Film-Tech

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www.film-tech.com

XETRON

MAXI-9x/DC
AUTOMATION

Installation, Operation, and Parts

Xetron/Neumade Products Corp.
30-40 Pecks Lane
Newtown, CT. 06470
1-800-526-0722
(203) 270-1100
Fax: 203-270-7778
http://www.neumade.com

With Xetron cue detector parts list included.

XETRON®

MAXI-9X/DC

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March 1987

DIV. OF NEUMADE PRODUCTS CORP. Ten Saddle Rd., Cedar Knolls, NJ 07927 U.S.A. Telephone (201) 267-8200

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1.0 SAFETY INSTRUCTIONS

1.1 Basics

When using your equipment, basic safety precautions should always be followed, including the following:

- Read and understand all instructions before using the equipment.
- Do not operate automation if unit has been dropped or damaged - until it has been examined by a qualified serviceman.
- Always disconnect or turn breaker off before cleaning and servicing and when not in use.
- To reduce the risk of electric shock, do not immerse the unit in water or other liquids.
- To reduce the risk of electric shock, do not disassemble this unit, but have a qualified serviceman contacted when service or repair work is required. Incorrect reassembly can cause electric shock when the appliance is used subsequently.
- The use of an accessory attachment not recommended by manufacturer may cause risk of fire, electric shock or injury to persons.
- A good earth ground is always necessary to prevent electric shock.

1.2 Fuse

When replacing the fuse of this automation, use UL miniature fuse rated min. 125V, with 2A current rating.

1.3 Line Voltage

This automation must be used within an AC voltage of 100 to 120 V and frequency 50-60 Hz.

1.4 Precautions

In operating an automation system, it is important that certain good habits are developed which will insure proper operation at all times.

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1.4 Precautions (continued)

- Keep the film path of the projector and sound reproducer clean at all times. It is recommended that before the film is threaded, brush out the gate with a toothbrush, clean off the cue roller with a rag. We recommend the use of Xekote as a cleaning and lubricating agent for the cue roller, plastic rollers and film.

- The Allen cap screw in the end of the cue roller must be tight for proper cue sensitivity.

- After the film is threaded, check to be certain that the auto/masking selector if any is set to the proper format, check that the proper mode and/or status (run or intermission) of the incoming machine has been selected.

- If foil cues are poorly applied or broken, they will not trigger the automation properly. This will cause missed changeovers, etc. Develop a habit of inspecting the foil cues whenever possible.

- If trouble develops, try to determine the exact problem before proceeding. If changeover was missed, check cues and cue roller first. If projector did not start, was mode selector set properly?

- With any automation equipment, it is very important that good splices be made and with extended run programs, these splices must be checked frequently. It is just as important to look for any type of film damage such as cracked sprocket holes or tears in the sprocket areas.

- Please do not be guilty of failing to remove your cues when breaking the show down as they can be a great problem to the next projectionist using the film. Some projection people have used a graphite base or silver type paint for the cues with little thought as to the problem of its removal. Careful inspection of each print for such cues before your first performance is very necessary.

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2.0 FEATURES

- Controls: Projector Drive Motor, Lamphouse, Picture Changeover Dowser, Exciter Lamp, Intermission Tape Deck, Dimmer, Manual Mask Control.
- Included are heavy duty built-in control switches for local or manual operation of the projector motor, lamphouse, changeover, exciter lamp, house lights and masking.
- The Maxi-9X/DC will accept cues at any point during the show for a programmed intermission.
- A unique failsafe circuit assures the dowser is closed prior to lamp ignition, eliminating annoying pre-start flashes on the screen.
- Interchangeable plug-in relays, heavy duty, dust covered.
- Slide out chassis permits access to all internal hardware.
- For add-on, the Maxi-9X/DC becomes very versatile by operating on 12 VDC.
- Complete with the proven Xetron split film cue detector/failsafe device and comprehensive installation/operation manual.
- Position of switches can be observed from a distance by light color indication.
- Remote with or without alarm capabilities.
- Interlock capabilities.

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3.0 GENERAL DESCRIPTION

The Maxi-9X/DC system has been designed as a single projector automation unit. It can be used with a single 35mm projector with a film transport system, or a professional 16mm projector. Also with proper interface wiring it can be used as a two machine system with an additional Maxi-9X/DC.

The wall mount Maxi-9X/DC is contained in a metal cabinet which measures 12" wide x 20" high x 5 1/2" deep. For the Xetron console, the Maxi-9X/DC measures 12" wide x 5 1/2" high and mounts flush with the console panel.

The Maxi-9X/DC automation system uses momentary and alternate action pushbuttons that also indicate system status and various modes of operation and circuit instructions for a complete understanding of the various functons and indications.

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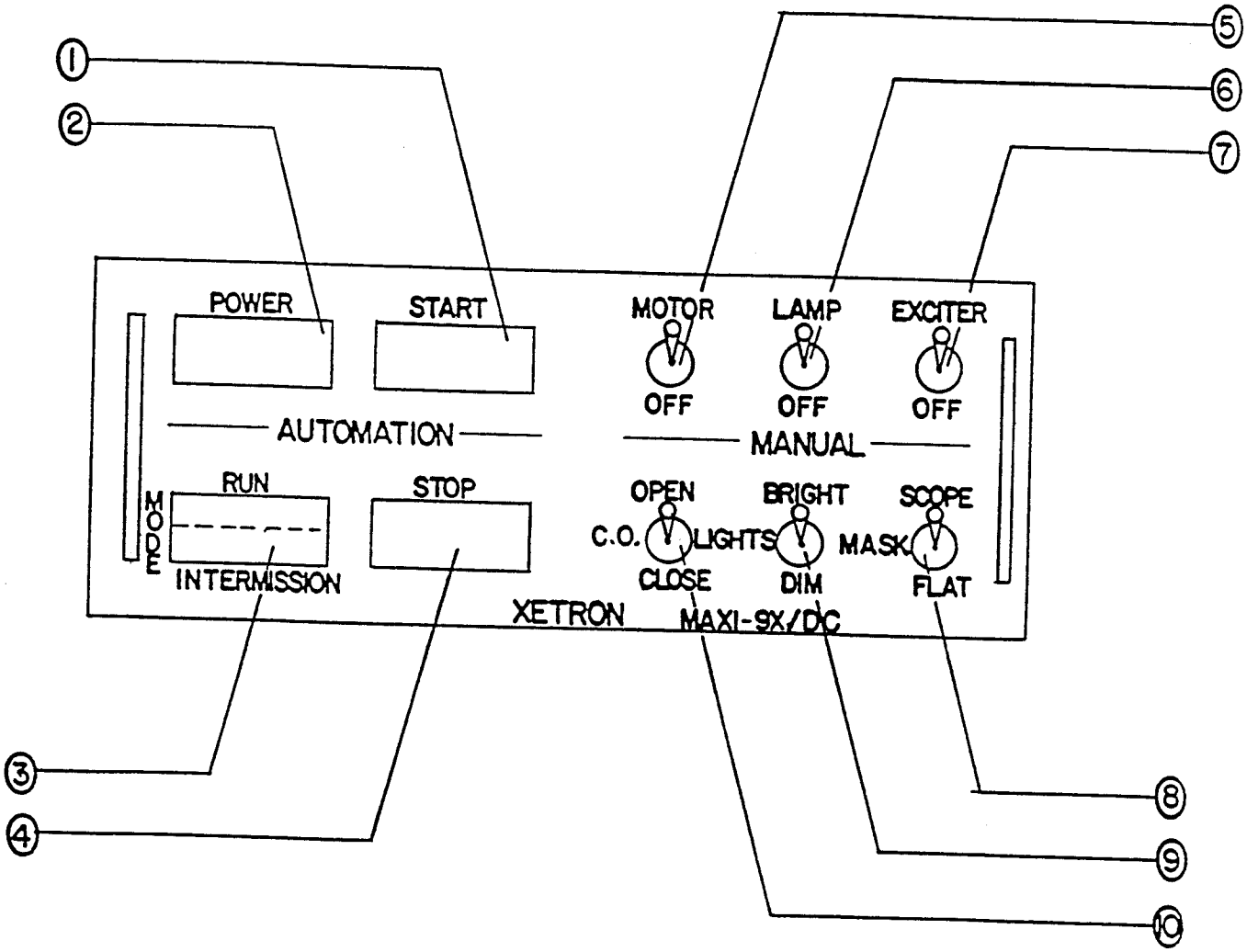
3.1 Description Diagram:



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3.2 Description

(1). The START pushbutton switch:
Action is started by pressing the START button and its associated indicator light (green) stays ON during the operation as this light is in parallel with coil on k4.

(2). The POWER pushbutton switch:
Provides AC power to Maxi-9X/DC when pressed in and white indicator is illuminated.

(3). The MODE pushbutton switch:
The RUN-INTER mode select, alternate action pushbutton switch/split indicator is a 2 pole double throw switch. Yellow indicator will be on when switch is in "INTER", in position. Blue indicator will be on when switch is in "RUN", out position.

The normally open contacts in the run position mean that with an intermission foil on the film, the cue signal will only close the dowser. The projector will continue to operate until the film runs out and the failsafe drops. When the switch is pressed to its "IN" position with yellow indication, the intermission foil completes, it closes the changeover dowser and turns "OFF" the exciter lamp and shuts down the projector and Xenon lamp.

(4). The STOP pushbutton:
The red STOP pushbutton is the "FAILSAFE GO-NO-GO" indicator. When failsafe is down, red indicator will be on. When film is threaded and failsafe is up, red "FAILSAFE GO-NO-GO" indicator will be out, indicating safe to start show. The same logic will also be fed to remote the unit if used.

(5). *The MOTOR toggle switch:
Provides manual control of sustained contacts for projector drive motor.

(6). *The LAMP toggle switch:
Provides manual control of sustained contacts for Xenon lamp.

(7). *The EXCITER toggle switch:
Provides manual control of sustained contacts for exciter lamp.

(8). The CHANGEOVER toggle switch:
Provides manual control of momentary contacts to "open" or "close" the changeover.

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3.2 Description (continued)

(9). The LIGHTS toggle switch:
Provides manual control of momentary contacts of dimmer and stage lights.

(10). The MASKING toggle switch:
Provides manual control of momentary contacts for either "Scope" or "Flat".

*It is very important for the sustained contact manual switches to be in the "OFF" position when automation is used. Switches in the "ON" position will bypass the automation.

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4.0 OPERATION INSTRUCTIONS

4.1 Show Make-Up

Cues shall be placed on the film so that contact is made between the cue roller and the grounding roller. Usually six inches of foil (cue tape) is needed to assure good contact.

Place the foil on the film from the edge of the perforations out to the edge and fold over.

Cue Placement - The outboard (sound track) side of the film is used to program intermissions in the middle of the show. Push MODE pushbutton (3) into intermission mode. Place the cue on the film so that contact is established at the cue detector when shutdown for intermission is desired. To measure this distance, place a piece of scrap film in the projector. Place a mark at the cue detector and at the aperture. Remove the film and measure the distance between the 2 marks. Make a Dymo label for indicating the dimension.

The inboard cue is dedicated to a normally open dry circuit pulse that reads out on terminals 8 and 9. Use this pulse for early lights up or half light functions. Place cue on inboard side of film where function is desired.

Some types of foil have proven to be unsatisfactory especially where extended run programs are involved. If the metallic materials start flaking off, poor contact will result. Other tapes may not have the required flexibility and cracks or breaks may cause inconsistent operation. Always use Xetron cue tape.

4.2 Operation

1. a) Thread projector with leader in aperture between 7 and 8 feet.
   b) When film is threaded through failsafe unit correctly, red stop (4) light ("FAILSAFE GO-NO-GO") on Maxi-9X/DC will be out. If remote unit is used, the same will happen.

2. a) If intermission programming in the middle of the show is desired, press mode select pushbutton (3) to inter (out position) for yellow indication. Machine will run to cue tab on film and then shut down for intermission. Red "FAILSAFE GO-NO-GO" indicator (4) will pulse on momentarily at the time cue passes cue detector, but will remain off as long as film is threaded through failsafe and failsafe is up.
   b) If intermission is to be bypassed, press mode selection switch (3) to run (out position) for blue indication and intermission or show end.

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4.2 Operation (continued)

3. To start show - press green start button (1) firmly. Since the start pushbutton applies power to changeover coil, press momentarily only. Green start indicator (1) will come on and remain on until intermission or show ends.

4. Sequence of Operations:
   a) Changeover dowser will close.
   b) Motor will start
   c) Lamp will ignite.
   d) Non-sync will go off.
   e) After seven seconds, picture changeover will open and exciter lamp will come on. Machine will continue to run until programmed intermission or the end of show, depending on which is selected.

5. If film should break during operation, the machine will shut down, Xenon lamp will turn off, exciter lamp will turn off, and tape deck will come on. Red "FAILSAFE GO-NO-GO" indicator (4) will come on. If an auditorium programmer and a remote unit are used, the trouble buzzer will sound at the remote.

   After repairing the break, restart the show as detailed above.

6. At the end of the show, the dowser will close and the exciter lamp will turn off. The projector motor will continue to run and the Xenon lamp will remain on until the film runs out of projector and failsafe. When failsafe drops, motor and Xenon lamp will turn off and red "FAILSAFE GO-NO-GO" indicator light (4) will come on.

7. If system is to be operated from remote unit, follow instructions above

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4.3 Circuit Decriptions

Two type of plug-in relays are used, all having 12 volt DC coils supplied by transformer T1 and rectifier bridge B1. In these instructions, when describing the relay contacts and functions, we refer to the contacts and numbers shown on the relay base or socket. Each relay has either three or four sets of single pole, double throw contacts (SPDT).

Action is started by pressing POWER pushbuttton (2). This feeds 120 VAC to transformer T1 and tape deck (#28).

Press START pushbutton switch (1). K4 and K1 latch, motor and lamp turn on. Relay K3 momentarily closes to assure changeover close. Simultaneously, K4 momentarily feeds 120 VAC. Timer starts and cam #1 closes to provide the 120 VAC to timer motor and cam #2 unlatches relay K4. It's very important to determine the correct (3-5 sec.) length of time for K4 to unlatch.

About seven seconds after starting, as determined by the adjustment of cam #3, cam switch #3 operates and stays closed for about one second. This operates K5 which latches and turns on the exciter lamp. After one revolution (fifteen seconds), cam switch #1 opens, and timer comes to a stop.

4.4 Operation of Relays

K1 Is closed by START switch.
K2 Is operated by cam switch #3.
K3 Is operated by START switch, intermission foil tab on outboard cue or remote start switch.
K4 Is momentarily closed by the START switch, opened by cam switch #2.
K5 Is operated by K2, #5 contact or K6, #1 contact.
K6 Is operated by the failsafe cue, the STOP pushbutton switch and K4, #4 contact. (momentarily)
K7 Is operated only by inboard cue.

4.5 Relay Status

With the projector in operation the relay status is as follows:

K1 Power - Closed
K2 Show ON - Open
K3 Show OFF - Open
K4 Start - Open
K5 Exciter Lamp - Closed
K6 Failsafe - Open
K7 Lights Up - Open

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5.0 DIMMER CONTROL

5.1 Dimmer Control

The Maxi-9X/DC circuitry provides momentary closures for dimmer control. Connect dimmer to Maxi-9X/DC as called for on Drawing #XAK-060.

Normal terminations are:

1. Dim:

   a). Wire to terminal #15, 16 closure occurs when start button was pressed.
   b). Wire to terminal #14, 12 closure occurs when dowser opens or seven seconds after start button was pressed.

2. Half Light:

   a). Wire to terminal #8, 9* closure occurs when inboard cue is activated.

3. Early Lights Up:

   a). Wire to terminal #8, 9* closure occurs when inboard cue is activated.

4. Bright:

   a). Wire to terminal #13, 14 closure occurs when changeover closes.

*NOTE: Choose one only, either half lights or early lights up.

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TERMINAL		TERMINAL	
1.	Outboard Cue Detector	23.	AC Hot
2.	Inboard Cue Detector	24.	AC Neutral
3.	Failsafe	25.	Ground
4.	Jumper between #4 & #5	26.	Motor Feed
5.	Remote Start 2 Pole Start	27.	Motor Out
6.	Remote Start Switch	28.	AC Hot To Non-Sync
7.	Remote Start Indicator	29.	Xenon Feed
8.	N.O. A Feed	30.	Xenon Out
9.	N.O. A Mid (Bright)	31.	Exciter Feed
10.	Remote/Fault Ind.	32.	Exciter Out
11.	**N.O. B Feed	33.	Hold for (I/L) Alarm
12.	**N.O. B Dim	34.	C.O. Feed
13.	**N.O. C Feed	35.	C.O. Open
14.	**N.O. C Bright	36.	C.O. Close
15.	**N.O. D (Start)	37.	N.C.—For C.O. Coil Victoria
16.	**N.O. D (Start)	38.	12 VDC Out
17.	***N.C. (Stop)	39.	120 VAC Switched
18.	***N.C. (Stop)	40.	Ground
19.	Dimmer Feed	41.	Masking Feed
20.	Dimmer Raise-Manual Function	42.	Masking Scope-Manual Function
21.	Dimmer Down	43.	Masking Flat
22.	Remote "Run" Pre-select	44.	Remote "Inter" Pre-select
	*Status Indicator		*Status Indicator

*For future use with remote.

**Contacts provide momentary closure only!

***Loop opens when automation stops.

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Part #	Description
XAK-038	Sheet Metal - Chassis
XAK-037	Control Panel
XAK-003	Terminal Mtg. Panel
XAK-052	Relay 4PDT-12VDC Coil
XAK-051	Relay 3PDT-12VDC Coil
XAK-071	Relay Socket 4PDT
XAK-072	Relay Socket 3PDT
XAK-073	Terminal Block
XAK-074	Terminal Strip
XAK-075	Timer Assembly
XAK-076	Switch-Motor, Exciter, Lamp
XAK-077	Switch-Changeover, Lights, Masking
XAK-078	Pushbutton Switch-Start
XAK-079	Pushbutton Switch-Stop
XAK-080	Pushbutton Switch-Power
XAK-081	Pushbutton Switch-Mode Select
XAK-082	Pushbutton Cap-Start (green)
XAK-083	Pushbutton Cap-Stop (red)
XAK-084	Pushbutton Cap-Mode Select (Yellow/Blue)
XAK-085	Pushbutton Cap-Power (White)
XAK-086	Power Transformer
XAK-087	Pilot Light Bulb
XAK-088	Timer Connector
XAK-089	Grommet
XAK-090	Switch Mounting Nut
XNR-072	Bridge Rectifier

XETRON MAXI-9 CHASSIS LAYOUT

SWITCH PANEL

RELAY DATA

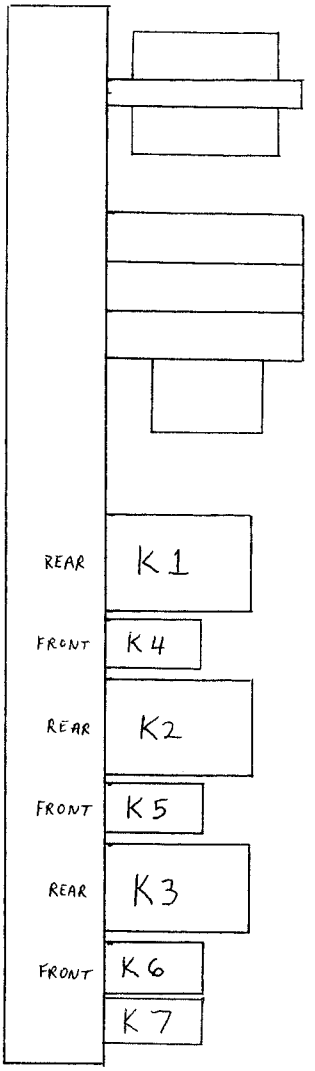
ALL 12VDC COILS

LARGE:

ECG RLY 1952 (3PDT)

SMALL:

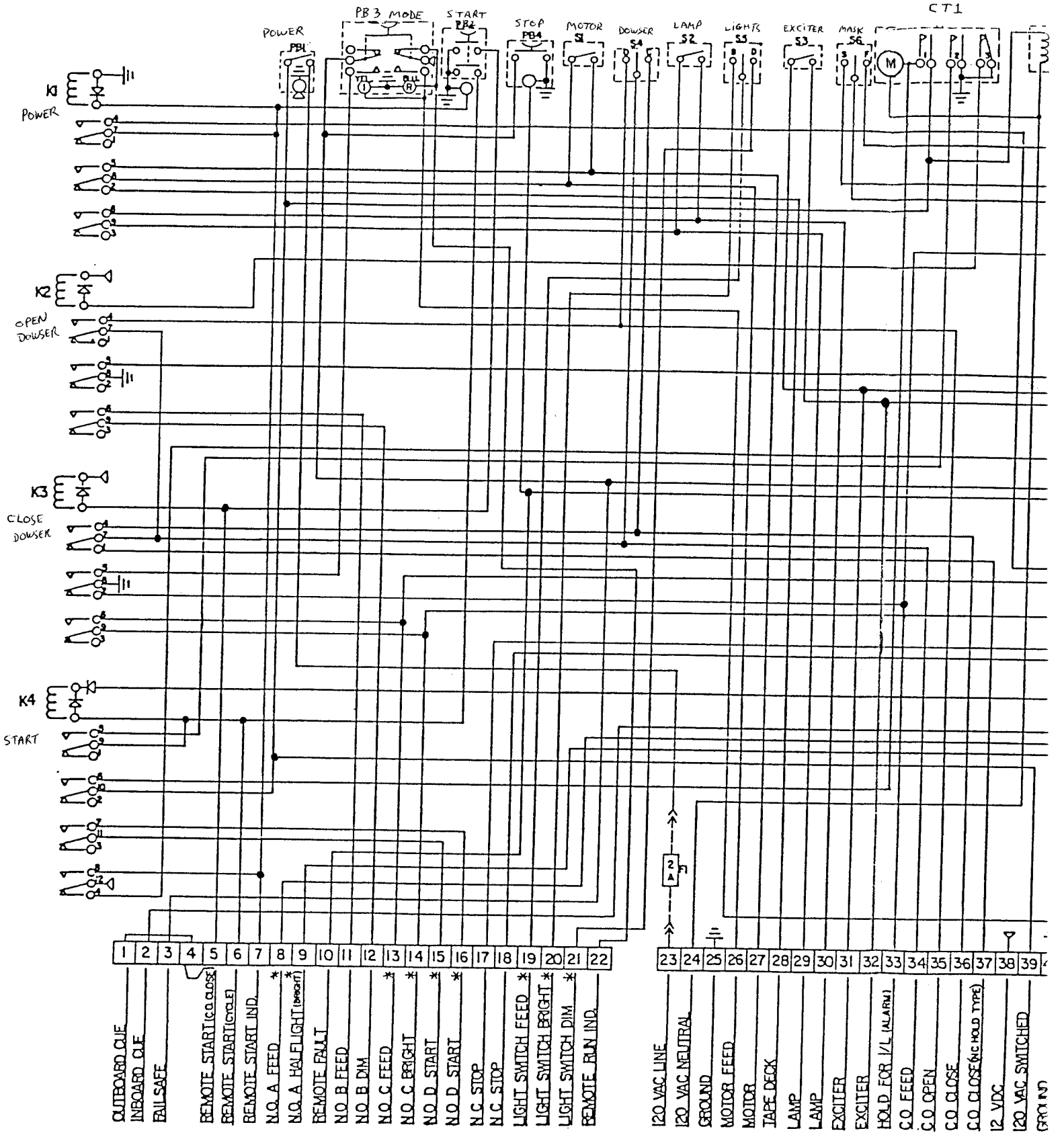
ECG RLY 2162 (4PDT)

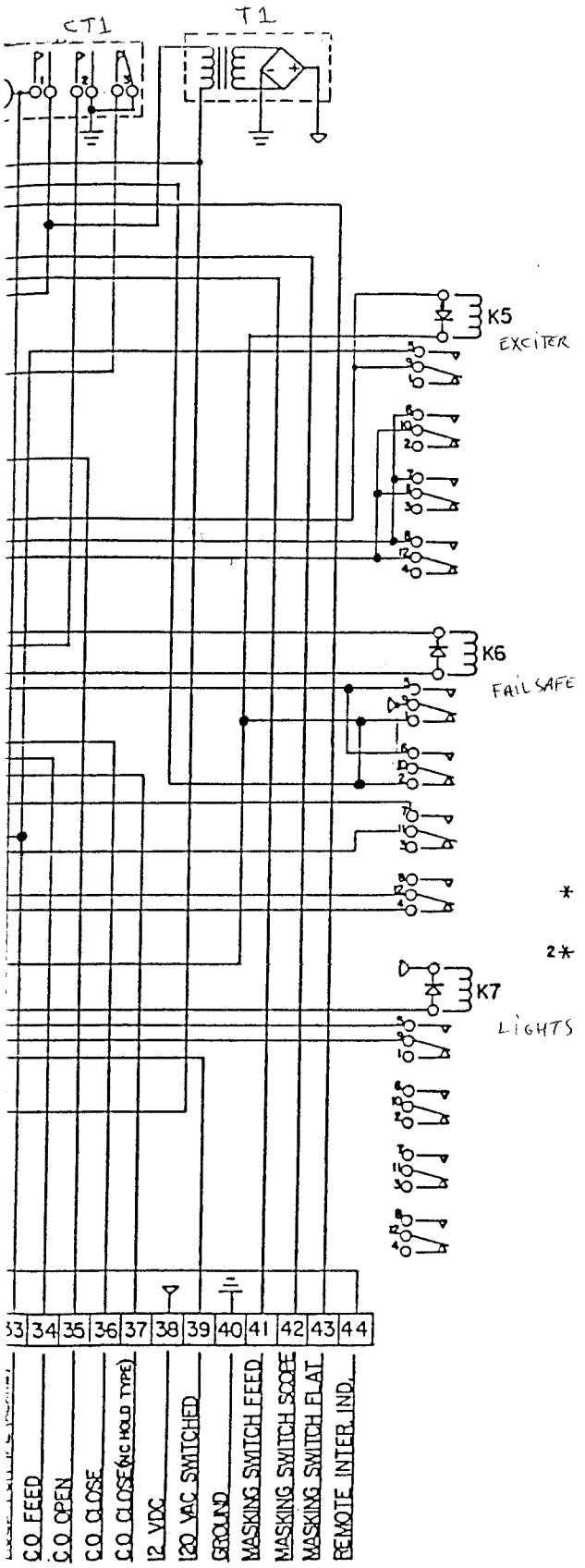


1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22
OUTBOARD CUE	INBOARD CUE	FAILSAFE	JUMPER BETWEEN # 4 AND 5	REMOTE START 2-PLE	REMOTE START SWITCH	REMOTE START IND.	N.O. A FEED	N.O. A MID BRIGHT	REMOTE FAULT IND.	N.O. B FEED	N.O. B DIM	N.O. C FEED	N.O. C BRIGHT	N.O. D START	N.O. D START	N.C. STOP	N.C. STOP	DIMMER FEED	DIMMER UP	DIMMER DOWN	REMOTE RUN PRE-SELECT

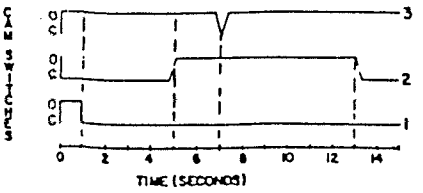
FUSE

23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44
AC HOT	AC NEUTRAL	GROUND	MOTOR FEED	MOTOR OUT	AC HOT NON-SYNC	XENON FEED	XENON OUT	EXCITER FEED	EXCITER OUT	HOLD FOR I/L ALARM	C/O FEED	C/O OPEN	C/O CLOSE	N.C C/O FOR VICTORIA COIL	12VDC OUT	120VAC SWITCHED	GROUND	MASKING FEED	MASKING SCOPE	MASKING FLAT	REMOTE INTER PRE-SELECT


CT1
POWER
PB3 MODE
START
STOP
MOTOR
DOWSER
LAMP
LIGHTS
EXCITER
MASK
PB1
PB2
PB4
S1
S4
S2
S3
S6
K1
POWER
K2
OPEN DOWSER
K3
CLOSE DOWSER
K4
START
2A
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22
23 24 25 26 27 28 29 30 31 32 33 34 35 36 37 38 39
OUTBOARD CUE
INBOARD CUE
FAIL SAFE
REMOTE START (co. close)
REMOTE START (circle)
REMOTE START IND.
N.O. A FEED *
N.O. A HALFLIGHT (bright) *
REMOTE FAULT
N.O. B FEED
N.O. B DIM
N.O. C FEED *
N.O. C BRIGHT *
N.O. D START *
N.O. D START *
N.C. STOP
N.C. STOP
LIGHT SWITCH FEED *
LIGHT SWITCH BRIGHT *
LIGHT SWITCH DIM *
REMOTE RUN IND.
120 VAC LINE
120 VAC NEUTRAL
GROUND
MOTOR FEED
MOTOR
TAPE DECK
LAMP
LAMP
EXCITER
EXCITER
HOLD FOR I/L (ALARM)
C.O. FEED
C.O. OPEN
C.O. CLOSE
C.O. CLOSE (NC HOLD TYPE)
12 VDC
120 VAC SWITCHED
GROUND



CAM SETTINGS



SYMBOLS

- ⏚ --- GROUND
- ◁ --- DC POSITIVE
- ✳ --- FOOTNOTES
- ⅄ --- PULSE

SWITCHES

- PB1—POWER
- PB2-START
- PB3-MODE
- PB4-STOP
- S1 – MOTOR
- S2-LAMP
- S3-EXCITER
- S4-CHANGEOVER
- S5-LIGHTS
- S6-MASKING

12 VDC RELAYS

- K1-POWER
- K2-C.O. OPEN
- K3-C.O. CLOSE
- K4-START
- K5-EXCITER
- K6-FAILSAFE
- K7-LIGHTS UP

T1-TRANSFORMER

F1-3AG-2 AMP FUSE
CT1-CAM TIMER

NOTES

✳ CONNECT DIMMER FEED TO 8,13,15,19; DIM. TO 16,21 ; HALFLIGHT TO 9 ; BRIGHT TO 14,20. IF NO HALFLIGHT, CONNECT BRIGHT TO 9,14,20. USE INBOARD CUE FOR EARLY LIGHTS.

2✳ CAM SWITCHES 1-3 ARE WIRED AS SHOWN ON CT1. TO SET CAMS FOLLOW DIAGRAM ABOVE.

XETRON

TOLERANCES	PROJECT: AUTOMATION	SCALE: NONE	DRAWN BY: C.R.	APPROVED
	TITLE: MAXI-9XDC SCHEMATIC			
DATE: 1-6-87	ORIGINAL NUMBER: XAK-060			

XETRON®

XETRON 35MM CUE DETECTOR PARTS LIST

MAY 1987

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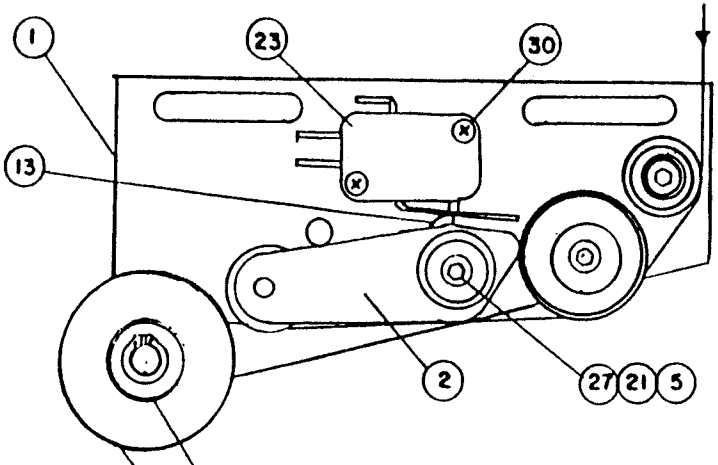
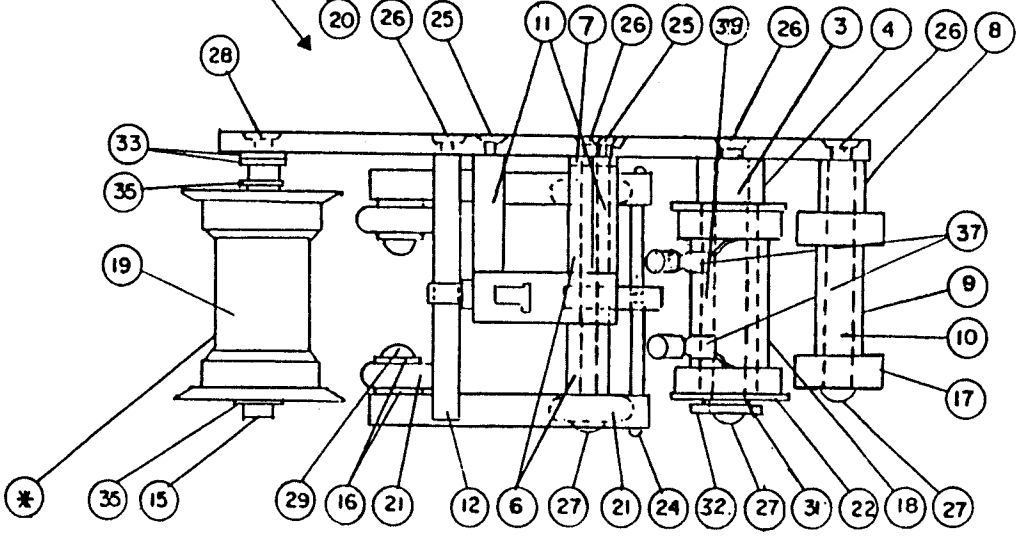
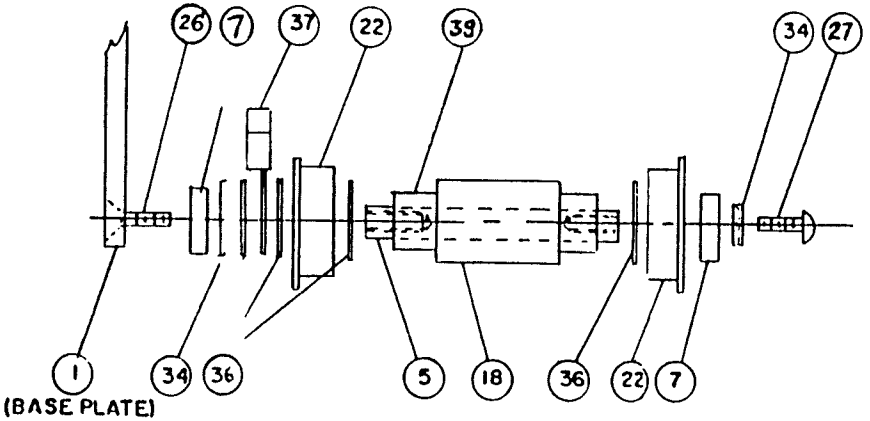
	XETRON PART #	QUANTITY 2 Cue	QUANTITY 3 Cue	DESCRIPTION
(1)	XAK-018	1		Base Plate
(2)	XAK-019	2		Failsafe Arm
(3)	XAK-028	1		Shaft-Cue Roller
(4)	XAK-026	1		Spacer-Plastic
(5)	XAK-023	1	2	Shaft-Failsafe Arm Pivot-3rd Cue Shaft
(6)	XAK-022	2		Spacer-Failsafe Arm Pivot Shaft, Inner & Outer
(7)	XAK-024	1	3	Spacer-Failsafe Arm Pivot-3rd Cue Shaft
(8)	XAK-029	1		Spacer-Grounding Roller Inner, Aluminum
(9)	XAK-032	1		Spacer-Grounding Roller-Center, Aluminum
(10)	XAK-031	1		Grounding Roller Shaft
(11)	XAK-034	2		Standoff-Failsafe Micro-Switch
(12)	XAK-033	1		Stop-Arm Upper Limit
(13)	XAK-021	1		Stop-Arm Lower Limit
(14)	XAK-046	1		American Bracket-Mounts To Lower Film Magazine Mounting Bolts (not shown) For Mounting Cue-Detector
(15)	XNR-020	1		Exit Roller Shaft
(16)	XAK-062	4		Nylon Shoulder Spacer-Failsafe Arm Bearing
(17)	XAK-059	2		Grounding Roller Bearing
(18)	XAK-025B	1	2	Bearing Spacer-Nylon
(19)	XNR-015	1		Roller-Exit (Roller Only)
(20)	XNR-015BRG	2		Bearing-Exit Roller
(21)	XAK-057	4		Bearing-Failsafe Pivot & Idler
(22)	XAK-058	2	4	Cue Bearing (Flanged)
(23)	XAK-056	1		Micro Switch
(24)	XAK-020	2		Stop Pin-Failsafe Arm
(25)		2		4-40 X 3/8 Lg. Flat Head Screw
(26)		4	5	8-32 X 3/8 Lg.Flat Head Socket Screw
(27)		3	4	8-32 X 3/8 Lg. Buttonhead Socket Cap Screw
(28)		1		10-32 X 3/8 Lg. Flat Head Screw
(29)		2		10-32 X 1/2 Lg. Buttonhead Socket Cap Screw
(30)		2		4-40 X 5/8 Lg. Round Philips Head Screw
(31)		1		Blk. Nylon Washer 8-32 X 3/8
(32)		1		White Nylon Washer 8-32 I.D. X 9/16 O.D.
(33)		2		Washer-Metal 8-32 X 3/8
(34)			1	Washer-Nylon 3/8 I.D. X 5/8 O.D.
(35)		2		"C" Clip 1000 X 31
(36)			4	Washer-Metal 3/8 I.D. X 5/8 O.D.
(37)	XAK-100	2	3	Lug
(38)	XAK-101	1		Harness-5 Wire (not shown) Same For 3rd Cue
(39)	XAK-025A	1	2	Insulator-Nylon
	XAK-099 Assy	1		2 Cue Exit Roller, Bearings & Shaft Assembly Including 15, 19, 28, 33 & 35. Note-On Existing Failsafes Mounting Screw Hole Will Have To Be Enlarged To 10/32 Pass Thru.







TRIPLE CUE ASSEMBLY

* 35MM OR TRIPLE CUE

XETRON

TOLERANCES	PROJECT	SCALE	DRAWN BY	APPROVED
	CUE DETECTOR	FULL	J.K.	
	TITLE 35MM AND TRIPLE UNIVERSAL CUE DETECTOR FAILSAFE ASSEMBLY			
DATE 5/12/87	DRAWING NUMBER XAK-096			

XETRON CORPORATION, Ten Saddle Rd., Cedar Knolls, NJ 07927 U.S.A. Telephone (201) 267-8200