1-14

This circuit supplies 120VAC single phase output whenever the projector is on. If three phase control is needed, a external relay will be required.

2.3.6 HOUSE LIGHTS RATED .5 AMP AT 120VAC

HOUSE LIGHTS COMMON	TB2-1
HOUSE LIGHTS UP	TB2-2
HOUSE LIGHTS 1/2	TB2-3
HOUSE LIGHTS DOWN	TB2-4

This circuit supplies a pulsed cold contact closure between common and the appropriate output.

2.3.7 STAGES LIGHTS RATED .5 AMP AT 120VAC

STAGE LIGHTS COMMON	TB2-5
STAGE LIGHTS UP	TB2-6
STAGE LIGHTS DOWN	TB2-7

This circuit supplies a pulsed cold contact closure between common and the appropriate output. The same relay controls both the stage lights and the curtains. Both must switch at the same time when operated by the PLC.

2.3.8 CURTAINS RATED .5 AMP AT 120VAC

CURTAINS COMMON	TB2-8
CURTAINS CLOSE	TB2-9
CURTAINS OPEN	TB2-10

This circuit supplies a pulsed cold contact closure between common and the appropriate output. The same relay controls both the stage lights and the curtains. Both must switch at the same time when operated by the PLC.

2.3.9 MASKING RATED .5 AMP AT 120VAC

MASKING COMMON	TB2-11
MASKING FLAT	TB2-12
MASKING SCOPE	TB2-13

This circuit supplies a pulsed cold contact closure between common and the appropriate output. The same relay controls both the turret and the masking. Both must switch at the same time when operated by the PLC.

2.3.10 TURRET RATED .5 AMP AT 120VAC

TURRET COMMON	TB2-14
TURRET FLAT	TB2-15
TURRET SCOPE	TB2-16

This circuit supplies a pulsed cold contact closure between common and the appropriate output. The same relay controls both the turret and the masking. Both must switch at the same time when operated by the PLC.

2.3.11 REMOTE INPUT

REMOTE COMMON	TB2-17
REMOTE START	TB2-18
REMOTE STOP	TB2-19

When a contact closure is made between common and the start or stop input the results are the same as pushing the start or stop button.

2.3.12 LAMP MONITOR ENABLE

LAMP MONITOR ENABLE	TB2-20

For use with the ORC lamp monitor. See drawing in back of this manual for wiring.

2.3.13 INTERLOCK CONNECTIONS

TB3-1 AUTOMATION #1 TO TB3-1 AUTOMATION #2
TB3-2 AUTOMATION #1 TO TB3-2 AUTOMATION #2
TB3-3 AUTOMATION #1 TO TB3-3 AUTOMATION #2
TB3-4 AUTOMATION #1 TO TB3-5 AUTOMATION #2
TB3-5 AUTOMATION #1 TO TB3-4 AUTOMATION #2
TB3-6 AUTOMATION #1 TO TB3-6 AUTOMATION #2

For a two automation interlock, wire as above, noting that wires are reversed between the automations on TB3-4 and TB3-5. If more then two automations are to be interlocked, then an ORC interlock box is required-see drawing in back of this manual for wiring.

2.3.14 STATUS BOX

ALARM COMMON	TB3-7
ALARM HOT	TB3-8

Signals are provided for the ORC two wire status box-see drawing in back of this manual for wiring.

2.3.15 FAILSAFE/CUE DETECTOR

OUTBOARD CUE	TB3-9
INBOARD CUE	TB3-10
FAILSAFE COMMON POWER SUPPLY-	TB3-11
FAILSAFE BREAK	TB3-12
POWER SUPPLY +24VDC 300mA MAX	TB3-13

The failsafe common is used as the common for switch type failsafe/cue detectors. If proximity detector or other powered cue detector is used, +24VDC at 300 mA max is available on TB3-14. Note that the automation requires low going(grounding) inputs.

2.3.16 SOUND SYSTEM

SOUND COMMON	TB3-15
SOUND NON-SYNC	TB3-16
SOUND FORMAT #1	TB3-17
SOUND FORMAT #2	TB3-18
SOUND FORMAT #3	TB3-19
SOUND FORMAT #4	TB3-20

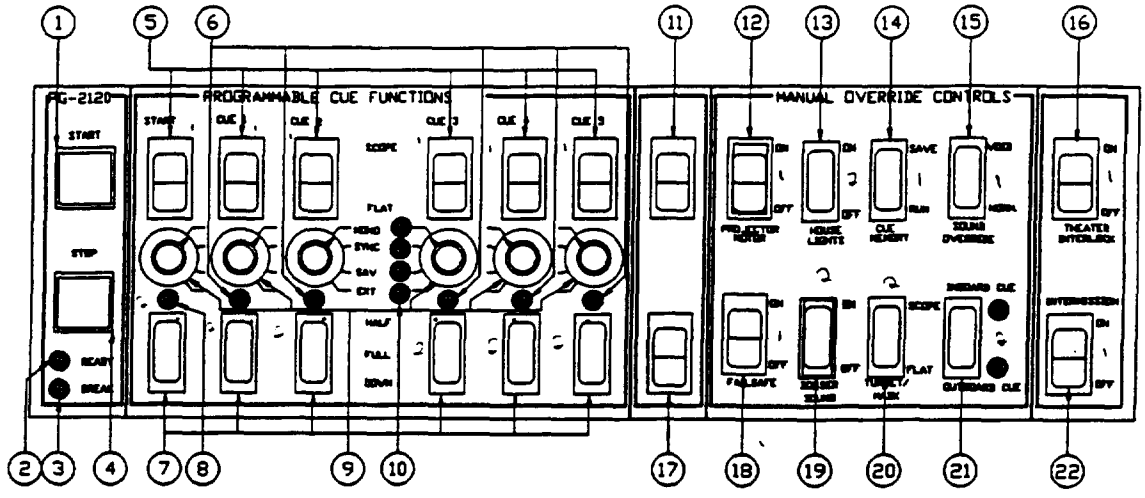
This circuit supplies a pulsed cold contact closure between common and the appropriate output.

SECTION 3 - OPERATION

3.1 GENERAL

Before applying power, make sure that the equipment has been properly installed and the proper connections made in order to prevent possible damage.

3.2 FRONT PANEL OPERATION



1. **"START"** push button - when depressed, will initiate show start.

2. **"READY"** light -
   GREEN = READY FOR SHOW START, FAILSAFE ARMS UP.
   ORANGE = AUTOMATION READY, FAILSAFE ARMS DOWN.
   RED = FAILSAFE OR LAMP MONITOR HAS SHUT DOWN SHOW.

3. **"BREAK"** light - lights whenever failsafe arms are down.

4. **"STOP"** push button - when depressed, will stop projector, close douser, bring up house lights, etc. Also will cancel film break alarm.

5. **"LENS"** switches - determines the position of the lens turret and masking, at show start, and first through fifth inboard cues.

6. **"CUE 1-5"** LEDs - indicates the automation has received the indicated inboard cue and has responded to it's program switches.

7. **"HOUSE LTS"** switch - determines the house light levels, at show start,and first through fifth inboard cues.

8. "START" LED - indicates the automation responded to the "START" program switches last.

9. "SOUND FORMAT" switches - determines the sound format for show start, first and second inboard cues.

10. "SOUND FORMAT" LEDs - Will light momentarily as the sound pulse is sent out.

11. NOT USED AT THIS TIME.

12. "MANUAL PROJECTOR MOTOR" switch - allows the projector motor to be manually turned on. Operates with or without automation power on.

13. "MANUAL HOUSE LIGHTS" switch - provides manual switching for house lighting. Operates with or without automation power on.

14. "CUE MEMORY" switch

SWITCH IN THE RUN POSITION.- Cues can be placed on the film or input manually from the front panel. The automation responds to the cues as they are received. The cue timing is recorded each time the show is run. The timing from the previous show is erased and recorded over in the process.

SWITCH IN THE SAVE POSITION.- The automation will respond only to the cues recorded in its memory. It will ignore any cue on the film or manually input.

NOTE!!! THE MAXIMUM TIME FOR CUE MEMORY 165 MINUTES IF THE TOTAL RUN TIME, INCLUDING TRAILERS IS OVER 165 MINUTES. DO NOT USE CUE MEMORY!.

15. "SOUND OVERRIDE"

16. "INTERLOCK" switch - is used to run a single print on two or more projectors. If the interlock switches on both automations are on the switches will light up.

17. NOT USED AT THIS TIME

18. "FAILSAFE" switch -Allows the failsafe to be deactivated.

19. "MANUAL DOUSER" switch - operates the douser and the exciter supply. Will not operate with automation power on. Note that the exciter supply is on, any time the automation power is off.

20. "TURRET/MASK" switch - provides manual switching for lens turret and masking. Operates only with automation power on.

21. **"MANUAL CUES"** switch - allows inboard and outboard cues to be input manually. CUE LEDs - will light whenever a cue is received from the cue sensor or is input manually. Cues stored in cue memory will not light the LEDs.

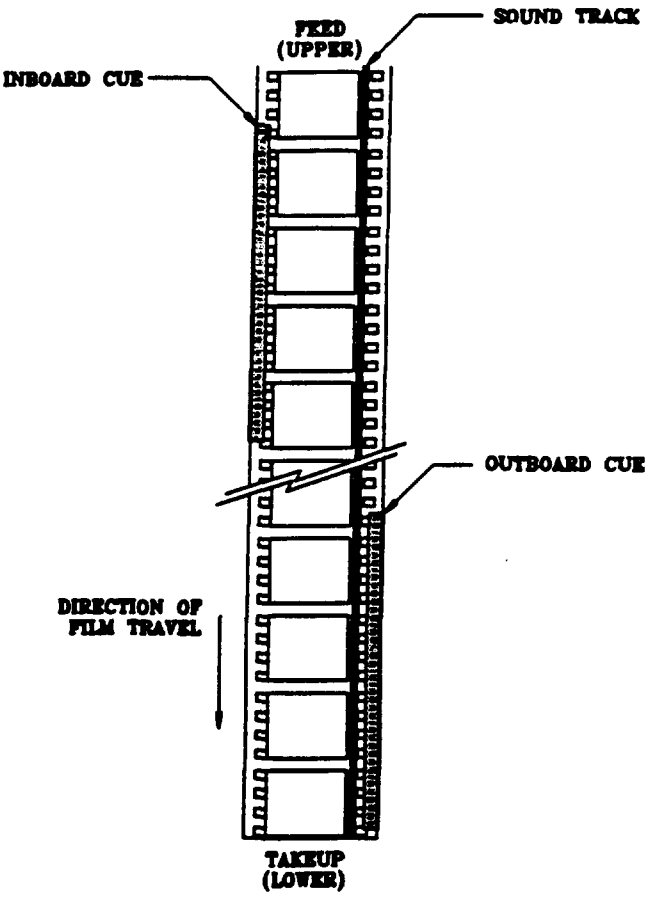
22. **"INTERMISSION"** switch - if the intermission switch is on, when the douser closes at the end of show the projector will shut off. In the off position the projector will run till the failsafe drops.

3.5 CUE FOIL PLACEMENT

Cue tape foil should be approximately 4 frames long. Foil should be wrapped around the edge of the film, from the outside of the sprocket holes on one side to the outside edge of the holes on the other side.

If cue memory is not used, the foil tape should be replaced when signs of wear start to show.

See operational sequence for cue functions.



3.6 CUE MEMORY - MAXIMUM SHOW TIME IS 165 MINUTES.

Each time a show is run while the cue memory switch is in the run position, all cues are responded to and the timing recorded into the automation's memory. This memory is retained even when automation power is off.

After one complete show has been played with all required cues on the film or input manually, the cue memory switch can be placed in the save position. When in the save position, the automation will respond to the cues recorded in it's memory. It will **NOT** respond to any cues on the film or input manually.

The automation memory can record cues for up to 165 minutes. It will not record any cues after this time. If the presentation, including trailers is over 165 minutes do **NOT** use cue memory.

Cue memory only times cues while the film is running. If a film break or manual stop shuts down the show. It can be restarted without the automation losing track of the cue position.

If a power failure shuts down a show, and the show needs to be restarted. Cue memory should be switched back to the run position and one complete show run through before switching back to save.

Cue memory and the internal cue counters can be reset to the start position, by holding down the stop button for two seconds or shutting down the power.

If a feature or trailers are changed or moved, cue memory should be switched back to the run position and one complete show run through before switching back to save.

3.7 TIMER ADJUSTMENT

CURTAIN CLOSE TIMING - When the end of show cue (outboard cue) is received, the curtains will begin to close. The remaining functions can be programmed to coincide with the curtains fully closing.

TO ADJUST:

1) Time the curtain close time with a stop watch.

2) With the automation stopped (can NOT be programmed while the automation is running) momentarily depress the stop button and the manual douser off switch, at the same time.

3) Depress the manual douser off switch to reset the timer to zero seconds.

4) Depress the manual douser on switch once for each second it takes for the curtains to close.

DOUSER OPEN TIMING - The time from when the start button is depressed to when the douser opens, sound changes etc, can be adjusted as follows.

TO ADJUST:

1) With the automation stopped (can NOT be programmed while the automation is running) momentarily depress the stop button and the manual douser on switch, at the same time.

3) Depress the manual douser off switch to reset the timer to zero seconds.

4) Depress the manual douser on switch once for each second you would like the douser delayed.

POWER ON
PULSE NON SYNC SOUND.
PULSE HOUSE LIGHTS UP.
PULSE DOUSER CLOSE.
READY LIGHT GREEN/STATUS BOX CUE LIGHT ON.

START
PROJECTOR MOTOR ON/XENON LAMP ON.
PULSE HOUSE LIGHTS TO PROGRAMMED "START" LEVEL.
PULSE LENS TO PROGRAMMED "START" SETTING.
READY LIGHT/STATUS BOX CUE LIGHT OFF.

START +7 SECONDS
PULSE SOUND TO PROGRAMMED "START" FORMAT.
EXCITER SUPPLY ON.
PULSE DOUSER OPEN.

FIRST INBOARD CUE
PULSE HOUSE LIGHTS TO PROGRAMMED "CUE 1" LEVEL.
PULSE SOUND TO PROGRAMMED "CUE 1" FORMAT.
PULSE LENS TO PROGRAMMED "CUE 1" SETTING.
IF LENS CHANGES-CLOSE DOUSER AND REOPEN AFTER 3 SECONDS.

SECOND THROUGH FIFTH INBOARD CUES
SAME AS FIRST INBOARD CUE.

OUTBOARD CUE
PULSE HOUSE LIGHTS UP.
READY LIGHT GREEN/STATUS BOX CUE LIGHT ON.

OUT BOARD CUE +11 SECONDS (ADJUSTABLE 1-30 SEC)
PULSE DOUSER CLOSE.
PULSE NON-SYNC SOUND.
EXCITER SUPPLY OFF.

FAILSAFE DROP AFTER OUTBOARD CUE
PROJECTOR MOTOR OFF/XENON LAMP OFF.
READY LIGHT ORANGE/STATUS BOX BREAK LIGHT ON.

FAILSAFE DROP-NO OUTBOARD CUE
PROJECTOR MOTOR/XENON LAMP OFF.
PULSE DOUSER CLOSE.
PULSE HOUSE LIGHTS .UP
EXCITER SUPPLY OFF.
PULSE NON-SYNC SOUND.
READY LIGHT RED/STATUS BOX BREAK LIGHT ON-ALARM SOUNDS.

STOP

PROJECTOR MOTOR/ XENON LAMP OFF.
PULSE DOUSER CLOSE.
PULSE HOUSE LIGHTS UP.
EXCITER SUPPLY OFF.
PULSE NON-SYNC SOUND.

START AFTER FAILSAFE DROP OR STOP

PROJECTOR MOTOR/ XENON LAMP ON.
PULSE HOUSE LIGHTS TO PRESTOPED LEVEL.

RESTART +7 SECONDS

PULSE SOUND TO PRESTOP FORMAT.
EXCITER SUPPLY ON.
PULSE DOUSER OPEN.

SECTION 4 - MAINTENANCE

4.1 CUE DETECTOR/FAILSAFE

See manufacture's instructions

NOTE: MOST CUE DETECTORS HAVE BEARINGS WITH CONDUCTIVE GREASE. DO NOT ALLOW CLEANERS TO PENETRATE BEARINGS.

4.2 PLC BATTERY REPLACEMENT

TYPE 3GZA9-BAT08
Battery life is approximately five years. When the battery has been fully discharged, the error (alarm) indicator on the PLC will blink. If this happens, replace the battery within one week. It is recommended that the battery be replaced every four years, to avoid an interruption of service.

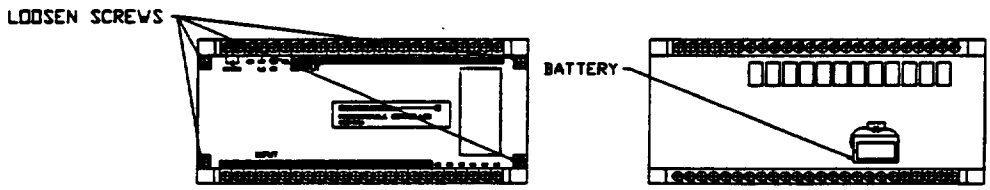
TO REPLACE

1) Turn off power to the automation. If power is already off, turn it on and wait at least 10 seconds. Then turn off.

2) Using a phillips screwdriver, loosen the four screws and remove the cover from the PLC, lifting it from the left.

3) Pull the battery from the holder and install the new one within five minutes to avoid losing the contents of the RAM memory.

4) Replace the cover, positioning it over the unit. Snapping it into place by applying pressure to the area marked ORC.



4.3 EPROM MEMORY CHIP REPLACEMENT

If a program change is required. The EPROM chip can be changed as follows.

1) Remove all power from automation.

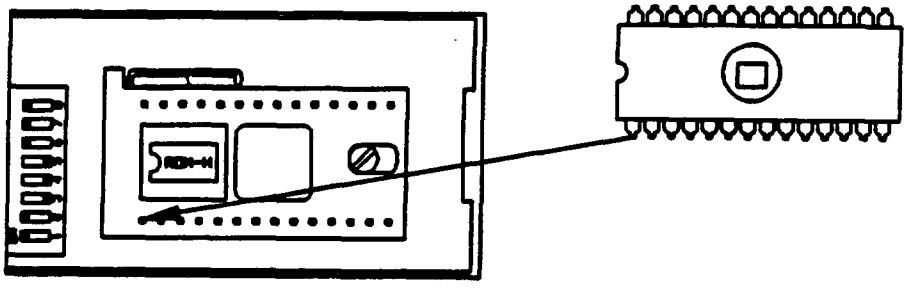
2) Remove the EPROM cover on the left side of the PLC. Using a screwdriver.

3) Lift the lever on the top side of EPROM socket.

4) Lift Eprom out of socket.

5) Install new EPROM with the notch to the left.

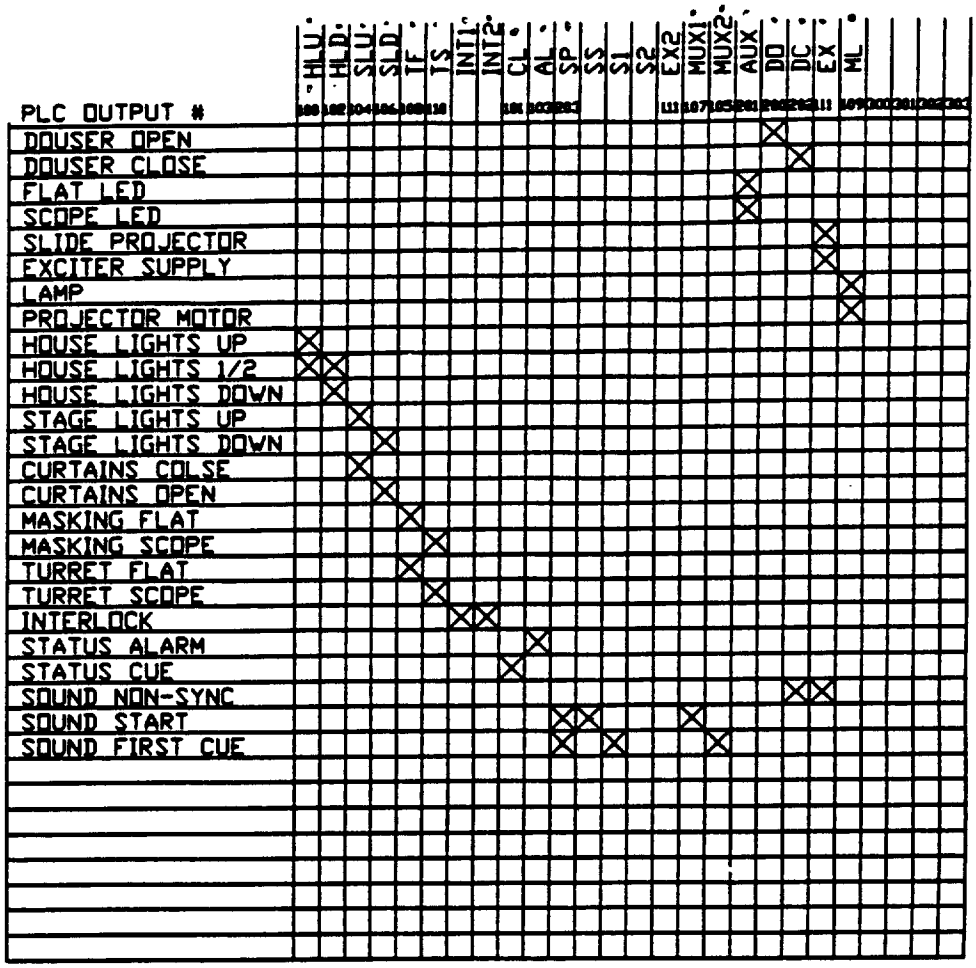
6) Lower lever on socket and replace cover.



SECTION 5 - TROUBLESHOOTING

5.1 RELAY FUNCTIONS

Since many automation problems can be traced to faulty relay operation, an understanding of the function of each relay is essential when troubleshooting. The following table lists each of the relay functions of the PG-2100. The relay's name is printed on the mother board



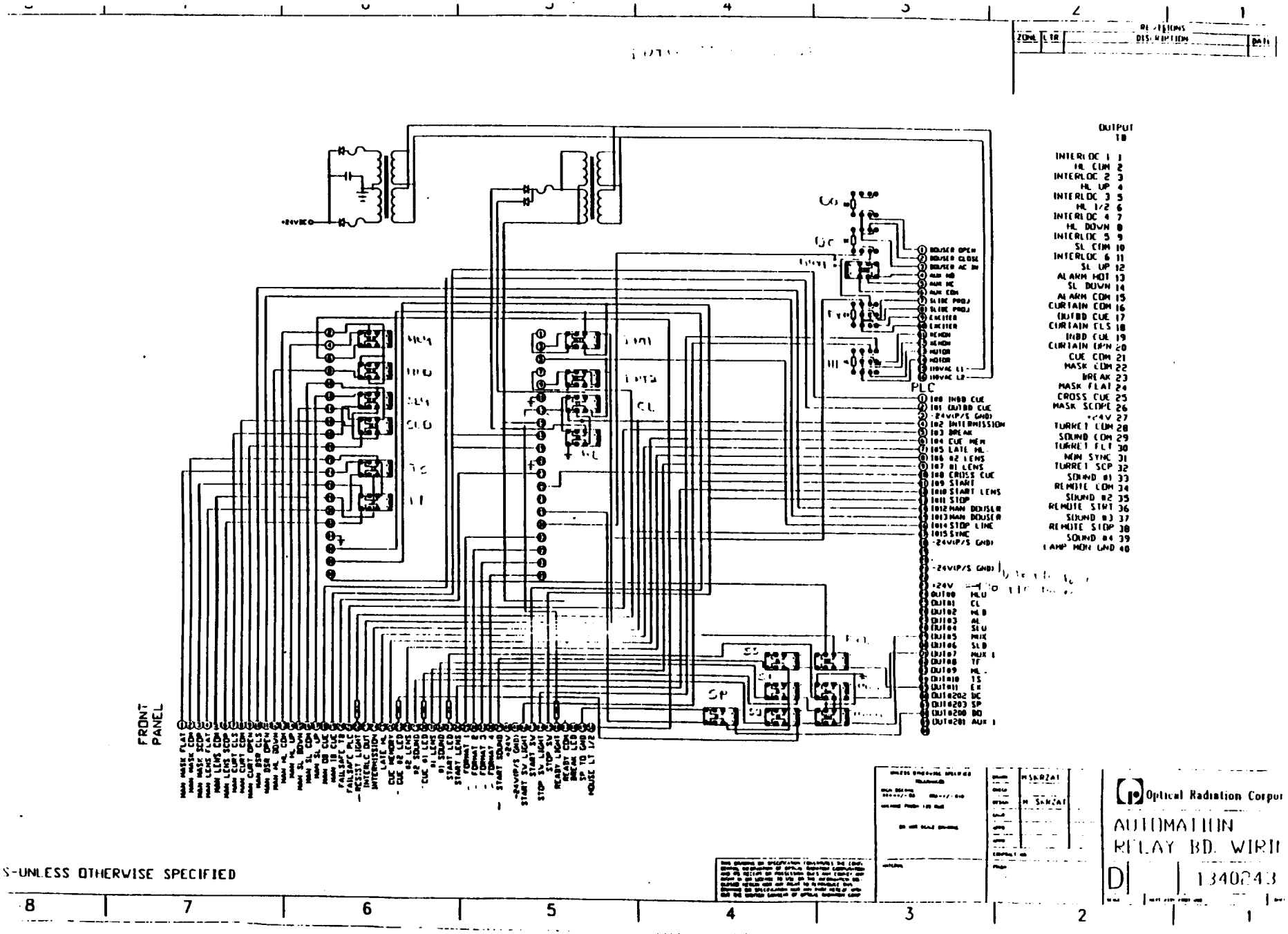
INPUTS

PLC IN #	FUNCTION
00	IN BOARD CUE
01	OUT BOARD CUE
02	INTERMISSION]
03	FAILSAFE
04	CUE MEMORY
05	MANUAL WALL LIGHTS UP
06	FEATURE LENS
07	

PLC IN #	FUNCTION
08	
09	START INPUT
10	MANUAL WALL LIGHTS DOWN
11	STOP INPUT
12	MANUAL DOUSER CLOSE
13	MANUAL DOUSER OPEN
14	SYNC STOP LINE
15	SYNC

5.2 FUSE REPLACEMENT

Fuses are located next to the large transformer on the mother board. The fuses marked "1A for P/S" are used to power the automation and are rated 1 AMP at 250 V.
The fuse marked "2A for STATUS" is used for the status boxes and interlock. It's rated 2 AMP at 250V.
Fuses must be replaced with the same type and rating to prevent damage to the automation.



S-UNLESS OTHERWISE SPECIFIED

Optical Radiation Corpor

AUTOMATION

RELAY BD. WIRI

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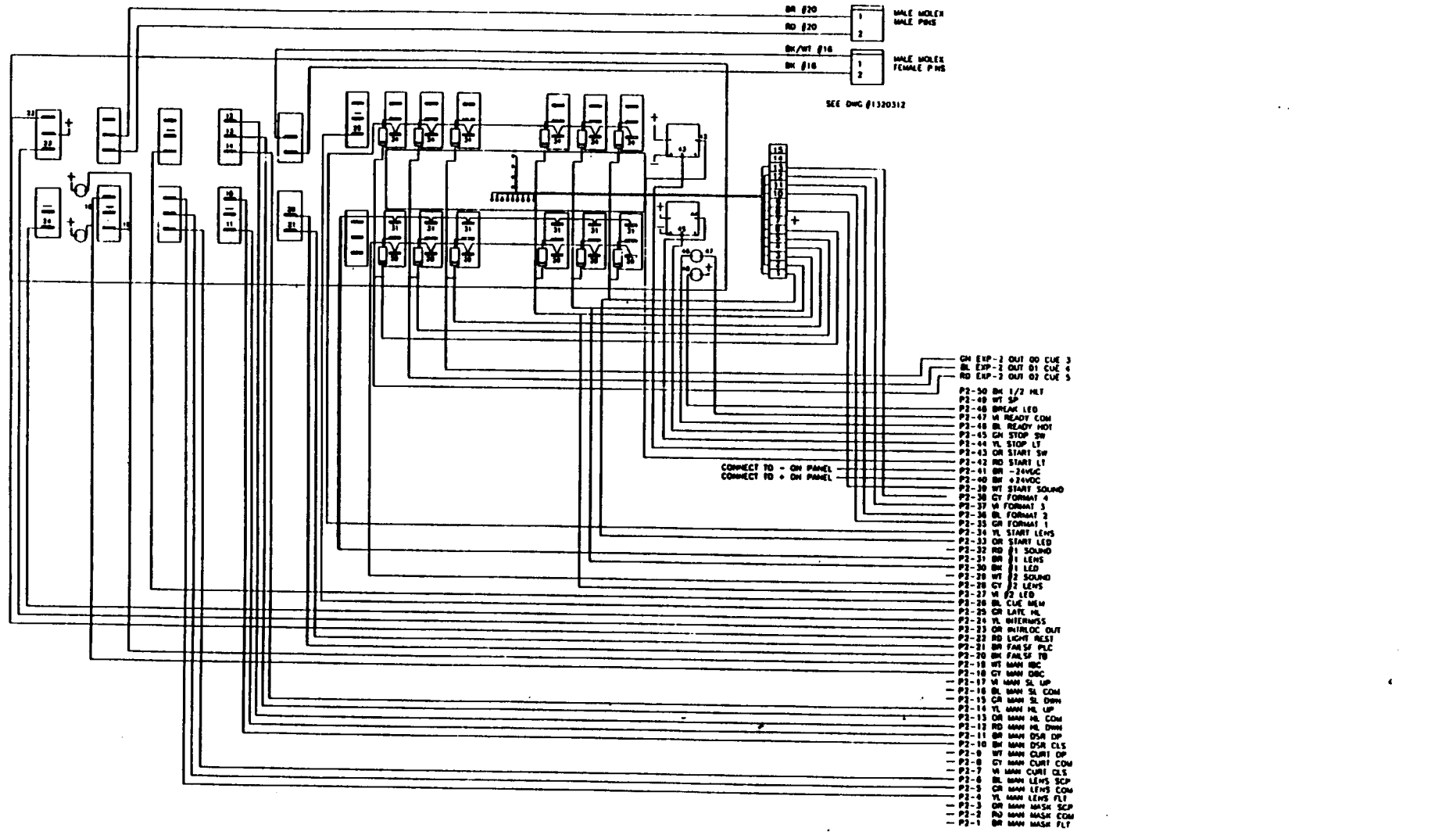

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FRONT PANEL WIRE HARNESS

FC-2120 AUTOMATION

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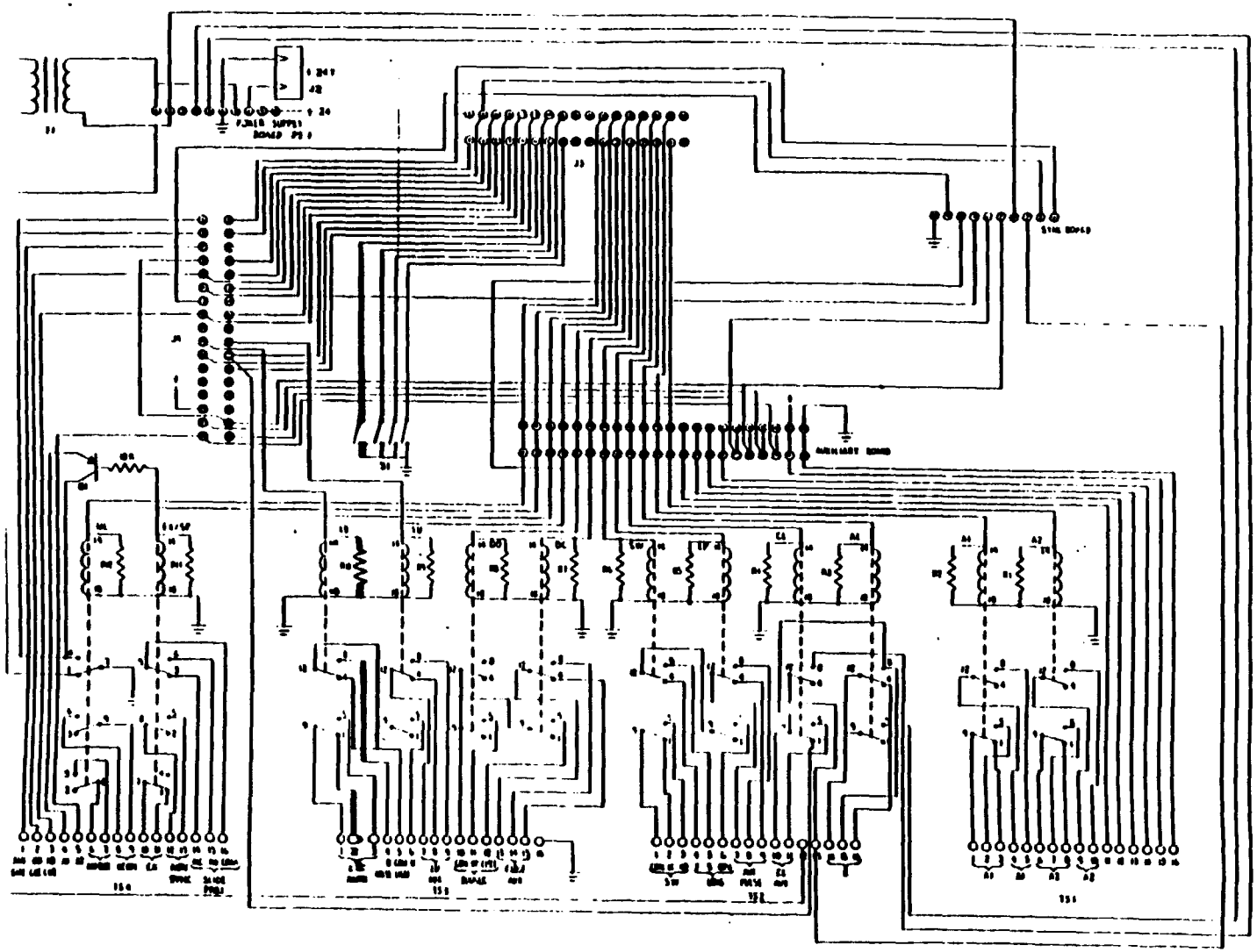

SCHEMATIC, CONTROLLER AUTOMA
HEAT BOARD

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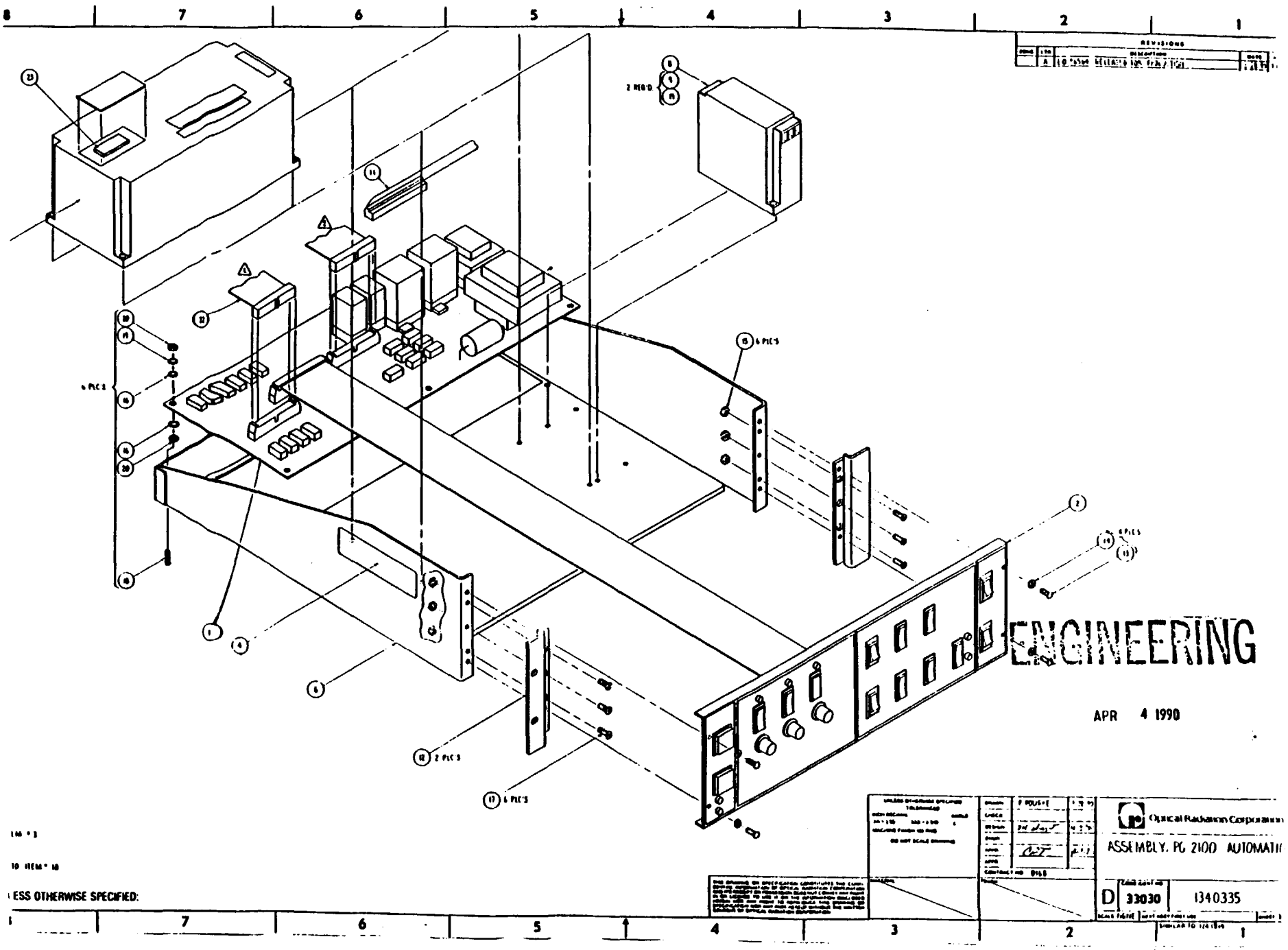
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Optical Radiation Corporation
ASSEMBLY, PG 2100 AUTOMATI
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33030
1340335

TITLE	DWG. NO.	REV.	SH. NO.
Assembly, PG-2100 Automation Final	1340335-1	A	2of 3

PARTS LIST

BY	DATE	COPY TO PUR. DATE	REL. FROM STOCK DATE	JOB QTY.	JOB. NO.

PL	IDENTIFICATION NO.	DESCRIPTION	TAB	REMARKS	PRE BILL	PO REQ	UNIT QTY	QTY ISS'D	QTY B/O	UNIT COST	EXTENDED COST
X	1340244-1	Assy,, Automation P.C.B.					1				
X	1340309-1	Assy., Front Panel, Wire Harness					1				
X	1340313-1	Assy., C28K					1				
	1239043-23	Name Plate					1				
X	1239710-1	Assy., Lamp Monitor		Option not Shown			Ref.				
	1249667-1	Chassis					1				
	2706-0037	Module, C24K Expander					1				
	6-32 x 5/8 Lg.	Screw, Phil Pan Hd.					6				
X	1340311-1	Assy., Terminal Panel		Not Shown			1				
	1320312-1	Wire Harness, Terminal Panel					1				
	1239347-3	Bracket, Chassis Mounting					2				
	8-32 x 3/8 Lg.	Screw, Button Soc. Hd. (Black)					4				
	#8	Washer, Lock (Black)					4				
	8-32	Nut, Kep					6				
	6002-0140	Washer, Flat Fiber					12				
	8-32 x 3/8 Lg.	SCrew, Phil. Flat Hd.					6				
	6-32 x 1/2 Lg.	Screw, Phil. Pan Hd.					6				
	#6	Washer, Flat					12				
	6-32	Nut, Kep					12				
X	1320331-1	Assy., Ribbon Cable					1				
	[redacted]	Eprom					1				

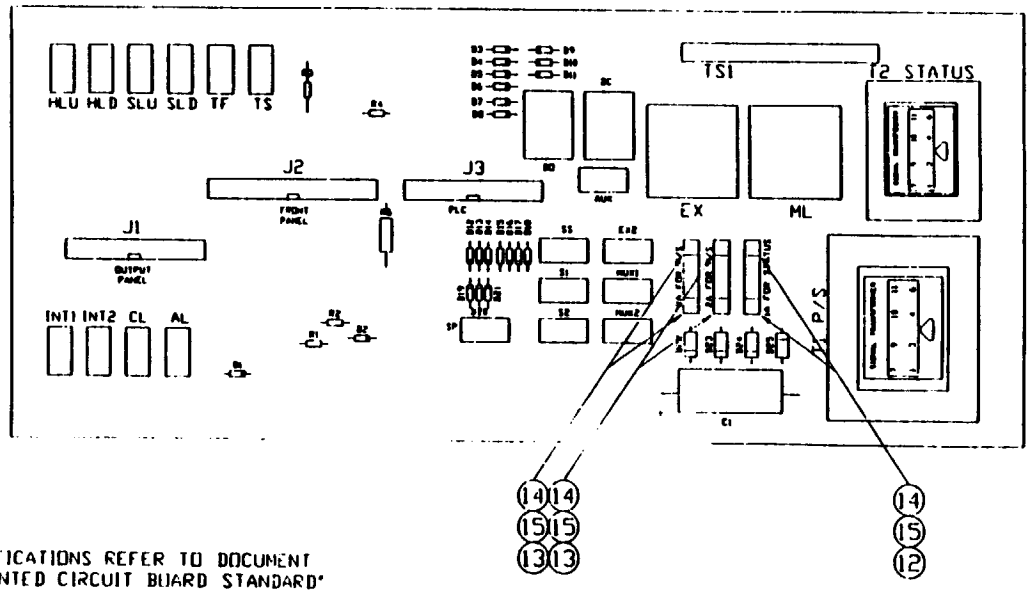
FORM NO. 5-219

TOTAL COST

8 | 7 | 6 | 5 | 4 | 3 | 2 | 1

REVISIONS

For PG2001 Assembly
124839-1



ENGINEERING

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DRK #1340241

FURTHER PCB SPECIFICATIONS REFER TO DOCUMENT
121 "COMMERCIAL PRINTED CIRCUIT BOARD STANDARD"

OR TWIST OF FINISHED BOARD SHELL BE
THEN 005 PER INCH

CENTERS SHELL BE LOCATED WITHIN 005 OF PAD CENTERS

HOLE DIMENSIONS APPLY AFTER PLATING.

UNLESS OTHERWISE SPECIFIED

Optical Radiation Corporation

ASSY
AUTOMATION RELAY PC

D | 1340244

8 | 7 | 6 | 5 | 4 | 3 | 2 | 1

TITLE	DWG. NO.	REV.	SH. NO.
ASSEMBLY, CONTROLLER AUTOMATION RELAY BOARD	1340244-1	A	2 of 4

PARTS LIST

BY	DATE	COPY TO PUR. DATE	REL. FROM STOCK DATE	JOB QTY.	JOB. NO.

PL	IDENTIFICATION NO.	DESCRIPTION	TAB	REMARKS	PRE BILL	PO REQ	UNIT QTY	QTY ISS'D	QTY B/O	UNIT COST	EXTENDED COST
	1340242-1	P.C.B., Automation Relay					1				
	2501-5140	Relay, 3PDT, 24VDC, 10A		EX, ML			2				
	2501-3141	Relay, DPDT, 24VDC, 5A		DC,DO			2				
	2506-0024	Relay, DPDT, 24VDC, .5A		HLU,HLD,SLU,			18				
				SLD,TF,TS,							
				INT1,INT2							
				CL,AL,SP,SS,							
				S1,S2,EX2,							
				MUX1,MUX2,							
				AUX							
	3146-0016	Transformer, 36VCT, 56VA		T1			1				
	3146-0015	Transformer, 12.6VCT, 20VA		T2			1				
	2286-0188	Header, 40 Pin Connector		J1,J3			2				
	2286-0189	Header, 50 Pin Connector		J2			1				
	2231-1640	Header, 16 Pin Connector		TS1			1				
	2777-2011	Diodes		D1-D21			21				
	2777-1030	Diodes, Rectifier, 3A, 100V		D22-D25			4				
	2353-0100	Fuse, 1 Amp					1				
	2353-0200	Fuse, 2 Amp					2				
	2375-0030	Clip, Fuse Holder					6				
	1/8" Dia.	Rivets, Pop					6				
	2082-2055	Capacitor, 2200 UFD, 50VDC		C1			1				
	2524-2215	Resistor, 2.2K, 1/4W		R1-R4			4				
	2553-2215	Resistor, 220 OHMS, 2 W		R5			1				

TOTAL COST

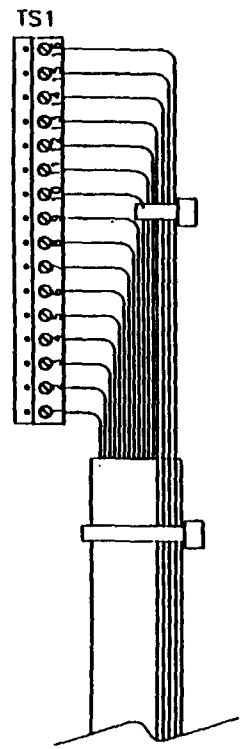
TITLE	DWG. NO.	REV.	SH. NO.
ASSEMBLY, CONTROLLER AUTOMATION RELAY BOARD	1340244-1	A	3 of 4

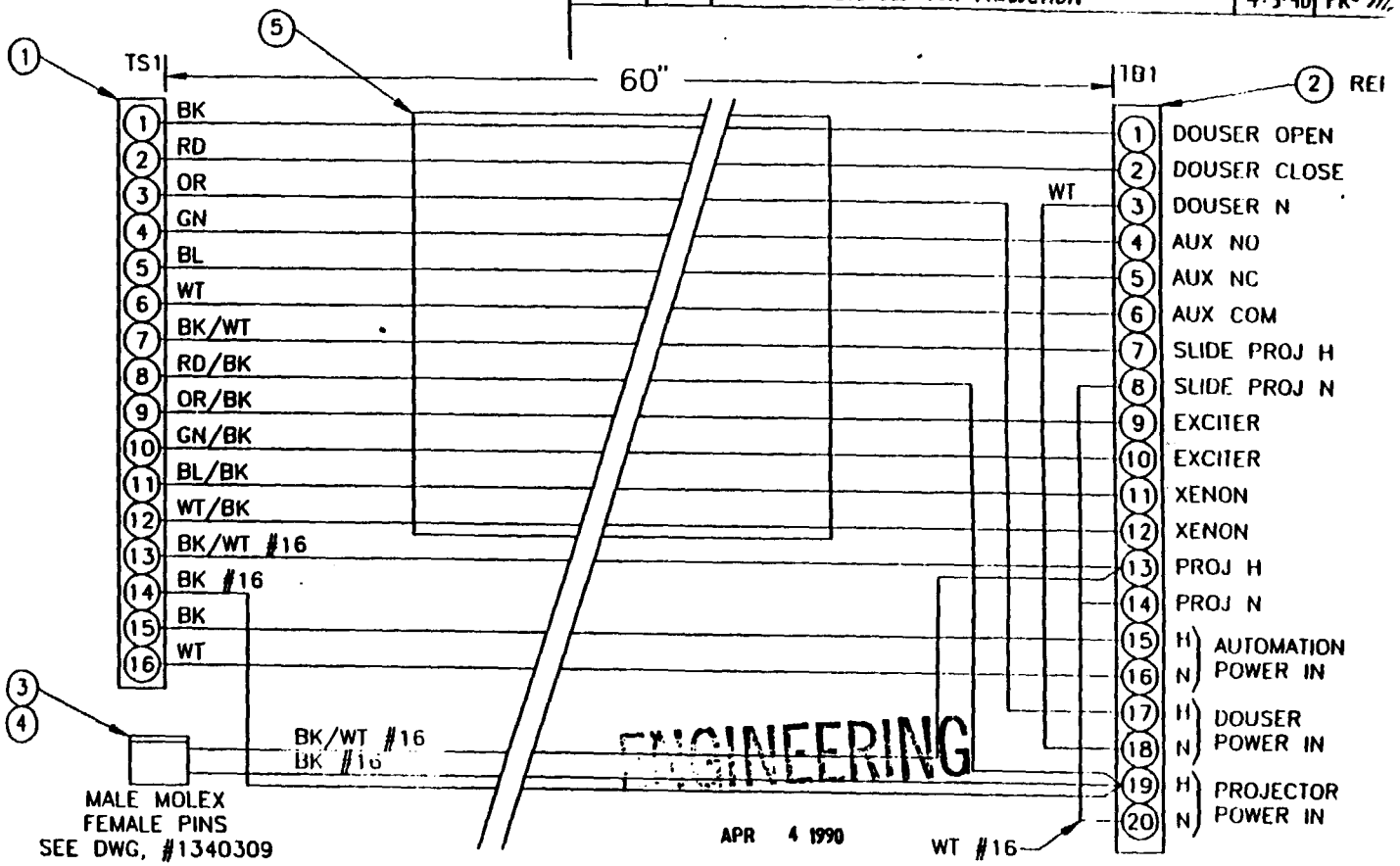
PARTS LIST

BY	DATE	COPY TO PUR. DATE	REL. FROM STOCK DATE	JOB QTY.	JOB. NO.

PL	IDENTIFICATION NO.	DESCRIPTION	TAB	REMARKS	PRE BILL	PO REQ	UNIT QTY	QTY ISS'D	QTY B/O	UNIT COST	EXTENDED COST
	2275-3211	Socket, Relay		EX, ML			2				
	2506-0014	Socket, Relay		DC,DO			2				
	5856-0059	Spring, Relay		EX,ML			2				
	2273-4199	Spring, Relay		DC,DO			2				

REVISIONS				
ZONE	LTR	DISCRIPTION	DATE	APPR
	A	E.O.# 6564, RELEASED FOR PRODUCTION	4-3-90	PR





ENGINEERING
APR 4 1990

1. TB1 IS NOT TO BE WIRED UNTIL IT'S MOUNTED TO PANEL, SEE DWG #1340311

S-UNLESS OTHERWISE SPECIFIED

UNLESS OTHERWISE SPECIFIED TOLERANCES
DO NOT SCALE DRAWING

DRAWN	M. SKRZAT	4-3-90
CHECK		
DESIGN	M. SKRZAT	4-3-90
ENGR		
APPR	C.T.	4-3-90
APPR		
CONTRACT NO	0166	

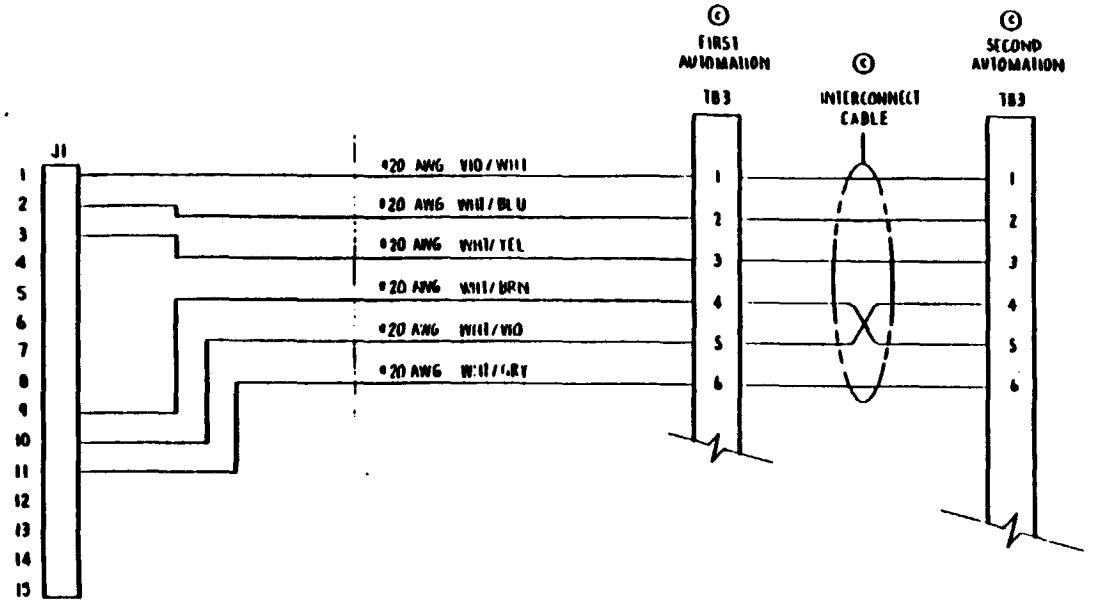
Optical Radiation Corporati

WIRE HARNESS,
AUTOMATION BACK PAN

B | 1320312

SCALE NONE | NEXT ASSY | FIRST USE 1340311 | SHEET

REVISIONS				
ZONE	LTR	DESCRIPTION	DATE	APPROVED
	A	E O #5187. RELEASED FOR PRODUCTION	7 11 88	P.R. [illegible]
	B	E #86295 DELETED -3 , -5 , -9 , -11 VERSIONS ADDED -13 VERSION . ITEM #1 WAS TABULATED IS QTY 1 . ITEM #3 WAS TAB. IS QTY 6 . ITEM 5 1249452-1 PANEL ADDED. P6 & 17 DELETED	2-23-89	LV CAT
	C	E.O. #6460, TITLE WAS "WIRE HARNESS, SYNC BOARD/ MULTIPLEXER BOARD" ADDED WIRE TERMINATION INFO.	8 30 89	P.R. [illegible]



-1 VERSION

	1	-13	1249282-	P6-2500
	1	-7	1249282-3	P6-2500
	1	-1	1249452-1	P6-2000
QTY	ASSMY	NEXT ASSY	USED ON	
	APPLICATION			

WIRE LENGTH APPROXIMATELY 8 FEET.

UNLESS OTHERWISE SPECIFIED TOLERANCES
FRACTIONAL ANGLE
MACHINE FINISH 125 RMS
DO NOT SCALE DRAWING

MATERIAL

THIS DRAWING OR SPECIFICATION CONSTITUTES THE CONFIDENTIAL INFORMATION OF OPTICAL RADIATION CORP AND ITS RECEIPT OR POSSESSION DOES NOT CONVEY ANY RIGHTS TO USE IT OR THE INFORMATION CONTAINED HEREIN NOR ANY RIGHT TO REPRODUCE THIS DRAWING

DRAWN	P WUNKE	6/8/88
CHECK		
DESIGN		
ENGR	[illegible]	8/17/88
APPR		
APPR		
CONTRACT NO	0168	

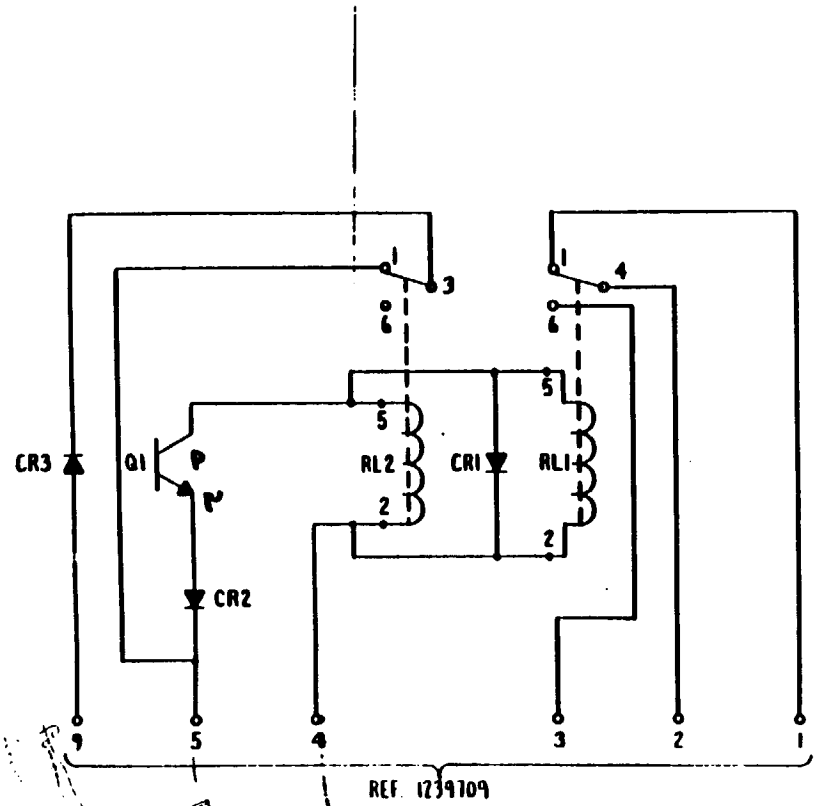
FINISH

Optical Radiation Corporation

WIRE HARNESS, SYNC BOARD

C	CODE IDENT NO 33030	12	18

REVISIONS				
ZONE	LTR	DESCRIPTION	DATE	APPROVED
	B	E.O.#6459, RELEASED TO PRODUCTION	8-29-89	P.R.



DRAWN	P. ROURKE	1-5-89
CHECK		
DESIGN		
ENGR		8 29 89
APPR		
APPR		
CONTRACT NO	0168	

UNLESS OTHERWISE SPECIFIED TOLERANCES
INCH DECIMAL ANGLE
DO NOT SCALE DRAWING

Optical Radiation Corporation

SCHEMATIC, LAMP MONITOR

B | CODE IDENT NO 33030 | 1229398

SCALE NONE | NEXT ASSY USED | SHEET | OF

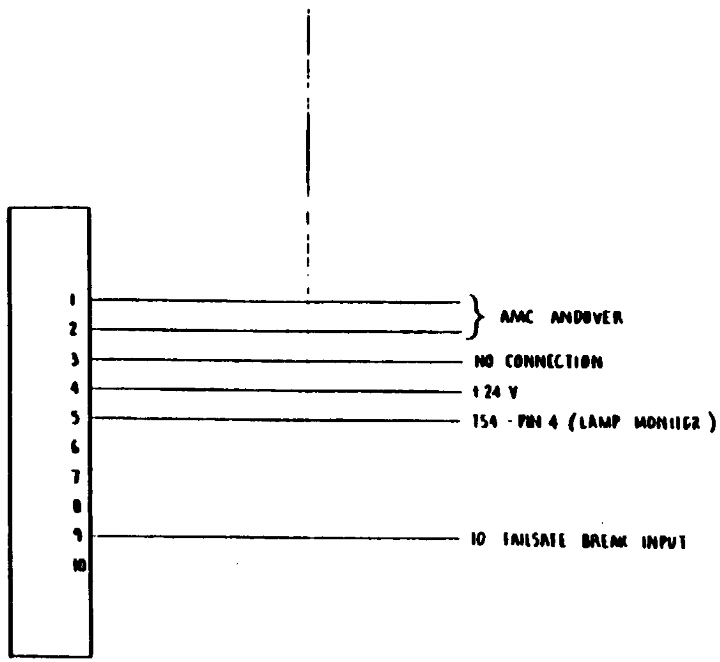
SIMILAR TO

EFERENCE DRAWINGS • 1239397, 1239709

ES — UNLESS OTHERWISE SPECIFIED:

REVISIONS

ZONE	LTR	DESCRIPTION	DATE	APPROVED
	A	E.O. 6459, RELEASED FOR PRODUCTION	8-29-89	P.R.



UNLESS OTHERWISE SPECIFIED
TOLERANCES
INCH DECIMAL .XX ± .03 .XXX ± .010 ANGLE ±
MACHINE FINISH 125 RMS
DO NOT SCALE DRAWING

DRAWN	P ROURKE	1-3-89
CHECK		
DESIGN		
ENGR		
APPR		
APPR		
CONTRACT NO	0148	

Optical Radiation Corporation

HARNESS, LAMP MONITOR

MATERIAL

FINISH

SIZE	CODE IDENT NO		REV
C	33030	1 09	A

DRAWING • 1239710

...ESS OTHERWISE SPECIFIED:

REVISIONS				
ZONE	LTR	DESCRIPTION	DATE	APPROVED
	A	[illegible]		CAT

SR-2016 16 PLEX STATUS BOX 1249359

SR-2012 12 PLEX STATUS BOX 1249358

SR-2008 8PLEX STATUS BOX 1249279

BOARD 1	BOARD 2	BOARD 3	BOARD 4
PIN 1	PIN 1	PIN 1	PIN 1
PIN 2 TO (LD1.LD5) THEATER 1	PIN 2 TO (LD1.LD5) THEATER 5	PIN 2 TO (LD1.LD5) THEATER 9	PIN 2 TO (LD1.LD5) THEATER 13
PIN 3 TO COMMON	PIN 3 TO COMMON	PIN 3 TO COMMON	PIN 3 TO COMMON
PIN 4 TO (LD3.LD7) THEATER 3	PIN 4 TO (LD3.LD7) THEATER 7	PIN 4 TO (LD3.LD7) THEATER 11	PIN 4 TO (LD5.LD7) THEATER 15
PIN 5 TO (LD4.LD8) THEATER 4	PIN 5 TO (LD4.LD8) THEATER 8	PIN 5 TO (LD4.LD8) THEATER 12	PIN 5 TO (LD4.LD6) THEATER 16
PIN 6 TO (LD2.LD6) THEATER 2	PIN 6 TO (LD2.LD6) THEATER 6	PIN 6 TO (LD2.LD6) THEATER 10	PIN 6 TO (LD2.LD6) THEATER 14

UNLESS OTHERWISE SPECIFIED:

UNLESS OTHERWISE SPECIFIED TOLERANCES
ANGLE ±
DO NOT SCALE DRAWING

DRAWN	P. ROURKE	2-27-89
CHECK		
DESIGN		
QA/ER	CAT	4-20-89
APPR		
APPR		
CONTRACT NO	0110	

MATERIAL

FINISH

Optical Radiation Corporation

DIAGRAM, STATUS BOX CONNECTOR CIRCUITRY TERMINATION

SIZE	CODE IDENT NO	DRAWING NO	REV
C	33030	1239767	A