



## **Owner's Manual**

**DIGGER  
Operating Instructions  
and  
Service Manual**

# INTRODUCTION . . .

This is an electronic game that makes extensive use of digital integrated circuitry and television monitor circuitry. This manual assumes the maintenance technician possesses a general knowledge of solid state circuitry microprocessor, TTL digital integrated circuitry and T.V. monitor concepts. Any individual **not** knowledgeable in these areas **should not** attempt repair of the electronic portion of this game. **It should be noted that any attempt to repair the game in the field without the express consent of the factory will immediately void the warranty!!!**

# IMPORTANT NOTES . . .

An important service note is posted in this game and is repeated here for emphasis:

**If at any time the T.V. screen shows a meaningless display or the game otherwise malfunctions, simply drop a coin into the coin mechanism. This should correct the problem. If not, the game requires service.**

The circuitry in this game has been arranged so that the insertion of a quarter through the coin mechanism will reset the restart in the system. This clears up temporary problems caused by power line disturbances, static, etc.

## SERVICE TECHNICIAN NOTE:

The system reset circuitry described above requires that the coin counter is attached to the system. If there is a coin counter problem and no replacement is available, the game will function properly if a 10K Ohm resistor is connected across the coin counter input pins to the video logic board.

# ALSO . . .

**Never** replace any components with anything other than exact replacement parts. (See Parts List located on Service Schematics.)

**Never** remove circuit boards/connections while power is on.

**Do Not** replace the fuse with anything other than the proper value. A blown fuse indicates an overload condition within the game. Replacing the fuse with a higher value can cause severe damage to internal components if an overload occurs.

**Always** consult the manual before attempting repairs.

**Correspondence** regarding this game should be addressed to:



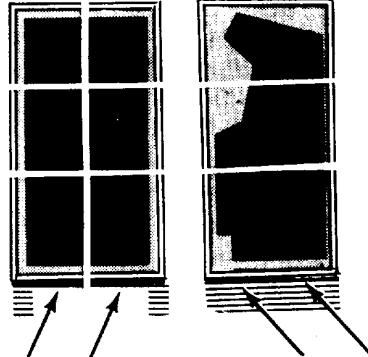
8401 Aero Drive  
San Diego, California 92123  
(714) 277-8700

# REPACKAGING INSTRUCTIONS...

**Arcade**  
25 $\frac{1}{4}$ " W x 67" H x 28" D  
64.77cm W x 170.18cm H x 71.12cm D  
280 lbs./122 kg.

## Arcade Version

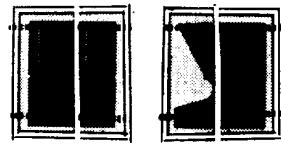
1. Carefully lay game on its side.
2. Attach pallet with **four** 5/16" - 18 x 1-3/4" bolts, as shown.
3. See Final Recrating Instructions, below.



**MiniVideo**  
22" H x 21" W x 20" D  
55.88cm H x 53.04cm W x 50.8cm D  
80 lbs./36 kg.

## Mini-Video Version

1. Place game upright inside bottom cover.
2. Slide cover over game. Add protective packing material.
3. Place top cover over side cover.
4. See Final Recrating Instructions, below.



**Cocktail**  
22" W x 34" L x 24 $\frac{1}{4}$ " H  
55.88cm W x 86.98cm L x 62.23cm H  
80 lb./36 kg.

## Cocktail Version

1. Place game inside carton.
2. Add protective packing material.
3. Place inside protective top cover over unit.
4. Close flaps and secure with shipping tape.
5. See Final Recrating Instructions, below.



# FINAL RECRATING INSTRUCTIONS...

Place game upright. Tape down game keys. Then, crate the game using appropriate shock-absorbent packing material. Include packing on edges of game. **Secure package with strapping.**

**Note . . .** If the game is to be shipped to Gremlin Industries for service or repair, attach a tag identifying the distributor and indicate the service or repair to be done. Include the full serial number of the game.

**All items must be shipped prepaid.**

# GAME CONCEPT...

DIGGER is a new Gremlin/SEGA game that requires you to dig strategically placed holes within a maze format so you can capture and fill in over the invading creatures before they can attack and destroy your man.

You maneuver your man around the maze with a four-directional joystick. Two push-button controls are used for your shoveling action: one, for the DIG function and another for the FILL function. The maze format changes with every round played.

DIGGER is a Gremlin Multi-Phase™ game that becomes increasingly challenging as your skills improve, as you will see.

The creatures are confined behind a wall. In the first of three rounds of game play, four creatures are let out of the holding area through a gate. You must conquer these four before advancing to the next round, where you face six creatures. Your third round has you battling eight creatures. This process is repeated and the point value increased with each three-round victory. Also, the creatures' speed increases each round. Any contact at all with the creatures will be fatal to your man.

While you are busy digging holes and entrapping creatures, the rest are behind the retaining wall scurrying back and forth. After about three minutes, the gates at each end will open and all of the remaining creatures will stream into the play area at once. However, a skillful player will conquer all of the creatures of each round and the gate will not be a threat.

A DOUBLE SCORE BONUS is awarded if you capture and fill in over the RED creature before any of the GREEN ones. But, this must be the FIRST creature defeated, or the RED creature becomes GREEN and no bonus is awarded.

The point value per creature increases with each three-round phase. The first phase awards 300 points per creature, decreasing to 100 points if not filled over promptly. The second phase awards 500 points per creature, decreasing to 300. And, the third phase awards 700 points, decreasing to 500 points.

A 1000 POINT BONUS is given if you capture four creatures in a row at full point value during any one round.

An EXTRA MAN is given at 5000 points.

When a creature is captured, eight squeaking sounds are heard before the creature escapes from the hole. Five squeaks are required to cover a creature, so you must hurry to the hole and FILL before the fourth squeak, or the creature will emerge and devour your man.

If your FILL is incomplete and another creature passes along the same path, it will pull the other out and your man may be eaten. If a hole is incomplete, it will delay creatures somewhat, depending on the size of the partially dug hole.

On the DIGGER upright and Mini-Video games, two players alternate turns. A player loses his turn when the round is complete, not just when he loses a man.

On the slimline and cocktail tables, DIGGER can be a two-player SIMULTANEOUS PLAY, or ALTERNATE PLAY, as described above. In the SIMULTANEOUS PLAY option, the sum of Player 1 and Player 2 scores are used as one final score. The game play is the same as one-player and either man may FILL a hole, regardless which one dug it. If you select ALTERNATE PLAY action, it is the same as the upright or Mini-Video.

A unique feature of Gremlin/SEGA's DIGGER game is the personalization of HI SCOREs. At the end of the game in which the highest score of the machine is topped, the player uses the DIG and FILL buttons to run through the alphabet selecting his three initials. These will remain until that score is topped by another player. In SIMULTANEOUS PLAY, Player 1 enters his initials first, and then Player 2 enters his. Both initials are displayed until their score is beat.

## DIGGER SOUNDS

BACKGROUND SOUND is used anytime creatures are present in the maze.

This sound speeds up with the creatures' speed.

An ESCAPE SOUND is used as the creatures rush through the gate into the maze area.

A DOUBLE BONUS SOUND is used when the red creature is the first captured.

Another BONUS SOUND is heard when the 1000 POINT BONUS is awarded.

A beeping CREATURE SOUND that squeaks when a creature falls into a hole.

A SCORING SOUND accompanies the flashing score display after a creature is buried.

A SCREECH SOUND is used when your man is eaten by a creature.

A RELEASE SOUND is used when a creature leaves a hole.

A GAME-OVER BOOM is heard at the end of the game.

## OPTIONS SELECT...

DIP SWITCH #		<u>No. of Men</u>
	<u>1</u>	<u>2</u>
UPRIGHT	off	off
	on	off
	off	on
	on	on

DIP SWITCH #		<u>No. of Men</u>
	<u>1</u>	<u>2</u>
COCKTAIL	off	off
	on	off
	off	on
	on	on

# NEW GAME BOARDS AND NEW EPROMS...

The following chart shows the two kinds of logic boards Gremlin will use in future games. These will be either a SINGLE VIC board or a DUAL VIC board. Also shown are the possible combinations of Eprom types that Gremlin will be using. The 2 Eprom types are:

- 1) 2708 (holds 8K of memory)
- 2) 2716 (holds 16K of memory).

Obviously, the 2716 holds twice as much information as the 2708, **but the 2 Eproms are not directly compatible**—in other words, you have to replace a 2716 with another 2716, and a 2708 with another 2708. In addition, the 2716 Eprom socket is modified slightly to accept the 2716 Eprom. If it is ever necessary to replace a new Eprom, be sure to specify **2708** or **2716**. These numbers are printed on the Eprom package.

Logic Board Type	Possible Eprom Types Used	Where Used
SINGLE VIC board	1) All 2708's  2) 2708's and one 2716 (used in combination)	HEAD-ON 1 HEAD-ON 2 Future games  INVINCO DEEP SCAN Future games

The two Eprom types are used since some game programs require a larger memory than that provided with a set of 2708's. Usually, one 2716 provides enough additional memory space to hold a longer program.

# **POWER SUPPLY MODIFICATIONS...**

## **For VIC Logic Boards Only**

In order to supply -5 volts to the VIC logic board, it was necessary to modify the game power supply. The modification simply adds a 7905 -5 volt regulator (Gremlin part #313-0023) to the power supply chassis; the 7905 is connected into the -12 volt line at pin 11 of the power supply output connector. **PIN 17 OF THIS CONNECTOR NOW BECOMES THE -5 VOLT OUTPUT.** The other pins remain the same:

pin 11 = -12v  
pin 12 = +12v  
pin 13 = 2-3 V AC signal  
pins 14, 15, 16 = GROUND  
pin 17 = -5v  
pins 18, 19, 20 = +5v

Also, a 8900 ufd filter capacitor has been added to the power supply to provide better +12 volt regulation.

# **TRANSFORMER VOLTAGE CONVERSION INSTRUCTIONS...**

To convert the game transformer to 100, 115, or 230 VAC, refer to the following chart:

\*For 100 volts: Connect the voltage INPUT lines to transformer terminals 1 and 2.

\*For 115 volts: Connect the voltage INPUT lines to transformer terminals 1 and 3.

\*For 230 volts: Connect the voltage INPUT lines to transformer terminals 1 and 4. The fluorescent lamp line must be connected to transformer terminal 3.

**ALSO, THE TV MONITOR MUST BE CONVERTED TO THE SAME VOLTAGE INPUT AS THE GAME TRANSFORMER. REFER TO THE MONITOR MANUAL IN THE GAME.**

# MAINTENANCE PROCEDURES

## SINGLE games

### I. Power Supply (Refer to drawing #800-0072, sheet 4)

1. Remove output connectors from power supply.
2. Make these initial tests: (GND to BLACK lead on C18, 9000 ufd capacitor)
  - a. +9 VDC on POSITIVE terminal of C18
  - b. +17-19 V on C6 (4700 ufd cap.)
  - c. -17-19 V on C5 (4700 ufd cap.)
  - d. -12 V at output pin 11 (adjustable by trim pot R42)
  - e. +12 V at output pin 12 (adjustable by trim pot R8)
  - f. +5 V at output pins 18,19,20 (adjustable by trim pot R9)
  - g. GND (ground, 0 V) at pins 14,15,16
  - h. 2-3 V AC at pin 13 (Don't forget to change meter scale to AC)
  - i. -5 V at pin 17
3. Check these voltages again with the logic board connected. If any are wrong, a loading condition exists in the logic board, most likely.

### II. Logic Board

The following instructions will help you trace down and find most problems associated with the logic board. The procedures are listed by the more common kinds of problems that could arise. Read through all the steps first, then apply them one at a time. The necessary equipment are an oscilloscope and AC/DC voltmeter.

#### 1. NO PICTURE: TV TUBE AND FLUORESCENT LAMP ARE OFF

- a. Plug the game in and check to see that it is receiving 115 (230) VAC. Measure 115 VAC at the input terminals of the game transformer. If it is not present here, proceed to next step.
- b. Check the fuse; if it is good, proceed to next step.
- c. Remove the cover of the junction box in back of the game. Measure 115 VAC on the output of the line filter. If it is not present, the line filter may be bad. Or, one of the AC line connections in the junction box may be loose. UNPLUG the game and re-check these connections.
- d. If the fluorescent lamp still does not operate, turn off game and on again. This usually re-starts the lamp. If it doesn't, turn the lamp in its socket; this will re-seat it for a better connection. Sometimes the lamp works loose during shipment.
- e. An ON/OFF switch for the TV monitor is located on the TV chassis, below the neck of the picture tube. Make sure it is ON.

#### 2. NO PICTURE: TV TUBE AND FLUORESCENT LAMP ARE ON. SCREEN BLACK.

- a. First, make a quick check of the monitor-to-logic board connections: Are all wires making contact with the pin connector? Are the wires secure on the monitor plug-in connector?

- b. Check to be sure U65 is seated in its socket properly, and that no pins are bent. This IC is a Prom that develops the necessary video timing sequences. Usually, if one pin on the chip is out of the circuit, the screen will appear black. Proceed to the next step if this chip is seated correctly.
- c. Inspect the high-voltage lead coming off the monitor's high-voltage transformer. This lead attaches directly to the TV tube. Sometimes, during shipment, this wire is jostled out of contact with the transformer. Turn off the game, and carefully push the wire down toward the transformer to reseat it. Now, check to see if the picture comes on. If it doesn't, proceed to step d.
- d. Using a voltmeter, measure the three voltages powering the logic board. These voltages are: +5v, -5v, +12v, and can be easily measured at the power supply-to-logic board connection. If all voltages are present, go to the next step.
- e. Using an oscilloscope, test for clock signals at the points listed below. For the moment, don't worry about what each signal should look like. We're concerned with finding floating signals, and/or signals that are not present when they should be...and why they are not. The scope setting is .2v/div. @ 5usec with a 10:1 probe. All clock signals, except the video signal, are about 5 volts in amplitude.
  - \* Check pins 8, 11 of U41. Look for a 1½ volt video signal. If not there, check pin 12 of U41. If it is there, U41 is probably bad.
  - \* If the signal is not at pin 12 of U41, suspect U48, U42 and U32.
  - \* Check the following IC's and pins for any floating, or missing signals:

U68 pin 6	U65 pins 1-7,9
U67 pin 5	U49 pins 2,6,10,15
U60 pins 11,12,13,14	U50 pins 2,7,10,14,15.

These chips make up the video timing circuit. Make sure there are no floating, or missing, signals on any of these chips. If there are, suspect the chip is bad.

### 3. PICTURE APPEARS: COLOR IS DISTORTED; SOME COLORS MISSING

Check the red, blue and green output signals on U42, pins 4,7, and 9, respectively. If no signals are present, suspect U67, U49, U43, U45, U44, U30 or U66.

### 4. INCOMPLETE PICTURE: RANDOM DISPLAY

Sometimes the game appears on the screen with parts of the picture showing incorrect information. For example, the "HI SCORE" listings display jumbled information, while the rest of the picture is normal. The most likely cause of this problem is one of the 8 RAM IC's U56 through U63. The quickest way to find the bad RAM is simply to replace each IC, one at a time, with a RAM that is known to be good. Be sure not to bend any pins when replacing the IC's. Also, don't overlook the possibility that one of the RAM sockets is bad.

### 5. RANDOM DISPLAY WHEN GAME IS TURNED ON

- a. Activate the coin switch a few times to see if this clears the picture. If not, turn the game off, then on again. If the jumbled display still appears, proceed to step b.

- b. Check the reset circuit on the logic board (Refer to the schematic). When power is first applied to the game, a reset circuit consisting of Q10, Q11, U55 and U71 is triggered on to reset the microprocessor. This reset signal forces the microprocessor to start at the beginning of the game program. If the microprocessor is not reset, it will still operate...it just won't operate on the right program instructions or data, and will continually display a jumbled pattern on the screen. So, begin by checking for a 3-4 VAC signal at pin 3 of the power supply-to-logic board connector. Follow the signal through Q10 where, at the collector, a sawtooth wave appears. Then, when power is first applied, observe pin 2 of U55 as capacitor C20 slowly discharges to about 3 volts. When this level is reached, U55 is triggered to change states, causing pin 3 to go high, then low. This change is inverted by U54 and, finally, reaches pin 26 of the Z80. Check pin 26 of the Z80 for a low-to-high signal change. If not present, one or more of the reset circuit components are bad. If it is present, proceed to step c.
  - c. The following lists some probable causes of the jumbled display pattern:
    - \*one or more RAM's
    - \*one of the Eproms, U1-8, U20-27
    - \*the microprocessor, U53, is bad
    - \*U33 or U34 (74LS245) is bad
    - \*U19 is bad
    - \*check the three operating voltages, +5v, -5v and +12v VDC.
6. GAME DOES NOT COIN UP
- a. A common problem with a game that does not coin up is that the coin switch trip wire is out of adjustment. Usually, all that is necessary is to bend the trip wire up or down, depending on whether a heavier or lighter tension is needed.
  - b. There may be a problem in the coin circuit on the logic board. Check U12, pins 3,11, for pulses each time the coin switch is tripped. Also, U11 and/or U12 may be bad. Suspect U45, also.
  - c. It is possible that one of the coin counter transistors, Q1 and Q2, is bad. Determine whether or not the counter advances each time the coin switch is tripped.
  - d. Don't overlook the possibility of an incorrect, or faulty, coin switch-to-logic board connection; sometimes, these wires work loose from the coin switches.
7. PLAYER CONTROLS NOT WORKING
- a. Check first to be sure all control switch connections are secure. This includes checking the black wires, or ground leads.
  - b. If these connections are good, make sure the control panel leads are intact inside the Molex™ connector to the logic board.
  - c. If the controls still do not work, suspect U1 on the logic board. However, U1 could be good but might not be receiving the activating pulses from U36, pin 13, or U4, pin 8.

8. GAME SOUNDS NOT HEARD

- a. Check to be sure the sound board output lead is making good contact with the power supply/amplifier connector. Refer to the game wiring schematic.
- b. If these connections are good, check the power supply/amplifier board for any audio signals. Specifically, check U4, Q8 and Q9 on the amplifier board for any game sounds.
- c. If there are none there, suspect U16 on the logic board. Also, check U32 for the pulses that turn on U16.
- d. If these chips appear good, the sound boards are probably bad. Refer to the sound board schematics for each sound's circuit.

# RECOMMENDED SPARE PARTS for SINGLE games

GREMLIN PART NO.	WHERE USED	DESCRIPTION	QTY. PER 10 GAMES
130-0001	a	speaker	1
130-0002	a	speaker cover	1
200-0014	u	19" color monitor	1
200-0015	s	color monitor	1
200-0013	c	13" color monitor	1
253-0104	u	plexi, front monitor panel	1
390-0011	u	fluorescent lamp	2
220-0035	u	coin door lock & key	2
220-0097	s	cylinder lock }	2
117-0126	s	coin entry plate, USA	1
220-0066	u	coin mechanism, complete	2
800-0103	cs	coin mechanism, complete	2
220-0071	u	coin reject button & spring	3
240-0097	s	reject button assy.	3
220-0072	u	coin return stop (u-bolt)	3
800-0076	a	photo-coin accumulator assy.	1
270-0008	a	coin counter	1
510-0014		slide switch	1
220-0148	s	cash box	1
	u	cash box	1
601-0546	s	tv mask	1
601-0032	s	color mask	1
103-0043	c	leg arm	1
601-0504	c	leg	1
104-0005	c	handle	1
504-0118	cs	switch, micro (joystick)	5
109-0032	cs	handle ball, black	3
109-0033	cs	handle ball, red	3
509-0048	cs	switch (l-r)	5
509-0052	cs	switch (fr/acc)	5
240-0107	c	push button, acc.	1
510-0041	u	switch, joystick	5
510-0023	u	push button mounting/contacts	3
240-0009	u	yellow push button plunger	3
240-0109	u	orange push button plunger	3
240-0105	s	pushbutton switch	3
240-0106	s	push button knob	3
509-0119	s	push button, red	3
800-0056	u	complete joystick	2
240-0091	u	joystick knob	3
250-0289	u	threaded rod	3
250-0291	u	upper sleeve	3
601-0158	cs	switching regulator	1
560-0052	c	power transformer	1
560-0053	s	power transformer	1
270-0001	u	line filter, junction box	1
514-0001	a	fuse, 2A slo	5

a = all versions

u = upright

c = cocktail

s = slimline

600-0001	a	ac power cord	1
800-0072	a	dual power supply	1
482-0013	a	xstr TIP 110	5
482-0014	a	2N4401	10
482-0015	a	xstr TIP 115	5
482-0016	a	xstr TIP 29	5
313-0001	a	LM 723 DIP	5
313-0004	a	LM 741 DIP	5
315-0019	a	2708 EPROM, blank specify number on EPROM	1 set
315-0050	a	2716 EPROM, blank specify number on EPROM	1 set
316-0507	a	color prom DIGGER	1
314-0001	a	555IC	5
314-0093	a	74 LS 374 IC	3
314-0099	a	74 LS 245 IC	3
314-0104	a	74 LS 138 IC	3
314-0105	a	74 LS 253 IC	3
315-0031	a	Z80 microprocessor	2
315-0039	a	RAM IC	10
315-0042	a	video interface chip (VIC)	3
316-0206	a	video timing prom.	3
475-0002	a	resistor pack	3
482-0010	a	PE 8050 transistor	3
510-0043	a	6-position DIP switch	2
314-0042	a	7406 IC	5
481-0006	a	1N914 diode	10
481-0008	a	1N5231 Zener diode	10
482-0006	a	2N4403 transistor	10
482-0023	a	2N4093 transistor	10
312-0145	a	CMOS 4006 IC	2
312-0146	a	CMOS 4070 IC	2
312-0069	a	LM3900	2
312-0147	a	94560 IC	2



San Diego, California 92123

<b>PARTS</b>	TITLE TOP ASSEMBLY DIGGER UPRIGHT ENGLISH WHITE
<b>LIST</b>	

REV  
OF 5  
DWG NO

USE WITH 800-3070 FOR PARTS LOCATIONS.

<b>Gremlin/SUGA</b> San Diego, California 92123		TITLE TOP ASSEMBLY DIGGER UPRIGHT ENGLISH, WHITE		700-00019	SH I OF 5	A REV	
USE WITH 800-3070 FOR PARTS LOCATIONS.		DRAWN MAHONEY	CHECK A, AMBROSE	DWG NO 6-2-80	ENGR APPR		
LTR	DATE	REVISION DESCRIPTION			DRAFT	CHECK	APPR
A	6-9-80	RELEASED			J.M.	AFA	AFA
							REFER TO HEXAGON CALL-OUTS ON DRAWINGS FOR THE LOCATION OF PARTS LISTED HERE.

ITEM NO		PART NO	QTY PER ASSY	DESCRIPTION	REF DES
1		800-3070	-	ASSY BASIC KIT DIGGER	
2		800-3066	-	ASSY VIC LOGIC DIGGER ENG	
3		140-0048	-	CABINET BASIC WHITE	
4		420-0490	-	GRAPHIC SIDE RIGHT	
5		420-0489	-	GRAPHIC SIDE LEFT	
6		800-0122	-	ASSY SHIPPING KIT	

**Gremlin/seca**

San Diego, California 92123

PARTS LIST		"111E ASSY DIGGER COCKTAIL ENGLISH		700 - 0015 DWG NO		SH I OF 8	A REV
LTR	DATE	REVISION	DESCRIPTION	DRAFT	CHECK	APPR	
A	4-23-80	RELEASED	CHECK A. AMBROSE 6-9-80	SD	AFA	AFA	

Gremlin Industries, Inc. San Diego, California 92123		PARTS LIST	TITLE ASSY, DIGGER COCKTAIL ENGLISH	700-0015 DWG NO	SH 2 OF 8	A REV
ITEM NO	PART NO	QTY PER ASSY	DESCRIPTION	REF DES		
1	420-0446	2	TABLE GRAPHIC			
2	420-0370	1	DECAL COIN ENTRY			
3	420-0371	1	DECAL COIN INFO			
4	253-0163	1	PLAYER SELECT PANEL			
5	253-0164	2	CONTROL PANEL GRAPHIC			
6	252-0082	2	BLOCK, STANDOFF			
7	560-0051	1	TRANSFORMER, ISOLATION			
8	800-0072	1	ASSY POWER SUPPLY			
9	800-3043	1	ASSY HARN SOUND DIGGER			
10	800-3033	1	ASSY DIGGER SOUND BD			
11	800-0103	1	COIN MECH (MODIFIED)			
12						
13	834-0010	1	ASSY SPCL DL JAPAN			
14	800-3056	1	ASSY POWER HARNESS			
15	800-3044	1	ASSY HARN CONT PANEL #1			
16	800-3045	1	ASSY HARN CONT PANEL #2			
17						
18	370-0002	1	TIL 139 OPTO ISOLATOR			
19	800-3049	1	ASSY PHOTO COIN CALC MOUNT			
20	280-0005	10	CABLE TIE			
21	800-3051	1	ASSY HARN VIDEO			
22	800-3048	1	ASSY LOGIC DIGGER ENG			
23	280-0064	2	SPACER 3/8" LNG PVC			
24	800-3055	1	ASSY GROUND CABLE			
25	420-0453	1	MANUAL DIGGER			

**Gremillen Industries, Inc.**  
Sun Valley, California 91352

PARTS LIST		TITLE ASSY DIGGER COCKTAIL ENGLISH		700-00015 DWG NO		SH 3 OF 8	A REV
ITEM NO	PART NO	QTY PER ASSY	DESCRIPTION			REF DES	
26	800 - 0076	1	PHOTO CN CALC BOARD				
27	800 - 3054	1	ASSY SPEAKER HARN				
28	211 - 0045	1	CONN PLUG AMP 6 PIN				
29	211 - 0042	5	CONN SOCKET AMP				
30	250 - 0412	1	PS LOCKING BRACKET				
31	800 - 3064	1	ASSY VOL CONTROL BLOCK				
32	270 - 0001	1	EMI FILTER				
33	800 - 3026	1	ASSY FUSE BLOCK				
34	211 - 0038	2	CONN QUICK 3/16"				
35		8	SCREW PHIL.PN HD 6 X 1/2 SH MTL				
36	250 - 0048	1	CLIP SWITCH				
37		1	PNHD SCREW 4-40 , 1/2"				
38		2	# 4 WASHER FLAT				
39		1	# 4 WASHER SPLIT				
40		1	# 4-40 NUT				
41		10	# 6 PHL 3/4" PAN SHT METAL				
42		4	# 8 FLAT WASHER				
43		2	# 6-32 X 1/4 FLT HD PHL SCREW				
44		2	# 10 X 1/2" PHILIPS RND HD SCREW				
45		4	# 8 x 1/2" PAN SHT METAL				
46	252 - 0083	3	SUPPORT BLOCK POWER SUPPLY				
47		6	# 10 X 1 1/4" PHILIPS FLT HD SCREW				
48	280 0075	4	NUT WIRE LARGE				
49	280 0010	7	NUT WIRE SMALL				
50		2	# 10 x 3/8" PN HD SH MTL SCREW				



<b>Gremlin Industries, Inc.</b> San Diego, California 92123	PARTS LIST	TITLE ASSEMBLY BASIC CON MECH - DUAL	800-0074 DWG NO	SH / OF 3	A REV
SHEET 3 IS "D" SIZE	DRAWN CHECK	Rob Hunter Bomber	ENGR	APPR	
LTR	DATE	REVISION DESCRIPTION	DRAFT	CHECK	APPR
A	1-24-80	RELEASED	24	24	24

**Gremlin Industries, Inc.**  
San Diego, California 92103

PARTS LIST		TITLE ASSEMBLY BASIC COM MECH - DUAL		800-0074 DWG NO	SH 2 OF 3	A REV
ITEM NO	PART NO	QTY PER ASSY	DESCRIPTION	REF DES		
1	250-0285	1	CASH DOOR MODIFIED			
2	220-0066	2	COIN MECHANISM			
3	220-0035	1	LOCK FORT LOCK IR			
4	370-0002	2	OPTO - ISOLATOR TIL 139			
5	800-0085	1	ASSY. PHOTO CALCULATOR			
6	240-0001	1	KNOB. VOL. CONTROL			
7	250-0068	1	BRACKET			
8	420-X246	1	DECAL, VOLUME CONTROL			
9	475-0007	1	POTENTIOMETER 10KΩ CAR. PLUMT.			
10	510-0014	1	SWITCH, SLIDE, SPDT			
11		8	SCREW 8-32 x 1½" TAMPER-PROOF			
12		2	SCREW, MACH. PH. PHL 4-40 x 1½"			
13		4	SCREW, SHT. MTL. P.H. PHL #6			
14		2	SCREW, MACH. P.H. PHL 6-32 x 1½"			
15		2	WASHER, FLAT #6			
16		2	WASHER, LOCK SPLIT #6			
17		2	WASHER, LOCK #4			
18		8	WASHER. LOCK SPLIT #8			
19		8	NUT HEX B-32			
20		2	NUT HEX C-32			
21		2	NUT HEX 4-40			
22		4	ALUMINUM RIVETS 18"			
23	510-0051	1	SWITCH PUSH BUTTON SIDE			
24		2	WASHER, FLAT #4			

Gremlin Industries, Inc. San Diego, California 92123		PARTS LIST	ITLE ASSY PHOTO COIN CALC	300-00076	SH 1	B
SHT 4 & 5 ARE LIZE		CHECK	DRAWN W/Specs 11-29-79	DWG NO	OF 5	REV
			ENGR <i>H. L. L.</i>			
LTR	DATE	REVISION DESCRIPTION		DRAFT	CHECK	APPR
A	12-14-79	RELEASED		<i>WJB</i>	12-18-79	<i>WJB</i>
B	1-2-80	PER ECN 366		<i>WJB</i>	1-14-80	<i>WJB</i>

**Gremlin Industries, Inc.**  
2200 E. Cawelti St., San Jose, CA 95131

PARTS LIST		TITLE ASSY PHOTO COIN CALC.		DWG NO		SH 2 OF 5	B REV
ITEM NO	PART NO	QTY PER ASSY	DESCRIPTION	REF DES			
1	151-0008	1	CAP CER .001μf 50V	C9			
2	151-0011	5	CAP CER .01μf 50V	C1,C3,C5,C7,C8			
3	153-0001	1	CAP TANT 10μf 25V	C6			
4	152-0001	1	CAP FILM .1μf 100V	C4			
5	153-0003	1	CAP TANT 2.2μf 25V	C2			
6	170-0179	1	PC BOARD				
7							
8	314-0001	3	IC NE555 DIP	U1,U5,U7			
9	314-0062	1	IC 74LS74	U2			
10	314-0074	2	IC 74LS191	U3,U6			
11	314-0078	1	IC 74LS02	U4			
12	471-0103	1	RES 10K OHM 1/2W 5%	R9			
13	471-2102	3	RES 1K OHM 1/2W 5%	R3,R6,R8			
14	471-2105	2	RES 1MEG OHM 1/2W 5%	R1,R12			
15	471-1221	1	RES 220 OHM 1/2W 5%	R7			
16	471-0331	2	RES 330 OHM 1/2W 5%	R2,R5			
17	471-0334	1	RES 330K OHM 1/2W 5%	R4			
18	471-0820	2	RES 82 OHM 1/2W 5%	R10,R11			

**GRANTURM INSTITUTE INC., LTD.**  
San Diego, California 92123

LIST | PHOTO COIN CALC | 000-0001693 | B  
DWG NO | OF 5 | REV

<b>Gremm Industries, Inc.</b> San Diego, California 92113	<b>PARTS LIST</b>	<b>TITLE P C. ASSY POWER SUPPLY DUAL</b>	<b>800-0073</b>	<b>SH / OF 4</b>	<b>B REV</b>
SHT 4 / 5 "C" SIZE		DRAWN <i>Wynema</i> 11-27-74	ENGR		
	CHECK <i>Steve Fay</i> 12-3-79	APPR			
<b>LTR</b>	<b>DATE</b>	<b>REVISION DESCRIPTION</b>	<b>DRAFT</b>	<b>CHECK</b>	<b>APPR</b>
A	12-3-79	RELEASED	<i>WJB</i>	<i>WJB</i>	<i>WJB</i>
B	1-4-80	PER ECN 367	1-7-80	1-7-80	1-7-80

**Gremlin Industries, Inc.**  
San Diego, California 92123

ITEM NO	PART NO	QTY PER ASSY	DESCRIPTION		REF DES
			DWG NO	SH 2 OF 4 REV	
1	150-0019	2	CAP E 4700 $\mu$ f 25V	C5,C6	
2	151-0001	1	CAP CER .015 $\mu$ f 50V	C11	
3	151-0002	2	CAP CER 100 $\mu$ f 50V	C17,C19	
4	151-0008	1	CAP CER .001 $\mu$ f 50V	C10	
5	151-0011	3	CAP CER .01 $\mu$ f 50V	C12,C14,C16	
6	151-0012	1	CAP CER .1 $\mu$ f 50V	C3	
7	153-0001	6	CAP TANT 10 $\mu$ f 25V	C1,C2,C7,C13,C15,C20	
8	170-0082	1	PCB POWER SUPPLY		
9	211-0056	3	CONN CRIMP		
10	212-0004	2	CONN M 4 PIN		
11	212-0021	2	CONN M 10 PIN		
12	212-0085	1	CONN 3 CIR X5TR		
13	313-1001	1	IC LM723	U3	
14	313-0004	3	IC LM741EN	U1,U2,U4	
15	471-0101	1	RES 100 OHM 1/2W 5%	R15	
16	471-0102	10	RES 1K OHM 1/2W 5%	R5,R7,20,22-24,35,36,38,39	
17	471-0103	4	RES 10K OHM 1/2W 5%	R1,R4,R21,R37	
18	471-0104	1	RES 100K OHM 1/2W 5%	R33	
19	471-0122	1	RES 1.2K OHM 1/2W 5%	R18	
20	471-0133	1	RES 13K OHM 1/2W 5%	R41	
21	471-0152	2	RES 1.5K OHM 1/2W 5%	R13,R16	

**Gremlin Industries, Inc.**  
an MFG. company since 1973

PARTS LIST		TITLE PC ASSY POWER SUPPLY DUAL	800-0073 DWG NO	SH 3 OF 4	B REV
ITEM NO	PART NO	QTY PER ASSY	DESCRIPTION	REF DES	
22	471-0272	5	RES 2.7K OHM 1/2W 5%	R7, R25, R26, R43, R46	
23	471-0332	1	RES 3.3K OHM 1/2W 5%	R32	
24	471-0471	2	RES 470 OHM 1/2W 5%	R34, R40	
25	471-0473	1	RES 47K OHM 1/2W 5%	R44	
26	471-0562	1	RES 5.6K OHM 1/2W 5%	R12	
27	472-00R5	4	RES 0.5 OHM 1W 5%	R4, R29-R31	
28	473-00R1	1	RES 0.1 OHM 5W 5%	R28	
29	475-0004	1	POT 1K CAR PCMTV	R9	
30	475-0005	2	POT 2K CAR PCMTV	R8, R42	
31	481-0004	4	DIODE MR501	D1-D4	
32	481-0006	2	DIODE IN914	D7, D8	
33	481-0008	1	DIODE ZENER IN5231	D10	
34	482-0006	3	XSTR 2N4403	Q1, Q3, Q4	
35	482-0013	1	XSTR TIP110	Q6	
36	482-0014	2	XSTR 2N4401	Q2, Q5	
37	482-0015	1	XSTR TIP115	Q7	
38	482-0016	2	XSTR TIP29	Q8, Q9	
39	800-0072	REP	SCHMATIC		

Gremilln Industries, Inc. San Diego, California 92113		PARTS LIST	TITLE ASSY POWER SUPPLY DUAL		SH / OF 4	D REV
SHT 3 15' D' SIZ E SHT 4 12' 2' SIZ E		DRAWN CHECK	11/24/79 John Foy	11/24/79 John Foy	ENGR APPR	
LTR	DATE	REVISION DESCRIPTION		DRAFT	CHECK	APPR
A	12-3-79	RELEASED			WJB	
B	1-4-80	PER ECN 367		1-7-80	WJB	
C	4-21-80	CHG'D PER ECN 390		4-21-80	SB	
D	6-6-80	CHG'D PER ECN 44 AND 44 A		SD	PF	

**Cromekin Industries, Inc.**  
San Diego, California 92113

PARTS LIST		TITLE A 55V POWER SUPPLY DUAL		DWG NO		SH 2 OF 4	D REV
ITEM NO	PART NO	QTY PER ASSY	DESCRIPTION			REF DES	
1	140-0015	1	CHASSIS, POWER SUPPLY				
2	150-0022	2	CAP E 9000 $\mu$ f 12V	C18, C21			
3	211-0005	9	CONN CRIMP LOCK				
4	211-0007	1	CONN KEY, POLARIZING				
5	211-0017	4	CONN QUICK, 1/4" FEM				
6	211-0019	5	CONN SPADE LUG 1/4"				
7	212-0016	1	CONN FEM 10 PIN				
8	213-0006	1	SOCKET, TD-3				
9	280-0014	4	STAND-OFF, CLIPS				
10	280-0056	2	CLAMP CAP VR4 1 1/2"				
11	313-0023	1	IC 320-T5	US			
12	481-0009	1	DIODE MDA 3500	D9			
13	482-0007	1	X1570R 2N3055	Q10			
14	800-0072	REF	SCHEM. ASSY PWR. SUPP.				
15	800-0073	1	POWER SUPPLY ASSY (PCB)				
25		3	WASHER FLAT. #10				
16		8	SCREW-MACH PHD#6-32X.5				
17		7	NUT HEX #6-32				
18		5	SCREW-MACH RD HD#4-40X.37				
19		5	NUT HEX #4-40				
20		4	RIVET POP 3/16				
21		4	SCR #6 X 1/2 SHT METAL				
22		1	SCR MACH PHD #6-32X1"				
23	280-0117	2	TAB RIVET				
24	560-0003	1	TRANSFORMER POWER 10345B	T1			

ITEM NO	PART NO	QTY PER ASSY	DESCRIPTION	REF DES
26	314-0015	1	IC 7404	U54
27	314-0018	3	IC 74LS00	U4, U12, U32
28	314-0019	2	IC 74LS04	U35, U64
29	314-0040	3	IC 74LS125	U13, U46, U47
30	314-0046	1	IC 74S04	U68
31	314-0073	3	IC 74LS175	U45, U49, U50
32	314-0055	3	IC 74LS244	U1, U3, U19
33	314-0058	5	IC 74LS08	U37-39, 41, 71
34	314-0059	1	IC 74LS10	U52
35	314-0061	1	IC 74LS42	U40
36	314-0062	4	IC 74LS74	U11, U31, U67, U72
37	314-0078	1	IC 74LS02	U36
38	314-0092	2	IC 8216	U33, U34
39	315-0039	8	IC 4K RAM 12V	U56 - U63
40	315-0031	1	IC 280 MK 3880	U53
41	314-0086	1	IC 74LS163	U66
42	314-0093	2	IC 74LS374	U16, U28
43				
44	316-0206	1	IC PROM 32X8 CTL 1165	
45			LED RED	D4
46	340-0003	1	RES 22 OHM 5%	R26-28
47	471-0220	3	RES 10 OHM 1/2W 5%	R50-53, R29
48	471-0011	5	RES 1K OHM 1/2W 5%	R7-11, 32, 37, 56-58
49	471-0102	10	RES 10K OHM 1/2W 5%	R6
50	471-0103	1		

Grenville Industries, Inc. See drawing, current parts		PARTS LIST	TITLE ASSY BA51C VI.C. BD.	SH / DWG NO	E / OF B	REV	
5HT 5,6,7,8 "D" S/ZE		CHECK <i>John Hart</i>	DRAWN <i>Wynema</i> 11-20-78 CHECK <i>John Hart</i> 12-22-78	ENGR APPR			
LTR	DATE	REVISION DESCRIPTION			DRAFT	CHECK	APPR
A	12-22-78	RELEASED			WJB		
B	5-10-79	CHG'D PER ECN 310			SB		
C	7-5-79	CHG'D PER ECN 310 & 321			SB		
—	9-9-79	CHG'D RES. FROM 22K TO 18K, ITEM *53 (ECN 326)			WJB		
D	11-13-79	CHG'D PER ECN 354 U3 & RP2 ADDED FOR option			SB		
E	4-30-80	CHG'D PER ECN 394			SD		

**Gremmim Industries, Inc.**  
San Diego, California 92133

ASSY' BAND V.I.C.D. XUU-000-51

LIST DWG NO OF 8 REV

ITEM NO	PART NO	QTY PER ASSY	DESCRIPTION	REF DES
1	151-000-1	1	CAP CER 680pf 50V	C39
2	151-001-2	54	CAP CER .1 μf 50V	135,7-11,13-17,22,25,
3				C27-38,C40-67
4	152-000-1	1	CAP FILM .1μf 100V	C4
5	152-001-1	1	CAP FILM .33μf 100V	C24
6	153-000-1	6	CAP TANT 10μf 25V	C12,20,21,23,26,68
7	153-000-2	1	CAP TANT 1μf 25V	C19
8	151-001-1	2	CAP CER .01μf 50V	C69,C70
9	170-0150	1	PCB C.V. 1.0Ω 1C	
10				
11	211-000-4	7	CONN PIN TEST PT	TP1-TP4,END
12	212-0063	4	CONN M 4 PIN PLZD	
13	212-0021	7	CONN M 10 PIN	
14	212-0031	2	CONN M 12 PIN	
15	213-0003	5	SKT 14 PIN DIP	XU14,30,69,70,29
16	213-0001	8	SKT 24 PIN DUAL INLN	XU20-XU27
17	213-000-4	20	SKT 16 PIN DUAL INLN	XRP2,XU5-8,33,34,44,49, XU56-63,65,66,50
18				
19	213-000-5	2	SKT 40 PIN DUAL INLN	XU43,XU53
20	213-0008	7	SKT 20 PIN DUAL INLN	XU1-3,15,16,19,28
21	213-0011	2	SKT 22 PIN DUAL INLN	XU17,XU18
22	213-0010	1	SKT 8 PIN DIP	XU9
23	230-0009	1	XTAL CLK 15.46848	Y1
24	313-0023	1	IC 320T-5.0	U73
25	314-0001	2	IC NE 555	U10,U55

Grommkin Industries, Inc. Sun Diego, California 92101		PARTS LIST	WIRE ASSY BASI/C V.I.C.B.D.	800-0031 DWG NO	SH 4 OF 8	E REV
ITEM NO	PART NO	QTY PER ASSY	DESCRIPTION	REF DES		
51	471-0104	3	RES 100K OHM 1/2W 5%	R42-R44		
52	471-0222	8	RES 2.2K OHM 1/2W 5%	R18-R25		
53	471-0183	1	RES 18K OHM 1/2W 5%	R3		
54	471-0331	8	RES 330 OHM 1/2W 5%	R30,31,33,34,45,46,59,60		
55	471-0221	1	RES 220 OHM 5%	R55		
56	471-0471	1	RES 470 OHM 1/2W 5%	R49		
57	471-0472	3	RES 4.7K OHM 1/2W 5%	R5,R47,R48		
58	471-0750	1	RES 75 OHM 1/2W 5%	R41		
59			POT 10K PC MTV	R4		
60	475-0001	1				
61						
62	477-0002	3	RES PACK 15X 2.2K	RPI,RP2,RP3		
63						
64	481-0006	4	DIODE IN914/IN4148	D1,D2,D5,D6		
65						
66	482-0006	1	X5TR 2N4403	Q6		
67	482-0010	1	X5TR PE8050	Q2		
68	482-0014	4	X5TR 2N4401	Q1,Q7,Q10,Q11		
69	510-0049	1	SWITCH 8 POS DIP SPST	SW1		
70	530-0006	1	HEAT SINK 295-1			
71						
72						
73	314-0072	1	IC 74LS174	U43		
74						
75	314-0076	1	IC 74LS157	U42		

**Gremlin/seca**  
San Diego, California 92123

PARTS LIST		TITLE ASSY LOGIC BOARD DIGGER		200-3066 DWG NO		SH 1 OF 2	A REV
		DRAWN SON DUONG	CHECK A. AMBROSE	6-9-80	APPR	ENGR	
ltr	Date	REVISION DESCRIPTION			Draft	Check	Appr
A	6-9-80	RELEASED			SD	AFA	AFA



<b>Gremlin/Sega</b> San Diego, California 92123		TITLE <b>LOGIC DIGGER</b>		800 - 3048		SH	A
PARTS LIST		ASSY	LOGIC TABLE	DWG NO	OF 2		REV
		<b>DRAWN</b> MAHONEY		ENGR			
		<b>CHECK</b> <i>Believe On</i> 4-22-80		<b>APPR</b>			
REVISION DESCRIPTION				DRAFT	CHECK	APPR	
LTR	DATE						
A	4-22-80	RELEASED		J.M.	A.A.	A.A.	



<b>Gremlin Industries, Inc.</b> San Bruno, California 94063	<b>PARTS LIST</b>	<b>TITLE ASSEMBLY DIGGER SOUND</b>	<b>SH / DWG NO OF</b>	<b>A REV</b>
SHT 5, & ARE "D" SIZE		DRAWN <i>Wynona</i> 3-21-80	ENGR	
	CHECK <i>John Q. Anna</i> 5-6-80	APPR <i>John Q. Anna</i>		
<b>LTR</b>	<b>DATE</b>	<b>REVISION DESCRIPTION</b>	<b>DRAFT</b>	<b>CHECK</b>
A	4-14-80	RELEASED	<i>WJB</i>	<i>A.A.</i>



Gremill Industries, Inc. See page, cover sheet		PARTS LIST	TITLE	ASSMBLY	800-3033	SH / OF	A REV
SHT 5, & ARE "D" SIZE		DIGGER FOUND	DWG NO				
LTR	DATE	REVISION	DESCRIPTION	DRAFT	CHECK	APPR	APPR
A	4-14-80	RELEASED		WJB	A.A.		

**Creative Industries, Inc.**  
San Bruno, California 94066

PARTS LIST	TITLE ASSEMBLY DIGGER SOUND	DWG NO	SH 2 OF 6	A REV
ITEM NO	PART NO	QTY PER ASSY	DESCRIPTION	REF DES
1	151-0001	2	CAP CER .05μf 50V	C9,C18
2	151-0005	1	CAP CER 680μf 50V	C8
3	151-0012	4	CAP CER .1μf 50V	C12,C19,C22
4	152-0001	2	CAP FILM .1μf 100V	C3,C17
5	152-0005	3	CAP FILM .0047μf 50V	C4,C6,C15
6	152-0012	2	CAP FILM .047μf 200V	C11,C16
7	152-0018	1	CAP FILM .01μf 250V	C5
8	152-0020	1	CAP FILM .47μf 100V	C12
9	150-0004	2	CAP E 10μf 25V	C20,C21
10	153-0002	1	CAP TANT 1μf 25V	C13
11	153-0003	1	CAP TANT 2.2μf 25V	C7
12	153-0007	2	CAP TANT 6.8μf 25V	C10,C14
13	170-0187	1	PC BOARD	
14	212-0021	1	CONN 10PIN M PLZD	
15	280-0317	4	SELF RETAINING SPACER	
16	313-0008	2	IC LM 348	U1,U4
17	315-0007	2	IC CD 4011	U2,U9
18	315-0035	1	IC MM 5837	U7
19	315-0043	4	IC CD 4069	U3,U5,U6,U8
20	471-0101	2	RES 100 OHM 1/2W 5%	R44,R50
21	471-0102	4	RES 1K OHM 1/2W 5%	R7,R37,R55,R63
22				

**Gremlin Industries, Inc.**  
San Diego, California 92103

ITEM NO	PART NO	QTY PER ASSY	DESCRIPTION	REF DES
23	471-0103	10	RES 10K OHM 1/2W 5%	R9, R11, R13, R15, R17, R21
24	471-0104	7	RES 100K OHM 1/2W 5%	R54, R64, R65, R68
25	471-0105	7	RES 1 MEG OHM 1/2W 5%	R2-R4, R10, R12, R14, R61
26	471-0154	1	RES 150K OHM 1/2W 5%	R31-R33, R35, R39, R62, R67
27	471-0205	1	RES 2 MEG OHM 1/2W 5%	R56
28	471-0224	1	RES 220K OHM 1/2W 5%	R4B
29	471-0225	1	RES 2.2 MEG OHM 1/2W 5%	R1B
30	471-0272	1	RES 2.7K OHM 1/2W 5%	R41
31	471-0274	1	RES 270K OHM 1/2W 5%	R8
32	471-0275	1	RES 2.7 MEG OHM 1/2W 5%	R19
33	471-0344	2	RES 390K OHM 1/2W 5%	R6
34	471-0472	1	RES 390K OHM 1/2W 5%	R30, R51
35	471-0473	3	RES 4.7K OHM 1/2W 5%	R57
36	471-0474	1	RES 4.7K OHM 1/2W 5%	R22, R36, R16
37	471-0512	4	RES 5.1K OHM 1/2W 5%	R40
38	471-0563	2	RES 56K OHM 1/2W 5%	R38, R46, R53, R58
39	471-0754	9	RES 750K OHM 1/2W 5%	R20, R66
40	471-0664	1	RES 660K OHM 1/2W 5%	R23, R24, R26, R27, R29, R42, R52, R59, R60
41	471-0862	1	RES 82K OHM 1/2W 5%	R47
42	181-10016	16	DIODE 1N914A IN4148	R34
43	82-0014	11	XSTR 2N4401	D1-D10
				Q1-Q11



8

7

6

5

4

3

2

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REVISIONS		DESCRIPTION		DATE	APPROVED
ZONE	LTR	A	RELEASED	WIB	4-14-80

D

D

C

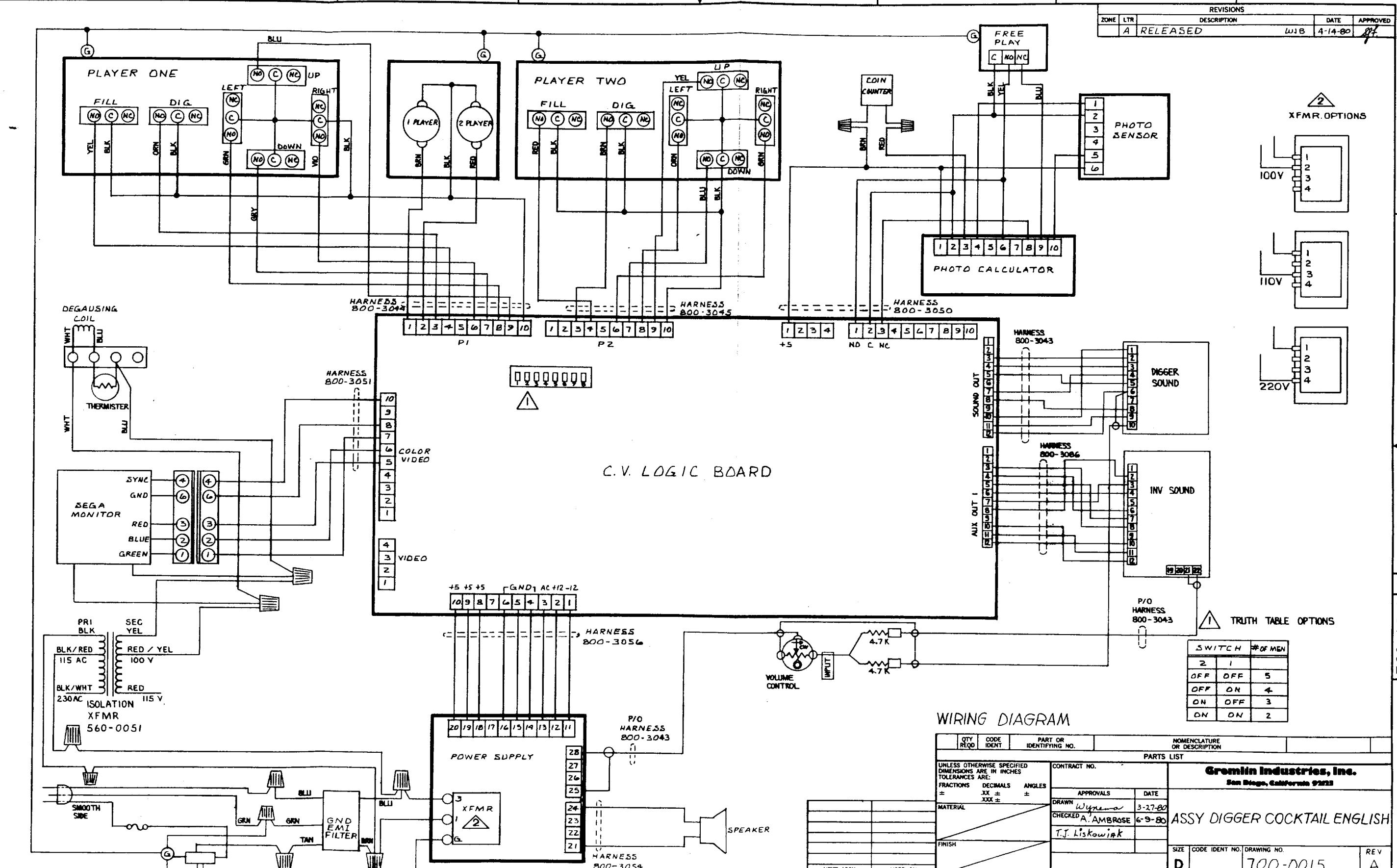
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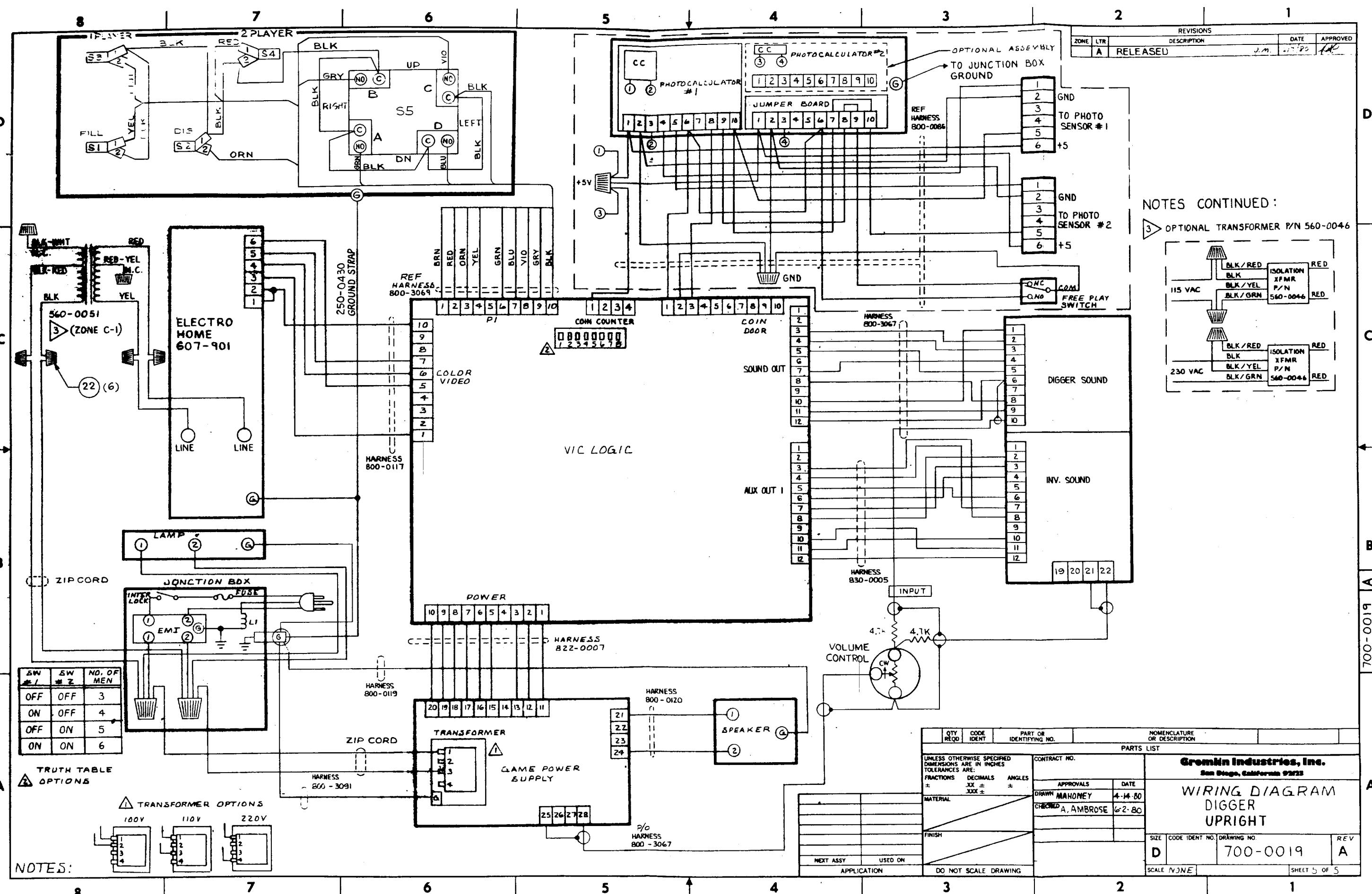
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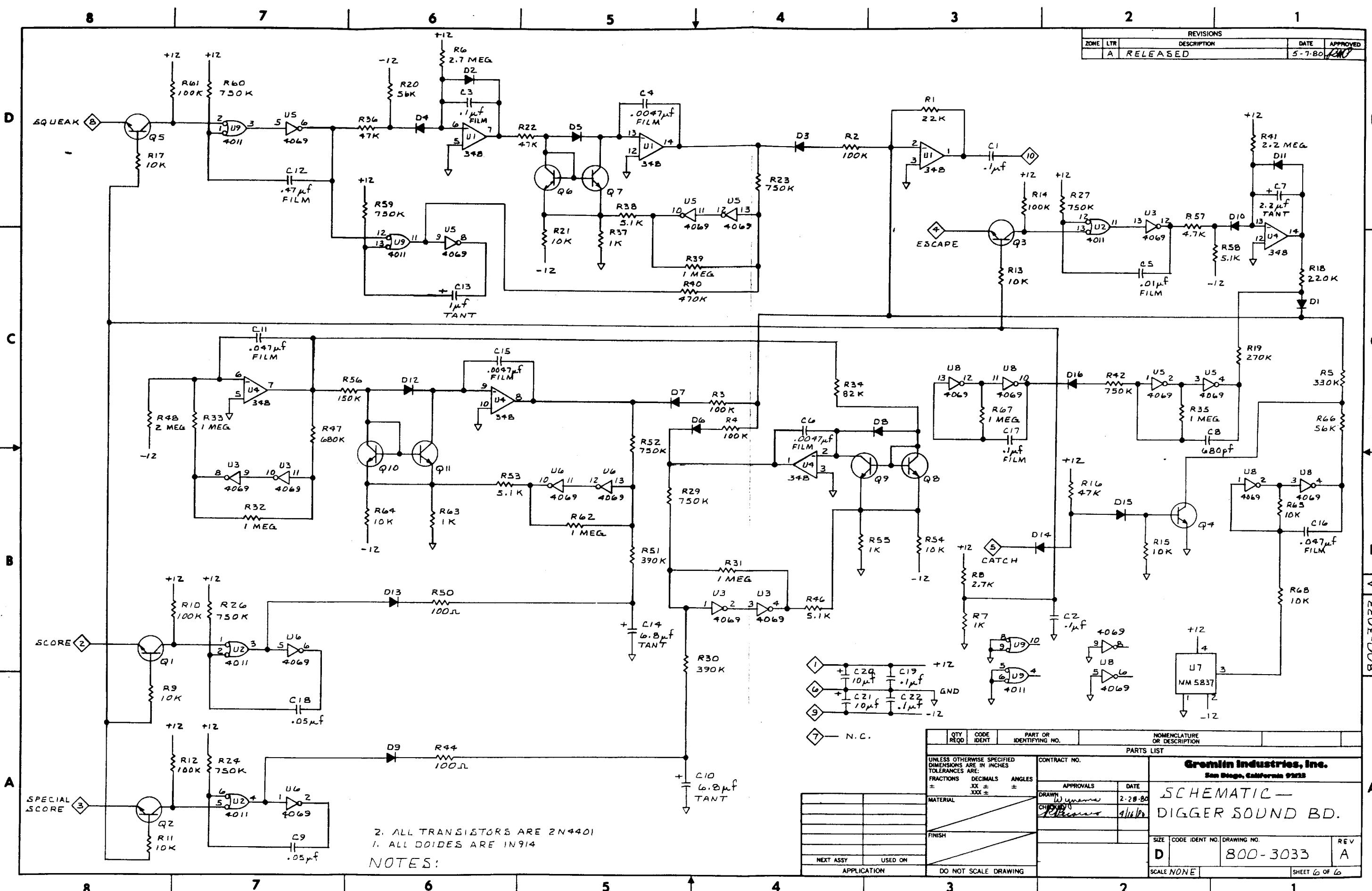
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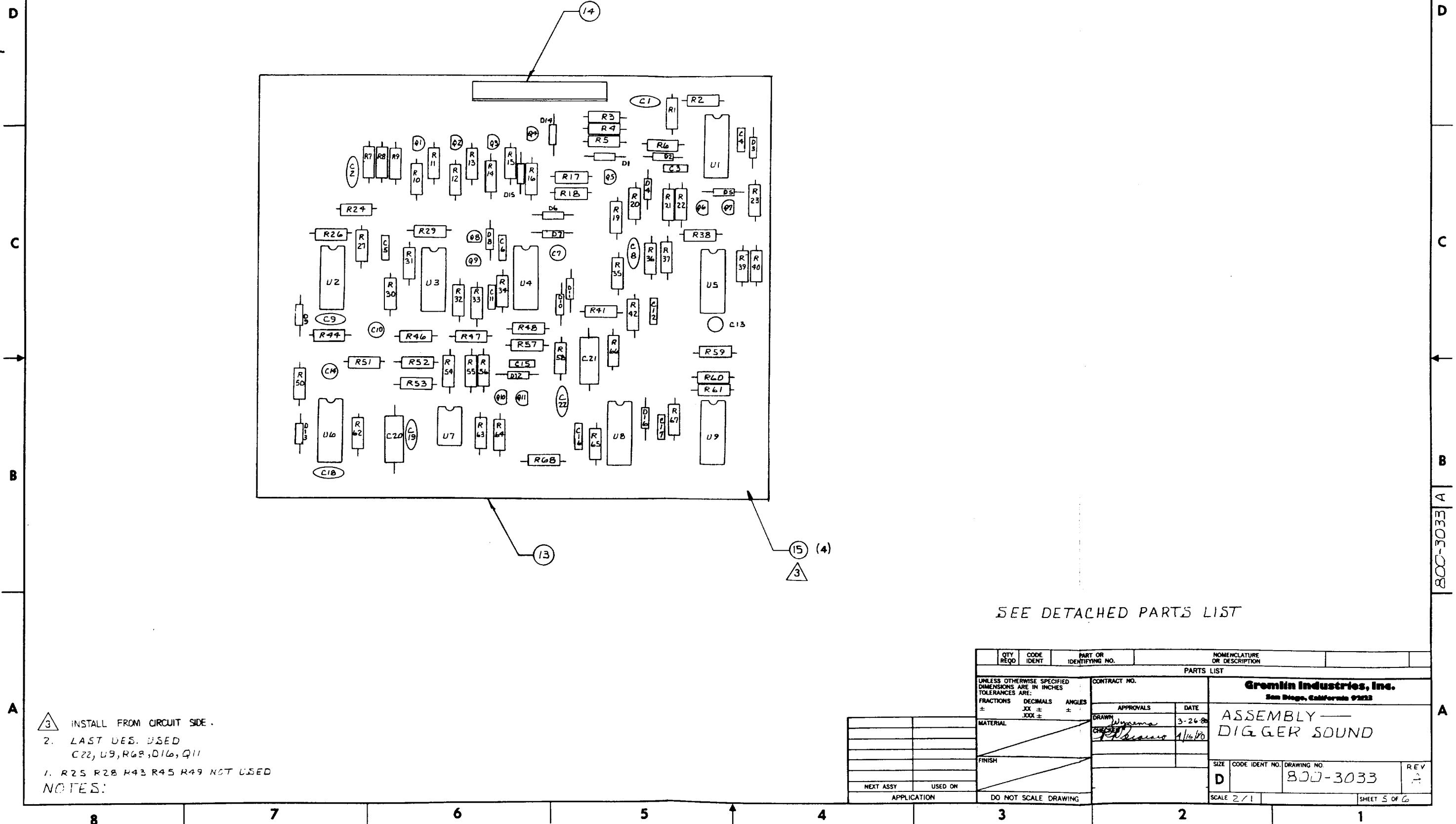
SHEET 7 OF 8

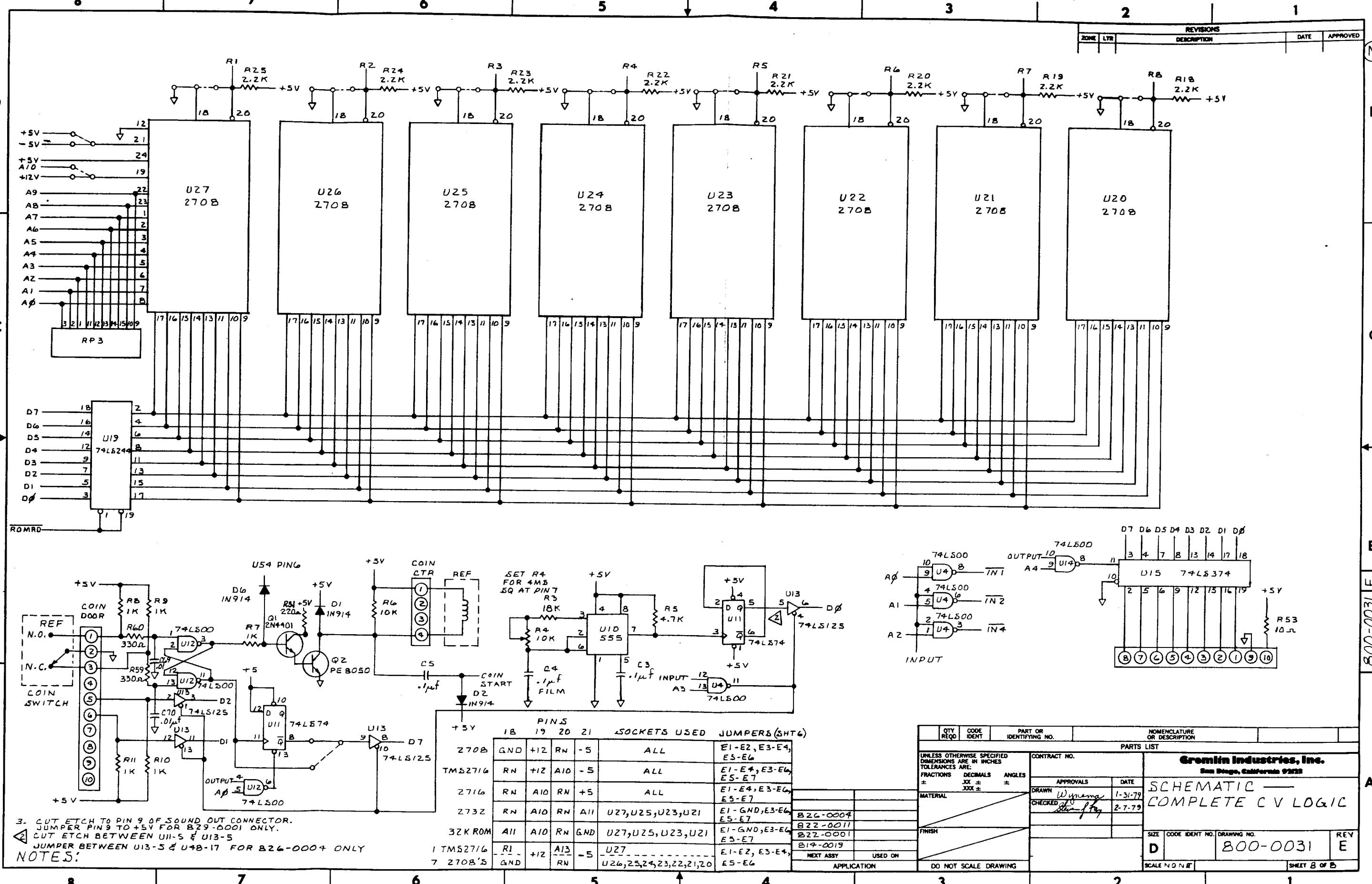


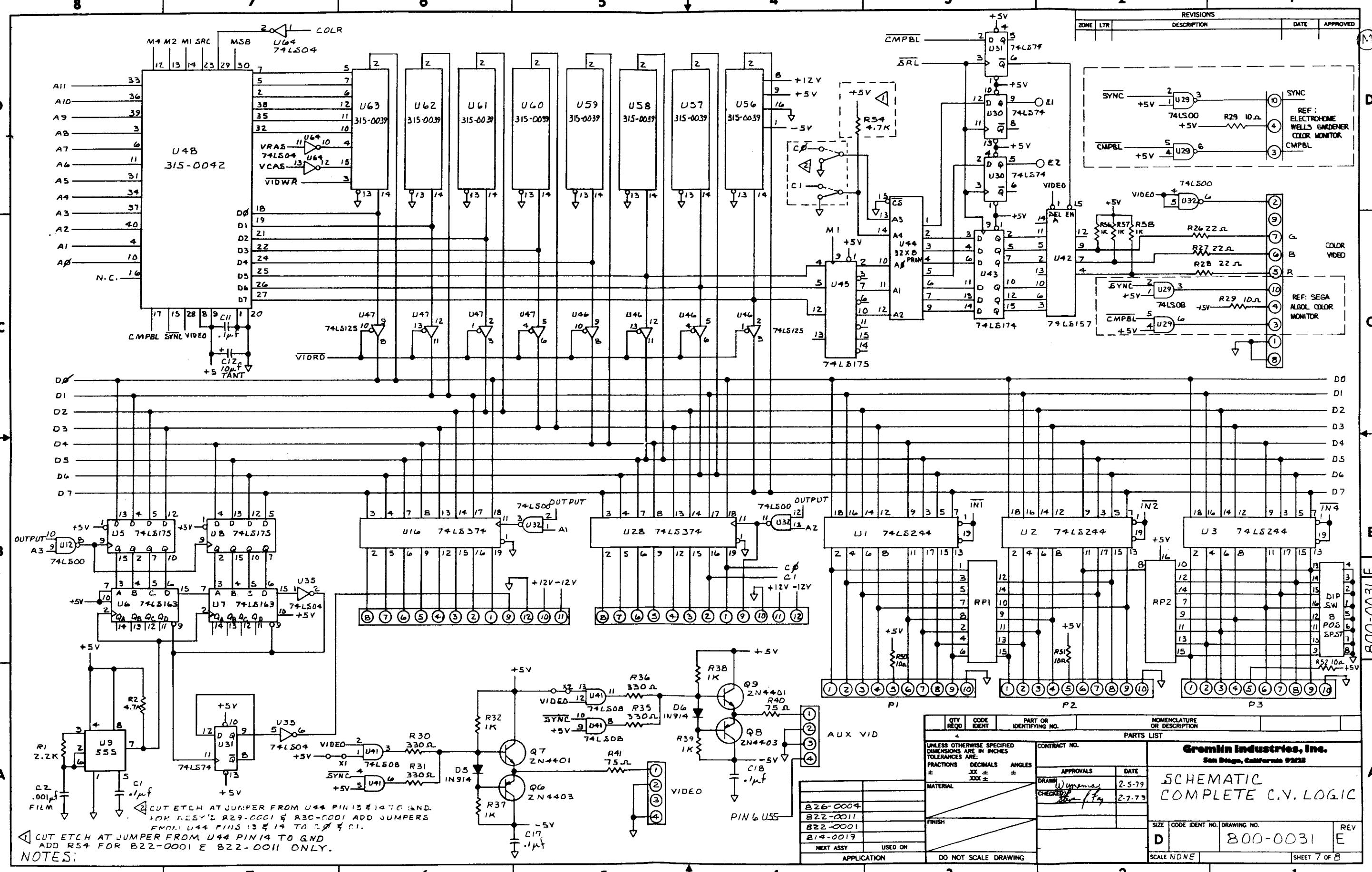


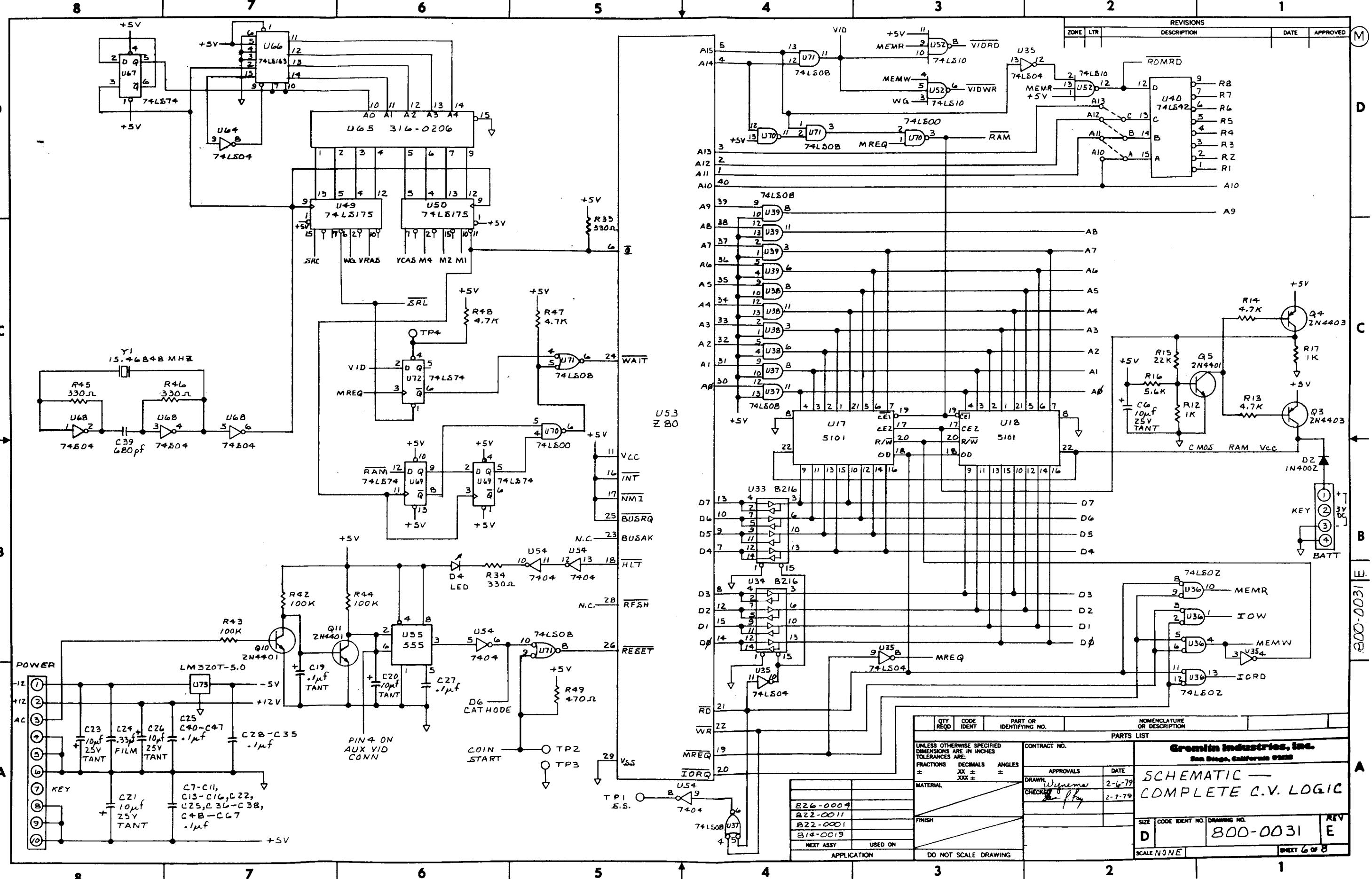
8 | 7 | 6 | 5 | 4 | 3 | 2 | 1

REVISIONS		DESCRIPTION		DATE	APPROVED
ZONE	LTR				
A	RELEASED			WJB	9-15-80









8

3

2

1

REVISIONS			
ZONE	LTR	DESCRIPTION	DATE APPROVED
A	RELEASED		12-22-78
B	PER ECN 310		5-29-78
C	PER ECN 318 E 321		8-8-79
—	PER ECN 326 (SEE P/L)	SB	9-4-79
D	PER ECN 354	WJD	11-13-79
E	PER ECN 394	SD	4-30-80

2

1

This diagram shows a floor plan of a room with several sections labeled 9 through 14:

- Section 9:** Located at the bottom center, this section contains a large rectangular area with a small circle inside.
- Section 10:** Located at the bottom left, this section contains a large rectangular area with a small circle inside.
- Section 11:** Located at the bottom right, this section contains a large rectangular area with a small circle inside.
- Section 12:** Located at the top right, this section contains a large rectangular area with a small circle inside.
- Section 13:** Located at the top left, this section contains a large rectangular area with a small circle inside.
- Section 14:** Located on the right side, this section contains a tall vertical rectangle with a small circle inside.

The room itself is a large rectangle divided into several sections by lines. The sections are labeled with letters and numbers, such as U1 through U72, RP1 through RP3, and R4. There are also labels like "SW1", "TP3", and "C1". Arrows point from the labels 11, 12, 13, and 14 to their respective sections.

*SEE DETAC TED PARTS LIST*

QTY REQD	CODE IDENT	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	
PARTS LIST				
UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES TOLERANCES ARE:		CONTRACT NO.		
FRACTIONS	DECIMALS	ANGLES		
±	XX ±	±		
XX ±				
MATERIAL		APPROVALS	DATE	
		DRAWN <i>Wynema</i>	11-20-78	
		CHECKED <i>Don J. Fey</i>	12-22-78	
FINISH				
DO NOT SCALE DRAWING				
<i>ASSEMBLY — BASIC V.I.C. BOARD</i>				
SIZE		CODE IDENT NO.	DRAWING NO.	REV
<b>D</b>			<b>800-0031</b>	<b>E</b>
SCALE 1/1			SHEET 5 OF B	
3		2	1	

4

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1

## REVISIONS

ZONE	LTR	DESCRIPTION	DATE	APPROVED
A	RELEASED	WJB	12-3-79	87
B	PER ECN 367	WJB	1-4-80	87

D

D

C

C

B

B

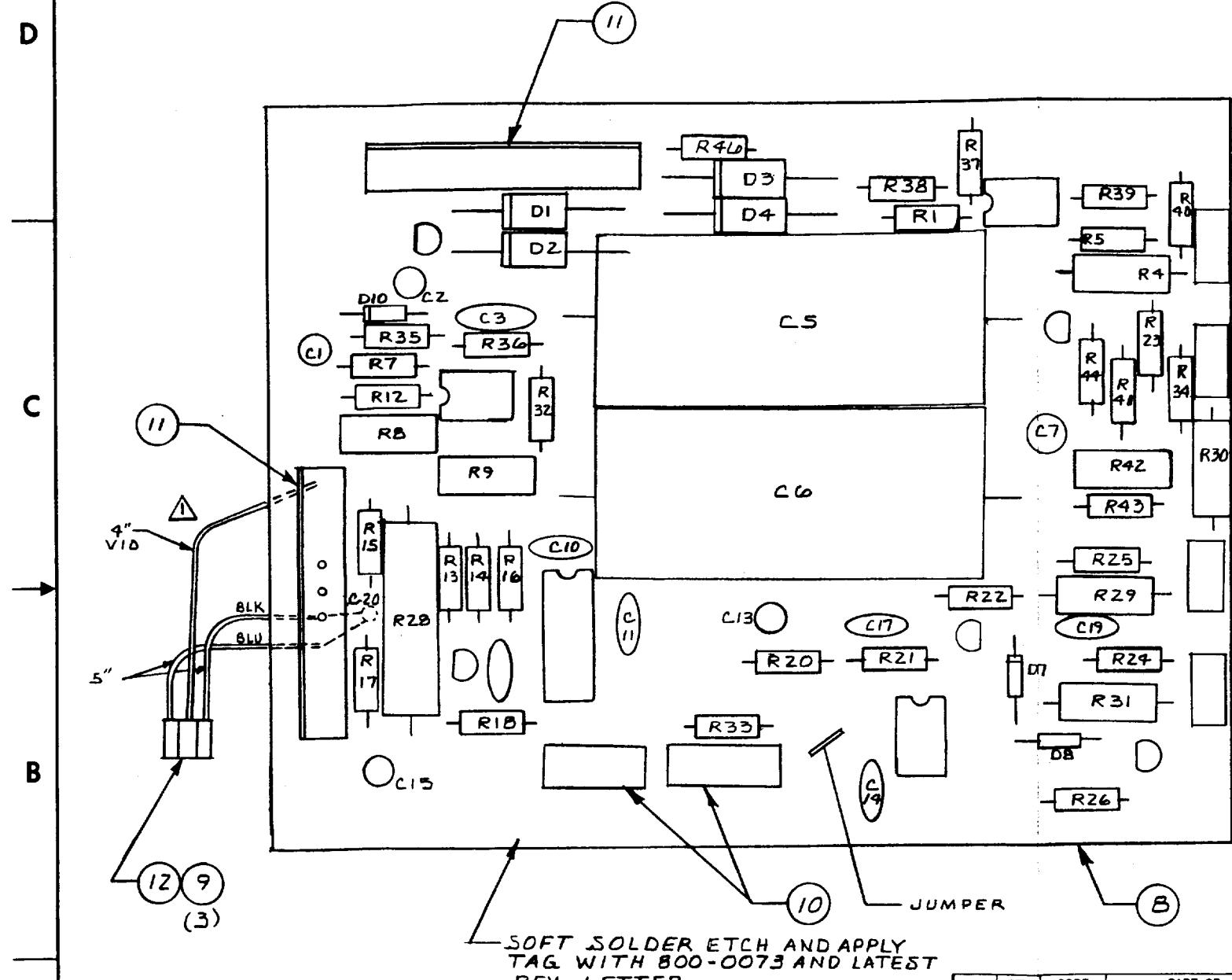
A

A

⚠ ALL WIRES 22 GA SOLDER TO BOTTOM  
OF CONNECTOR PINS (CIRCUIT SIDE)

## NOTES:

APPLICATION	DO NOT SCALE DRAWING	SIZE	CODE IDENT NO.	DRAWING NO.	REV
800-0072		C		800-0073	B

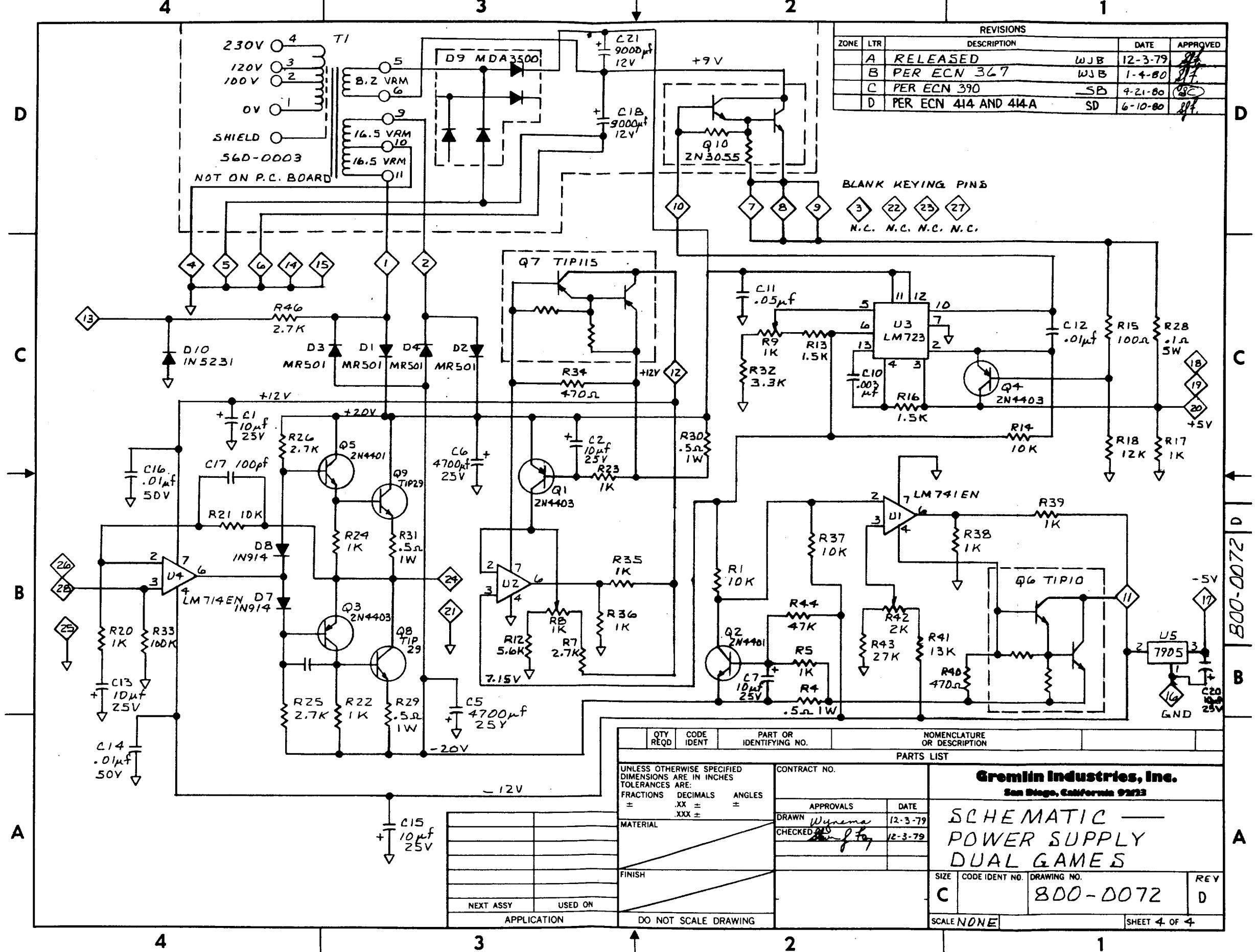


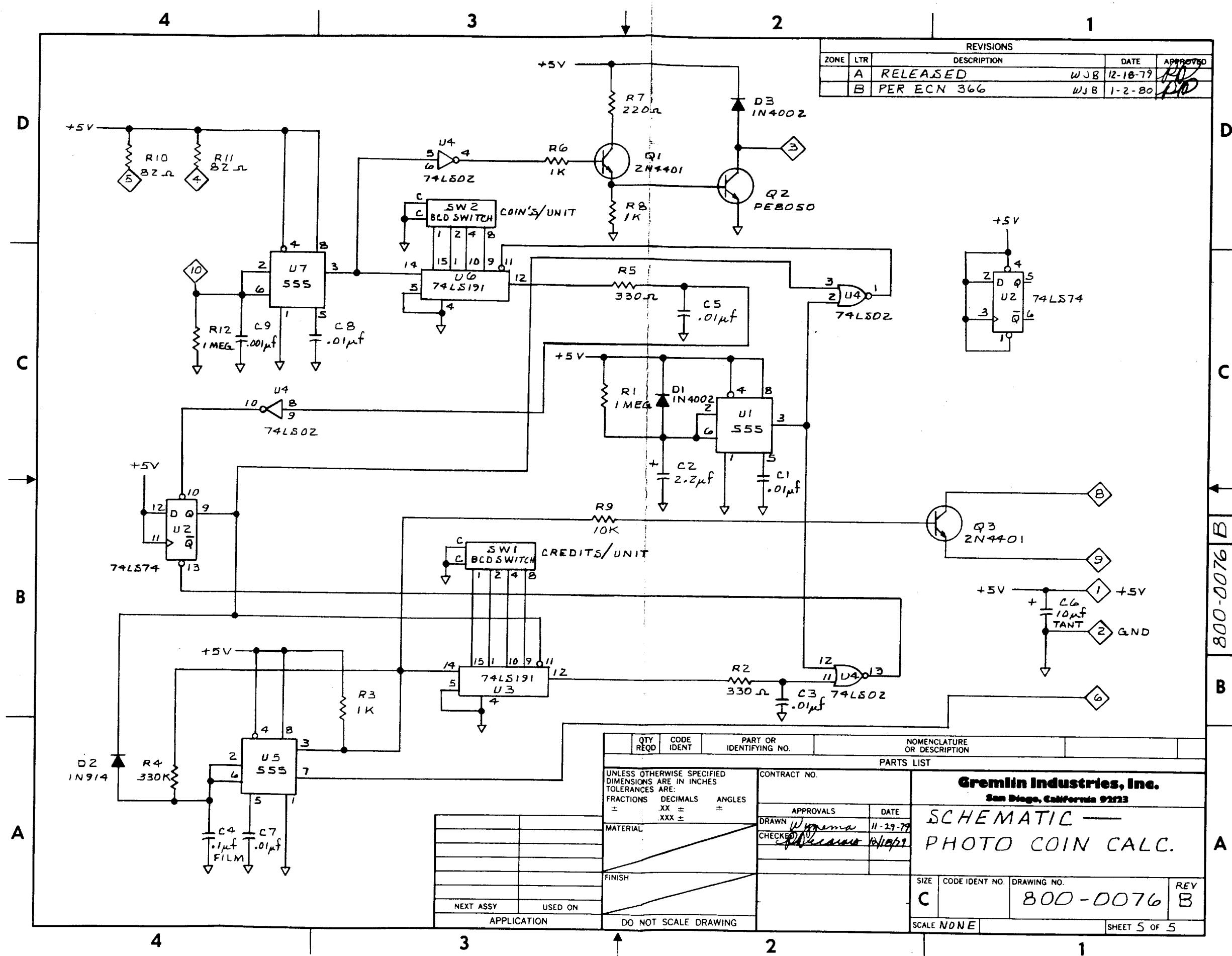
QTY REQD	CODE IDENT	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION
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## PARTS LIST

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES TOLERANCES ARE: FRACTIONS   DECIMALS   ANGLES $\pm$ XX $\pm$ $\pm$ XXX $\pm$	CONTRACT NO.	Gremlin Industries, Inc. San Diego, California 92123	
MATERIAL	APPROVALS	DATE	
	DRAWN	11-29-79	
	CHECKED	12-3-79	
FINISH			
SCALE 2/1	SHEET 4 OF 4		

P. C. ASSY  
POWER SUPPLY  
DUAL GAMES





4

5

REVISIONS				
ZONE	LTR	DESCRIPTION	DATE	APPROVED
	A	RELEASED	WJB 12-18-79	JL
	B	PER ECN 366	WJB 1-2-80	JK

D

D

C

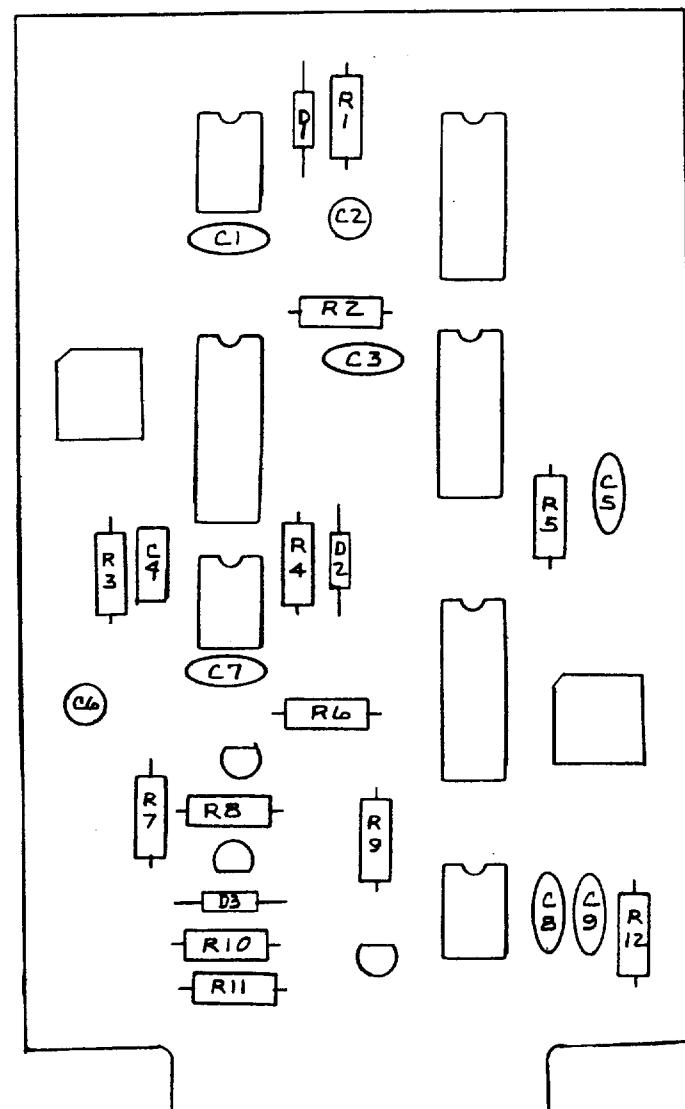
C

B

B

A

A



SEE DETACHED PARTS LIST

QTY REQD	CODE IDENT	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	
PARTS LIST				
UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES TOLERANCES ARE: FRACTIONS DECIMALS ANGLES = XX ± ± XXX ±		CONTRACT NO.		Gremlin Industries, Inc. San Diego, California 92123
MATERIAL		APPROVALS	DATE	P. C. ASSEMBLY PHOTO COIN CALC
DRAWN <i>W. J. B.</i> 12-19-79		CHECKED <i>W. J. B.</i> 6/1/79		
FINISH		SIZE		REV
		CODE IDENT NO	DRAWING NO.	C 800-0076 B
NEXT ASSY		USED ON		
APPLICATION		DO NOT SCALE DRAWING		SCALE 2/1 SHEET 4 OF 5

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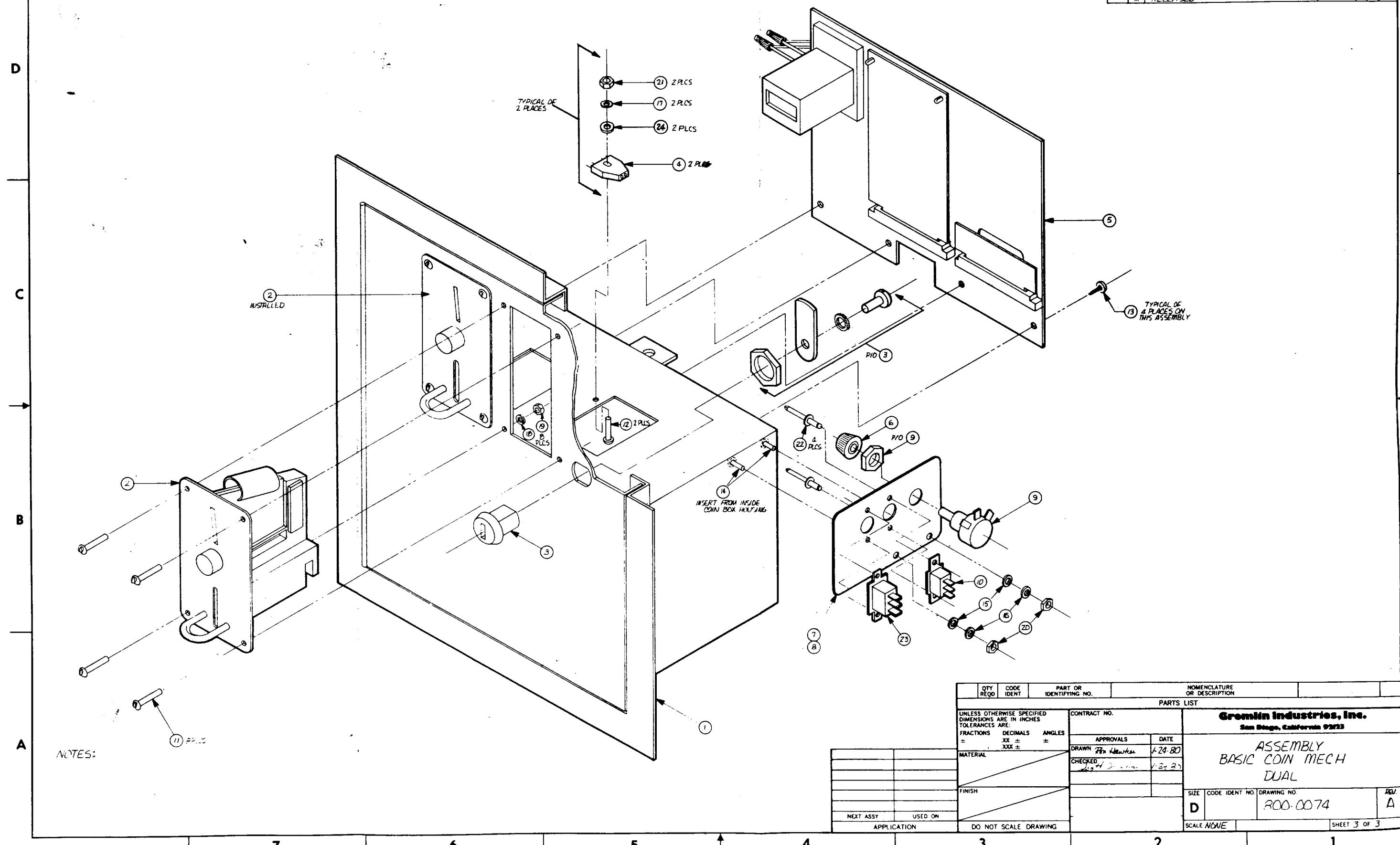
4

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1

REVISIONS		DATE	APPROVED
ZONE	LTR	DESCRIPTION	
A	RELEASED	1-28-80	



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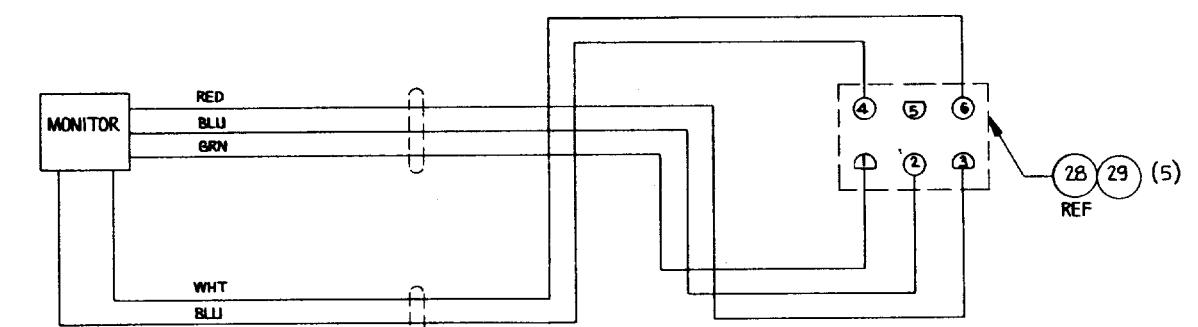
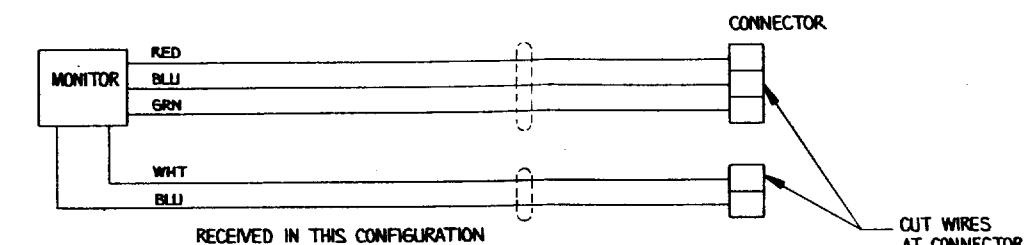
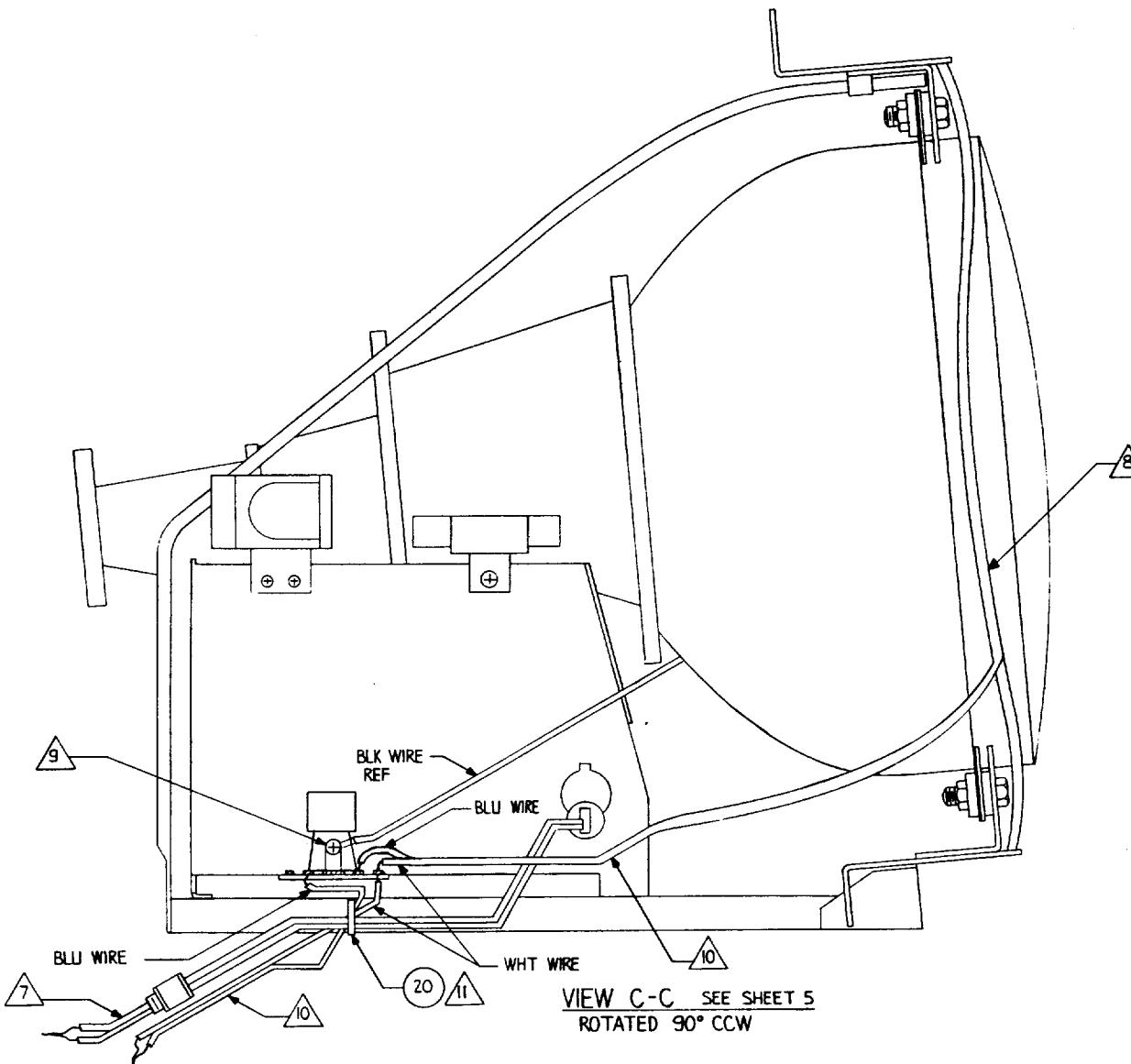
C

B

B

A

A



### MONITOR MODIFICATION

12. USE CABLE TIES, ITEM 20, TO DRESS WIRING AS NEEDED.

11. CLAMP WIRE TO CHASSIS USING CABLE TIE, ITEM 20, THRU EXISTING HOLE.

10. CUT WIRES TO LENGTHS SHOWN ON SHEET 8 AND SOLDER TO TERMINAL STRIP.

9. USE HARDWARE HOLDING BLK WIRE TO CHASSIS TO MOUNT THERMISTOR TERMINAL STRIP WITH THERMISTER.

8. REMOVE DEGAUZING COIL, ROTATE 180° AND RESECURE.

7. CUT POWER CORD TO LENGTH SHOWN ON SHEET 8.

NOTES: CONTINUED FROM SHEET 5

QTY REQD	CODE IDENT	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	
PARTS LIST				
		UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES TOLERANCES ARE: FRACTIONS   DECIMALS   ANGLES $\pm$ XX $\pm$ $\pm$	CONTRACT NO.	Gremlin Industries, Inc. San Diego, California 92123
		MATERIAL	APPROVALS   DATE	DRAWN SON DUONG 5-30-80
		FINISH	CHECKED A. AMBROSE 6-9-80	
NEXT ASSY	USED ON	APPLICATION	DO NOT SCALE DRAWING	SIZE   CODE IDENT NO   DRAWING NO. D   700 - 0015   REV. SCALE NONE   SHEET 3 OF 8

8

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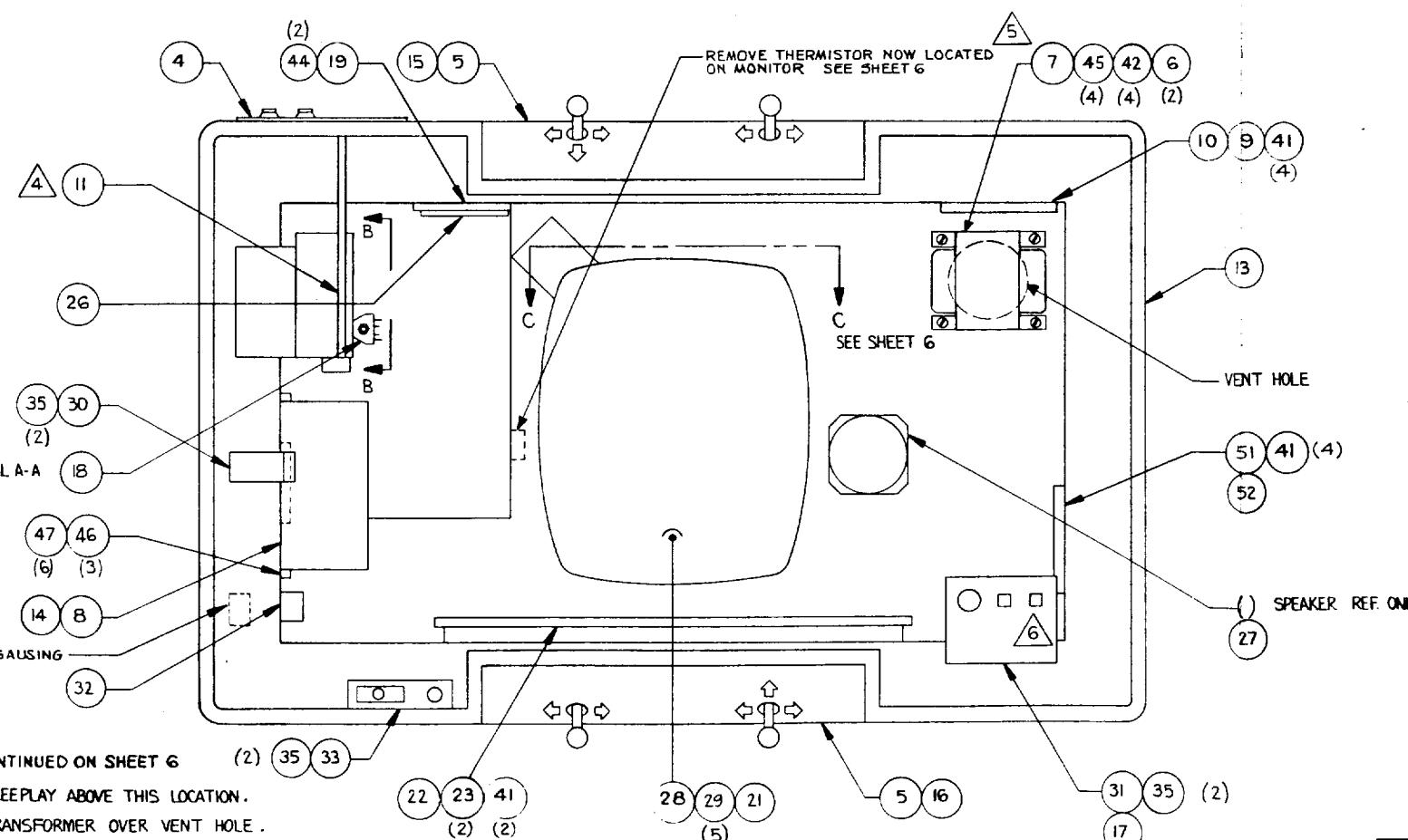
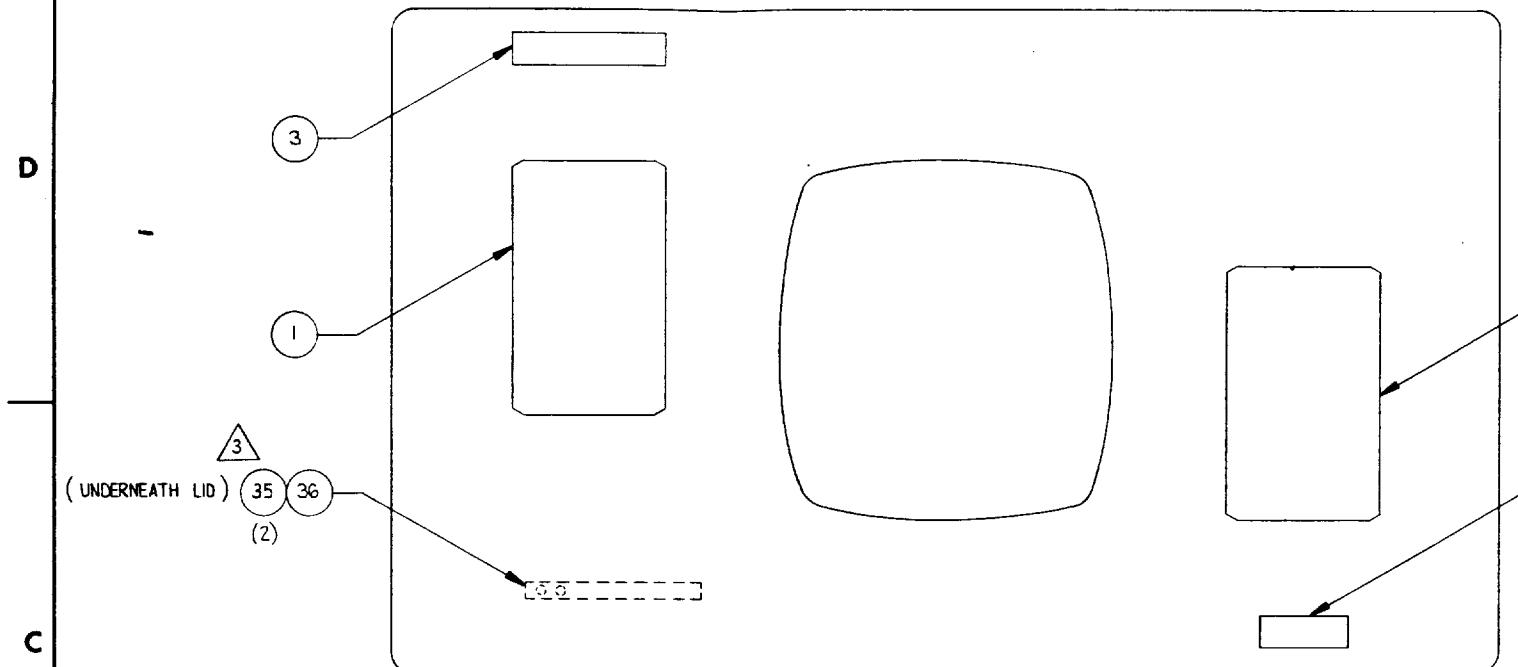
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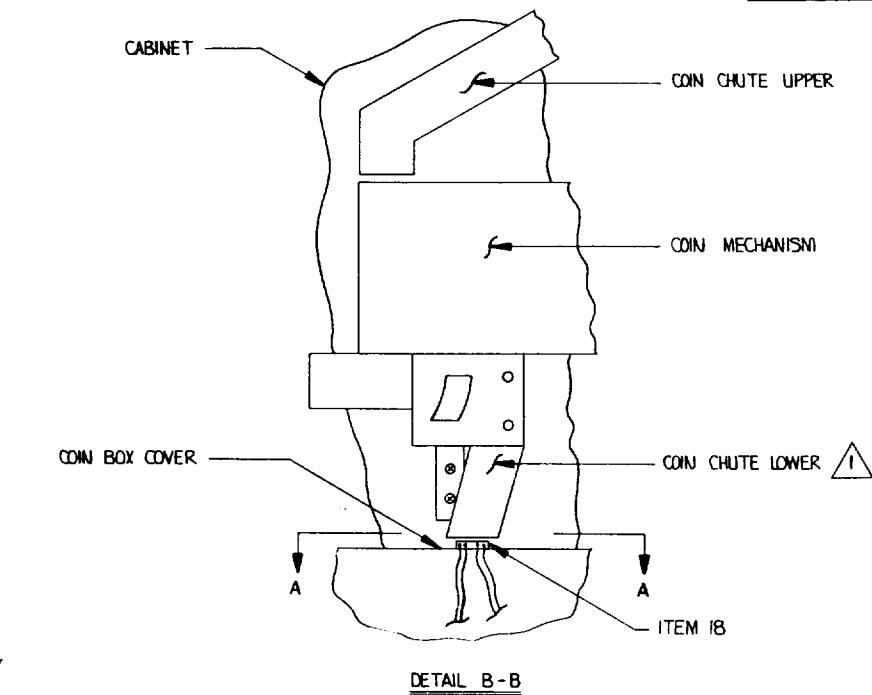
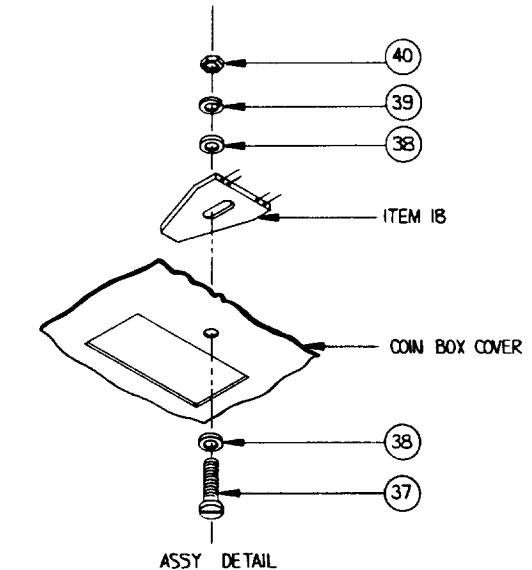
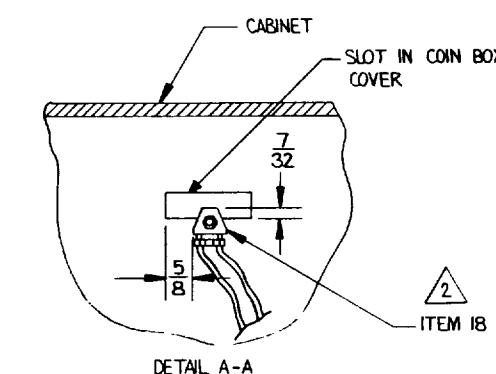
2

1

REVISIONS		DATE		APPROVED
ZONE	LTR	DESCRIPTION	3D	6-9-80



- NOTES CONTINUED ON SHEET 6
- △ STAMP FREEPLAY ABOVE THIS LOCATION.
  - △ INSTALL TRANSFORMER OVER VENT HOLE.
  - △ REMOVE MICRO SWITCH FROM COIN MECHANISM AND DISCARD.
  - △ INSTALL CLIP SWITCH 1 3/4" FROM FRONT EDGE AND 8" FROM SIDE EDGE OF LID.
  - △ INSTALL PHOTO CELL WITH ITEM 37 BY DRILLING A PILOT HOLE .128 DIAMETER IN THE COIN BOX COVER.
  - △ REMOVE LOWER COIN CHUTE AND MOUNT FLUSH WITH BOTTOM OF COIN MECHANISM AS SHOWN TO MAKE ROOM FOR PHOTO CELL.
- NOTES:



QTY REQD	CODE IDENT	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	
PARTS LIST				
UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES TOLERANCES ARE .005 FRACTIONS      DECIMALS      ANGLES	CONTRACT NO.	<b>Gremlin Industries, Inc.</b> San Diego, California 92123		
$\pm$ $\frac{xx}{xx}$ $\pm$ $\frac{xxx}{xxx}$	APPROVALS	DATE		
MATERIAL	DRAWN SON DUONG	3-28-80		
	CHECKED	A. AMBROSE	6-9-80	
FINISH				
NEXT ASSY	USED ON			
APPLICATION	DO NOT SCALE DRAWING			
SHEET 5 OF 8				

8 | 7 | 6 | 5 | 4 | 3 | 2 | 1

REVISIONS			
ZONE	LTR	DESCRIPTION	DATE APPROVED
A	RELEASED	J.M.	6-9-80 AFA

D

D

C

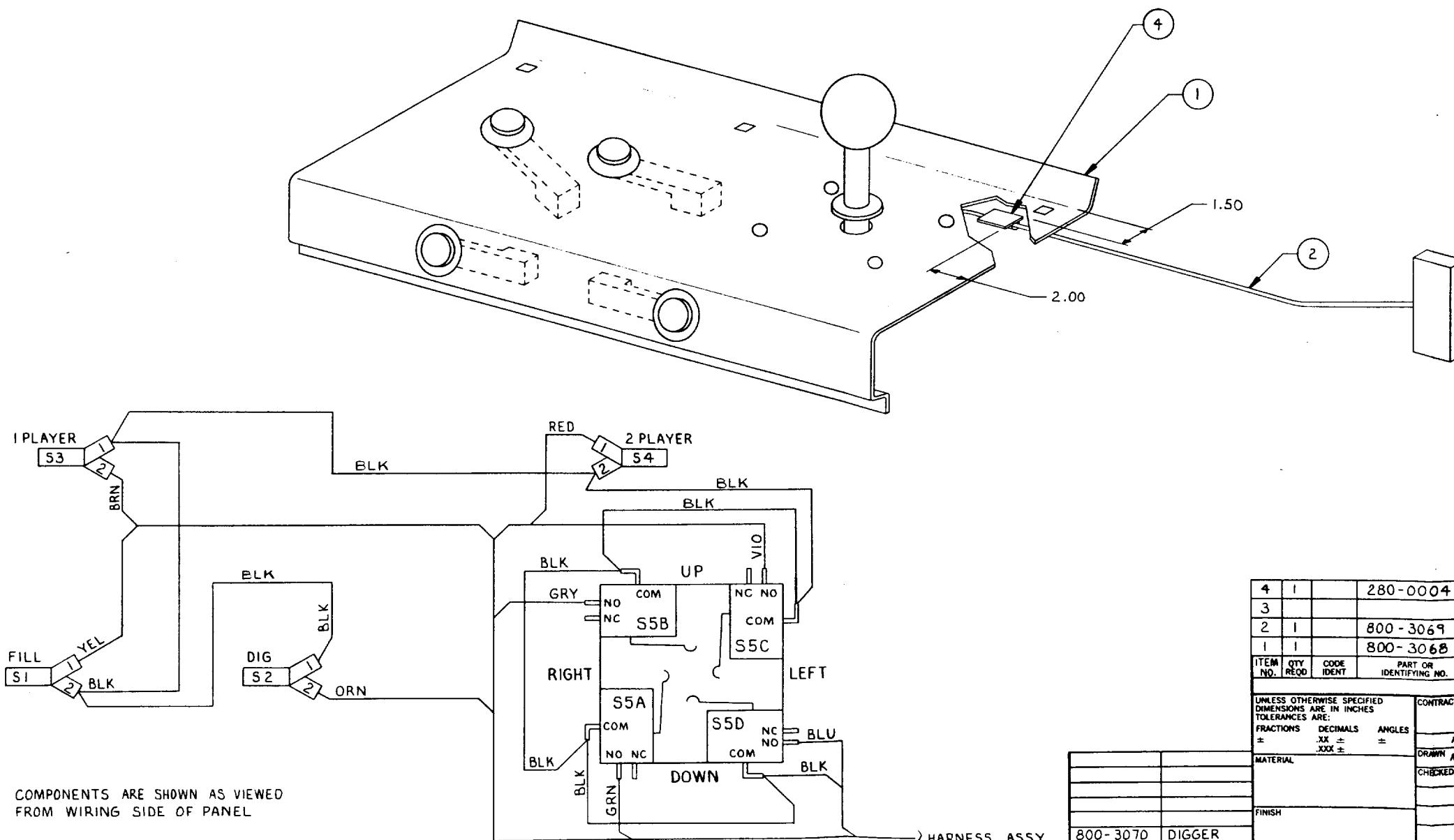
C

B

B

A

A



ITEM NO.	QTY	CODE IDENT	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION
4	1		280-0004	CLIP, WIRE HOLD DOWN
3				
2	1		800-3069	HARNESS ASSY
1	1		800-3068	CONTROL PANEL ASSY
PARTS LIST				
UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES TOLERANCES ARE: FRACTIONS DECIMALS ANGLES $\pm$ XX $\pm$ XXX $\pm$				
CONTRACT NO.				
APPROVALS DATE				
DRAWN MAHONEY 5-12-80				
CHECKED A. AMBROSE 5-23-80				
MATERIAL				
FINISH				
APPLICATION				
DO NOT SCALE DRAWING				
SIZE CODE IDENT NO. DRAWING NO. REV				
D			800-3074	A
SCALE NO/ONE SHEET 1 OF 1				

Gremlin Industries, Inc.  
San Diego, California 92123  
CONTROL PANEL  
COMPLETE, DIGGER UPRIGHT

8

7

6

5

4

3

2

1

## REVISIONS

ZONE	LTR	DESCRIPTION	DATE	APPROVED
A	RELEASED		J.M.	6-9-80 AFA

D

D

C

C

B

B

A

A

