



Naughty Boy

CINEMATRONICS
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WILLES

**OPERATION AND MAINTENANCE
MANUAL**

**CINEMATRONICS, INC.
1841 FRIENDSHIP DRIVE
EL CAJON, CA 92020
(714) 562-7000**

**TELEX: CINEMAT ELCJ 697891
CALL TOLL FREE: (800) 854-2666
IN CALIFORNIA CALL: (714) 562-7000
SALES: 8-5 (PST) WEEKDAYS
SERVICE: 8-5 (PST) WEEKDAYS**

NAUGHTY BOY
GAME MANUAL

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CINEMATRONICS, INC.

WARNING:

This equipment generates, uses, and can radiate radio frequency energy; and, if not installed and used in accordance with the Instruction's Manual, may cause interference to radio communication. As temporarily permitted by regulation, it has not been tested for compliance pursuant to Subpart J of Part 15 of FCC rules, which is designed to provide reasonable protection against such interference. Operation of this equipment in a residential area is likely to cause interference in which case the user at his own expense will be required to take whatever measures may be required to correct the interference.

WARRANTY

Cinematronics, Inc. warrants the goods to be free from defects in material and workmanship under normal use and service for a period of ninety (90) days from the date of shipment from factory. Cinematronics makes no representation or warranties concerning the goods whether express or implied by operation of law or otherwise, including those of merchantability or fitness for any particular purpose, or with respect of patent infringement, except as may be specifically made herein. Cinematronics limits its warranty obligations herein to the repair or replacement of such parts which have been returned to Cinematronics' plant at purchaser's expense and which examination shall disclose Cinematronics' satisfaction to have been so defective and to the shipment of such repaired or replacement parts to the purchaser F.O.B. the shipping point.

This warranty does not apply to any Cinematronics' product which has been altered or repaired by unauthorized personnel or service facilities or any products which have had the unit serial number altered or removed.

Upon acceptance of the goods, the purchaser agrees to assume all liability for damages and/or bodily injury by the purchaser or any other person and to hold Cinematronics, Inc. harmless from liability or claims arising from the use of the goods by any person. Purchaser further agrees to indemnify Cinematronics, Inc. from any liability, claim, cause of action or litigation resulting from the use or misuse of the goods by any person.

Parts returned for warranty service must be packaged so that no damage is incurred during the shipment. Full documentation and instructions must accompany returned parts. Parts must be shipped prepaid to:

Cinematronics, Inc.
1841 Friendship Drive
El Cajon, CA 92020

**CUSTOMER SERVICE PROCEDURES
FOR AUTHORIZED CINEMATRONICS' DISTRIBUTORS**

It is the desire of Cinematronics, Inc. to provide efficient and courteous service should the need arise. We have a fully staffed Customer Service Department and encourage you to call our toll-free number: (800) 854-2666 for technical assistance between the hours of 8:00 A.M. and 5:00 P.M., California time, Monday through Friday.

In order to provide the very best service possible, the following procedure for ordering or returning parts must be followed:

1. All equipment ordered from Customer Service, whether in or out of Warranty, must be placed with a Distributor's purchase order, either by mail or verbally by telephone.
2. Advance replacement items may be obtained only during the term of the Warranty and when such items are available, using the same procedure as when ordering parts. When ordering a PCB, please include with your order the game serial number and the number of the PCB you wish replaced.
3. All items received as advance replacements will, after a period of thirty (30) days, become the property of the Distributor, with applicable charges applied in the event Customer Service has not received the defective item against which the advance replacement was made.
4. The Distributor must call this facility for an RMA number prior to returning any item. Please be prepared to provide us with the game serial number and the PCB number when requesting an RMA.
5. In all situations covered above, and in all other situations, the Warranty offered by Cinematronics, Inc. is applicable and should be fully understood.
6. Parts returned for service must be packaged so that no damage is incurred during the shipment. Cartons without a prominently displayed RMA number will not be accepted. Full

documentation including game serial number, PCB number on outside of package, and reason for return must accompany parts. Ship prepared to:

Cinematronics, Inc.
Customer Service Department
1841 Friendship Drive
El Cajon, CA 92020

(800) 854-2666

(714) 562-7000

RECEIVING AND INSTALLING

RECEIVING INSPECTION

Your game was shipped in ready-to-play condition. However, after removal of the shipping carton, a brief visual examination is suggested.

Naturally, you will want to make note of any physical damage to the game cabinet and its external components for freight claim purposes. Considering the quality of the shipping carton, any damage to the exterior would indicate possible interior damage as well.

The interior of the game should also undergo a brief examination for: loose mounting hardware (check to be sure that the major components are still securely mounted); disconnected or loose wires, cables or harnesses; electronic devices loose in their sockets; etc.

At this time the game serial number should be logged. Remember that the game serial number will be required if you need service from your distributor. Please complete the postage-free reply card and mail immediately.

ELECTRICAL REQUIREMENTS

Unless specified otherwise, your game was shipped to operate at 115 VAC, 50/60 Hz.

A good earth ground is essential for the proper operation of this game or for that matter, any electronic device. Problems with instability and erratic operation of computer-type devices can usually be traced to an ineffective ground system. Therefore, plug the game into a properly wired three prong outlet. If a three prong to a two prong AC adaptor must be used, an alternate method of grounding the third prong must be used.

NAUGHTY BOY
GAME DESCRIPTION

GAME PLAY

Game play for Naughty Boy proceeds through four different screens. These screens will appear in sequence. Each time a player successfully maneuvers through all four screens, the screens repeat their appearance, with more objects moving at higher speeds. In addition, after successfully completing even numbered rounds, the player is awarded a bonus round.

SCREEN ONE

This screen begins with Naughty Boy standing in a forest. In front of him are several monsters. There is also a safety zone that can be entered through two red doors, which the monsters cannot enter. The same type of doors appear on fences along the side of the screen. Naughty Boy can appear on the other side of the screen by passing through one of these doors.

As Naughty Boy moves towards the top of the screen, the images scroll downwards. Above the forest is a series of fences, then a group of ponds, and finally, walls of a fortress. Some goblins guard the top portion of the screen.

Naughty Boy must maneuver his way through the forest, past the fences and ponds and destroy the flags that are flying on the fortress. The player controls Naughty Boy with a four position joystick. In addition, a throw button allows the player to throw rocks at objects to destroy them.

Naughty Boy must avoid contact with the monsters and goblins or he will be destroyed. Also, a dragon will randomly appear on the ponds breathing fire. If Naughty Boy is hit by the fire, he will be destroyed.

The safety zone allows Naughty Boy to attack the monsters and goblins without danger by throwing rocks at them outside. A timer begins to decrease whenever Naughty Boy is inside the

safety zone. Once the timer reaches zero, the red doors disappear and Naughty Boy can be attacked.

Periodically, a question mark will appear on the screen. If Naughty Boy hits the question mark with a rock, he will become invincible to attack from the monsters and goblins for a short time. Naughty Boy can still be destroyed by the dragon. After the question mark is hit, different objects will appear in the same spot. These objects will score bonus points when hit with rocks.

Once Naughty Boy reaches the fortress, he must hit all the flags with rocks. Two flags can be destroyed with one throw, if the rock lands in between two flags. Once all the flags are destroyed, Naughty Boy will proceed to the next screen.

If Naughty Boy is destroyed before he is able to destroy all the flags, he will reappear at the starting position of the screen he is currently in. Any flags destroyed by Naughty Boy remain destroyed.

Naughty Boy always throws in the direction that he is facing. The distance a rock is thrown is determined by how long the throw button is depressed.

SCREEN TWO

This screen is an open field. A safety zone is in the center of the field. Monsters and goblins are scattered around the field. Robots guard the fortress at the top of the screen.

Play proceeds as in the first screen. The dragon appears randomly in the field above the safety zone. Once all the flags are destroyed, Naughty Boy will appear in the next screen.

SCREEN THREE

Naughty Boy begins his adventure in the center of a maze. Goblins and monsters will chase Naughty Boy through the maze. At the top of the maze is the safety zone. Above the safety zone is the fortress. No dragons appear in this screen.

SCREEN FOUR

In this screen Naughty Boy is standing between the safety zone and some ponds. The dragon will randomly appear in the ponds. Above the ponds is a series of fences and walls. Once Naughty Boy passes through these, he reaches the fortress.

If all the flags are destroyed in this screen, Naughty Boy will appear in Screen One. However, Naughty Boy must fight more objects which are moving faster. This is true for every screen that Naughty Boy goes through.

BONUS PLAY

After successfully completing even numbered rounds, the player is given a bonus play. During bonus play, Naughty Boy flies back and forth at the top of the screen in a balloon. A fuel gauge above the balloon indicates how much bonus play is left. At the bottom of the screen, a female monster runs back and forth.

Naughty Boy throws objects out of the balloon and tries to hit the monster on the head. If the monster is struck, she changes expressions momentarily. The fuel gauge decreases as play proceeds. Play continues until the fuel runs out.

Play continues until all of a player's Naughty Boys are destroyed. A player can earn one extra Naughty Boy based upon his score achieved and the operator adjustable level selected.

SCORING

Monsters, Goblins & Robots	- 250 Points to 9000 Points
Flags	- 200 Points to 2000 Points
Bonus Objects	- 500 Points to 9000 Points

FEATURES

1. Number of Naughty Boys per game operator adjustable is 2, 3, 4 or 5.

2. Point level at which the extra Naughty Boy is awarded is operator adjustable at 10,000, 30,000, 50,000 or 70,000 points.

3. Four coinage options.
4. Easy/hard switch for longer game life.
5. Four different screens and bonus play round.
6. Fifty difficulty levels.
7. Throw distance controlled by the throw button.

NAUGHTY BOY
OPTION SWITCH SETTINGS

OPTION	FACTORY SETTING	DESCRIPTION	1	2	3	4	5	6	7	8
NUMBER OF NAUGHTY BOYS		2	ON	ON						
	X	3	OFF	ON						
		4	ON	OFF						
		5	OFF	OFF						
EXTRA BOY		10,000 Points			ON	ON				
	X	30,000 Points			OFF	ON				
		50,000 Points			ON	OFF				
		70,000 Points			OFF	OFF				
CREDITS		2 Coin, 1 Play					ON	ON		
	X	1 Coin, 1 Play					OFF	ON		
		1 Coin, 2 Play					ON	OFF		
		4 Coin, 3 Play					OFF	OFF		
DIFFICULTY	X	Easier							ON	
		Harder							OFF	
GAME TYPE		Upright								ON
		Cocktail								OFF

ROUTINE MAINTENANCE & SERVICE

Because of the solid state electronic circuitry, this machine should require very little maintenance and only occasional adjustments. However, it is necessary to take measures to ensure this.

The volume control is located on the rear of the coin door and can be accessed by opening the coin door.

The video monitor has been properly adjusted before shipping. Occasionally minor adjustments are necessary. See monitor specifications and schematics for technical information. Adjustment controls for the monitor are located at the rear of the monitor.

This machine should be serviced only by a qualified technician.

Do not make any adjustments on this machine while the power is on.

For service information, contact:

CINEMATRONICS, INC.
1841 FRIENDSHIP DRIVE
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POWER SUPPLY

The computer board in this game operates most efficiently and reliably when the power supply is set so that the voltage on the board is 5.0 volts, ± 0.1 volts. To check this, place a meter across 5 volts and ground at the edge connector. If necessary, adjust the screwdriver control on the power supply so the meter reads between 4.9 and 5.1 volts.

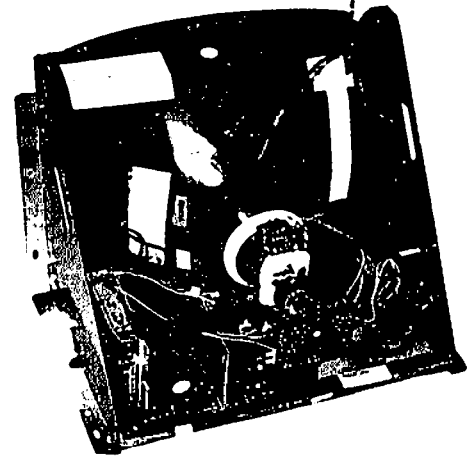
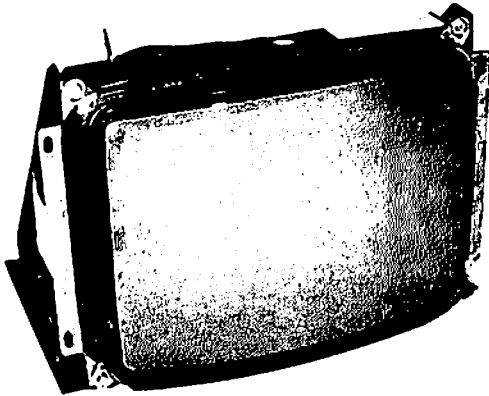


WELLS-GARDNER ELECTRONICS CORPORATION

19" IN LINE COLOR MONITORS

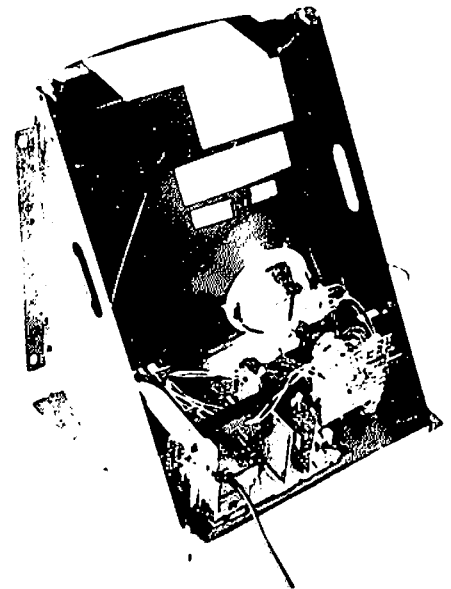
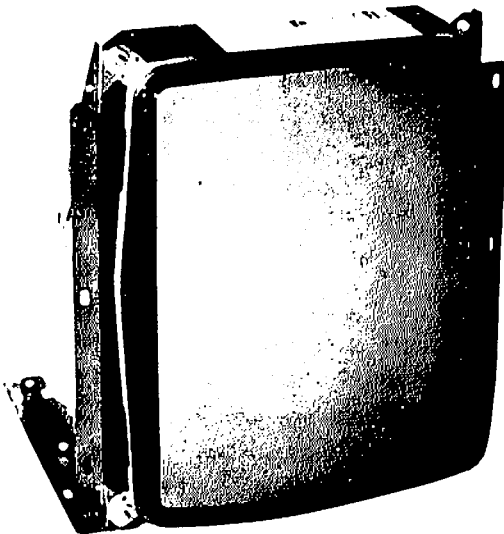
MODELS

19K4625
19K4626



MODELS

19K4675
19K4676
19K4677



WELLS-GARDNER ELECTRONICS CORPORATION

2701 NORTH KILDARE AVENUE
CHICAGO, ILLINOIS 60639

WARNINGS

1. Power Up Warning—

An isolation transformer must be used between the AC supply and the AC plug of the monitor before servicing or testing is performed since the chassis and the heat sink are directly connected to one side of the AC line which could present a shock hazard.

Before servicing is performed, read all the precautions labelled on the CRT and chassis.

2. **X-RAY RADIATION WARNING NOTICE**

WARNING: PARTS WHICH INFLUENCE X-RAY RADIATION IN HORIZONTAL DEFLECTION, HIGH VOLTAGE CIRCUITS AND PICTURE TUBE ETC. ARE INDICATED BY (★) IN THE PARTS LIST FOR REPLACEMENT PURPOSES. USE ONLY THE TYPE SHOWN IN THE PARTS LIST.

3. High Voltage—

This monitor contains HIGH VOLTAGES derived from power supplies capable of delivering LETHAL quantities of energy. Do not attempt to service until all precautions necessary for working on HIGH VOLTAGE equipment have been observed.

4. CRT Handling—

Care must be taken not to bump or scratch the picture tube as this may cause the picture tube to implode resulting in personal injury. Shatter proof goggles must be worn when handling the CRT. High voltage must be completely discharged before handling. Do not handle the CRT by the neck.

5. **PRODUCT SAFETY NOTICE**

WARNING: FOR CONTINUED SAFETY REPLACE SAFETY CRITICAL COMPONENTS ONLY WITH MANUFACTURER RECOMMENDED PARTS. THESE PARTS ARE IDENTIFIED BY SHADING AND BY (Δ) ON THE SCHEMATIC DIAGRAM.

AVERTISSEMENT: POUR MAINTENIR LE DEGRE DE SECURITE DE L'APPAREIL NE REMPLACER LES COMPOSANTS DONT LE FONCTIONNEMENT EST CRITIQUE POUR LA SECURITE QUE PAR DES PIECES RECOMMANDEES PAR LE FABRICANT.

For replacement purposes, use the same type or specified type of wire and cable, assuring the positioning of the wires is followed (especially for H.V. and power supply circuits). Use of alternative wiring or positioning could result in damage to the monitor or in a shock or fire hazard.

PERFORMANCE AND OPERATING DATA

1. Apply a suitable power source to the monitor through an isolation transformer.
2. Apply a suitable signal source to the monitor PCB by means of P205.
3. Set Up Controls.
All controls are preset at the factory, but may be adjusted to suit program material.

1.0 Supply

Voltage	108 VAC-132 VAC
Frequency	50 Hz-60 Hz

Note: Apply supply voltage through an isolation transformer with 1 Amp. minimum capability.

2.0 High Voltage (EHT)

For 19"V models 25.5 ± 0.8 K.V. at 0 Beam

Note: Condition for above 1 (beam) = 0
A.C. = 120V

3.0 Service Set-Up Controls

POWER PC BOARD

- 3.1 Voltage Adjustment, VR501 (Set for 127V DC)

VERT/HORIZ PC BOARD

- 3.2 Vertical Hold Control, VR301
- 3.3 Vertical Size Control, VR302
- 3.4 Horizontal Oscillator Coil, L351
- 3.5 Horizontal Hold Control, VR351

MAIN PC BOARD

- 3.6 Vertical Raster Position Adjustment, J604 (3 positions)
- 3.7 Horizontal Raster Position Adjustment, J608 (3 positions)

INTERFACE PC BOARD

- 3.8 Black Level Control, VR201
- 3.9 Horizontal Video Position Control, VR202

NECK PC BOARD

- 3.10 Video Drive Controls, Red VR401
Green VR402
- 3.11 CRT Cut Off Controls, Red VR403
Green VR404
Blue VR405

- 3.12 Screen Control, VR406

CHASSIS

- 3.13 Focus Control, VR702
- 3.14 Horizontal Width Coil, L702

SERVICE INSTRUCTIONS

NOTE: All monitors are equipped with automatic degaussing coils (L701) which demagnetize the picture tube every time the monitor is turned on after being off for a minimum of 5 minutes. Should any part of the chassis become magnetized it will be necessary to degauss the affected area with a manual degaussing coil. Move the coil slowly around the CRT face area then slowly withdraw for a distance of 6 feet before turning off.

1.0 + 127V ADJUSTMENT (See Fig. 1)

The + 127V adj. control (VR501) is adjusted at the factory. However, if readjustment should be required, proceed as follows.

- 1.1 Operate monitor for at least 15 minutes at 120V AC line.
- 1.2 Connect Positive lead of V.T.V.M. to blue lead of TR502 negative lead to chassis ground.
- 1.3 Adjust VR501 to obtain + 127V reading.
- 1.4 After adjustment VR501 must be locked with a sealing varnish.

2.0 BLACK LEVEL CONTROL ADJUSTMENT

This control has been set at the factory and should not need further attention, however, when the game is connected a slight adjustment of VR201 may be necessary to obtain the proper black level (the black portion of the picture just extinguished).

3.0 VERTICAL SIZE (HEIGHT)

The vertical height control is a screw-driver adjustment. Location of this control is shown in Fig. 2. This control must be adjusted slowly, if necessary, until the picture or test pattern attains the correct vertical proportions.

4.0 CIRCUIT PROTECTION

A 3.0A pigtail fuse, mounted on the Main Board has been provided to protect the Power Output Circuit.

5.0 FOCUS

Adjust the Focus control (VR702), located on the HV unit(T701), for maximum over-all definition and fine picture detail.

6.0 HORIZONTAL OSC. ALIGNMENT (See Fig. 2)

A warm-up period of at least five minutes should be allowed before alignment is carried out. With the monitor being driven from the game signal, set VR351 to its mechanical center and short the lower end of R328 (TP32) to ground. Adjust L351 until picture stops sliding horizontally. Remove the short.

7.0 HORIZONTAL VIDEO POSITION

If the video is off center on the raster some compensation can be made by adjusting this control.

8.0 VERTICAL RASTER POSITION ADJUSTMENT

If the video is off center vertically, (short dimension of picture tube) some compensation can be made by moving J604 to either No.1 or No. 3 of P604. Position No. 1 moves raster up and position No.3 moves raster down.

9.0 HORIZONTAL RASTER POSITION ADJUSTMENT

If the video is off center horizontally (long dimension of picture tube) some compensation can be made by moving J608 to either No. 1 or No. 3 of P608. Position No. 1 moves raster to the left and position No. 3 moves raster to the right.

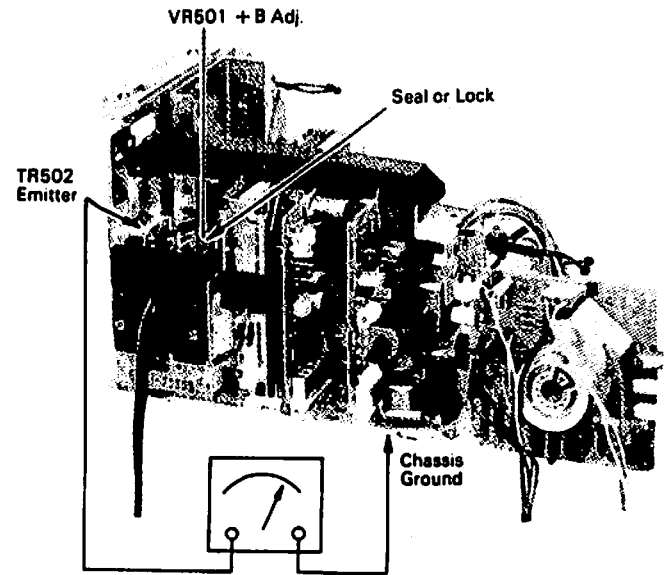


FIGURE 1

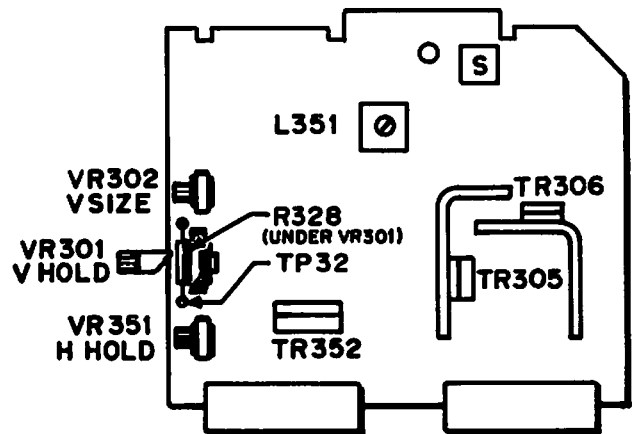


FIGURE 2
VERT./HORIZ. BOARD

INSTALLATION AND SERVICE INSTRUCTIONS

OUTLINE OF CONVERGENCE AND SET-UP PROCEDURE

- 1.0 Degaussing-Demagnetize shadow mask with external degaussing coil.
 - 2.0 Purity and Vertical Centering—Adjust purity magnet and yoke position.
 - 3.0 Static Convergence-Converge Red and Blue on Green in center of screen.
 - 4.0 Dynamic Convergence-Converge Red and Blue at edges of screen.
 - 5.0 White Balance-Set Gray and White brightness tracking.
- NOTE: Number 2.0 and 3.0 adjustments interact.

1.0 DEGAUSSING

The monitor is equipped with an automatic degaussing circuit. However, if the CRT shadow mask has become excessively magnetized, it may be necessary to degauss it with manual coil. Do not switch the coil OFF while the raster shows any effect from the coil.

2.0 COLOR PURITY AND VERTICAL CENTERING ADJUSTMENT

- 2.1 For best results, it is recommended that the purity adjustment be made in the final monitor location. If the monitor will be moved, perform this adjustment with it facing west or east. The monitor must have been operating 15 minutes prior to this procedure and the faceplate of the CRT must be at room temperature.
- 2.2 Set the converger assembly on the CRT neck with the center line (of the Purity Adjustment Magnet) over the gap between grids no. 3 & 4. (See Figure 3).
- 2.3 Make certain that the magnetic ring-pairs are in their correct positions before starting procedure. This produces a zero-correction state and helps facilitate adjustments.
- 2.4 Models which have vertical raster position adjustment, J604 must be in position #2 (center) of P604.
- 2.5 Remove R-G-B signal from monitor.
- 2.6 Turn Green Cut off Control (VR404) on the Neck Board fully CCW. (See Fig. 4)
- 2.7 Turn Red and Blue Cut off Control (VR405) fully CW.
- 2.8 Pull the Deflection Yoke backward so that the Magenta belt will appear. (See Fig. 5)
- 2.9 Move the two Purity Magnets and bring the Magenta belt to the mechanical center of the screen.
- 2.10 Push the Deflection Yoke forward gradually and fix it at the place where the Magenta screen becomes uniform throughout.
- 2.11 Turn Cut off Control, and Drive Control and confirm that each color is uniform.
- 2.12 If the color is not uniform, re-adjust it moving Purity Magnets slightly.
- 2.13 Move a pair of Purity Magnets at the same time (do not change the angle of the pair), and adjust the vert. center to center of screen.
- 2.14 Obtain the three colors and confirm whether white uniformity is balanced.
- 2.15 Insert the temporary wedge as shown in Fig. 5 and adjust the angle of Deflection Yoke.

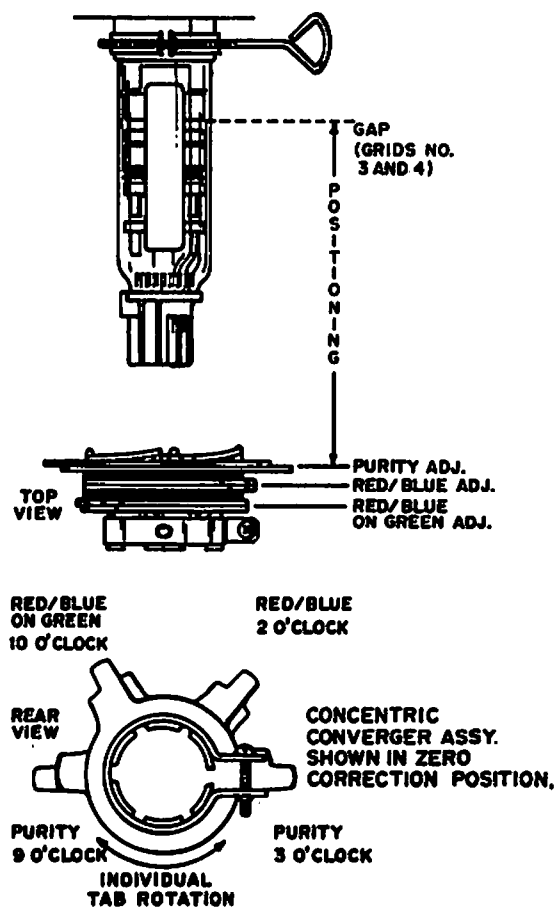


FIGURE 3

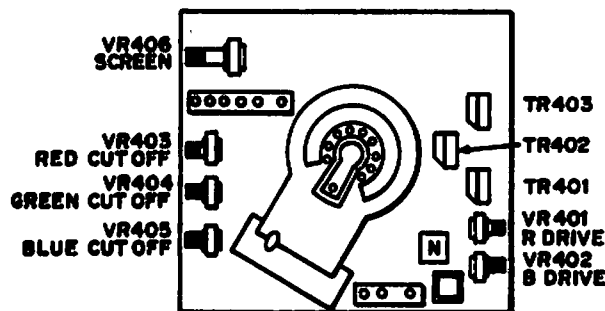


FIGURE 4

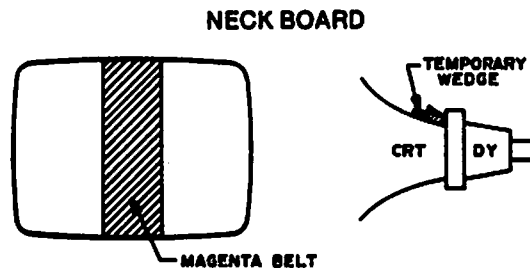


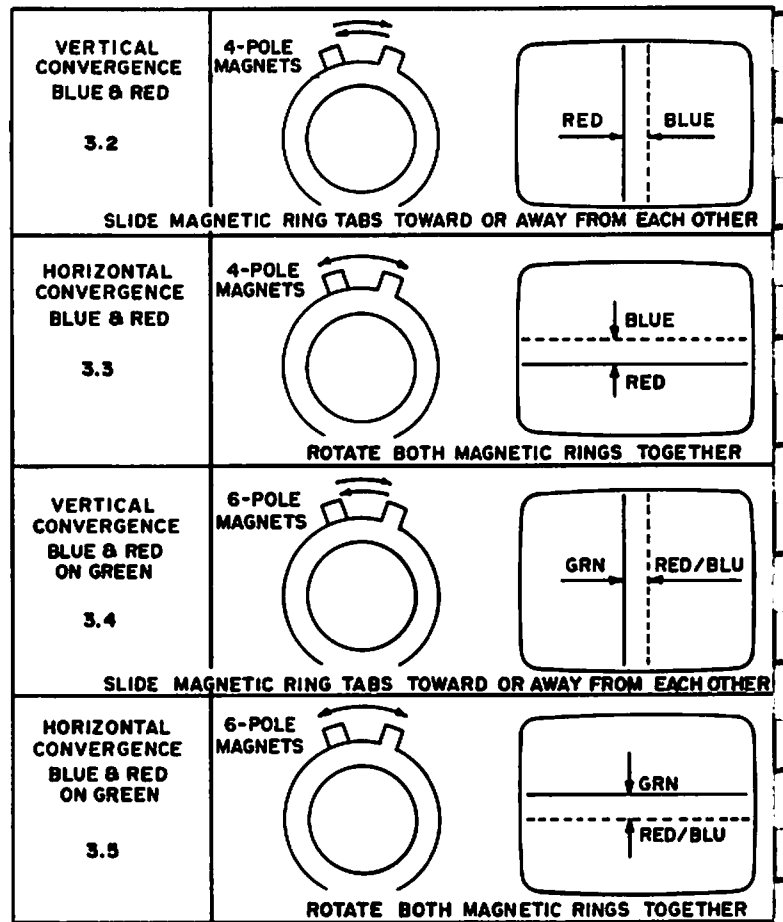
FIGURE 5

3.0 STATIC CONVERGENCE ADJUSTMENT

A recently developed Deflection Yoke and Electron Guns construction has been used on this equipment in combination with In-Line Guns and Black Stripe Screen to make a barrel-type magnetic field distribution for vertical deflection and a pin-cushion-type magnetic field for horizontal deflection with which a self-converging system can be obtained. This type is different from conventional unity-magnetic field distribution type deflection yoke. 4-Pole Magnets and 6-Pole Magnets are employed for static convergence instead of a Convergence Yoke.

- 3.1 A cross hatch signal should be connected to the monitor.
- 3.2 A pair of 4-Pole Convergence Magnets are provided and adjusted to converge the blue and red beams. When the Pole opens to the left and right 45° symmetrically, the magnetic field maximizes. Red and blue beams move to the left and right oppositely (See Fig. 6) Variation of the angle between the tabs adjusts the convergence of red and blue vertical lines.
- 3.3 When both 4-Pole Convergence Magnet Tabs are rotated as a pair, the convergence of the red and blue horizontal lines is adjusted.
- 3.4 A pair of 6-Pole Convergence Magnets are also provided and adjusted to converge the magenta (red + blue) to green beams. When the Pole opens to the left and right 30° symmetrically, the magnetic field is maximized. Red and blue beams both move to the left and right (See Fig. 6). Variation of the opening angle adjusts the convergence of magenta to green vertical lines.
- 3.5 When both 6-Pole Convergence Magnet Tabs are rotated as a pair the convergence of magenta to green horizontal lines is adjusted.

GREEN GUN IS THE CENTER GUN.
CONVERGE THE RED AND BLUE.
THEN CONVERGE RED AND BLUE ON GREEN.



REPEAT 3.2 & 3.3 IF ALL LINES ARE NOT CONVERGED AT CENTER

5827

FIGURE 6

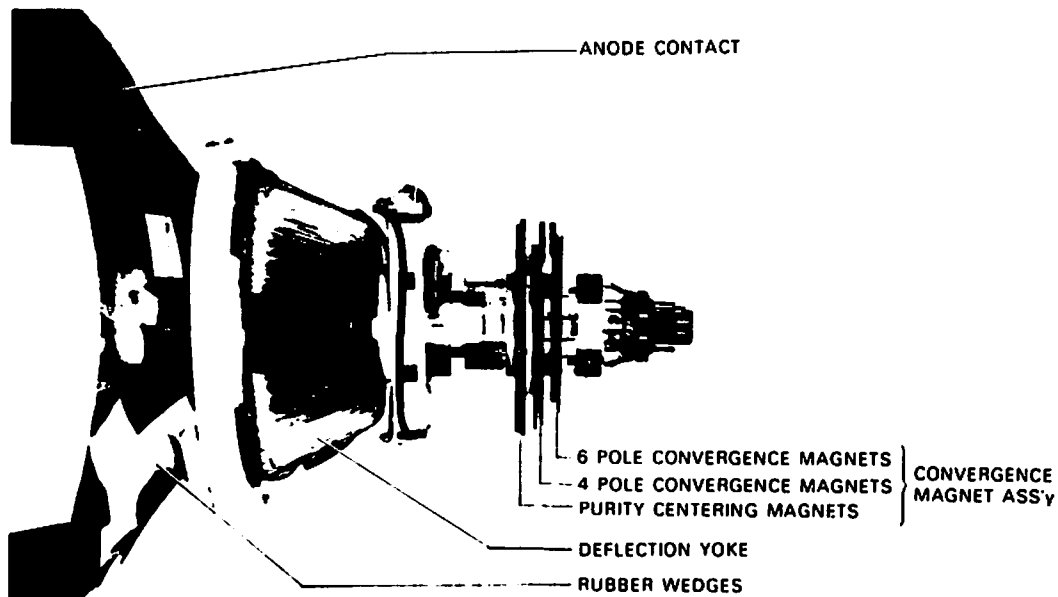


FIGURE 7

4.0 PRECISE ADJUSTMENT OF DYNAMIC CONVERGENCE (See Fig. 9 and 10)

- 4.1 Feed a cross hatch signal to the monitor.
- 4.2 Insert the temporary wedge and fix Deflection Yoke so as to obtain the best circumference convergence (See Fig. 9 and 10)

NOTE:

The temporary wedges may need to be moved during adjustments.

- 4.3 Insert three rubber wedges to the position as shown in Fig. 8 to obtain the best circumference convergence.

NOTE:

- 1) Tilting the angle of the yoke up and down adjusts the crossover of both vertical and horizontal red and blue lines. See Fig. 9 (a) and (b).
- 2) Tilting the angle of the yoke sideways adjusts the parallel convergence of both horizontal and vertical lines at the edges of the screen. See Fig. 10 (a) and (b).
- 3) Use three rubber wedges (thick and thin rubber wedges are used for a purpose).
- 4) The angle of each rubber wedge is shown in Fig. 8.
- 5) After three rubber wedges have been inserted, pull out the temporary wedge.
- 6) Fix the rubber wedges with chloroprene rubber adhesive.

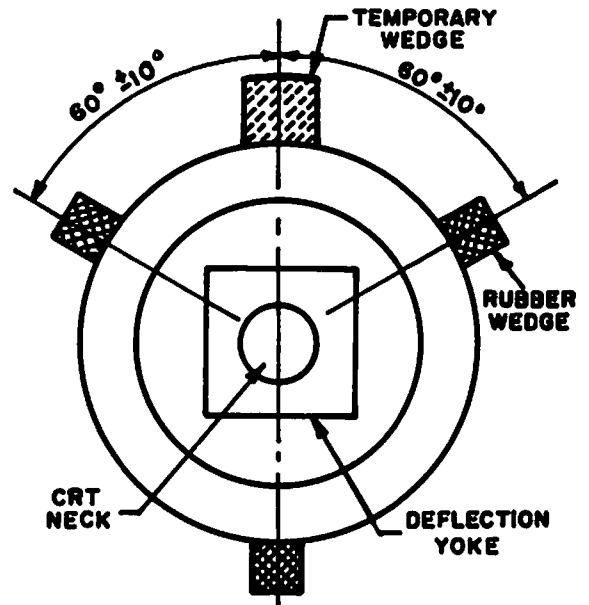
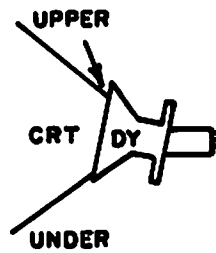
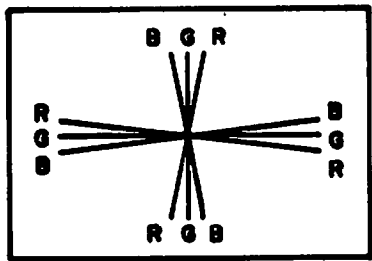
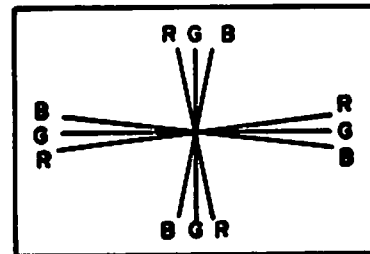


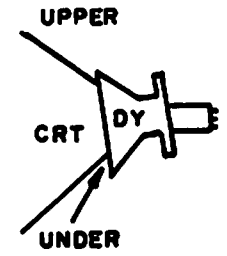
FIGURE 8



INSERT RUBBER WEDGE FROM UPPER SIDE

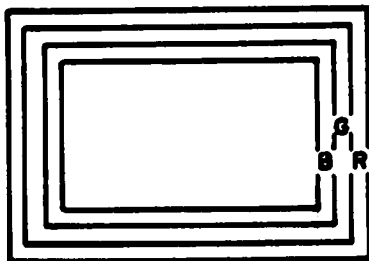


CRT SCREEN (b)

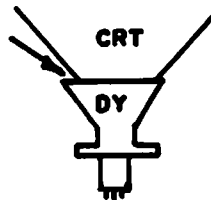


INSERT RUBBER WEDGE FROM LOWER SIDE

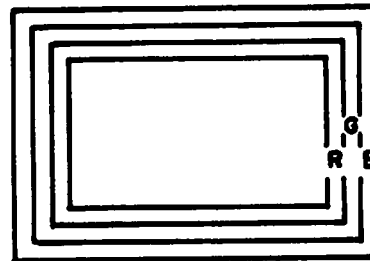
FIGURE 9



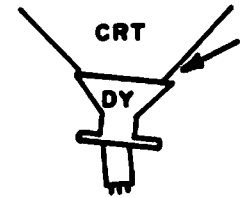
CRT SCREEN (a)



INSERT RUBBER WEDGE FROM LEFT SIDE



CRT SCREEN (b)

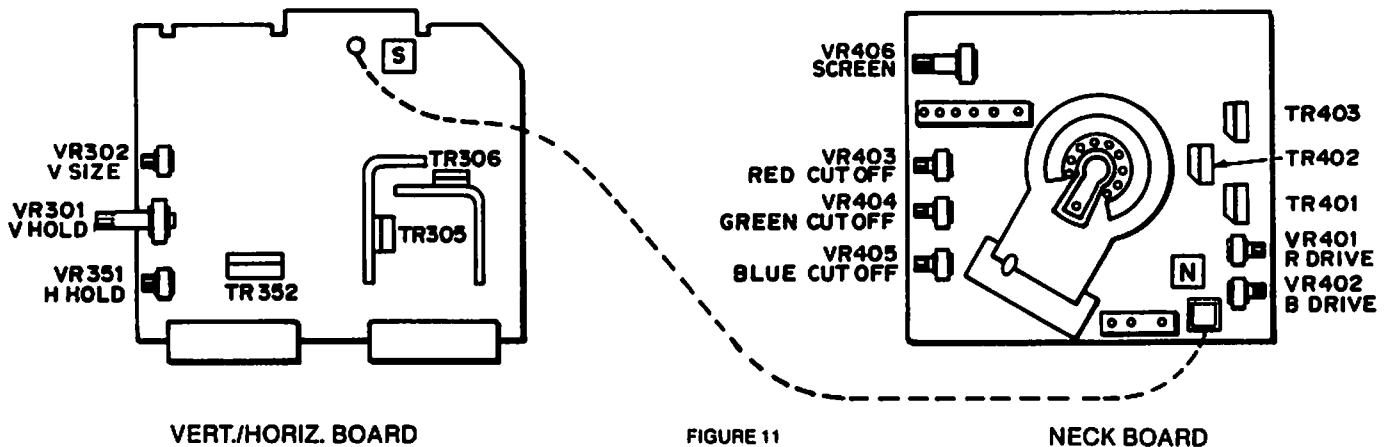


INSERT RUBBER WEDGE FROM LOWER SIDE

FIGURE 10

5.0 WHITE BALANCE

- 5.1 Refer to Fig. 11. and do the following in subdued light.
- 5.2 Ground the R/G/B inputs.
- 5.3 Set the R/B drive controls to their mechanical center.
- 5.4 Set the screen and R/G/B cutoff controls to minimum (fully CCW).
- 5.5 Insert service tip "N" on Neck PCB to "S" on Vert/ Horiz. PCB (see Fig. 11).
- 5.6 Slowly turn the screen control (CW) until the first faint line appears. Do not touch the associated cutoff control—it will stay fully CCW.
- 5.7 Slowly turn up the two remaining cutoff controls to match the first. This should result in a white line.
- 5.8 Replace the Service Tip "N" to the Neck PCB.
- 5.9 Adjust the Black Level Control for dim raster. Touch up the cutoff controls for best gray uniformity.
- 5.10 Adjust the Black Level Control for a bright White Raster. Adjust the R/B Drive Controls if necessary for best neutral white.
- 5.11 Repeat steps 5.9 and 5.10 until good tracking of white balance is achieved.



6.0 HIGH VOLTAGE PROTECT

- 6.1 The AUTO PROTECT circuit prevents the high voltage from reaching dangerous levels should a defect such as a short circuit occur between collector and emitter of the voltage regulator transistor.
- 6.2 When the +127V DC exceeds approx. +141V DC the horizontal oscillator is shut down.
- 6.3 When the defect is removed the oscillator will not restart until the power is removed momentarily.

P.C. BOARD LAYOUT

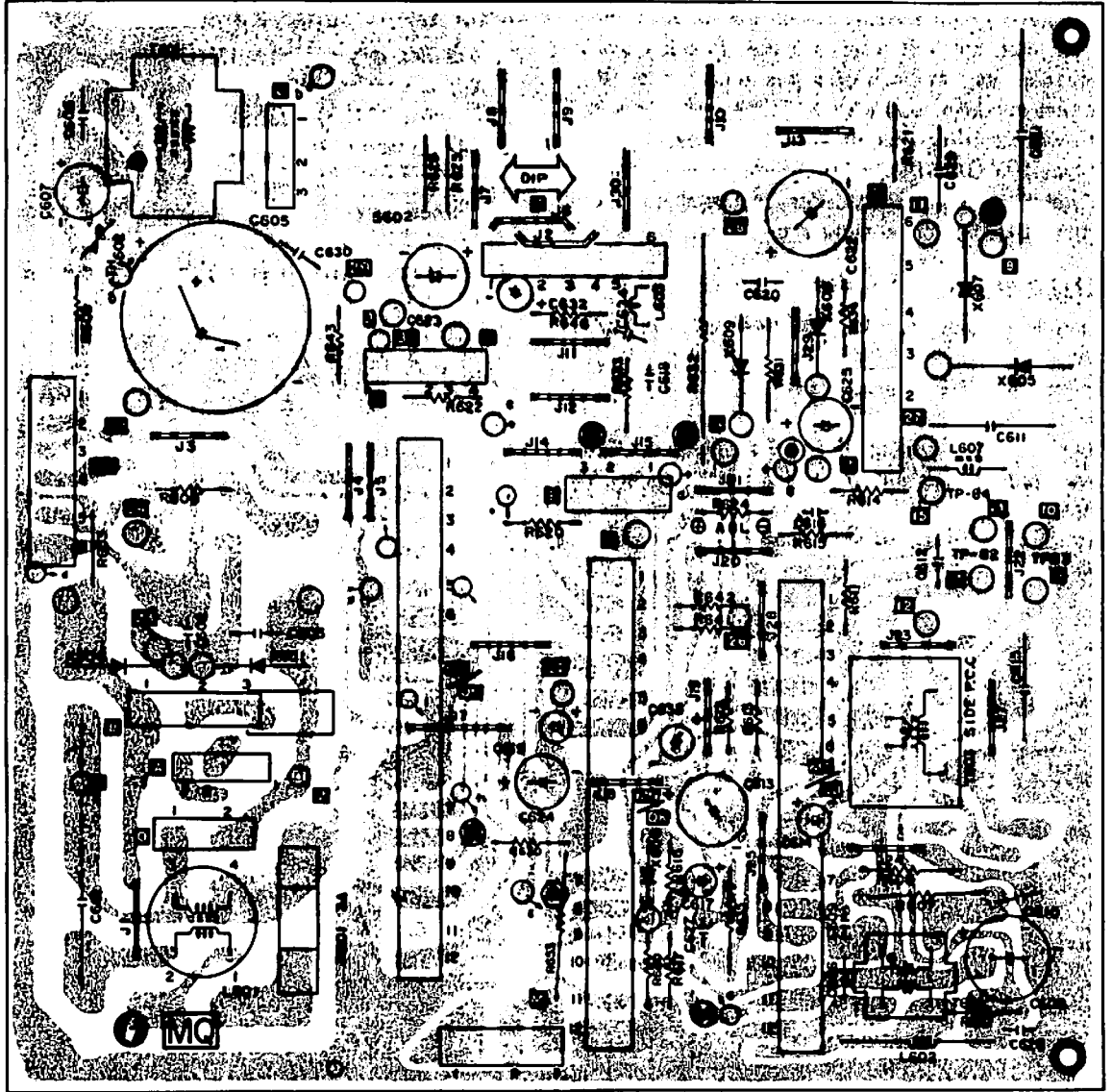


FIGURE 12. MAIN P.C. BOARD

P.C. BOARD LAYOUT

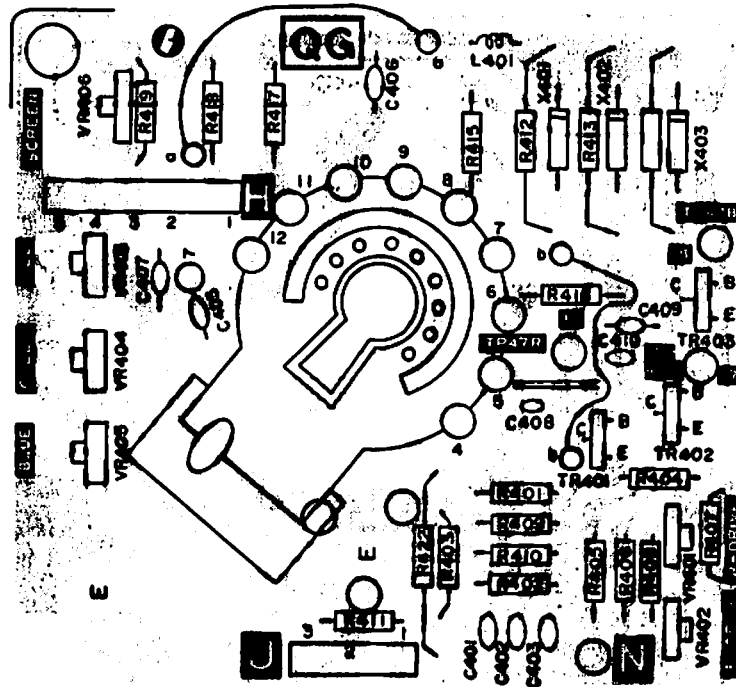


FIGURE 13. NECK P.C. BOARD

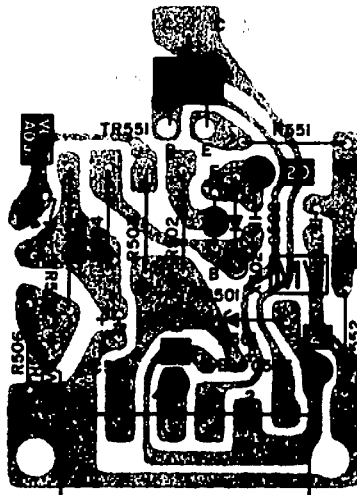


FIGURE 14. POWER P.C. BOARD

P.C. BOARD LAYOUT

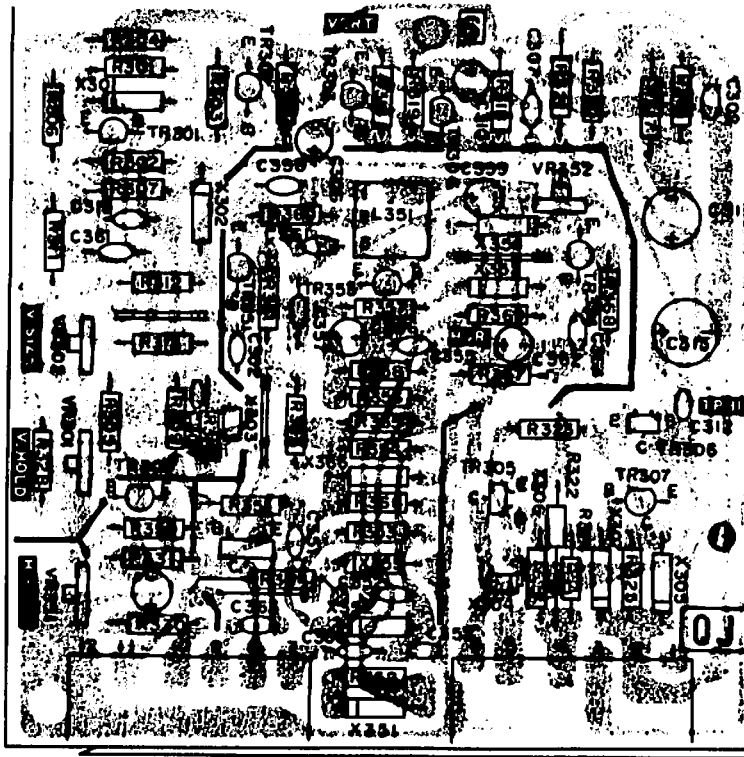


FIGURE 15. HORIZ/VERT P.C. BOARD

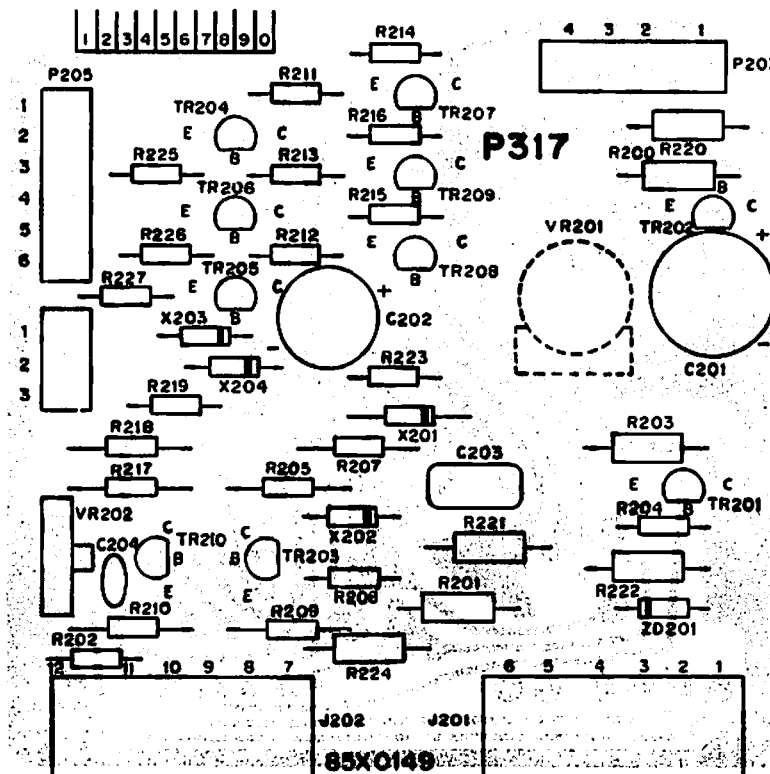


FIGURE 16. INTERFACE BOARD (P317 AND P318)

VERT/HOR BOARD (CONT.)

Ref. No.	Part No.	Description	Ref. No.	Part No.	Description
RESISTORS (CONT.)			CAPACITORS (CONT.)		
R352	203X6500-927	15k Ohm, ± 5%, 1/8W Carbon	C359	203X0040-013	4.7 uF, 160V Electrolytic
R353	203X6500-944	18k Ohm, ± 5%, 1/8W Carbon	C360	202X7000-482	0.01 uF, 50V, ± 10% Ceramic
R354	203X6500-783	3.9k Ohm, ± 5%, 1/8W Carbon	C361	203X1100-509	0.015 uF, 50V, ± 10% Mylar
R355	203X6500-902	12k Ohm, ± 5%, 1/8W Carbon	C362	203X0025-058	10 uF, 50V Electrolytic
R356	203X6500-561	470 Ohm, ± 5%, 1/8W Carbon	C363	203X1205-487	0.01 uF, 630V, ± 10% PP
R357	203X6500-724	2.2k Ohm, ± 5%, 1/8W Carbon	C364	202X7000-482	0.01 uF, 50V, ± 10% Ceramic
R358	203X6500-666	1.2k Ohm, ± 5%, 1/8W Carbon	SEMICONDUCTORS		
R359	203X6501-088	68k Ohm, ± 5%, 1/8W Carbon	TR301	200X4082-614	Transistor, 2SA826Q
R360	203X5500-471	27 Ohm, ± 5%, 1/4W Carbon	TR302	200X3174-006	Transistor, 2SC1740Q
R361	203X6000-988	1.2k Ohm, ± 5%, 1/8W Carbon	TR303	200X3174-006	Transistor, 2SA1740Q
R363	203X6500-666	1.2k Ohm, ± 5%, 1/8W Carbon	TR304	200X3174-006	Transistor, 2SC1740Q
R364	203X9014-988	47k Ohm, ± 5%, 1W M.O.	TR305	200X4049-081	Transistor, 2SA490YLBGLI
R365	203X6700-989	56k Ohm, ± 5%, 1/2W Carbon	TR306	200X3182-538	Transistor, 2SC1625YLBGLI
R366	203X6001-148	3.3k Ohm, ± 5%, 1/8W Carbon	TR307	200X3174-014	Transistor, 2SC1740R
R367	340X2222-734	2.2k Ohm, ± 5%, 1/2W Carbon	TR308	200X3174-006	Transistor, 2SC1740Q
R368	203X6500-785	3.9k Ohm, ± 5%, 1/8W Carbon	TR351	200X4085-415	Transistor, 2SA854Q
R369	203X6500-762	3.3k Ohm, ± 5%, 1/4W Carbon	TR352	200X3172-208	Transistor, 2SC1722BK5
R370	302X6100-961	1k Ohm, ± 5%, 1/4W Carbon	TR353	200X3174-006	Transistor, 2SC1740Q
R371	203X6104-751	2.7k Ohm, ± 5%, 1/4W Carbon	TR354	200X4082-614	Transistor, 2SA826Q
R383	340X2222-934	2.2k Ohm, ± 5%, 1/4W Carbon	X301	201X2010-144	Diode (Si) IS2473-T72
R384	340X2822-934	8.2k Ohm, ± 5%, 1/4W Carbon	X302	201X2010-144	Diode (Si) IS2473-T72
VR301	204X2122-093	Varistor, 250k Ohm, Vert. Hold	X303	200X8000-026	Diode (GE), IN60TVGL
VR302	204X2114-065	Varistor, 20k Ohm, Vert. Size	X304	200X8010-165	Diode (Si) ISS81
VR351	204X2114-059	Varistor, 50k Ohm, Hor. Hold	X305	201X2010-165	Diode (Si) ISS81
CAPACITORS			X306	201X2010-165	Diode (Si) 1SS81
C301	203X1100-928	0.15 uF, 50V, ± 10% Mylar	X307	200X8010-102	Diode (Si) MA26W
C302	203X1100-573	0.022 uF, 50V, ± 10% Mylar	X308	200X8010-094	Diode (Si) IS2473
C304	203X1100-858	0.1 uF, 50V, ± 10% Mylar	X351	201X2010-144	Diode (Si) IS2473-T72
C306	203X0025-026	2.2 uF, 50V, Electrolytic	X352	201X2010-144	Diode (Si) IS2473-T72
C307	203X1100-928	0.15 uF, 50V, ± 10% Mylar	X353	201X2010-144	Diode (Si) IS2473-T72
C309	203X1100-858	0.1 uF, 50V, ± 10% Mylar	X354	201X2010-144	Diode (Si) IS2473-T72
C310	203X0010-011	22 uF, 16V Electrolytic	X355	200X8220-851	Diode (Zener) RD10EBI
C311	203X0020-099	1000 uF, 35V Electrolytic	X366	200X8100-130	Diode (HS) RU-1 0.3 US
C312	202X7000-469	0.0082 uF, 50V, ± 10% Ceramic	MISCELLANEOUS		
C313	203X0025-087	47 uF, 50V Electrolytic	J301	204X9300-958	Socket, 6 Pin
C315	203X0015-082	10 uF, 25V Electrolytic	J302	204X9300-958	Socket, 6 Pin
C316	203X1100-220	3300 uF, 50V, ± 10% Mylar	P301	204X9601-195	Plug, 6 Pin
C317	202X8000-616	100 pF, 50V, ± 10% Ceramic	P302	204X9601-195	Plug, 6 Pin
C351	202X7000-281	1500 pF, 50V, ± 10% Ceramic	TH301	201X0000-534	Thermistor
C352	202X7000-247	1000 pF, 50V, ± 10% Ceramic	TRANSFORMERS & COILS		
C353	203X1100-573	0.022 uF, 50V, ± 10% Mylar	L351	201X5200-091	Coil, Horiz. Osc.
C355	203X1100-858	0.1 uF, 50V, ± 10% Mylar			
C356	203X0015-105	4.7 uF, 25V Electrolytic			
C357	203X1201-013	0.015 uF, 200V, ± 10% PP			
C358	203X1201-034	0.018 uF, 200V, ± 10% PP			

POWER BOARD

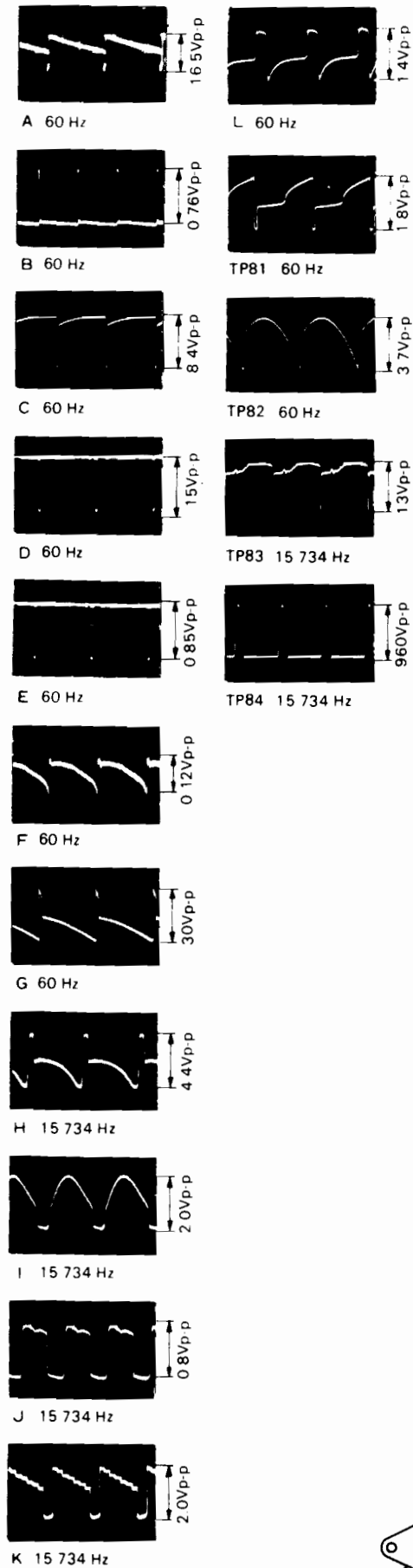
RESISTORS			SEMICONDUCTORS		
★ R501	204X1725-052	180 Ohm, ± 10%, 15W WW	TR501	200X3174-006	Transistor, 2SC1740Q
R502	203X6000-608	100 Ohm, ± 5%, 1/8W Carbon	★ TR502	200X3145-404	Transistor, 2SC1454
R503	203X6000-960	1k Ohm, ± 5%, 1/8W Carbon	X501	201X2230-042	Diode, (Si) Zener EQB01-06V
R504	203X6000-879	560 Ohm, ± 5%, 1/8W Carbon	X502	201X2010-144	Diode, (Si) IS2473-T72
R505	203X9014-965	39k Ohm, ± 5%, 1W M.O.	MISCELLANEOUS		
R506	203X6500-842	6.8k Ohm, ± 5%, 1/8W Carbon	J501	204X9300-958	Socket, 6 Pin
VR501	204X2050-001	Varistor Volt Adj.	P501	204X9601-195	Plug, 6 Pin
CAPACITORS			TH501	201X0000-618	Thermistor
C501	203X0040-020	10 uF, 160V Electrolytic			
C502	202X7000-281	1500 pF, 50V, ± 10% Ceramic			
C503	203X0010-011	22 uF, 16V Electrolytic			

NECK BOARD

RESISTORS			RESISTORS (CONT.)		
R401	203X6500-709	1.8k Ohm ± 5% 1/8W Carbon	R410	203X6500-800	4.7k Ohm ± 5% 1/8W Carbon
R402	203X6500-709	1.8k Ohm ± 5% 1/8W Carbon	R411	203X6500-800	4.7k Ohm ± 5% 1/8W Carbon
R403	203X6500-709	1.8k Ohm ± 5% 1/8W Carbon	R412	203X9104-809	12k Ohm ± 5% 2.0W Metal Oxide
R404	203X6500-447	150 Ohm ± 5% 1/8W Carbon	R413	203X9104-809	12k Ohm ± 5% 2.0W Metal Oxide
R405	203X6500-481	220 Ohm ± 5% 1/8W Carbon	R414	203X9104-809	12k Ohm ± 5% 2.0W Metal Oxide
R406	203X6500-447	150 Ohm ± 5% 1/8W Carbon	R415	203X5601-313	2.7k Ohm ± 10% 1/2W Comp.
R407	340X2391-934	390 Ohm ± 5% 1/4W Carbon	R416	203X5601-313	2.7k Ohm ± 10% 1/2W Comp.
R408	340X2391-934	390 Ohm ± 5% 1/4W Carbon	R417	203X5601-313	2.7k Ohm ± 10% 1/2W Comp.
R409	203X6500-800	4.7k Ohm ± 5% 1/8W Carbon	R418	203X5602-254	470k Ohm ± 10% 1/2W Comp.

19" COLOR MONITOR SCHEMATIC DIAGRAM

MODELS 19K4625, 19K4626, 19K4675, 19K4676



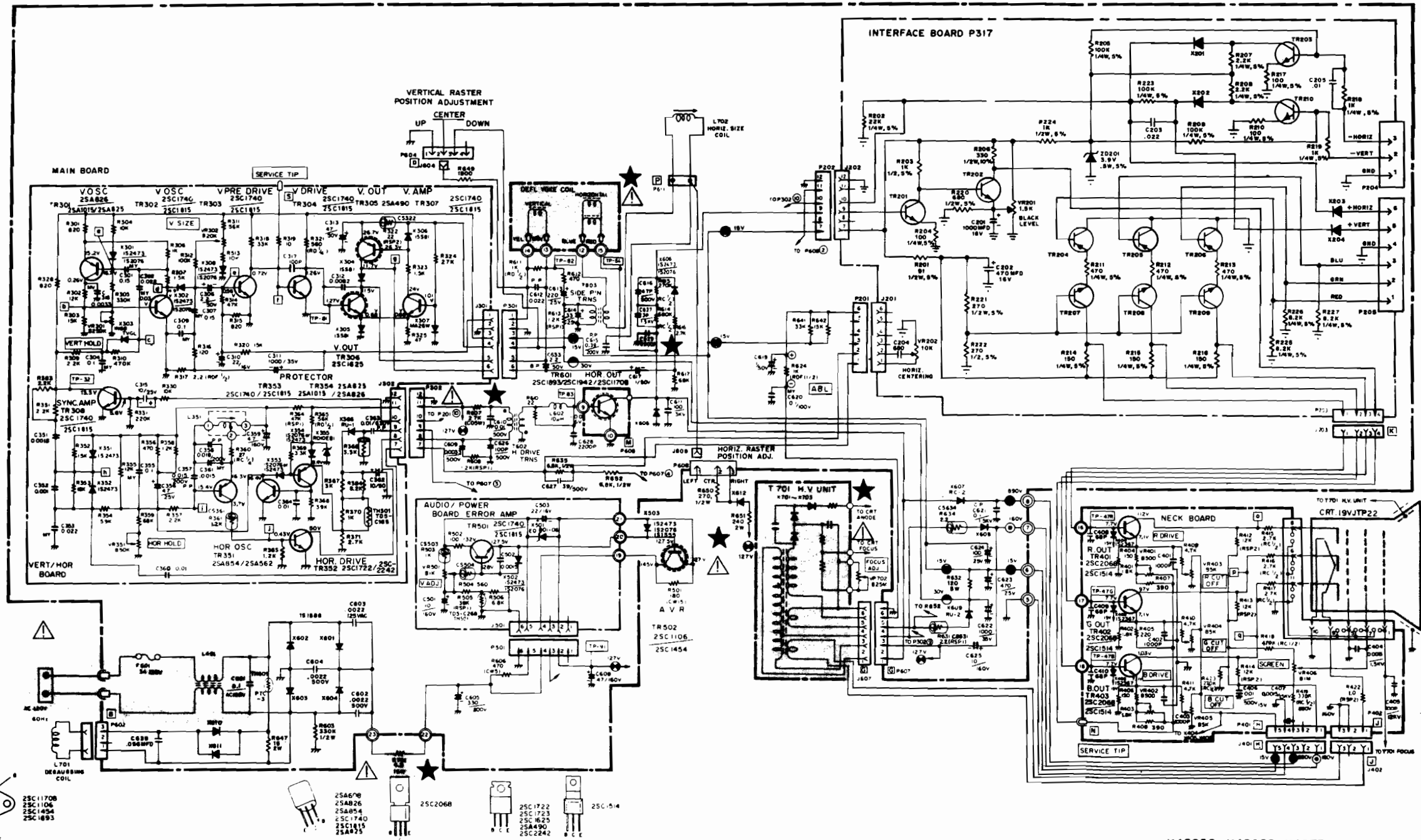
Power Supply Voltage and Symbols

Symbols	Line Voltage	Working Circuit
	15V	Vert. Drive stage ABL - Bias CRT Cut-Off
	30V	Vert. Output Side pin Trans. - Bias
	127V	Horiz. Osc. Horiz. Drive Horiz. Output
	160V	Video Output
	B90V	Screen-Bias

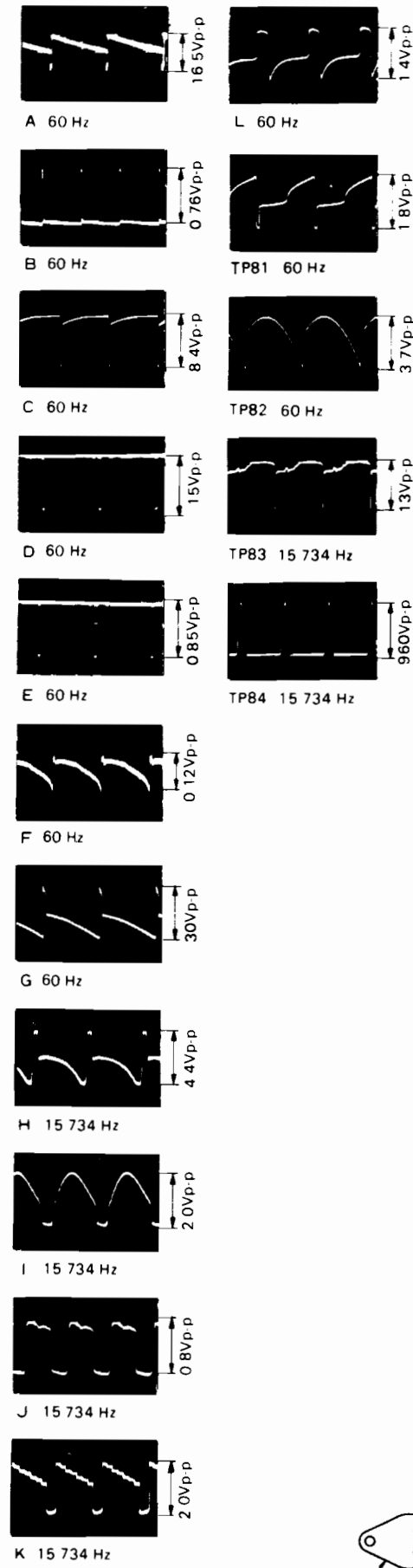
SERVICE TECHNICIAN WARNING
X-RAY RADIATION PRECAUTION:
 THIS PRODUCT CONTAINS CRITICAL ELECTRICAL AND MECHANICAL PARTS ESSENTIAL FOR X-RAY RADIATION PROTECTION.
 FOR REPLACEMENT PURPOSES, USE ONLY TYPE PARTS SHOWN IN THE PARTS LIST.

CAUTION: FOR CONTINUED SAFETY, REPLACE SAFETY CRITICAL COMPONENTS ONLY WITH MANUFACTURER'S RECOMMENDED PARTS.
AVERTISSEMENT: POUR MAINTENIR LE DEGRE DE SECURITE DE L'APPAREIL NE REMPLACER LES COMPOSANTS DONT LE FONCTIONNEMENT EST CRITIQUE POUR LA SECURITE QUE PAR DES PIECES RECOMMANDEES PAR LE FABRICANT.

OSCILLOSCOPE WAVEFORM PATTERN
 The waveforms shown are as observed on the wide band oscilloscope with the monitor turned to a reasonably strong signal and a normal picture. The voltages shown on each waveform are the approximate peak amplitudes. The frequency accompanying each waveform indicates the repetition rate of waveform not the sweep rate of the oscilloscope.
 If the waveforms are observed on the oscilloscope with a poor high frequency response, the corner of the pulses will tend to be more rounded than those shown and the amplitude of any high frequency pulse will tend to be less.



19" COLOR MONITOR SCHEMATIC DIAGRAM MODEL 19K4677



Power Supply Voltage and Symbols

Symbols	Line Voltage	Working Circuit
	15V	Vert. Drive stage ABL - Bias CRT Cut-Off
	30V	Vert. Output Side pin Trans. - Bias
	127V	Horiz. Osc. Horiz. Drive Horiz. Output
	160V	Video Output
	890V	Screen-Bias

★

SERVICE TECHNICIAN WARNING
X-RAY RADIATION PRECAUTION:

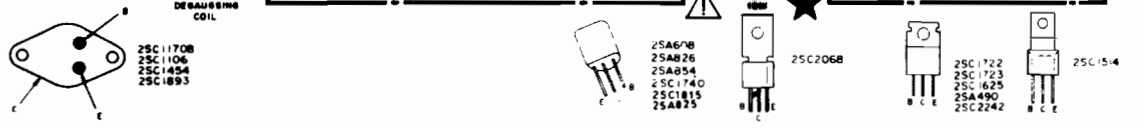
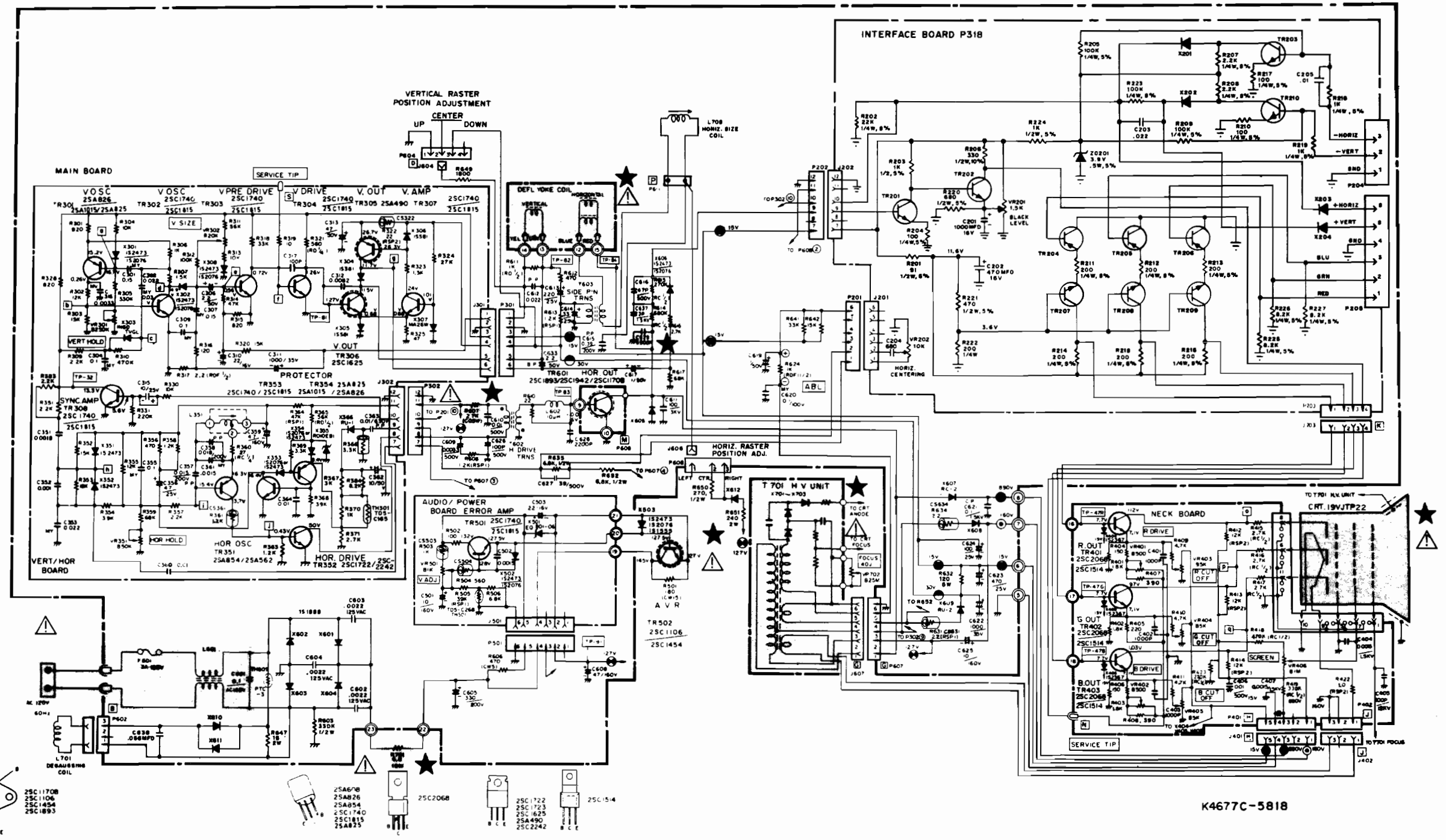
THIS PRODUCT CONTAINS CRITICAL ELECTRICAL AND MECHANICAL PARTS ESSENTIAL FOR X-RAY RADIATION PROTECTION.
FOR REPLACEMENT PURPOSES, USE ONLY TYPE PARTS SHOWN IN THE PARTS LIST.

⚠

CAUTION: FOR CONTINUED SAFETY, REPLACE SAFETY CRITICAL COMPONENTS ONLY WITH MANUFACTURER'S RECOMMENDED PARTS.
AVERTISSEMENT: POUR MAINTENIR LE DEGRE DE SECURITE DE L'APPAREIL NE REMPLACER LES COMPOSANTS DONT LE FONCTIONNEMENT EST CRITIQUE POUR LA SECURITE QUE PAR DES PIECES RECOMMANDEES PAR LE FABRICANT.

OSCILLOSCOPE WAVEFORM PATTERN

The waveforms shown are as observed on the wide band oscilloscope with the monitor turned to a reasonably strong signal and a normal picture. The voltages shown on each waveform are the approximate peak amplitudes. The frequency accompanying each waveform indicates the repetition rate of waveform not the sweep rate of the oscilloscope.
If the waveforms are observed on the oscilloscope with a poor high frequency response, the corner of the pulses will tend to be more rounded than those shown and the amplitude of any high frequency pulse will tend to be less.



NECK BOARD (CONT.)

Ref. No.	Part No.	Description	Ref. No.	Part No.	Description
RESISTORS (CONT.)					
R419	203X5602-185	330k Ohm \pm 10% 1/2W Comp.	TR401	200X3208-800	Transistor, 2SC2068, 2SC1514 (R output)
R422	203X9105-117	1.0 Ohm \pm 10% 2W Metal Oxide	TR402	200X3208-800	Transistor, 2SC2068, 2SC1514 (G output)
R423	203X5102-155	270 Ohm \pm 5% 1/4W Carbon	TR403	200X3208-800	Transistor, 2SC2068, 2SC1514 (B output)
VR401	204X2115-014	500 Ohm Varistor R Drive	X404	201X2100-128	Diode, IS2367 (protector)
VR402	204X2115-014	500 Ohm Varistor B Drive	X405	201X2100-128	Diode, IS2367 (protector)
VR403	204X2115-006	5k Ohm Varistor R Cutoff	X406	201X2100-128	Diode, IS2367 (protector)
VR404	204X2115-006	5k Ohm Varistor G Cutoff			
VR405	204X2115-006	5k Ohm Varistor B Cutoff			
VR406	204X2000-025	1M Ohm Varistor Screen			

Ref. No.	Part No.	Description	Ref. No.	Part No.	Description
CAPACITORS					
C401	202X7000-247	1000 pF, 50V, 10% Ceramic			
C402	202X7000-247	1000 pF, 50V, 10% Ceramic			
C403	202X7000-247	1000 pF, 50V, 10% Ceramic			
C404	202X7100-019	1500 pF, 2kV \pm 10% Ceramic			
C405	202X7150-018	100 pF, 12kV, \pm 10% Ceramic			
C406	202X7050-483	.01 uF, 500V, \pm 10% Ceramic			
C407	202X7110-019	1500 pF, 2kV, \pm 10% Ceramic			
C408	202X8000-550	68 pF, 50V, \pm 10% Ceramic			
C409	202X8000-550	68 pF, 50V, \pm 10% Ceramic			
C410	202X8000-550	68 pF, 50V, \pm 10% Ceramic			

SEMICONDUCTORS

MISCELLANEOUS

★ 297X2000-072 HIGH VOLTAGE ASSEMBLY (T701)

★ R701	204X1625-058	6.8 Ohm, \pm 10% 15W WW Resistor	
VR702	204X3901-125	Focus Control	
X701		Diode (SI HV)	Part of T701
X702		Diode (SI HV)	
X703		Diode (SI HV)	

FINAL ASSEMBLY PARTS

★ 88X-0129-506	38A5554-000	19VJTP22 Pix Tube
	205X9800-256	Assy. Purity Shld/Degaussing Lateral/Purity Assembly
★ 202X1110-810	208X2000-846	Yoke, Deflection
	297X2000-072	CRT Socket
	6A0396-001	HV Unit (T701)
		Plug, Line Cord (K4625, K4675, K4677)
	6A0402-001	Plug, Line Cord (K4626, K4676)
	9A2753-003	Degaussing Coil (L701)

INTERFACE FACE BOARD (P317)

RESISTORS			CAPACITORS		
R201	340X3910-934	91 Ohm \pm 5%, 1/2W Carbon	C201	45X0524-038	1000 uF, 16V Electrolytic
R202	340X2223-934	22k Ohm \pm 10%, 1/4W Carbon	C202	45X0524-053	470 uF, 16V Lytic
R203	340X3102-934	1k Ohm \pm 5%, 1/2W Carbon	C203	349X2232-109	.022 uF, 10%, 100V
R204	340X2101-934	100 Ohm \pm 5%, 1/4W Carbon	C204	80X0099-020	680 pF, 10%, Z5F
R205	340X2104-934	100k Ohm \pm 5%, 1/4W Carbon	C205	349X1032-109	.01 uF, 10%, 100V
R206	340X3331-944	330 Ohm \pm 10%, 1/2W Carbon	SEMICONDUCTORS		
R207	340X2222-934	2.2k Ohm \pm 5%, 1/4W Carbon	TR201	88X0113-001	Transistor (NPN) 2N3904
R208	340X2222-934	2.2k Ohm \pm 5%, 1/4W Carbon	TR202	88X0113-001	Transistor (NPN) 2N3904
R209	340X2104-934	100k Ohm \pm 5%, 1/4W Carbon	TR203	88X0113-001	Transistor (NPN) 2N3904
R210	340X2101-934	100 Ohm \pm 5%, 1/4W Carbon	TR204	88X0066-001	Transistor (PNP) MPS-A70
R211	340X2471-934	470 Ohm \pm 5%, 1/4W Carbon	TR205	88X0066-001	Transistor (PNP) MPS-A70
R212	340X2471-934	470 Ohm \pm 5%, 1/4W Carbon	TR206	88X0066-001	Transistor (PNP) MPS-A70
R213	340X2471-934	470 Ohm \pm 5%, 1/4W Carbon	TR207	88X0113-001	Transistor (NPN) 2N3904
R214	340X2151-934	150 Ohm \pm 5%, 1/4W Carbon	TR208	88X0113-001	Transistor (NPN) 2N3904
R215	340X2151-934	150 Ohm \pm 5%, 1/4W Carbon	TR209	88X0113-001	Transistor (NPN) 2N3904
R216	340X2151-934	150 Ohm \pm 5%, 1/4W Carbon	TR210	88X0113-001	Transistor (NPN) 2N3904
R217	340X2101-934	100 Ohm \pm 5%, 1/4W Carbon	X201	66X0048-001	Diode Silicon FDH-444
R218	340X3102-934	1k Ohm \pm 5%, 1/2W Carbon	X202	66X0048-001	Diode Silicon FDH-444
R219	340X3102-934	1k Ohm \pm 5%, 1/2W Carbon	X203	66X0048-001	Diode Silicon FDH-444
R220	340X3681-934	680 Ohm, 5%, 1/2W Carbon	X204	66X0048-001	Diode Silicon FDH-444
R221	340X3271-934	270 Ohm, 5%, 1/2W Carbon	ZD201	66X0040-019	Diode, Zener 3.9V, 5%, 0.5W IN5228B
R222	340X3271-934	270 Ohm, 5%, 1/2W Carbon	MISCELLANEOUS		
R223	340X2104-934	100k Ohm, 5%, 1/4W Carbon	J201	204X9300-958	Socket, 6 Pin
R224	340X3102-934	1k Ohm, 5%, 1/2W Carbon	J202	204X9300-958	Socket, 6 Pin
R225	340X2822-934	8.2k Ohm, 5%, 1/4W Carbon	P203	204X9600-845	Plug, 4 Pin
R226	340X2822-934	8.2k Ohm, 5%, 1/4W Carbon	P204	6A393-003	Plug, 3 Pin
R227	340X2822-934	8.2k Ohm, 5%, 1/4W Carbon	P205	6A0393-006	Plug, 6 Pin
R228	340X3391-934	390 Ohm, 5%, 1/2 W Carbon			
VR201	40X0641-005	1.5k Ohm Black Level Control			
VR202	40X0641-005	10k Ohm Horizontal Centering			

INTERFACE BOARD (P318)

Ref. No.	Part No.	Description	Ref. No.	Part No.	Description
RESISTORS					
R201	340X3910-934	91 Ohm \pm 5%, 1/2W Carbon	C201	45X0524-038	1000 uF, 16V Electrolytic
R202	340X2223-934	22k Ohm \pm 10%, 1/4W Carbon	C202	45X0524-053	470 uF, 16V Lytic
R203	340X3102-934	1k Ohm \pm 5%, 1/2W Carbon	C203	349X2232-109	.022 uF, 10%, 100V
R204	340X2101-934	100 Ohm \pm 5%, 1/4W Carbon	C204	80X0099-020	680 pF, 10%, Z5F
R205	340X2104-934	100k Ohm \pm 5%, 1/4W Carbon	C205	349X1032-109	.01 uF, 10%, 100V
R206	340X3331-944	330 Ohm \pm 10%, 1/2W Carbon	CAPACITORS		
R207	340X2222-934	2.2k Ohm \pm 5%, 1/4W Carbon	SEMICONDUCTORS		
R208	340X2222-934	2.2k Ohm \pm 5%, 1/4W Carbon	TR201	86X0113-001	Transistor (NPN) 2N3904
R209	340X2104-934	100k Ohm \pm 5%, 1/4W Carbon	TR202	86X0113-001	Transistor (NPN) 2N3904
R210	340X2101-934	100 Ohm \pm 5%, 1/4W Carbon	TR203	86X0113-001	Transistor (NPN) 2N3904
R211	340X2201-934	200 Ohm \pm 5%, 1/4W Carbon	TR204	86X0066-001	Transistor (PNP) MPS-A70
R212	340X2201-934	200 Ohm \pm 5%, 1/4W Carbon	TR205	86X0066-001	Transistor (PNP) MPS-A70
R213	340X2201-934	200 Ohm \pm 5%, 1/4W Carbon	TR206	86X0066-001	Transistor (PNP) MPS-A70
R214	340X2201-934	200 Ohm \pm 5%, 1/4W Carbon	TR207	86X0113-001	Transistor (NPN) 2N3904
R215	340X2201-934	200 Ohm \pm 5%, 1/4W Carbon	TR208	86X0113-001	Transistor (NPN) 2N3904
R216	340X2201-934	200 Ohm \pm 5%, 1/4W Carbon	TR209	86X0113-001	Transistor (NPN) 2N3904
R217	340X2101-934	100 Ohm \pm 5%, 1/4W Carbon	TR210	86X0113-001	Transistor (NPN) 2N3904
R218	340X3102-934	1k Ohm \pm 5%, 1/2W Carbon	X201	66X0046-001	Diode Silicon FDH-444
R219	340X3102-934	1k Ohm \pm 5%, 1/2W Carbon	X202	66X0046-001	Diode Silicon FDH-444
R220	340X3102-934	1k Ohm, 5%, 1/2W Carbon	X203	66X0046-001	Diode Silicon FDH-444
R221	340X3471-934	200 Ohm, 5%, 1/2W Carbon	X204	66X0046-001	Diode Silicon FDH-444
R222	340X2201-934	200 Ohm, 5%, 1/2W Carbon	ZD201	66X0040-019	Diode, Zener 3.9V, 5%, 0.5W IN5228B
R223	340X2104-934	100k Ohm, 5%, 1/4W Carbon	MISCELLANEOUS		
R224	340X3681-934	680k Ohm, 5%, 1/2W Carbon	J201	204X9300-958	Socket, 6 Pin
R225	340X2822-934	8.2k Ohm, 5%, 1/4W Carbon	J202	204X9300-958	Socket, 6 Pin
R226	340X2822-934	8.2k Ohm, 5%, 1/4W Carbon	P203	204X9600-845	Plug, 4 Pin
R227	340X2822-934	8.2k Ohm, 5%, 1/4W Carbon	P204	6A393-003	Plug, 3 Pin
R228	340X3391-934	390 Ohm, 5%, 1/2W Carbon	P205	6A0393-008	Plug, 6 Pin
VR201	40X0841-005	1.5k Ohm Black Level Control			
VR202	40X0841-006	10k Ohm Horizontal Centering			

REAR CHASSIS CONTROLS

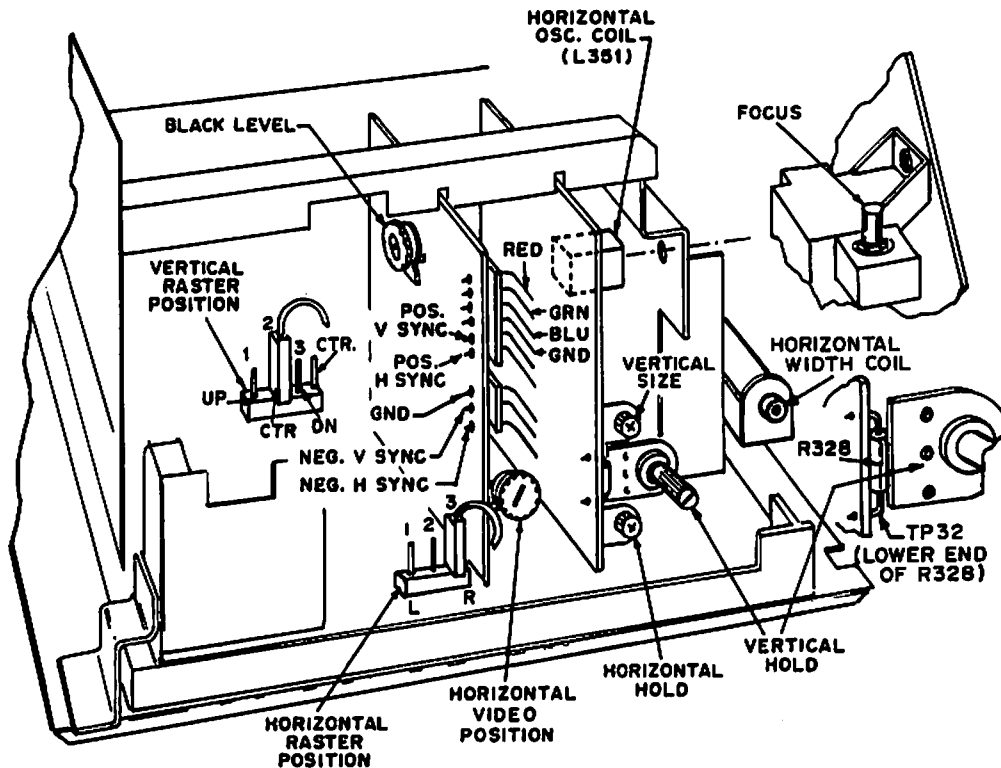


FIGURE 17

**NAUGHTY BOY
PARTS LISTS**

PARTS LIST
NAUGHTY BOY TOP ASSEMBLY

CINEMATRONICS PART NUMBER	DESCRIPTION	QTY.
<u>38-10640-01</u>	<u>Assy, Fluorescent Lamp</u>	<u>1</u>
01-10505-01	Lamp, Fluorescent	1
26-10588-01	Fixture, Lamp, Fluorescent	1
87-11668-01	Assy, Harn Fluorescent Lamp	1
25-10579-01	Ty Rap, W/O Eyelet	7
25-10580-01	Ty Rap, W/Eyelet	3
34-11271-01	Wire, 18AWG, Twtd, Blk/Wht	
35-10614-01	Pin, Male, Molex	2
<u>38-11698-02</u>	<u>Assy, Coin Door W/Lamps</u>	<u>1</u>
20-10896-11	Coin Door W/Lamps Cocktail	1
22-10899-01	Decal, "Cinematronics"	1
25-10556-01	Nut, Hex #4-40	3
25-10570-01	Washer, Lock #4 Internal	3
38-11702-02	Assy, Coin Meter/Vol Ctl	1
20-10868-11	Brkt, Short Vol. Cntl/Counter	1
25-10557-01	Nut, Hex #6-32	2
25-10563-01	Screw, Machine, #6-32 x 1/2" Pan Hd P	2
25-10571-01	Washer, Lock, #6 Internal	2
<u>38-11757-01</u>	<u>Assy, Coin Meter</u>	<u>1</u>
29-11754-01	Meter, Coin 6 Volt (KEISU NR-06)	1
35-10614-01	Pin, Male, Molex	2
38-10961-04	Assy, Vol Ctl	1
26-10589-01	Knob, Volume	1
51-10722-01	Pot, W. Lk. Wsr/Nut, 10K Ohm	1
87-10955-01	Assy, Har, Vol Ctl	1
34-11719-01	Wire, 22AWG Blue/Red/Blk Twist	
35-10614-01	Pin, Male, Molex	1
35-10615-01	Pin, Female, Molex	2
<u>87-11680-01</u>	<u>Assy, Harn Coin Door</u>	<u>1</u>
<u>25-10579-01</u>	<u>Ty Rap, W/O Eyelet</u>	<u>4</u>
25-10905-01	Clamp, Cable 3/16", Plastic	4
34-10597-01	Wire, 22AWG, Blk	
34-10599-01	Wire, 22AWG, Yellow	
34-10603-01	Wire, 22AWG, Grey	
34-10906-01	Wire, 22AWG, Twisted, Brown/White	
41-10885-01	Conn, 9 Cir F, Molex 03-09-2092	1

PARTS LIST
NAUGHTY BOY TOP ASSEMBLY

CINEMATRONICS PART NUMBER	DESCRIPTION	QTY.
<u>38-11434-01</u>	<u>Assy, Monitor, Color Raster</u>	<u>1</u>
87-11711-01	<u>Assy, Harn Raster Mon to CPU</u>	<u>1</u>
34-10597-01	Wire, 22AWG, Blk	2
34-10606-01	Wire, 22AWG, Red	
34-10598-01	Wire, 22AWG, Green	
34-10605-01	Wire, 22AWG, Blue	
34-10607-01	Wire, 22AWG, White	
35-10614-01	Pin, Male, Molex	5
35-10615-01	Pin, Female, Molex	7
41-10954-01	Conn, 6 Cir F, Molex 03-09-2062	1
41-10651-01	Conn, Female Crimp Term, Molex	1
41-11724-01	Conn, 6 Cir Crimp Term 09-50-7061	1
25-10579-01	Ty Rap, W/O Eyelet	3
<u>38-11737-01</u>	<u>Assy, Circuit Panel</u>	<u>1</u>
38-11733-02	Assy, Boards W/Vol Mod	1
38-11738-02	Assy, Board MT-09 W/Vol Mod	1
34-10594-01	Wire, 30AWG, Blue, KYNAR	
63-10781-01	Cap, .005mf 50V DISC 20%	1
38-11738-01	Assy, Board MT-09	1
38-11739-01	Assy, Board MT-10	1
20-11687-01	Plate, Mntg Logic/Audio	1
25-10557-01	Nut, Hex #6-32	4
25-11756-01	Screw, Machine #6-32 x 2" PH PN	4
25-11752-01	Washer, #6 Lock (Split Ring)	4
25-11753-01	Spacer, Nylon #6-5/8" (Smith 4025)	8
25-11749-01	Washer, #6 Flat	4
32-11736-01	Cabinet, Upright Color Raster SH	1
<u>38-11673-01</u>	<u>Assy, Ctl Pnl</u>	<u>1</u>
20-11673-01	Ctl Pnl	1
22-11674-01	Decal, Ctl Pnl	1
37-11192-01	Button, Short, White, Cocktail	2
37-11192-02	Button, Short, Red	1

PARTS LIST
NAUGHTY BOY TOP ASSEMBLY

CINEMATRONICS PART NUMBER	DESCRIPTION	QTY.
37-11373-01	Switch, W/Plastic Mntg Brkt, Short	3
25-10559-01	Nut, Pal 5/8"	3
25-10558-01	Nut, Hex, #10-24	4
25-10572-01	Washer, Lock, #10 Internal	8
25-10909-01	Bolt, Carriage, 3/16" x 3/4", Blk OX	4
50-11763-01	Assy, Joystick 4 Pos WICO 15-9518	1
25-11688-01	Screw, Machine 8-32 x 1/2"	4
<u>87-11679-01</u>	<u>Assy, Harn Ctl Pnl</u>	<u>1</u>
34-10596-01	Wire, 22AWG/TC, Buss	
34-10597-01	Wire, 22AWG, Blk	
34-10607-01	Wire, 22AWG, White	
34-10598-01	Wire, 22AWG, Green	
34-10600-01	Wire, 22AWG, Purple	
34-10599-01	Wire, 22AWG, Yellow	
34-10603-01	Wire, 22AWG, Grey	
34-10604-01	Wire, 22AWG, Brown	
34-10605-01	Wire, 22AWG, Blue	
34-10602-01	Wire, 22AWG, Orange	
35-10614-01	Pin, Male, Molex	9
41-10885-01	Conn, 9 Cir F, Molex 03-09-2092	1
25-10579-01	Ty Rap, W/O Eyelet	8
23-11152-01	Tape, Foam 3/4"	
<u>38-10894-01</u>	<u>Assy, Coin Drawer</u>	<u>1</u>
20-10862-01	Brkt, Coin Box Tong	1
20-10864-01	Handle, Coin Box	1
20-10871-01	Coin Box	1
20-10872-01	Cover, Coin Box	1
<u>38-11700-01</u>	<u>Assy, P.S./Transformer (Raster)</u>	<u>1</u>
20-11606-01	Plate, Mtg, P/S, Transformer	1
25-10551-01	Bolt, Carriage, 3/16" x 1/2" Black O	8
25-11607-01	Stand-Off, Nylon, Locking, DLCBS-14	4
25-11612-01	Washer, Lock #8	8
25-11613-01	Nut, #8-32	8

PARTS LIST
NAUGHTY BOY TOP ASSEMBLY

CINEMATRONICS PART NUMBER	DESCRIPTION	QTY.
<u>38-11723-01</u>	<u>Assy, Transformer ISOL Ravenswood</u>	<u>1</u>
43-11704-01	Transformer, ISOL Ravenswood	1
<u>87-11688-01</u>	<u>Assy, Harn Trans/Monitor</u>	<u>1</u>
<u>87-11768-01</u>	<u>Assy, Harn Trans/P.S.</u>	<u>1</u>
<u>87-11767-01</u>	<u>Assy, Harn Trans Gnd.</u>	<u>1</u>
<u>81-11685-01</u>	<u>PCA, Regulator +12V, -5V</u>	<u>1</u>
20-10520-01	Heat Sink, Thermalloy 6071B	2
20-10521-01	Heat Sink, Thermalloy 6072B	2
25-10556-01	Nut, Hex #4-40	4
25-10570-01	Washer, Lock, #4 Internal	4
25-10974-01	Screw, Machine 4-40-3/8" Pan HD PH	4
41-10661-01	Conn, 6 Cir WAF, Molex 09-18-506	1
53-10732-01	Res, 470 Ohm 1/4W 5% C	1
53-10734-01	Res, 1K Ohm 1/4W 5% C	1
53-11707-01	Res, 150 Ohm 5W Ceramic "Block"	3
63-10784-01	Cap, .1mf 50V Disc 20%	4
63-11128-01	Cap, 22mf 50V Electrolytic Radial	3
65-10812-01	Diode, 1N4003, Encpl	4
66-11705-01	Trans, 7812	1
66-11706-01	Trans, 7905	1
80-11685-01	PCB, Regulator +12V, -5V	1
82-10842-30	Power Supply, Data Power	1
<u>38-10638-01</u>	<u>Assy, Speaker</u>	<u>1</u>
20-11382-01	Grill, Speaker	1
71-10834-01	Speaker	1
<u>87-11681-02</u>	<u>Assy, Harn Main W/Conn</u>	<u>1</u>
87-11681-01	Assy, Harn Main	1
34-10597-01	Wire, 22AWG, Blk	
34-10598-01	Wire, 22AWG, Green	
34-10599-01	Wire, 22AWG, Yellow	
34-10600-01	Wire, 22AWG, Purple	
34-10602-01	Wire, 22AWG, Orange	
34-10603-01	Wire, 22AWG, Grey	

PARTS LIST
NAUGHTY BOY TOP ASSEMBLY

CINEMATRONICS PART NUMBER	DESCRIPTION	QTY.
34-10604-01	Wire, 22AWG, Brown	
34-10605-01	Wire, 22AWG, Blue	
34-10606-01	Wire, 22AWG, Red	
34-10607-01	Wire, 22AWG, White	
34-10608-01	Wire, 18AWG, Red	
34-10610-01	Wire, 18AWG, Black	
34-11407-01	Wire, 18AWG, Yellow	
35-10614-01	Pin, Male, Molex	15
35-10615-01	Pin, Female, Molex	14
41-11746-01	Conn, Edge 36P Sullins EZM18DSEH	1
41-10649-01	Conn, 9 Cir M, Molex 03-09-1093	1
41-10648-01	Conn, 15 Cir F, Molex 03-09-2153	1
41-10883-01	Conn, 3 Cir M, Molex 03-09-1038	1
41-10647-01	Conn, 12 Cir M, Molex 03-09-1122	1
41-10657-01	Conn, 6 Cir M, Molex 03-09-1063	1
<u>87-11677-01</u>	<u>Assy, Harn Ctl Pnl Interface</u>	<u>1</u>
34-10597-01	Wire, 22AWG, BLK	
34-10607-01	Wire, 22AWG, White	
34-10598-01	Wire, 22AWG, Green	
34-10600-01	Wire, 22AWG, Purple	
34-10599-01	Wire, 22AWG, Yellow	
34-10603-01	Wire, 22AWG, Grey	
34-10604-01	Wire, 22AWG, Brown	
34-10605-01	Wire, 22AWG, Blue	
34-10602-01	Wire, 22AWG, Orange	
35-10615-01	Pin, Female, Molex	18
41-10660-01	Conn, 15 Cir M, Molex 03-09-1152	1
41-10649-01	Conn, 9 Cir M, Molex 03-09-1093	1
25-10579-01	Ty Rap, W/O Eyelet	6
25-10580-01	Ty Rap, W/Eyelet	3

PARTS LIST
NAUGHTY BOY TOP ASSEMBLY

CINEMATRONICS PART NUMBER	DESCRIPTION	QTY.
<u>87-11755-01</u>	<u>Assy, Harn Coin Door Inter. Raster</u>	<u>1</u>
34-10597-01	Wire, 22AWG, Blk	
34-10599-01	Wire, 22AWG, Yellow	
34-10600-01	Wire, 22AWG, Purple	
34-10606-01	Wire, 22AWG, Red	
34-11719-01	Wire, 22AWG Blu/Red/Blk Twist	
41-10885-01	Conn, 9 Cir F, Molex 03-09-2092	1
41-10649-01	Conn, 9 Cir M, Molex 03-09-1093	1
35-10614-01	Pin, Male, Molex	9
35-10615-01	Pin, Female, Molex	7
25-10579-01	Ty Rap, W/O Eyelet	5
25-10580-01	Ty Rap, W/Eyelet	2
<u>87-11701-01</u>	<u>Assy, AC Power Cord Harn</u>	<u>1</u>
25-10561-01	Nut, Wire	1
25-10579-01	Ty Rap, W/O Eyelet	15
25-10580-01	Ty Rap, W/Eyelet	5
34-10608-01	Wire, 18AWG, Red	
34-10609-01	Wire, 18AWG, Blue	
34-10610-01	Wire, 18AWG, Black	
34-10908-01	Wire, 18AWG, Orange	
34-11187-01	Wire, Stripe, 18AWG, Red/Black	
34-11412-01	Wire, 18AWG, Brown	
34-11718-01	Wire, 18AWG, Blu/Blk	
35-10614-01	Pin, Male, Molex	14
35-10615-01	Pin, Female, Molex	5
35-10617-01	Terminal, Female, Quick Disconnect	2
41-10647-01	Conn, 12 Cir M, Molex 03-09-1122	1
41-10657-01	Conn, 6 Cir M, Molex 03-09-1063	1
41-10884-01	Conn, 12 Cir F, Molex 03-09-2121	1
87-10967-01	Assy, Cord, AC Power	1

PARTS LIST
NAUGHTY BOY TOP ASSEMBLY

CINEMATRONICS PART NUMBER	DESCRIPTION	QTY.
<u>87-11692-01</u>	<u>Assy, Harn Speaker</u>	<u>1</u>
34-10906-01	Wire, 22AWG, Twisted, Brown/White	
35-10614-01	Pin, Male, Molex	2
35-10617-01	Terminal, Female, Quick Disconnect	2
25-10580-01	Ty Rap, W/Eyelet	2
41-10659-01	Conn, 3 Cir F, Molex 03-09-2038	1
<u>38-10892-01</u>	<u>Assy, Interlock Swt, Back Panel</u>	<u>1</u>
20-10863-01	Brkt, Interlock Switch	1
37-10893-01	Switch, Interlock	1
20-11376-02	Retainer, Marquee Plexi Upper 23	1
20-11377-02	Retainer, Marquee Plexi Lower 23	1
21-11666-03	Plexi, Front Screened	1
21-11694-01	Plexi Smoked 23. 75 x 20	1
21-11741-02	Plexi, Marquee Screened	1
22-11742-01	Decal, Side	2
25-10553-01	Bolt, Carriage, 3/16" 2", Black OX	4
25-10560-01	Nut, Wing, 3/16" #10-24	6
25-10568-01	Washer, Flat, #10 x 1/2"	23
25-10551-01	Bolt, Carriage, 3/16" x 1/2" Black O	1
25-11392-01	Bolt, Carriage, 3/16" x 1 1/4", Blk	16
25-10566-01	Screw, Wood, #8 x 5/8", Bx Dr Blk, OX	22
25-11613-01	Nut, #8-32	24
25-11721-01	Hook, Key	1
<u>38-11728-02</u>	<u>Kit, Spares</u>	<u>1</u>
18-11732-01	Screwdriver, BX DR #8 VACO TR-2	1
25-10566-01	Screw, Wood, #8 x 5/8", BX DR BLK, OX	6
67-11580-01	Fuse, 5AMP Slow Blow	1
67-10832-01	Fuse, 5AMP, 3AG	1

PARTS LIST
NAUGHTY BOY TOP ASSEMBLY

CINEMATRONICS PART NUMBER	DESCRIPTION	QTY.
21-10831-01	Bezel, CRT, Formed	1
22-10542-01	Label, "Patent Notice"	1
22-10544-01	Label, "Unit Wired For"	1
34-10903-01	Braid, Flat, Tinner Copper, 3/16"	10
35-11096-01	Lug, Ground	6
72-11734-01	Manual, Operator	1
<u>38-11758-02</u>	<u>Assy, Shipping Cont. Raster Short</u>	<u>1</u>
15-11179-01	Cap	2
15-11180-01	Pads, Corner	4
15-11181-01	Pallet Foam	1
15-11759-01	Sleeve, Game (29x33x72) 600DW	1
15-11760-01	Banding, Plastic 3/8"	
	The following parts are used on the Cocktail Table game cabinet ONLY:	
20-11420-01	Rail, CRT Mtg	2
21-11715-01	Plexi, Smoked Top	1
32-11427-01	Cabinet, W/Back	1
32-11428-01	Bracket, Glass Holder	1
32-11556-01	Bkt, Speaker	1
25-11722-01	Leveler, Leg	4
38-11439-01	Assy, Speaker	1
25-11414-01	Screw, Wood, #8-1 1/4", BX DR, BLK O	2
71-10834-01	Speaker	1
<u>38-11441-01</u>	<u>Assy, Coin Box</u>	<u>1</u>
20-10871-02	Coin Drawer	1
20-10872-02	Cover, Coin Drawer	1
<u>38-11691-01</u>	<u>Assy, Ctl Pnl Plyr #1</u>	<u>1</u>
20-11691-01	Ctl Pnl Plyr #1	1
22-11744-01	Decal, Ctl Pnl Plyr #1	1

PARTS LIST
NAUGHTY BOY TOP ASSEMBLY

CINEMATRONICS PART NUMBER	DESCRIPTION	QTY.
<u>38-11691-02</u>	<u>Assy, Ctl Pnl Plyr #2</u>	<u>1</u>
20-11691-02	Ctl Pnl Plyr #2	1
22-11744-02	Decal, Ctl Pnl Plyr #2	1
<u>38-11716-01</u>	<u>Assy, Power Supply Raster</u>	<u>1</u>
20-11709-01	Plate, Mntg P/S & Trans	1
<u>87-11710-01</u>	<u>Assy, Harn Ctl Pnl Inter</u>	<u>1</u>
25-10579-01	Ty Rap, W/O Eyelet	5
25-10580-01	Ty Rap, W/Eyelet	2
34-10597-01	Wire, 22AWG, Blk	
34-10598-01	Wire, 22AWG, Green	
34-10599-01	Wire, 22AWG, Yellow	
34-10600-01	Wire, 22AWG, Purple	
34-10602-01	Wire, 22AWG, Orange	
34-10603-01	Wire, 22AWG, Grey	
34-10604-01	Wire, 22AWG, Brown	
34-10605-01	Wire, 22AWG, Blue	
34-10607-01	Wire, 22AWG, White	
35-10614-01	Pin, Male, Molex	1
35-10615-01	Pin, Female, Molex	30
41-10648-01	Conn, 15 Cir F, Molex 03-09-2153	1
41-10649-01	Conn, 9 Cir M, Molex 03-09-1093	2
<u>87-11708-01</u>	<u>Assy, Harn Ctl Pnl #1</u>	<u>1</u>
<u>87-11708-02</u>	<u>Assy, Harn Ctl Pnl #2</u>	<u>1</u>
34-10596-01	Wire, 22AWG/TC, Buss	
34-10597-01	Wire, 22AWG, Black	
34-10607-01	Wire, 22AWG, White	
34-10598-01	Wire, 22AWG, Green	
34-10600-01	Wire, 22AWG, Purple	
34-10599-01	Wire, 22AWG, Yellow	
34-10603-01	Wire, 22AWG, Grey	
34-10604-01	Wire, 22AWG, Brown	

NAUGHTY BOY TOP ASSEMBLY

CINEMATRONICS PART NUMBER	DESCRIPTION	QTY.
34-10605-01	Wire, 22AWG, Blue	
34-10602-01	Wire, 22AWG, Orange	
35-10614-01	Pin, Male, Molex	9
41-10885-01	Conn, 9 Cir F, Molex 03-09-2092	1
25-10579-01	Ty Rap, W/O Eyelet	8
92-11740-01	Glass, Top Screened	1
20-11156-01	Grill, Heat Vent	2
23-11425-01	Tape, Foam 1.5"	

PARTS LIST
ELECTRONIC BOARDS

CINEMATRONICS PART NUMBER	DESCRIPTION	QTY.
<u>38-11733-01</u>	<u>Assy, Boards NB</u>	
<u>38-11820-01</u>	<u>Assy, Game NB 8201 (NB)</u>	<u>1</u>
<u>81-11821-01</u>	<u>Assy, Game NB 8201</u>	<u>1</u>
36-10621-01	Socket, 24 Pin, IC Dip Solder Tail	8
36-11784-01	Socket, 40 Pin Diptail	1
37-11824-01	Switch, Dip 8 Pos DC5V 1A Uni-Aut	1
44-10679-01	IC, 74LS04	1
44-10680-01	IC, 74LS08	1
44-10683-01	IC, 74LS32	3
44-10689-01	IC, 74LS157	1
44-10690-01	IC, 74LS163	1
44-11028-01	IC, 74LS74	1
44-11029-01	IC, 74LS138	2
44-11036-01	IC, 7407	1
44-11340-01	IC, 74LS125	1
44-11343-01	IC, LM556	2
44-11478-01	IC, 74LS153	1
44-11483-01	IC, 74LS174	1
44-11486-01	IC, 74LS244	3
44-11487-01	IC, 74LS245	2
44-11492-01	IC, 74LS374	2
44-11825-01	IC, 74LS14	2
44-11827-01	IC, 74LS145	2
44-11828-01	IC, LM324	2
44-11829-01	IC, LM380	1
44-11830-01	IC, I4006B	1
44-11831-01	IC, I4066B	1
44-11832-01	IC, TMS-3615	1
44-11833-01	IC, Z-80A	1
44-11834-01	IC, 2114/4	2
53-10726-01	RES, 100 OHM 1/4W 5% C	7
53-10727-01	RES, 150 OHM 1/4W 5% C	4

PARTS LIST
ELECTRONIC BOARDS

CINEMATRONICS PART NUMBER	DESCRIPTION	QTY.
53-10731-01	RES, 330 OHM 1/4W 5% C	3
53-10732-01	RES, 470 OHM 1/4W 5% C	2
53-10735-01	RES, 1.5K OHM 1/4W 5% C	41
53-10737-01	RES, 2K OHM 1/4W 5% C	6
53-10746-01	RES, 10K OHM 1/4W 5% C	10
53-10749-01	RES, 20K OHM 1/4W 5% C	10
53-10756-01	RES, 47K OHM 1/4W 5% C	5
53-10924-01	RES, 33K OHM 1/4W 5% C	5
53-10928-01	RES, 100K OHM 1/4W 5% C	4
53-10931-01	RES, 200K OHM 1/4W 5% C	6
53-11308-01	RES, 510K OHM 1/4W 5% C	1
53-11836-01	RES, 510 OHM 1/4W 5% C	2
63-10782-01	CAP, .01mf 50V Disc 20%	1
63-10940-01	CAP, .001mf 50V Disc 20%	1
63-10993-01	CAP, 47mf 50V Electrolytic Radial	3
63-11100-01	CAP, .01uf 50V Film	3
63-11370-01	CAP, 10mf 50V Electrolytic	15
63-11837-01	CAP, 1mf 50V Electrolytic	14
63-11838-01	CAP, 2.2mf 50V Electrolytic	3
63-11839-01	CAP, 470mf 50V Electrolytic	1
63-11840-01	CAP, .047mf 50V Disc	15
66-11841-01	Trans, 2SC-1815	1
80-11821-01	Board, NB-8201	1
87-11842-01	Assy, R. Cble Flat 50 Cir	2
44-11826-01	IC, 74LS136	1
05-11823-01	Assy, E Prom Kit NB-8201 (NB)	1
02-11823-01	E Prom, #1 NB	1
02-11823-02	E Prom, #2 NB	1
02-11823-03	E Prom, #3 NB	1
02-11823-04	E Prom, #4 NB	1
02-11823-05	E Prom, #5 NB	1
02-11823-06	E Prom, #6 NB	1
02-11823-07	E Prom, #7 NB	1
02-11823-08	E Prom, #8 NB	1

PARTS LIST
ELECTRONIC BOARDS

CINEMATRONICS PART NUMBER	DESCRIPTION	QTY.
<u>38-11820-02</u>	<u>Assy, Game NB 8202 (NB)</u>	<u>1</u>
<u>81-11822-01</u>	<u>Assy, Game NB 8202</u>	1
36-10620-01	Socket, 16 Pin, IC, Dip Solder Tail	2
36-10621-01	Socket, 24 Pin, IC, Dip Solder Tail	8
44-10677-01	IC, 74LS00	2
44-10679-01	IC, 74LS04	2
44-10680-01	IC, 74LS08	2
44-10686-01	IC, 74LS86	4
44-10687-01	IC, 74LS107	1
44-10688-01	IC, 74LS151	4
44-10689-01	IC, 74LS157	9
44-10690-01	IC, 74LS163	4
44-11028-01	IC, 74LS74	3
44-11029-01	IC, 74LS138	2
44-11032-01	IC, 74LS174	5
44-11341-01	IC, 7404	2
44-11487-01	IC, 74LS245	2
44-11490-01	IC, 74S283	3
44-11492-01	IC, 74LS374	3
44-11826-01	IC, 74LS136	1
44-11843-01	IC, 6301	2
44-11834-01	IC, 2114/4	8
53-10726-01	RES, 100 OHM 1/4W 5% C	1
53-10734-01	RES, 1K OHM 1/4W 5% C	1
53-11306-01	RES, 1.2K OHM 1/4W 5% C	2
63-10780-01	CAP, 470PF 50V Disc 20%	1
63-10790-01	CAP, 47mf 50v Electrolytic Axial	1
63-10940-01	CAP, .001mf 50V Disc 20%	2
63-11840-01	CAP, .047mf 50V Disc	16
69-11844-01	Crystal, 12 MHZ HC-18/U	1
80-11822-01	Board, NB-8202	1
05-11823-02	Assy, E Prom Kit NB-8201 (NB)	1
02-11823-09	E Prom, #9 NB	1
02-11823-10	E Prom, #10 NB	1

PARTS LIST
ELECTRTONIC BOARDS

CINEMATRONICS PART NUMBER	DESCRIPTION	QTY.
02-11823-11	E Prom, #11 NB	1
02-11823-12	E Prom, #12 NB	1
02-11823-13	E Prom, #13 NB	1
02-11823-14	E Prom, #14 NB	1
02-11823-15	E Prom, #15 NB	1
02-11823-16	E Prom, #16 NB	1

NAUGHTY BOY
BOARD EDGE CONNECTOR PIN-OUT LIST

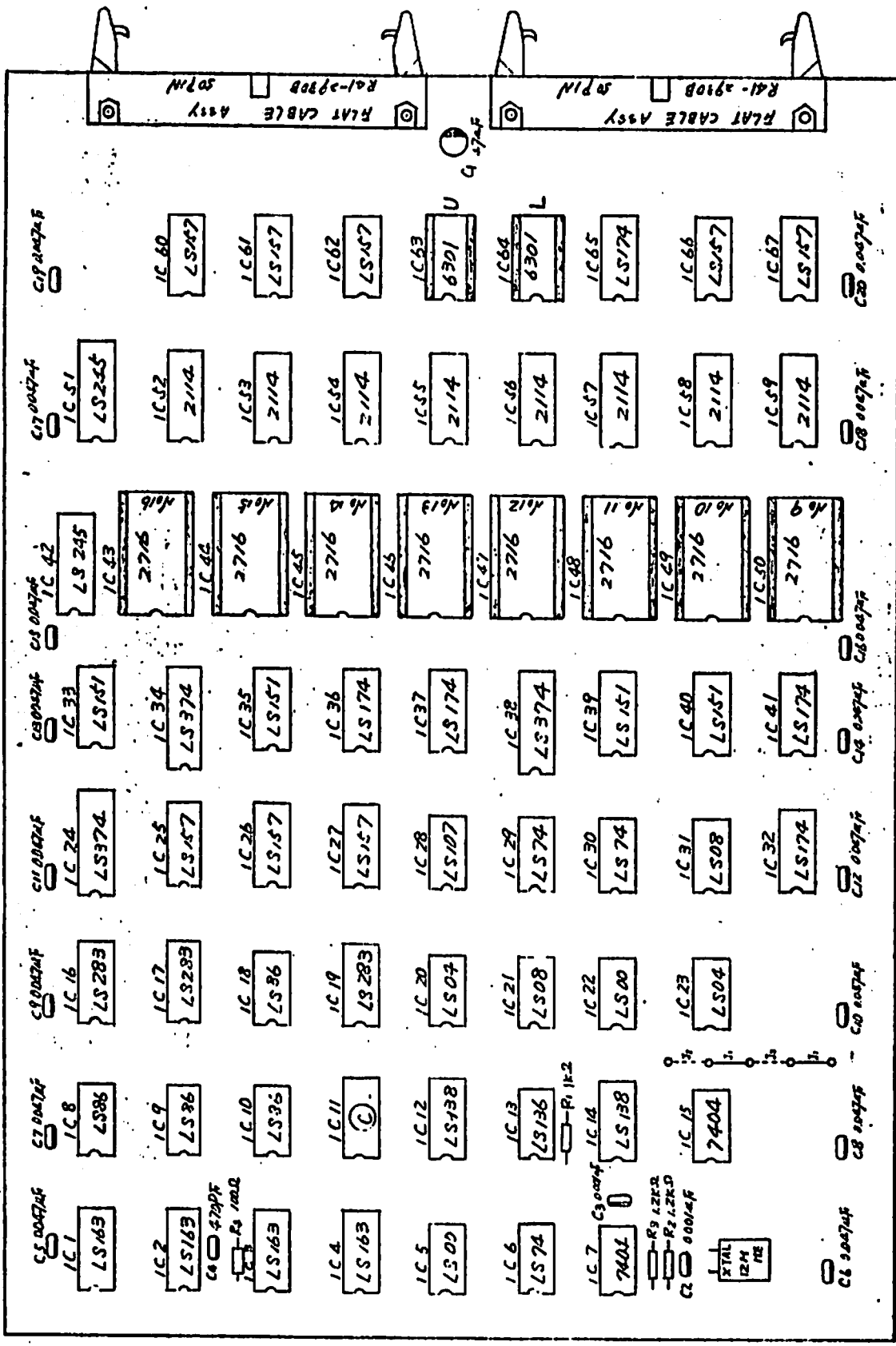
<u>EDGE CONN. PIN (J1)</u>	<u>FUNCTION</u>	<u>TO</u>	<u>WIRE COLOR</u>
J1-A	Ground, Monitor	J6-1	Black
J1-1	Ground, Power Supply	J5-1	Black
J1-B	Ground, Volume Pot	J2-7	Black
J1-2	Ground, Connector Switch	J2-1	Black
J1-C	Not Used		
J1-3	Ground, Control Panel	J3-7	Black
J1-D	Speaker Ground	J4-1	Black
J1-4	Speaker Output	J4-2	Brown
J1-E	Not Used		
J1-5	Coin Switch	J2-2	Yellow
J1-F	Not Used		
J1-6	Not Used		
J1-H	+12 Volts	J5-4	Yellow
J1-7	+12 Volts	--	--
J1-J	Volume Pot	J2-5	Red
J1-8	Volume Pot	J2-6	Blue
J1-K	+5 Volts	J5-2	Red
J1-9	+5 Volts, Counter	J2-4	Red
J1-L	Not Used		
J1-10	Not Used		
J1-M	Player Two - Up	J3-6	Violet
J1-11	Player One - Up	J3-10	Violet
J1-N	Player Two - Down	J3-4	Gray
J1-12	Player One - Down	J3-12	Gray
J1-P	Player Two - Right	J3-2	Blue
J1-13	Player One - Right	J3-14	Blue
J1-R	Player Two - Left	J3-1	Orange
J1-14	Player One - Left	J3-15	Orange

NAUGHTY BOY
BOARD EDGE CONNECTOR PIN-OUT LIST

<u>EDGE CONN. PIN (J1)</u>	<u>FUNCTION</u>	<u>TO</u>	<u>WIRE COLOR</u>
J1-S	Monitor - Red	J6-2	Red
J1-15	Player Two - Start	J3-8	White
J1-T	Monitor - Blue	J6-4	Blue
J1-16	Player One - Start	J3-9	Green
J1-U	Monitor - Green	J6-3	Green
J1-17	Player One - Fire	J3-11	Yellow
J1-V	Monitor Sync.	J6-5	White
J1-18	Player Two - Fire	J3-5	Yellow

APPENDIX A

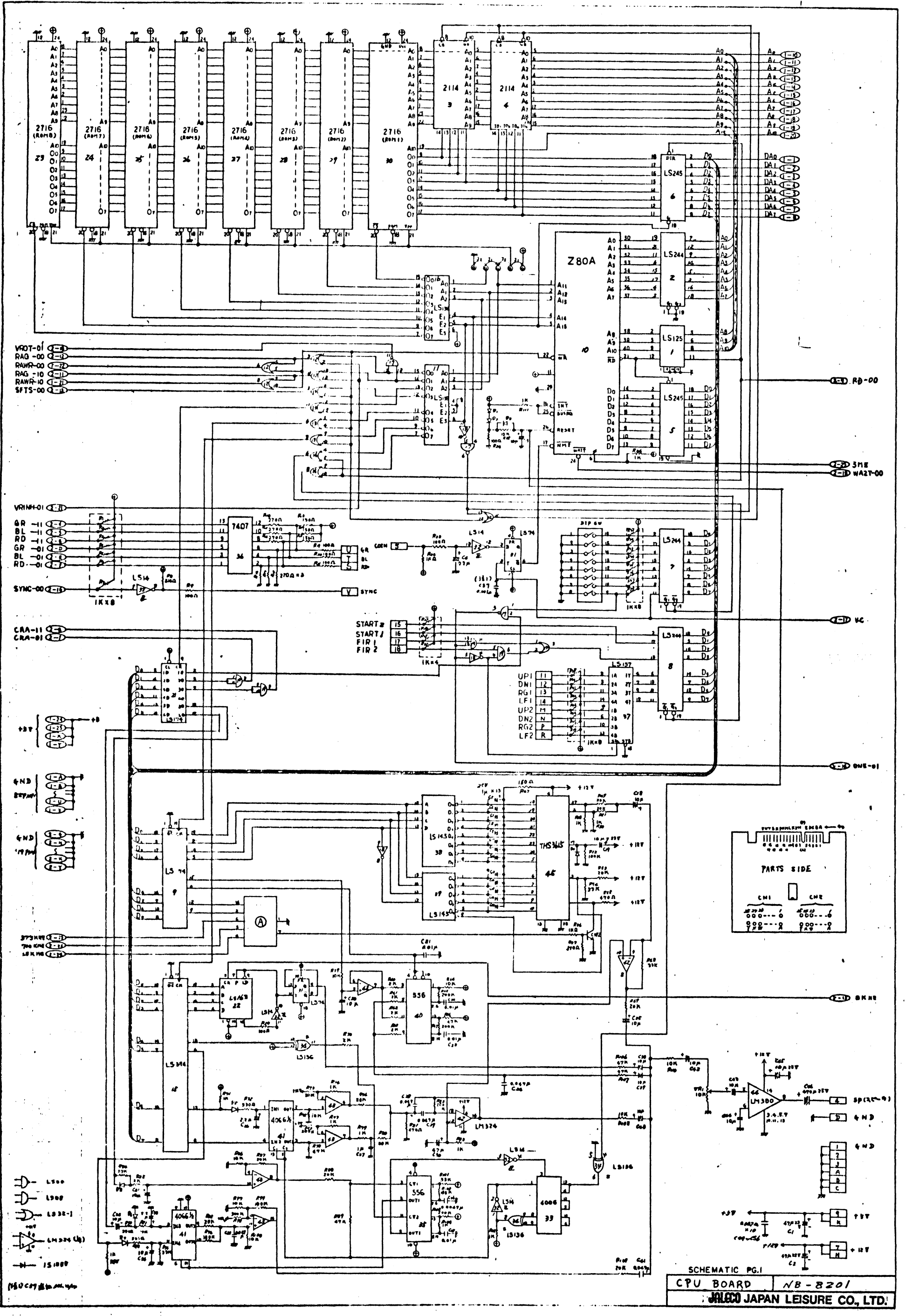
Assembly Drawings
Schematics
and
Wiring Diagrams



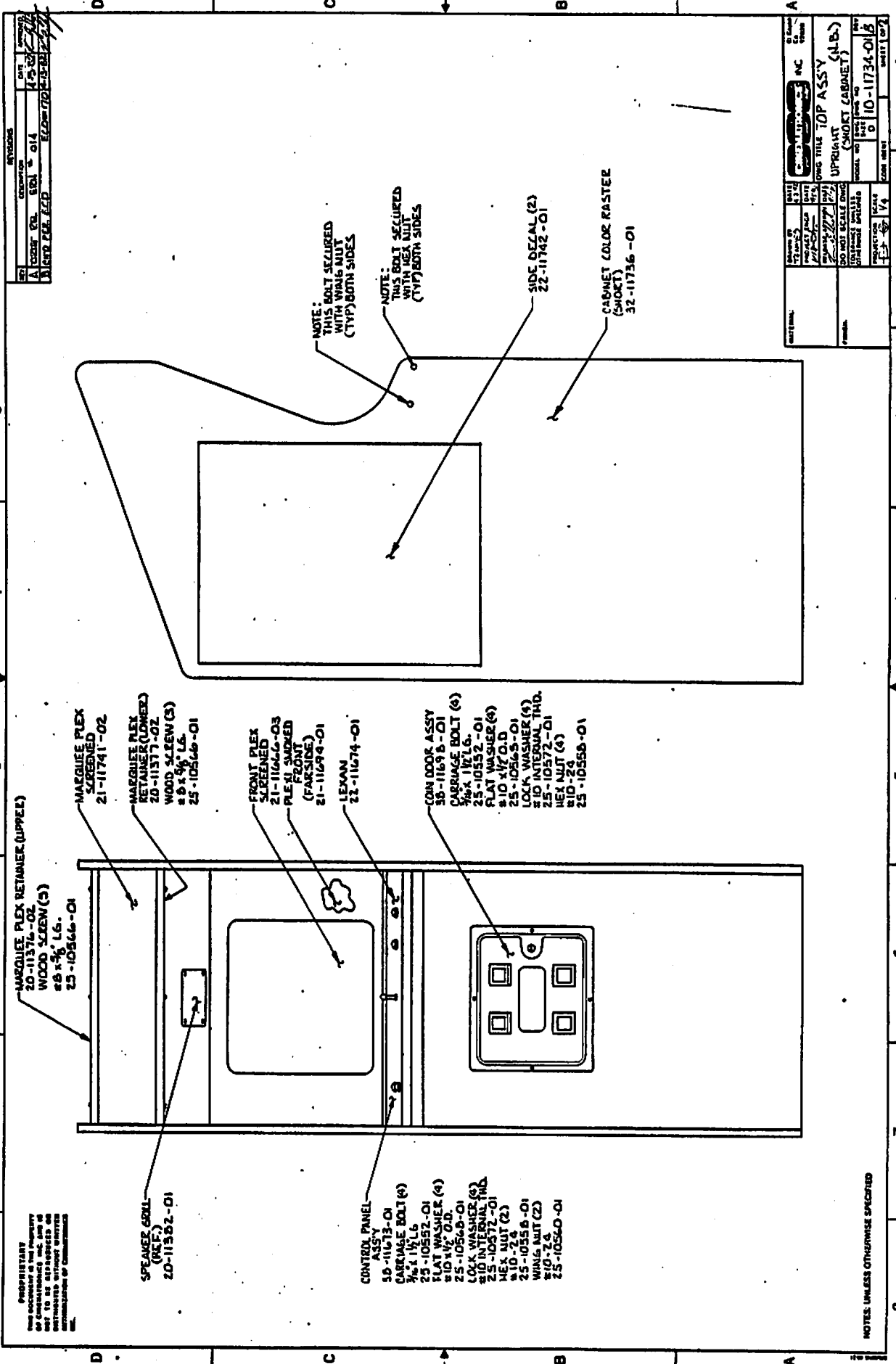
NO.	DATE	THIRD ANGLE?	SCALE	DRAWING NAME
1	MAR-81		1/1	RAM BD. ALIGNMENT - No. 2
2				
3				
4				

DATE: MAR-81
 THIRD ANGLE:
 SCALE: 1/1
 DRAWING NAME: RAM BD. ALIGNMENT - No. 2
 DRAWING NO.: NB-8302
 COMP. NO.: 1046

JALISCO JAPAN LEISURE CO., LTD.



SCHEMATIC PG.1
 CPU BOARD NB-8201
 JALCO JAPAN LEISURE CO., LTD.



REV	DESCRIPTION	DATE
1	ASSEMBLY	11-20-72
2	REVISED TO ADD SPEAKER GRILL	11-20-72
3	REVISED TO ADD CONTROL PANEL	11-20-72
4	REVISED TO ADD FRONT PLEX	11-20-72
5	REVISED TO ADD MARGUIE PLEX	11-20-72
6	REVISED TO ADD CONSOLE DOOR	11-20-72
7	REVISED TO ADD SIDE DECAL	11-20-72
8	REVISED TO ADD CABINET COLOR RASTER	11-20-72

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 Administrative of Components

MARGUIE PLEX RETAINER (UPPER)
 20-11376-02
 WOOD SCREW (3)
 #8 x 3/4" LG.
 25-10566-01

MARGUIE PLEX
 SCREENED
 21-11741-02

MARGUIE PLEX
 RETAINER (LOWER)
 20-11377-02
 WOOD SCREW (3)
 #8 x 3/4" LG.
 25-10566-01

FRONT PLEX
 SCREENED
 21-11666-03
 PLEX (SMOKED
 FRONT
 (FAR SIDE)
 21-11694-01

LEXAN
 22-11674-01

CONSOLE DOOR ASSY
 30-11695-01
 CARRIAGE BOLT (6)
 3/8" x 1 1/2" LG.
 25-10552-01
 FLAT WASHER (6)
 #10 x 1/2" O.D.
 25-10565-01
 LOCK WASHER (4)
 #10 INTERNAL THD.
 25-10572-01
 HEX NUT (4)
 #10-28
 25-10558-01

SPEAKER GRILL
 (M.C.F.)
 20-11552-01

CONTROL PANEL
 ASSY
 30-11673-01
 CARRIAGE BOLT (6)
 3/8" x 1 1/2" LG.
 25-10552-01
 FLAT WASHER (4)
 #10 x 1/2" O.D.
 25-10566-01
 LOCK WASHER (6)
 #10 INTERNAL THD.
 25-10572-01
 HEX NUT (2)
 #10-28
 25-10558-01
 WING NUT (2)
 #10-28
 25-10560-01

NOTE:
 THIS BOLT SECURED
 WITH WING NUT
 (TYP) BOTH SIDES

NOTE:
 THIS BOLT SECURED
 WITH HEX NUT
 (TYP) BOTH SIDES

SIDE DECAL (2)
 22-11742-01

CABINET COLOR RASTER
 (SMOKE)
 32-11736-01

REV	DESCRIPTION	DATE
1	ASSEMBLY	11-20-72
2	REVISED TO ADD SPEAKER GRILL	11-20-72
3	REVISED TO ADD CONTROL PANEL	11-20-72
4	REVISED TO ADD FRONT PLEX	11-20-72
5	REVISED TO ADD MARGUIE PLEX	11-20-72
6	REVISED TO ADD CONSOLE DOOR	11-20-72
7	REVISED TO ADD SIDE DECAL	11-20-72
8	REVISED TO ADD CABINET COLOR RASTER	11-20-72

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SPEAKER
 38-10638-01

REGULATOR
 BOARD
 ASSY
 81-11685-01

CONT. PNL
 ASSY
 UPRIGHT
 38-11673-01

COIN DOOR
 ASSY
 38-11698-01

ASSY. BOARD
 WITH VOL. MOD. (N.P.)
 38-11733-02

MASTER COLOR
 MON. ASSY
 38-11434-01

POWER
 SUPPLY ASSY
 38-11700-01
 38-11700-02
 38-11700-03

FLOOR. LAMP
 ASSY
 38-10640-01

TRANSFORMER
 ASSY
 38-11723-02

REV	DESCRIPTION	DATE	APPROVED
A	DEL. BEL ERN TO CIA	4-5-82	[Signature]

CINEMATRONICS INC El Cajon Ca. 92020		DWG TITLE INTERCONNECT DIAGRAM UPRIGHT (N.P.)	
DRAWN BY: E. PALMER	DATE: 5-2-82	DWG NO. C	REV. A
PROJECT ENGR: [Signature]	DATE: 7-5-82	DWG NO. 11-11734-01	SHEET 1 OF 1
RELEASE APPROV: [Signature]	DATE: 7-5-82	MODEL NO.	CODE IDENT.
DO NOT SCALE DWG TOLERANCE: UNLESS OTHERWISE SPECIFIED		PROJECTION: NONE	SCALE: NONE

NOTES: UNLESS OTHERWISE SPECIFIED

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REV	DESCRIPTION	REV IS	DATE
A	TRIAL DEL	ELD 180	4-1-81
B	CHD PER ELD	ELD 180	4-23-81

CONNECTOR	FROM	TO	COLOR	ANG	PIN	LENGTH	REMARKS
J2	J2-1	P1-1	BLACK	22	M		NOT USED
	J2-2	P1-5	YELLOW		F		
	J2-3						
	J2-4	P1-9	RED		M		
	J2-5	P1-1	RED (TM)		F		
	J2-6	P1-8	BLUE (TM)		M		
	J2-7	P1-15	BLACK (TM)	22	F		
	J2-8						
	J2-9						
J3	J3-1	P1-2	ORANGE	22	F		NOT USED
	J3-2	P1-P	BLUE	22	M		
	J3-3						
	J3-4	P1-N	GRAY	22	M		
	J3-5	P1-15	YELLOW				
	J3-6	P1-M	VIOLET				
	J3-7	P1-3	BLACK				
	J3-8	P1-15	WHITE				
	J3-9	P1-16	GREEN				
	J3-10	P1-11	VIOLET				
	J3-11	P1-17	YELLOW				
	J3-12	P1-12	GRAY	22	M		
	J3-13						
	J3-14	P1-15	BLUE	22	M		
	J3-15	P1-14	ORANGE	22	M		
J4	J4-1	P1-D	BLACK	22	F		NOT USED
	J4-2	P1-4	PURPLE	22	F		
	J4-3						
J5	J5-1	P1-1	BLACK	18	F		NOT USED
	J5-2	P1-K	RED	22	M		
	J5-3						
	J5-4	P1-U	YELLOW	18	F		
	J5-5						
	J5-6						
	J5-7						
	J5-8						
	J5-9						
	J5-10						
J6	J6-1	P1-A	BLACK	22	F		NOT USED
	J6-2	P1-5	RED				
	J6-3	P1-U	GREEN				
	J6-4	P1-T	BLUE				
	J6-5	P1-V	WHITE	22	F		
	J6-6						
	J6-7						
	J6-8						
	J6-9						
	J6-10						

CONNECTOR	FROM	TO	COLOR	ANG	PIN	LENGTH	REMARKS
P1	J5-1	P1-1	BLACK	18	4C	11.0	APPL. 60V
	J6-1	P1-A		22			
	J7-1	P1-7	(TM)				
	J5-7	P1-3	BLACK	22	4C	11.0	APPL. 60V
	J4-2	P1-C	PURPLE	22	4C	11.0	NOT USED
	J4-1	P1-D	BLACK	22	4C	11.0	APPL. 60V
	J7-2	P1-5	YELLOW	22	4C	11.0	CON. 4W.
	P1-6						NOT USED
	P1-7						NOT USED
	J5-4	P1-H	YELLOW	18	4C	11.0	+12V
	J2-6	P1-B	BLUE (TM)	22			VAL. CL. 100V
	J2-5	P1-1	RED (TM)				VAL. CL. 100V
	J2-4	P1-9	RED				+5V
	J5-2	P1-K	RED	22	4C	11.0	+5V
	P1-10						NOT USED
JMP	P1-L						NOT USED
	P1-11						NOT USED
	J5-6	P1-M	VIOLET	22	4C	11.0	APPL. 2 UP
	J5-12	P1-N	VIOLET				APPL. 2 UP
	J5-4	P1-4	GRAY				APPL. 2 DN
	J5-14	P1-15	GRAY				APPL. 1 LEVIT
	J5-2	P1-P	BLUE				APPL. 2 DOWN
	J3-15	P1-U	ORANGE				APPL. LEFT
	J3-1	P1-R	ORANGE				APPL. 2 LEFT
	J3-8	P1-5	WHITE				APPL. 2 RIGHT
	J5-9	P1-9	WHITE				SET RED
	J5-2	P1-10	GREEN				APPL. 2 RIGHT
	J6-4	P1-T	BLUE				SET BLUE
	J5-11	P1-17	YELLOW				APPL. 1 RISE
	J6-3	P1-U	GREEN				SET GREEN
J5-5	P1-15	YELLOW				APPL. 2 RISE	
J6-5	P1-V	WHITE	22	4C	11.0	TV 50K	

- WIRING TO P1 PINS 6, 8, 9 ARE TWISTED WIRES.
- EDGE CONNECTOR P1 PINS 7 & 8 ARE UNUSED.
- REF. 87-11081-01 FOR AMPHY TERMINING.
- POWER CONNECT / AMPHY TERMINING.
- FEMALE POWER PIN 07-09-11B OUR PIN 55-10615-01.
- MALE PIN MOLEY PIN 07-09-21B OUR PIN 55-10614-01.
- APPL. MOLEY PIN 03-09-105B OR EQUIV. OUR PIN 41-10683-01 5 CIR. MALE.

NOTES UNLESS OTHERWISE SPECIFIED

DESIGN	DATE	REV	BY
87-11081-01	4-1-81	1	ELD

CINCERATRONICS INC

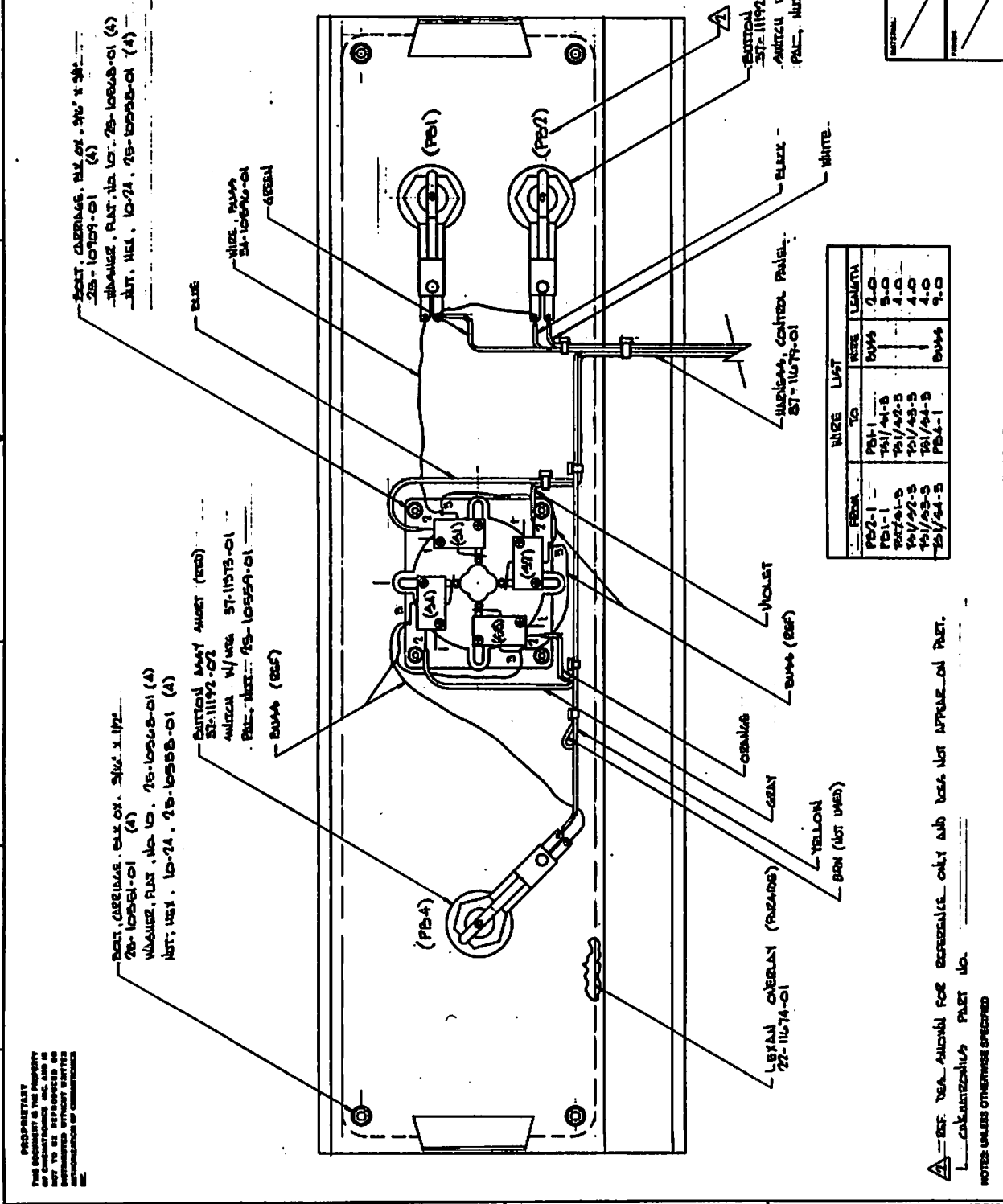
MODEL NO. 88-11081-01

DATE 4-1-81

REV 1

TOTAL	41.0
	-0.0

REV	DESCRIPTION	DATE
1	ORIG. DES. EBA P.O.A.	8/10/52



SOCKET, CERAMIC, PLUG, 3/16" x 3/32"
 25-10209-01 (4)
 WASHERS, FLAT, 1/8" DIA., 75-10658-01 (4)
 NUT, HEX, 1/8" DIA., 75-10658-01 (4)

SOCKET, CERAMIC, PLUG, 3/16" x 3/32"
 25-10209-01 (4)
 WASHERS, FLAT, 1/8" DIA., 75-10658-01 (4)
 NUT, HEX, 1/8" DIA., 75-10658-01 (4)

BUTTON MOUNT ASSEMBLY
 57-11192-02
 SWITCH, W/KEY, 57-11573-01
 P.C.T., NUT, 75-10659-01
 BUMPS (REF)

BUTTON MOUNT ASSEMBLY (WHITE)
 57-11192-01 (2)
 SWITCH W/KEY, 57-11573-01 (2)
 P.C.T., NUT 75-10659-01 (2)

FROM	TO	SIZE	LENGTH
PB-1	PB-4	BUMPS	2.0
PB-1	PB-2		3.0
PB-1	PB-3		4.0
PB-1	PB-7	BUMPS	4.0
PB-1	PB-1		9.0

DESIGNED BY	DATE	REV
EBA	8/10/52	1
CHECKED BY		
APPROVED BY		
CINEMATRONICS INC.		
THIS IS THE CONTROL PANEL ASSEMBLY (I.D.)		
PROJECT NO.	REV.	DATE
35-11675-01	1	8/10/52

REF. DES. SHOULD FOR REFERENCE ONLY AND DES. NOT APPEAR ON PART.
 CINEMATRONICS PART NO.
 NOTES: UNLESS OTHERWISE SPECIFIED

4 3 2 1

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REVISIONS		
REV	DESCRIPTION	DATE
B	ORIG. REL. ERN # 013	3/15/71
		APPROVED

CONNECTOR	FROM	TO	COLOR	AWG	PIN	LENGTH	REMARKS
P13	P13-1	P3-7	BLACK	22	F	36.0	GND
	P13-2	P3-8	WHITE				2 PWR START
	P13-3	P3-9	GREEN				1 PWR START
	P13-4	P3-10	VIOLET				CONT. LEVEL UP
	P13-5	P3-11	YELLOW				JUMP
	P13-6	P3-12	GREY				CONT. LEVEL DN
	P13-7	P3-13	BROWN				FIRE
	P13-8	P3-14	BLUE				CONT. LEVEL DN
	P13-9	P3-15	ORANGE	22	F	36.0	CONT. LEVEL LEFT
P3	P3-1						NOT USED
	P3-2						
	P3-3						
	P3-4						
	P3-5						
	P3-6						
P13	P13-1	P13-1	BLACK	22	F		NOT USED
	P13-2	P13-2	WHITE				GND
	P13-3	P13-3	GREEN				2 PWR START
	P13-4	P13-4	VIOLET				1 PWR START
	P13-5	P13-5	YELLOW				CONT. LEVEL UP
	P13-6	P13-6	GREY				JUMP
	P13-7	P13-7	BROWN				CONT. LEVEL DN
	P13-8	P13-8	BLUE				FIRE
	P13-9	P13-9	ORANGE	22	F		CONT. LEVEL LEFT

NOTES: UNLESS OTHERWISE SPECIFIED

TOL.
 +1.0"
 -0.0"

DRAWN BY: F. ZAMALDEZ		DATE: 2/15/71	CINEMATRONICS INC. 81 Cajon Ca. 92020	
PROJECT ENGR: M. B. ...		DATE: 3/5/71	DWG TITLE: WIRE LIST-	
RELEASE APPROV: DATE:		DATE:	CONTROL PANEL INTERCONN.	
DO NOT SCALE DWG		SCALE:	DWG NO. 88-11677-01	
TOLERANCE: UNLESS OTHERWISE SPECIFIED		PROJECTION:	REV. B	
FINISH:		SCALE:	MODEL NO. 88-11677-01	
MATERIAL:		PROJECTION:	SHEET 01	

D

C

B

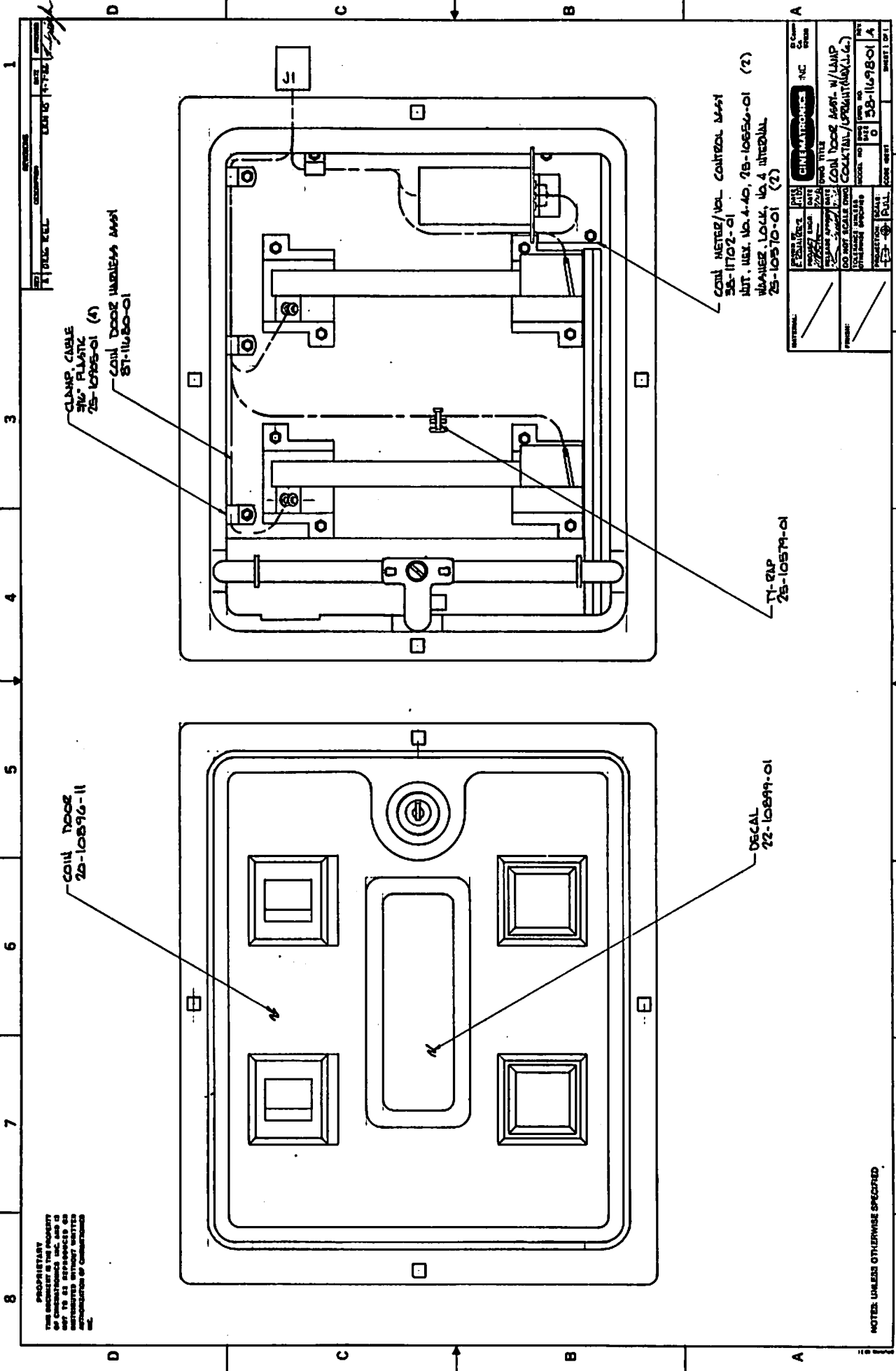
A

D

C

B

A



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COIL DOOR
 20-10896-11

CLAMP CABLE
 3/16" PLASTIC
 25-0705-01 (4)

COIL DOOR INTERLOCK ASSY
 27-11080-01

COIL METER/VOL CONTROL ASSY
 25-11702-01
 INT. WIR. NO. 4-40 25-10550-01 (2)
 SWITCH, LOCK, NO. 4 INTERNAL
 25-10570-01 (2)

TY-RIP
 25-10579-01

DECAL
 22-10899-01

GENERAL		PARTIAL		REVISIONS		DATE		BY		CHKD		APP'D	
PROJECT NO.		REV.		REV.		REV.		REV.		REV.		REV.	
PROJECT TITLE		REV.		REV.		REV.		REV.		REV.		REV.	
DESIGNED BY		REV.		REV.		REV.		REV.		REV.		REV.	
CHECKED BY		REV.		REV.		REV.		REV.		REV.		REV.	
DO NOT SCALE DIMS		REV.		REV.		REV.		REV.		REV.		REV.	
UNLESS OTHERWISE SPECIFIED		REV.		REV.		REV.		REV.		REV.		REV.	
PRODUCTION SCALE		REV.		REV.		REV.		REV.		REV.		REV.	
PULL		REV.		REV.		REV.		REV.		REV.		REV.	
CODE		REV.		REV.		REV.		REV.		REV.		REV.	
SHEET 1 OF 1		REV.		REV.		REV.		REV.		REV.		REV.	

NOTES: UNLESS OTHERWISE SPECIFIED

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REVISIONS

REV	DESCRIPTION	DATE	APPROVED
B	ORIG. REL. ERN # 013	3-15-82	<i>[Signature]</i>

CONNECTOR	FROM	TO	COLOR	ANG	PIN	LENGTH	REMARKS
	J1-1	(VOL)	(BLK)	(22)	(F)		⚠
	J1-2	(COUNTER)		(22)	(M)		⚠
J1	J1-3	RT. SWITCH	GRY	22	M	20.0"	
COIN DDDR INTERFACE MOLEX #	J1-3	LFT. SWITCH	YELLOW	22	M	24.75"	
03-09-209Z	J1-4	(COUNTER)		(22)	(M)		⚠
	J1-5	(VOL)	(RED)	(22)	(F)		⚠
⚠ 41-10885-D1	J1-6	(VOL)	(BLUE)	(22)	(F)		⚠
	J1-7	RT. SWITCH	BLK	22	F	20.0"	SWITCH GND
	J1-8	LAMP 1	WHT	⚠ 22	M	14.25"	LIGHT
	J1-8	LAMP 2	WHT	⚠ 22	M	19.25"	LIGHT
	J1-9	LAMP 1	BRN	⚠ 22	M	14.25"	LIGHT
	J1-9	LAMP 2	BRN	⚠ 22	M	19.25"	LIGHT
	LFT. SWITCH	RT. SWITCH	BLK	⚠ 22		30.75"	JUMPER

CINEMATRONICS INC. El Cajon Ca. 92020		DWG TITLE WIRE LIST COIN DDDR HARNESS UPRIGHT / COXTAIL JG	
DRAWN BY: TENNES	DATE: 3/15/82	PROJECT ENGR: <i>[Signature]</i>	DATE: 3/15/82
MATERIAL: /		FINISH: BREAK ALL SHARP EDGES AND DEBURR ALL HOLES. /	
RELEASE APPROV: /		DO NOT SCALE DWG TOLERANCE: UNLESS OTHERWISE SPECIFIED	
MODEL NO.: /		DWG NO.: 88-1168D-01	REV.: B
CODE IDENT. /		SHEET 1 OF 1	

⚠ TO BE ADDED AT NEXT ASSEMBLY.
 ⚠ STRIP BACK 3/8" FOR SOLDER
 ⚠ CINEMATRONICS PART NO.

NOTES

TOL:
 +1.0"
 -0.0"

1

2

3

4

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REV	DESCRIPTION	DATE	APPROVED
A	ORIG. DEL. #016	4-14-82	[Signature]
B	LENGTH CHG'D 210" 175	4-14-82	[Signature]

CONNECTOR	FROM	TO	COLOR	ANG	PN	LENGTH	REMARKS	CONNECTOR	FROM	TO	COLOR	ANG	PN	LENGTH	REMARKS
P1	P1-1	P2-7	BLACK	22	M	34.25		P2-1	P1-7	P1-7	BLACK				
	P1-2	P2-4	WHITE	22	F	34.25		P2-1	P1-9	P1-9	BROWN				
	P1-2	CR1-CATHODE						P2-2	P1-3	P1-3	YELLOW				
COIN DOOR	P1-3	P1-4	YELLOW	22	F	3.0		P2-3	P1-4	P1-4	GREEN				
MOLEX PIN	P1-3	P2-2	YELLOW		-	34.25		P2-4	P1-2	P1-2	WHITE				
03-09-1093	P1-4	P2-3	GREEN		F	34.25		P2-4	CR2-DIODE	CR2-DIODE					
03-09-1092	P1-4	P1-3	YELLOW	22	-			P2-5	P1-5	P1-5	RED				
03-09-1091	P1-4	CR1-DIODE						P2-6	P1-6	P1-6	BLUE				
03-09-1090	P1-4	CR1-DIODE						P2-7	P1-1	P1-1	BLACK				
03-09-1089	P1-5	P2-5	RED	22	M	34.25		P2-8	CR2-DIODE	CR2-DIODE					
03-09-1088	P1-6	P2-6	BLUE		M			P2-8	P1-8	P1-8	RED				
03-09-1087	P1-7	P2-1	BLACK		M			P2-9							
03-09-1086	P1-8	P2-8	RED		F										
03-09-1085	P1-9	P2-1	BROWN	22	F	34.25									

- 1. THIS WIRES ARE TWISTED.
 - 2. CATHODE SIDE - ANODE SIDE OF DIODE.
 - 3. CINEMATRONICS INC. PART NO.
- NOTES: UNLESS OTHERWISE SPECIFIED

DATE: 4-14-82	DATE: 4-14-82	DATE: 4-14-82	DATE: 4-14-82
DRAWN BY: [Signature]	PROJECT ENGR: [Signature]	RELEASE APPROV: [Signature]	DATE: 4-14-82
DO NOT SCALE DWG			
TOLERANCE: UNLESS OTHERWISE SPECIFIED			
PROJECTION: 1st ANGLE		SCALE: FULL	
MATERIAL: [Blank]		FINISH: [Blank]	
TOL: +1.0		-0.0	
CINEMATRONICS INC.		INC.	
DWG TITLE: WIRE LIST		REV. 1	
COIN DOOR INTERCONNECT		REV. 1	
UPRIGHT/COCKTAIL		REV. 1	
MODEL NO. DWG NO.		REV. 1	
SIZE C		REV. 1	
88-11755-01		REV. 1	
CODE IDENT.		SHEET 1 OF 1	

1

2

3

4

1

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REVISIONS			
REV	DESCRIPTION	DATE	APPROVED
A	ORIG REL EKN FTS	3-25-81	[Signature]
B	ECO (64 AM) 2/4 To P8	3-24-82	[Signature]

CONNECTOR	FROM	TO	COLOR	AWG	PIN	LENGTH	REMARKS
P6 CPU BD MOLEX # 03-09-2062 △ 41-10954-01	P6-1	P7-3	BLK	22	M	15.75	
	P6-1	P8-3	BLK	22	M		
	P6-2	P8-6	RED	22	M		
	P6-3	P8-5	GRN	22	M		
	P6-4	P8-4	BLU	22	M		
	P6-5	P7-1	WHT	22	M		
P7 RASTER MON MOLEX # 09-50-7031 △ 41-11727-01	P7-1	P6-5	WHT	22	F		
	P7-2	P6-5	WHT	22	F		
	P7-3	P6-1	BLK	22	F		
P8 RASTER MON MOLEX # 09-50-7061 △ 41-11724-01	P8-1	P6-1	BLK	22	F		
	P8-2	P6-4	BLU	22	F		
	P8-3	P6-3	GRN	22	F		
	P8-4	P6-2	RED	22	F		
	P8-5	P6-2	RED	22	F		
	P8-6	P6-2	RED	22	F		

NOT USED

NOT USED

- 3. M = MALE PIN, MOLEX PIN 02-09-711B.
- △ F = CRIMP TERMINALS MOLEX PIN 08-50-0106
- △ PIN 35-10880-01.
- △ CINEMATRONICS PART NO.

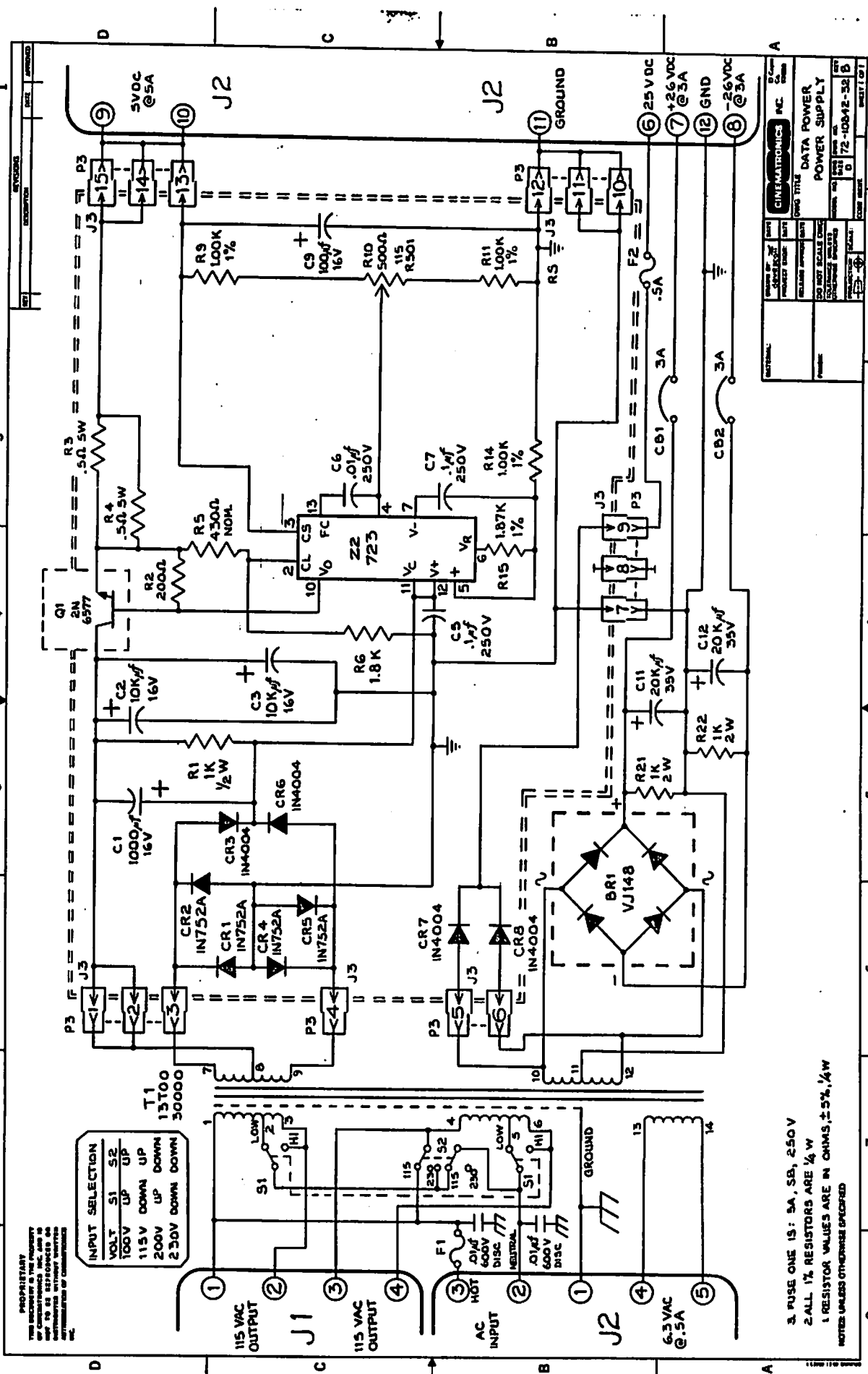
NOTES: UNLESS OTHERWISE SPECIFIED

DRAWN BY: TENNESSEE	DATE 3-24-81	CINEMATRONICS INC.	BI Center CA. 92080
PROJECT ENGR: [Signature]	DATE 3-24-81	DWG TITLE WIRE LIST - RASTER MONITOR TO GAME PD UPRIGHT/COCKTAIL (J.G.)	REV. NO. 1
RELEASE APPROV: [Signature]	DATE 3-24-81	MODEL NO. 88-11711-01	SIZE C
DO NOT SCALE DWG UNLESS OTHERWISE SPECIFIED	SCALE: 1" = 1"	PROJECTION: 1st Angle	SHEET 1 OF 1

MATERIAL:	FINISH:
TOLERANCE	
+ 1.0	
- 0.0	

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INFORMATION STORAGE AND
RETRIEVAL SYSTEM.

INPUT SELECTION	
VOLT	S1 S2
100V	UP UP
115V	DOWN UP
200V	UP DOWN
250V	DOWN DOWN



- 3. FUSE ONE IS: 5A, 5B, 250V
 - 2. ALL 1% RESISTORS ARE 1/4 W
 - 1. RESISTOR VALUES ARE IN OHMS, ±.5%, 1/4 W
- NOTES: UNLESS OTHERWISE SPECIFIED

DATE	REV	BY	CHKD
DESIGNED BY			
PROJECT ENGINEER			
RELEASE APPROVAL			
CINELECTRONICS, INC.			
DATA POWER SUPPLY			
FORM NO.	REV	DATE	ISSUE NO.
72-10042-32	8		
DRAWN BY:			
CHECKED BY:			

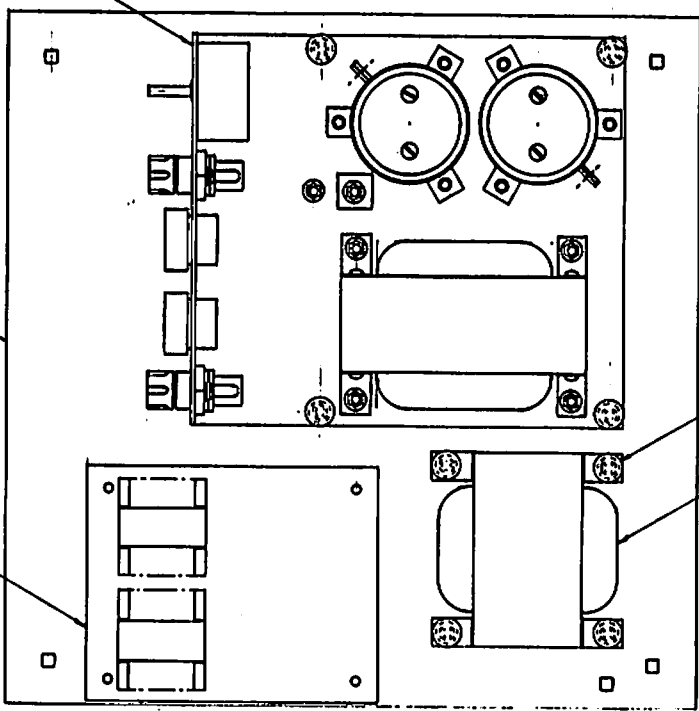
8 7 6 5 4 3 2 1

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REGULATOR P.C. BOARD
 75-11055-01

HEATSHIELD PLATE - PWR 4P4 & TRUB
 75-11000-01

POWER SUPPLY
 87-10547-00
 BOLT, CARRIAGE, 5/16" x 1/2", 75-10561-01 (4)
 WASHER, FLAT, NO. 10 x 1/2", 75-10548-01 (4)
 WASHER, LOCK, NO. 10 INTERM., 75-10572-01 (4)
 NUT, W/ST, NO. 10-7/16", 75-10558-01 (4)



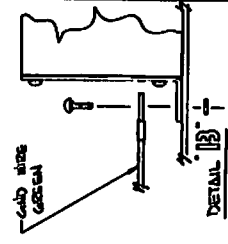
SEE DETAIL "B"

TRANSFORMER
 87-11717-01
 BOLT, CARRIAGE, 5/16" x 1/2"
 75-10561-01 (4)
 WASHER, FLAT, NO. 10 x 1/2", 75-10548-01 (4)
 WASHER, LOCK, NO. 10 INTERM., 75-10572-01 (4)
 NUT, W/ST, NO. 10-7/16", 75-10558-01 (4)



VIEW A-A

DUAL LOCUMULI P.L.B.
 SPRING (4)
 PIN 75-11007-01



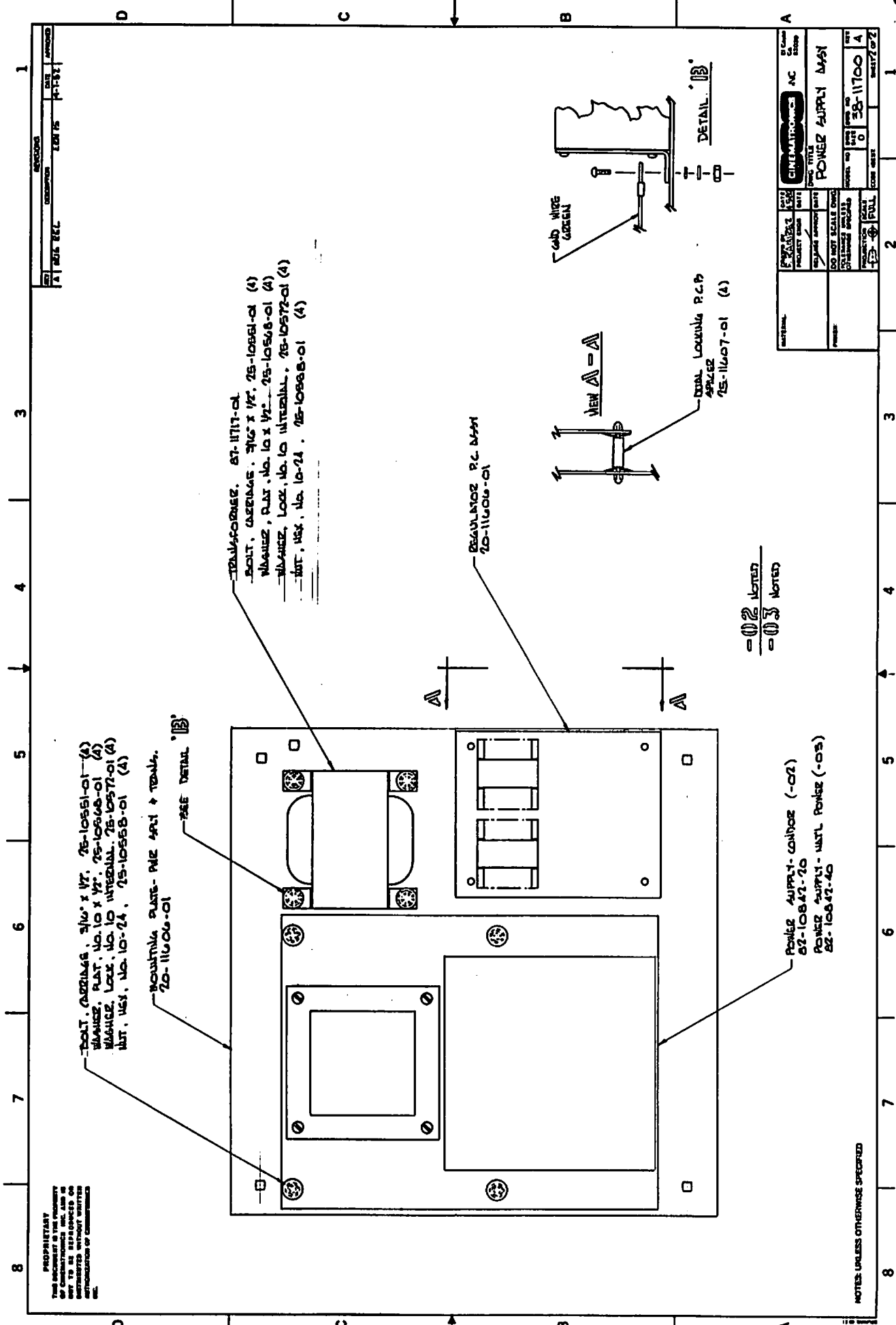
SEE DETAIL "B"

REV	DATE	BY	APPROVED
1	1-17-68	LEWIS	[Signature]
DESCRIPTION		REVISIONS	
A 7265 REL		LEWIS	

PROJECT TITLE	PROJECT NO.	DATE	SCALE
CINEMATRONICS INC	158-11700-01 A	1-17-68	1:1
DESIGNER	CHECKED	DATE	SCALE
LEWIS	[Signature]	1-17-68	1:1
PROJECT NO.		DATE	
158-11700-01 A		1-17-68	
PROJECT TITLE		DATE	
CINEMATRONICS INC		1-17-68	
PROJECT NO.		DATE	
158-11700-01 A		1-17-68	
PROJECT TITLE		DATE	
CINEMATRONICS INC		1-17-68	
PROJECT NO.		DATE	
158-11700-01 A		1-17-68	

NOTE: UNLESS OTHERWISE SPECIFIED

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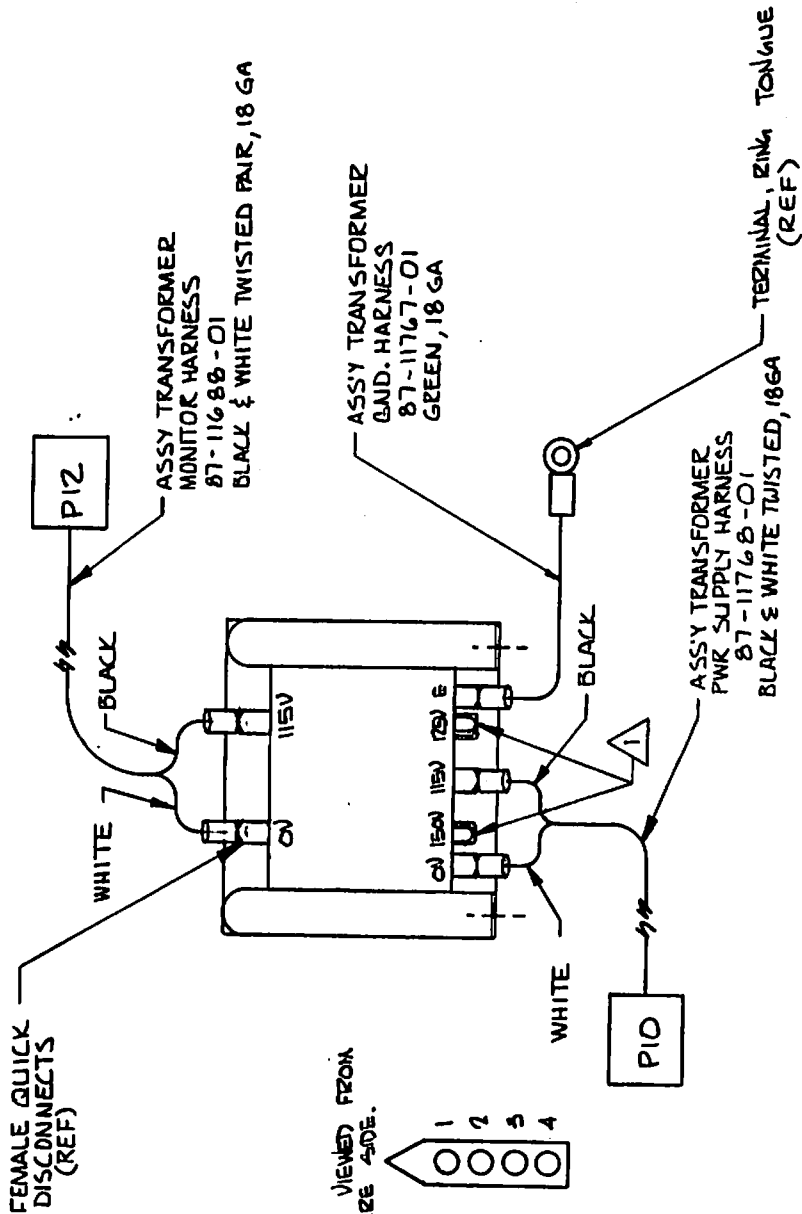
① 2 NOTED
 ② 3 NOTED

REV		DATE	APPROVED
A		11-18-81	
DESCRIPTION		TITLE	
CINEMATRONICS		POWER SUPPLY 14441	
REV	DATE	BY	CHK
0	11-18-81		
PART NO		QTY	UNIT
82-10847-20		4	
82-10847-40		4	
87-11717-01		1	
20-11606-01		1	
25-11607-01		4	
25-10561-01		4	
25-10568-01		4	
25-10572-01		4	

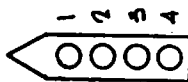
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AS VIEWED FROM
 WIRE SIDE.



AS VIEWED FROM
 WIRE SIDE.



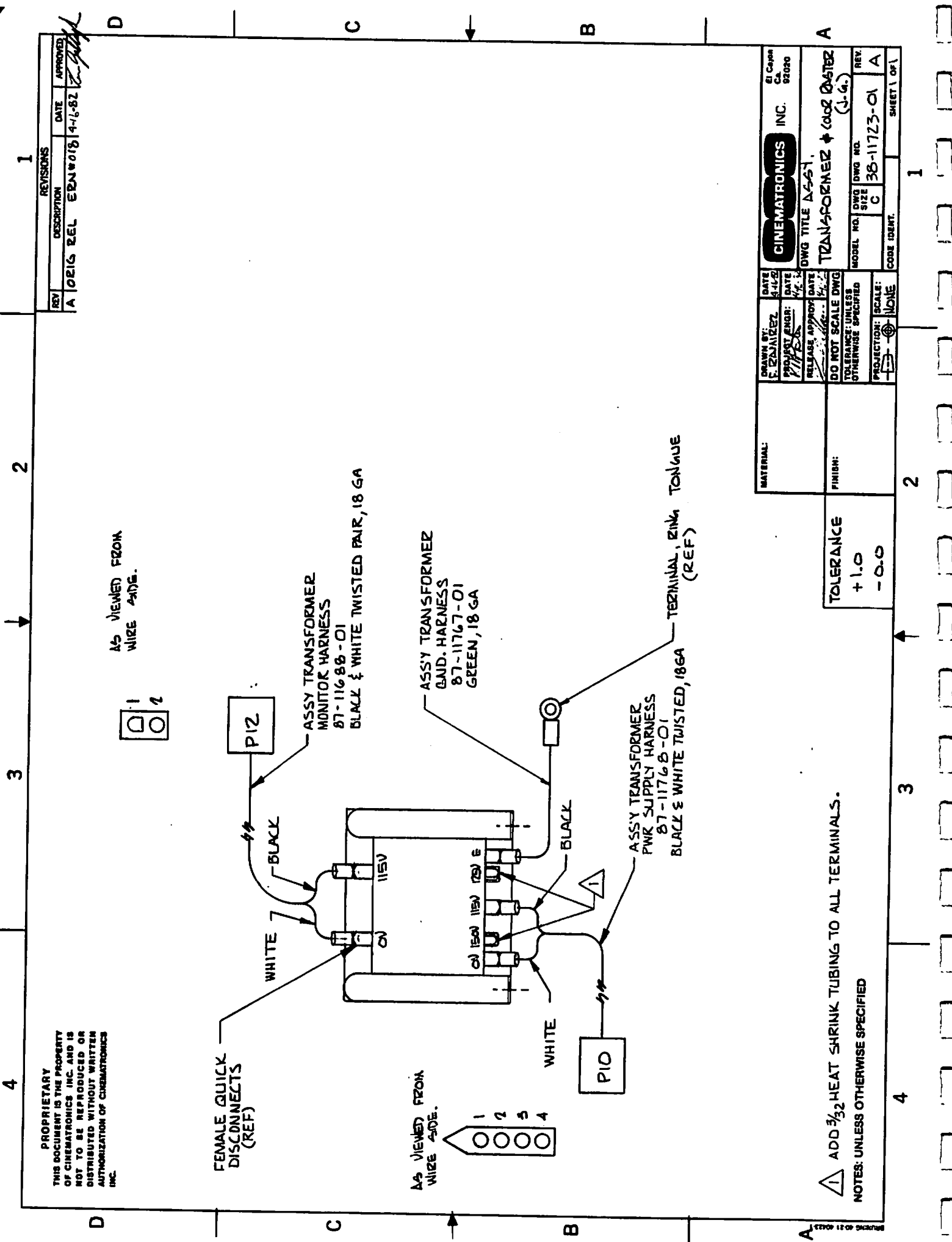
△ ADD 3/32 HEAT SHRINK TUBING TO ALL TERMINALS.

NOTES: UNLESS OTHERWISE SPECIFIED

REV		DESCRIPTION		DATE	APPROVED
A	ORIG REL	ERN #018	4-7-82	[Signature]	[Signature]

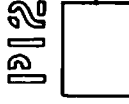
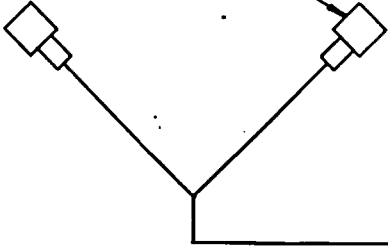
DATE	4-1-82	DATE	
DRAWN BY:	E. ZAJICEZ	DATE	4-7-82
PROJECT ENGR:	M. B. [Signature]	DATE	4-7-82
RELEASE APPROV:	[Signature]	DATE	4-7-82
DO NOT SCALE DWG			
TOLERANCE UNLESS OTHERWISE SPECIFIED			
PROJECTION: SCALE: NONE			

CINEMATRONICS INC.		E. Caplan 92030	
DWG TITLE: TRANSFORMER & MONITOR HARNESS (1-6)			
MODEL NO.	DWG NO.	DWG NO.	REV.
	C	38-11723-01	A
CODE IDENT.			SHEET 1 OF 1



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TERMINAL, FEMALE, QUICK DISCONNECT, .082 X .250 FULLY INSULATED
 SPECIFICATION NO. P0721F10D OR EQUIVALENT
 CINE. NO. 35-11772-01 (2)

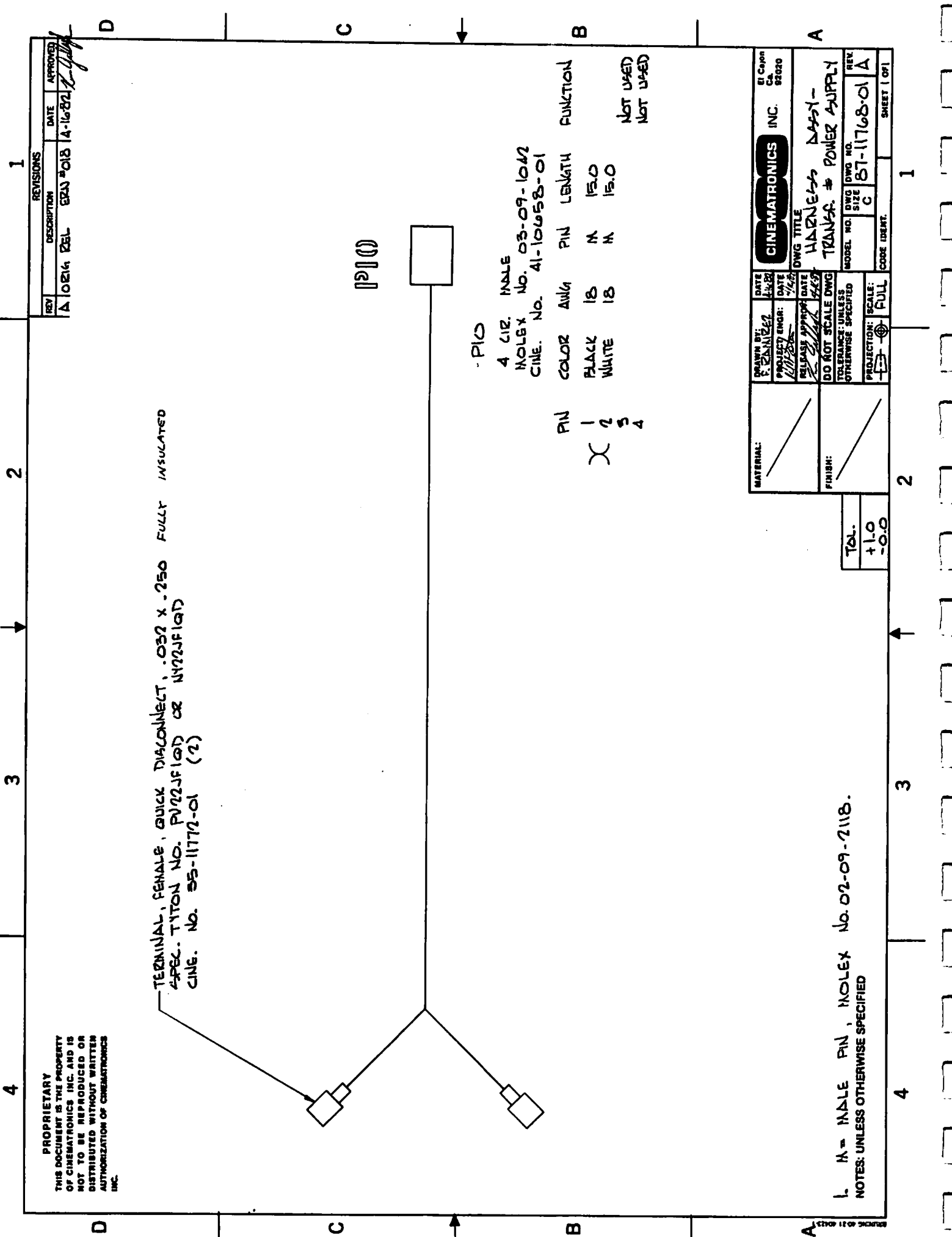


P12
 2 CIR MALE
 MOLEX NO. 19-09-1019
 CINE. NO. 41-11766-01

PIN 1	COLOR BLACK	AWG 18	PIN F	LENGTH 26.0
PIN 2	COLOR WHITE	AWG 18	PIN C	LENGTH 26.0

DRAWN BY: C. ZAMARZEL		DATE: 7-1-82	CINEMATRONICS INC.		El Cajon Ca 92020
PROJECT ENGR: P. BROS	DATE: 7-1-82	RELEASE APPROV: [Signature]	DWG TITLE: HARNESS ASSTY - TRANSF. # MONITOR		REV: A
DO NOT SCALE DWG			MODEL NO. C	DWG NO. 87-11688-01	REV: A
TOLERANCE: UNLESS OTHERWISE SPECIFIED			SCALE: FULL	CODE IDENT.	SHEET 1 OF 1

t: F= FEMALE SOCKET, MOLEX NO. 02-09-1118.
 NOTES: UNLESS OTHERWISE SPECIFIED



TERMINAL, FEMALE, QUICK DISCONNECT, .032 X .250 FULLY INSULATED
 SPEC. TYTON NO. P122JF10D OR N122JF10D
 CING. NO. 35-1177-01 (2)

-P10

4 CIR. INHLE
 MOLEX NO. 03-09-1042
 CINE. NO. 41-10658-01

PIN	COLOR	ANG	PIN	LENGTH	FUNCTION
1	BLACK	18	M	15.0	NOT USED
2	WHITE	18	M	15.0	NOT USED
3					
4					

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REVISIONS		
REV	DESCRIPTION	DATE
A	10214 EAL	ERN #018 14-16-82

DRAWN BY: E. RANIER		DATE: 4-28	CINEMATRONICS INC. 81 Cajon CA 92020	
PROJECT ENGR: K. H. B.		DATE: 4-28	DWG TITLE HANDLES DATA - TRANSFER # POWER SUPPLY	
RELEASE APPROV: K. H. B.		DATE: 4-28	DWG NO. C	
DO NOT SCALE DWG		TOLERANCE: UNLESS OTHERWISE SPECIFIED		REV. A
FINISH: FULL		PROJECTION: UNLESS OTHERWISE SPECIFIED		SIZE C
MATERIAL:		SCALE: FULL		CODE IDENT.
TOL. +1.0 -0.0		SHEET 1 OF 1		

L. H. INHLE PIN, MOLEX No. 02-09-2118.
 NOTES: UNLESS OTHERWISE SPECIFIED

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REVISIONS

REV	DESCRIPTION	DATE	APPROVED
A	ORIG DEL EDN #018	4-16-82	<i>[Signature]</i>

TERMINAL, FEMALE, QUICK DISCONNECT, .032 X .250 FULLY INSULATED
 SPEC. TYTON NO. P022JF1QD OR NY22JF1QD
 CINE. NO. 35-11772-01

WIRE, 18 AWG, GREEN, LG. 5.0
 34-11273-01

TERMINAL, RING, TONGUE
 35-10618-01



DRAWN BY: <i>RANIEZ</i>		DATE: <i>4-16-82</i>	CINEMATRONICS INC. El Cajon Ca. 92020
PROJECT ENGR:		DATE:	
RELEASE APPROV: <i>[Signature]</i>		DATE: <i>4-16-82</i>	DWG TITLE HARNEYS ASSY - TRANSF. GROUND
DO NOT SCALE DWG			
TOLERANCE: UNLESS OTHERWISE SPECIFIED		MODEL NO.	DWG NO.
PROJECTION:		SCALE: FULL	REV. A
MATERIAL:		SHEET 1 OF 1	
FINISH: BREAK ALL SHARP EDGES AND DEBURR ALL HOLES.		TOL: +1.0 -0.0	
		SIZE	87-11767-01
		CODE IDENT.	

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CONNECTOR	FROM	TO	COLOR	AWG	PIN	LENGTH	REMARKS
P9 PWR SUPPLY MOLEX # 03-09-1122 △ 91-10647-01	P9-1	P15-GRN	GRN	18	M		CHASSIS GND
	-2	P15-WHT	WHT	18	M		15V NEUT
	-3	INT. SWITCH	RED/BLK	18	M	16.0	15V HOT
	-4						NOT USED
	-5						NOT USED
	-6						NOT USED
	-7	P1-6	RED	18	M		+25V UNREG
	-8	P1-4	BLUE	18	M		-25V UNREG
	-9						NOT USED
P15 AC LINE CORD	-10	P5-2	RED	18	M		+5V
	-11	P5-1	BLK	18	M		SIGNAL GND
	P9-12	P1-5	BLK	18	M		SIGNAL GND
S1 INTERLOCK	P15-GRN	P9-1		18	M		96" LONG
	P15-WHT	P9-2		18	M		W / PLUG
	P15-BLK	61-COM		18	WN		
	S1-COM	P15-BLK	BLK/BLK	18	FOD	16.0	
	S1-N.O.	P9-3	RED/BLK	18	FOD	16.0	

CONNECTOR	FROM	TO	COLOR	AWG	PIN	LENGTH	REMARKS
P5 MAIN WIRE HARNESS MOLEX # 03-09-2121 △	P5-1	P9-11	BLK	18	M	52.0	SIGNAL GND
	-2	P9-10	RED		F	52.0	+5V
	-3	P11-1	BRN		M	52.0	-5V
	-4	P11-3	ORANGE		M	52.0	+12V
	-5						NOT USED
	-6						NOT USED
	-7						NOT USED
	-8						NOT USED
	-9						NOT USED
	-10						NOT USED
	-11						NOT USED
P5-12						NOT USED	
P11 REGULATOR BD MOLEX # 03-09-1063 △ 91-10657-01	P11-1	P5-3	BRN	18	F		-5V
	-2						NOT USED
	-3	P5-4	ORANGE	18	F		+12V
	-4	P9-8	BLUE	18	F	12.0	-25V UNREG
	-5	P9-12	BLK	18	F	12.0	SIGNAL GND
	P11-6	P9-7	RED	18	M	12.0	+25V UNREG

5. FOD - FEMALE QUICK DISCONNECT 3/16.
 4. F - FEMALE SOCKET 02-09-1118.
 3. M - MALE PIN 02-09-2118.
 2. WN - WIRE NUT CONNECTION.
- △ CINEMATRONICS PART NO.
NOTES: UNLESS OTHERWISE SPECIFIED

REV	DESCRIPTION	DATE	APPROVED
A	ORIG. REL. ERN # 013	5-15-82	

DATE: 5-15-82	DATE: 5-23-82	DATE: 5-23-82
DRAWN BY: TEANES	PROJECT ENGR: [Signature]	RELEASE APPROV: [Signature]
MATERIAL:	DO NOT SCALE DWG	TOLERANCE: UNLESS OTHERWISE SPECIFIED
FINISH:	PROJECTION: SCALE:	
TOLERANCE +1.0 -0.0		

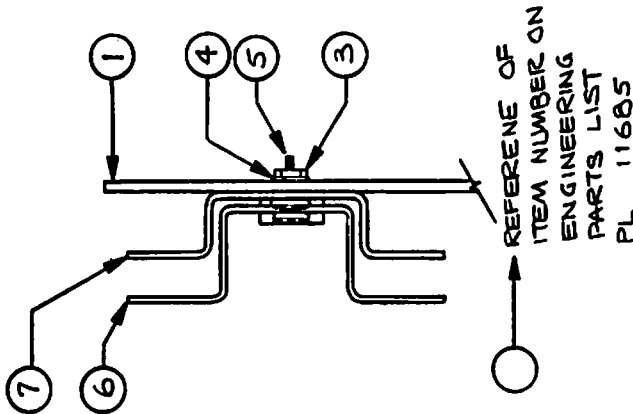
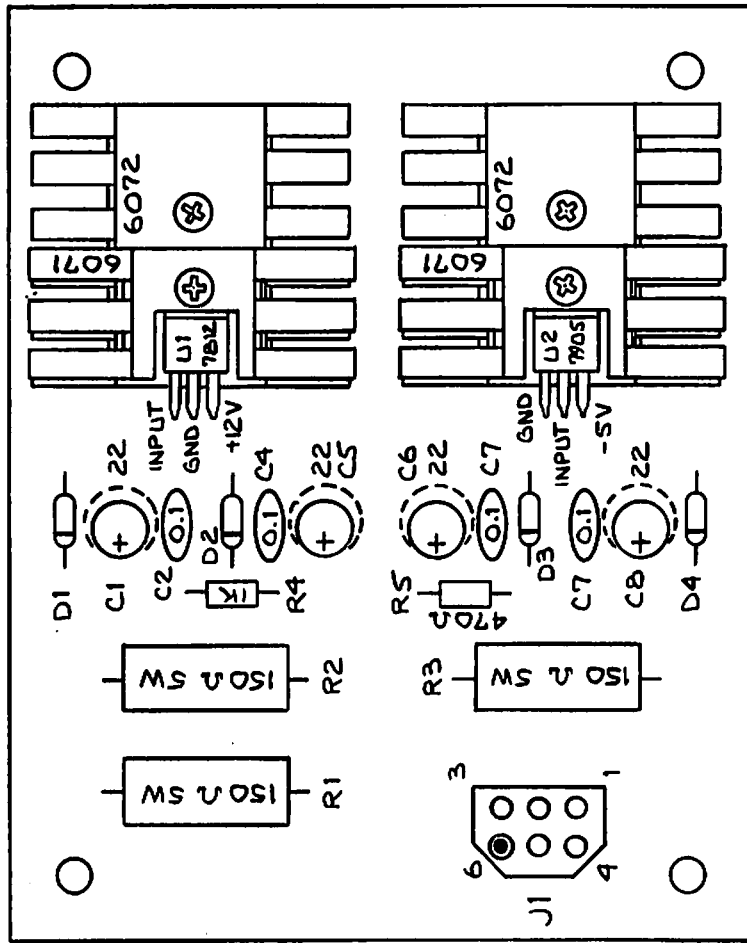
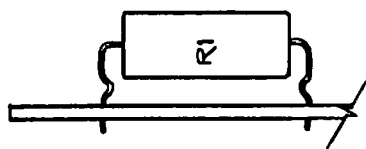
CINEMATRONICS INC.
81 Capon
14
92020

WIRE LIST

AC POWER CORD HARNESS
MASTER L. BRIGHT / CCK FALL
MODEL NO. DWG NO. REV
SIZE C 88-11701-01 A

CODE IDENT. SHEET 1 OF 1

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5. R4 AND R5 ARE 1/4WATT, 5% CARBON. VALUES ARE IN OHMS
 4. ELECTROLYTIC CAPACITOR WITH POLARITY MARK AND LOCATION FOR OVERSIZED CAPACITOR
 3. ○ IS A DISK CAPACITOR
 2. CAPACITOR VALUES ARE IN MICRO FARADS, 50V
 1. ALL DIODES ARE 1N4003
- NOTES: UNLESS OTHERWISE SPECIFIED

REVISIONS			
REV	DESCRIPTION	DATE	APPROVED
B	ORIGINAL RELEASE	19 MAR 1982	
	ERN 012	1982	

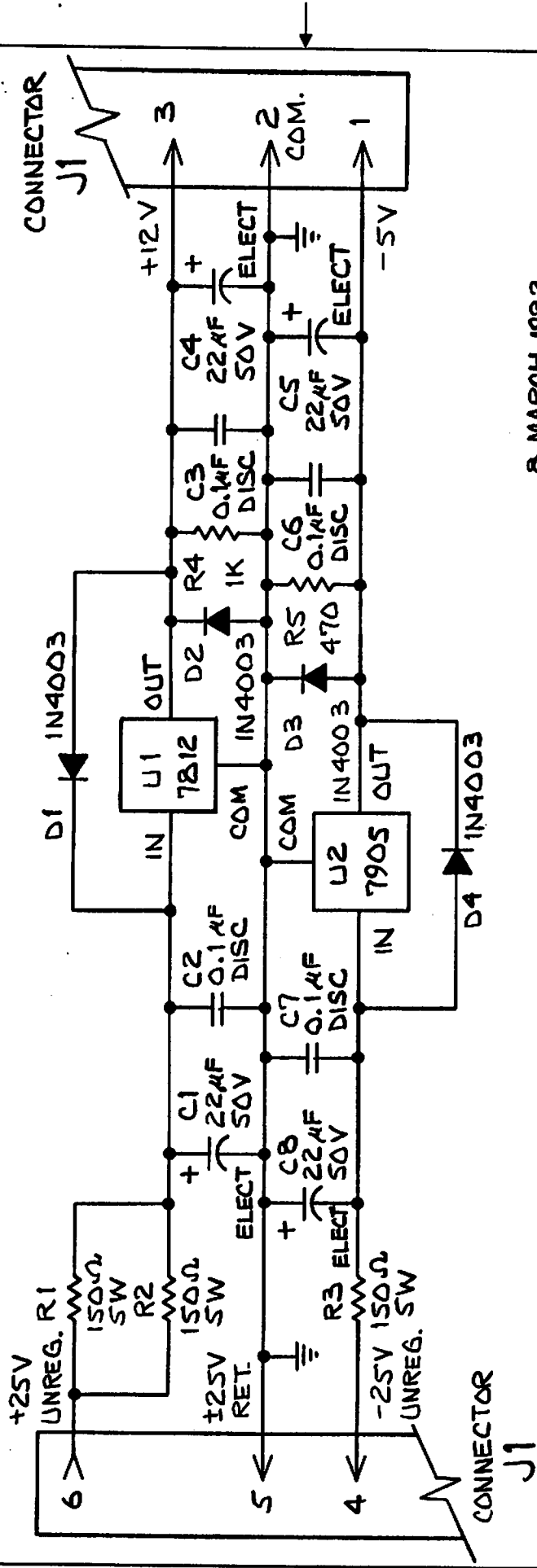
16 MARCH 1981

DRAWN BY: <i>CVJ/SCG</i>		DATE: <i>3/18</i>	CINEMATRONICS INC. El Cajon Ca 92020
PROJECT ENGR: <i>Robble</i>	DATE: <i>3/18</i>	DWG TITLE: P.C.A. REGULATOR	
RELEASE APPROV: <i>[Signature]</i>	DATE: <i>3/18</i>	DWG NO. <i>81-11685-01</i>	REV. <i>B</i>
DO NOT SCALE DWG			MODEL NO. <i>C</i>
TOLERANCE: UNLESS OTHERWISE SPECIFIED			DWG SIZE <i>8 1/2 X 11</i>
PROJECTION: <i>1</i>			CODE IDENT. <i>1</i>
SCALE: <i>2:1</i>			SHEET 1 OF 1

REVISIONS	
REV	DESCRIPTION
B	ORIGINAL RELEASE ERN 012

DATE	APPROVED
19 MAR 1982	<i>[Signature]</i>

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8 MARCH 1982

DRAWN BY: <i>[Signature]</i>		DATE: 2/1/82	CINEMATRONICS INC. El Cajon Ca. 92020
PROJECT ENGR: <i>[Signature]</i>		DATE: 2/1/82	
RELEASE APPROV: <i>[Signature]</i>		DATE: 2/1/82	DWG TITLE: REGULATOR +12, -5 VOLTS
DO NOT SCALE DWG		TOLERANCE: UNLESS OTHERWISE SPECIFIED	
PROJECTION:		SCALE:	MODEL NO. DWG NO. REV. B 72-11685-00 B
MATERIAL:		CODE IDENT. SHEET 1 OF 1	
FINISH: BREAK ALL SHARP EDGES AND DEBURR ALL HOLES.			

2. R4 AND R5 VALUES ARE IN OHMS
 1. R4 AND R5 ARE 1/4 WATT, 5% CARBON
 NOTES: UNLESS SPECIFIED OTHERWISE

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REVISIONS			
REV	DESCRIPTION	DATE	APPROVED
A	DEL REL	4-7-62	<i>[Signature]</i>

ASS'Y BOARD (N.B.)
 38-11733-01

INSTALL THIS WIRE
 FROM FAR SIDE

SOLDER TO PIN 8 (COMP. SIDE) & PIN 3 (AIR SIDE).
 BOTH SIDES AS SHOWN.

USE BUSSWIRE
 P/N 34-10596-01
 2 PLACES

2 COMPONENT
 SIDE 2

△ REMOVE POT FROM VRI LOCATION AND INSTALL
 CAPACITOR, .005 MF, 50V, DISC AS SHOWN
 P/N 63-11584-01


NOTES: UNLESS OTHERWISE SPECIFIED

CINEMATRONICS INC. El Cajon Ca. 92020		DWG TITLE ASS'Y BOARD W/VOLUME MOD (N.B.)		MODEL NO. DWG NO. REV. C 38-11733-02 A	
DATE 4-7-62	DATE 7-7-62	DATE 7-7-62	DATE 7-7-62	DO NOT SCALE DWG	
DRAWN BY: LENNE	PROJECT ENGR: <i>[Signature]</i>	RELEASED BY: <i>[Signature]</i>	TOLERANCE: UNLESS OTHERWISE SPECIFIED		
MATERIAL:			FINISH:		
PROJECTION: 1st Angle			SCALE:		

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REVISIONS		
REV	DESCRIPTION	DATE
A	ORIG RELEASE ERN #D13	3/25/82

CONNECTOR	FROM	TO	COLOR	AWG	PIN	LENGTH	REMARKS
P4							
MAIN	P4 - 1	SPEAKER	BRN	22	M	45.0	△
WIRE HARN	P4 - 2	SPEAKER	WHT	22	M	45.0	△
MOLLEX P/N	P4 - 3						NOT USED
03-CF-2038							
△ 41-10659-01							

CINEMATRONICS INC.		El Cajon Ca. 92020	
DWG TITLE		WIRE LIST-(04KTAIL) SPEAKER HARNESS (36)	
MODEL NO.	DWG NO.	DWG NO.	REV.
	SIZE	80-11692-01	A
DRAWN BY: TEJINES		DATE 7/25/82	
PROJECT ENGR:		DATE 7/25/82	
RELEASE APPROV:		DATE	
DO NOT SCALE DWG			
TOLERANCE: UNLESS OTHERWISE SPECIFIED			
PROJECTION: 		SCALE:	
MATERIAL:		FINISH:	
BREAK ALL SHARP EDGES AND DEBURR ALL HOLES.			

△ CINEMATRONICS PART NO.

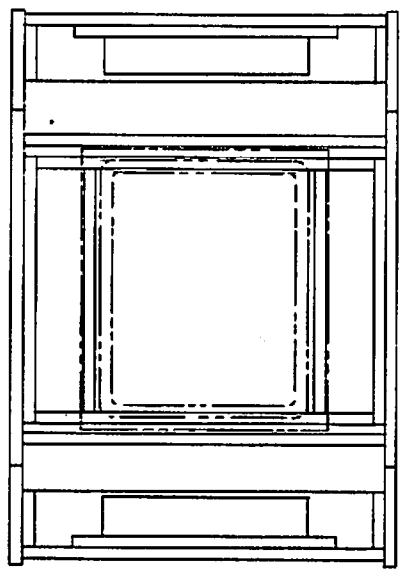
△ WIRES TERMINATE AT SPEAKER END WITH
 WITH FEMALE QUICK DISCONNECTS,
 CINEMATRONICS P/N 35-10617-01

NOTES:

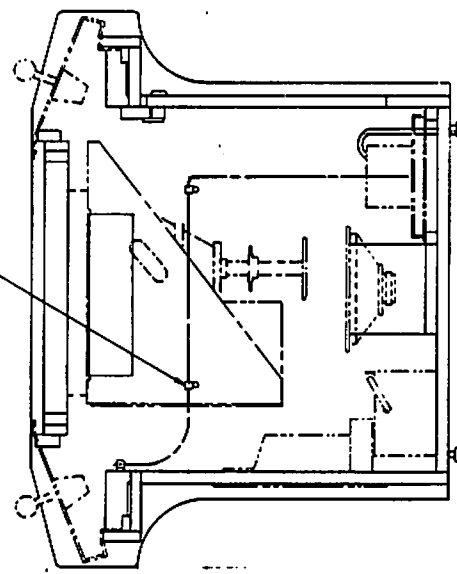
TD
 +1.0"
 -0.0"

CODE IDENT. SHEET 1 OF 1

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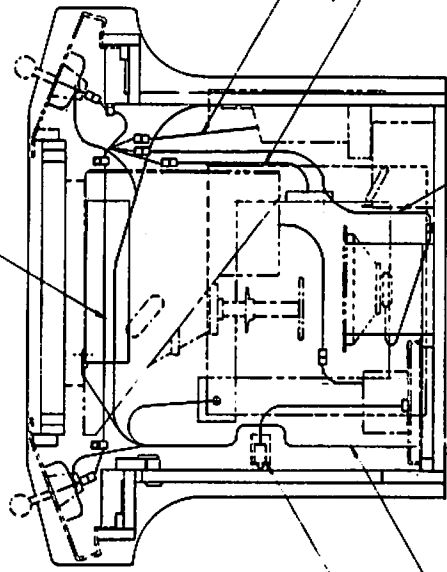


TY. CAP. 100V 500K
 75-10550-01 (B)
 ALUM. WOOD. 1/2" X 1/8"
 75-10566-01 (B)



SECTION A-A

HARNESS Assy - CT. PAL INTERFACE
 87-11710-01

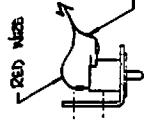


SECTION C-C

AGE DETAIL

ROUND FLAT TUBER COPPER .312"
 84-10903-01
 LUM. (ROUND) 35-11096-01 (W)

AC POWER CORD Assy
 87-11701-01



DETAIL D
 SCALE: 1/2"

HARNESS Assy - COM
 THRU THE INTERFACE
 87-11715-01

HARNESS Assy - MAIN
 87-11681-02

HARNESS Assy - APPEASE
 87-11692-01

REV	DESCRIPTION	DATE	APPROVED
1	PAGE SHEET 1		

DATE 1/78	CINEMATRONICS INC	DRAW TITLE TOP ASSEMBLY (115)	SHEET NO D	SHEET TOTAL 10-11703-01
DO NOT SCALE DRAWING	RELEASE APPROVAL	DATE	DATE	DATE
TOLERANCE UNLESS OTHERWISE SPECIFIED	POSITION TOLERANCE	DATE	DATE	DATE
1/4	1/4	1/4	1/4	1/4

NOTES: UNLESS OTHERWISE SPECIFIED

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SPEAKER
 38-11439-01

REGULATOR
 BOARD
 ASSY
 81-11685-01

CONT. PANEL
 ASSY
 PLATE 2 COCKTAIL
 38-11691-02

CONT. PANEL
 ASSY
 PLATE 1 COCKTAIL
 38-11692-01

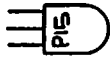
COIN DOOR
 ASSY
 38-11698-01

ASSY. BOARD
 WITH VOL. MOD. (A13)
 38-11733-02

RASTER COLOR
 MON. ASSY
 38-11434-01

POWER
 SUPPLY ASSY
 38-11716-01
 38-11716-02

TRANSFORMER
 ASSY
 38-11723-01

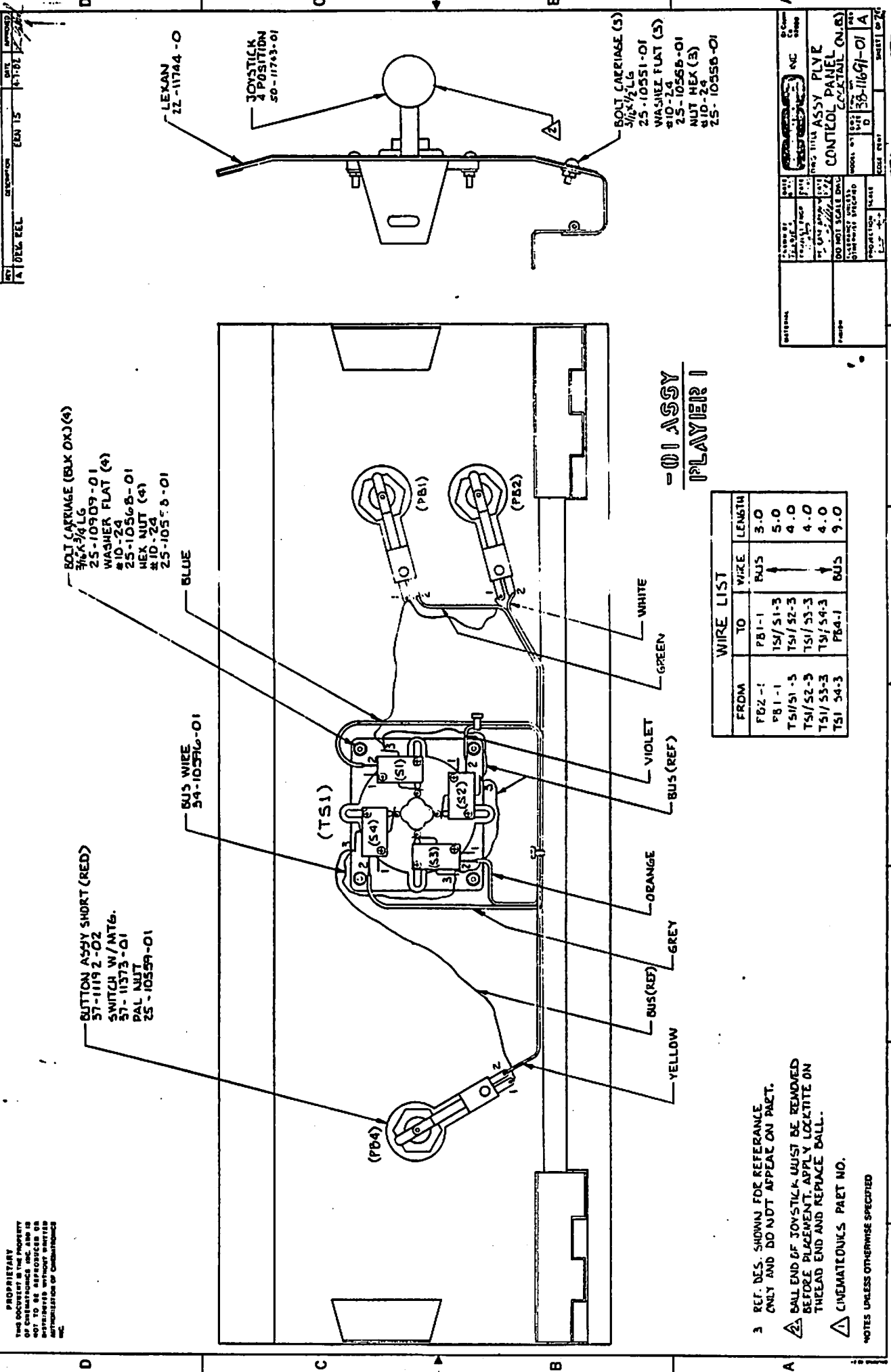


DRAWN BY: F. PALMER		DATE: 3-28-82	PROJECT ENGR: K. B. B.		DATE: 4-5-82	RELEASE APPROV. DATE: 4-5-82	
MATERIAL:		FINISH:		DO NOT SCALE DWG		TOLERANCE: UNLESS OTHERWISE SPECIFIED	
PROJECTION:		SCALE:		NONE		CODE IDENT.	
CINEMATRONICS INC.		INC.		INC.		INC.	
DWG TITLE: INTERCONNECT COCKTAIL		DWG NO. C		DWG NO. 11-11735-01		REV. A	
EL Cajon Ca. 92020		DWG NO. 11-11735-01		REV. A		SHEET 1 OF 1	

REV	DESCRIPTION	DATE	APPROVED
A	ORIG. DES. ERM # 0/4	4-5-82	[Signature]

NOTES: UNLESS OTHERWISE SPECIFIED

PRINTED ON 21 0423



BOI (ARRIAGE (BLK OX) (4)
 3/16" x 3/4 LG
 25-10909-01
 WASHER FLAT (4)
 #10-24
 25-10565-01
 HEX NUT (4)
 #10-24
 25-10555-01

BUTTON ASSY SHORT (RED)
 57-11119 2-02
 SWITCH W/MT6.
 57-11373-01
 PAL NUT
 25-10559-01

BUS WIRE
 34-10576-01

BLUE

WHITE

GREEN

VIOLET

BUS (REF)

ORANGE

GREY

BUS (REF)

YELLOW

**-01 ASSY
 PLAYER I**

WIRE LIST			
FROM	TO	WIRE	LENGTH
PB2-1	PB1-1	BUS	3.0
PB1-1	TS1/S1-3		5.0
TS1/S1-3	TS1/S2-3		4.0
TS1/S2-3	TS1/S3-3		4.0
TS1/S3-3	TS1/S4-3		4.0
TS1/S4-3	PB4-1	BUS	9.0

3 REF. DES. SHOWN FOR REFERENCE ONLY AND DO NOT APPEAR ON PART.

▲ BALL END OF JOYSTICK MUST BE REMOVED BEFORE PLACEMENT. APPLY LOCKTITE ON THREAD END AND REPLACE BALL.

△ CINEMATONICS PART NO.

NOTES UNLESS OTHERWISE SPECIFIED

PROPERTY: UNCLASSIFIED
 CONTROL: CONTROLLED
 DATE: 1-17-61
 BY: [Signature]
 CHECKED BY: [Signature]
 TITLE: CONTROL PANEL
 PART NO.: 1026 REEL
 DRAWING NO.: ERM 15
 REV. 15
 SHEET 1 OF 1

1 2 3 4

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CONNECTOR	FROM	TO	COLOR	AWG	PIN	LENGTH	REMARKS	
P3 EDGE CONN. MOLEX P/N 03-09-1152 OR EQUIV. OUR P/N 41-10660-01 15 CIR. MALE	P3-1	P14-9	ORANGE	22	M	28.0		
	P3-2	P4-8	BLUE					
	P3-3	P4-7	BROWN					
	P3-4	P4-6	GRAY					
	P3-5	P4-5	YELLOW					
	P3-6	P4-4	VIOLET					
	P3-7	P4-1	BLACK			28.0	GND NO.2	
	P3-8	P3-2	BLACK			10.0	GND NO.1	
	P3-9	P3-3	WHITE					
	P3-10	P3-4	GREEN					
	P3-11	P3-5	VIOLET					
	P3-12	P3-6	YELLOW					
	P3-13	P3-7	GREY					
	P3-14	P3-8	BROWN					
	P3-15	P3-9	BLUE			10.0		
P13 PLAYER NO.1 MOLEX P/N 03-09-1093 OR EQUIV. OUR P/N 41-10649-01 9 CIR. MALE	P3-1	P3-7	BLACK	22			GND NO.1	
	P3-2	P3-8	WHITE					
	P3-3	P3-9	GREEN					
	P3-4	P3-10	VIOLET					
	P3-5	P3-11	YELLOW					
	P3-6	P3-12	GREY					
	P3-7	P3-13	BROWN					
	P3-8	P3-14	BLUE					
	P3-9	P3-15	ORANGE	22				
	P14 PLAYER NO.2 MOLEX P/N 03-09-1093 OR EQUIV. OUR P/N 41-10649-01 9 CIR. MALE	P4-1	P3-7	BLACK	22			GND NO.2
		P4-2						NOT USED
		P4-3						NOT USED
		P4-4	P3-6	VIOLET				
		P4-5	P3-5	YELLOW				
		P4-6	P3-4	GREY				
P4-7		P3-3	BROWN					
P4-8		P3-2	BLUE					
P4-9		P3-1	ORANGE	22				

TOLEANCE
+1.0
-0.0

NOTES: UNLESS OTHERWISE SPECIFIED

REVISIONS			
REV	DESCRIPTION	DATE	APPROVED
A	ORIG REL ERN # 013	3-25-82	

CINEMATRONICS INC.
El Cajon
Ca.
92020

DATE: 3/25/82
PROJECT ENGR: [Signature]
RELEASE APPROV: [Signature]

DWG TITLE: WIRE LIST -
CONTROL PNL INTERCONN.
COCKTAIL (J.G.)

MODEL NO. DWG NO. REV
C 88-11710-01 A

CODE IDENT. SHEET 1 OF 1

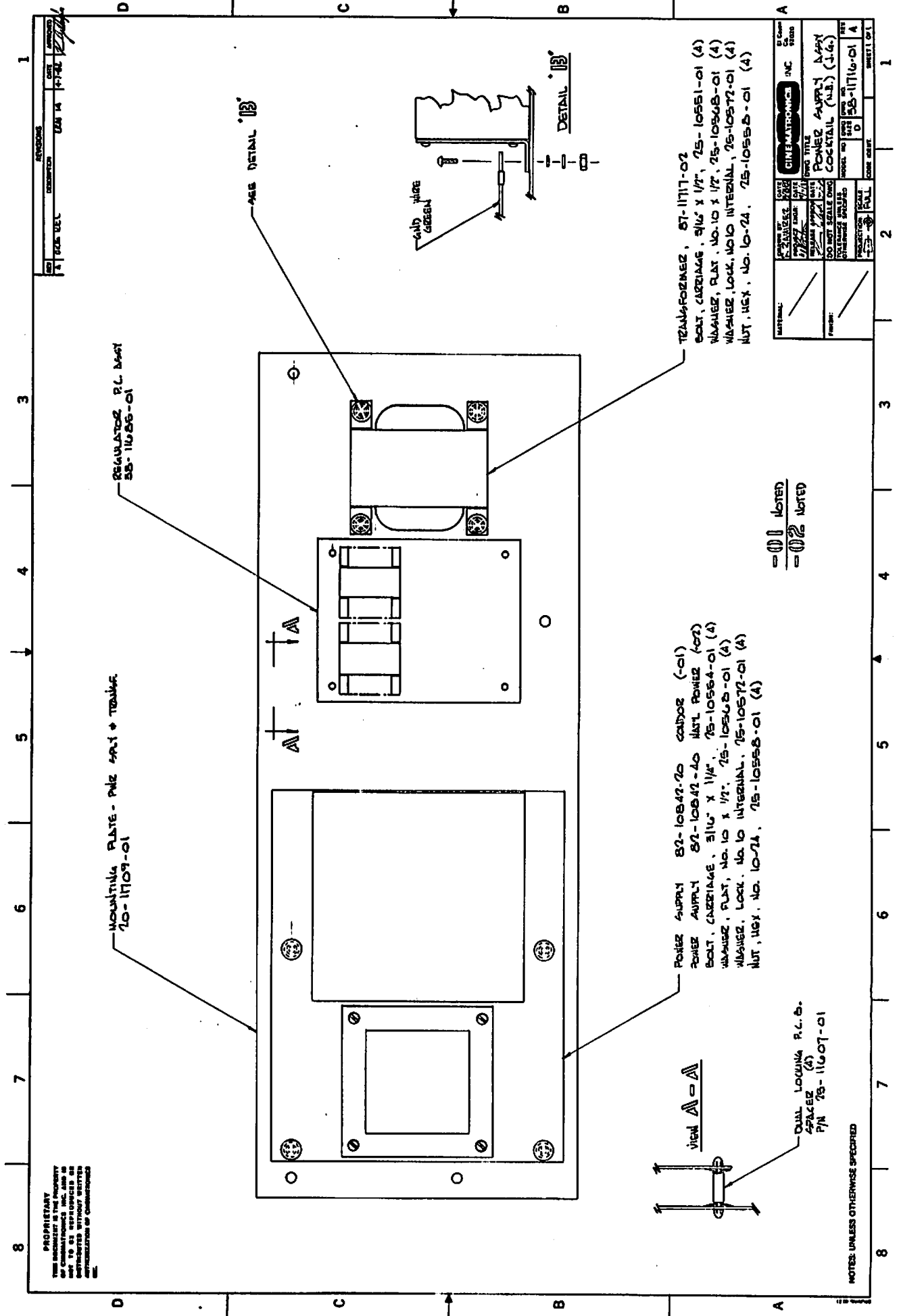
MATERIAL: /

FINISH: /

DO NOT SCALE DWG
TOLERANCE: UNLESS
OTHERWISE SPECIFIED

PROJECTION: SCALE: 1:1

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MOUNTING PLATE - PWR SUPPLY & TRANS
 75-1109-01

REGULATOR P.C. BOARD
 58-11056-01

AGE DETAIL 1/8"

DETAIL 1/8"

- POWER SUPPLY 87-10847-70 CONDOR (-01)
- POWER SUPPLY 87-10847-40 INST. POWER (-02)
- BOLT, CARTRIDGE, 5/16" X 1/2", 75-10564-01 (4)
- WASHER, FLAT, NO. 10 X 1/2", 75-10565-01 (4)
- WASHER, LOCK, NO. 10 INTERNAL, 75-10572-01 (4)
- NUT, HEX, NO. 10-7A, 75-10558-01 (4)

- TRANSFORMER, 87-1117-02
- BOLT, CARTRIDGE, 5/16" X 1/2", 75-10551-01 (4)
- WASHER, FLAT, NO. 10 X 1/2", 75-10565-01 (4)
- WASHER, LOCK, NO. 10 INTERNAL, 75-10572-01 (4)
- NUT, HEX, NO. 10-7A, 75-10558-01 (4)

VIEW A = A

DUAL LOCKING P.C.B.
 SPACER (A)
 P/N 75-11007-01

01 NOTED
 02 NOTED

CINE MATRONICS, INC.		REV. 01	
DATE	BY	DATE	BY
11/77	WAT		
PART TITLE			
POWER SUPPLY ASSEMBLY			
COCKTAIL (U.S.) (14)			
WORK NO.	REV.	DATE	BY
0	0		
PART NO.		REV.	
58-1116-01		A	
CAGE CODE		SHEET 1 OF 1	

NOTES: UNLESS OTHERWISE SPECIFIED

