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BIG SKY
INDUSTRIES

S/N_____

Rev._____

Series-1 Automation
Users Guide

This manual contains the following information outlining the installation and operation of the Series 1 automation.

The remaining pages contain drawings depicting the Series 1 configurations and peripheral information.

Should you have any questions, please do not hesitate to contact us at 908-454-6344.

Warranty information

This product is covered by a one year warranty. The warranty is restricted to parts only and left to the determination of Big Sky Industries if the product failed due to a defective part or another type of damage.

GENERAL SERIES 1 INFORMATION

GENERAL DESCRIPTION

The Series 1 system has been designed as a single projector automation unit. It can be used with a single 16mm, 35mm or 35/70mm projector system. Also with proper interface wiring it can be used as a two machine system with an additional Series 1.

The wall mount Series 1 is contained in a metal cabinet which measures 19" wide x 18" high x 4.5" deep, and has a shipping weight of 25 lbs.

The Series 1 automation system uses momentary and alternate action pushbuttons to activate internal automation functions and modes of operation, and L.E.D.'s to indicate system status. Read enclosed instructions for a complete understanding of the various functions and indications.

INSTALLATION

1. Terminate wires to the proper terminal strip according to the designation sheets provided.

2. **DO NOT APPLY POWER.** Operate the manual (bypass) switches to be sure all outputs operate with their designated outputs. If not, correct as necessary.

3. Check ac voltage and termination. If proper, apply power. The c/o dowser will pulse closed and the unit will go into the stop mode. Run the automation to be sure it performs according to the operation instructions.

NOTE: As noted in the termination pages, the cue inputs may be triggered by external sources as well as cue boards plugged into the mother board. For testing, switches may be connected directly to these inputs to avoid having to initially provide multiple cue tape inputs to trigger internal automation functions.

FEATURES

- The Series 1 controls: Projector Drive Motor, Lamphouse, Picture Changeover dowser, Exciter Lamp/Power supplies, Intermission, Dimmer, Multiple sound functions, Curtain and Masking control.

- Included are heavy duty built-in control switches for local manual operation of the projector motor, lamphouse, changeover, exciter lamp, house lights, curtain, and masking.

- Modular circuit board design with plug-in relays for easy servicing.

- The Series 1 will accept cues at any point during the show for internal automation functions, any of the provided auditorium functions or a programmed intermission.

- A unique failsafe circuit assures the dowser is closed prior to lamp ignition, eliminating annoying pre-start flashes on the screen.

- Supplied with a cue detector/failsafe. Provides both random and sequential cue application.

- LED indicators showing the status of the automation.

- Remote with alarm capabilities.

- Interlock capabilities built into automation with simple two wire interface.

- Non sequential operation. The "showend" function may be selected on any one of the seven matrix cue lines, allowing the operator the flexibility of how many cues can be used for any feature without having to sequence through all cue lines.

- The Series 1 provides a programmable auxiliary relay output which can be used for slide projector operation. The relay operation and release can be programmed by means of a dip switch labeled "S6" on the front panel relay board(APAN). The aux. relay is turned on, on power up and may be programmed to turn off with the press of the start button or on c/o open. The reactivation of this relay is also programmable. The operator can select whether the aux. relay will turn on instantaneously when the showend cue is sensed, or whether there will be a delay. The delay is adjustable from 1 to 100 seconds by means of a potentiometer labeled "R19" on the relay board. (The delay starts from the point of the showend failsafe.) See drawing provided for complete information.

- The Series 1 provides the capability of operating both zipper and latch type cangeovers. A jumper labeled "S8" located on the relay/front panel board allows configuration of the c/o close mode according to the type of c/o dowser. (zipper or latch)

NOTE: Make sure the c/o mode select jumper is in the proper position before providing power to the c/o. If the jumper is in the latch position and the automation is powered, it provides constant closure to the c/o close output of the automation. This will burn out the c/o close coil on a zipper type changeover in a short period of time.

The automations are shipped with this jumper in the "zipper" position, unless Big Sky Industries provides the whole system or unless notified by the customer otherwise.

The changeover time delay is set at the factory, but should the need arise for the adjustment of the "7 second c/o open delay" this adjustment may be made by means of a potentiometer labeled "R6" on the main logic board(ALOG). Turning the pot clockwise makes the delay longer and turning counter clockwise shortens the delay. The delay adjustment is not an extensive adjustment it provides a minor amount of adjustment for fine tuning purposes.

- There is provided separate isolated contacts for masking and turret in the event that there are different potentials between the two periferals. Both the masking relay and the manual bypass switch are double pole so that both functions may be activated with the operation of one relay or manual switch.

FRONT PANEL DESCRIPTION

START MODE:

This switch selects in which mode the automation will start. If the switch is in the normal mode position (green LED), when the start button is pressed the motor and all other projector and initial auditorium functions will occur normally. The automation will switch into the feature mode where normal cues may be implemented.

If the switch is in the interlock position (yellow LED), the start button will put the automation into the "start the motor only" mode. When this mode is implemented, the unit will first check the condition of the interlock control line. If the line is not held to ground, the automation will start the motor only. When an interlock "start all" cue is sensed, the automation will start the lamp, all other projector functions and switch into the feature mode. See "interlock operating instructions" for complete details on interlock operation.

START: This button is a momentary button that starts or resumes operation of the automation from any scheduled stops, intermissions or unscheduled film breaks.

STOP: This momentary button stops or pauses the operation of the automation at any time during the program. If the automation is stopped using the stop button, the unit will restart in the same mode in which it was stopped. For example, if the showend cue had already been sensed and for some reason the operator stopped the automation before the showend failsafe, when the unit is restarted it will still expect to see the showend failsafe to properly complete the sequence. The stop button also resets the alarm in the event of a film break.

SHOWEND MODE:

This button is an alternate action pushbutton which selects the fashion in which the feature mode is terminated. If this button is in the **"RUN"** mode when the showend cue is sensed, the automation will close the dowser, turn off the xenon, turn off the exciter and provide the auditorium functions selected on the function matrix for this cue. The projector motor will continue to run until the film runs out and the failsafe drops.

If the button is in the **"INTERMISSION"** mode when the showend cue is sensed, the automation will execute all projector and house functions as listed above and the projector motor will stop. When the automation is in this mode, the showend cue will also pulse the relay labeled **"T1"** on the mother board which can be used to start an intermission timer to automatically restart the automation after an intermission.

INTERLOCK FEED THROUGH:

This button is an alternate action button that makes or breaks the interlock connection to any machine following the one that the switch has been depressed. For example, if four machines are in a booth the standard interlock wiring for the **Series 1** is to daisy chain all machines down the line. If the projectionist wishes to run two separate interlocked features, he should depress this button on machine two. This will break the chain between machines two and three therefore separating the four machines into two isolated pairs. **(SEE INSTALLATION INSTRUCTIONS FOR PROPER TERMINATION OF INTERLOCK WIRING.)**

START INDICATOR: (GREEN)

This LED is illuminated any time the automation is in a mode other than stop. When running normally, the indicator is on steady.
If the unit is in interlock and another machine in the in the system has a film break, this indicator will start to blink indicating a state in which this automation is waiting for the fault on the other machine to be corrected.

STOP INDICATOR: (RED)

The stop indicator is illuminated any time the automation has been stopped by means of the stop button, the showend sequence or an unscheduled film break.

INTLK INDICATOR: (YELLOW)

Indicates that the interlock start mode has been selected.

NORMAL INDICATOR: (GREEN)

Indicates that the normal start mode has been selected.

INTERMISSION INDICATOR: (YELLOW)

Indicates that the intermission showend mode has been selected.

RUN INDICATOR: (GREEN)

Indicates that the run showend mode has been selected.

INTRLK FEED THROUGH INDICATOR: (YELLOW)

Indicates whether the interlock bus continues on to the next machine or if it terminates at that machine. If the LED is illuminated the bus continues if it is not illuminated the bus terminates at that machine.

MANUAL (BYPASS) SWITCHES:

These switches are provided in parallel with the relay contacts. They can be used to control the projector and auditorium functions in the event of an automation failure.

OPERATION INSTRUCTIONS FOR "ACUE" CUE CONTROL BOARD

The ACUE is a logic board that plugs directly into the mother board of the automation. This board Provides up to 8 different cues. Cues one through seven are connected to the seven upper lines of the function matrix located on the APAN relay board. Cue eight is dedicated to the interlock "start all" function. As was mentioned, when in the interlock start mode and the start button is pressed, only the motor starts. When cue eight is sensed, the automation runs through the rest of the projector functions and switches into the feature mode. The cue outputs may be connected to the matrix by means of pins on the end of a ribbon cable or the outputs may be connected to the functions directly. (All 8 of the cue outputs are available from this connector.)

The ACUE may be switched into one of two modes by means of a pin header marked "s1" on the cue board. Moving the shunt toward the "R" on the board puts the board into the random cue mode. If the shunt is in the "S" position on the board, the logic board is in the sequential mode. Description of mode characteristics is as follows:

RANDOM MODE

If the random mode is selected, the cues are placed on the film on consecutive frame lines. These cues are counted to select which matrix line will be sent a pulse. After the selected matrix line is pulsed the counter resets. In the random mode, the cue counter always starts from zero and pulses the line selected by the last series of counted cue tapes. The functions that occur on the selected matrix line, depends on how the customer sets up the diodes on that matrix line. To pulse matrix line #4 (CUE #1)(the line at which the cue outputs start) one cue tape is placed on one frame line. To pulse matrix line #5 (CUE 2), two cue tapes are placed on two consecutive frame lines. As many as 8 cue tapes may be placed on consecutive frame lines. Up to seven tapes will activate matrix lines directly. The output from eight cue tapes is dedicated to activate the feature mode when the automation is in the interlock mode.

SEQUENTIAL MODE

If the ACUE board is in the sequential mode, placing a single cue on a frame line will advance the cue counter one step and pulse the next matrix line. For example, if the automation is in the normal run mode, after the start button is pressed and the c/o opens, placing a single cue on a frame line will advance the cue counter to line 1 and pulse matrix line 4. Placing another single cue on the film will advance the counter to line 2 and pulse matrix line 5. The cue counter will sequence through cue lines in this fashion until it comes to the line that has been programmed for the showend line. The cue board will pulse the corresponding line and reset the cue counter awaiting the start of the next show.

NOTE: If the automation is in interlock, and the ACUE board is in the sequential mode, eight cue tapes must be placed on consecutive frame lines to trigger the automation into the feature mode (just as when the cue board is in the random mode). When the eight cues are counted the automation is triggered and the cue counter is reset, after which the cues are counted in sequence as mentioned above.

NOTES:
1- The automation is hard wired to provide certain functions in the event of a film break or unscheduled stop during a feature. (Curtain close, lights bright and nonsync sound.) If the automation is stopped, the operator will have to reset the auditorium to the proper configuration.

ACUE Cue line activation according to number of cue tapes:

Cue-1 [ONE CUE TAPE(random mode)]/[cue tape #1(sequential mode)]
Cue-2 [TWO CUE TAPES(random mode)]/[cue tape #2(sequential mode)]
Cue-3 [THREE CUE TAPES(random mode)]/[cue tape #3(sequential mode)]
Cue-4 [FOUR CUE TAPES(random mode)]/[cue tape #4(sequential mode)]
Cue-5 [FIVE CUE TAPES(random mode)]/[cue tape #5(sequential mode)]
Cue-6 [SIX CUE TAPES(random mode)]/[cue tape #6(sequential mode)]
Cue-7 [SEVEN CUE TAPES(random mode)]/[cue tape #7(sequential mode)]
Cue-8 [EIGHT CUE TAPES(random mode)]/[EIGHT TAPES(sequential mode)]

Cue line to matrix line correspondence is as follows:

Cue line #1 = matrix line #4
Cue line #2 = matrix line #5
Cue line #3 = matrix line #6
Cue line #4 = matrix line #7
Cue line #5 = matrix line #8
Cue line #6 = matrix line #9
Cue line #7 = matrix line #10
Cue line #8 = dedicated to activate feature mode when automation is in interlock.

NOTE: See cue line/function matrix chart for cue line and function identification and configuration information. The only tape which will work with the **SERIES-1** is the **OPTICAL CUEING TAPE** supplied exclusively by the **BIG SKY** dealer network.

AUTOMATION OPERATION - NORMAL MODE

POWER UP - Turn on the power switch. A pulse will be provided to the power up line (line one) on the function matrix. The auditorium will be dressed according to the functions selected on that line.

Place all cues on the film according to automation mode, function selections and presentation desired.

Thread the projector with the academy leader in the aperture between the 7 & 8 foot mark. When the film is properly threaded through the failsafe, the automation is ready to start. (The automation will not start if the failsafe is down).

SHOW START - press the start button. The green LED above the start button will illuminate and a pulse will occur on (line 2) of the function matrix. The selected functions for that line will occur as well as the following sequence of events:

a) Changeover dowser will close.
b) Projector motor starts.
c) Xenon Lamp will ignite.
d) After seven seconds, picture changeover will open, the exciter lamp will come on and a pulse will be provided on (line 3) of the function matrix. The functions selected on that line will occur and the projector will continue to run until a programmed intermission or the end of show.

The automation is now in the feature mode. Cues corresponding to the remaining seven cue lines may be placed on the film at this time to accommodate sound, lighting or masking format changes.

NOTE: See cue line/function matrix chart for cue line and function identification and configuration information.

SHOWEND - On the **Series 1** the showend function is selected by the same means as are the cue functions. The dip socket labeled P-16 is connected to the seven upper cue lines on the function matrix. The operator selects the line with which the automation is to switch into the "showend" mode. For example, if the operator selects line five (5) on P-16 for "showend mode". When #5 cue is detected, the automation will implement the auditorium functions selected for that line as well as switching into the "showend" mode. Placement of the diode jumper on "P16" corresponding to any of the cue lines will select that line for the "showend" function.

The "showend" function has two modes, **"RUN"** and **"INTERMISSION"**. The modes are selectable by means of an alternate action pushbutton on the front panel.

RUN MODE - If the automation is in the run mode, a cue detected on the line designated for showend, will turn off the xenon, close the dowser, turn off the exciter lamp and pulse all the auditorium functions that have been selected on that cue line. The motor will continue to run until the tail runs out of the projector and the failsafe drops. The red stop LED will illuminate.

INTERMISSION MODE - If the automation is in the intermission mode, a showend cue on the film will simultaneously stop the motor, turn off the xenon, close the dowser, turn off the exciter and pulse all the auditorium functions that have been selected on that cue line.

AFTER INTERMISSION RESTART - Restarting the presentation may be accomplished by use of an optional intermission timer or by pressing the start button. In both cases the chain of events is the same as in the **SHOW START** sequence.

FILM BREAK - If the film should break during operation, the machine will shut down, Xenon lamp will turn off, exciter lamp will turn off, house lights will come up, non-sync will turn on and the curtain will close. The alarm will sound indicating a film break.

a) Press the stop button to reset the alarm.
b) After repairing the film break, press the start button to continue the show.

NOTE: When the automation restarts, the auditorium functions will have to be reset by the operator to the correct configuration.

REMOTE OPERATION - If the system is to be operated from a remote unit, follow the same instructions as if the unit were being operated from the front panel.

OPERATIONAL NOTE - After the showend cue, an appropriate masking format cue can be placed on the film to reset the masking to the proper format should the feature masking format be different than that of the trailers. This cue can be placed approximately 5 feet after the showend cue.

AUTOMATION OPERATION - INTERLOCK

POWER UP - Turn on the power switch. A pulse will be provided to the power up line (line one) on the function matrix. The auditorium will be dressed according to the functions selected on that line.

Place all cues on the film according to automation mode selections and presentation desired.

Thread the projector with the academy leader with the interlock "startall" cue (CUE #8) just before the first projector. When the film is properly threaded through the projectors and failsafes of each of the interlocked machines, the system is ready to start. (The system will not start if the failsafe on any of the involved machines is down).

SHOW START - Press the start button on the first machine. The machine will check the status of the interlock bus (which will be held to ground by the machines that are not yet started) and the green LED above the start button on that machine will start to blink. At this point interlock condition is established in this machine. Press the start button on each machine in this interlocked chain. When the start button on the last interlocked machine is pressed only the motors on all the machines in the system will start. The unit is now in the "interlock start motor only mode".

INTERLOCK "STARTALL" CUE: - When the motor starts, the interlock "startall" cue (which was placed just before the first projector) will trigger each automation in the chain in sequence. As the cue is detected by each of the machines, the following sequence of events will take place:

A) The "start line", "line 2" on the matrix will be pulsed.
B) Changeover dowser will close.
C) Xenon Lamp will ignite.
D) After seven seconds, picture changeover will open, the exciter lamp will come on and a pulse will be placed on (line 3 c/o open line) of the function matrix pulsing any function selected on that line. The projector will continue to run until a programmed intermission or the end of show.

The automation is now in the feature mode. Cues corresponding to the remaining seven programmable cue lines may be placed on the film at this time to accommodate sound, lighting or masking format changes.

SHOWEND - On the **Series 1** the showend function is selected by the same means as are the cue functions. The dip socket labeled P-16 is connected to the seven upper cue lines on the function matrix. The operator selects the line with which the automation is to switch into the "showend" mode. For example, if the operator selects line five (5) on P-16 for "showend mode". When #5 cue is detected, the automation will implement the auditorium functions selected for that line as well as switching into the "showend" mode. Placement of the diode jumper on "P16" corresponding to any of the cue lines will select that line for the "showend" function.

The "showend" function has two modes, **"RUN"** and**"INTERMISSION"**. The modes are selectable by means of an alternate action pushbutton on the front panel.

RUN MODE - If the automation is in the run mode, a cue detected on the line designated for showend, will turn off the xenon, close the dowser, turn off the exciter lamp and pulse all the auditorium functions that have been selected on that cue line. Also at this point, the interlock status is suspended for this machine.(The interlock status for each machine is disengaged as the showend cue passes through each of the cue detectors.) The motor will continue to run until the tail runs out of the projector and the failsafe drops. The red stop LED will illuminate. Approx. 3 minutes after the showend failsafe, the interlock output of the automation pulls the interlock buss to ground. This delay is provided to allow enough time for all the machines in the chain to see the showend cue disengaging them from the buss before returning to the before show status (buss pulled to ground). If the operator re-threads and has the system ready to run before the last machine times out into the "before show" status, the stop button must be pressed to reset the automation to pull the buss down. Failure to do so may allow the system to start prematurely should one of the machines not be holding the interlock buss down.

INTERMISSION MODE - It is not recommended that intermission mode be used when the automation is running interlock. If an intermission cue is placed on the film, the first machine will switch into intermission pulling the interlock buss down and the rest of the machines will be forced into the interlock wait state. This is not a showend type state, and the machines in the wait state would continue from the point at which they were stopped rather than a restart as when returning from an intermission.

FILM BREAK - If the film should break during operation, the machine will shut down, Xenon lamp will turn off, exciter lamp will turn off, house lights will come up, non-sync will turn on and the curtain will close. The alarm will sound only on the machine that encountered the film break. The faulted machine will pull the interlock buss to ground. This will suspend operations on all other machines on the common buss. The houses corresponding to these machines will be dressed as above and the start indicator will start to flash. This is to indicate that these machines did not shut down but are waiting for the film to be repaired and the system to be restarted.

a) Press the stop button **only** on the machine that encountered the film break, to reset the alarm.
b) After repairing the break, restart the show by pushing the start button on **that** machine only. The rest of the machines will resume operation automatically.

NOTE: When the automation restarts, the auditorium functions will be set according to the functions selected on the last cue line decoded by the opticue decoder board. Be sure that the correct functions are selected on each matrix line to correctly reset the auditorium on the next c/o open pulse.

REMOTE OPERATION - If the system is to be operated from a remote unit, follow the same instructions as if the unit were being operated from the front panel.

OPERATIONAL NOTE - When in the interlock mode, before the "interlock startall" cue and after the "showend" cue, cues may be placed on the film to set certain formats should some feature formats be different than that of the trailers. These cues should be placed approximately 5 feet from each other if multiple cues are used.

SERIES 1 SPARE PARTS LIST

1	APAN	FRONT PANEL RELAY BOARD.
1	ALOG	AUTOMATION LOGIC BOARD.
1	ACUE	CUE LOGIC BOARD.
1		BAG FUNCTION SELECTION DIODES FOR MATRIX(25 pcs).
10		HIGH POWER RELAYS REF.K1-K10
12		DPDT LOW POWER (DIP) RELAYS REF.K11-K21-T1
1		12VOLT 3.4AMP POWER SUPPLY
1		2AMP FUSE 3AG-2AMP

TERMINAL DESIGNATION WALL MOUNT SERIES-1 AUTOMATION

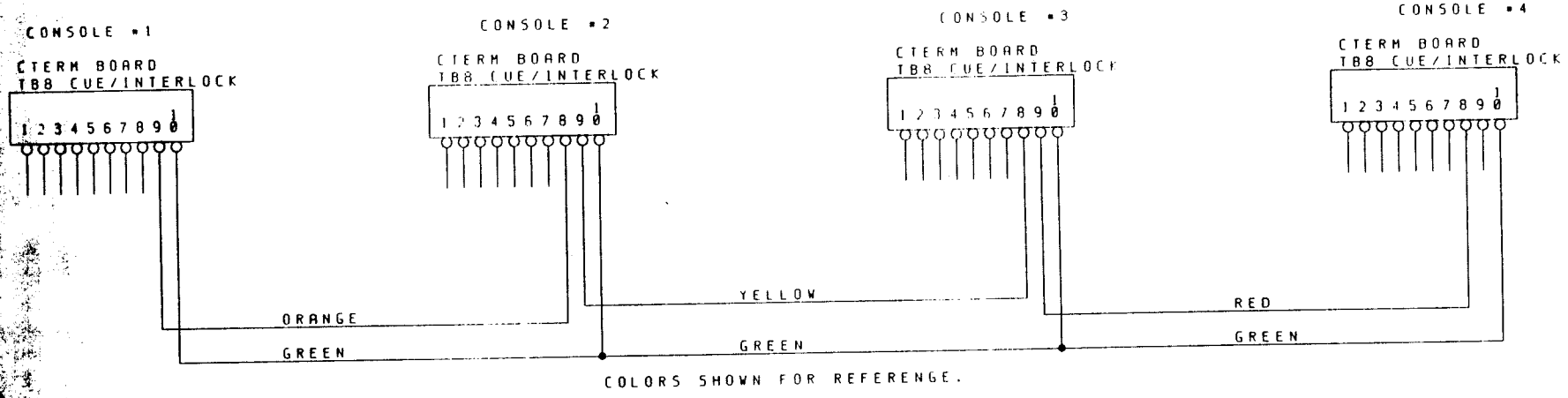
TB5 (AC FEED)
1- LINE HOT
2- LINE NEUTRAL
3- LINE GROUND

TB6 (PROJECTOR AND HIGH POWER OUT)
1- MOTOR FEED
2- MOTOR OUT
3- AUX RELAY LOOP IN
4- AUX RELAY LOOP OUT
5- XENON FEED
6- XENON OUT
7- EXCITER FEED
8- EXCITER OUT
9- C/O COMMON
10- C/O OPEN
11- C/O CLOSE (latch or zipper)
12- CURTAIN COMMON
13- CURTAIN OPEN
14- CURTAIN CLOSE
15- MASKING COMMON
16- MASKING SCOPE
17- MASKING FLAT

TB7 (REMOTE AND PERIPHERAL INPUT/OUTPUT)
1- GROUND
2- REMOTE STOP IND.
3- REMOTE START IND.
4- REMOTE ALARM
5- REMOTE STOP SW.
6- GROUND
7- REMOTE START SW.
8- GROUND
9- FIRE INPUT
10- GROUND
11- FAILSAFE
12- SHOW END CUE
13- INTERLOCK "START ALL" CUE
14- INTERMISSION CUE
15- INTERLOCK IN
16- INTERLOCK OUT
17- GROUND
18- GROUND
19- GROUND
20- 12VDC OUT

TB8 (SOUND AND LIGHT CONTROL OUTPUTS)
1- DIMMER SWITCHING COMMON
2- DIMMER DIM
3- DIMMER BRIGHT
4- DIMMER HALF/LIGHT
5- DIMMER PANIC
6- SOUND MONO/SR SWITCHING COMMON
7- SOUND SR
8- SOUND MONO
9- SOUND MAG/STEREO SWITCHING COMMON
10- SOUND STEREO
11- SOUND MAGNETIC
12- CHASSIS GROUND
13- SOUND ENABLE/MUTE SWITCHING COMMON
14- SOUND ENABLE
15- SOUND MUTE
16- CHASSIS GROUND
17- SOUND SPECIAL/NONSYNC SWITCHING COMMON
18- SOUND SPECIAL
19- SOUND NONSYNC
20- CHASSIS GROUND

SAMPLE INTERLOCK WIRING FOR A FOUR MACHINE BOOTH
,CONSOLE MOUNT AUTOMATIONS
TERMINALS ON CTERM FIELD WIRING BOARD



COLORS SHOWN FOR REFERENGE.

NOTES:

ALL GROUNDS ARE DIRECTLY TIED TOGETHER.

THE INTERLOCK OUTPUT OF EACH MACHINE IS TIED TO
THE INTERLOCK INPUT OF THE FOLLOWING MACHINE.

EXAMPLE:
#1 MACHINE INTERLOCK OUTPUT IS TIED TO THE INPUT ON MACHINE #2
AND THE OUTPUT OF MACHINE #2 IS TIED TO THE INPUT ON MACHINE #3.
THIS PROTOCALL IS FOLLOWED FOR ALL THE MACHINES THAT
ARE TO BE INTERLOCKED.

IF ALL THE INERLOCK FEED THROUGH SWITCHES ARE ON, ALL THE
MACHINES WILL BE CONNECTED TO A COMMON BUSS. IF THE I/L FEED
THROUGH SWITCH IS TURNED OFF ON MACHINE #2 THE FOUR MACHINES
WILL BE SPLIT UP INTO TWO GROUPS OF TWO MACHINES EACH.

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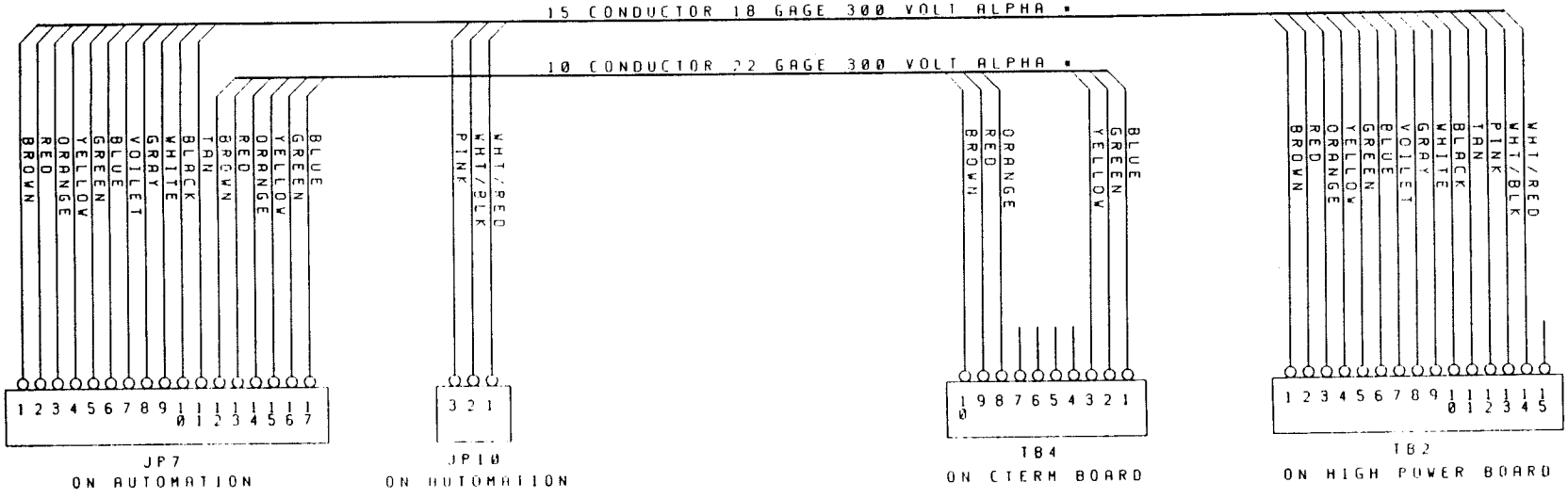

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Title
SERIES 1 AUTO HIGH POWER INTERFACE CABLES

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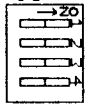
S6 FUNCTION INFORMATION

SWITCH AND POT POSITION
AS VIED FROM THE APAN BOARD.

S6



AUX. RELAY ON/OFF MODE SELECT.

R19

AUX. RELAY ON DELAY ADJUST.

THE DIP SWITCH LABELED "S6" IS PROVIDED
TO GIVE THE FLEXABILITY OF BEING ABLE TO SELECT
SEVARAL DIFFERENT MODES OF OPERATION FOR THE
AUXILIARY RELAY.

AN EXPLANATION OF THE DIFFERENT MODES ACCORDING
TO SWITCH SETTINGS IS AS FOLLOWS:

S6 - SW-1:
SELECTS WHETHER THERE WILL BE A DELAY IN THE
OPERATION OF THE AUXIALARY RELAY AT THE END OF THE SHOW.
IF THE SWITCH IS ON, THERE WILL BE AN ADJUSTABLE
DELAY OF 1 TO 100 SECONDS BEFORE THE AUX. RELAY TURNS ON AFTER
THE SHOVEND FAILSAFE. THIS DELAY BEGINS FROM THE POINT
OF THE FAILSAFE. THE DURATION OF THE DELAY IS ADJUSTABLE
BY MEANS OF THE POT LABELDED R-19 ON THE APAN BOARD.
THE DELAY TIME IS INCREAESED BY TURNING THE POT CLOCIWISE.
IF THE SWITCH IS OFF, THE AUX. RELAY WILL TURN ON
INSTANTANEOUSLY WHEN THE FAILSAFE DROPS.

S6 - SW-2:
SELECTS WHETHER THE AUX. RELAY WILL TURN ON AT THE SHOWEND
FAILSAFE OR WHEN THE SHOWEND CUE IS SENSED. IF THE IS SWITCH
IS ON, THE AUX. RELAY WIL TURN ON WHEN THE SHOWEND CUE IS
SENSED. THE RELAY WILL TURN ON AT THIS POINT WHETHER OR NOT
A DELAY HAS BEEN SELECTED BY TURNING ON SW-1.

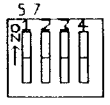
S6 - SW-3
NOT USED.

S6 - SW-4:
SELECTS WHETHER THE AUX. RELAY WILL TURN OFF WHEN THE START
BUTTON IS PRESSED OR WHEN THE C/O OPENS. IF THE SWITCH IS ON,
THE RELAY WILL TURN OFF WHEN THE START BUTTON IS PRESSED. IF THE
SWITCH IS OFF THE RELAY WILL TURN OFF WHEN THE C/O DOWSER OPENS.

S7 FUNCTION INFORMATION

SWITCH AND POT POSITION
AS VIED FROM THE APAN BOARD.

S7



THE SWITCH LABELED "S7" IS PROVIDED
TO ALLOW THE OPERATOR TO SELECT THE
FUNCTIONS THAT WILL ACCUR IN THE EVENT
OF A FIRE INPUT INTO THE AUTOMATION.

ON THE SERIES-1 THERE IS AN INPUT
THAT IF PULLED TO GROUND BY A FIRE ALARM
SYSTEM, WILL GENERATE A PULSE. THIS
PULSE MAY BE DEVERTED TO SPECIFIC FUNCTIONS
BY MEANS OF INDIVIDUAL SWITCHES ON THE "S7"
DIP SWITCH ON THE APAN BOARD.

WHEN THE SWITCH IS ON, THE CORRESPUNDING
FUNTION IS SELECTED.

THE SWITCH TO FUNCTION DESIGNATION
IS AS FOLLOWS:

S7 - SW-1 - NONSYNC SOUND
S7 - SW-2 - SOUND MUTE
S7 - SW-3 - DIMMER PANIC (HOUSE LIGHTS)

NOTE:
ALL OUTPUTS ARE RELAY CONTACTS.

BIG SKY INDUSTRIES INC.
259 CENTER ST.
PHILLIPSBURG N.J. 08865

Title
DIP SW. MODE/FUNCTION SETTING INFORMATION

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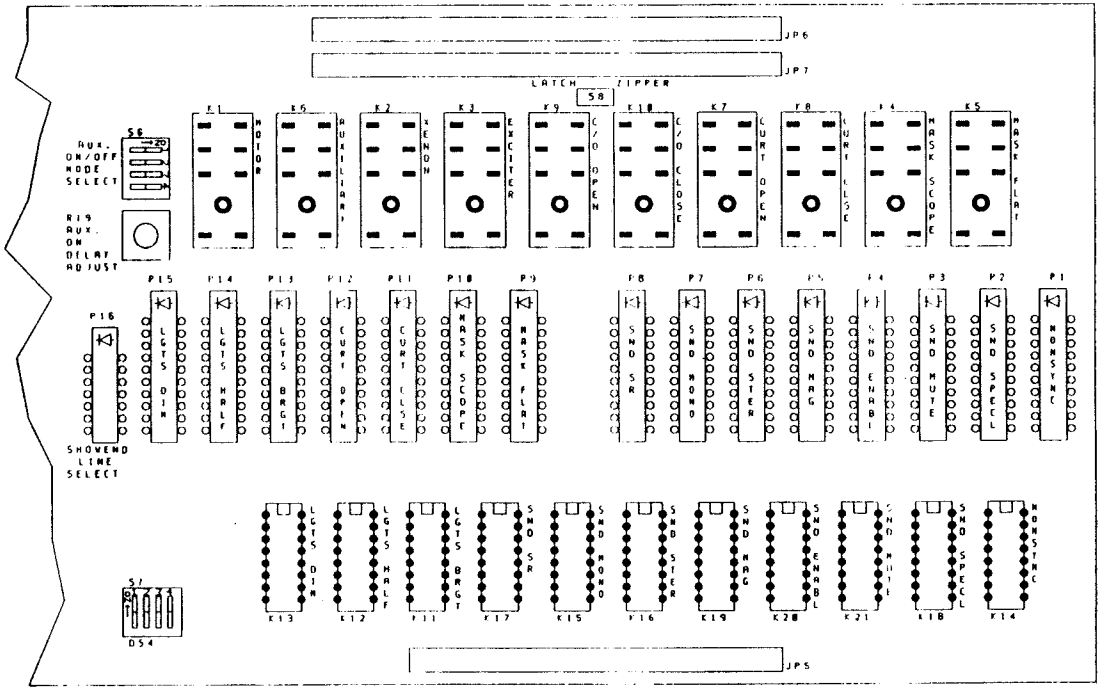
PHYSICAL LAYOUT MATRIX SECTION APAN FRONT PANEL/RELAY BOARD.



DIP SWITCH SETTING INFORMATION

THERE ARE TWO DIP SWITCHES TO SET VARIOUS FUNCTION MODES.

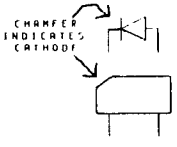
"S6" SETS THE MODES OF OPERATION FOR THE AUX. RELAY.

"S7" SELECTS THE FUNCTIONS THAT WILL OPERATE IN THE EVENT OF A FIRE INPUT TO THE AUTOMATION.

SEE DVG.-ROIPSW FOR SWITCH, MODE AND FUNCTION SETTING INFORMATION.

THE FUNCTION TO MATRIX LINE PROGRAMMING IS ACCOMPLISHED BY MEANS OF DIODE JUMPERS. THE DWG. BELOW ILLUSTRATES THE PROPER DIRECTION FOR THE DIODE BLOCKS TO BE PLUGGED INTO THE MATRIX SOCKETS.

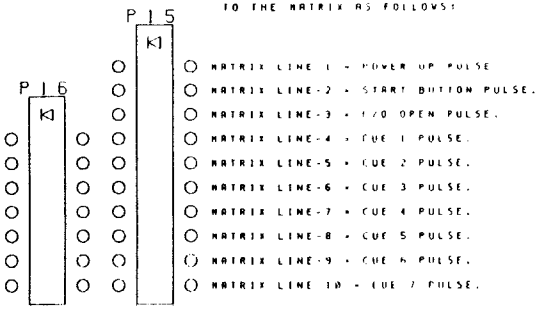
DIODE INDENTIFICATION



PLUG DIODE PLUG INTO SOCKET WITH THE CHAMFERED END FACING THE SAME WAY AS THE CATHODE ON THE DIODE SYMBOL ON TOP OF THE MATRIX SOCKET.

MATRIX LINE DESIGNATIONS

THE PULSE LINES ARE CONNECTED TO THE MATRIX AS FOLLOWS:



NOTES:

DIODE SYMBOL SIDE OF PLUG IS LINE-1 TYPICAL.

P15 AND P16 ARE SHOWN TO ILLUSTRATE THE RELATIONSHIP OF THE SHOVEND SELECT SOCKET TO THE 7 CUE LINES ON THE MATRIX.

THE SHOVEND SELECT SOCKET (P16) IS CONNECTED ONLY TO THE 7 PROGRAMMABLE CUE LINES.

THE LINE IN WHICH THE DIODE PLUG IS INSERTED IS SELECTED TO BE THE SHOVEND LINE.

FOR EXAMPLE IF THE DIODE PLUG IS INSERTED IN TO MATRIX LINE #6 (ON THE SHOVEND LINE SELECT SOCKET), CUE #3 WILL SWITCH THE AUTOMATION INTO SHOVEND MODE.

THERE ARE TWO MODES OF OPERATION FOR THE CUE LOGIC BOARD.

SEQUENCIAL AND RANDOM.

IN THE SEQUENTIAL MODE, INDIVIDUAL CUES ARE PLACED ON THE FILM ON THE FRAME LINE. AS EACH SINGLE TAPE IS SENCED, THE CUE COUNTER ADVANCES ONE LINE. PULSES THAT LINE AND WAITS FOR THE NEXT CUE TAPE TO BE SENSED. THIS SEQUENCE CONTINUES UNTIL THE SHOVEND LINE IS REACHED. WHEN THE SHOVEND LINE IS REACHED, THE CORRESPONDING LINE IS PULSED AND THE COUNTER IS RESET AWAITING THE START OF THE NEXT SHOW.

IN THE RANDOM MODE, ANY CUE MAY BE USED ANY NUMBER OF TIMES IN ANY ORDER. CUES ON BOTH SIDES OF THE SELECTED SHOVEND LINE MAY BE USED WITHOUT AFFECTING THE SELECTED SHOVEND LINE. PLACING A CUE TAPE NUMBER CORRESPONDING TO THE SELECTED SHOVEND CUE LINE WILL TRIGGER THE SHOVEND MODE.

MATRIX SOCKETS ARE LABELED ACCORDING TO THE FUNTION RELAY THEY OPERATE. THE RELAYS ARE LABELED IN CORRESPONDENCE WITH THE WALL AND CONSOLE MOUNT OUTPUT DESIGNATION SHEETS PROVIDED.

RELAY FUNCTION INFORMATION IS PROVIDED AS A GUIDE FOR THE INSTALLER AND USER. ANY EXTRA RELAY OUTPUTS MAY BE USED FOR ANY FUNCTION NEEDED BY THE CUSTOMER.

CERTAIN DIP RELAY OUTPUTS ARE TIED TOGETHER AT BLOCKS. THE BLOCK CONNECTION PROTOCAL IS AS FOLLOWS

BLOCK-1 = NONSYNC,SOUND SPECIAL, COMMON.
BLOCK-2 = SOUND MUTE, SOUND ENABLE, COMMON.
BLOCK-3 = MAGNETIC, STEREO, COMMON.
BLOCK-4 = MONO, SOUND SR, COMMON.

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THEATRE #

AVAILABLE FUNCTIONS AND PLUG DESIGNATIONS

PULSE LINES	SHOWEND CUE LINE P16	LIGHTS DIM P15	LIGHTS HALF P14	LIGHTS BRIGHT P13	CURTAIN OPEN P12	CURTAIN CLOSE P11	MASKING SCOPE P10	MASKING FLAT P9	SOUND SR P8	SOUND MONO P7	SOUND STEREO P6	SOUND MAGNETIC P5	SOUND ENABLE P4	SOUND MUTE P3	SOUND SPECIAL P2	SOUND NONSYNC P1
MATRIX LINE 1 POWER UP PULSE																
MATRIX LINE 2 START BUTTON PULSE																
MATRIX LINE 3 C/O OPEN PULSE																
MATRIX LINE 4 CUE #1 PULSE																
MATRIX LINE 5 CUE #2 PULSE																
MATRIX LINE 6 CUE #3 PULSE																
MATRIX LINE 7 CUE #4 PULSE																
MATRIX LINE 8 CUE #5 PULSE																
MATRIX LINE 9 CUE #6 PULSE																
MATRIX LINE 10 CUE #7 PULSE																

USE THIS CHART TO DOCUMENT MATRIX PROGRAMMING FOR EACH THEATRE.

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THEATRE #

SAMPLE MATRIX CONFIGURATION
(AS SHIPPED FROM FACTORY)

AVAILABLE FUNCTIONS AND PLUG DESIGNATIONS

PULSE LINES	SHOWEND CUE LINE	LIGHTS DIM	LIGHTS HALF	LIGHTS BRIGHT	CURTAIN OPEN	CURTAIN CLOSE	MASKING SCOPE	MASKING FLAT	SOUND SR	SOUND MONO	SOUND STEREO	SOUND MAGNETIC	SOUND ENABLE	SOUND MUTE	SOUND SPECIAL	SOUND NONSYNC
	P16	P15	P14	P13	P12	P11	P10	P9	P8	P7	P6	P5	P4	P3	P2	P1
MATRIX LINE 1 POWER UP PULSE								*					*			
MATRIX LINE 2 START BUTTON PULSE																
MATRIX LINE 3 C/O OPEN PULSE			*		*					*						
MATRIX LINE 4 CUE #1 PULSE		*					*				*					
MATRIX LINE 5 CUE #2 PULSE			*													
MATRIX LINE 6 CUE #3 PULSE	*			*		*		*								*
MATRIX LINE 7 CUE #4 PULSE																
MATRIX LINE 8 CUE #5 PULSE																
MATRIX LINE 9 CUE #6 PULSE																
MATRIX LINE 10 CUE #7 PULSE																

THIS DRAWING DEPICTS THE STANDARD DIODE PIN-OUT AND PRESENTATION:'

POWER UP - C/O CLOSE, LIGHTS BRIGHT, CURTAIN CLOSE, SOUND ENABLE & NON SYNC, MASKING & TURRET FLAT.

START - NO FUNCTIONS.

C/O OPEN (PREVIEWS) - LIGHTS HALF, CURTAIN OPEN, SOUND MONO.

CUE #1 (FEATURE) - LIGHTS DIM, SOUND STEREO.

CUE #2 (CREDITS) - LIGHTS HALF.

CUE #3 (SHOW END) - C/O CLOSE, LIGHTS BRIGHT, CURTAIN CLOSE, MASKING & TURRET FLAT, SOUND NON-SYNC.

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Title: SAMPLE MATRIX PROGRAM CHART

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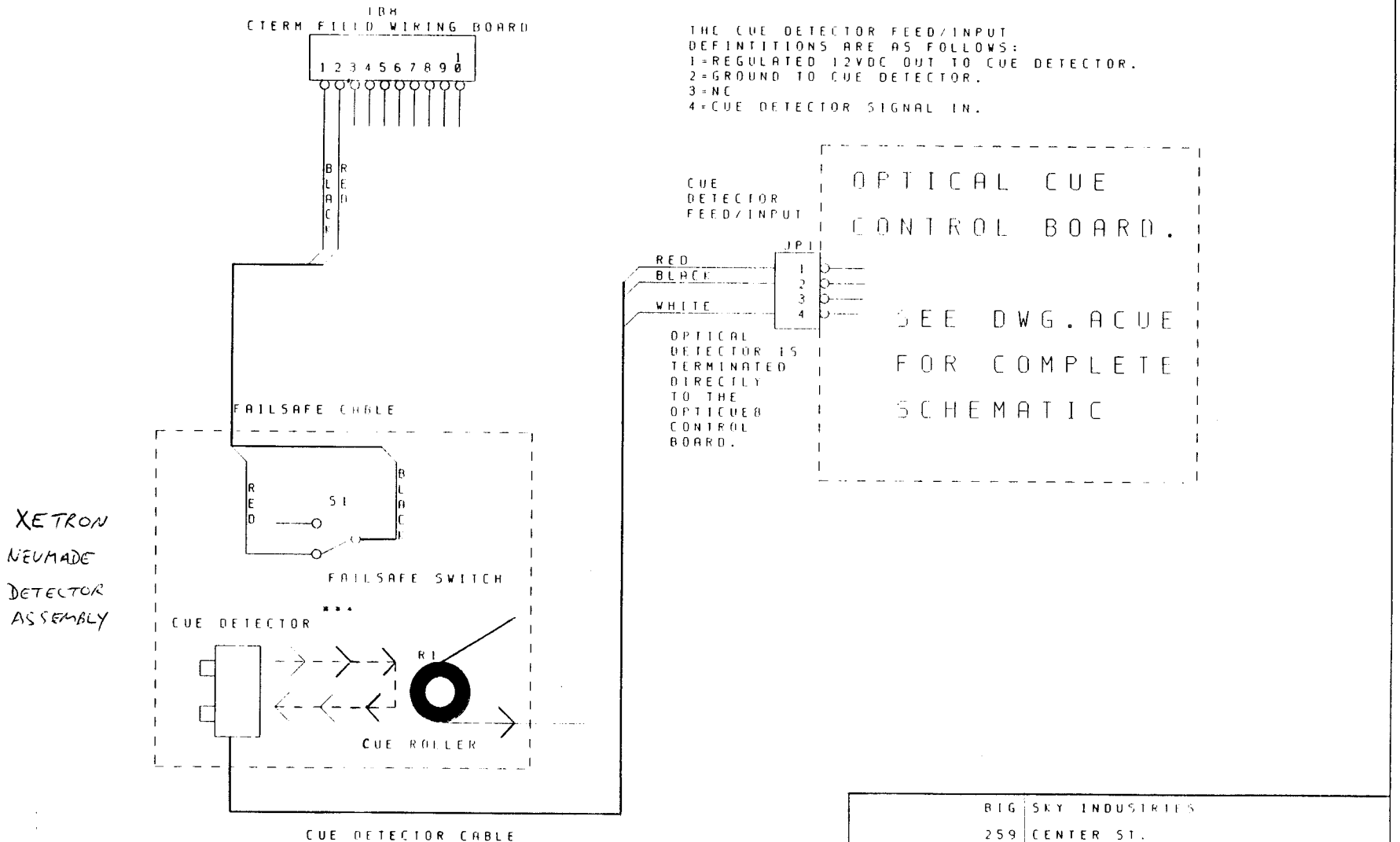

BIG SKY INDUSTRIES 259 CENTER ST. PHILLIPSBURG, NJ 08865		
Title OPTICAL CUE DETECTOR IN CONSOLE		
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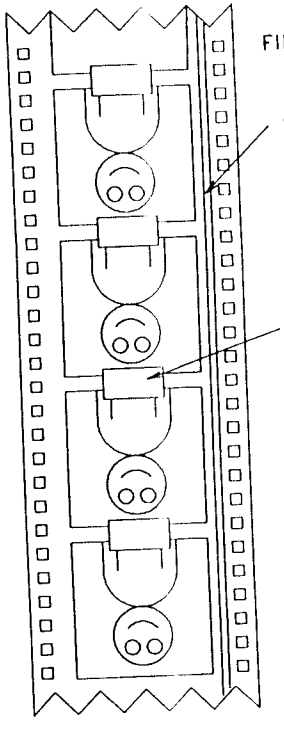


FILM VIEWED AS IF ENTERING THE GATE.

SOUND TRACK ON OUTSIDE OF FILM

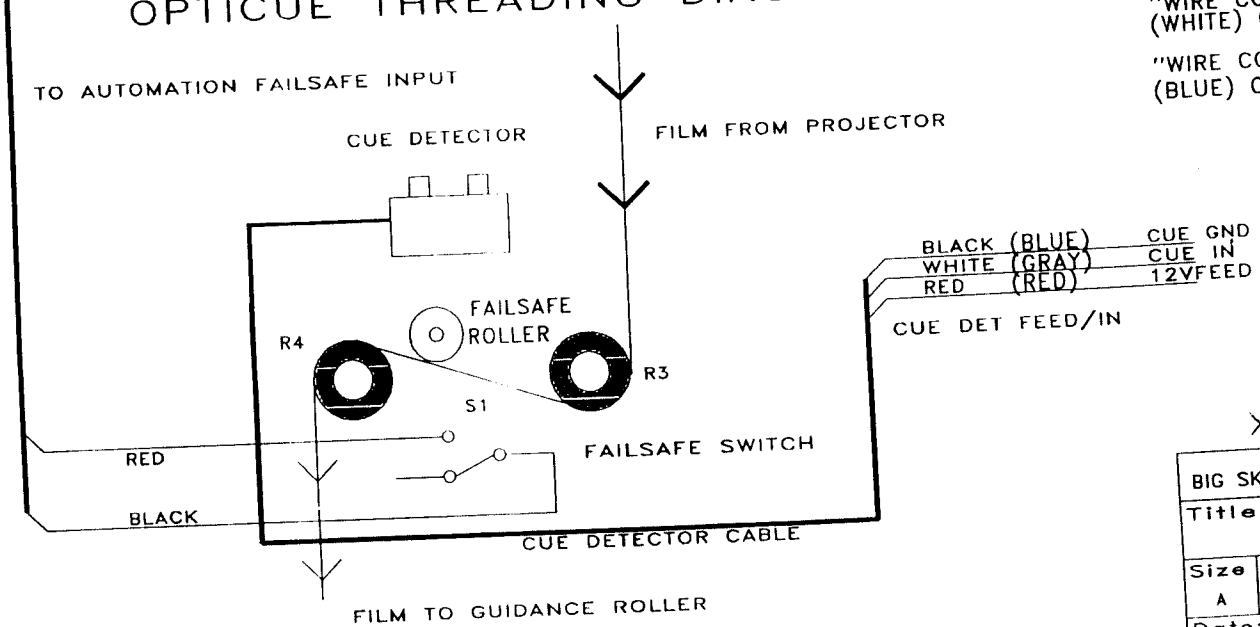
CUE PLACED ON FRAME LINE OF FILM.

WHEN OPTICUE IS IN THE RANDOM MODE, THE FOUR CUES SHOWN WOULD PULSE MATRIX LINE #7 (CUE 4).

WHEN IN THE SEQUENCIAL MODE, ONLY ONE CUE IS PLACE ON ANY FRAME LINE TO ADVANCE THE CUE COUNTER ONE LINE AND PULSE THE CORRESPONDING LINE.

SEE DWG.# ACUEW FOR WIRING TO ACUE CUE CONTROL BOARD

OPTICUE THREADING DIAGRAM



"WIRE COLOR"=WIRE COLORS FOR "MEC" (WHITE) COLORED SENSOR.

"WIRE COLOR"=WIRE COLORS FOR (SICK) (BLUE) COLORED SENSOR.

XETRON / NEUMADE

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CUE PLACEMENT AND THREADING		
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Date: JANUARY 22, 1998	Sheet 1 of 1	