Film-Tech

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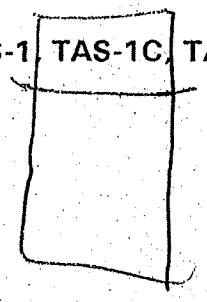
CFS RENTEC
CINEMA FILM SYSTEMS

OPERATING INSTRUCTIONS
FOR
CFS AUTOMATION SYSTEMS

(TAS-1, TAS-1C, TAS-3, TAS-4)



CFS/RENTEC, INCORPORATED
UPLAND, CA

Revised, September 19, 1996
CFS/Rentec, Inc.

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*Optional

AUTOMATION MANUAL ADDENDUM

Turret and Masking Operation

This addendum refers to operation of a Simplex Style Turret. (Lens Changer).

MANUAL CONTROLS

There are four (4) switches on the automation front panel associated with masking and turret controls. The switch labeled manual lens "**scope**" and "**flat**" when actuated, will rotate the turret and change the masking. If you wish to rotate the turret only, press the turret reset switch on the projector. If you wish to change masking only, actuate the open or close "**manual mask**" switch.

AUTOMATION SEQUENCE

1. Push start button.
2. Projector will start, xenon lamp will light, after seven (7) seconds douser will open, exciter lamp will come on, and auditorium lights will go into 1/2 level. Sound will pulse from non-sync to mono.
3. Apply an **outboard cue** to the film. When this cue is applied, auditorium lights will go to the full dim level. Sound will pulse to stereo, if selected. If you wish, at this time, to rotate the turret, leave the selector switch in the "**scope**" position. At this time, the douser will close, the turret will rotate to the scope position and the douser will reopen. This douser close time period can be adjusted by varying trim pot VR-1 on the Rentec timer board. (Located in the termination cavity.)
4. Application of a **cross-cue** (center cue when using a proximity detector) to the film will bring the auditorium lights back up to 1/2 level.
5. At the end of show, application of an **inboard cue** will close the douser, turn off exciter lamp, change sound to non-sync, bring all lights up full, and if the selector switch is in the "**turret activate**" position, a turret rotation will occur automatically. If you do not desire a turret/masking change at this time, leave the selector switch in the "**turret defeat**" position.
6. Film will run out, and projector stops, end of show

AUTOMATION MANUAL ADDENDUM #2

As of August 9, 1991 (Willoughby Hills, OH), all Cinemark consoles will contain Exhaust Blower Timer Delay Circuit. Ref. Schematic B-1003754.

As of October 6, 1992, the Interlock Assembly was changed to P/N 613-0021-D. The instructions in this material reflect that change in Section 2.2.9.

SECTION 1 - DESCRIPTION OF CONTROLS

1.1 CONTROL PANEL

1.1.1 POWER Switch

(Only found on wall mount and 19" rack mount automations). This switch is used to turn power on and off.

1.1.2 START Switch

Momentary switch used to start the automation.

1.1.3 STOP Switch

Momentary switch used to stop the automation.

1.1.4 READY Light

This light is on when the fail safe is in **"UP"** position.

1.1.5 LOAD Light

This light is on when the fail safe has dropped out - Unit will not run when the fail safe is in **"DOWN"** position.

NOTE

When both green (READY) and yellow (LOAD) lights are on, it means that the fail safe "DEFEAT" switch is on.

1.1.6 DOUSER Switch

This switch is in the **"CENTER"** position. When used, it will manually open or close the douser.

NOTE

Automations with Cinemeccanica Projectors - this switch does not incorporate a "CENTER" position and is normally left in the "CLOSED" position.

1.1.7 INTERMISSION/SPARE CUE SWITCH

This switch is left in the "**NORMAL**" position unless running "**half-lights**". The "**SPARE CUE**" position allows a "**OUTBOARD CUE**" to be used. The "**SPARE CUE**" position is also used when in interlock if an interlock module is installed. The "**INTERMISSION**" position is used when an intermission is desired in the feature. An "**OUTBOARD**" cue will close the douser and stop the projector when in the "**INTERMISSION**" mode.

1.1.8 DEFEAT/FAIL SAFE SWITCH

This switch is also left in the "**NORMAL**" position unless the system is equipped with an interlock module. When unit is used in interlock, this switch is placed in the "**SYNC**" position ("FAIL SAFE" on older units). When the fail safe is to be bypassed, place the switch in the "**DEFEAT**" position. This position is generally an emergency position.

The unit would be placed in the "**DEFEAT**" position to finish the show or until the film handling problem can be cured.

NOTE

When in "DEFEAT" position, both green (READY) and yellow (LOAD) lights will be on.

CAUTION

If the system must be operated in the "DEFEAT" mode, it is best that the operator stand by to watch for film accumulation and be able to manually shut down the system at the end of the show. Causes for the fail safe "drop out" should be corrected as soon as possible. Do not test system in the "DEFEAT" mode. Douser will not operate properly.

1.1.9 MASKING SWITCH

Manually operates side electric masking if theater is so equipped. "**FLAT**" is for flat pictures and "**SCOPE**" is for scope pictures.

1.1.10 CURTAIN SWITCH

Manually operates side electric masking if theater is so equipped.

1.1.11 LIGHT SWITCHES

Used to pulse the dimmer controller if theater is equipped with such system. The second switch is used to pulse a separate circuit if installed.

1.1.12 MANUAL CUE SWITCH

"**INBOARD**" is used to manually the inboard cue - "**OUTBOARD**" manually operates the outboard cue.

1.1.13 EXCITER LAMP SWITCH

Normally, this switch is left in the "**OFF**" position and is operated automatically from the automation. Only turn on if testing sound without the automation turned on, or if exciter relay fails to function properly.

1.1.14 PROJECTOR MOTOR SWITCH

This switch is also normally left in the "**OFF**" position during operation. The automation will control the operation of the projector during normal use. The **PROJECTOR MOTOR** Switch has an "**ON**" position which enables the projector to be run separately of the automation controls.

WALL MOUNT AND 19" AUTOMATION ONLY

1.1.16 "LAMP ON" SWITCH

Manually turns lamphouse on and off. When using automation, this switch is left in the "**OFF**" position.

1.1.17 DIMMER "LEVEL ADJUST" KNOBS

a. Left-hand control knob sets the "**LOW**" light level when the lights are in the "**DIM**" mode.

b. Right-hand control knob sets the "**HIGH**" light level when the lights are in the "**BRIGHT**" mode.

c. Right-hand Control knob. When using half-lights, set the "**HALF-LIGHT**" level and not the "**BRIGHT**" level. "**BRIGHT**" level is adjusted from the "**STAGE BRIGHT**" pot on the control board.

NOTE: This only applies to "half-light" systems.

SECTION 2 - OPERATION

2.1 NORMAL OPERATION

No interlock, no intermission, no spare cue.

2.1.1 Place **INTERMISSION/SPARE CUE** Switch and **DEFEAT/FAIL SAFE** Switch in "**NORMAL**" position.

2.1.2 Place or make sure that projector motor, exciter lamp and lamphouse are in the "**OFF**" position.

NOTE

On SX-2000 consoles, the lamphouse switch (orange, push button) is located on the lamp control panel. On the L-2000 series, there is a switch on the 19" rack automation and the lamphouse control panel. They must both be in the "OFF" position.

2.1.3 Add an "**INBOARD**" (opposite sound track) cue tape to the film at the location desired to end the show. See Figure 1.

2.1.4 Thread film through projector and fail safe. See Figure 2.

2.1.5 Take up film until "**READY**" (green) light comes on.

2.1.6 On 19" and wall mount automations, make sure "**POWER**" Switch is on at this time.

2.1.7 System is now ready for operation. All that is required is to press the "**START**" (green) button.

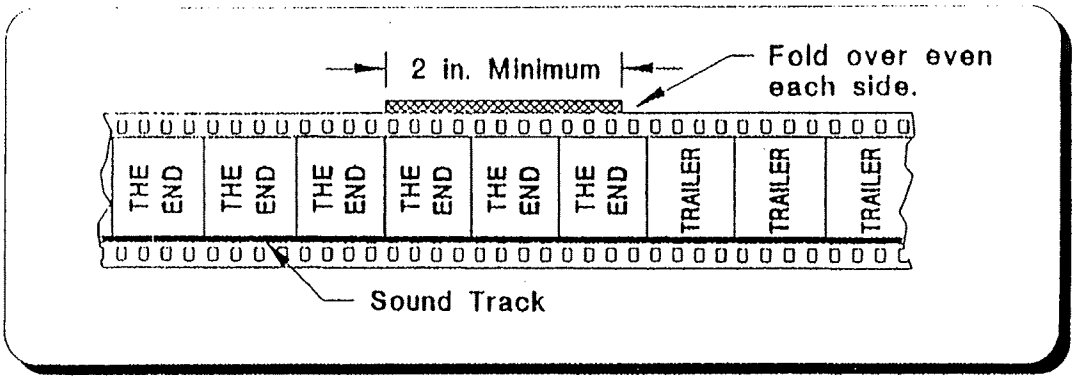

Figure 1. End of Show Cue

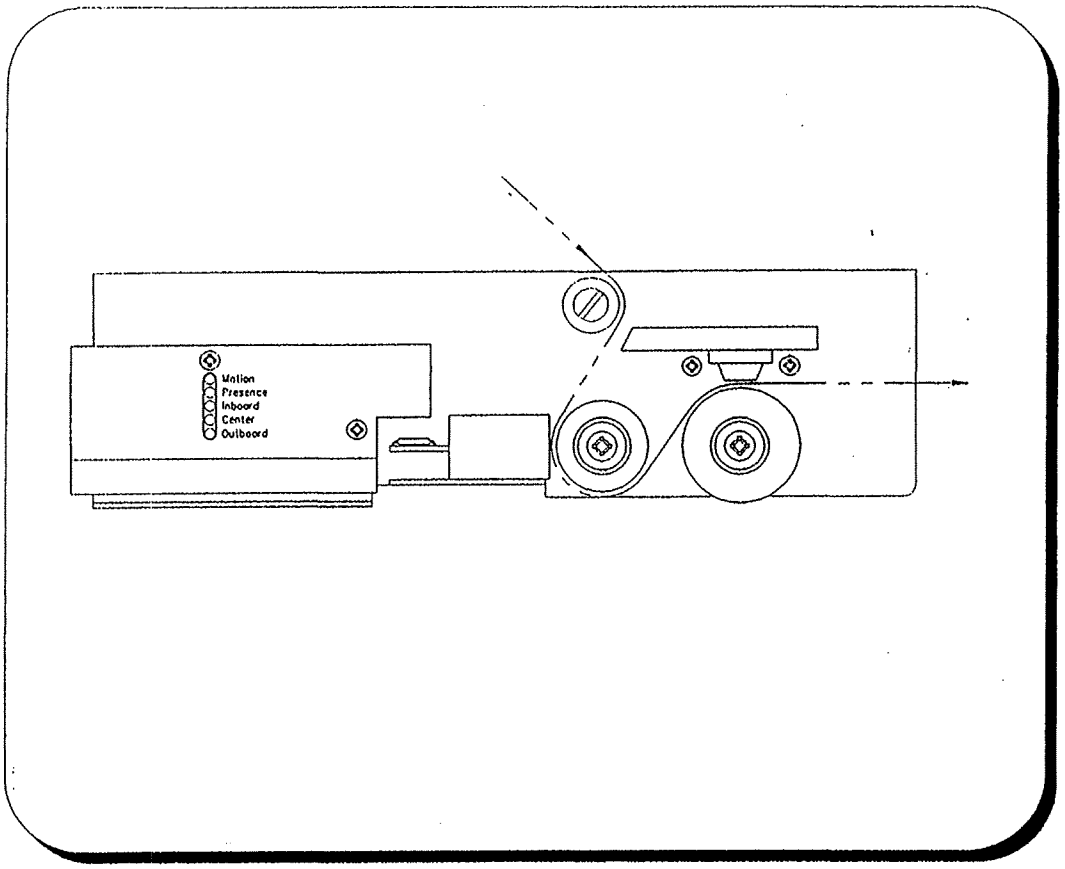

Figure 2. Fail Safe

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2.2.2 OPTION

Curtains open at 5 to 7 second pulse and close at cross cue. The cross cue for curtain must be on the non-emulsion side (facing lens) of the film.

2.2.3 Interlock (running machines together) (Revised May 8, 1992)

(For use with Interlock Assembly P/N 613-0021-D)

If interlock is installed in the system, it can be run with several other projection systems running one feature. This will require guidance rollers, film accumulators and other interface hardware. No half-light feature is available when in interlock mode.

2.2.3.1 **Operation/Set-Up** - Place **INTERMISSION/SPARE CUE** Switch in "**spare cue**" position.

2.2.3.2 Place **DEFEAT/FAIL SAFE** Switch in "**fail safe**" position.

2.2.3.3 Put an outboard cue at start of show.

2.2.3.4 Thread film through projectors. Outboard cue **must** be past the fail safe on first machine. Sequence of operation, when in interlock position, is as follows:

a. Push **START** button, Projector #1
Projectors #1, 2, 3, etc. start
All receive a "**douser close**" pulse
All lamps start

b. 5 to 7 seconds after start:
Projector #1
Douser open
Exciter on
Non-sync off - lights down

c. Outboard cue through Projector #2 and on
Douser open
Exciter on
Non-sync off
Lights down

d. Inboard cue all machines
Douser closed
Exciter off
Non-sync on
Lights up

e. End of Film - fail safe drops out
Projector #1 shut down
Projector #2 shut down
Projector #3 shut down, etc.

2.2.4 "House Lights Up Early" Feature

In normal operation, if desired, an "outboard" cue can be used to bring the house lights up early. **INTERMISSION/SPARE CUE** Switch must be in "**spare cue**" position. Not used if system has half-light feature.

2.2.5 Intermission Function

In normal operation, if an intermission is desired during the feature, an extra "**OUTBOARD**" cue will be required at the desired place on the film.

2.2.5.1 Place the **INTERMISSION/SPARE CUE** Switch in the "**INTERMISSION**" position. When the system is cued for intermission, the projector will stop, the douser will close and the exciter will turn off. At the end of the intermission, push the **START** button - at the end of the show, a normal "**end of show**" will occur.

SECTION 3 - MAINTENANCE

The only real maintenance required for the automation is in the fail safe area. The fail safe should be kept clean at all times. A good grade of electrical contact cleaner should be used on the contact rollers at least once a week. Cue tape on film should be inspected at least once a week for cracking and peeling. Remember the contact rollers and the cue tape are the two key elements to the operation of the automation.

Do not oil bearings

FM-35

Film Monitoring System

This is a self-contained unit, except for the power supply, which consists of a three (3) position proximity sensor type cue detector, film presence (i.e. film break) sensor and a film motion sensor. The unit is furnished with an eleven (11) foot long multi-conductor cable with a connector on the detector assembly end. Also furnished is a mounting bracket which sandwiches in between the take-up arm and the bottom of the sound head. (Special mounting arrangements may have to be devised for projectors not made in the United States).

The unit requires from twelve (12) to thirty (30) volts D. C. from the host to the automation system. If the automation system is A. C. operated, it takes only a bridge rectifier and a single filter capacitor to get the D. C. If the input is twelve (12) volts, use a twenty-five (25) volt capacitor in the 470 to 1000 mfd. range. For twenty-four (24) volts, use a fifty (50) volt capacitor in the 33 to 100 mfd. range. Maximum momentary current drain is 400 ma.

The cue detectors are for inboard, center, and/or outboard cues. For purposes of standardization and customer convenience, all units are equipped with all three (3) detectors. These are of the "ECKO" (Eddy Current Killed Oscillation) proximity type and will respond to small foil cue patches placed on the film. The recommended size on the patch is approximately 3/16" to 1/4" square. Please see the attached illustration for placement. Note the center cue is in the center of the film, not the center of the picture area. Should you have trouble with these small cues rubbing off, they may be sealed in by overlaying them with a piece of clear splicing tape, or in some cases, they may be installed on a splice line under the tape.

The film presence (film break) detector is actually two (2) detectors scanning the two (2) edges of the film. This is done with infrared light and is therefore not visible to the eye. If there is film over the top of the black roller and seated in the normal film plane, it will be seen by the detector and a green L.E.D. will light and the relay will close. The film motion detector is similar to the presence detector except that it is watching the two (2) rows of perforations. The film must be up to about half speed before its motion will be sensed.

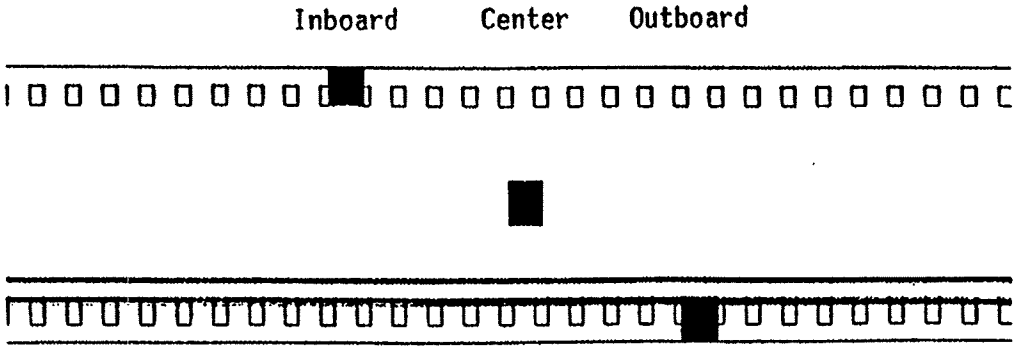
All outputs are relay contacts rated at 500 ma. The three (3) cue detector outputs are "Make" (Form "A") contacts, while the film presence and film motion detectors are "Break/Make" (Form "C") contacts. The contact identification on the cable color chart is for the unthreaded condition, i.e., no film in the projector. The cue detector output

FM-35 - Cont.

pulses are stretched to about 1/3 second (350 to 400 millisecond). Should a longer pulse be required, successive cues can be placed on the film at six (6) frame intervals. Each cue will restart the 1/3 second interval.

Little or no maintenance is required other than an occasional check to see that the optical assemblies have not picked up too much dust or lint. A cotton swab, moistened with alcohol, should clean them quickly and easily. It is also a good idea to clean the rollers from time to time in order to prevent dirt build-up in the corners of the roller grooves.

CUE PLACEMENT



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Suggested Method for Cleaning the FM-35 Optical Sensors

The Film Presence and Film Motion detectors operate by shining infrared light on the film and deleting the light when it is reflected back. If the L.E.D.'s, from which the light comes, or the phototransistors which receive the reflected light, get too dirty, the detectors can't work. In a normal cleanly maintained projector, it usually is sufficient to keep the sensors clean by occasionally running a soft dry cloth between the top of the large black roller and the sensor assembly above it. This will dust off the little lenses in the sensors.

If you find an excess amount of dust or powder accumulating, it would be wise to check the film path through the unit. If the unit is not aligned to the film entry and exit paths, the edges of the film will drag on the roller flanges and tiny bits of film material and/or wax will be scraped off, which may then be deposited on the optical sensors.

Another thing to watch for is too much oil. If this is combined with the dust problem, a sort of "mud" is produced which may require stronger cleaning measures.

If the soft dry cloth doesn't do the job, the next thing to try is a cotton swab loaded with alcohol. You can flush things out a bit better if you first fuzz up the end of the swab so it is a bigger ball. This job is easier if you first remove the screw and washer from the end of the large black roller shaft and pull the roller off and out of the way. After wiping away the dirt, it is best if you can blow things out either with an air compressor or from one of the packaged "blow-er off-ers".

Lacquer thinner is another solvent which can be used judiciously, but stay away from the more exotic solvents such as acetone, MEK, or those things which have "chloro" or "fluoro" in their names. These (and others) have the potential of attacking the plastics in the sensor assemblies, which can ruin them and require their replacement.

If none of the above techniques is strong enough, it is time for a real bath. Remove the large black roller as outlined above; then remove the two small Phillips head screws beneath the optical assembly. This assembly is plugged into the main circuit board, and can be removed simply by pulling it straight out.

Turn the optical assembly upside down and spray the sensor area with one of the stronger household liquid cleaners, such as "Formula 409", "Texize" or the like. Point the assembly down so the detergent collects around the bottom of the sensor (where most of the dirt is located) and allow the detergent to work for a minute or so. If one application is not enough to get everything clean, repeat the process. When you are satisfied, dry as much as you can with towels, compressed air or both.

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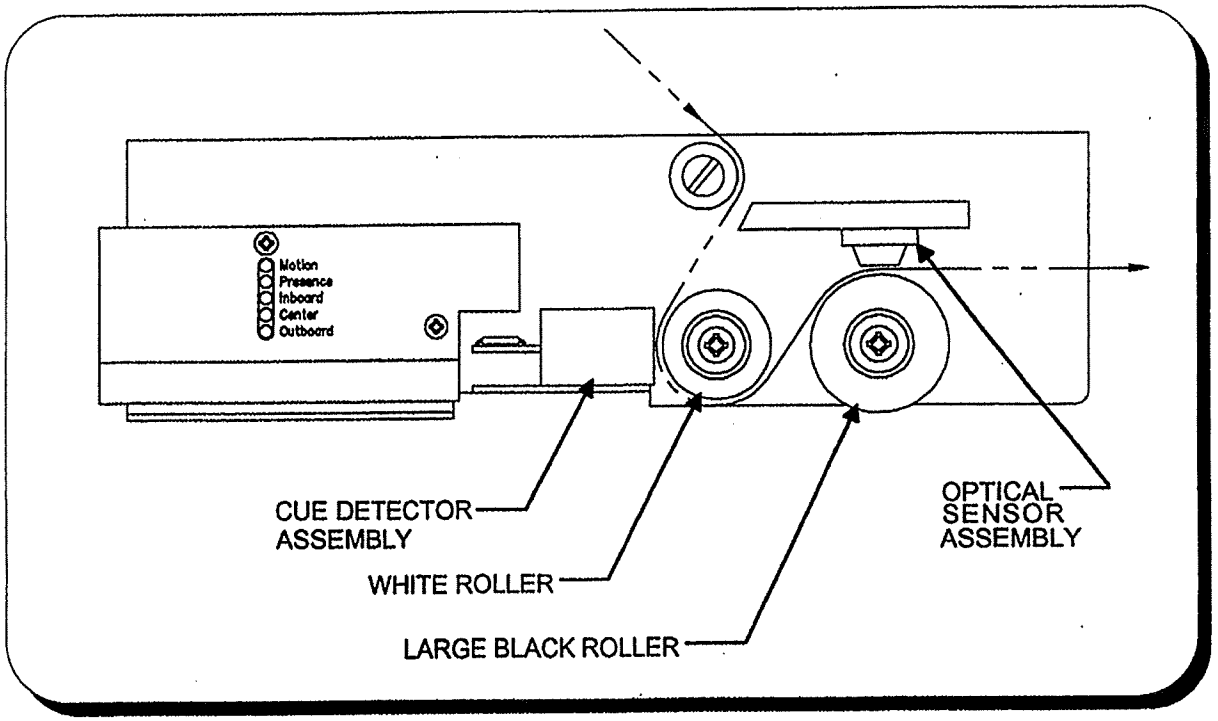
If you have a continuing dirt problem, there is something you may want to try. Clean the assembly thoroughly, dry well, and lay a piece of clear splicing tape over the ends of the optical sensors. With a sharp blade, carefully trim off the excess, and the unit should be easier to keep clean. You will have to watch to be sure dirt doesn't get inside of the sensors and be held there by the adhesive on the tape.



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CFS/RENTEC PRODUCT WARRANTY
One Year Limited Warranty

CFS/Rentec, Inc. warrants its products against defects in workmanship and materials under normal use for a period of one year from the date of purchase by the original purchaser. This warranty is superseded by manufacturer's warranties for parts manufactured elsewhere and used in CFS/Rentec, Inc.'s products. During the warranty period, any part that is determined by an authorized technician to be defective in material or workmanship and returned to the site of the manufacture (shipping costs prepaid) will be as the exclusive remedy, repaired or replaced at CFS/Rentec, Inc.'s option.

Responsibility for the conveyance of the product to the manufacturer is that of the purchaser. If the product is damaged in transit, the purchaser must file the claim with the carrier.

CFS/Rentec, Inc. will make a good faith effort for prompt repair, replacement or other adjustment with respect to any product that proves to be defective within the warranty period.

EXCLUSIONS

The warranty on products manufactured by CFS/Rentec, Inc. will not apply to defects resulting from:

- Improper or inadequate maintenance by the customer.
- Unauthorized modifications or misuse.
- Operation outside of the environmental specifications for the product.
- Improper site preparation and maintenance.
- Use of products from other manufacturers in conjunction with those purchased from CFS/Rentec, Inc.

The warranty period begins either on the date of customer purchase or, if the purchase price includes installation by an authorized technician on the date of installation.

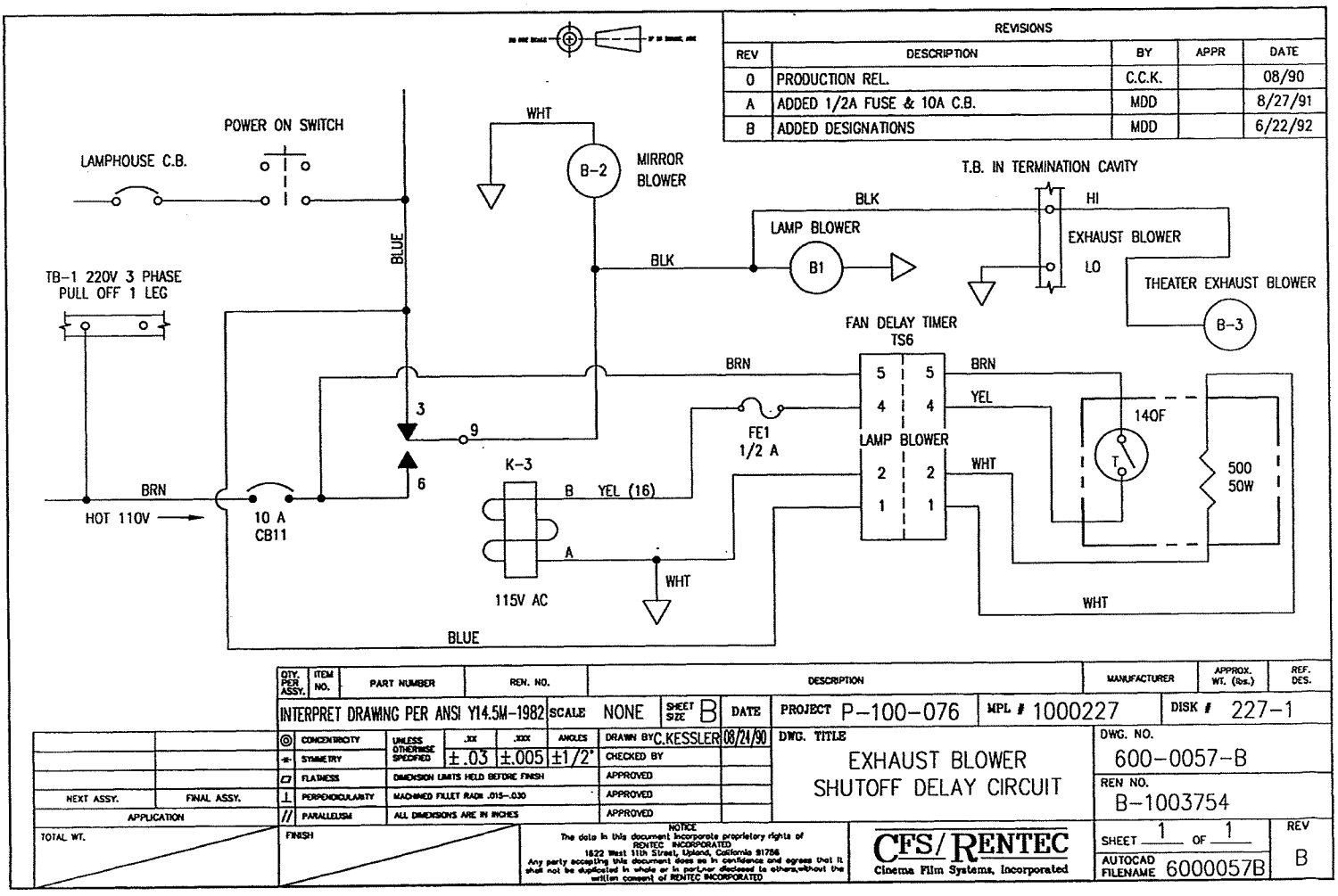
Any liability for consequential and incidental damages is expressly disclaimed. CFS/Rentec, Inc.'s liability in all events is limited to, and shall not exceed the purchased price paid.

Many countries, states and localities have codes and/or regulations governing sales, construction, installation and/or use of products for certain purposes, which may vary from those in neighboring areas. While CFS/Rentec, Inc.'s attempts to ensure that its products comply with such codes, it cannot guarantee compliance and cannot be responsible for how the product is installed or used. Before purchase and/or use of a product, please review the product application, national, state and local codes/regulations and be sure that the product, installation and use will comply with them.

CFS/RENTEC, INC. FIELD SERVICE AGREEMENT

For all equipment manufactured by CFS/Rentec, Inc. requiring on-site servicing:

For on-site evaluation and/or repair by an authorized technician, a labor fee of $375.00 per day applies. The customer is also responsible for all associated travel and living expenses. If a part or parts are deemed to be defective by the authorized technician and warranted under the standard one-year warranty, then conditions stated in that warranty apply. If, however, the parts are not warranted under the standard warranty the customer is responsible for the purchase of the parts from CFS/Rentec, Inc. as well as the conveyance of the parts to the site.



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B	ADDED DESIGNATIONS	MDD		6/22/92

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APPLICATION		PARALLELISM	ALL DIMENSIONS ARE IN INCHES			

DRAWN BY C.KESSLER 08/24/90
CHECKED BY
APPROVED
APPROVED
APPROVED

DWG. TITLE: EXHAUST BLOWER SHUTOFF DELAY CIRCUIT

DWG. NO. 600-0057-B

REN NO. B-1003754

TOTAL WT.

FINISH

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SHEET 1 OF 1

AUTOCAD FILENAME 6000057B

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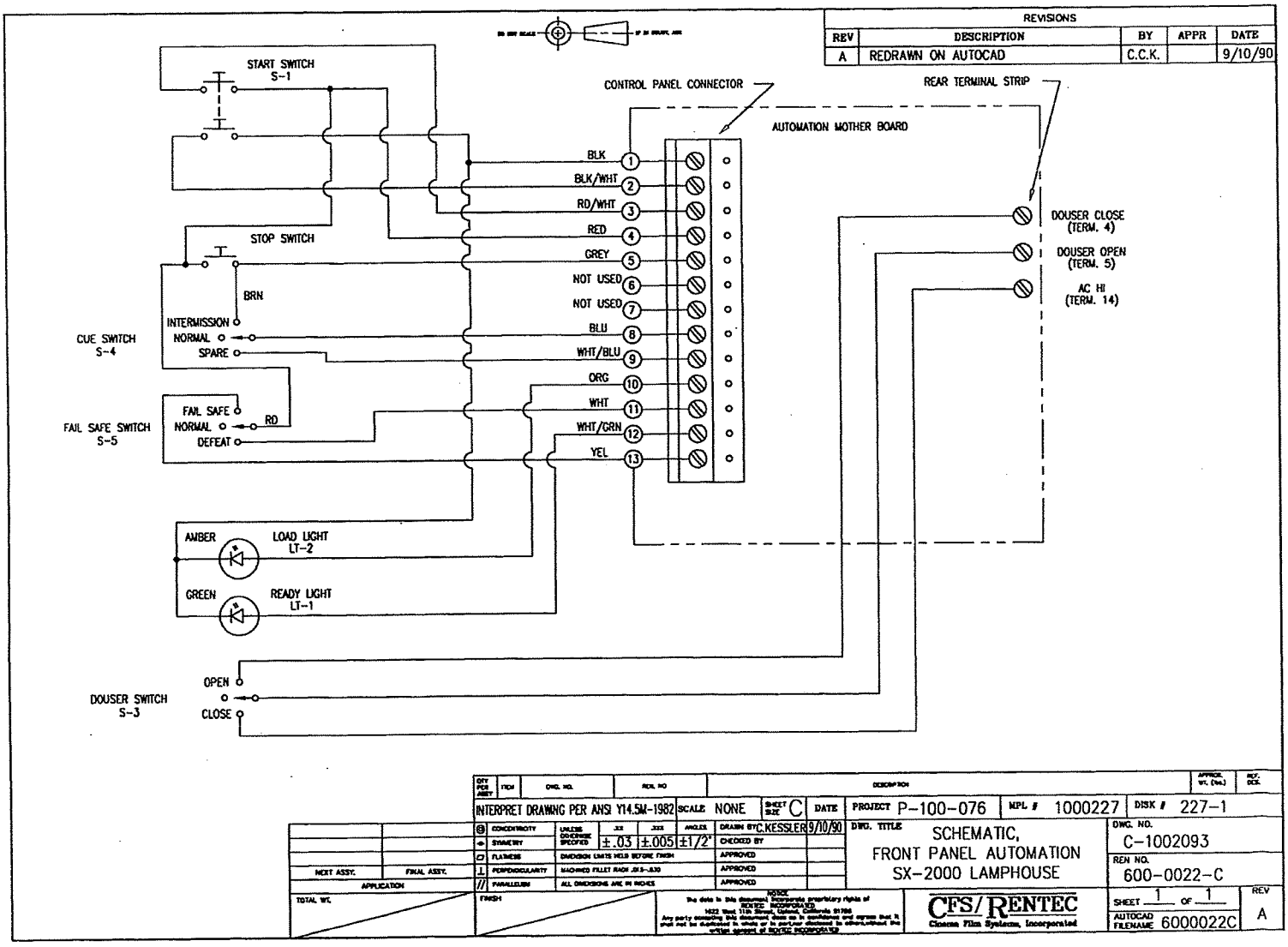

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NEXT ASSY. | FINAL ASSY. | APPLICATION | TOTAL WT. | FINISH

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DWG. NO. C-1002093 | REN NO. 600-0022-C | SHEET 1 OF 1 | REV A | AUTOCAD FILENAME 6000022C

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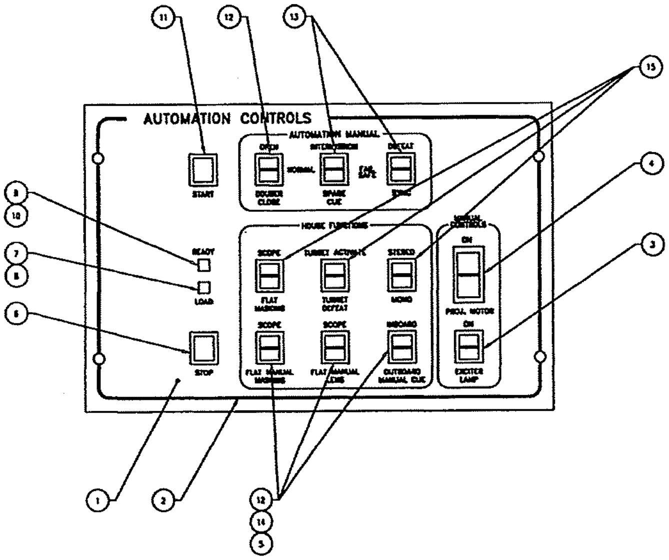

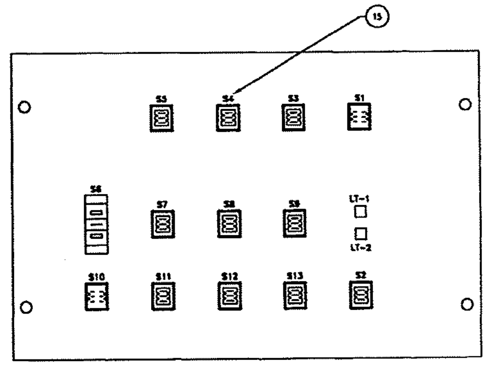

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3	15	ST11LSSS20JLJBO	785-0001	SWITCH, POWER, ON-NONE-ON, SPDT	AMERICN SW.	S7-S9
4	14	4766 (BLK)	724-0001	INSERT, SNAP-IN	C & K	
1	13	ST13LSSS20JLJBO	785-0003	SWITCH, SPDT, ON-OFF-ON	AMERICN SW.	S4,S5
4	12	ST13LSSS20JLJBO	785-0002	SWITCH, SPDT, MOM, PUSH BUTTON	AMERICN SW.	S3,S11-S13
1	11	830CQW120JBI	778-0003	SWITCH, START, DPDT, MOM, PUSH BUTTON	AMERICN SW.	S1
1	10	430HG	800-0003	LED, GREEN	CI	LT1
1	9	SCL360GTP		HOLDER, LED, GREEN		
1	8	430HY	800-0004	LED, AMBER	CI	LT2
1	7	SCL360ATP		HOLDER, LED, AMBER		
1	6	830CQW120JBI	778-0002	SWITCH, STOP, SPDT, MOM, PUSH BUTTON	AMERICN SW.	S2
4	5	4326 (BLK)	724-0002	FRAME, SNAP-IN	C & K	
1	4	BE201P8BON	785-0009	SWITCH, MOTOR, PROJECTOR	CARLING	S6
1	3	ST52LSSS20JLJBO	785-0005	SWITCH, LAMP, EXCITER, DPDT, ON-NONE-ON	AMERICN SW.	S10
1	2		226-0028-C	ARTWORK, SILKSCREEN, FRONT PANEL	SPRAY LINE	
1	1	C-1001526	217-0007-C	PANEL, FRONT		
QTY REQ	ITEM NO.	PART NUMBER	REF NO.	DESCRIPTION	MANUFACTURE	REF DES

INTERPRET DRAWING PER ANSI Y14.5M-1982 | SCALE 1/1 | SHEET SIZE D | PROJECT P-100-076 | MFG # 1000227 | 227

D-1001563		
NEXT ASSY.	FINAL ASSY.	
APPLICATION		

CKESSLER 8/7/91

±.03 ±.005 ±1/2°

DWG. TITLE: ASSEMBLY, PANEL FRONT, AUTOMATION SX-2000 LAMPHOUSE

DWG. NO. D-1001562

REF NO. 204-0261-D

SHEET 1 OF 1

REV A

AUTOCAD FILENAME 20402610

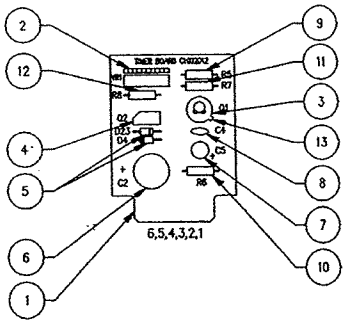
CFS/RENTEC
Cinema Film Systems, Incorporated

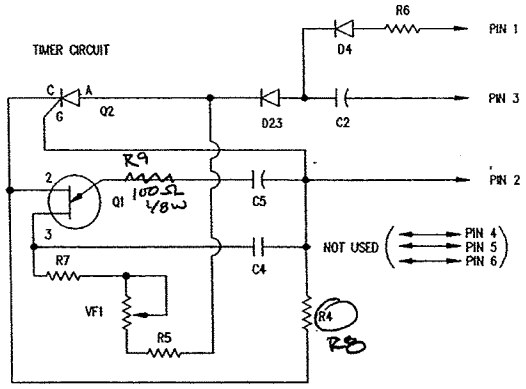
1. FOR REF. SEE DWG. J800-0021-D

NOTES: UNLESS OTHERWISE SPECIFIED
DO NOT SCALE DWG

PLACE DRAWING NO. IN LOCATION SHOWN [D/N]

REVISIONS				
REV	DESCRIPTION	BY	APPR	DATE
A	REDRAWN ON ACAD	CCK		10/91





QTY PER ASSY	ITEM	DWG. NO.	REN. NO.	DESCRIPTION	MANUFACTURE	REF. DES.
1	13	562-TO-5320-66	7280002	SOCKET, TRANSISTOR		
1	12	29SJ50047	764-0041	RESISTOR, CARB., 1/2W, 5%	MOUSER	R8
1	11	29SJ500330	764-0042	RESISTOR, CARB., 1/2W, 5%	MOUSER	R7
1	10	29SJ50033	764-0043	RESISTOR, CARB., 1/2W, 5%	MOUSER	R6
1	9	29SJ50022K	764-0040	RESISTOR, CARB., 1/2W, 5%	MOUSER	R5
1	8	5GA-T12-120PFD	7030017	CAPACITOR, DISC		C4
1	7	20YK022	701-0011	CAPACITOR, 22MFD, 50V, ELECTROLITIC		C5
1	6	140-XR50V470	701-0012	CAPACITOR, 470MFD, 500VDC, ELECTROLITIC		C2
2	5	1N4004	799-0015	DIODE		D4,D23
1	4	C-106F2	783-0002	SCR	PARKWEST	Q2
1	3	2N2646	802-0013	TRANSISTER, UNIJUCTION	MOUSER	Q1
1	2	PT15YB500K	767-0008	POT, TRIM, 500K OHM, 3/4 WATT		VR1
1	1	B-1002010	636-0015-B	BOARD, TIMER		

INTERPRET DRAWING PER ANSI Y14.5M-1982 | SCALE 1/1 | SHEET SIZE C | DATE | PROJECT P-100-076 | MPL # 1000227 | DISK # 227

NOTES: UNLESS OTHERWISE SPECIFIED
DO NOT SCALE DWG

PLACE DRAWING NO. IN LOCATION SHOWN D/N

UNLESS OTHERWISE SPECIFIED	.XX	.XXX	ANGLES
	±.03	±.005	±1/2°

DRAWN BY C.KESSLER 10/15/91
CHECKED BY
APPROVED
APPROVED

CONCENTRICITY, SYMMETRY, FLATNESS, PERPENDICULARITY, PARALLELISM
DIMENSION LIMITS HOLD BEFORE FINISH
MACHINED FILLET RADII .015-.030
ALL DIMENSIONS ARE IN INCHES

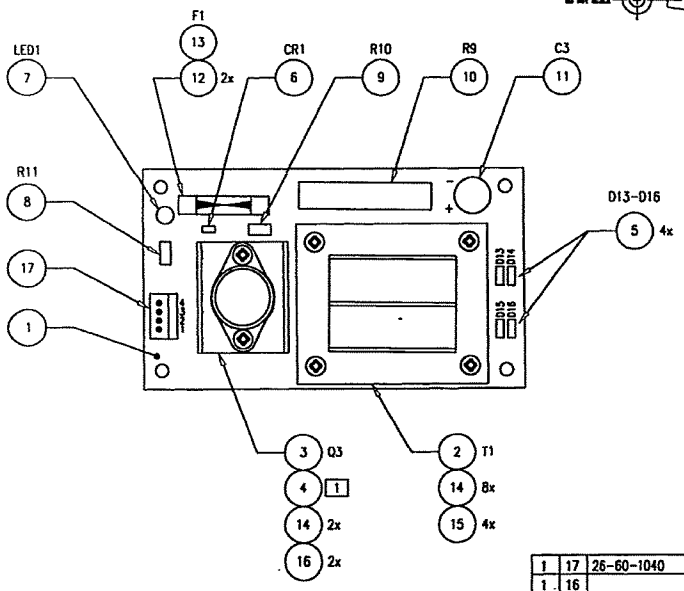
0-1001563
NEXT ASSY. | FINAL ASSY.
APPLICATION
TOTAL WT.
FINISH

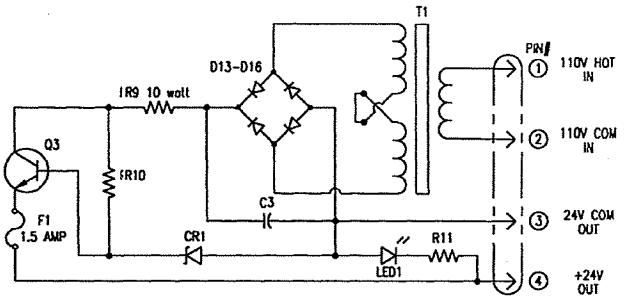
DWG. TITLE: BOARD, TIMER CIRCUIT, TIMER AUTOMATION

DWG. NO. C-1002012
REN NO. 613-0030 620-0006
SHEET 1 OF 1
AUTOCAD FILENAME C1002012
REV A

Rentec Upland, Calif. (714) 981-1396

REVISIONS				
REV	DESCRIPTION	BY	APPR	DATE
0	PRODUCTION REL.			
A	REDRAWN ON ACAD			9/6/90
B	REVISED P.N.# ON DET. 17			10/1/92





QTY PER ASSY.	ITEM NO.	PART NUMBER	REV. NO.	DESCRIPTION	MANUFACTURER	REFERENCE DESC.
1	17	26-60-1040	793-0002	HEADER, 4 POS.	MOLEX	
1	16		379-0040	NUT, KEP, #6-32 UNC-2A		
1	15	313-1437-016	307-0005	SPACER, THD., #6-32 UNC-2A x .500		
1	14		370-1040	SCREW, PAN HEAD, #6-32 UNC-2A x .250		
1	13	504-AGC-1-50	719-0002	FUSE, 3AG 1.5 AMP		F1
1	12	102071	718-0002	FUSE POST		
1	11	20YR470	701-0012	CAPACITOR, ELEC., 47#0mfd		C3
1	10	RW 81WQPW10-3Q 10%	764-0045	RESISTOR, 3 OHM, 10 WATT W.W.		R9
1	9	PF50J1KΩ	764-0044	RESISTOR, 1/2 WATT, 11K		R10
1	8	PF50J11.8KΩ	764-0001	RESISTOR, 1/2 WATT, 11.8K		R11
1	7	4304-H5	800-0003	DIODE, LIGHT EMITTING		LED1
1	6	1N4750	799-0006	DIODE, ZENER		CR1
1	5	1N4004	799-0001	DIODE, SILICONE		D13-D16
1	4	LAT03B4CB	217-0014	HEAT SINK, IERC		
1	3	2N3055	802-0011	TRANSISTOR		Q3
1	2	ST-7-28	742-0002	TRANSFORMER, SIGNAL		T1
1	1	B-1001950	636-0013-B	BOARD, POWER SUPPLY		

2. MATCHING PLUG FOR 4 POS. HEADER IS MOUSER #09-50-3041 (793-0001) AND PINS #08-50-0106.

1. USE HEAT SINK COMPOUND ON ASSEMBLY

NOTES: UNLESS OTHERWISE SPECIFIED
DO NOT SCALE DWG

PLACE DRAWING NO. IN LOCATION SHOWN: D/N

INTERPRET DRAWING PER ANSI Y14.5M-1982 | SCALE 1/1 | SHEET SIZE C | DATE | PROJECT P-100-076 | MPL # 1000227B | DISK # 227-1

CONCENTRICITY, SYMMETRY, FLATNESS, PERPENDICULARITY, PARALLELISM
UNLESS OTHERWISE SPECIFIED: .XX ±.03, .XXX ±.005, ANGLES ±1/2°
MACHINED SURFACES FILLET RADII .015-.030
ALL DIMENSIONS ARE IN INCHES
DRAWN BY: LWANDBERG 9/6/90
CHECKED BY
APPROVED
APPROVED
APPROVED

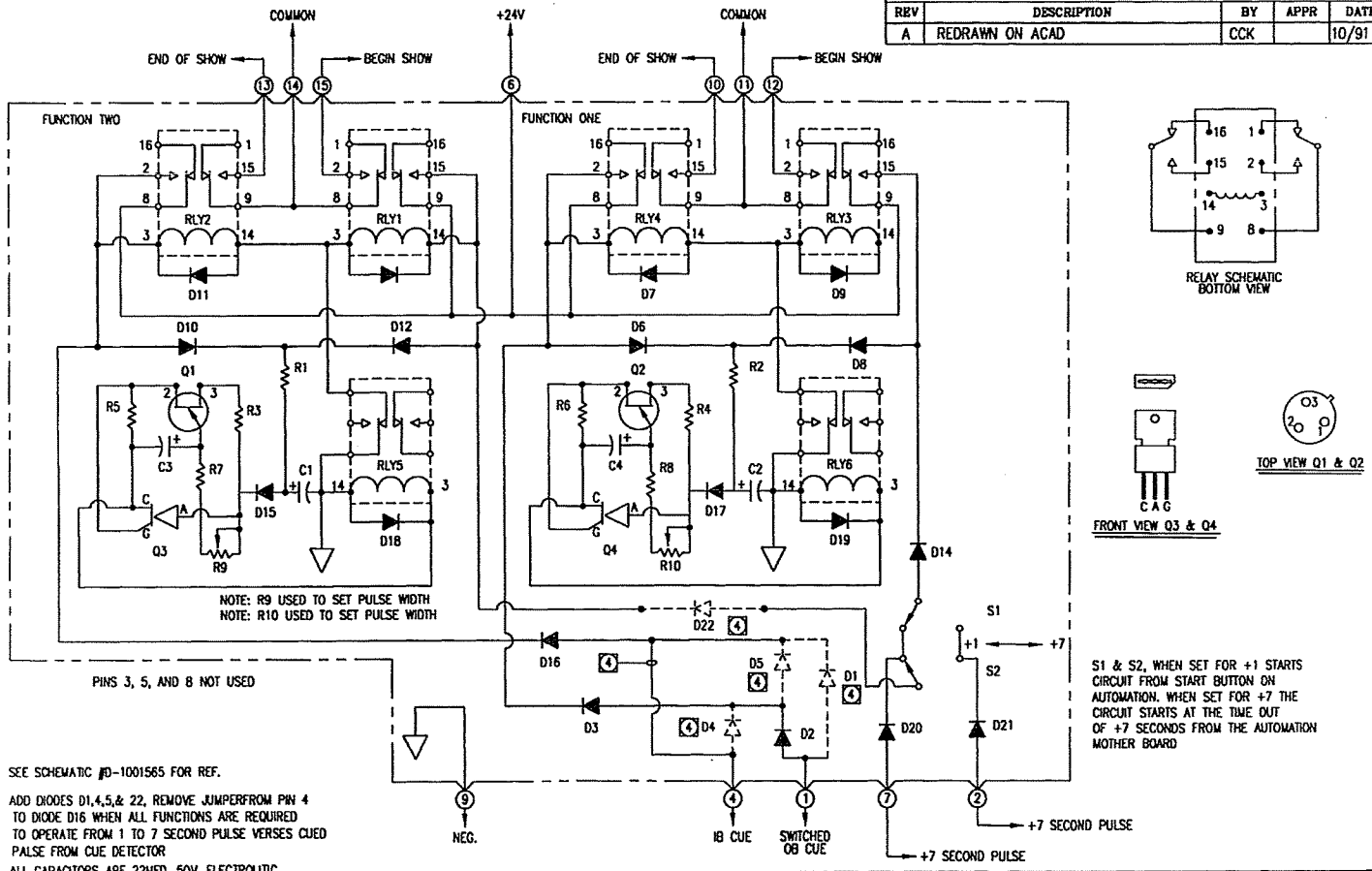
NEXT ASSY. | FINAL ASSY. | APPLICATION | TOTAL WT. | FINISH

DWG. TITLE: ASSEMBLY, POWER SUPPLY AUTOMATION

DWG. NO. 823-0003-C
REN NO. C-1002011
SHEET 1 OF 1
AUTOCAD FILENAME 8230003C
REV B

RENTEC GEMMA FILM SYSTEMS

REVISIONS				
REV	DESCRIPTION	BY	APPR	DATE
A	REDRAWN ON ACAD	CCK		10/91



FRONT VIEW Q3 & Q4

TOP VIEW Q1 & Q2

S1 & S2, WHEN SET FOR +1 STARTS CIRCUIT FROM START BUTTON ON AUTOMATION. WHEN SET FOR +7 THE CIRCUIT STARTS AT THE TIME OUT OF +7 SECONDS FROM THE AUTOMATION MOTHER BOARD

5. SEE SCHEMATIC #D-1001565 FOR REF.

[4] ADD DIODES D1,4,5,& 22, REMOVE JUMPERFROM PIN 4 TO DIODE D16 WHEN ALL FUNCTIONS ARE REQUIRED TO OPERATE FROM 1 TO 7 SECOND PULSE VERSES CUED PALSE FROM CUE DETECTOR

3. ALL CAPACITORS ARE 22MFD, 50V, ELECTROLITIC

2. ALL RESISTERS ARE 1/2 WATT, 5%

1. ALL DIODES ARE 1N4004

NOTES: UNLESS OTHERWISE SPECIFIED
DO NOT SCALE DWG

PLACE DRAWING NO. IN LOCATION SHOWN D/N

INTERPRET DRAWING PER ANSI Y14.5M-1982 | SCALE NONE | SHEET SIZE C | DATE | PROJECT P-100-076 | MFL # 1000227 | DISK # 227

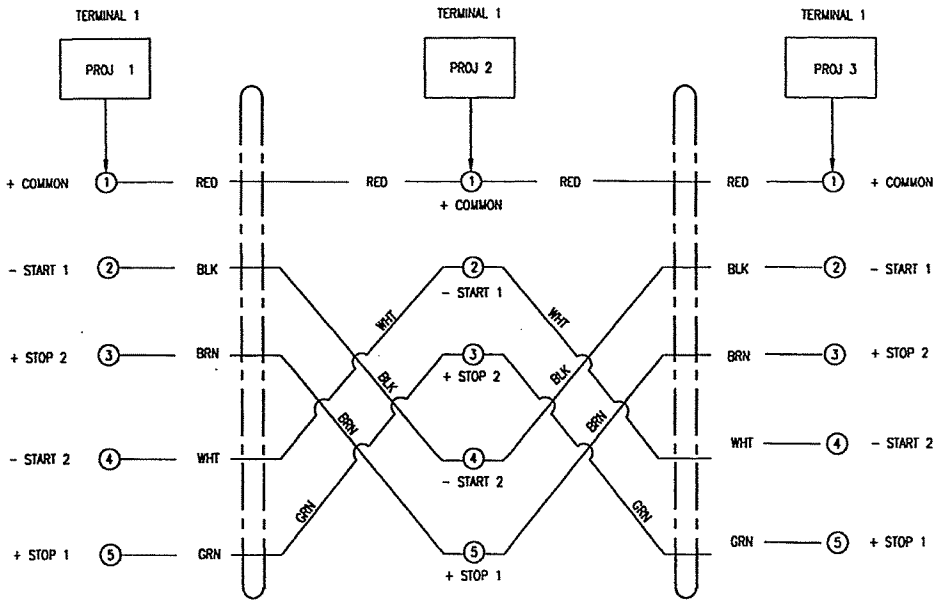
CONCENTRICITY	UNLESS OTHERWISE SPECIFIED	.XX ±.03	.XXX ±.005	ANGLES ±1/2°	DRAWN BY C.KESSLER 10/15/91	DWG. TITLE
SYMMETRY	DIMENSION LIMITS HELD BEFORE FINISH				CHECKED BY	SCHEMATIC, DUAL FUNCTION BOARD AUTOMATION
FLATNESS					APPROVED	
PERPENDICULARITY	MACHINED FILLET RADII .015-.030				APPROVED	
PARALLELISM	ALL DIMENSIONS ARE IN INCHES				APPROVED	

C-1001547 | NEXT ASSY. | FINAL ASSY. | APPLICATION | TOTAL WT. | FINISH

CFS/RENTEC
Cinema Film Systems, Incorporated

DWG. NO. 600-0115-C
REN NO. C-1001576
SHEET 1 OF 1
REV A
AUTOCAD FILENAME 6000115C

REVISIONS				
REV	DESCRIPTION	BY	APPR	DATE
A	REDRAWN ON AUTOCAD	C.C.K.		9/10/90
B	REDRAWN	YM		4/9/98



NOTES: UNLESS OTHERWISE SPECIFIED

DO NOT SCALE DWG

1. DEBURR & BREAK ALL SHARP CORNERS
2. REFER TO INTERLOCK SCHEM B1001722
3. REFER TO AUTOMATION SCHEM D1001565

INTERPRET DRAWING PER ANSI Y14.5M-1982 | SCALE NONE | SHEET SIZE C | DATE

CONCENTRICITY, SYMMETRY, FLATNESS, PERPENDICULARITY, PARALLELISM

UNLESS OTHERWISE SPECIFIED: .XX ±.03, .XXX ±.005, ANGLES ±1/2°

DRAWN BY: MAURICIO 4/9/98

CHECKED BY

APPROVED

APPROVED

ALL DIMENSIONS ARE IN INCHES

MACHINED FILLET RADII .015–.035

DIMENSION LIMITS HOLD BEFORE FINISH

NEXT ASSY. | FINAL ASSY. | APPLICATION | TOTAL WT. | FINISH

PROJECT MULTI-USE | MPL # 1000179 | DISK # 179-1

DWG. TITLE SCHEMATIC, INTERFACE AUTOMATION/INTERLOCK SX/L2000 CONSOLES

DWG. NO. 600-0013

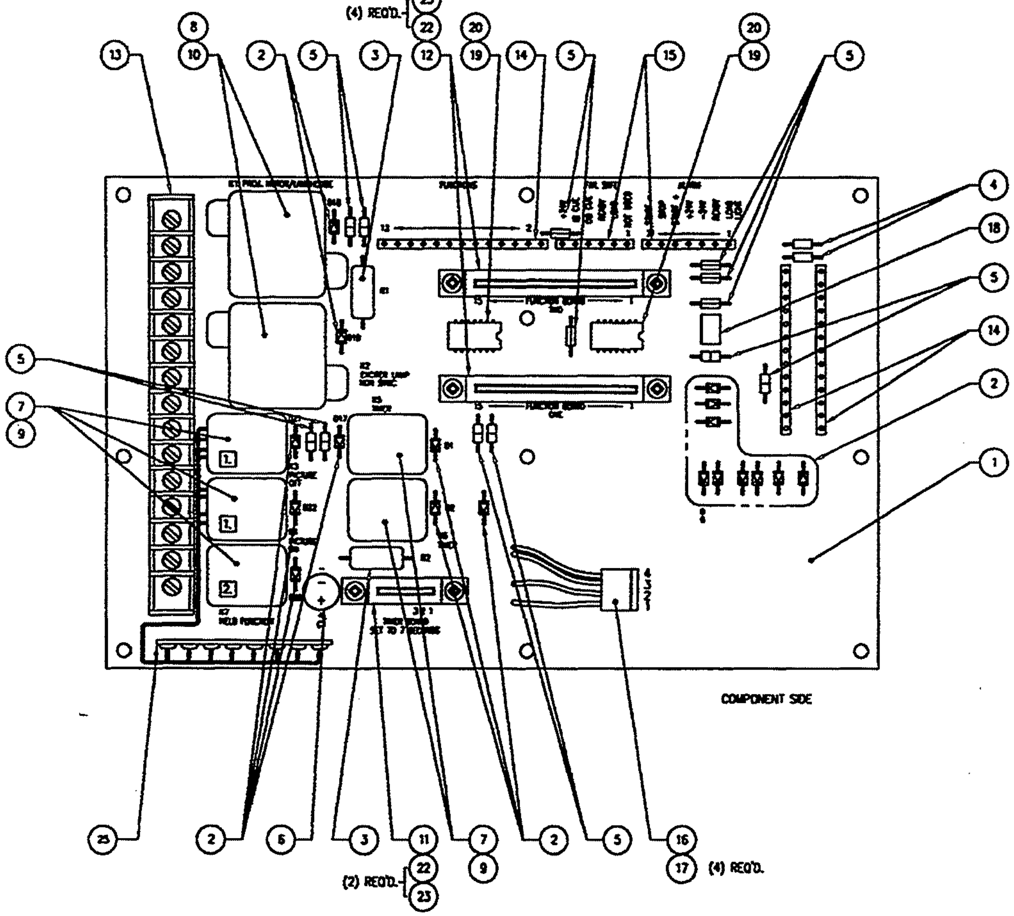
REN NO. B-1001721

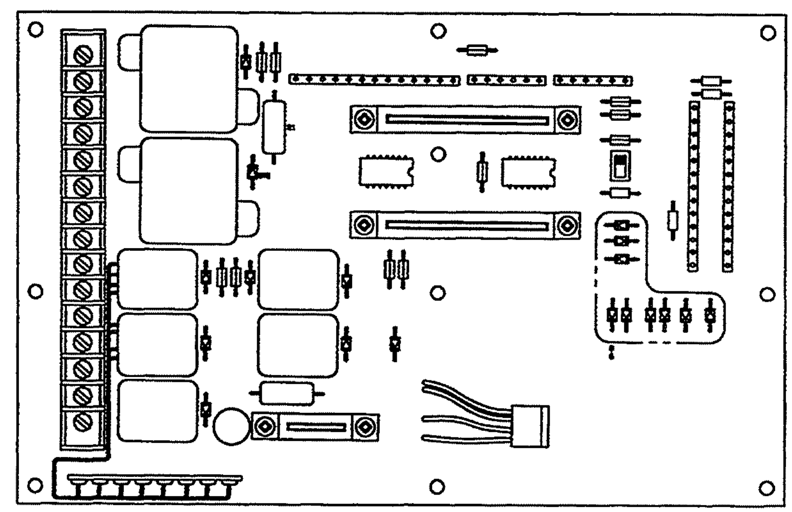
SHEET 1 OF 1 | REV B

AUTOCAD FILENAME 6000013

CFS RENTEC CINEMA FILM SYSTEMS

REV	DESCRIPTION	BY	APPR	DATE
A	REDRAWN ON AUTOCAD	C.C.K.		9/10/90
B	ADDED TERMINAL STRIP	TF		6/16/91





2. REMOVE PINS #2, 3, 7, & 11 ON SOCKET (7) PRIOR TO INSTALLATION
1. REMOVE PINS #2, 3, 6, 7, 10, & 11 ON SOCKET (7) PRIOR TO INSTALLATION

QTY	ITEM	PART NUMBER	MFR NO.	DESCRIPTION	MFR		
1	25	729-0001	870	TERMINAL STRIP	OMRON		
1	24	729-0036	SSB4N075	CONNECTOR	P&B		
6	23			NUT, KEP, #6-32	P&B		
6	22			SCREW, PAN HEAD, #6-32 x .375"			
	21						
2	20	647-0001	508P18DGS	ADAPTER, DIP	MOUSER		
2	19	728-0007	15C016	SOCKET, I.C.			
1	18	786-0001	11OMO2CE	SWITCH, SLIDE	MOTOROLA		
4	17	782-0001	08-50-0108	TERMINAL			

QTY	ITEM	PART NUMBER	MFR NO.	DESCRIPTION	MFR		
4	17	782-0001	08-50-0106	TERMINAL	MOLEX		
1	16	783-0001	08-50-3041	CONNECTOR	MOLEX		
2	15	729-0035	SSB4N085	CONNECTOR	BUCK.		
3	14	729-0034	SSB4N135	CONNECTOR	BUCK.		
1	13	729-0012	EB7358155EFF	TERMINAL STRIP			
2	12	794-0001	50-159-10	CONNECTOR, EDGE CARD			
1	11	794-0002	50-088-10	CONNECTOR, EDGE CARD			
2	10	735-0005	KUP-14D15-24V	RELAY, 24V, 3PDT	P&B		
5	9	735-0003	MY4DC24	RELAY, 24V, 4PDT, 5A	OMRON		
2	8	726-0006	27E046	SOCKET, RELAY	P&B		
5	7	726-0005	27E023	SOCKET, RELAY	P&B		
1	6	701-0012	20YR470	CAPACITOR, ELEC., 470MFD			
13	5	764-0039	PF25JF-0Ω	JUMPER, 0 Ω			
2	4	764-0035	295J250-1.8K	RESISTOR, 1.8K, 1/4W	MOUSER		
2	3	764-0038	160 SERIES	RESISTOR, 100Ω, 5 W.W.			
18	2	799-0001	1N4004	DIODE, SILICONE	MOTOROLA		
1	1	636-0005-D	D-1001951	MOTHER BOARD			

INTERPRET DRAWING PER ANSI Y14.5M-1982 | SCALE NONE | SIZE D | PROJECT P-100-076 | MFG # 1000227 | 227-1

Tolerances: ±.03 | ±.005 | ±1/2° — DRAWN BY C. KESSLER 11/11/90

DWG. TITLE: ASSEMBLY, AUTOMATION MOTHER BOARD SX-2000

DWG. NO. 613-0002-D

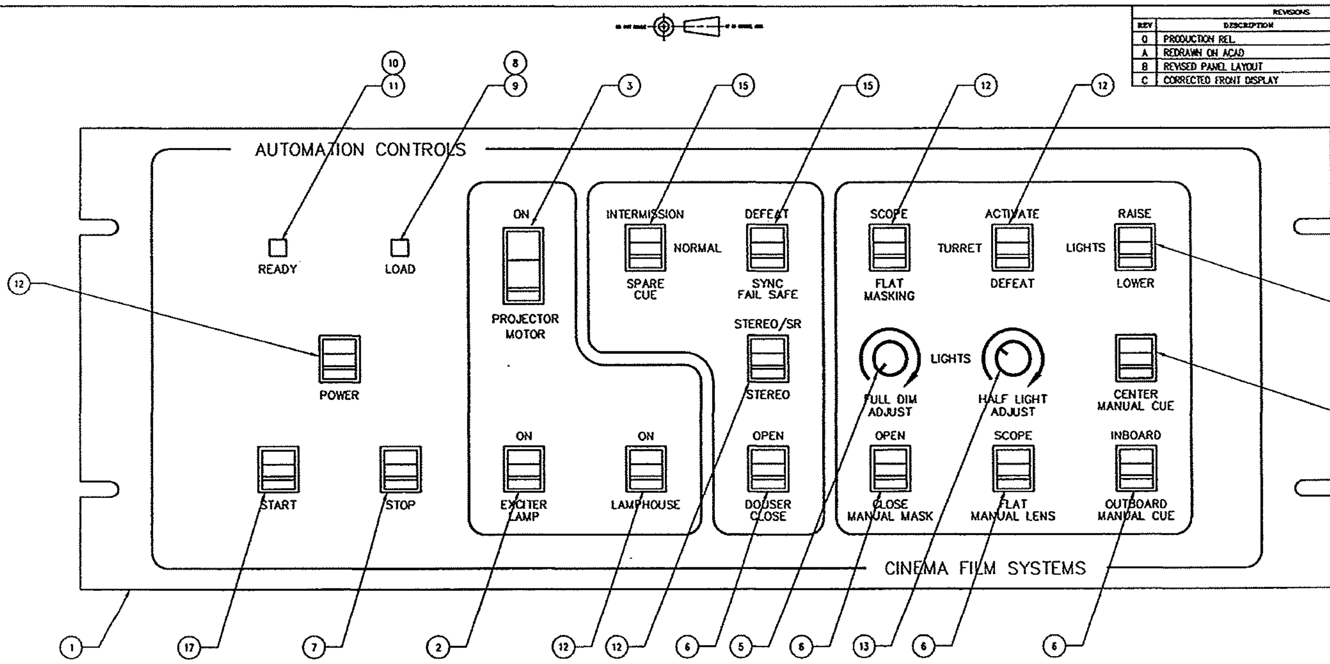
REV NO. D-1001949

CFS/RENTEC
Cinema Film Systems, Incorporated

SHEET 1 OF 1 — REV B

AUTOCAD FILENAME 61300020

REVISIONS				
REV	DESCRIPTION	BY	APPR	DATE
0	PRODUCTION REL.			
A	REDRAWN ON ACAD			1/27/94
B	REVISED PANEL LAYOUT			8/13/96
C	CORRECTED FRONT DISPLAY	YJ		4/7/98



1	17	778-0003		SWITCH, MOM PUSH BUTTON, GREEN			
1	16	785-0004		SWITCH, DPDT, MOM-OFF-MOM			
2	15	785-0003		SWITCH, INTERMISSION, MOM-OFF-MOM			
1	14	778-0003		SWITCH, START, MOM PUSHBUTTON			
1	13	767-0006		POT, 500K OHM			
1	12	785-0001		SWITCH, POWER, ON-NONE-ON			
1	11	800-0003		LED, READY, GREEN			
1	10			HOLDER, LED, READY, GREEN			
1	9	800-0004		LED, LOAD, AMBER			
1	8			HOLDER, LED, LOAD, AMBER			
1	7	778-0002		SWITCH, STOP, MOM PUSH BUTTON, RED			
4	6	785-0002		SWITCH, SPST, MOM-MOM			
1	5	767-0007		POT, 25K OHM			
1	4	785-0005		SWITCH, LAMPHOUSE, ON-NONE-ON			
1	3	785-0009		SWITCH, PROJ. MOTOR, ON-NONE-MOM			
1	2	785-0005		SWITCH, EXCITER LAMP, ON-NONE-ON DPDT			
1	1	217-0006		PANEL, FRONT			
QTY	ITEM NO.	PART NUMBER		DESCRIPTION			

NOTES: UNLESS OTHERWISE SPECIFIED
DO NOT SCALE DWG

PLACE DRAWING NO. & LOCATION SHOWN: D/N

INTERPRET DRAWING PER ANSI Y14.5M-1982 | SCALE 1.5/1 | SIZE D | PROJECT P-100-76 | 1000227 | 227-3

TOLERANCES: ±.03 | ±.005 | ±1/2° | 1/27/94

DWG. TITLE: ASSEMBLY, PANEL, AUTOMATION FRONT PAC-1 (19" RACK MTG.)

DWG. NO. 204-0455-D

D-1001567

CFS/RENTEC
Cinema Film Systems, Incorporated

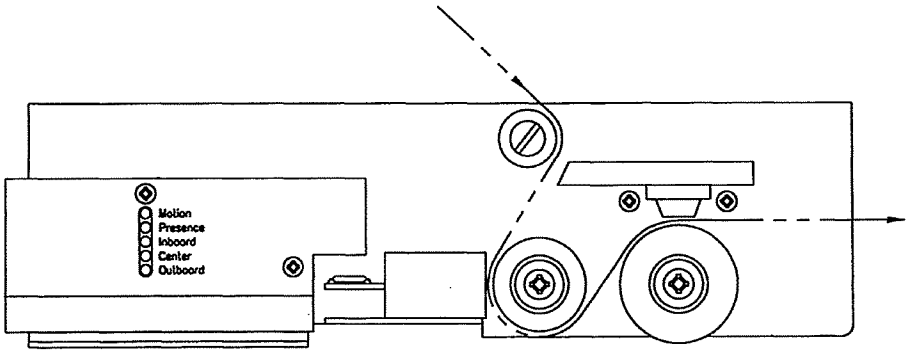
SHEET 1 OF 1

AUTOCAD FILENAME 20404550

REV C

NOTES: UNLESS OTHERWISE SPECIFIED
DO NOT SCALE DWG

REVISIONS				
REV	DESCRIPTION	BY	APPR	DATE
0	PRODUCTION REL.			



PLACE DRAWING NO. IN LOCATION SHOWN: D/N

QTY. PER ASSY.	ITEM NO.	PART NUMBER	REN. NO.	DESCRIPTION	MANUFACTURER	APPROX. WT. (lbs.)	REF. DES.

INTERPRET DRAWING PER ANSI Y14.5M-1982 | SCALE 1/1 | SHEET SIZE B | DATE | PROJECT MULTI-USE | MPL # | DISK #

		◎ CONCENTRICITY	UNLESS OTHERWISE SPECIFIED	.XX	.XXX	ANGLES	DRAWN BY M.DANNEMBERG 9/28/90
		⌯ SYMMETRY		±.03	±.005	±1/2°	CHECKED BY
		▱ FLATNESS	DIMENSION LIMITS HELD BEFORE FINISH				APPROVED
NEXT ASSY.	FINAL ASSY.	⊥ PERPENDICULARITY	MACHINED FILLET RADII .015-.030				APPROVED
APPLICATION		// PARALLELISM	ALL DIMENSIONS ARE IN INCHES				APPROVED

DWG. TITLE: DIAGRAM, FILM PATH COM. EMG. FAIL SAFE

DWG. NO. 225-0051-B

REN NO. B-1003821

TOTAL WT.

FINISH

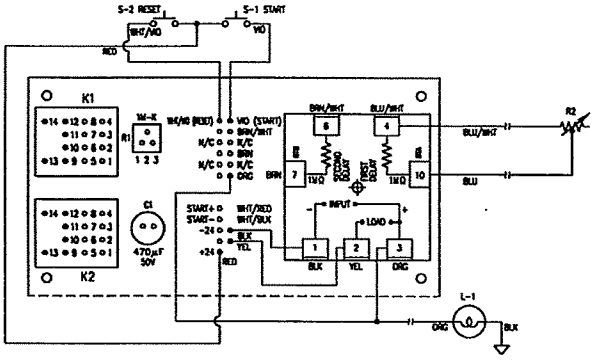
CFS/RENTEC
Cinema Film Systems, Incorporated

SHEET 1 OF 1

AUTOCAD FILENAME 2250051B

REV 0

REVISIONS				
REV	DESCRIPTION	BY	APPR	DATE
0	PRODUCTION REL.			



QTY. PER ASSY.	ITEM NO.	PART NUMBER	REVL NO.	DESCRIPTION		APPROX. WT. (lbs.)	REF DES.
1	12	C-1003180	602-0001-C	SILKSCREEN, TIMER BOARD			
2	11	24A032		HOLD SPRING	P & B		
1	10	31VA501		POTENTIOMETER, 1 MEG	MOUSER		R2
1	9	63P1U5		POTENTIOMETER, (TRIM POT) 1 MEG	NEWARK		R1
1	8	35LT503		LENS, PLASTIC, GREEN	MOUSER		
1	7	35LS026		LAMP, INDICATOR, GREEN	MOUSER		L-1
1	6	ME208-50V470		CAPACITOR, ELECTROLITIC	MOUSER		C1
2	5	10PA342		SWITCH, PUSH BUTTON	MOUSER		S-1,S-2
1	4	MY4OC24		RELAY, 4 PDT	OMRON		K2
2	3	PY14		SOCKET, RELAY	OMRON		
1	2	MY2K-DC24		RELAY, LATCHING	OMRON		K1
1	1	TRS2258C		TIMER	INFITEC		T-1

INTERPRET DRAWING PER ANSI Y14.5M-1982 | SCALE NONE | SHEET SIZE C | DATE | PROJECT MULTI-USE | MFL # 1000131 | DISK # 131-1

CONCENTRICITY	UNLESS OTHERWISE SPECIFIED	.XX ±.03	.XXX ±.005	ANGLES ±1/2°	DRAWN BY M.DANNENBERG 10/31/89
SYMMETRY					CHECKED BY
FLATNESS	DIMENSION LIMITS HOLD BEFORE FINISH				APPROVED
PERPENDICULARITY	MACHINED FILLET RADII .015-.030				APPROVED
PARALLELISM	ALL DIMENSIONS ARE IN INCHES				APPROVED

NEXT ASSY. | FINAL ASSY. | APPLICATION: MULTI-USE | TOTAL WT. | FINISH

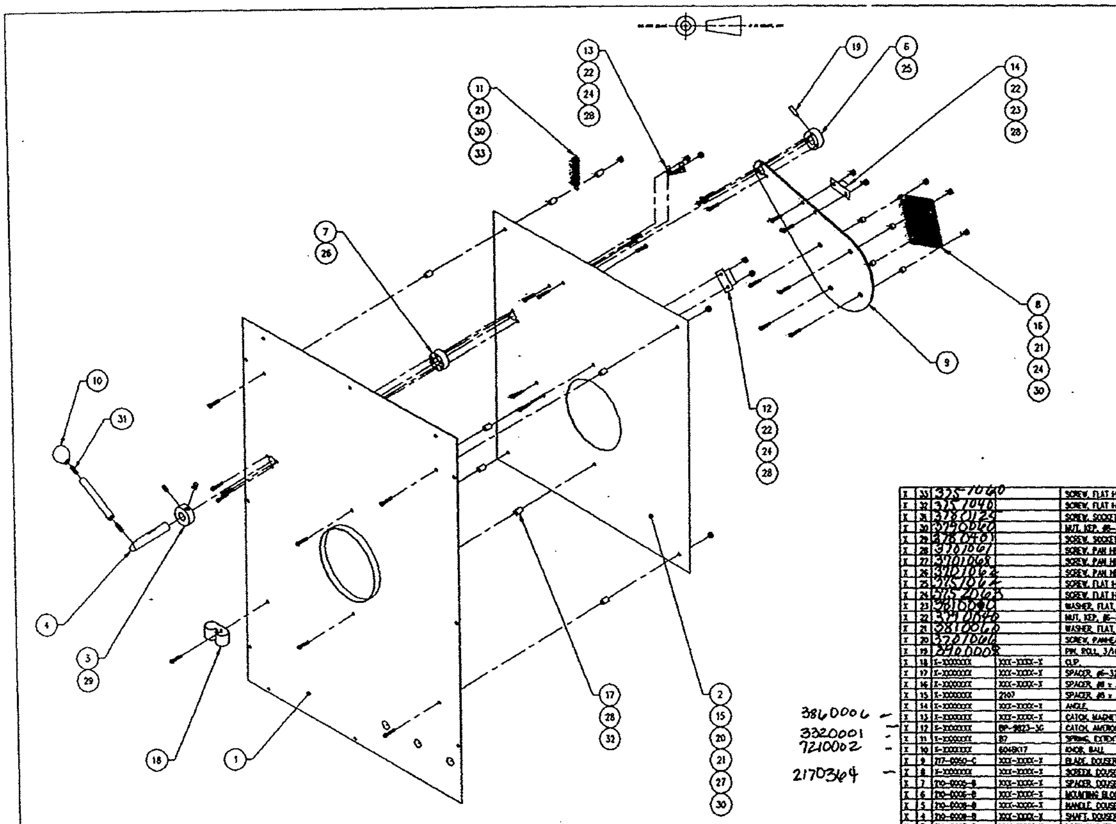
NOTES: UNLESS OTHERWISE SPECIFIED
DO NOT SCALE DWG

PLACE DRAWING NO. IN LOCATION SHOWN: D/N

DWG. TITLE: ASSEMBLY, SHOW START TIMER BOARD L-2000/SX-2000 CONSOLE

DWG. NO. C-1003172
REN NO. 602-0002-C
SHEET 1 OF 1
REV 0
AUTOCAD FILENAME 6020002C

CFS/RENTEC
Cinema Film Systems, Incorporated



REV	DESCRIPTION	BY	APPR	DATE
REVISIONS				
0	PRODUCTION REL.			

X	33	3751060		SCREW, FLAT HEAD, PHILLIPS, #8-32 x 1.00"
X	32	3751040		SCREW, FLAT HEAD, PHILLIPS, #6-32 x .250"
X	31	3780125		SCREW, SOCKET SET, 5/16-18 x 1.00"
X	30	3790040		NUT, KEP, #8-32
X	29	3780401		SCREW, SOCKET SET, #6-32 x .375"
X	28	3701061		SCREW, PAN HEAD, PHILLIPS, #6-32 x .375"
X	27	3701068		SCREW, PAN HEAD, PHILLIPS, #8-32 x 1.500"
X	26	3702106		SCREW, PAN HEAD, PHILLIPS, #8-32 x .500"
X	25	3751064		SCREW, FLAT HEAD, PHILLIPS, #8-32 x .500"
X	24	3752063		SCREW, FLAT HEAD, PHILLIPS, #8-32 x .625"
X	23	3810020		WASHER, FLAT, #6
X	22	3790040		NUT, KEP, #6-32
X	21	3810060		WASHER, FLAT, #8
X	20	3701066		SCREW, PANHEAD, PHILLIPS, #8-32 x 1.00"
X	19	3910008		PIN, ROLL, 3/16" DIA. x 1 1/2"
X	18	X-XXXXXXX	XXX-XXXX-X	CLIP.
X	17	X-XXXXXXX	XXX-XXXX-X	SPACER, #6-32 x .500"
X	16	X-XXXXXXX	XXX-XXXX-X	SPACER, #8 x .250" LNG.
X	15	X-XXXXXXX	2107	SPACER, #8 x .500" LNG., H.H. SMITH
X	14	X-XXXXXXX	XXX-XXXX-X	ANGLE.
3860006 X	13	X-XXXXXXX	XXX-XXXX-X	CATCH, MAGNETIC
3320001 X	12	X-XXXXXXX	BP-9823-3G	CATCH, AMEROCK CORP.
7210002 X	11	X-XXXXXXX	87	SPRING, EXTENSION
X	10	X-XXXXXXX	6049K17	KNOB, BALL
X	9	217-0060-C	XXX-XXXX-X	BLADE, DOUSER
2170364 X	8	X-XXXXXXX	XXX-XXXX-X	SCREEN, DOUSER
X	7	210-0005-B	XXX-XXXX-X	SPACER, DOUSER SHAFT
X	6	210-0006-B	XXX-XXXX-X	MOUNTING BLOCK, DOUSER SHAFT
X	5	210-0008-B	XXX-XXXX-X	HANDLE, DOUSER
X	4	210-0009-B	XXX-XXXX-X	SHAFT, DOUSER
X	3	210-0007-B	XXX-XXXX-X	LOCK WASHER, DOUSER SHAFT
X	2	217-0048-D	111	HEAT SHIELD, FRONT PANEL, DOUSER
X	1	203-0004-D	111	PANEL, FRONT, DOUSER

INTERPRET DRAWING PER ANSI Y14.5M-1982 SCALE 1/1 D PROJECT P-100-035 XX-X

DRAWN BY C.KESSLER ±.03 ±.005 ±1/2°

102-0001-0

ASSEMBLY, DOUSER SX-SERIES LAMPHOUSE

DWG. NO. 210-0075-0

Upland, Calif. (714) 981-1300

SHEET 1 OF 1 REV A

AUTOCAD FILENAME 2010075D

2. USE LOCTITE OR EQ.

1. USE CATCH ONLY.

NOTES: UNLESS OTHERWISE SPECIFIED

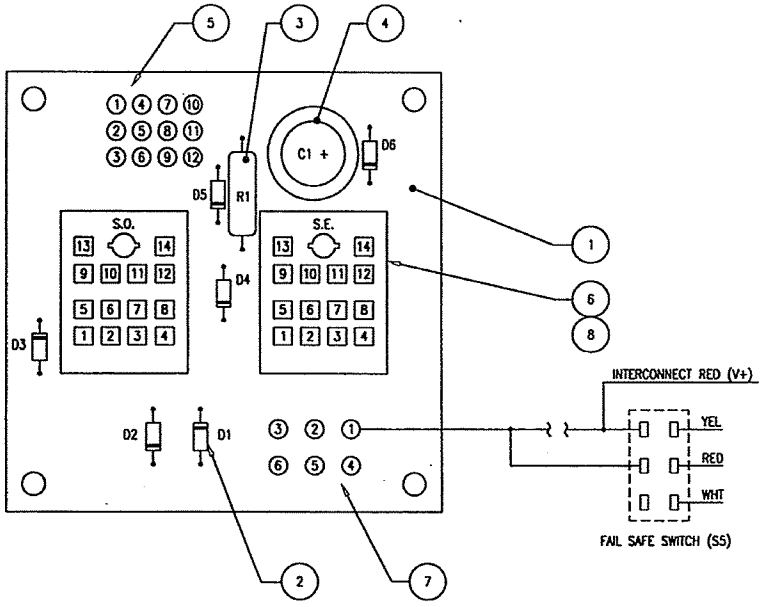
DO NOT SCALE DWG

PLACE DRAWING NO. OR LOCATION SHOWN

REVISIONS				
REV	DESCRIPTION	BY	APPR	DATE
A	REDRAWN ON AUTOCAD	C.C.K.		9/6/90
B	REVISED	KT/MD		5/8/92

INTERLOCK BOARD
12 CONDUCTOR
1 WHT
2 GRY
3 RED
4 ORG
5 PNK
6 VIO
7 TAN
8 --
9 YEL
10 GRN
11 BLU
12 BRN

INTERCONNECT CABLE
5 CONDUCTOR
1 RED
2 BLK
3 BRN
4 WHT
5 --
6 GRN



	2	8	27E023	728-0005	SOCKET, RELAY	P&B		S.O.-S.E
OPTIONAL		7	09-18-5069		CONNECTOR, MOLEX			
	2	6	GM-4PDT		RELAY, 24 VOLT COIL			
OPTIONAL		5	09-18-5121		CONNECTOR, MOLEX			
	1	4			CAPACITOR, 470mF, 50V			C1
	1	3			RESISTOR, 100Ω, CARBON, 1 WATT 10%			R1
	6	2	1N4004	799-0001	DIODE	MOTOROLA		D1-D6
	1	1	C-1001642		BOARD, MASTER INTERLOCK			REF.
	QTY PER ASSY	ITEM	DWG. NO.	REV. NO	DESCRIPTION		APPROX. WT. (lbs.)	REF. DES.

INTERPRET DRAWING PER ANSI Y14.5M-1982 | SCALE NONE | SHEET SIZE C | DATE | PROJECT P-100-076 | MPL # 1000227 | DISK # 227-1

		CONCENTRICITY	UNLESS OTHERWISE SPECIFIED	.XX ±.03	.XXX ±.005	ANGLES ±1/2°
		SYMMETRY				
		FLATNESS	DIMENSION LIMITS HOLD BEFORE FINISH			
		PERPENDICULARITY	MACHINED FILLET RADII .015-.030			
		PARALLELISM	ALL DIMENSIONS ARE IN INCHES			

DRAWN BY C.KESSLER 9/6/90
CHECKED BY
APPROVED
APPROVED
APPROVED

B-1001722	
C-1001721	
NEXT ASSY.	FINAL ASSY.
APPLICATION	

TOTAL WT.

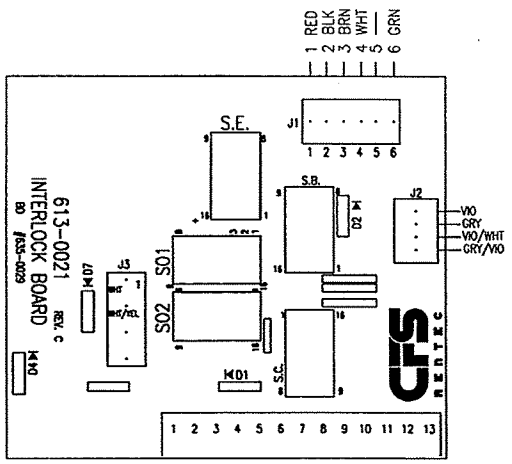
FINISH

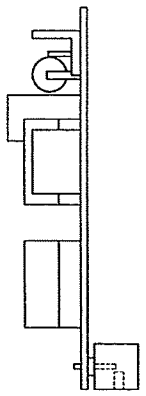
Rentec Corporation Upland, Calif. (714) 981-1588

DWG. TITLE
CIRCUIT BOARD ASSEMBLY
INTERLOCK
SX-2000 LAMPHOUSE

DWG. NO. C-1001641
REN NO. 613-0001-C
SHEET 1 OF 1
AUTOCAD FILENAME C1001641
REV B

REVISIONS				
REV	DESCRIPTION	BY	APPR	DATE
0	PRODUCTION REL.			
A	REVISED PART #'S ON DET.S 6 & 7			10/1/92
B	ADDED 4 POS. RIACON CONN.			11/2/93
C	REVISED DWG TO REFLECT NEW PCB REV C	YM		4/7/98
	ADD DESC. TO # 6,&7, DEL.2&3,# 4 WAS 6			





QTY PER ASSY.	ITEM NO.	PART NUMBER	MASTER PARTS LIST	DESCRIPTION	MANUFACTURER	REF. DES.
1	14	729-0062	31017104	CONNECTOR, MALE (PINS), 4 POS.	RIACON	J3
1	13	729-0061	31007104	CONNECTOR, FEMALE, 4 POS.	RIACON	
4	12			JUMPER		
3	11	735-0004	HB2-DC24V	RELAY, HB	AROMAT	SE,SO1,SO2
2	10	735-0011	G6A-234P-ST-US-DC24	RELAY, LATCHING	OMRON	SB, SC
1	9	729-0034	SSB4M13S	CONNECTOR, MALE (PINS), 13 POS.	BUCHANNON	
1	8	729-0033	SSB4P13S	CONNECTOR, FEMALE, 13 POS.	BUCHANNON	
1	7	793-0002	26-60-1040	HEADER, 4 POS.	ELEC-HDW	J2
1	6	793-0023	26-60-1060	HEADER, 6 POS.	ELEC-HDW	J1
5	5	728-0007	151C016	SOCKET, IC, 16 PIN	MOUSER	
4	4	799-0015	IN4006	DIODE, (IN4000 SERIES)	MOUSER	D1-D4
	3					
	2					
1	1	635-0029	1000227	BOARD, INTERLOCK	CIRTECH	

1. MATCHING PLUG FOR 4 POS. HEADER IS MOUSER #09-50-3041 (793-0001) AND PINS #08-50-0106.
   MATCHING PLUG FOR 6 POS. HEADER IS MOUSER #09-50-3061 (793-0055).

NOTES: UNLESS OTHERWISE SPECIFIED
DO NOT SCALE DWG

PLACE DRAWING NO. IN LOCATION SHOWN: D/N

INTERPRET DRAWING PER ANSI Y14.5M-1982 | SCALE .667/1 | SHEET SIZE C | DATE | PROJECT MULTI-USE | MPL # | DISK # 227-2

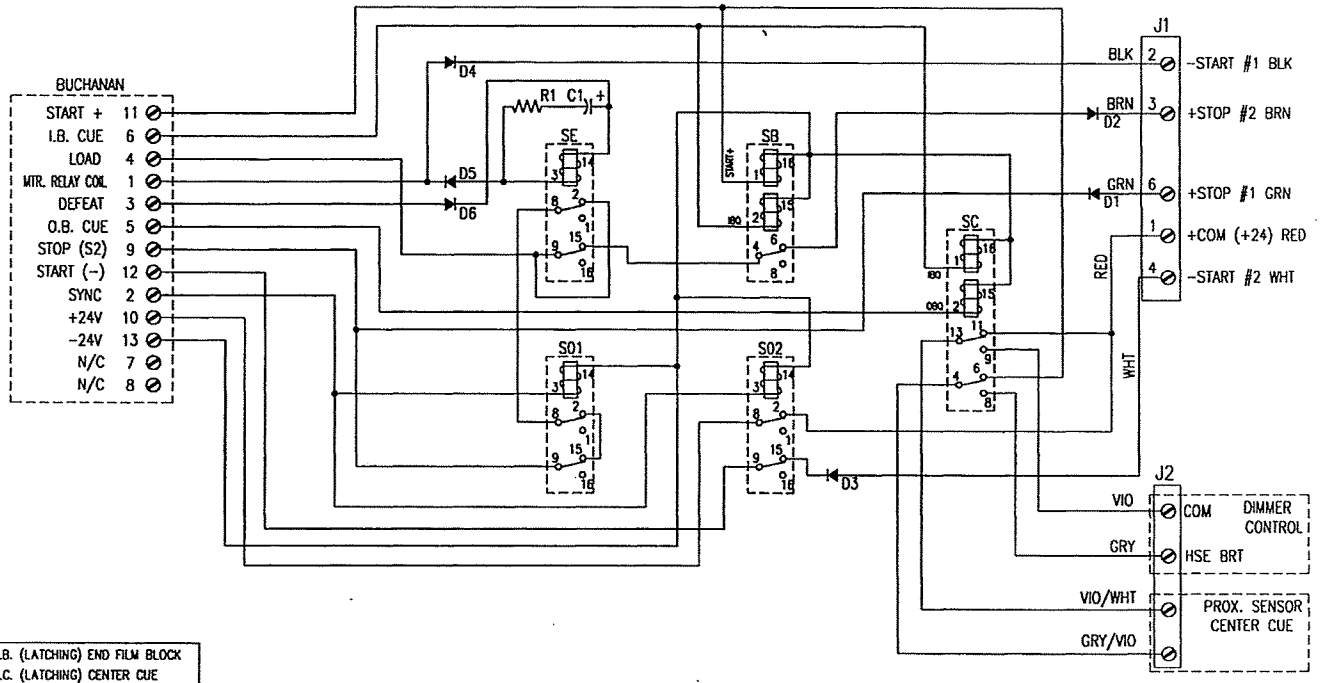
CONCENTRICITY	UNLESS OTHERWISE SPECIFIED	.XX	.XXX	ANGLES	DRAWN BY LOANENBERG 7/28/92	DWG. TITLE: ASSEMBLY, INTERLOCK BOARD
SYMMETRY		±.015	±.005	±1/16°	CHECKED BY	DWG. NO. 613-0021-C
FLATNESS	DIMENSION LIMITS HELD BEFORE FINISH				APPROVED	REN NO.
PERPENDICULARITY	MACHINED FILLET RADII .015-.030				APPROVED	
PARALLELISM	ALL DIMENSIONS ARE IN INCHES				APPROVED	

NEXT ASSY. | FINAL ASSY. | APPLICATION | TOTAL WT. | FINISH

CFS/RENTEC
Cinema Film Systems, Incorporated

SHEET 1 OF 1 | REV C | AUTOCAD FILENAME 6130021C

REVISIONS				
REV	DESCRIPTION	BY	APPR	DATE
0	PRODUCTION REL.			
A	REVISED			6/18/93
B	ADDED J1 AND J2 COLOR IDENTIFICATION	YM		4/7/98



S.B. (LATCHING) END FILM BLOCK
S.C. (LATCHING) CENTER CUE
S.E. (REG.) START NEG.
S.O.1 (REG.) SYNC (LOCKED)
S.O.2 (REG.) SYNC (LOCKED)

2. FOR SYSTEMS PREVIOUS TO 8/6/92 REF. #600-0023-C
   REF. ASS'Y. #613-0001-C (C-1001641)

[1.] REF. ASSEMBLY #613-0021-C

NOTES: UNLESS OTHERWISE SPECIFIED
DO NOT SCALE DWG

PLACE DRAWING NO. IN LOCATION SHOWN D/N

QTY. PER ASSY.	ITEM NO.	PART NUMBER	MASTER PARTS LIST	DESCRIPTION	MANUFACTURER	APPROX. WT. (lbs.)	REF. DES.

INTERPRET DRAWING PER ANSI Y14.5M-1982 | SCALE NONE | SHEET SIZE C | DATE | PROJECT MULTI-USE | MPL # | DISK # 227-3

CONCENTRICITY	UNLESS OTHERWISE SPECIFIED	.XX	.XXX	ANGLES	DRAWN BY M.DANNENBERG 10/6/92
SYMMETRY		±.015	±.005	±1/16°	CHECKED BY
FLATNESS	DIMENSION LIMITS HOLD BEFORE FINISH				APPROVED
PERPENDICULARITY	MACHINED FILLET RADII .015-.030				APPROVED
PARALLELISM	ALL DIMENSIONS ARE IN INCHES				APPROVED

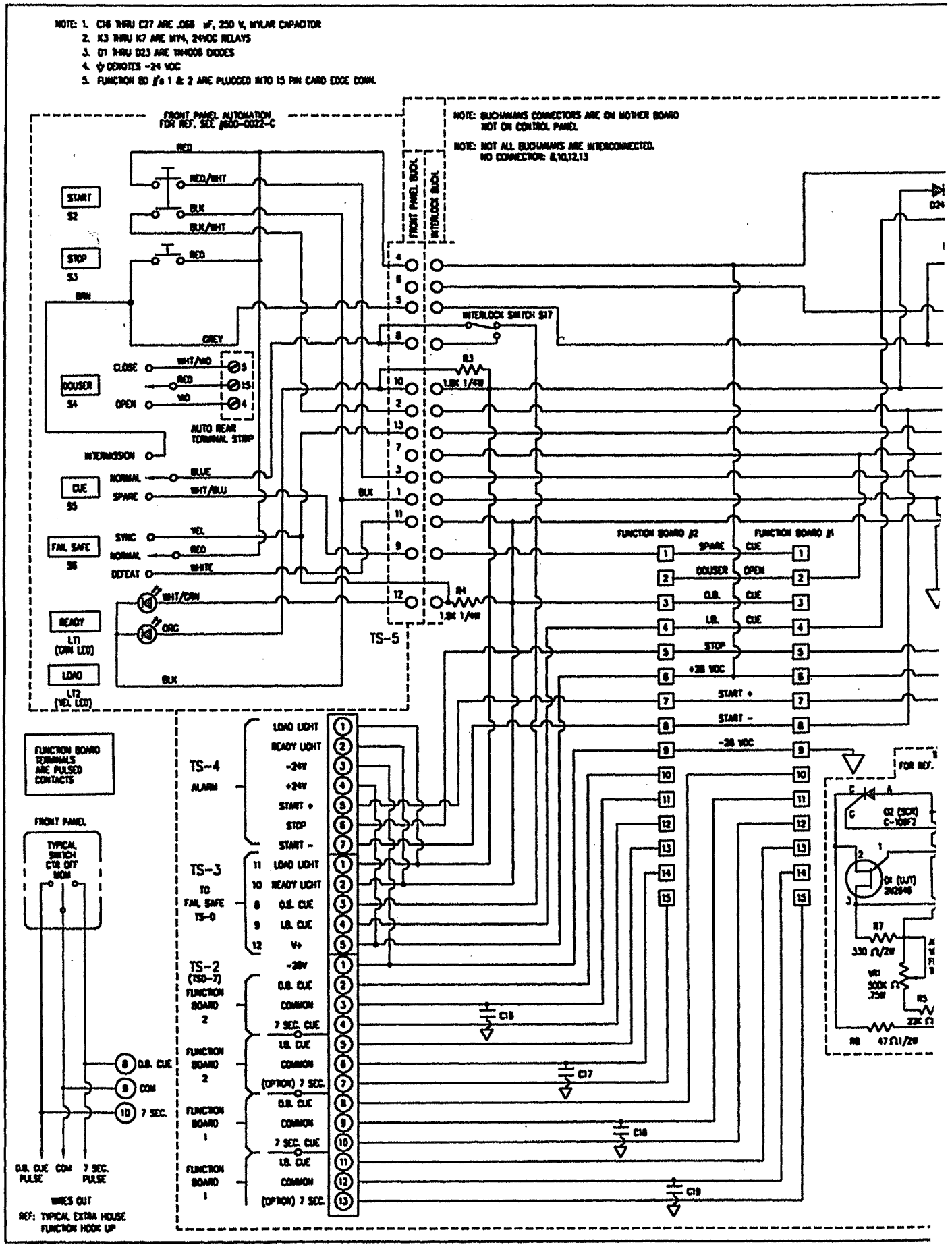
613-0021-C
NEXT ASSY. | FINAL ASSY.
APPLICATION
TOTAL WT.
FINISH

DWG. TITLE: SCHEMATIC, INTERLOCK BOARD

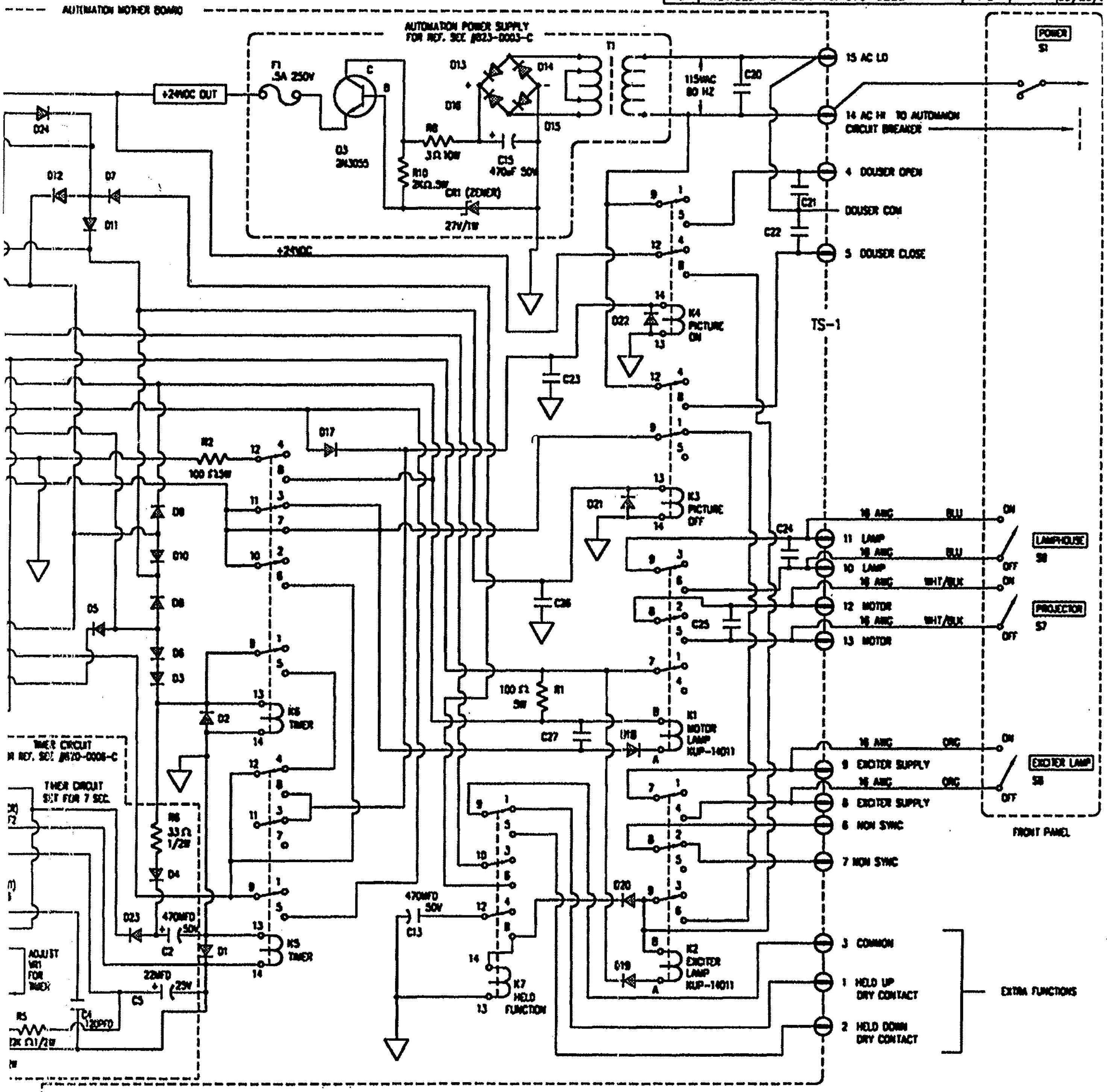
DWG. NO. 600-0063-C
REV NO.

CFS/RENTEC
Cinema Film Systems, Incorporated

SHEET 1 OF 1
AUTOCAD FILENAME 6000063C
REV B

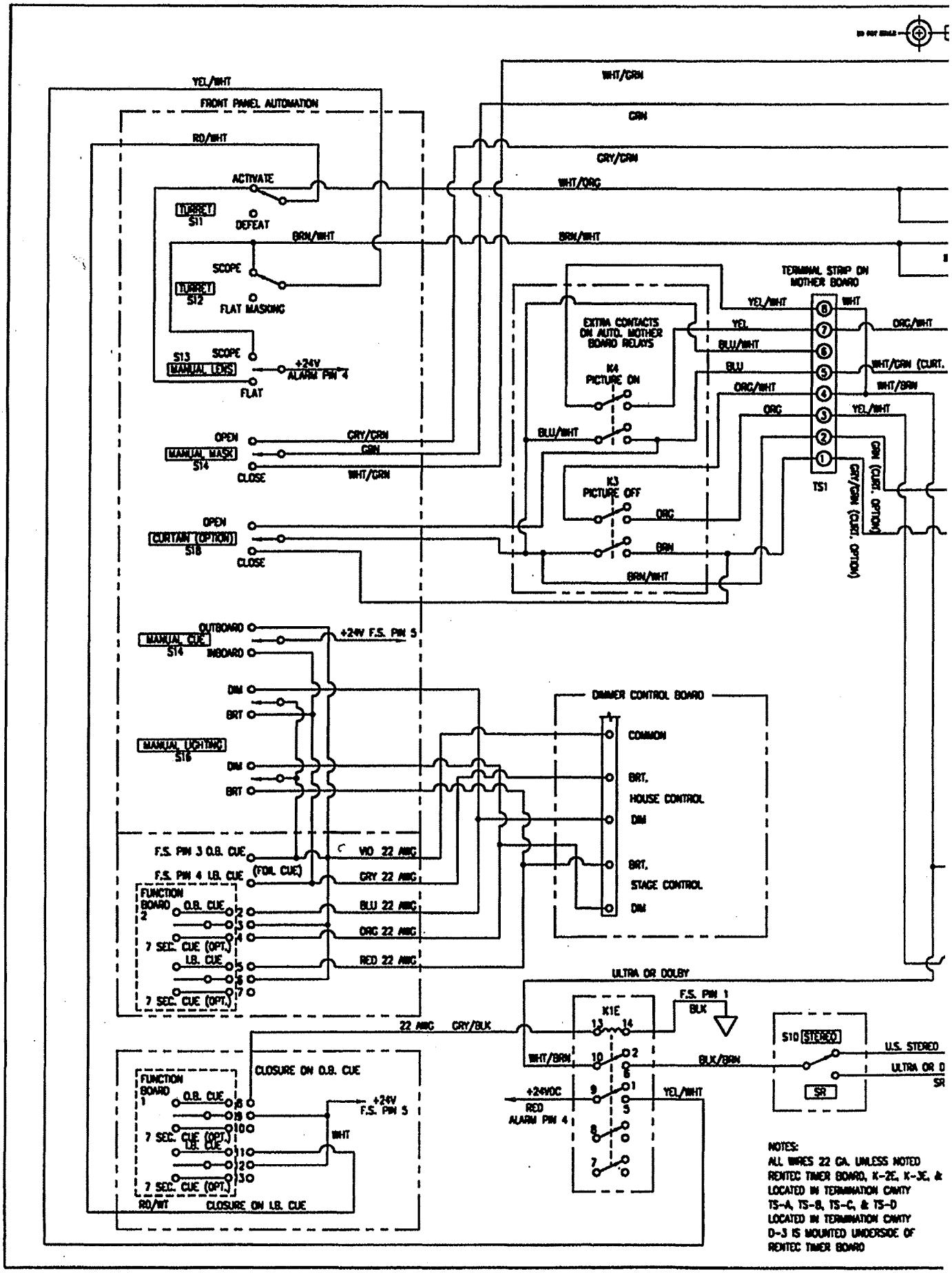

NOTE: 1. C16 THRU C27 ARE .068 uF, 250 V, MYLAR CAPACITOR
2. K3 THRU K7 ARE MYN, 24VDC RELAYS
3. D1 THRU D23 ARE 1N4006 DIODES
4. ⏚ DENOTES -24 VDC
5. FUNCTRON BD J's 1 & 2 ARE PLUGGED INTO 15 PIN CARD EDGE CONN.
FRONT PANEL AUTOMATION
FOR REF. SEE J600-0022-C
NOTE: BUCHANANS CONNECTORS ARE ON MOTHER BOARD NOT ON CONTROL PANEL
NOTE: NOT ALL BUCHANANS ARE INTERCONNECTED. NO CONNECTION: 8,10,12,13
FRONT PANEL BUCH.
INTERLOCK BUCH.
START S2
STOP S3
DOUSER S4
CUE S5
FAIL SAFE S6
READY LT1 (GRN LED)
LOAD LT2 (YEL LED)
INTERLOCK SWITCH S17
R3 1.8K 1/4W
R4 1.8K 1/4W
AUTO REAR TERMINAL STRIP
INTERMISSION
TS-5
FUNCTION BOARD J2
FUNCTRON BOARD J1
SPARE
DOUSER
O.B.
I.B.
STOP
+28 VDC
START +
START -
-28 VDC
FUNCTION BOARD TERMINALS ARE PULSED CONTACTS
FRONT PANEL
TYPICAL SWITCH C10 OFF NOM
O.B. CUE PULSE
COM
7 SEC. PULSE
WIRES OUT
REF: TYPICAL EXTRA HOUSE FUNCTRON HOOK UP
TS-4
ALARM
LOAD LIGHT
READY LIGHT
-24V
+24V
START +
STOP
START -
TS-3
TO FAIL SAFE TS-6
V+
TS-2 (TSD-7)
FUNCTRON BOARD 2
FUNCTRON BOARD 1
O.B. CUE
COMMON
7 SEC. CUE
I.B. CUE
(OPTION) 7 SEC.
C15
C17
C18
C19
Q2 (SCR) C-106F2
Q1 (UJT) 2N2646
R7 330 Ω/2W
VR1 500K Ω .75W
R5 22K Ω
R6 47 Ω 1/2W

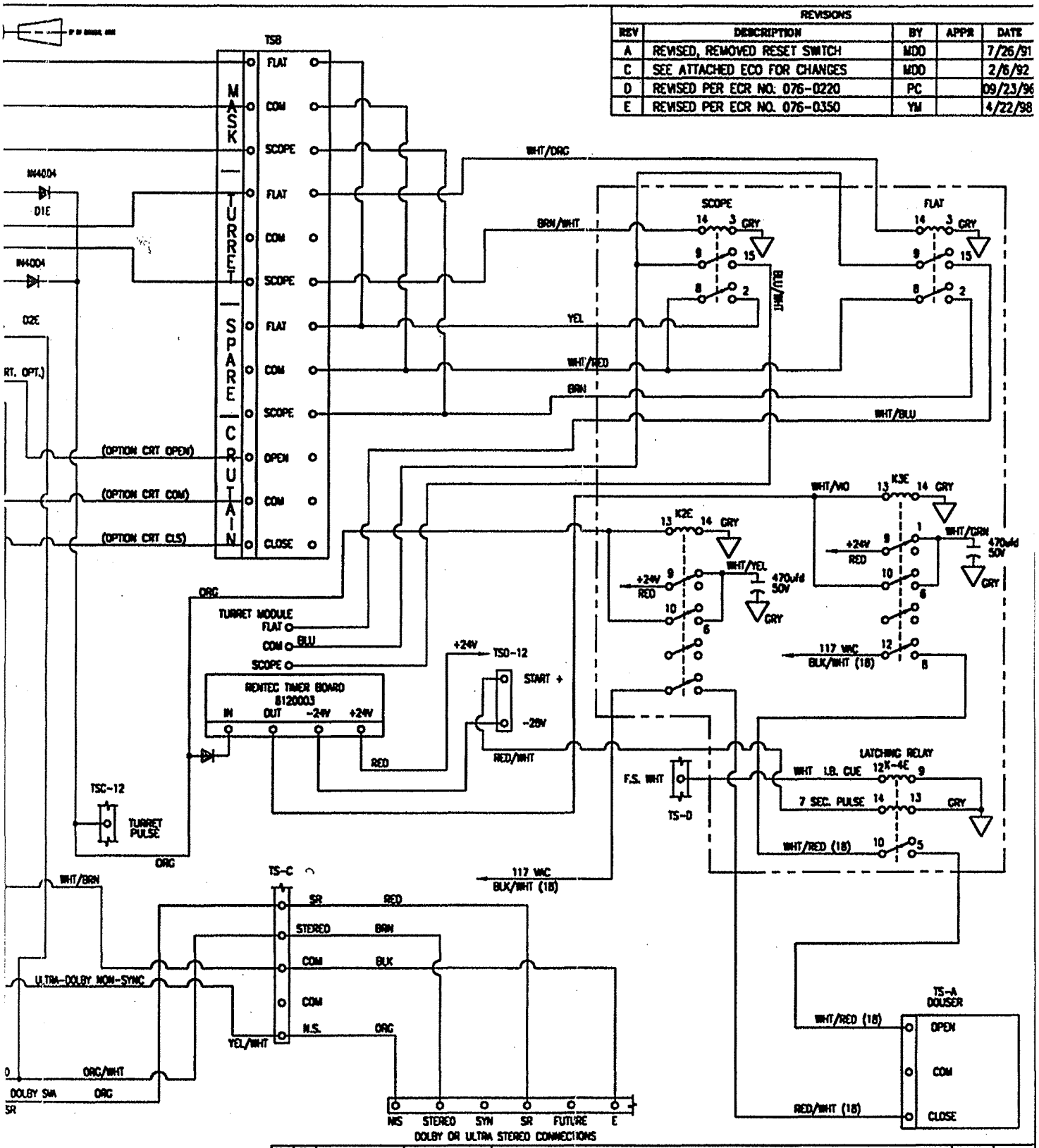
REVISIONS				
REV	DESCRIPTION	BY	APPR	DATE
B	REDAWN ON AUTOCAD	C.C.K		08/90
C	SEE ATTACHED ECO	MDD		2/5/9[illegible]
D	REVISED PER ECR NO. 076-0220	PC		09/23/[illegible]



NOTE: 1. C1 THRU C12 ARE .068 ⌀, 250WV, MYLAR CAPACITOR

INTERPRET DRAWING PER ANSI Y14.5M-1982	SCALE NONE	SHEET SIZE D	PROJECT P-100-076 / 1000227 / DWN 227-1
TOLERANCES: ±.03 / ±.005 / ±1/2°	DRAWN BY C.KESSLER	TITLE: SCHEMATIC, AUTOMATION, L-2000 L-2000 LAMPHOUSE	DWG. NO. D-1001565
			REV NO. 600-0021-D
CFS/RENTEC Cinema Film Systems, Incorporated		SHEET 1 OF 2	REV D
		AUTOCAD FILENAME 6000021D	


YEL/WHT
FRONT PANEL AUTOMATION
RD/WHT
ACTIVATE
TURRET S11
DEFEAT
BRN/WHT
SCOPE
TURRET S12
FLAT MASKING
S13 SCOPE
MANUAL LENS
+24V ALARM PIN 4
FLAT
OPEN
MANUAL MASK S14
CLOSE
CRY/GRN
GRN
WHT/GRN
OPEN
CURTAIN (OPTION) S18
CLOSE
OUTBOARD
MANUAL CUE S14
INBOARD
+24V F.S. PIN 5
DIM
BRT
MANUAL LIGHTING S16
DIM
BRT
F.S. PIN 3 O.B. CUE
F.S. PIN 4 LB. CUE
(FOR CUE)
VIO 22 AWG
GRY 22 AWG
FUNCTION BOARD 2
O.B. CUE
7 SEC. CUE (OPT.)
L.B. CUE
7 SEC. CUE (OPT.)
BLU 22 AWG
ORG 22 AWG
RED 22 AWG
DIMMER CONTROL BOARD
COMMON
BRT.
HOUSE CONTROL
DIM
BRT.
STAGE CONTROL
DIM
WHT/GRN
GRN
CRY/GRN
WHT/ORG
BRN/WHT
TERMINAL STRIP ON MOTHER BOARD
EXTRA CONTACTS ON AUTO. MOTHER BOARD RELAYS
K4 PICTURE ON
K3 PICTURE OFF
YEL/WHT
YEL.
BLU/WHT
BLU
ORG/WHT
ORG
BRN
BRN/WHT
WHT
ORG/WHT
WHT/GRN (CURT.
WHT/BRN
YEL/WHT
GRN (CURT. OPTION)
GRY/GRN (CURT. OPTION)
TS1
ULTRA OR DOLBY
22 AWG GRY/BLK
K1E
F.S. PIN 1
BLK
WHT/BRN
BLK/BRN
+24VDC
RED
ALARM PIN 4
YEL/WHT
S10 STEREO
U.S. STEREO
ULTRA OR D
SR
FUNCTION BOARD 1
O.B. CUE
7 SEC. CUE (OPT.)
L.B. CUE
7 SEC. CUE (OPT.)
CLOSURE ON O.B. CUE
+24V F.S. PIN 5
WHT
RD/WT
CLOSURE ON L.B. CUE
NOTES:
ALL WIRES 22 GA. UNLESS NOTED
RENTEC TIMER BOARD, K-2E, K-3E, &
LOCATED IN TERMINATION CAVITY
TS-A, TS-B, TS-C, & TS-D
LOCATED IN TERMINATION CAVITY
D-3 IS MOUNTED UNDERSIDE OF
RENTEC TIMER BOARD


REVISIONS
REV | DESCRIPTION | BY | APPR | DATE
A | REVISED, REMOVED RESET SWITCH | MDD | | 7/26/91
C | SEE ATTACHED ECO FOR CHANGES | MDD | | 2/6/92
D | REVISED PER ECR NO: 076-0220 | PC | | 09/23/96
E | REVISED PER ECR NO. 076-0350 | YM | | 4/22/98
TS8
MASK — TURRET — SPARE — CURTAIN
FLAT
COM
SCOPE
FLAT
COM
SCOPE
FLAT
COM
SCOPE
OPEN
COM
CLOSE
IN4004
D1E
IN4004
D2E
RT. OPT.)
(OPTION CRT OPEN)
(OPTION CRT COM)
(OPTION CRT CLS)
WHT/ORG
BRN/WHT
YEL
WHT/RED
BRN
WHT/BLU
BLU/WHT
SCOPE
FLAT
K3E
K2E
WHT/WHT
WHT/GRN
WHT/YEL
470ufd 50V
+24V
RED
GRY
117 VAC
BLK/WHT (18)
ORG
TURRET MODULE
FLAT
COM
BLU
SCOPE
RENTEC TIMER BOARD
8120003
IN
OUT
-24V
+24V
TS0-12
START +
-28V
RED/WHT
TSC-12
TURRET PULSE
F.S. WHT
TS-D
LATCHING RELAY
WHT LB. CUE
12K-4E
7 SEC. PULSE
WHT/RED (18)
TS-C
WHT/BRN
SR
RED
STEREO
BRN
COM
BLK
ULTRA-DOLBY NON-SYNC
COM
N.S.
ORG
YEL/WHT
ORG/WHT
DOLBY SW
ORG
SR
NS
STEREO
SYN
SR
FUTURE
E
DOLBY OR ULTRA STEREO CONNECTIONS
TS-A
DOUSER
WHT/RED (18)
OPEN
COM
CLOSE
RED/WHT (18)
& K-4E
INTERPRET DRAWING PER ANSI Y14.5M-1982
SCALE NONE
DATE
PROJECT P-100-076
1000227
227-1
DRG. TITLE
SCHEMATIC,
AUTOMATION, L-2000
L-2000 LAMPHOUSE
DRG. NO.
D-1001565
REV NO.
600-0021-D
SHEET 2 OF 2
REV E
AUTOCAD FILENAME 600021D2
CFS/RENTEC
Cinema Film Systems, Incorporated