

SAFARI

by Gremlin

SAFARI
OPERATING INSTRUCTIONS
AND
SERVICE MANUAL

GREMLIN INDUSTRIES, INC.
8401 Aero Drive
San Diego, CA. 92123

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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:

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:

GREMLIN INDUSTRIES, INC.

8401 Aero Drive

San Diego, California 92123

(714) 277-8700

IMPORTANT NOTE

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.

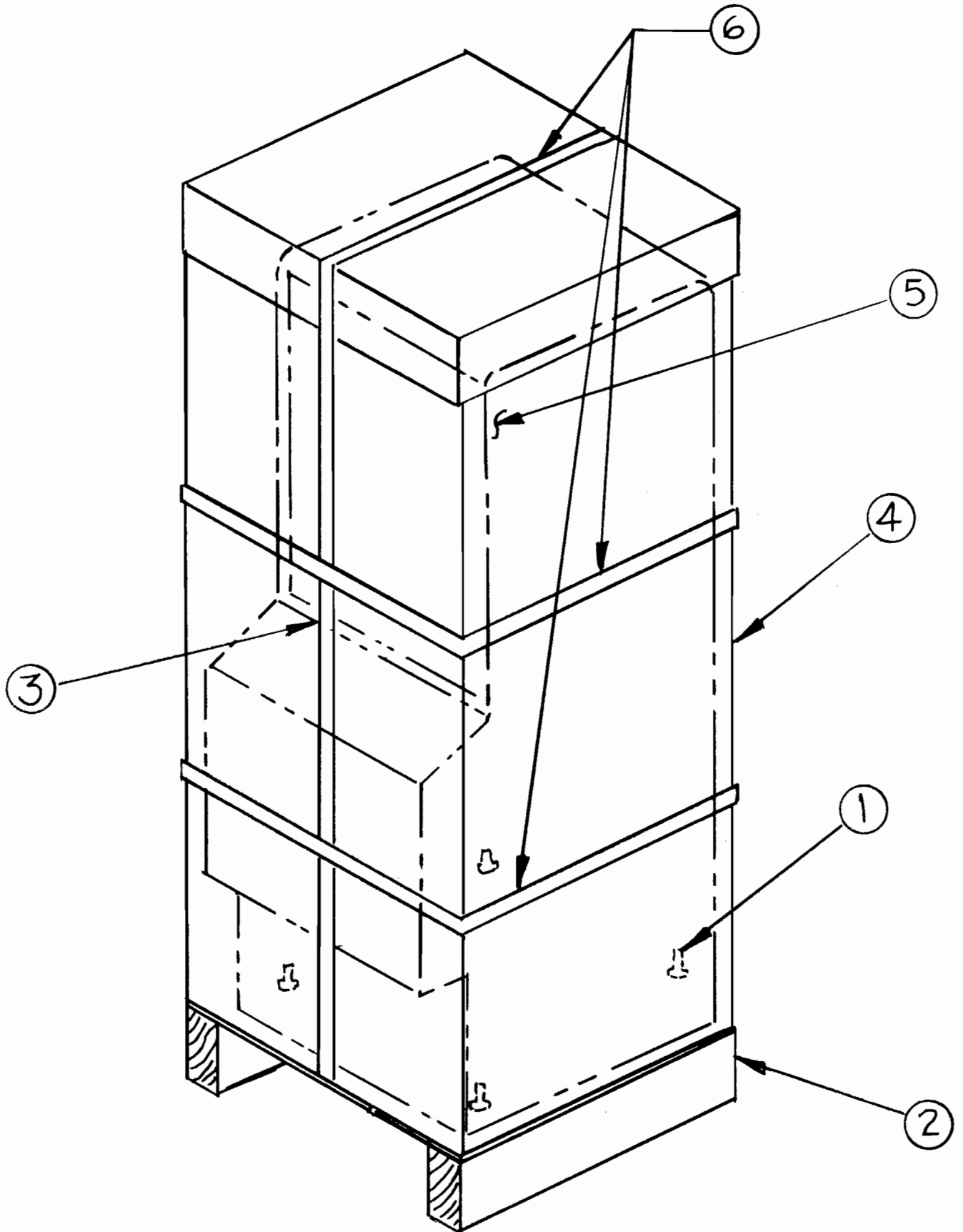
REPACKAGING INSTRUCTIONS

Should it be necessary to ship this game, the following instructions are provided for game crating.

- A) If the original shipping bolts (Ref. 1) have been discarded, obtain four 5/16"-18" x 1-3/4" hex head bolts with 5/16" flat washer. Lay game on its side and attach skid (Ref. 2).
- B) Place game upright. Tape game keys to upper flange of operator's panel (Ref. 3). Crate the game using appropriate shock-absorbent packing material (Ref. 4). Include padding on all four corners of the game (Ref. 5).
- C) After crating is completed, secure package with strapping (Ref. 6).

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 accomplished; include the full serial number of the game.

REPACKAGING INSTRUCTIONS



SAFARI GAME CONCEPT

SAFARI is a video game of skill and strategy in which the player attempts to hit as many animals as possible by maneuvering the hunter and his gun to take advantage of all available shots. Game time is 90 counts.

PLAYFIELD:

The background is a setting of an African plains area with a tree in the center as an obstacle or vantage point for the hunter. The hunter is placed at the start of the game in a protective hut at the lower left of the background. The words 'YOUR SCORE', 'TIME', and 'HIGH SCORE' are written on the bottom of the background and displayed above the words.

HUNTER:

The hunter appears at game start inside the protective hut or stockade. His position is controlled by the left joystick and the player is free to move the hunter in any direction to any position on the screen. The hunter is exposed to the possibility of being run down by any one of the animals as soon as he is positioned outside the hut.

GUN CONTROL:

Gun position is controlled by the trigger handle and the gun may be pointed in any of three positions, UP, DOWN, or STRAIGHT across.

BULLETS:

The hunter has an unlimited supply of bullets with two exceptions. First, while one bullet is on the screen, another cannot be fired, and second, the bullets cannot pass through the trunk of the tree. The bullets are fired using the trigger switch on the right hand control.

ANIMALS:

The four animals, SNAKE, BUZZARD, LION, and BOAR, appear at random and cross the screen at various angles and various speeds. The overall speed and number of animals is increased as the score increases. The score value of the animals is dependant on the difficulty level necessary to hit the animals.

SAFARI GAME CONCEPT: (Cont'd.)

SCORING:

Hitting the individual animal scores the point value associated with that animal. The SNAKE and LION are worth 100 points, the BOAR 200, and the BIRD, (BUZZARD) 300 points.

HIGH SCORE:

Current 'HIGH SCORE' is displayed at the lower left of the playfield continuously. The score will update with each new high score and flash during the advertising sequence. High score can be reset by unplugging the game from line voltage and plugging it back in.

TIME:

SAFARI is set to run approximately 2 minutes. This has been found to be an optimum time, and is not adjustable.

OVERTIME:

If a player manages to score 3000 or more points in a game, he is awarded extended time. Extended time runs 30 counts or approximately 40 seconds.

END-OF-GAME:

The SAFARI game ends when the count reaches 00 the first time if no overtime is won, or the second time the count reaches 00 if overtime is awarded. At that time, the hunter disappears, and the high score begins flashing. This also signifies the beginning of the advertising sequence that continues until the next credit is given.

SOUND:

E-Z Adjust TM control panel - SAFARI has two adjustments on this panel, which is located just inside the coin door mounted to the cash box.

VOLUME CONTROL - Set to desired volume for animal sounds during the game and advertising.

MUTE SWITCH - This switch is used to turn the sound during the advertising sequence ONLY to an on or off position.

RECOMMENDED SPARE PARTS FOR SAFARI
(Per Ten Units)

<u>DESCRIPTION</u>	<u>PART NUMBER</u>	<u>QUANTITY</u>
<u>SPEAKER:</u>		
Game 6" x 9"	130-9001	1
<u>MONITOR:</u>		
Monitor, Video 19"	200-9002	1
<u>COIN COUNTER:</u>		
Counter, Digital	220-9008	1
<u>SOCKETS, IC:</u>		
Socket, 24 Pin	213-9001	2
Socket, 16 Pin	213-9004	2
Socket, 20 Pin	213-9008	1
<u>LOCKS:</u>		
Lock (Fort Lock) Coin Door	220-9035	1
Lock Panel	220-9019	1
<u>COIN ASSEMBLY:</u>		
Coin Ret. Button	220-9071	1
Coin Mech. Single	220-9066	2
Cash Box, U.S.B.	220-9073	1
Door, Cash	220-9067	1
Coin Door	250-9285	1
Coin Ret. Stop	220-9072	1
<u>INTEGRATED CIRCUITS:</u>		
LM741	313-9004	2
74LS00	314-9018	2
74LS244	314-9055	2
74LS08	314-9058	2
74LS74	314-9062	1
74LS151	314-9071	2
Z80 CPU	315-9031	1
RAM 4K, 12V	315-9039	2
PROM 32X8 Seq.	316-9042	1
PROM 32X8 CTL	316-9043	1
E PROM SAF U39	316-9057	1
E PROM SAF U40	316-9058	1
E PROM SAF U41	316-9059	1
E PROM SAF U42	316-9060	1

RECOMMENDED SPARE PARTS FOR SAFARI: (Cont'd.)

<u>DESCRIPTION</u>	<u>PART NUMBER</u>	<u>QUANTITY</u>
<u>INTEGRATED CIRCUITS: (Cont'd.)</u>		
E PROM SAF U43	316-9061	1
E PROM SAF U44	316-9062	1
E PROM SAF U45	316-9063	1
E PROM SAF U46	316-9064	1
E PROM SAF U47	316-9065	1
E PROM SAF U48	316-9066	1
<u>LIGHT:</u>		
Black Light	390-9020	1
<u>POTENTIOMETER:</u>		
50K CTS	475-9008	1
<u>DIODE:</u>		
MDA 3500	481-9009	2
<u>TRANSISTORS:</u>		
MJ3000	482-9011	2
TIP 110	482-9013	2
TIP 115	482-9015	2
TIP 29	482-9016	2
<u>SWITCHES:</u>		
Sw, Control (Joystick)	510-9037	2
Sw, Trigger	510-9039	1
Sw, SPDT Cherry (Interlock)	510-9013	1
<u>TRANSFORMER:</u>		
Model 4-1045B	560-9003	1
<u>SUB-ASSEMBLIES:</u>		
Game Computer Board	815-9001	1
Game Sound Board	815-9002	1
Game Power Supply	815-9020	1

MAINTENANCE

NOTE: IF AT ANY TIME THE T.V. SCREEN SHOWS A MEANINGLESS DISPLAY OR THE GAME OTHERWISE MALFUNCTIONS, DROP A COIN IN THE COIN MECHANISM. THIS SHOULD CORRECT THE PROBLEM. IF NOT, THE GAME REQUIRES SERVICE.

FACTORY ASSISTANCE:

TECHNICAL HELP IS AVAILABLE FROM THE GREMLIN FACTORY. IF A PROBLEM OCCURS WHICH CANNOT BE EASILY RESOLVED BY YOUR DISTRIBUTOR, A PHONE CALL OR LETTER TO THE FACTORY WILL BRING ATTENTION TO YOUR PROBLEM BY A TRAINED REPRESENTATIVE.

EQUIPMENT:

1. Oscilloscope - 50 mhz or wider band width
2. DVM (Digital Volt Meter)
3. OHM Meter
4. Logic Probe
5. Solder Station - 75 Watt or less
6. Jumpers

The above list is recommended for anyone attempting to service this game.

ADJUSTMENTS & OPTIONS

COIN OPTIONS:

SAFARI comes from the factory as a one-coin game, but may be modified to require either two or three coins. To change the game to a two-coin version, simply ground Pin 23; for a three-coin version, ground Pin 22. A convenient ground for this purpose is available at Pin 16. Please refer to the Computer Game Board Schematic No. 815-0001 to implement this option.

POWER SUPPLY:

If service of the game is required, the power supply voltages should be checked before any other troubleshooting is attempted. Pin 18 on the Power Supply Board, No. 815-0021, should be 5.0 volts; if not, R9 should be adjusted (refer to P.C. Assembly). Pin 10 should be +12.0 volts, if not, adjust R8. Pin 11 should be -12.0 volts, if not, adjust R42.

SOUND BOARD:

The SAFARI sound effect may be adjusted by observing the peak to peak voltage at the junction between the adjustment pots (R61, R10, R26, R39, R70, R81) and the 22K Ohm summing resistors (R62, R83, R27, R40, R52, R71, R82). Using an oscilloscope, the following voltages should be observed: Hunter falling (R61-R62), 3v p-p; Lion (R10-R83), 1v p-p; Gun (R26-R27), 3v p-p; Boar (R39-R40), 4v p-p; Snake (R51-R52), 1v p-p; Gallop (R70-R71), 2v p-p; and Bird (R81-R82), 4v p-p.

TEST JUMPER:

The SAFARI Logic Board has a provision which allows the game to be speeded up 8 times. To speed the game up; the jumper at U19 should be connected between points 2 and 3. The jumper should be connected between 1 and 3 for normal operation.

INSTRUCTIONS FOR
REMOVAL AND REINSTALLATION
OF
MONITOR

- Tools Required:
- 1) Phillips screw driver
 - 2) Flat head screw driver
 - 3) Gloves
 - 4) Small piece masking tape.

NOTE: Use Drawing No. 715-0001 as Reference for Details.

Should it become necessary to remove the monitor for servicing, please follow the steps listed below:

1. Remove power from cabinet.
2. Unlock and remove rear door.
3. Remove two (2) Phillips screws holding plastic playfield, (GREMLIN Part Number 253-0058) to black light fixture.
4. Remove playfield from cabinet.
5. Remove staples holding bottom border graphics (GREMLIN Part Number 420-0093) to sides of cabinet and remove graphic panel from cabinet.

CAUTION: MIRROR HAS SHARP EDGES AND CARE
SHOULD BE TAKEN IN HANDLING OF
MIRROR.

6. Remove screws holding mirror side brackets (GREMLIN Part Number 250-0242) and remove brackets from cabinet.
7. Place small piece of masking tape on back side of mirror - when reinstalling - ensure this side faces same direction.

**INSTRUCTION FOR REMOVAL
AND REINSTALLATION OF MONITOR - (Cont'd.)**

8. Put gloves on to remove mirror from cabinet. Care **MUST** be taken as mirror is fragile, and can be broken **EASILY**.
9. Remove black shadow mask from its position on top of monitor.
10. Remove four (4) outside bolts from monitor brackets (GREMLIN Part Number 250-0241), two (2) on each side. (Reference: Drawing Number 715-0001, Sheet 9, View B-B.)
11. Disconnect green ground wire from back of monitor, Video signal line from lower side of monitor, and power plug from receptacle on side of cabinet.
12. Ensure power cable is loose from all wire hold down clips.
13. Check to be sure monitor is free from all interference and connections and remove monitor to rear of cabinet.
14. To reinstall monitor, simply reverse this procedure, starting with this step and work back towards Step 1.

Should you have any difficulties, please contact your Distributor or Gremlin Customer Service.

Gremilin Industries, Inc.
San Diego, California 92123

PARTS LIST

TITLE SAFARI II

DWG NO 715-0002

SH / OF / REV 1 / 10 / B

SHEETS 7, 8, 9 & 10
ARE "D" SIZE

DRAWN P.D.

12-21-77

ENGR

CHECK

Ken De Forest

APPR

REVISION DESCRIPTION

DRAFT

CHECK

APPR

LTR DATE

RELEASER

2/5/78

DRAFT

CHECK

APPR

A 2-10-78

RELEASER 2/5/78 P.D.
ITEM 7 WAS 800-0015, ADDED 9, 10 & 11; CHG
RARRIAGE BOLTS TO BLACK OXIDE;
ITEM 101 QTY WAS 3FT.

DRAFT

CHECK

APPR

B 3/24/78

RELEASER 3/24/78 P.D.
ITEM 7 WAS 800-0015, ADDED 9, 10 & 11; CHG
RARRIAGE BOLTS TO BLACK OXIDE;
ITEM 101 QTY WAS 3FT.

DRAFT

CHECK

APPR

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San Diego, California 92123

PARTS LIST

TITLE
SAFARI II

715-0002
DWG NO

SH 2
OF

B
REV

ITEM NO	PART NO	QTY PER ASSY				DESCRIPTION	REF DES
1	130-0001	1				SPEAKER, GAME 6x9	
2	130-0002	1				COVER, SPEAKER 6x9	
3	140-0021	1				COVER, JUNCTION BOX	
4							
5	200-0002	1				MONITOR, VIDEO 19"	
6	220-0008	1				COUNTER, DIGITAL	
7	220-0066	2				MECH COIN SINGLE	
8	250-0286	1				TRIM, CONTROL PANEL, LWR	
9	250-0285	1				COIN MECH, SINGLE	
10	220-0035	1				LOCK - FOOT LOCK	
11	252-0052	1				COVER BOARD, MONITOR	
12							
13							
14							
15							
16							
17							
18	250-0280	2				BRACKET, CRT	
19							
20	250-0279	2				CLAMP, CRT	
21	250-0242	2				BRACKET, GLASS PTNG	
22	250-0243	2				BRACKET	
23	250-0244	1				PLATE, MIRROR BOT.	
24	250-0245	1				PLATE, PLAYFIELD BOT.	
25	253-0058	1				PLAYFIELD	

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San Diego, California 92123

PARTS LIST

TITLE
SAFARI II

7/5-0002
DWG NO

SH 3 OF 1
REV B

ITEM NO	PART NO	QTY PER ASSY			DESCRIPTION	REF DES
26	253-0061	1			RETAINER, GLASS, TOP	
27	253-0062	1			RETAINER, GLASS, BOT.	
28	253-0063	2			RETAINER, GLASS, SIDE	
29	253-0065	1			WINDOW, FRONT	
30	275-0004	1			MIRROR, HALF	
31	420-0028	1			DECAL S/N	
32						
33	420-0030	1			DECAL, CAUTION 115V	
34	420-0038	2			DECAL, IMPORTANT NOTE	
35	420-0040	1			DECAL, RECYCLE	
36	420-0041	1			DECAL, S/N, SMALL	
37	420-0060	1			DECAL, TIP N TELL	
38	420-0087	1			MASK	
39	420-0088	1			DECORATION BD LF	
40	420-0089	1			TV STICKER STOCKADE	
41	420-0090	1			TV STICKER TREE	
42	420-0091	1			DECORATION BD RT	
43						
44	420-0093	1			DECORATION BD BOT	
45	420-0094	1			DECORATION BD RT	
46	420-0095	1			DECORATION BD LF	
47						
48	250-0048	1			CLIP, SWITCH	
49	280-0014	5			CLIPS, STAND-OFF	
50	280-0010	4			WIRE NUT	

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PARTS LIST

TITLE
SAFARI II

715-0002
DWG NO

SH 4
OF

REV B

ITEM NO	PART NO	QTY PER ASSY			DESCRIPTION	REF DES
51	815-0020	1			PWR SUPPLY ASSY	
52	815-0001	1			GAME CMPTR BA ASSY	
53	815-0002	1			GAME SOUND BD ASSY	
54						
55	815-0006	1			CONTROL PANEL ASSY	
56	815-0007	1			HARNES, CONTROL PANEL	
57	815-0008	1			HARNES, COIN COUNTER	
58	815-00031	1			HARNES, MONITOR	
59	815-0010	1			HARNES, SPEAKER	
60	815-0027	1			HARNES, VOLUME CONTROL	
61	815-0028	1			HARNES, COIN MECH	
62	815-0029	1			HARNES, JUMPER	
63	815-0030	1			JUNCTION BOX ASSY	
64		2			WASHER, FLAT #8, REG SERIES, CAD PLT	
65		4			SCREW, OVAL HD, #8-32x1/2" LG, CAD PLT	
66		4			NUT, WING #10-24, CAD PLT	
67		22			WASHER, FLAT #10, REG SERIES, CAD PLT	
68		22			NUT, HEX #10-24, CAD PLT	
69		8			BOLT, CARRIAGE 10-24x2" LG, BLACK OXIDE	
70		6			SCREW, MACHINE 8-32x2 1/4 LG	
71		4			NAIL (BRAID) 18 GA X 3/4" LG	
72		6			NUT, HEX 8-32, CAD PLT	
73		4			WASHER, LOCK, SPLIT #8	REG. SERIES, CAD PLT
74		8			SCREW, SHT MTL, PAN HD #8	6 x 1/2" LG
75		5			SCREW, MACH PAN HD, CRS REC #8	6-32 x 1" LG, CAD PLT

Gremilin Industries, Inc.
San Diego, California 92123

PARTS LIST

TITLE
SAFARI II

715-0002

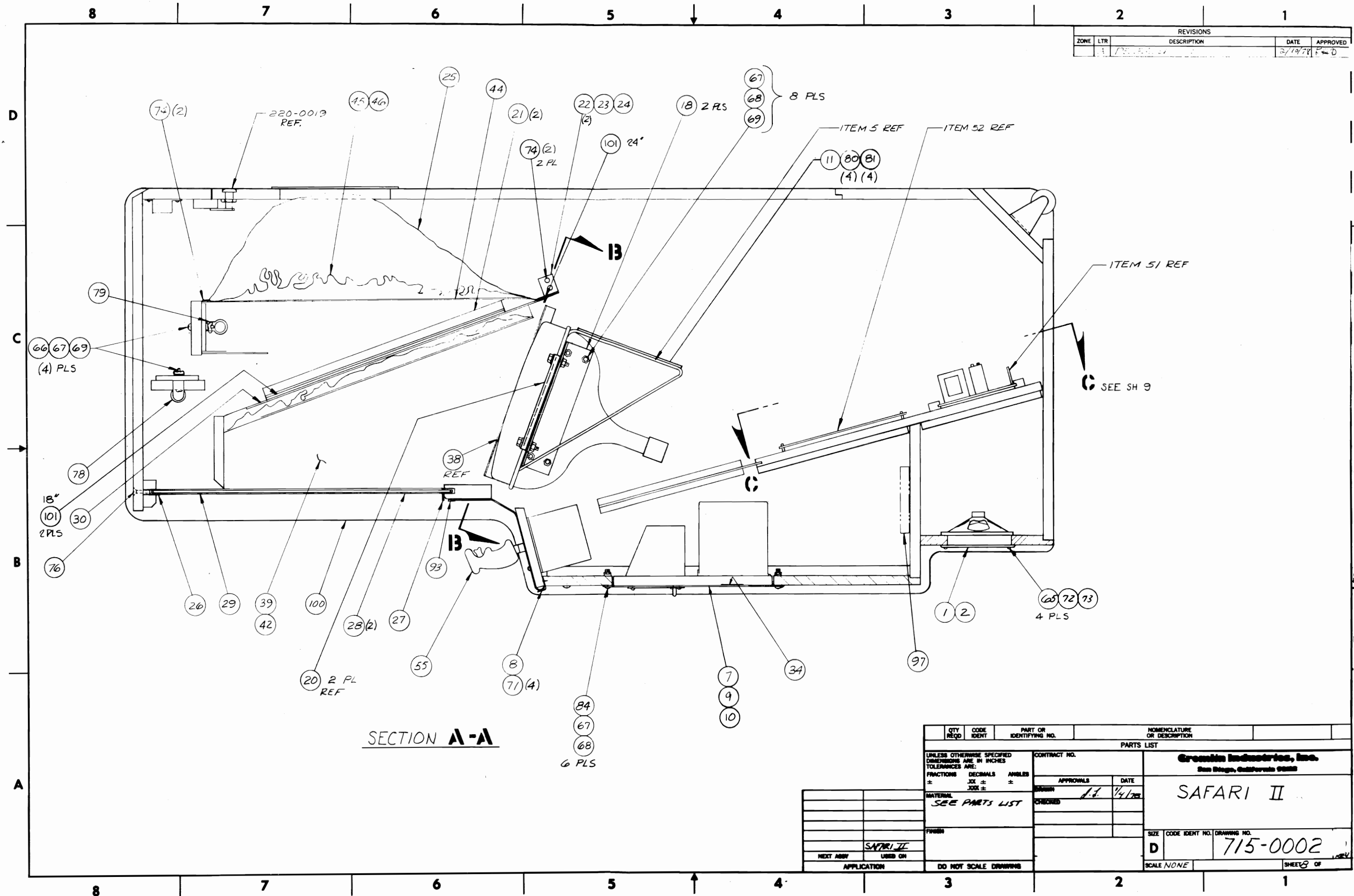
DWG NO

SH 5 OF

REV B

ITEM NO	PART NO	QTY PER ASSY		DESCRIPTION	REF DES
76		1		SCREW, MACH, PAN HD 10-24 X 1/4", CAD PLT	
77	420-0109	2		PANEL, SIDE	
78	815-0016	1		FL LIGHT ASSY	
79	815-0017	1		BLK LIGHT ASSY	
80		4		SCREW	(EXISTING HARDWARE WITH MONITOR)
81		4		WASHER	
82					
83		4		GREEN, MACHINE PHILLIPS HD, 10-24 X 1" CAD PLT	
84		6		BOLT, CARRIAGE, 10-24 X 1/4", BLACK OXIDE	
85	815-0011	1		HARNESS, POWER	
86					
87					
88					
89	420-0071	1		UNPACKING INSTRUCTIONS	
90	420-0116	1		WRAPAROUND SIDE	
91	420-0117	1		TOP COVER	
92	420-0124	4		CORNER STRIP	
93	250-0263	1		MOULDING TRIM	
94	280-0004	25		CLIP, WIRE HOLD-DOWN	
95	280-0005	10		CABLE TIE	
96	280-0075	2		NUT, WIRE, LARGE	
97	420-0118	1		MANUAL, SAFARI	
98	420-0125	1		DECAL, CARTON, SAFARI	
99		4	FT	ZIP CORD	
100	815-0026	1		CABINET ASSY	

REVISIONS				
ZONE	LTR	DESCRIPTION	DATE	APPROVED
			2/19/78	[Signature]



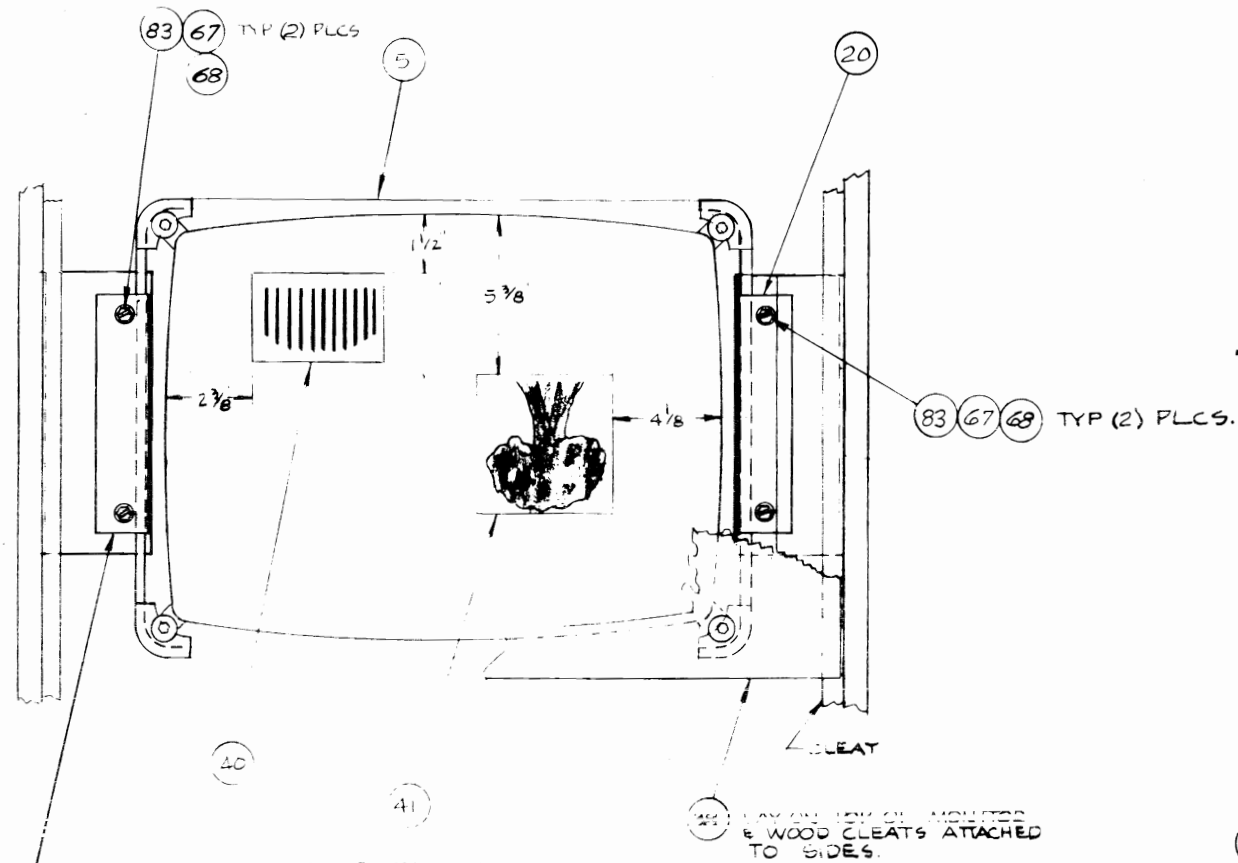
SECTION A-A

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PARTS LIST			
UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES TOLERANCES ARE:		CONTRACT NO.	
FRACTIONS ±	DECIMALS ±	ANGLES ±	Green Industries, Inc. San Diego, California 92108
±	±	±	
MATERIAL		APPROVALS	DATE
SEE PARTS LIST		[Signature]	1/1/78
FINISH		CHECKED	
NEXT ASSY USED ON		SIZE CODE IDENT NO. DRAWING NO.	
SAFARI II		D 715-0002	
APPLICATION		SCALE NONE SHEETS OF	
DO NOT SCALE DRAWING		9	

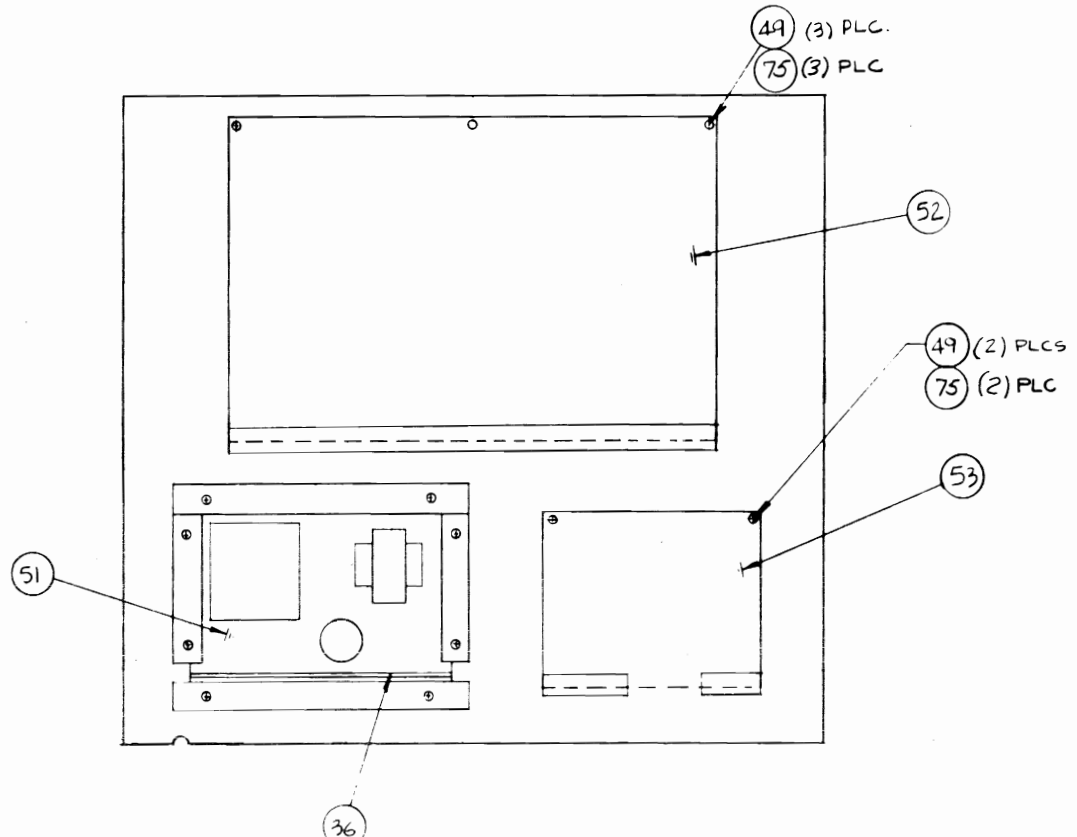
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8 7 6 5 4 3 2 1

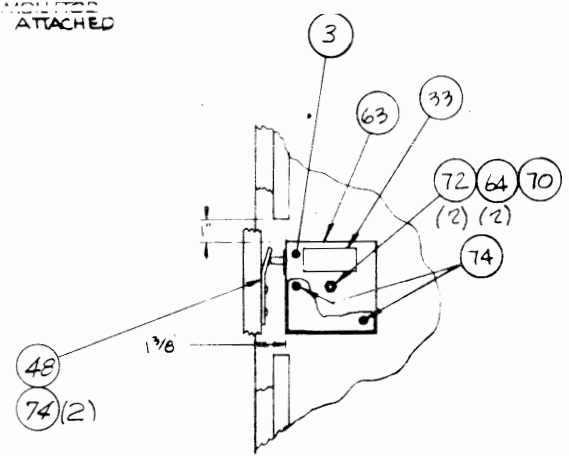
REVISIONS				
ZONE	LTR	DESCRIPTION	DATE	APPROVED
A		RELEASED	9-12-78	PLD



FRONT OF CAB REF.
VIEW 13-13 (NO SCALE)



VIEW C-C



VIEW D-D
(NO SCALE)

QTY	RECD	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	APPROVALS	DATE
±	±	±	±	DRAWN G. SMITH	11/21/77
MATERIAL				CHECKED	
FINISH				SAFARI II	
NEXT APPY USED ON				SIZE	CODE IDENT NO. DRAWING NO.
APPLICATION				D	715-0002
DO NOT SCALE DRAWING				SCALE	NONE
				SHEET 9 OF 9	

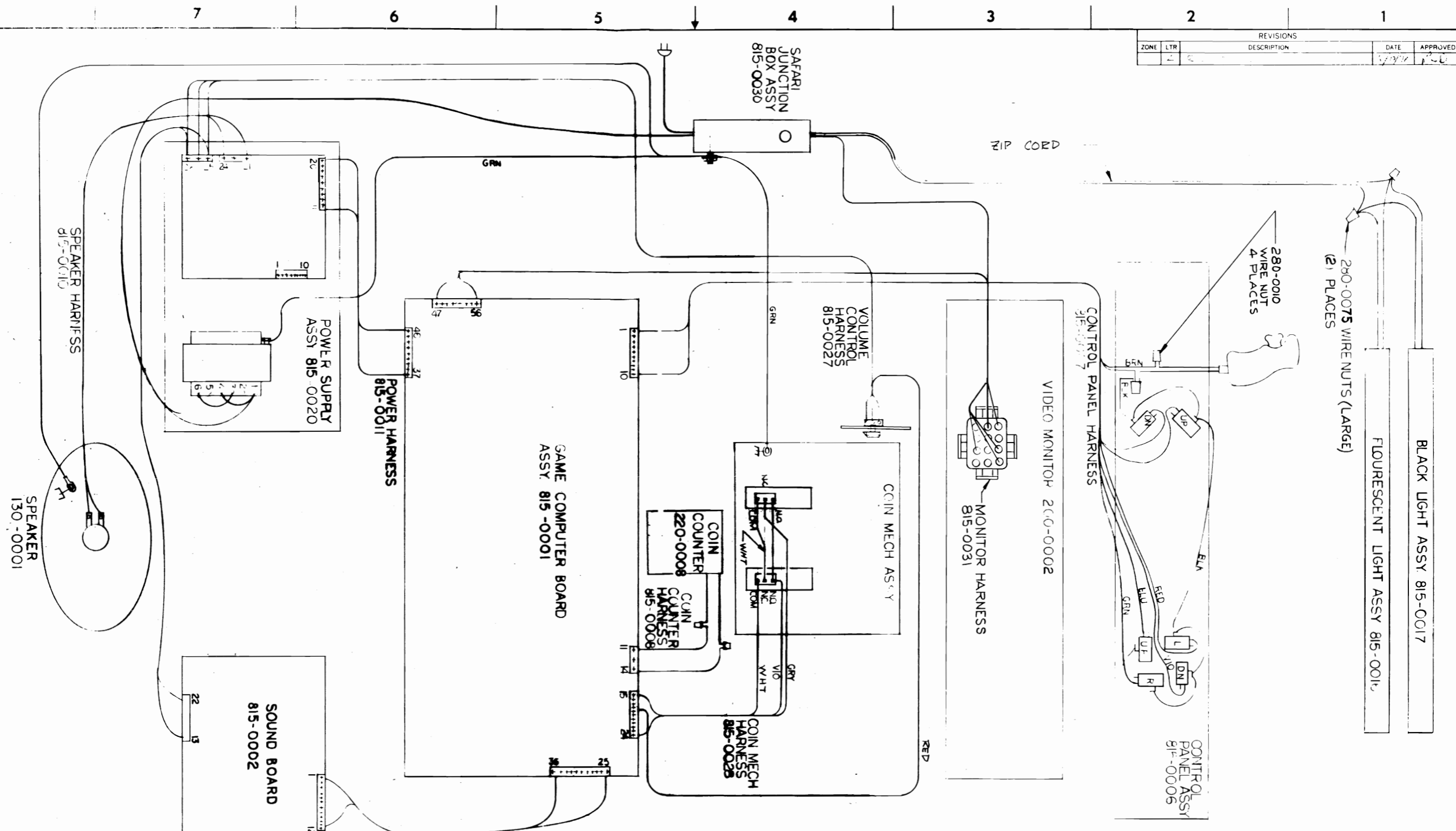
Grovin Industries, Inc.
San Diego, California 92108

SAFARI II

715-0002

8 7 6 5 4 3 2 1

REVISIONS			
ZONE	LTR	DESCRIPTION	DATE
1	1		7/7/77



715-0002

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 .XX ±	ANGLES ±	Gremlin Industries, Inc. San Diego, California 92122
MATERIAL	APPROVALS		
FINISH	DATE		
NEXT ASSY USED ON		DRAWN	
APPLICATION		CHECKED	
SAFARI II		SIZE	
DO NOT SCALE DRAWING		CODE IDENT NO.	
		DRAWING NO.	
		SCALE 1/2" = 1"	
		SHEET 10 OF	

APPROVALS	DATE
DRAWN	7/7/77
CHECKED	
SIZE	D
CODE IDENT NO.	715-0002
DRAWING NO.	
SCALE	1/2" = 1"
SHEET	10 OF

SAFARI
THE WIRING

KEY
B

Gremilin Industries, Inc.
San Diego, California 92123

PARTS
LIST

TITLE
COIN MECHANISM ASSY
(TWO SINGLE MECHANISMS)

800-0015
DWG NO

SH 1
OF 3

A
REV

DRAWN *d.f.*

1/6/78

ENGR

CHECK *Frank D. Stewart*

APPR

LTR DATE

REVISION DESCRIPTION

DRAFT

CHECK

APPR

A *2/6/78*

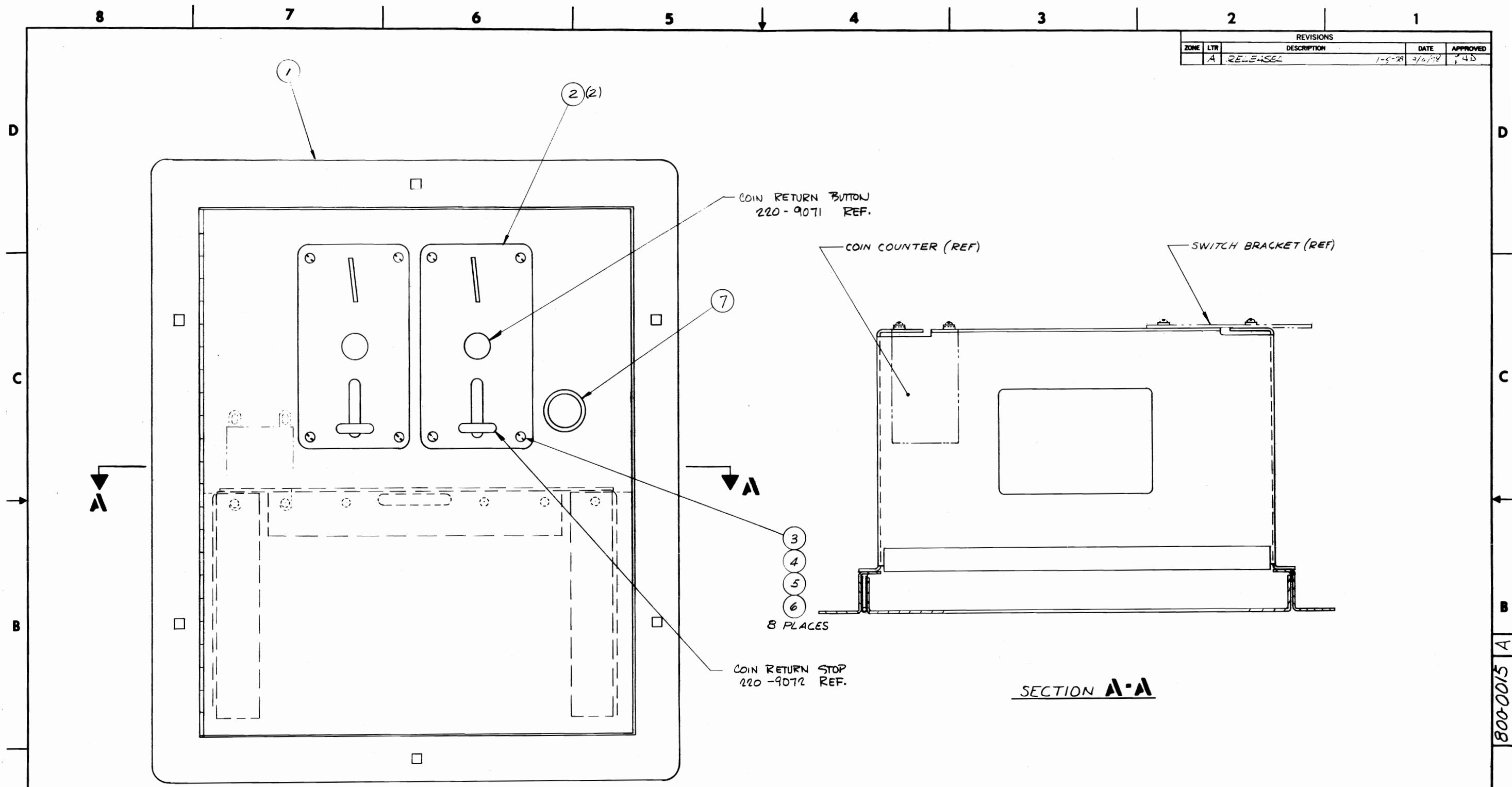
RELEASED

2/6/78

R4D

SHEET 3 IS "Δ" SIZE

REVISIONS				
ZONE	LTR	DESCRIPTION	DATE	APPROVED
A		RELEASE	1-5-78	2/6/78 4D



SECTION A-A

1. THIS ASSY IS INTERCHANGEABLE WITH 800-

NOTES

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	Gromin Industries, Inc. <small>San Diego, California 92122</small>
±	.XX ±	±	
	.XXX ±		APPROVALS: <i>[Signature]</i> DATE: 1/6/78 DRAWN: <i>[Signature]</i> CHECKED: <i>[Signature]</i> 2/6/78
MATERIAL		MECHANISM ASSY (TWO SINGLE MECHANISMS)	
SEE SEPARATE P/L		SIZE: D CODE IDENT NO: 800-0015 DRAWING NO: 800-0015	
FINISH		SCALE: FULL SHEET 3 OF 4	
NEXT ASSY USED ON		DO NOT SCALE DRAWING	
APPLICATION			

800-0015 | A |

Gremlin Industries, Inc.
San Diego, California 92123

PARTS LIST

TITLE
ASSY SAFARI COMPUTER
GAME BOARD

815 - 0001
DWG NO

SH /
OF 10
A
REV

DRAWN L. J. LIPTAK 4 JAN 78
ENGR
CHECK
APPR

LTR DATE

A 1/16/78

REVISION DESCRIPTION

RELEA SED

DRAFT

CHECK

APPR

[Signature]

1/16/78 LJD

Orion Industries, Inc.
San Diego, California 92123

PARTS LIST

TITLE
ASSY. SAFARI COMPUTER
GAME BOARD

8/5 - 0001
DWG NO

SH 3 A
OF 10 REV

ITEM NO	PART NO	QTY PER ASSY			DESCRIPTION	REF DES
26	314-0001			2	IC NE555 DIP	U68,69
27	314-0018			7	IC 74LS00	U5,6,16,18,22,24,59
28	314-0019			2	IC 74LS04	U14,33
29	314-0042			2	IC 7406	U31,32
30	314-0046			1	IC 74S04	U67
31	314-0053			4	IC 74S175	U63-66
32	314-0055			5	IC 74LS244	U1,2,19,50,62
33	314-0058			10	IC 74LS08	U3,4,7,21,25,34-36,51,52
34	314-0059			2	IC 74LS10	U8,26
35	314-0061			1	IC 74LS42	U23
36	314-0062			1	IC 74LS74	U9,12,13,17,27,28
37	314-0067			1	IC 74LS30	U15
38	314-0070			1	IC 74LS86	U49
39	314-0071			6	IC 74LS151	U53-58
40	314-0072			1	IC 74LS174	U37
41	314-0073			2	IC 74LS175	U29,30
42	314-0075			2	IC 74LS393	U10,11
43	314-0076			2	IC 74LS157	U60,61
44	314-0077			1	IC 74LS166	U38
45						
46	3/5-0039			16	IC 4K RAM	U71-86
47	3/5-0031			1	IC Z80 CPU	U20
48						
49	3/6-0042			1	IC PROM 32X8 SEQ	U88
50	3/6-0043			1	IC PROM 32X8 CTL	U87

Orion Industries, Inc.
San Diego, California 92161

PARTS LIST

TITLE
ASSY. SAFARI COMPUTER
GAME BOARD

B/S - 0001
DWG NO

SH -
OF 10
REV A

ITEM NO	PART NO	QTY PER ASSY			DESCRIPTION	REF DES
76	481-0001			1	DIODE IN 4002	D2
77	481-0006			1	DIODE IN 914 / IN 4148	D1
78						
79	482-0010			1	XSTR PE8050	Q1
80	482-0014			2	XSTR 2N4401	Q2,3
81						
82				1	SCREW RD HD # 4-40 X 3/8	
83				1	NUT # 4-40	
84				1	WASHER # 4	
85						
86						
87						
88						
89						
90						
91						
92						
93						
94						
95						
96						
97						
98						
99						
100						

Greenlin Industries, Inc.
San Diego, California 92123

PARTS LIST

TITLE
ASSY. SAFARI COMPUTER
GAME BOARD

8/5-0001
DWG NO

SH 4
OF 10
REV A

ITEM NO	PART NO	QTY PER ASSY		DESCRIPTION	REF DES
51	316-0057		1	IC E PROM SAF U39	U39
52	316-0058		1	IC E PROM SAF U40	U40
53	316-0059		1	IC E PROM SAF U41	U41
54	316-0060		1	IC E PROM SAF U42	U42
55	316-0061		1	IC E PROM SAF U43	U43
56	316-0062		1	IC E PROM SAF U44	U44
57	316-0063		1	IC E PROM SAF U45	U45
58	316-0064		1	IC E PROM SAF U46	U46
59	316-0065		1	IC E PROM SAF U47	U47
60	316-0066		1	IC E PROM SAF U48	U48
61					
62	390-0003		1	LED RED	D3
63					
64					
65	471-0102		30	RES 1K OHM 1/2W 5%	R1-21,24,30-32,37,46,
66	" "			" " " "	53,61,62
67	471-0103		1	RES 10K OHM 1/2W 5%	R56
68	471-0104		2	RES 100K OHM 1/2W 5%	R57, 58
69	471-0272		14	RES 2.7K OHM 1/2W 5%	R25-28,33,-36, 47-52
70	471-0331		9	RES 330 OHM 1/2W 5%	R22, 29,38,39,54,55,66-68
71	471-0333		1	RES 33K OHM 1/2W 5%	R59
72	471-0471		1	RES 470 OHM 1/2W 5%	R69
73	471-0472		1	RES 4.7 K OHM 1/2W 5%	R23
74	471-0474		1	RES 470K OHM 1/2W 5%	R60
75					

Orion Industries, Inc.
San Diego, California 92121

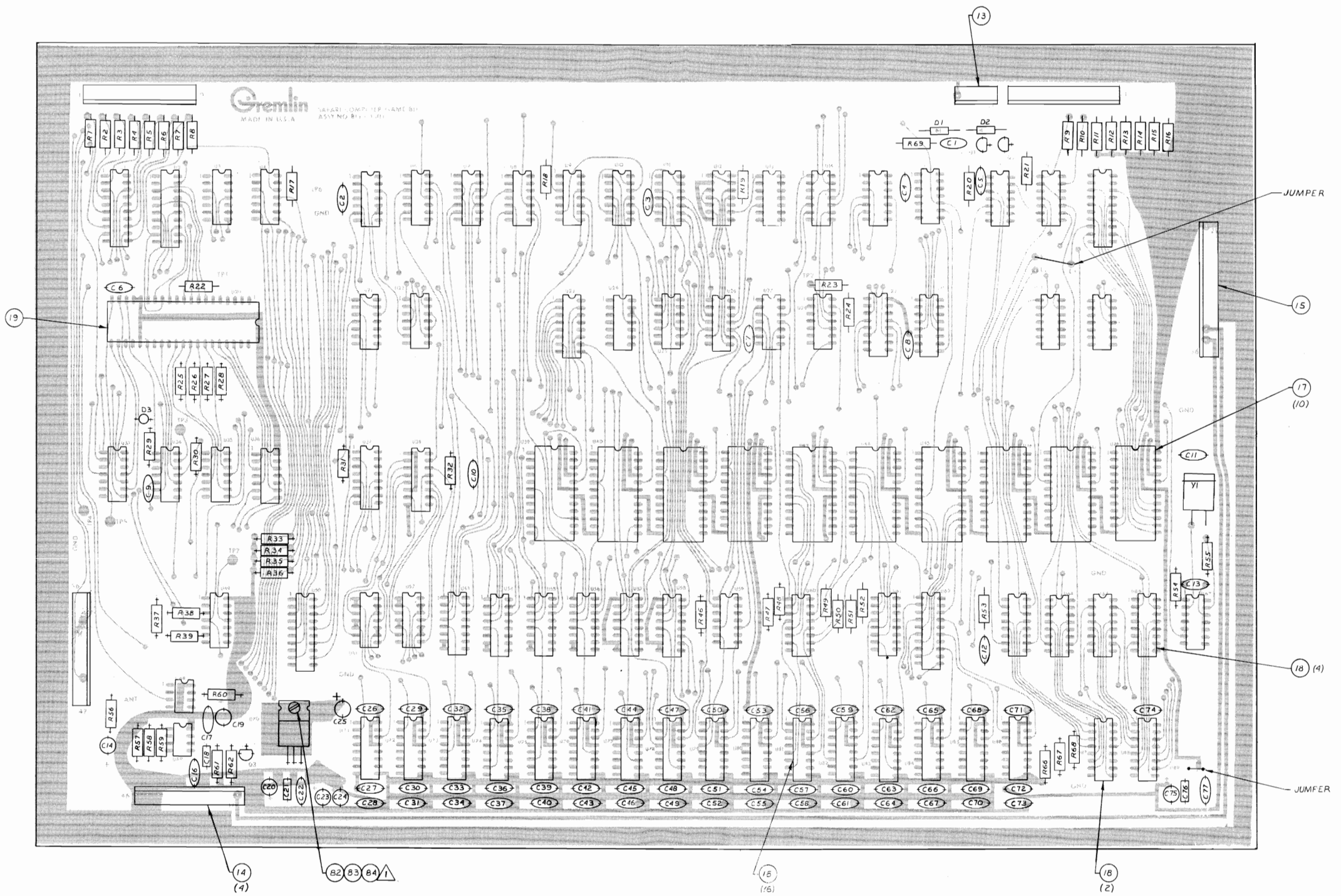
PARTS LIST

TITLE
ASSY. SAFARI COMPUTER
GAME BOARD

815-0001
DWG NO

SH 2
OF 10
A
REV

ITEM NO	PART NO	QTY PER ASSY				DESCRIPTION	REF DES
1	151-0001		2		CAP. CER. .05UF 50V	C16,17	
2	151-0005		1		CAP. CER 680 Pf 50V	C13	
3	151-0012		63		CAP. CER .1UF 50V	C1-12,22,26-74,77	
4							
5	152-0002		1		CAP. F. .22UF 100V	C18	
6	152-0017		2		CAP. F. .33UF 100V	C21,76	
7							
8	153-0001		5		CAP. TANT. 10UF 25V	C 20, 23-25, 75	
9	153-0002		2		CAP. TANT. 1UF 25V	C14,19	
10							
11	170-0113		1		PCB GAME CMPTR. BD.		
12	211-0004		14		CONN PIN TEST PT	TP1-TP7, GND(6), ANT.	
13	212-0004		1		CONN MALE 4 PIN		
14	212-0021		4		CONN MALE 10 PIN		
15	212-0031		1		CONN MALE 12 PIN		
16							
17	213-0001		10		SKT 24 PIN DUAL INLN	XU39 - XU48	
18	213-0004		22		SKT 16 PIN DUAL INLN	XU63-66, 71-88	
19	213-0005		1		SKT 40 PIN DUAL INLN	XU20	
20							
21	230-0009		1		XATL 15.46848 MHZ	Y1	
22							
23							
24	313-0023		1		IC LM 320T-5	U70	
25							



NOTE 5: APPLY HEATSINKING COMPOUND INSULATE WITH MICA U70 UNLESS OTHERWISE SPECIFIED

R63-65
R40-45
C15
C89
UNUSED COMPONENTS

QTY	CODE	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION
PARTS LIST			
UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES TOLERANCES ARE:		CONTRACT NO.	
FRACTIONS	DECIMALS	APPROVALS	DATE
°	XX	<i>[Signature]</i>	1/4/78
MATERIAL	XXX	DATE	1/10/78
FINISH		MATERIAL	
715-0001 SAFARI		SAFARI COMPUTER GAME BOARD	
NEXT ASSY USED ON		CODE IDENT NO. DRAWING NO.	
APPLICATION		E 815-0001 A	
DO NOT SCALE DRAWING			SCALE 2 X 1
			SHEET 2 OF 10

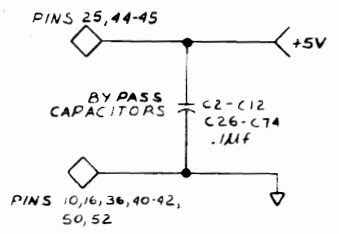
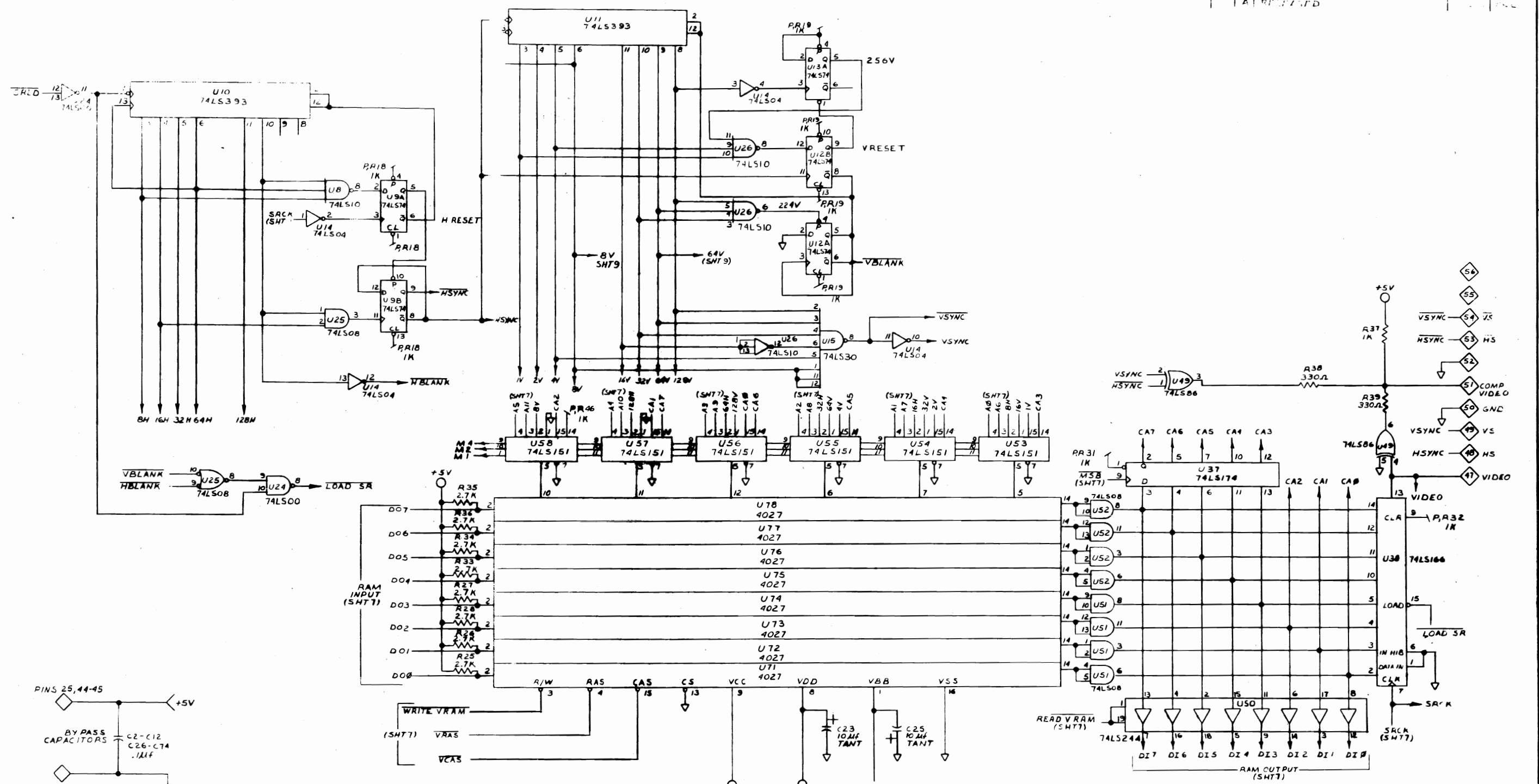
Gremlin Industries, Inc.
San Diego, California 92133

ASSY
SAFARI COMPUTER
GAME BOARD

E 815-0001 A

SCALE 2 X 1 SHEET 2 OF 10

REVISIONS			
DATE	DESCRIPTION	APPROVED	BY

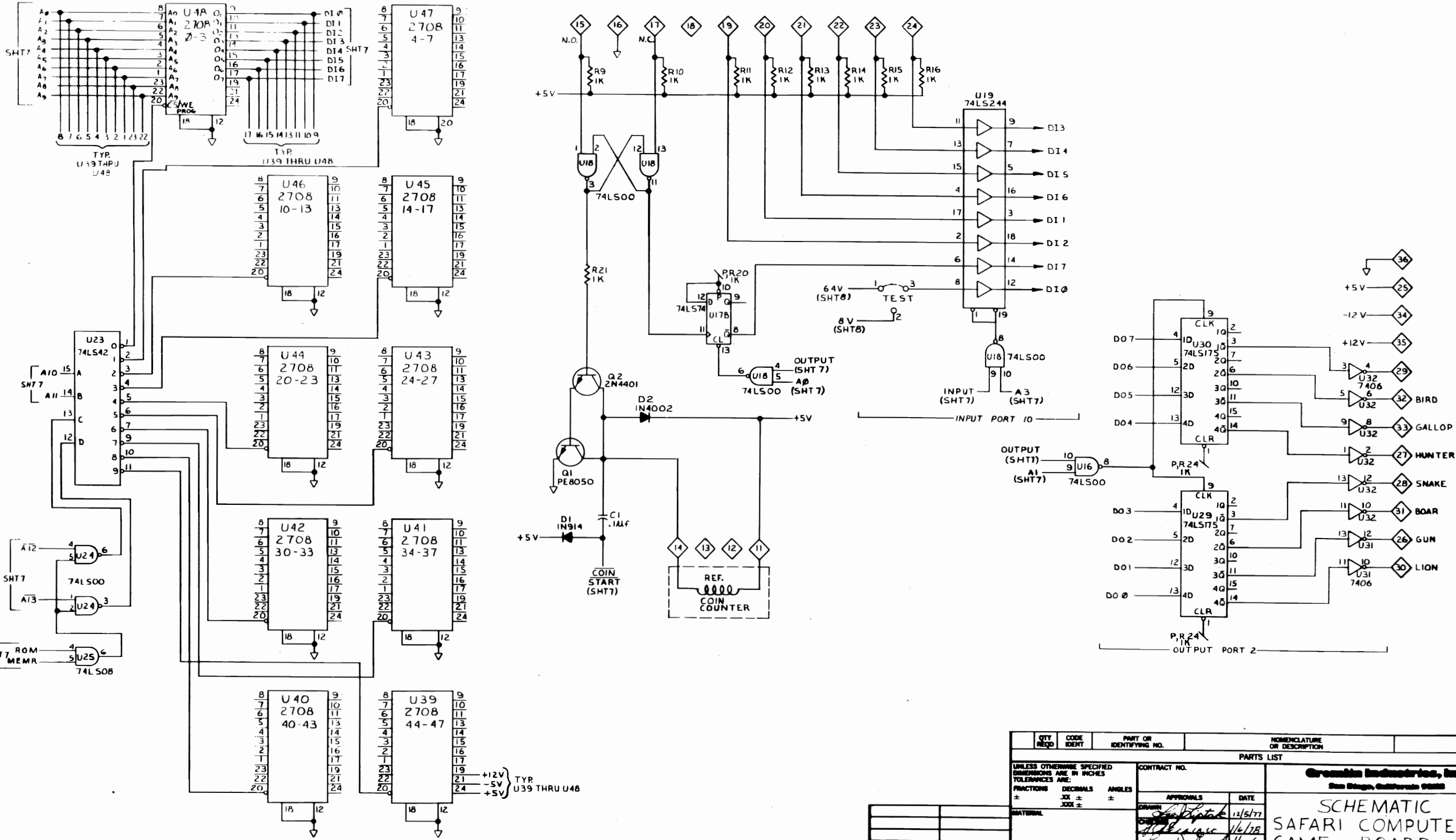


NOTES: UNLESS OTHERWISE SPECIFIED

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.	
MATERIAL		APPROVALS	DATE
FINISH		DRAWN	12/16/77
		CHECKED	1/16/78
		DESIGNED	1/16/78
715-0001 SAFARI		SCHEMATIC SAFARI COMPUTER GAME BOARD	
NEXT ASSY USED ON		SIZE	CODE IDENT NO. DRAWING NO. REV
APPLICATION		D	815-0001 A
DO NOT SCALE DRAWING		SCALE	SHEET 8 OF 10

815-0001

REVISIONS				
ZONE	LTR	DESCRIPTION	DATE	APPROVED
A				

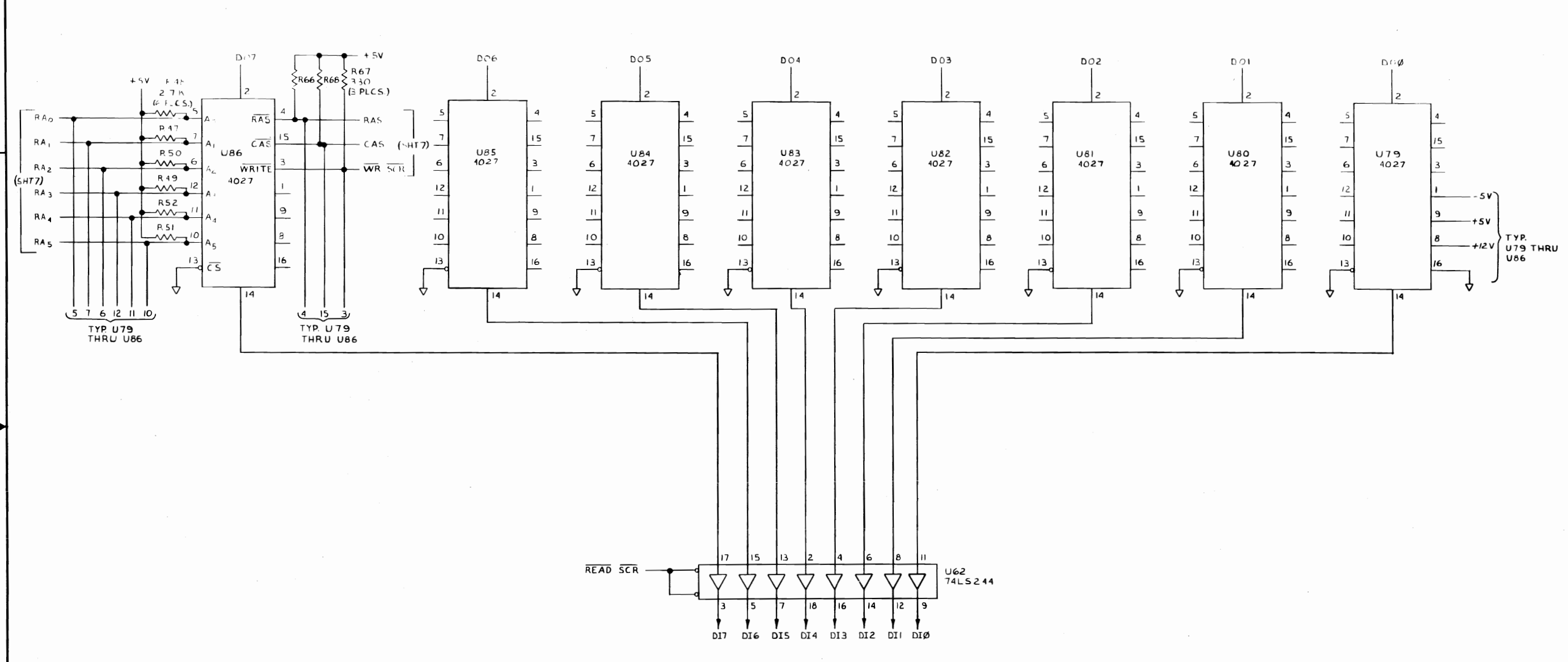


NOTES: UNLESS OTHERWISE SPECIFIED

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 ±	±	
±	.001 ±		
CONTRACT NO.		APPROVALS	
		DATE	
		12/5/77	
		1/6/78	
		1/16/78	
Green Industries, Inc. San Diego, California 92161			
SCHEMATIC SAFARI COMPUTER GAME BOARD			
SIZE	CODE IDENT NO.	DRAWING NO.	REV.
D		815-0001	A
SCALE NONE			SHEET 9 OF 10

815-0001

REVISIONS				
ZONE	LTR	DESCRIPTION	DATE	APPROVED



NOTES: UNLESS OTHERWISE SPECIFIED

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	Crombin Industries, Inc. San Diego, California 92108
±	.XX ±	±	
MATERIAL	FINISH	APPROVALS	DATE
		<i>[Signature]</i>	1/16/75
		<i>[Signature]</i>	1/16/75
715-0001	SAFARI	SIZE	CODE IDENT NO. DRAWING NO.
NEXT AMBY	USED ON	D	815-0001
APPLICATION	DO NOT SCALE DRAWING	SCALE NONE	REV. A
			SHEET 10 OF 10

815-0001

GREMLIN INDUSTRIES

PARTS LIST

TITLE

SAFARI SOUND BD.

815-0002

DWG NO

SH 3 OF 6

REV C

ITEM NO	PART NO	QTY PER ASSY						DESCRIPTION	REF DES
20	313-0004	13						1C LM741EN	U2,3,5-7,9,10,12,13,15,16,18,23
21	314-0001	9						1C TIMER NE555	U1,8,11,14,17,19,20,24,25
22	315-0027	1						1C 4030	U22
23	315-0035	1						1C MM5837	U4
24	315-0036	1						1C 4015	U21
25	471-0102	10						RES 1K OHMS 1/2W 5%	R3,5,9,12,16,30,37,43,49,78
26	471-0103	22						RES 10K OHMS 1/2W 5%	R6,8,13,15,21-25,31-36,44-48,50,75
27	471-0104	5						RES 100K OHMS 1/2W 5%	R20,38,66,74,80
28	471-0154	2						RES 150K OHMS 1/2W 5%	R2,58
29	471-0183	6						RES 18K OHMS 1/2W 5%	R1,19,28,41,53,72
30	471-0223	11						RES 22K OHMS 1/2W 5%	R27,40,52,60,62,67,65,71,82-84
31	471-0225	1						RES 2.2M OHMS 1/2W 5%	R56
32	471-0331	3						RES 330 OHMS 1/2W 5%	R55,68,77
33	471-0332	1						RES 3.3K OHMS 1/2W 5%	R64
34	471-0393	1						RES 39K OHMS 1/2W 5%	R63
35	471-0474	1						RES 470K OHMS 1/2W 5%	R69
36	471-0561	1						RES 560 OHMS 1/2W 5%	R57
37	471-0563	4						RES 56K OHMS 1/2W 5%	R7,11,14,18
38	471-0623	1						RES 62K OHMS 1/2W 5%	R79

GREMLIN INDUSTRIES

PARTS LIST

TITLE SAFARI SOUND BD

815-0002
DWG NO

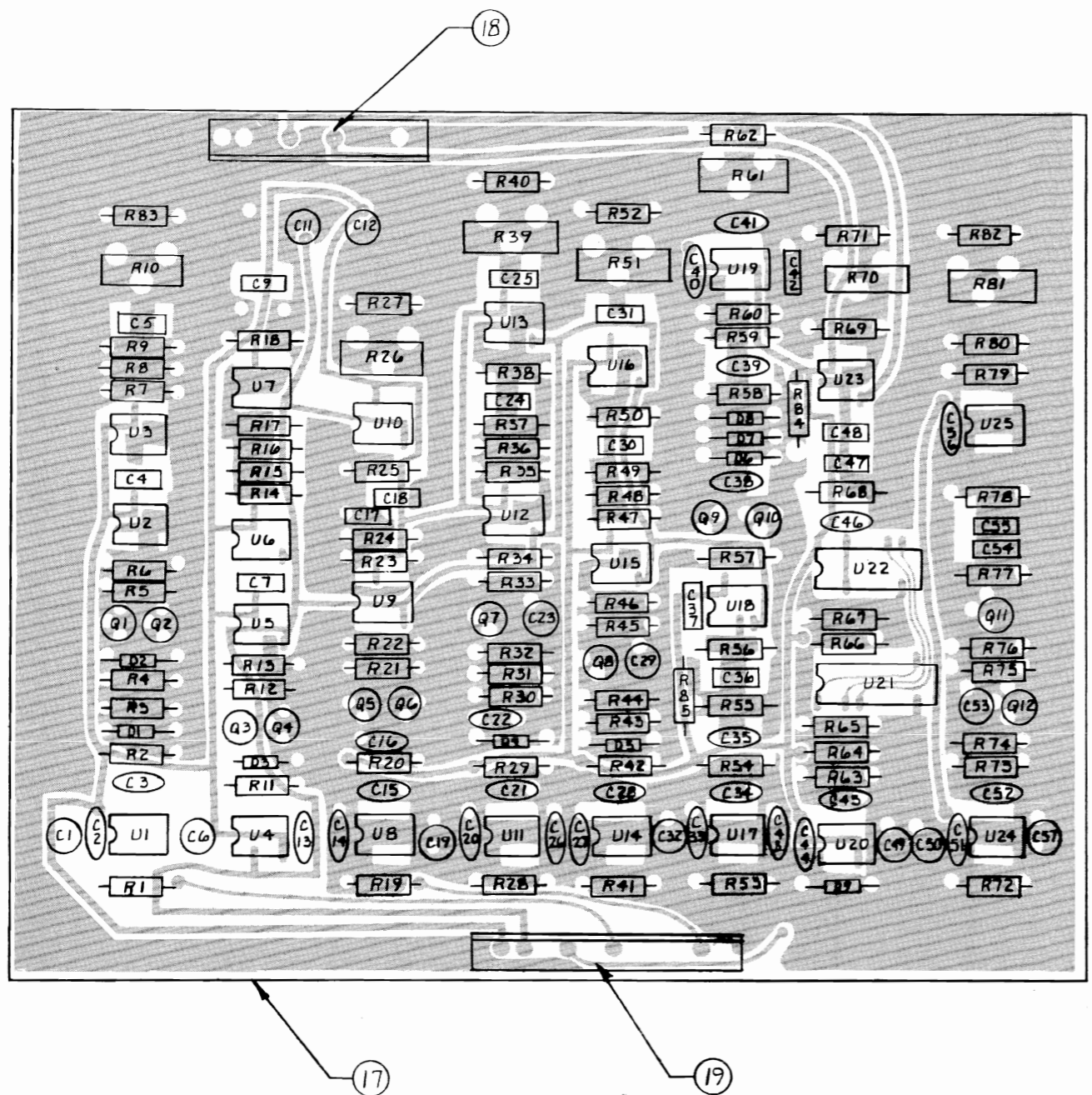
SH 4 OF 6 REV C

ITEM NO	PART NO	QTY PER ASSY						DESCRIPTION	REF DES
39	471-0682	1						RES 6.8K OHMS 1/2W 5% R17	
40	471-0683	3						RES 6.8K OHMS 1/2W 5% R4, 59, 76	
41	471-0684	3						RES 6.8K OHMS 1/2W 5% R29 42 54	
42	471-0823	1						RES 82K OHMS 1/2W 5% R73	
43	475-0002	1						POT CARBON 1M OHM R70	
44	475-0008	6						POT CARBON 50K OHM R10, 26, 61, 38, 51, 81	
45	481-0006	9						DIODE 1N914 D1-D9	
46	482-0006	1						X1STOR 2N 4403 Q9	
47	482-0014	8						X1STOR 2N 4401 Q1-4, 6, 10-12	
48	482-0023	3						X1STOR 2N 4093 Q5, 7, 8	
49	471-0101	1						RES 100 OHM 1/2W 5% R85	

GREENLIN INDUSTRIES **TITLE SAFARI SOUND BD.** **815-0002** **SH 2** **C**
DWG NO **REV**

ITEM NO	PART NO	QTY PER ASSY				DESCRIPTION	REF DES
1	151-0001	12				CAP. CER. .05 μ F 50V	C3,13,15,21,22,26,28,34,41,43,45,52
3	151-0011	1				CAP. CER. .01 μ F 50V	C16
4	151-0012	13				CAP. CER. .1 μ F 50V	C2,14,20,27,33,35,38,39,40,44,46,51,56
5	152-0001	6				CAP. FILM .1 μ F 100V	C4,5,7,47,48,54
6	152-0005	1				CAP. FILM .0047 μ F	C18
7	152-0007	2				CAP. FILM .001 μ F 250V	C30,31
8	152-0010	1				CAP. FILM .022 μ F 100V	C17
9	152-0012	3				CAP. FILM .047 μ F 200V	C24,25,42
10	152-0018	1				CAP. FILM .01 μ F 250V	C55
11	152-0020	3				CAP. FILM .47 μ F 100V	C9,36,37
12	153-0001	2				CAP. TANT 10 μ F 25V	C50,53
13	153-0002	3				CAP. TANT 1 μ F 25V	C6,32,57
14	153-0003	1				CAP. TANT 2.2 μ F 25V	C49
15	153-0004	2				CAP. TANT 4.7 μ F 25V	C19,23
16	153-0006	4				CAP. TANT 33 μ F 25V	C1,11,12,29
17	170-0110	1				PRINTED CIRCUIT BD.	
18	212-0021	1				CONN. MALE 10 PIN	
19	212-0031	1				CONN. MALE 12 PIN	

REVISIONS				
ZONE	LTR	DESCRIPTION	DATE	APPROVED
A		RELEASED	1/16/77	XLD
B		PER ECN 202		
C		PER ECN 202A	1/30/78	WJB

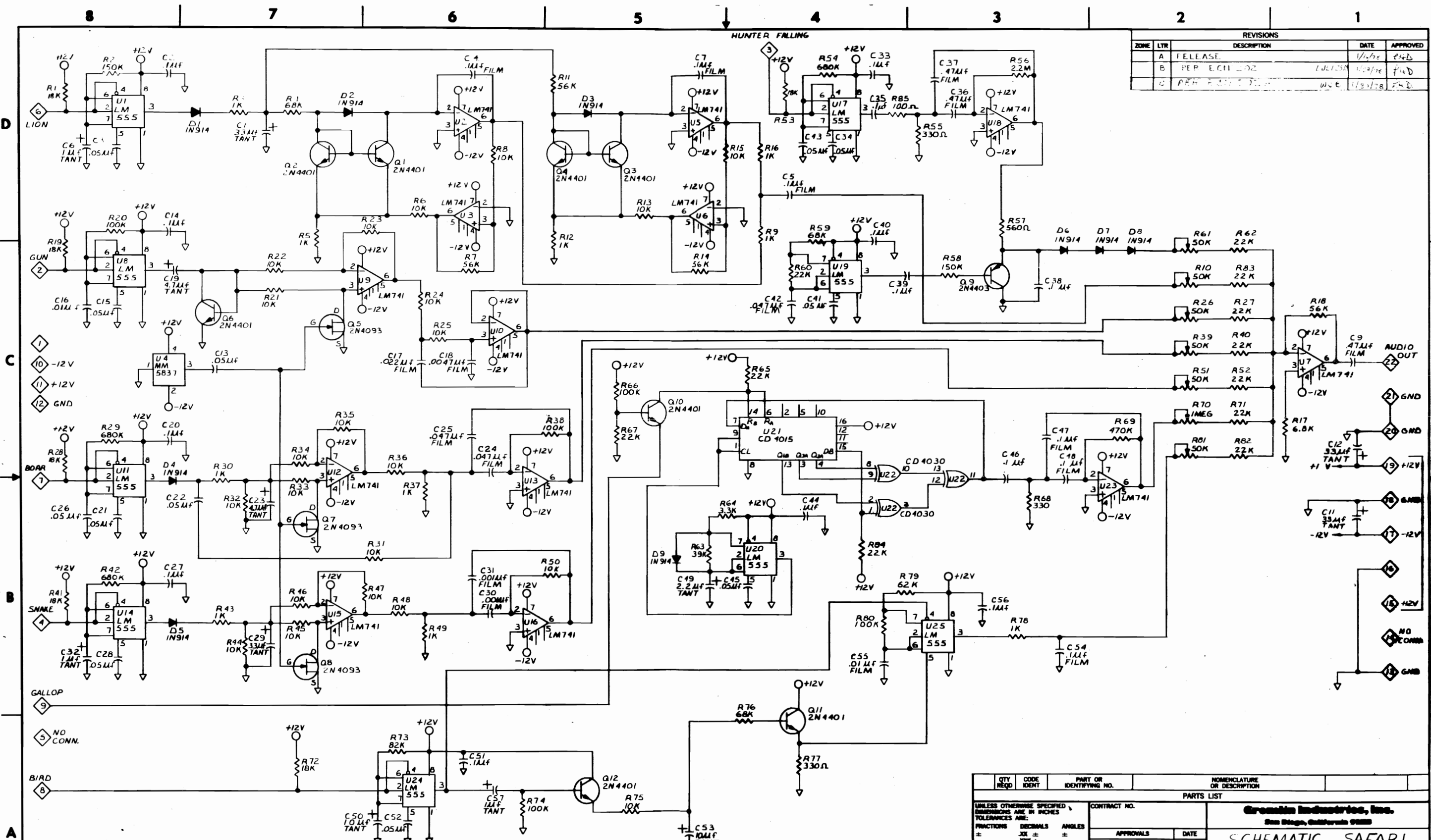


SEE DETACHED PARTS LIST

QTY REQD	CODE IDENT	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION
PARTS LIST			
UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES TOLERANCES ARE:		CONTRACT NO.	
FRACTIONS ±	DECIMALS ±	ANGLES ±	Gremlin Industries, Inc. San Diego, California 92108
APPROVALS		DATE	ASSEMBLY SAFARI SOUND BOARD
DRAWN: <i>W. J. B.</i>		12-13-77	
CHECKED			
MATERIAL		SIZE CODE IDENT NO. DRAWING NO.	
FINISH		D 815-0002 C	
NEXT ASSY USED ON		SCALE 2/1	
APPLICATION		DO NOT SCALE DRAWING	
		SHEET 5 OF 6	

815-0002 C

REVISIONS				
ZONE	LTR	DESCRIPTION	DATE	APPROVED
A		RELEASE	1/15/78	RJD
B		REP. ECH 02	1/21/78	FJD
C		REP. ECH 02	1/21/78	FJD

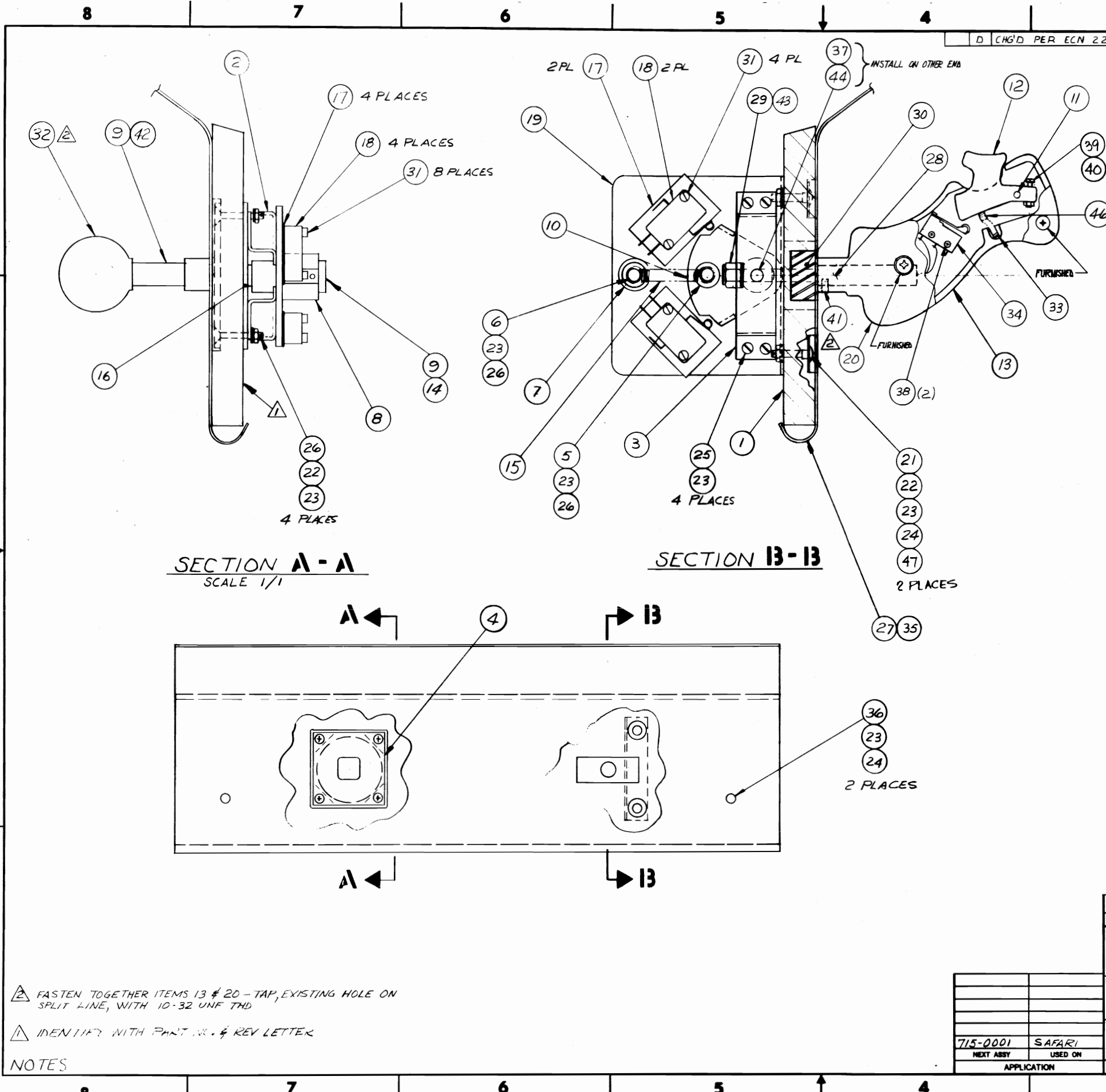


NOTES: UNLESS OTHERWISE SPECIFIED
 1. RESISTANCE IN OHMS 1/2W 5%
 2. CAPACITANCE IN MICROFARADS

LAST REF DES. USED	QTY REQD	CODE IDENT	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION
C 37				
D 9				
Q 12				
R 06				
U 25				

PARTS LIST		CONTRACT NO.	
UNLESS OTHERWISE SPECIFIED, DIMENSIONS ARE IN INCHES TOLERANCES ARE: FRACTIONS DECIMALS ANGLES ± .010 ± .005 ±			
APPROVALS	DATE	Growth Industries, Inc. San Diego, California 92108	
DRAWN L. J. LIPTAK	10-17-77	SCHEMATIC SAFARI SOUND BOARD	
CHECKED R. J. LIPTAK	11-18-77		
SIZE	CODE IDENT NO.	DRAWING NO.	REV
D		815-0002	C
SCALE NONE			SHEET 6 OF 6

815-0002



D CHG'D PER ECN 223 3-28-78 4/1/78 (4)

REVISIONS				
ZONE	LTR	DESCRIPTION	DATE	APPROVED
A		RELEASED	12/1/78	F-0
B		SEE ECN 188	1/11/78	44D
C		ADDED ITEM 46 & NOTE	1/12/78	T.A.D.

QTY REQD	CODE IDENT	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	MATL	ITEM NO.
1			WASHER, FLAT .25 NOM. X .75 O.D. X .065		47
1			SPLIT SPRING PIN 1/8" X 1/2" LG		46
1			PIN, COTTER .078 O.D. X 1" LG		45
1			WASHER, FLAT .281 I.D. X .065 THK	STL, CAD PLT	44
1			WASHER, LOCK, INTERNAL STAR	STL, CAD PLT	43
1		280-0103	RING, SNAP 15 MM		42
1			SCREW, SET, CONE POINT, 10-32 X 3/16"	STL, CAD PLT	41
1			NUT, HEX M3	STL, CAD PLT	40
1			SCREW, PAN HEAD M3 X 14 MM	STL, CAD PLT	39
2			SCREW, PAN HEAD M2 X 10 MM	STL, CAD PLT	38
1		280-0082	RING RETAINER		37
2			BOLT, CARRIAGE # 8-32 X 1 1/2"	STL, CAD PLT	36
1		253-0074	GRAPHIC CONTROL PANEL		35
1		510-0039	SWITCH, TRIGGER		34
1		280-0069	SPRING, TRIGGER		33
1		240-0089	KNOB		32
12			SCREW, PAN HD, CR REC, M3 X 18 MM LG	STL, CAD PLT	31
1		280-0093	BUSHING		30
1			NUT, HEX 3/8-24 UNF (WITH NYLON LOCKING INSERT)	STL, CAD PLT	29
1		250-0260	SHAFT-GRIP ASSY		28
1		250-0251	PANEL, SUB, METAL		27
6			NUT, HEX M4	STL, CAD PLT	26
4			SCREW, PAN HD, CR REC, M4 X 7 MM	STL, CAD PLT	25
4			NUT, HEX 8-32	STL, CAD PLT	24
14			WASHER, LOCK, EXT TOOTH # 8	STL, CAD PLT	23
6			WASHER, FLAT # 8	STL, CAD PLT	22
2			BOLT, CARRIAGE, # 8-32 X 3/4"	STL, CAD PLT	21
1		250-0236	GRIP, LEFT		20
1		510-0038	BASE, SWITCH		19
6		510-0037	SWITCH, CONTROL		18
6		310-0001	INSULATOR		17
1		280-0070	DIAPHRAM, RUBBER		16
1		280-0067	SPRING		15
1		220-0058	KEY		14
1		250-0232	GRIP, RIGHT		13
1		250-0231	TRIGGER		12
1		250-0230	SHAFT, TRIGGER		11
1		250-0229	CAM		10
1		250-0275	SHAFT, CONTROL LEVER		9
1		250-0227	HUB		8
1		250-0226	COLLAR		7
1		250-0225	HOOK, SPRING, LOWER		6
1		250-0224	HOOK, SPRING, UPPER		5
1		250-0217	PLATE, LOCK, 4 WAY		4
1		250-0214	BRACKET, STOPPER		3
1		250-0213	BRACKET, SWITCH MOUNTING		2
1		252-0046	PANEL, CONTROL, WOOD		1

SECTION A-A
SCALE 1/1

SECTION B-B

FASTEN TOGETHER ITEMS 13 & 20 - TAP, EXISTING HOLE ON SPLIT LINE, WITH 10-32 UNF THD

IDENTIFY WITH PART NO. & REV LETTER

NOTES

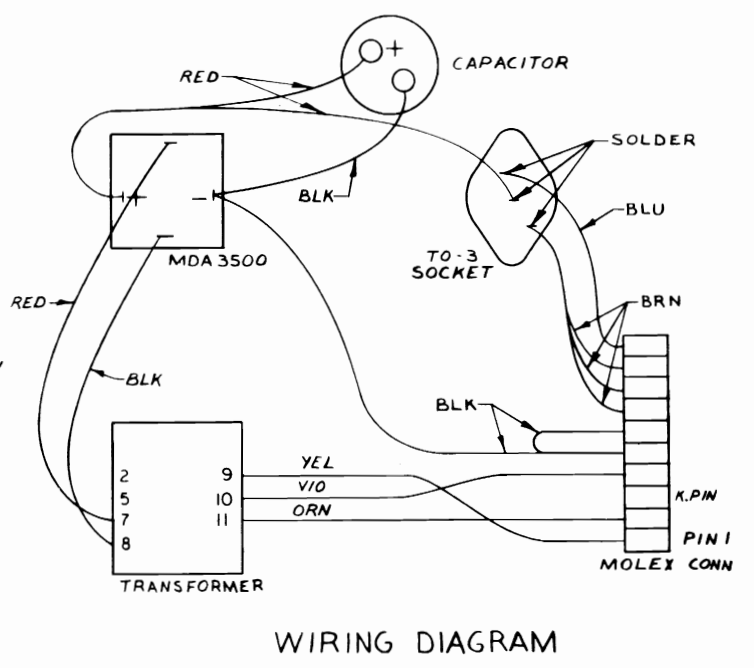
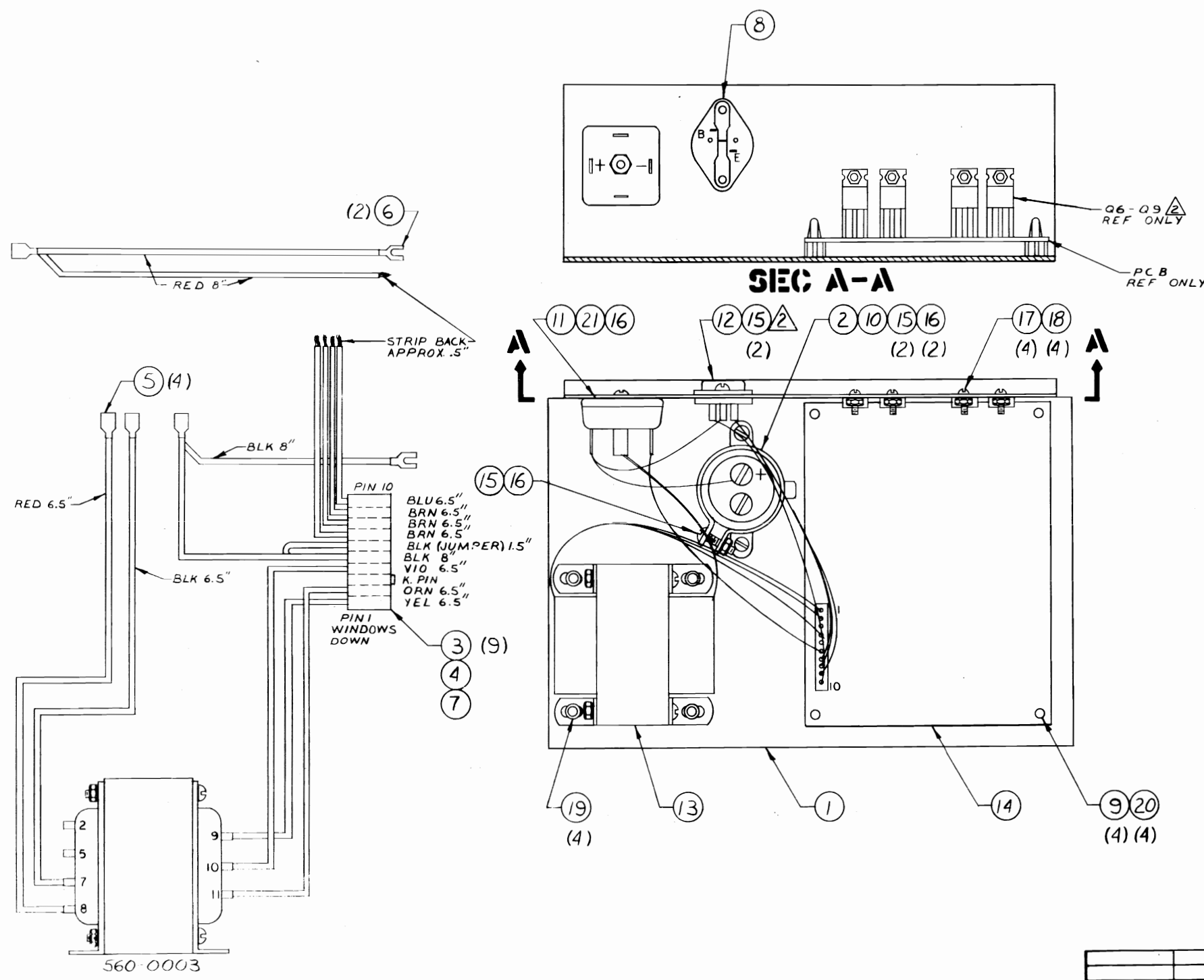
UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES TOLERANCES ARE:		CONTRACT NO.		Granlin Industries, Inc. San Diego, California 92123	
FRACTIONS	DECIMALS	ANGLES	APPROVALS		
±	.XX ±	±	DRAWN		PANEL ASSY. CONTRY.
±	.XXX ±	±	CHECKED		
MATERIAL SEE PARTS LIST		FINISH		SIZE CODE IDENT NO. DRAWING NO.	
715-0001 SAFARI				D 815 0006	
NEXT ASSY USED ON		APPLICATION		SCALE 1/2" = 1"	
		DO NOT SCALE DRAWING		SHEET 1 OF 1	

815-0006

GREMLIN IND. INC. PARTS TITLE SH 2
 SAN DIEGO CA. 92123 LIST ASSY, POWER SUPPLY 815-0020 OF 3
 DWG NO REV

ITEM NO	PART NO	QTY PER ASSY				DESCRIPTION	REF DES
1	140-0015					1 CHASSIS, POWER SUPPLY	
2	150-0022					1 CAP, 9000UF 12V	
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					2 CONN, SPADE LUG 1/4"	
7	212-0016					1 CONN FEM 10 PIN	
8	213-0006					1 SOCKET, TO-3	
9	280-0014					4 STAND-OFFS, CLIPS	
10	280-0056					1 CLAMP, CAP. VR4 1 1/2"	
11	481-0009					1 DIODE, MDA 3500	
12	482-0007					1 XISTOR, 2N3055	
13	560-0003					1 XFMR, MODEL 4-10345B	
14	815-0021					1 POWER SUPPLY ASSY (PCB)	
	815-0020					SCHEM. ASSY. PWR. SUPP.	(REFERANCE)
15						5 SCREW-MACH P.HD#6-32 X.5	
16						4 NUT HEX #6-32	
17						4 SCREW-MACH RD, HD#4-40 X.37	
18						4 NUT HEX #4-40	
19						4 RIVET, POP 3/16	
20						4 SCR, MACH HEX, WAS, HD 1/4-20 X 5/8"	
21						1 SCR, MACH, P.HD #6-32 x 1.0"	

ZONE		LTR		REVISIONS		DATE	APPROVED
				DESCRIPTION			



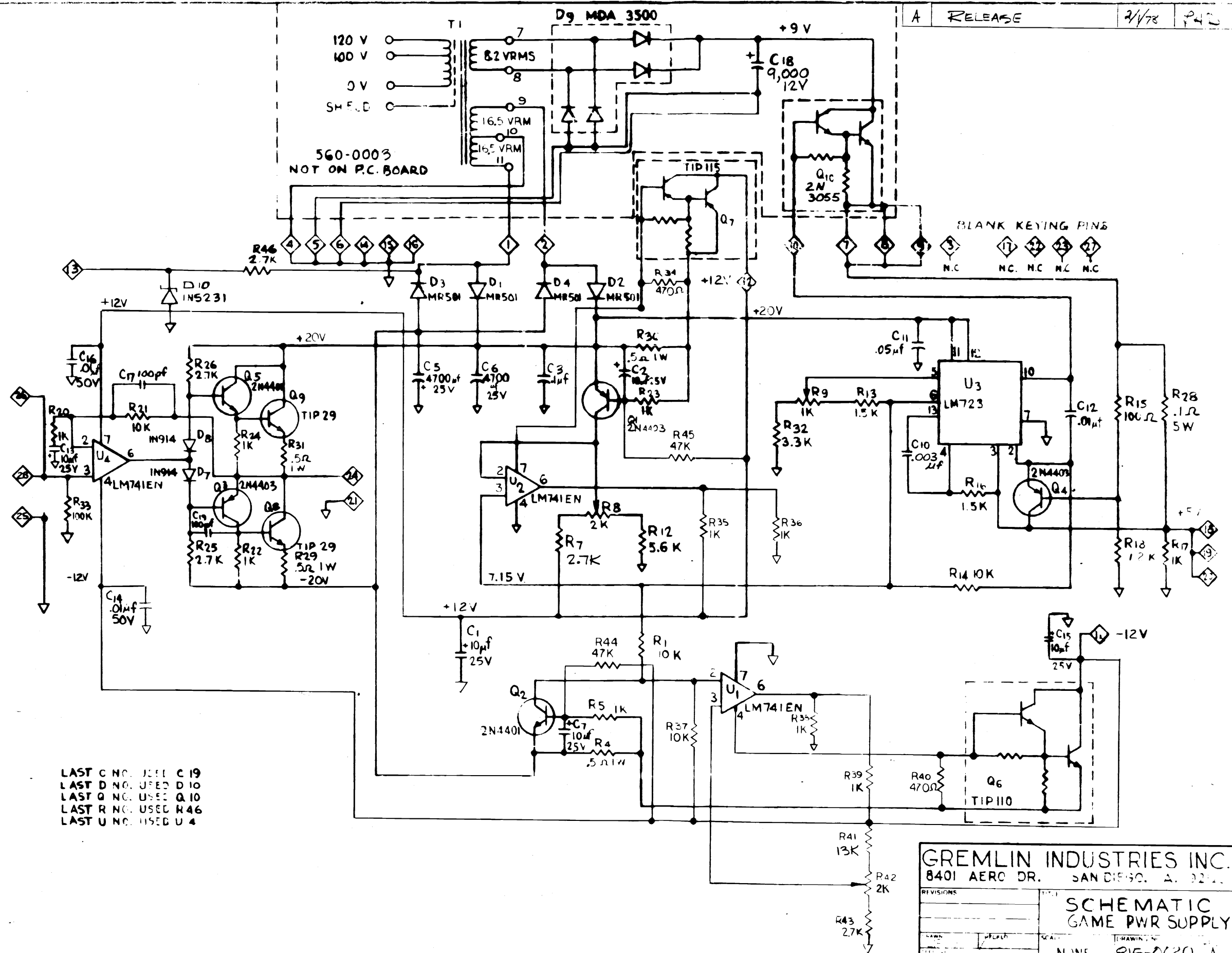
SEE DETACHED PARTS LIST 815-0020

QTY REQD	CODE IDENT	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION
			UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES TOLERANCES ARE:
			FRACTIONS DECIMALS ANGLES
			± .005 ± .001 ± .001 ±
			MATERIAL
			FINISH
			CONTRACT NO.
			APPROVALS DATE
			DRAWN <i>Lee J Liprak</i>
			CHECKED
			SIZE CODE IDENT NO. DRAWING NO. REV
			D 815-0020 A
			SCALE FULL SHEET 3 OF 4

△ ALL POWER TRANSISTORS TO BE MOUNTED WITH HEAT SINKING PASTE & INSULATING HARDWARE
 1. ALL WIRE TO BE AWG #22 GA
 NOTES: UNLESS OTHERWISE SPECIFIED

715-0001	SAFARI
NEXT ASSY	USED ON
APPLICATION	DO NOT SCALE DRAWING

815-0020



LAST C NO. USED C 19
 LAST D NO. USED D 10
 LAST Q NO. USED Q 10
 LAST R NO. USED R 46
 LAST U NO. USED U 4

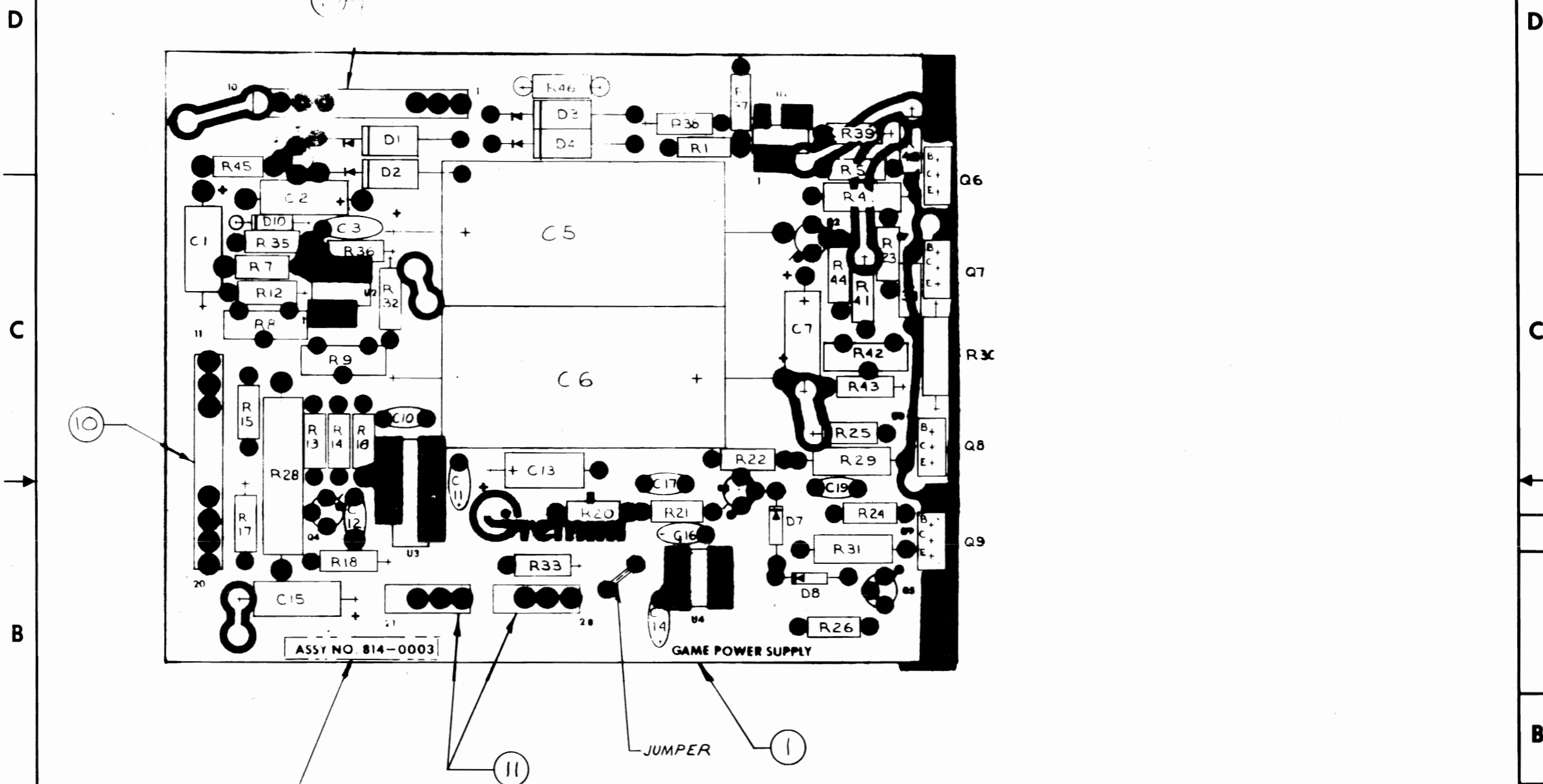
GREMLIN INDUSTRIES INC.
 8401 AERO DR. SAN DIEGO, CA 92121

REVISIONS	DATE

SCHEMATIC
GAME PWR SUPPLY

DATE: NINE 815-0620 A
 SHEET 4

REVISIONS				
ZONE	LTR	DESCRIPTION	DATE	APPROVED
			2/7/78	



REIDENTIFY ASSY WITH No. 815-0021 & LATEST REV.

JUMPER

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 ±	±	
	.XXX ±		
MATERIAL		APPROVALS	
		DATE	
		DRAWN K. LE BLANC 1/16/78	
		CHECKED [Signature] 2/1/78	
FINISH		SIZE	
		CODE IDENT NO.	
B15-0020 PWR SPLY ASSY		DRAWING NO.	
NEXT ASSY		815-0021	
USED ON		A REV	
APPLICATION		SCALE	
		SHEET 4 OF	

Grenkin Industries, Inc.
San Diego, California 92122

PC ASSY -
POWER SUPPLY

B15-0020 PWR SPLY ASSY

815-0021

A REV

DO NOT SCALE DRAWING

SHEET 4 OF

Granville Industries, Inc.
San Diego, California 92121

PARTS LIST

TITLE PG ASSY -
POWER SUPPLY

815-0021
DWG NO

SH 1
OF 4

A
REV

SH 4 15' 0" SIZE

DRAWN K. LEBLANC
CHECK K. LEBLANC

ENGR
APPR

LTR DATE

REVISION DESCRIPTION

DRAFT

CHECK

APPR

A

RELEASE

K. LEBLANC

2/1/78

KLD

Gremelin Industries, Inc.
San Diego, California 92123

PARTS LIST TITLE **PC ASSY - POWER SUPPLY** **815-0021** SH **3** OF **A** REV

ITEM NO	PART NO	QTY PER ASSY			DESCRIPTION	REF DES
26	471-0562			1	RES 5.6K Ω , 1/2W, 5%	R12
27	472-00R5			4	RES 0.5, 1W, 5%	R4, R29-R31
28	473-00E1			1	RES 0.1, 5W, 3%	R28
29						
30	475-0004			1	POT 1K TRIMMER	R9
31	475-0005			2	POT 2K TRIMMER	R8, R42
32						
33	481-0004			4	DIODE MRS01	D1-D4
34	481-0006			2	DIODE 1N914	D7, D8
35	481-0008			1	DIODE ZENER 1N5231	D10
36						
37	482-0006			3	TRANSISTOR 2N4403	Q1, Q3, Q4
38	482-0013			1	TRANSISTOR TIP 110	Q6
39	482-0014			2	TRANSISTOR 2N4401	Q2, Q5
40	482-0015			1	TRANSISTOR TIP 115	Q7
41	482-0016			2	TRANSISTOR TIP 29	Q8, Q9
42						
43	471-0133			1	RES 13K OHMS 1/2W 5%	R41
44						
45	815-0020				REF SCHEMATIC	
46						
47						
48						
49						
50						

Greentek Industries, Inc.
San Diego, California 92121

PARTS LIST

TITLE PC ASSY - POWER SUPPLY

815-0021
DWG NO

SH 1
OF
REV A

ITEM NO	PART NO	QTY PER ASSY			DESCRIPTION	REF DES
1	170-0082			1	PER - POWER SUPPLY	
2	150-0019			2	CAP. E 4700UF, 25V	C5, C6
3	151-0001			1	CAP. CER. .05UF, 50V	C11
4	151-0002			2	CAP. CER 100PF, 50V	C17, C19
5	151-0008			1	CAP. CER. .001UF, 50V	C10
6	151-0011			3	CAP. CER. .01UF, 50V	C12, C14, C16
7	151-0012			1	CAP. CER. .1UF, 50V	C3
8	153-0001			5	CAP. TANT 10UF, 25V	C1, C2, C7, C13, C15
9						
10	212-0003			2	CONN M 10 PIN	
11	212-0004			2	CONN M 4 PIN	
12						
13	313-0001			1	IC LM723	U3
14	313-0004			3	IC LM741EN	U1, U2, U4
15						
16	471-0101			1	RES 100Ω, 1/2W, 5%	R15
17	471-0102			10	RES 1KΩ, 1/2W, 5%	R517, 20, 22-24, 35, 36, 38, 39
18	471-0103			4	RES 10KΩ, 1/2W, 5%	R1, R14, R21, R37, R41
19	471-0104			1	RES 100KΩ, 1/2W, 5%	R33
20	471-0122			1	RES 1.2KΩ, 1/2W, 5%	R18
21	471-0152			2	RES 1.5KΩ, 1/2W, 5%	R13, R16
22	471-0272			5	RES 2.7KΩ, 1/2W, 5%	R7, R25, R26, R43, R46
23	471-0332			1	RES 3.3KΩ, 1/2W, 5%	R32
24	471-0471			2	RES 470Ω, 1/2W, 5%	R34, 40
25	471-0473			2	RES 47KΩ, 1/2W, 5%	R44, R45