Film-Tech

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INSTRUCTION MANUAL

HIGHLIGHT PROJECTION CONSOLE
SINGLE PROJECTOR AUTOMATION

TYPE SPA-3, -8, -10

8-82

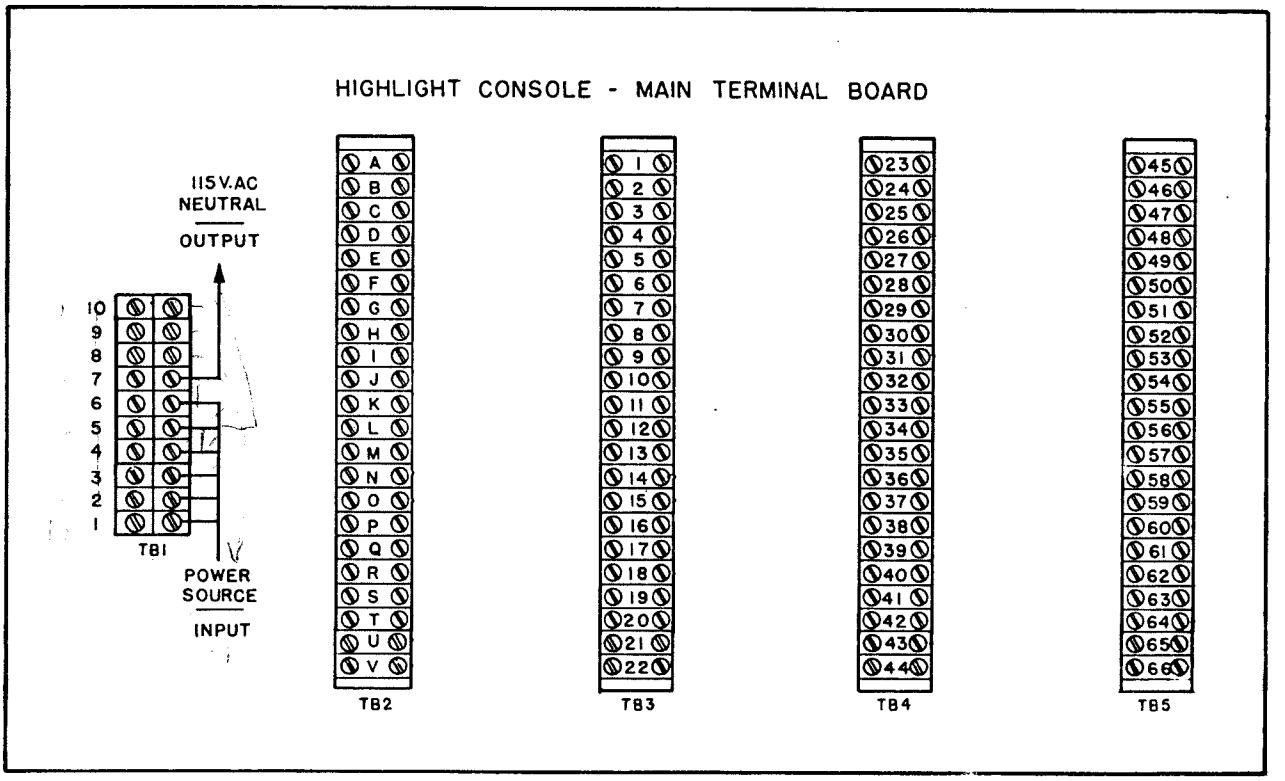
Strong Electric Corporation
87 City Park Avenue, Box 1003, Toledo, OH 43697 U.S.A.
419/248-3741, Telex 286033

ACCESSORY AUTOMATION UNITS for the Highlight Console consist of Strong Mini Automation, SPA-3; Strong total automation for Ballantyne, SPA-8; and Strong total automation for projection equipment other than Ballantyne, SPA-10. The SPA-3 controls projector and lamphouse switching, sync/non-sync sound logic, changeover at show start, changeback at show closing, and houselight dimmers. The SPA-8 and SPA-10 incorporate all of the above functions, plus additional circuits to control curtains and masking. All SPA units furnish failsafe switching, which shuts down the projection system in the event of a film break.

SOUND REPRODUCTION UNITS include the SSME-50, a Strong Sound Solid state, 50 watt, monophonic amplifier, a DC exciter power supply, and a booth sound monitor. The SS-50 Emergency Amplifier may also be mounted in the console drawer. Strong Starscope stereo systems can be used in conjunction with the console, but are either rack or wall-mounted.

INSTALLATION

ALL ELECTRICAL CONNECTIONS, between the projector and soundhead to the console, with the exception of Starscope Stereo system wiring, terminate at the main terminal board located behind the blower panel on left (non-operator) side of the console. Provision is made on this terminal to interface a sound system NOT manufactured by Strong with the automation (See "External Exciter Supply").



Terminal 1-6 receive all AC inputs from the power source (See console Manual, Installation Diagrams). While the system is pre-wired to a great extent, the following connections must be made by the installer. Identify the type of automation (SPA-3, SPA-8, SPA-10), as many connections differ.

Shield electrical wire runs in conduit, and use wire sizes acceptable to local codes.

SPA-3 MINI AUTOMATION

ITEM/FUNCTION	CONNECT TO	CONSOLE TERMINAL
Exciter Lamp, 9V. DC		
Positive		TB2-Q
Negative		TB2-R
Stage Speaker (using Strong Mono Sound)		
Hot		TB2-U
Common		TB2-V
Projector Motor, 115 V. AC*		
Hot		TB3-6
Neutral		TB1-7
Lamphouse Ignition (Factory Prewired)		TB3-7
		TB3-8
Dimmer Up		TB3-9
		TB3-10
Dimmer Down		TB3-10
		TB3-11

NOTE: If dimmer requires 115V. AC to execute function, apply 115V. AC hot (black wire) to TB3-10 and derive 115V. AC neutral (white wire) from TB1-7. If voltage is not applied to TB3-10, this circuit will operate as dry contacts.

Ballantyne Pro 35	
3017A Changeover	
Power Supply	
Terminal 9	TB1-10
Terminal 10	TB1-7
Terminal 7	TB3-3
Terminal 8	TB3-4

*If the projection motor requires a voltage other than 115V. AC, terminals TB1-7 and TB3-6 may be used to power a control relay coil, and projector motor voltage can be routed from an external source.

ITEM/FUNCTION	CONNECT TO	CONSOLE TERMINAL
"Zipper" Changeover		
Open (Blk)		TB3-14
Close (Brn)		TB3-12
Common (White)		TB3-13
Cue Sensor		
Inboard (Blu)		TB3-17
Outboard (Orn)		TB3-18
Common (Vio)		TB3-19
Failsafe Switch		
Normally Open (Yel)		TB3-20
Common (Red)		TB3-22
Solar Cell Input (Using Strong Mono System)		
Hot		TB5-62
Common		TB5-61
Shield (Grnd)		TB5-63
Non-Sync Sound Input		
Hot		TB5-59
Shield (Grnd)		TB5-60
External Exciter Supply (not Strong Console Mounted)		
115V. AC Hot		TB3-2
115V. AC Neutral		TB1-7
SPA Mini Remote (optional)		
75		TB5-45
12		TB5-46
10		TB5-47
8		TB5-48
5		TB5-49
26		TB5-50

SPA-8, SPA-10 Total Automation

Automation logic in the SPA-8 and SPA-10 is determined by the setting of the adjustable cams on the time bank. The cams are pre-set, but may be adjusted to better suit the conditions of a particular installation.

The cams (counted from the motor) perform the following functions:

No.
1. Timer Motor*
2. Projector Start*
3. Exciter On (also changeover open on SPA-8)
4. Exciter Off (also changeover close on SPA-8)
5. Timer Logic*
6. Dimmer Down
7. Dimmer Up
8. Curtain Close
9. Curtain Open
10. Non-Sync Sound Source On
11. Zipper Open (SPA-10 only)
12. Zipper Close (SPA-10 only)

* Do not adjust.

Particular care must be taken in setting cams 11 and 12 on SPA-10 units, as these setting apply 115V. AC to the coil of a "Zipper" changeover. The cam dwell must therefore be momentary, as a sustained dwell will damage the changeover coil.

A jumper is place between TB4-26 & 27. This jumper must be left inplace unless a remote failsafe, as furnished with the Balco Platter or Strong Dbl-Mut is used.

ITEM/FUNCTION	CONNECT TO	CONSOLE TERMINAL
Exciter Lamp, 9V. DC		
Positive		TB2-Q
Negative		TB2-R
Stage Speaker (using Strong Mono Sound)		
Hot		TB2-U
Common		TB2-V
Projector Motor, 115V. AC*		
Hot		TB3-4
Neutral		TB1-7

* If the projector motor requires a voltage other than 115V. AC. terminals TB1-7 and TB3-6 may be used to power a control relay coil, and projector motor voltage can be routed from an external source.

ITEM/FUNCTION	CONNECT TO	CONSOLE TERMINAL
Lamp Ignition (Factory pre-wire)		TB3-6 TB3-7
Dimmer Up		TB3-8 TB3-9
Dimmer Down		TB3-9 TB3-10

NOTE: If dimmer requires 115 V. AC to execute function, apply 115V. AC hot (black wire) to TB3-9, and derive 115 V. AC, neutral (white wire) from TB1-7. If voltage is not required, this circuit will operate as dry contacts.

Curtain Open	TB3-11 TB3-12
Curtain Close	TB3-12 TB3-13

NOTE: If curtain control requires 115V. AC to initiate operation, apply 115V. AC hot to TB3-12 and derive 115V. AC neutal from TB1-7. If voltage is not required, this circuit will operate as dry contacts.

"Zipper" Changeover (SPA-10 only)	
Open (Blk)	TB3-14
Close (Brn)	TB3-16
Common (White)	TB1-7

NOTE: It is recommended to check this changeover circuit with a voltmeter or 115V AC test light before connecting the changeover coil. Set the cams (11, Open; 12, Close) for the smallest dwell possible; a sustained 115V. AC pulse will damage the changeover coil.

Ballantyne Pro 35 3017A Changeover Power Supply	
Terminal 9	TB1-10
Terminal 10	TB1-7
Terminal 7	TB3-17
Terminal 8	TB3-18

ITEM/FUNCTION	CONNECT TO	CONSOLE TERMINAL
External Exciter Supply		
(Not Strong Console Mounted)		
115V. AC Hot		TB3-~~19~~
115V. AC Neutral		TB1-7
Non-Sync Sound Source		
115V. AC Hot		TB3-21
115V. AC Neutral		TB1-7
Failsafe Switch		
Normally Open (Yel)		TB4-25
Common (Red)		TB4-26
Remote Failsafe		
Normally Open		TB4-27
Common		TB4-~~26~~

NOTE: Leave Jumper in place if no remote failsafe is employed.

Cue Sensor	
Inboard (Blu)	TB4-31
Common (Vio)	TB4-33
Outboard (Orn)	TB4-43
Masking In	TB5-48
	TB5-49
Masking Out	TB5-49
	TB5-50

NOTE: If masking control requires 115V AC to initiate operation, apply 115V. AC hot to TB5-49, and derive 115 V. AC neutral from TB1-7. If voltage is not required, this circuit will operate as dry contacts.

Non-Sync Sound Input	
Hot	TB5-59
Shield (Grnd)	TB5-60
Solar Cell Input	
Hot	TB5-62
Common	TB5-61
Shield (Grnd)	TB5-63

HIGHLIGHT AUTOMATION

TYPE SPA-3

Print Make-Up

1. Place a 2-3/4 inch cueing foil on the inboard (non-soundtrack) side of the film at the first frame of the first reel of the show.

2. Place a second 2-3/4 inch inboard cueing foil at the desired "Houselights Up" point at the end of the feature.

3. Place a third cueing foil on the outboard (soundtrack) side of the film one foot from the end of the feature.

   NOTE: For best contact, wrap the foil tape around the edge of the film outside the perforations. Remove all foreign cues left on by prior exhibitors.

Normal Operation

1. Thread the projector. Make certain that the film is contacting all three cue sensor rollers, and is centered through the failsafe switch paddles.

2. Close first "AUTO", and then "LAMP ON" switches on the console lamphouse control panel. The lamp will not ignite until cued by the automation.

3. Press the automation "POWER" switch on, press "INTR BYPASS" and "DIM AUTO MAN" switches in to place the unit in AUTO mode. If the failsafe switch is threaded correctly, the "START" switch will light.

4. Start the non-sync sound (tape deck, tuner) for music in the auditorium prior to the show.

5. To start the show, press the "START" switch. The projector will run and the lamp will ignite. The cue at the first frame of reel one will open the changeover douser, light the exciter lamp, lower the houselights, and turn off the non-sync sound.

6. If the film breaks, the projector and lamphouse will shut down. After repairing the break, rethread the projector and press the "START" switch. When the projector is up to speed, press the "C/O AFTER FAULT" switch to restore the show.

7. Near the end of the show, the second inboard cue will raise the houselights.

8. The outboard cue at the end of the feature will close the changeover douser and extinguish the exciter lamp. The projector will continue to run until the end of the tail leader passes the failsafe switch. The failsafe switch will then shut off the projector and lamphouse, and start the non-sync sound.

Double Feature Intermission

1. At make-up, cue each feature as if they were to run as a single feature (three cues). Splice in enough blind film (black leader) to allow the projector to run down and restart.

2. Start the show as outlined in the preceeding section. After the picture is on the screen press the "INTR STOP AUTO" switch in.

3. When the inboard cue near the end of the first feature is sensed the house-lights will raise.

4. The outboard cue at the end of the first feature will close the changeover douser, extinguish the exciter lamp, switch on the non-sync sound, and shut down the projector and lamphouse.

5. To begin the second feature, release the "INTR STOP AUTO" switch and press the "START" switch. At the end of the second feature, the show will close the same as a single feature.

6. If it is decided not to have an intermission after the print has been cued for one, release the "INTR BYPASS" before the cues are due at the cue sensor. This will allow the film to run. After the cues have passed the sensor, re-set the "INTR BYPASS" switch for a normal close.

7. If it is desired to have an intermission in an exceedingly long show, find a suitable place to break the feature, and treat each half as a separate portion of a double feature.

In the event of an automation failure, all functions can be duplicated through use of the manual override switches on the control panel.

HIGHLIGHT AUTOMATION

TYPE SPA-8, SPA-10

Print Make-Up

1. Place a 2-3/4 inch cueing foil 24 feet before the desired "Houselights Up/ Curtain Close" point at the end of the feature. Wrap the foil tape around the edge of the film, outside the perforations on the outboard (soundtrack) side.

2. "Trailer Mode" can also be cued at make-up. At any point, such as near the end of a trailer or short subject, an inboard (non-soundtrack) cue will close the curtain and raise the houselights, while sound and picture remain on the screen. On curtain close, the cycle will continue, re-opening the curtain and lowering the houselights. This can be repeated as often as desired.

3. To program an intermission between double features, or a pause in a long feature, place a cueing foil on the outboard side of the film 23 feet before the desired stop, and a second foil inboard at the desired stop point. This will close the curtain, raise the houselights, extinguish the lamphouse, and stop the projector with film still threaded. Note: Splice in enough film (black leader) to allow the projector to come to speed and the change-over douser to open. See further instructions following under "Intermission Stop".

4. Remove all foreign cues left on by prior exhibitors.

Normal Operation

1. Close first "AUTO," and the "LAMP ON" switches on the console lamphouse. The lamp will not ignite until cued by the automation.

2. Press the automation "POWER" switch on control panel.

3. Thread the projector. When the failsafe switch is correctly threaded, the ready light in the "START" switch will glow.

4. Place Rocker switch in "CONT" position.

5. Press "START" Switch. After a three second delay, the lamphouse will ignite and the projector will start.

6. Seven seconds after the projector starts, the douser will open, the exciter lamp will light, the houselights will dim, and the curtain will open. The rate at which curtains and dimmers operate are set at Cam 6 (Lights Down), Cam 7 (Lights Up), Cam 8 (Curtain Close) and Cam 9 (Curtain Open).

7. If the film breaks, the projector and lamphouse will shut down. The houselights will raise and the curtain will close. After repairing the break, rethread the projector and press the "START" switch to restore the show.

8. When the outboard cue at the end of the feature is sensed, the curtain will close and the houselights will raise. The changeover douser will close and the exciter lamp will extinguish as set on the timer cams. Note: For Ballantyne, set Cam 4 only. For other projectors, set Cam 4 for "Exciter Off' and Cam 12 for "Zipper Close". Set very small dwell on Cam 12 or Zipper coil will be damaged.

9. When the film runs out, the failsafe switch will shut down the projector and lamphouse.

Intermission Stop

1. Place rocker switch in "INTR-STOP" position.

2. Start the show as outlined in "Normal Operation".

3. To re-start after the intermission, place the rocker switch to "CONT" and press the "START" switch.

Intermission Bypass

1. If it is decided not to have an intermission after the print has been cued for one, place the rocker switch in its center position, after having started the show, but before the intermission cues are due. This will bypass the intermission cues.

2. After the intermission cues have passed through, place the rocker switch in the "CONT" position for a normal close. In the event of an automation failure, all functions can be duplicated through use of the manual override switches on the control panel.

PARTS LIST
SPA-3

SWITCH	PART NO.	TYPE
"Power"	71104	DLA3
"Start"	71105	DLM1
"Inter-Stop-Auto"	71294	DPA5
"Film-Tape"	71299	Rocker
"Proj."	71107	DPA1
"C/O Ex. Lamp"	71108	DPA3
"C/O After Fault"	71295	DPM1
"Inter Bypass"	71296	DPA1
"Dim Down"	71118	DPM5
"Dim Up"	71119	DPM5
"Dim-Auto-Man"	71297	DPA1
"Reset"	71298	DPM1
"C/O Open"	71120	DPM5
"C/O Close"	71121	DPM5
Blank	71113	-
Plug	71303	-

SPA-8, 10

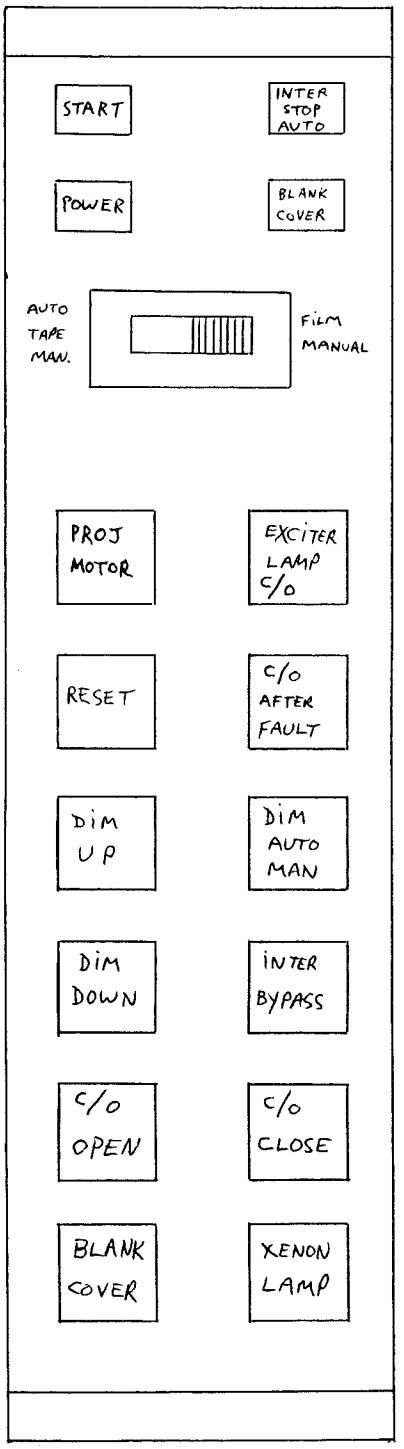
"Power"	71104	DLA3
"Timer Cycle"	71285	(Indicator Lamp, DGT)
"Start"	71105	DLM1
"Stop"	71106	DLM1
"Inter Bypass"	71126	Rocker
"Proj."	71107	DPA1
"Changeover"	71108	DPA3
"C/O Open"	71120	DPM5
"C/O Close"	71121	DPM5
"Curt. Open"	71114	DPM5
"Curt. Close"	71115	DPM5
"Mask In"	71116	DPM5
"Mask Out"	71117	DPM5
"Dim Down"	71118	DPM5
"Dim Up"	71119	DPM5
"Film"	71111	DPA5
"Tape"	71112	DPA5

BALLANTYNE

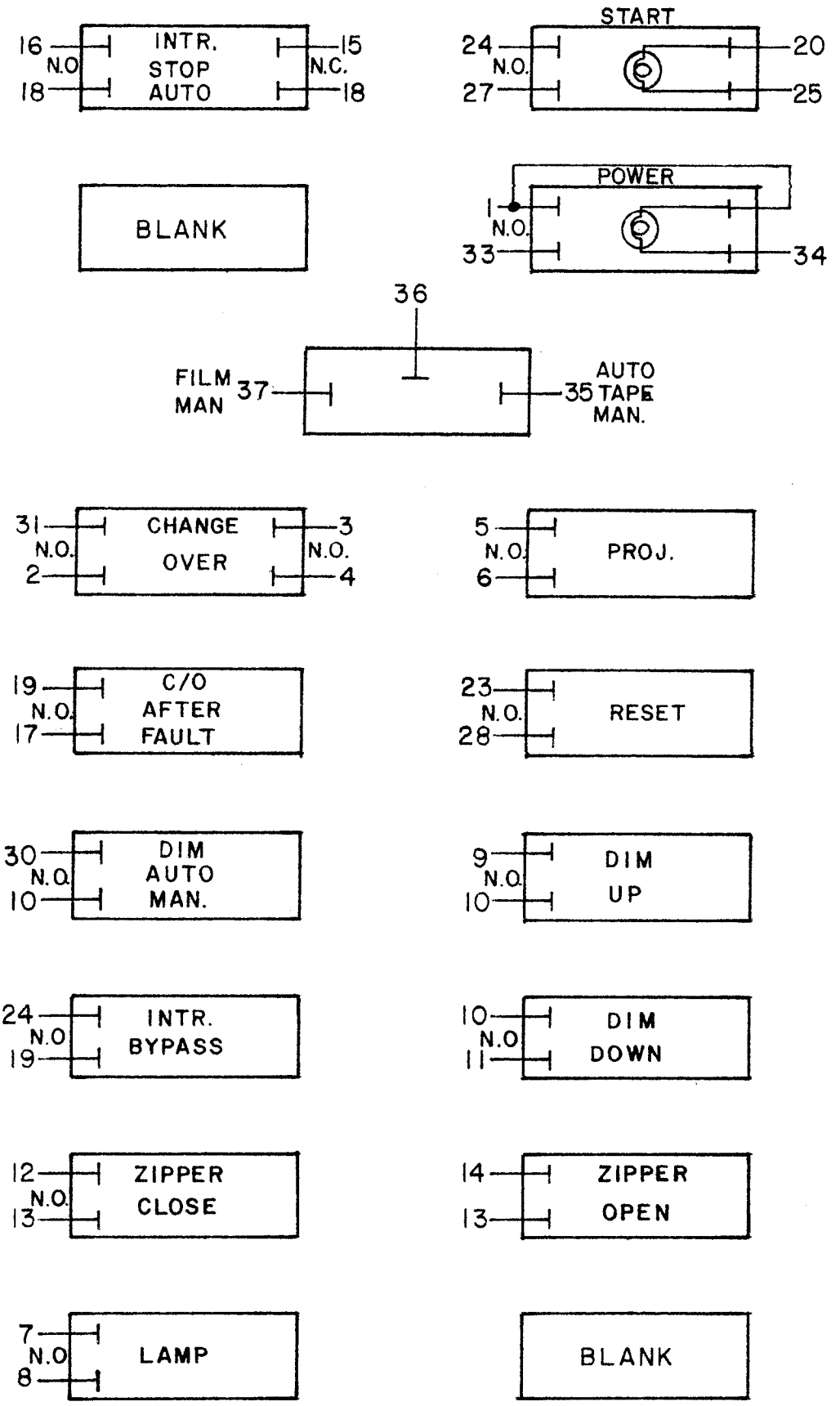
SPA-3

AUTOMATION

STRONG INT'L.



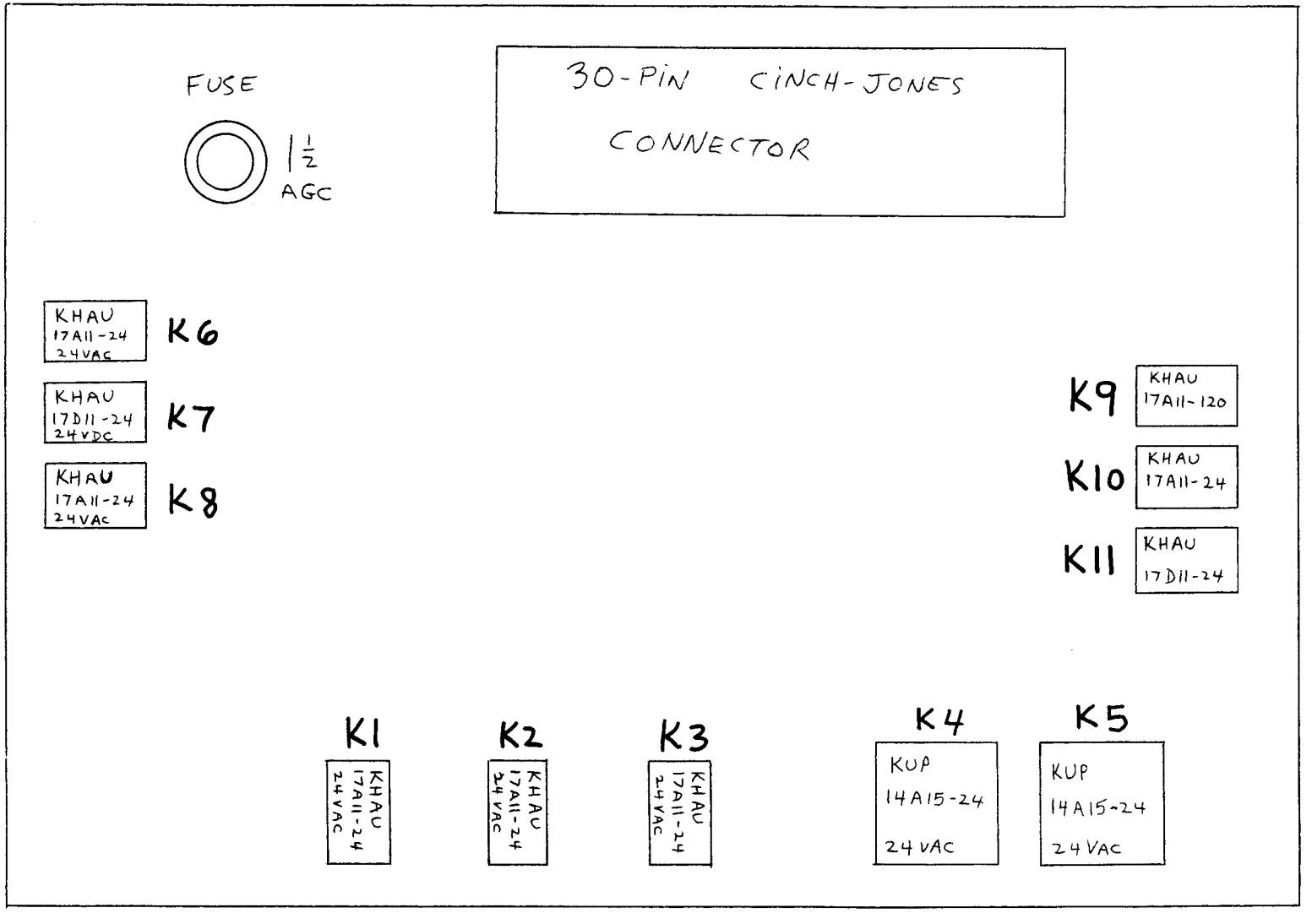
SPA-3 SWITCH LAYOUT



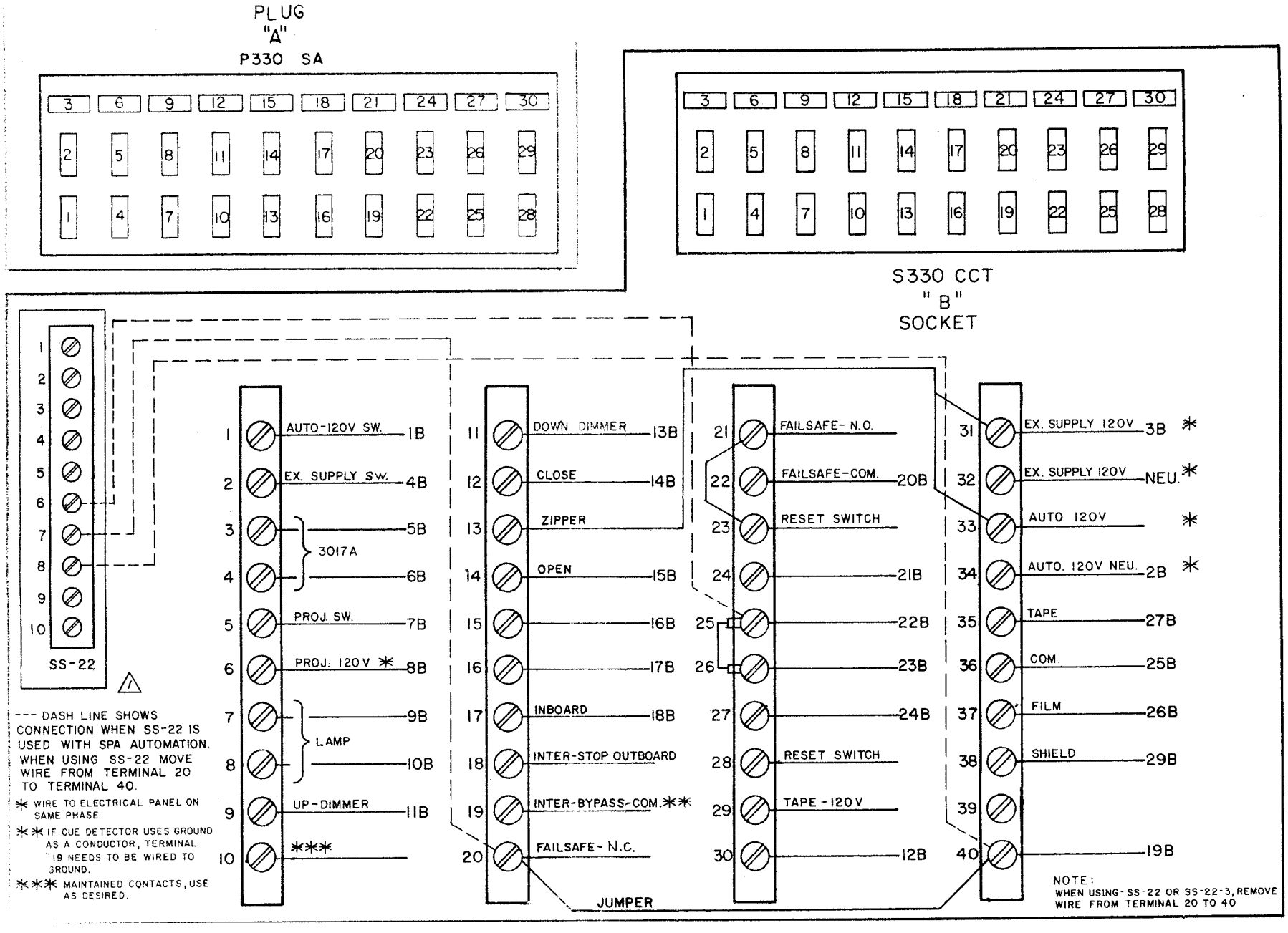
SPA-3

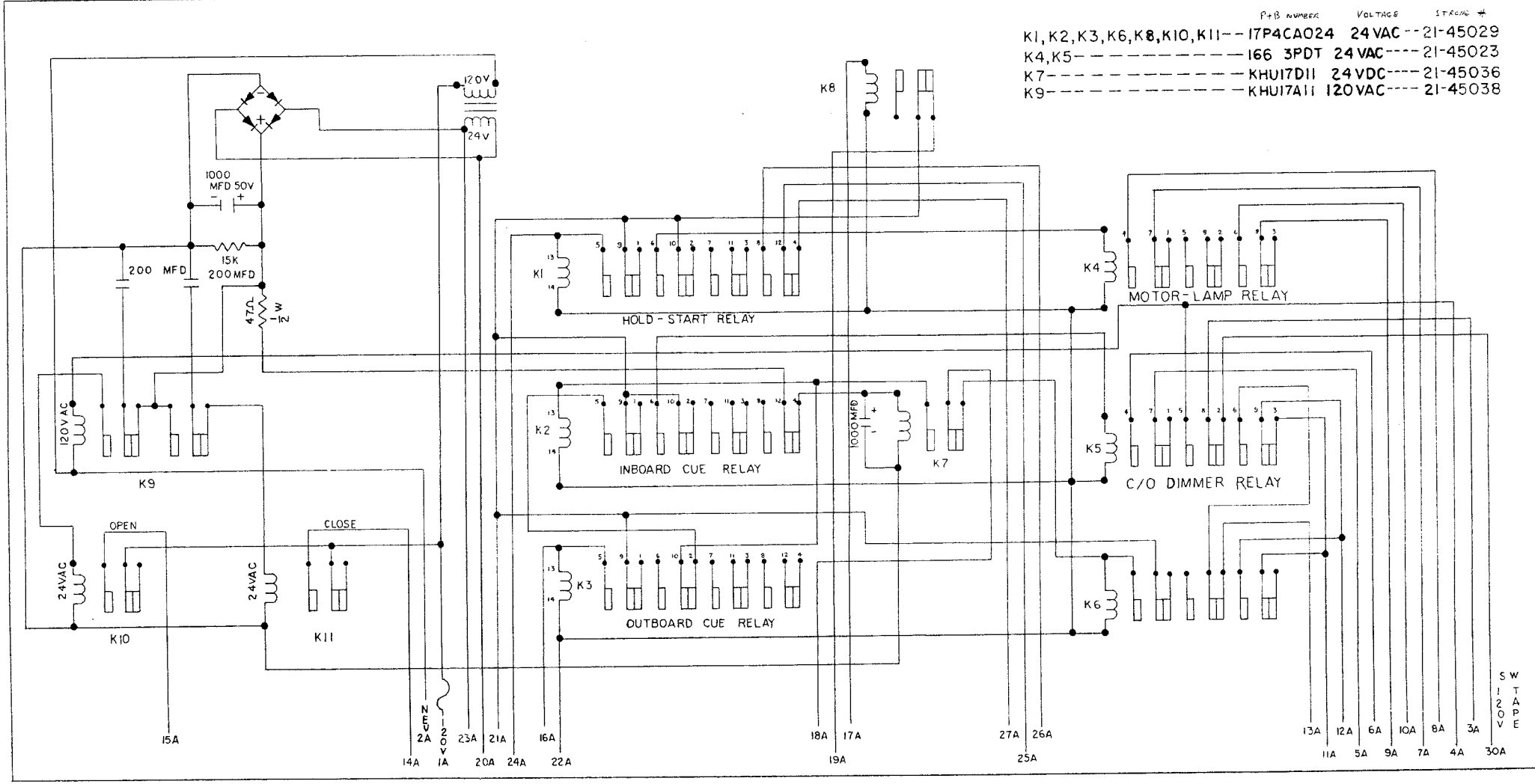
REAR VIEW OF SWITCH PANEL

REVISION: ⚠1 ADDED SS-22, SPA AUTOMATION TERM. CONNECTIONS 8-31-83 D.E.B.



SPA-3 CHASSIS LAYOUT


PLUG
"A"
P330 SA
3 6 9 12 15 18 21 24 27 30
2 5 8 11 14 17 20 23 26 29
1 4 7 10 13 16 19 22 25 28
S330 CCT
"B"
SOCKET
SS-22
1 AUTO-120V SW. 1B
2 EX. SUPPLY SW. 4B
3 5B
4 6B
3017A
5 PROJ. SW. 7B
6 PROJ. 120V * 8B
7 9B
8 10B
LAMP
9 UP-DIMMER 11B
10 ***
11 DOWN DIMMER 13B
12 CLOSE 14B
13 ZIPPER
14 OPEN 15B
15 16B
16 17B
17 INBOARD 18B
18 INTER-STOP OUTBOARD
19 INTER-BYPASS-COM.**
20 FAILSAFE - N.C.
JUMPER
21 FAILSAFE- N.O.
22 FAILSAFE-COM. 20B
23 RESET SWITCH
24 21B
25 22B
26 23B
27 24B
28 RESET SWITCH
29 TAPE -120V
30 12B
31 EX. SUPPLY 120V 3B *
32 EX. SUPPLY 120V NEU. *
33 AUTO 120V *
34 AUTO. 120V NEU. 2B *
35 TAPE 27B
36 COM. 25B
37 FILM 26B
38 SHIELD 29B
39
40 19B
--- DASH LINE SHOWS CONNECTION WHEN SS-22 IS USED WITH SPA AUTOMATION. WHEN USING SS-22 MOVE WIRE FROM TERMINAL 20 TO TERMINAL 40.
* WIRE TO ELECTRICAL PANEL ON SAME PHASE.
** IF CUE DETECTOR USES GROUND AS A CONDUCTOR, TERMINAL 19 NEEDS TO BE WIRED TO GROUND.
*** MAINTAINED CONTACTS, USE AS DESIRED.
NOTE:
WHEN USING SS-22 OR SS-22-3, REMOVE WIRE FROM TERMINAL 20 TO 40


P+B NUMBER VOLTAGE STRONG #
K1, K2, K3, K6, K8, K10, K11 -- 17P4CA024 24 VAC -- 21-45029
K4, K5 -- 166 3PDT 24 VAC -- 21-45023
K7 -- KHU17D11 24 VDC -- 21-45036
K9 -- KHU17A11 120 VAC -- 21-45038
120V
24V
1000 MFD 50V
200 MFD
15K
200MFD
47Ω 1W 1/2
K8
K1
HOLD - START RELAY
K4
MOTOR - LAMP RELAY
K2
INBOARD CUE RELAY
1000MFD
K7
K5
C/O DIMMER RELAY
120VAC
K9
OPEN
CLOSE
24VAC
24VAC
K10
K11
K3
OUTBOARD CUE RELAY
K6
SW 120V TAPE
15A
NEV 2A
120V 1A
23A
21A
16A
14A
20A
24A
22A
18A
17A
19A
27A
26A
25A
13A
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9A
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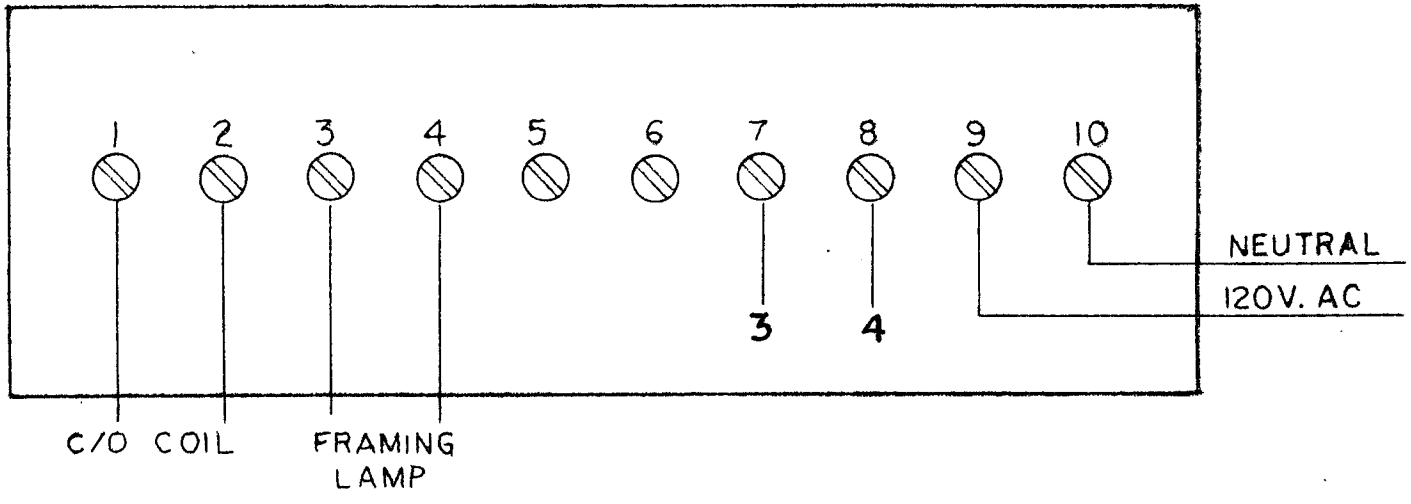
30A

3017A C/O SUPPLY



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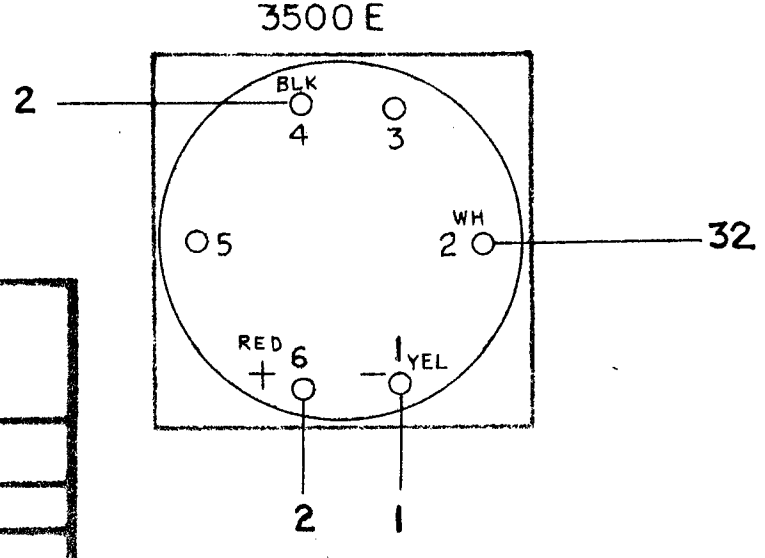
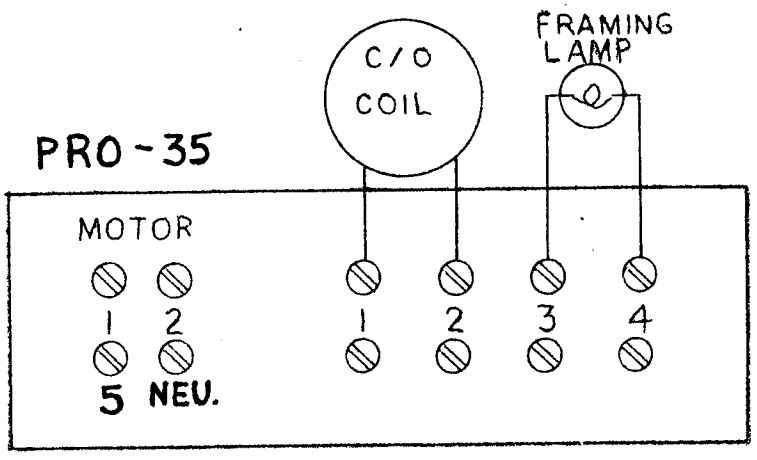


(WALL MOUNT)

BALLANTYNE OF OMAHA, INC.			
1712 JACKSON ST PHONE NO. (402) 342-4444			
SPA-3 AUTOMATION PLUG-IN			
SCALE NONE	DRAWING NO. 4665-B	DRN. BY DAVE.B	CK'D. BY
DATE 6/27/83		CODE NO.	


C/O
COIL
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LAMP
PRO-35
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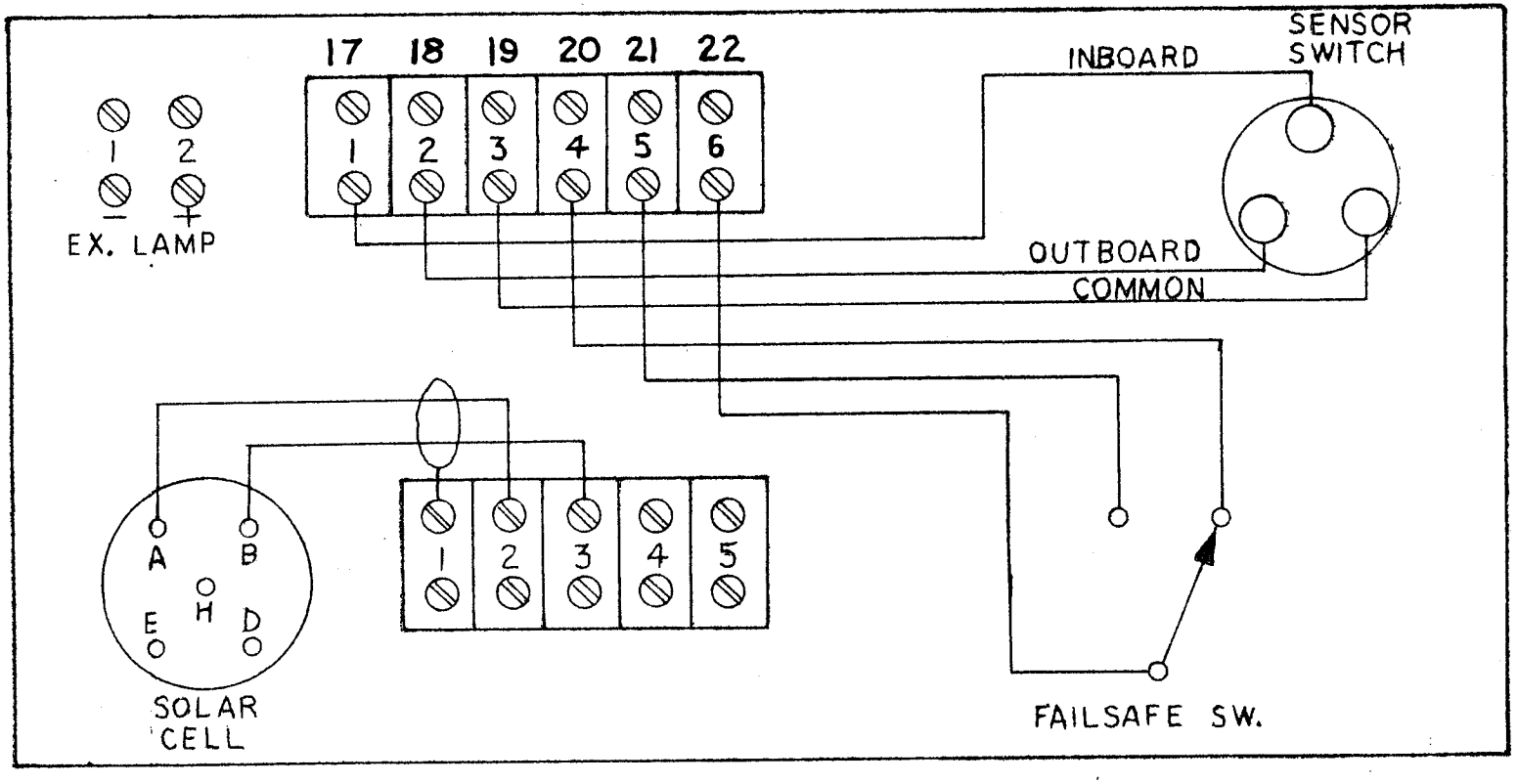
MODEL VII


17
18
19
20
21
22
1
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3
4
5
6
SENSOR
SWITCH
INBOARD
OUTBOARD
COMMON
1
2
EX. LAMP
A
B
H
E
D
SOLAR
CELL
1
2
3
4
5
FAILSAFE SW.

SPA - MINI REMOTE