BUCK ROGERS™

Owner's Manual

Manual Part No. 420-0681

Owner's Manual

Manufactured By

SEGA®

TLX 910-335-1621

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Introduction

BUCK ROGERS™ PLANET OF ZOOM™ is a micro-processor based coin-operated electronic game, that makes extensive use of digital integrated circuitry and television monitor concepts. This manual is intended for the use of the maintenance technicians who possess a general working knowledge of solid-state circuitry and video monitor theory. Any individual NOT knowledgeable in these areas SHOULD NOT attempt repair of the electronic portions of the game.

In addition to this manual and training in electronics, troubleshooting and repair will be facilitated by: access to general electronic type handtools, a multimeter, a 50 to 100 MHz oscilloscope and a logic probe would be helpful.

Technical assistance is available toll-free by calling:

1-800-854-1938 outside California

1-800-722-8576 inside California

Parts information assistance is available toll-free by calling:

1-800-854-1900 outside California

1-800-722-8575 inside California

Questions or comments concerning BUCK ROGERS™ PLANET OF ZOOM™ or any of our games are welcome and should be directed to:

Customer Service Manager
SEGA Electronics, Inc.
16250 Technology Drive
San Diego, California 92127-1985

Important Notes

The following note is included in compliance with FCC rules:
WARNING: This equipment generates and uses radio frequency energy and if not installed and used properly, i.e., in strict accordance with the instruction manual, may cause harmful interference to radio communications. It has been tested and found to comply with the limits for a Class A computing device pursuant to Subpart J of Part 15 of FCC rules, which are designed to provide reasonable protection against such interference when operated in a commercial environment. Operation of this equipment in a residential area is likely to cause interference in which case the user at his own expense will be required to take whatever measures may be required to correct the interference.

Other Notes

NEVER replace any components with anything other than exact replacement parts.

NEVER remove circuit board connections while power is on.

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

ALWAYS consult the manual before attempting repairs.

SPARE PARTS will be maintained at SEGA Electronics, Inc., for a period of five (5) years after the date of manufacture of the game concerned.

Game Concept

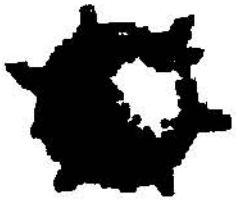
Flying skills and targeting accuracy must be honed to a fine edge, as you take command of Earth's last remaining hope of defense. Responsive 8-way joystick in hand, excitement is the name of the game as the Buck Rogers in all of us pilots a remote controlled spacecraft through the PLANET OF ZOOM™.

In the 25th century, Buck Rogers is confronted by a wicked warrior-world . . . the Planet of Zoom. It is a gargantuan out-of-orbit world that devastates everything in its path, and is ruled by an evil source ship. Buck Rogers mission: To destroy the source ship and liberate the Planet of Zoom before it reaches Earth.

Equipped with single-shot or rapid fire neutron cannon, and 2 level (upright) or 4 level (cockpit) speed control, you race your ship into and through heavily armed channels, through formidible smasher tunnels and around the towering spires of the cosmic city. You bank, dive and climb in pursuit of bizarre alien ships and ground forces to reach the climatic scene and primary target, the all powerful enemy source ship.

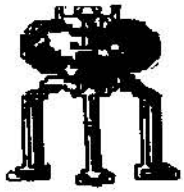
Fantastic game play graphics, great stereo sound effects, intense action and unique player controls makes this versatile one or two player video game as super as the Buck Rogers hero it is named for. With 3 to 6 extra ships (operator selectable) your score mounts and rounds proceed until the loss of the last player ship.

Scoring



100

200

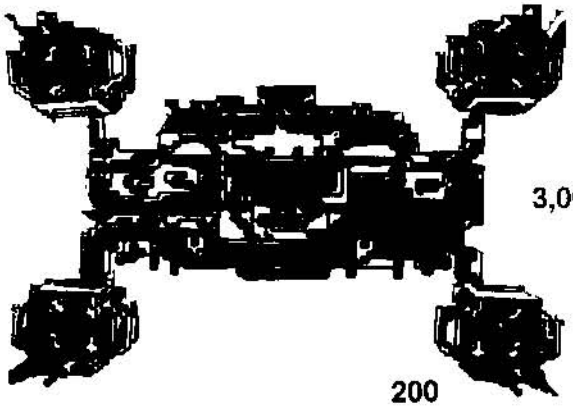


300

500

200

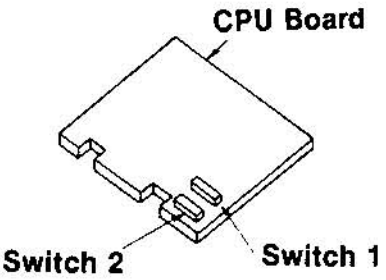
200



3,000

200

Option Selection



OPTION	SWITCH #1							
	1	2	3	4	5	6	7	8
1 COIN/1 CREDIT	ON	ON	ON	ON	ON	ON	X	X
1 COIN/2 CREDIT	OFF	ON	ON	OFF	ON	ON	X	X
1 COIN/3 CREDIT	ON	OFF	ON	ON	OFF	ON	X	X
1 COIN/6 CREDIT	OFF	OFF	ON	OFF	OFF	ON	X	X
2 COIN/1 CREDIT	ON	ON	OFF	ON	ON	OFF	X	X
3 COIN/1 CREDIT	OFF	ON	OFF	OFF	ON	OFF	X	X
4 COIN/1 CREDIT	ON	OFF	OFF	ON	OFF	OFF	X	X
5 COIN/1 CREDIT	OFF	OFF	OFF	OFF	OFF	OFF	X	X

OPTION	SWITCH #2							
	1	2	3	4	5	6	7	8
COLLISIONS	ON	X	X	X	X	X	X	X
NO COLLISIONS	OFF	X	X	X	X	X	X	X
ACCEL. BY PEDAL	X	ON	X	X	X	X	X	X
ACCEL. BY BUTTON	X	OFF	X	X	X	X	X	X
BEST 5 SCORES ON	X	X	ON	X	X	X	X	X
BEST 5 SCORES OFF	X	X	OFF	X	X	X	X	X
SCORE DISPLAY ON	X	X	X	OFF	X	X	X	X
SCORE DISPLAY OFF	X	X	X	ON	X	X	X	X
DIFFICULT	X	X	X	X	ON	X	X	X
NORMAL	X	X	X	X	OFF	X	X	X
COCKPIT	X	X	X	X	X	X	X	ON
UPRIGHT	X	X	X	X	X	X	X	OFF
3 EXTRA SHIPS	X	X	X	X	X	ON	ON	X
4 EXTRA SHIPS	X	X	X	X	X	OFF	ON	X
5 EXTRA SHIPS	X	X	X	X	X	ON	OFF	X
6 EXTRA SHIPS	X	X	X	X	X	OFF	OFF	X

ON = CLOSED OFF = OPEN X = NOT USED

Theory of Operation

BUCK ROGERS™ is a "state-of-the-art" electronic microprocessor based, video game. The result of hundreds of hours of work, design, research, experiment and more work. However, as with any electronic device, component failure or other problems can result in a game that doesn't function properly, or doesn't function at all. In either case, your game is "down", and so critically, are your profits.

Your objective is to fix it as quickly as possible, and logical troubleshooting goes a long way toward that repair. Although many troubleshooting methods may be familiar to you, procedural logic is common among them, and might be stated in this order: visual inspection, symptom recognition, symptom isolation, function isolation, component isolation and repair. Familiarity with the equipment in question will allow you to bypass one or more of these steps, as any particular problem may be obvious to you, or may have happened before. In general though, these 6 steps form a good premise upon which to approach your "down" game.

An extremely important item in our procedure is the first mentioned, giving the gear the "once over". A large percentage of failures found in electronics, show themselves visually and often a great deal of time can be saved by inspecting for burnt or blown components, loose or disconnected wiring or connectors, or PCB traces burnt or pulled up. Thorough visual inspections become increasingly important the closer you get to the faulty item, and should be repeated each time another portion of the game is eliminated. Symptom recognition (as with all electronic troubleshooting) in your BUCK ROGERS depends first, on knowing what a proper display is, and second, knowing how your display differs from a normal one. Symptom isolation follows naturally; (i.e., "I have no picture", "I have no sound", "I have no control over the ship", "the picture is scrambled"), ergo, a video, audio, input or logic problem. Function isolation, such as a sync problem with the video, requires that you consider those functions that go to make up video sync. Is it a monitor problem, or an "on-the-board" problem? A monitor input check to verify the signal will tell you. Does the board have the voltage (from the power supply) that it needs? Yes? We must have a board failure, as we've just isolated down to function. Taking our sync problem further, before we begin our search for an individual component, let's reapply that first item in

our "Logical Troubleshooting Procedure". Look at the board. Open resistors, diodes, and capacitors often give themselves away.

Noticing a trace literally burned open can save you serious "down-time". The board looks OK, so on we go. Specific component isolation relates to the specific nature of the failure, component commonality, proper inputting (both signal and power) and proper outputting (as in the case of an output held high, low, or floating by input port failure in the succeeding state). More general problems (such as a total loss of video sync) requires the more involved procedure of systematic elimination of possibilities. This operation can be expedited however, by dividing the circuit in half, establishing a "go-no/go" at that point, and again dividing the suspect circuit portion in half. The largest possible areas can be eliminated in this manner, dividing and sub-dividing until the individual component failure is found.

BUCK ROGERS™ is a microprocessor based, digital-integrated circuit computer video game. The heart of the computer is the CPU (IC13, Zone8-D, Sht. 1, CPU Bd., 834-5120), a Z80A (P/N 315-0041). The Alpha type device MUST ALWAYS be used, as the Z80 is not fast enough to run the programs.

Master timing is crystal-driven at 20.00 MHz (X1, Zone 8-A, Sht. 1, CPU Bd., 834-5120) through IC34, 28, and 35. CPU timing is taken from IC34 p-7, applied to IC35 p-2 (Zone 8-B, Sht. 1, CPU Bd., 834-5120) clocked out of IC35 at p-13, inverted by IC28 (Zone 8-C, Sht. 1, CPU Bd., 834-5120) and finally applied to pin-6 of the CPU (IC13). Additionally, IC13 provides 5 MHz and 10 MHz for video timing and character generation, as well as processed interrupts and timing for the Select Address processor IC50 (Zone 8-D, Sht. 5, CPU Bd., 834-5120).

Manual system reset (Power-On) appears as a LO at IC16 p-4 (Zone 8-D, Sht. 1, CPU Bd., 834-5120) and is then felt at pin-26 of the CPU (IC13, Sht. 1, Zone 8-D, CPU Bd., 834-2150). Normal program interrupts (INT) are felt at pin-16 of the Z80A (an edge-triggered LO), and are the result of Input/Output activity timing with vertical blanking (an approx. 2 msec. instruction interrupt). The WAIT signal is used to synchronize that I/O activity during an interrupt to the CPU. IC1 and 2 (Zone 6-D, Sht. 1, CPU Bd., 834-5120) are address bus drivers. Two of the sixteen address lines pass through IC30 (Zone 6-D, Sht. 1, CPU Bd., 834-5120) and subsequently drive the Chip Enable inputs of EPROM IC's 3, 4, 15 and RAM IC 14 (Sht. 1, CPU Bd., 834-5120). IC's 113, 114, 121 and 122 (Sht. 4, CPU Bd., 834-5120) are input ports on the data bus. The 44-pin flat connector supplies player input information, service switch,

game start and coinage to the input ports. IC119 and 121 input Coin B, and IC120 and 121 input Coin A, together with Game Start, Self-Test, Up/Down and Acceleration to I/O processor IC106 (Zone 4-D, Sht. 4, CPU Bd., 834-5120). IC111, 112 and 114 accesses/buffers Player Left/Right data, IC111 and 113 interfaces Fire data, and Option Selection is shared by all 4 74LS244's. Located in the Volume Control Block is the Self-Test switch. When closed, it applies a LO to IC119 p-6 (Zone 7-C, Sht. 4, CPU Bd., 834-5120) initiating a systems/function verification outlined on the following page:

Self-Test

BUCK ROGERS™ is equipped with a diagnostics sequence that is initiated by pressing the Self-Test button located on the Volume Control Block Assembly. The test appears in the following order, with each major catagory ending with the press of the Self-Test button:

1.

RAM CHECK
EPROMS CHECK
IC 3 GOOD
IC 4 GOOD

2. - Switch condition (ON or OFF) is verified by actuation.

INPUT TEST

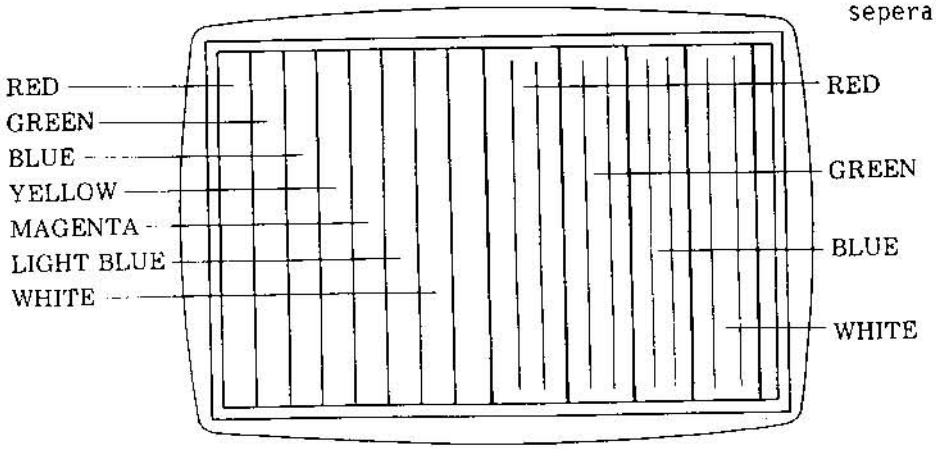
DIP SWITCHES

	8	7	6	5	4	3	2	1
DIP SW 1	O	O	C	C	C	C	C	C
DIP SW 2	C	C	C	O	C	C	C	C

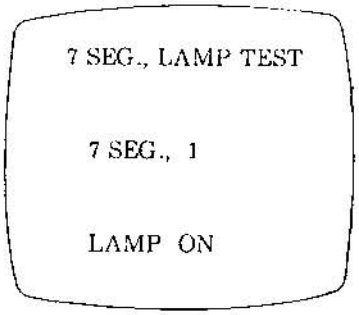
CONTROLS

START	OFF
COIN 1	OFF
COIN 2	OFF
SERVICE	OFF
RIGHT	OFF
LEFT	OFF
DOWN	OFF
UP	OFF
FIRE	OFF
ACCEL	1

3. - Color tracking and seperation

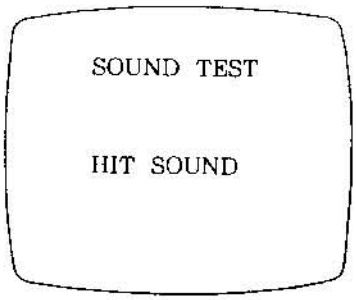


4.



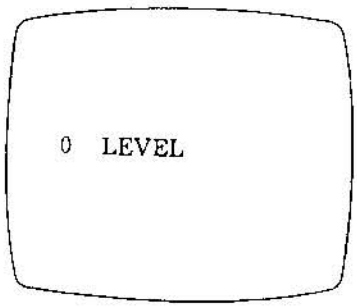
- START button sequences LED numerical read-out 0 - 9

5.



- FIRE button initiates each sound audibly.
- START button sequences each sound in turn.

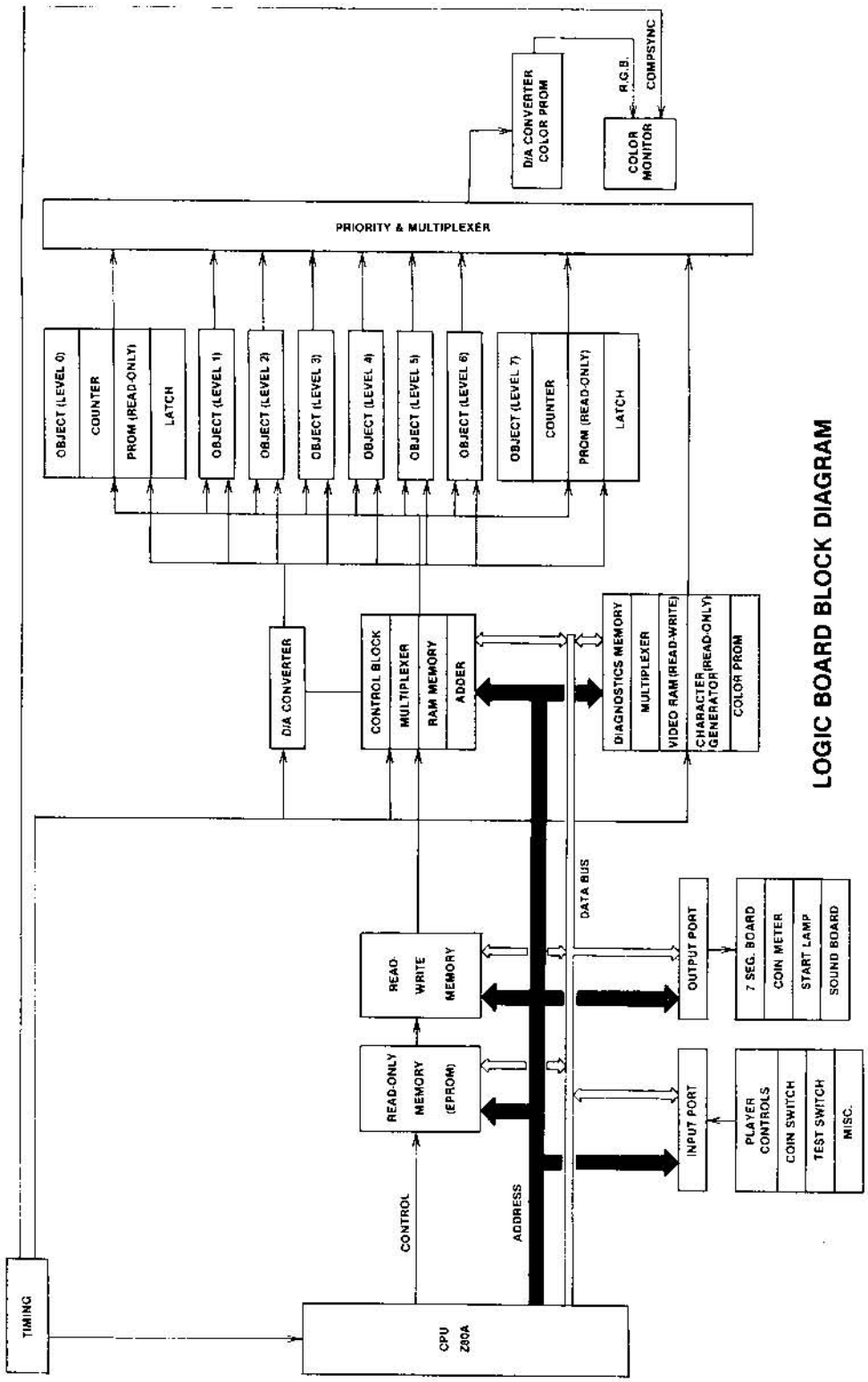
6. Character ROM Test



- Video display of character memory by Object Level.
- START button sequences Object Levels 0 through 7.

Due to the striking graphics employed in BUCK ROGERS™, memory requirements for background generation are significant. On the EPROM Bd. (834-5121) there are sixteen (16) 27128-3 16K X 8 EPROMs that hold video character, positioning, color and timing information. Background generation accessable memory (RAM) is provided by TTL IC14 and IC84 (Zone 2-D and 4-B respectively, Sht. 1, on the CPU Bd., 834-5120), in addition to IC's 6-9 on Sht. 3 of the CPU (834-5120). Back on the EPROM Board, program storage is organized into eight (8) levels of multiplexed data for troubleshooting efficiency (Sheets 3 through 10, EPROM Bd., 823-5121), with final pre-CPU input "mux" occurring on Sht. 2, EPROM Bd., 834-5121. Armed with program data and input port data, the CPU can then integrate timing and sync (Sht. 2, CPU Bd., 834-5120) with color requirements (Sht. 6, CPU Bd., 834-5120) to produce complete color video at the Output Ports consisting of IC's 97, 98, 109 and 110 (Sht. 6. CPU Bd., 834-5120).

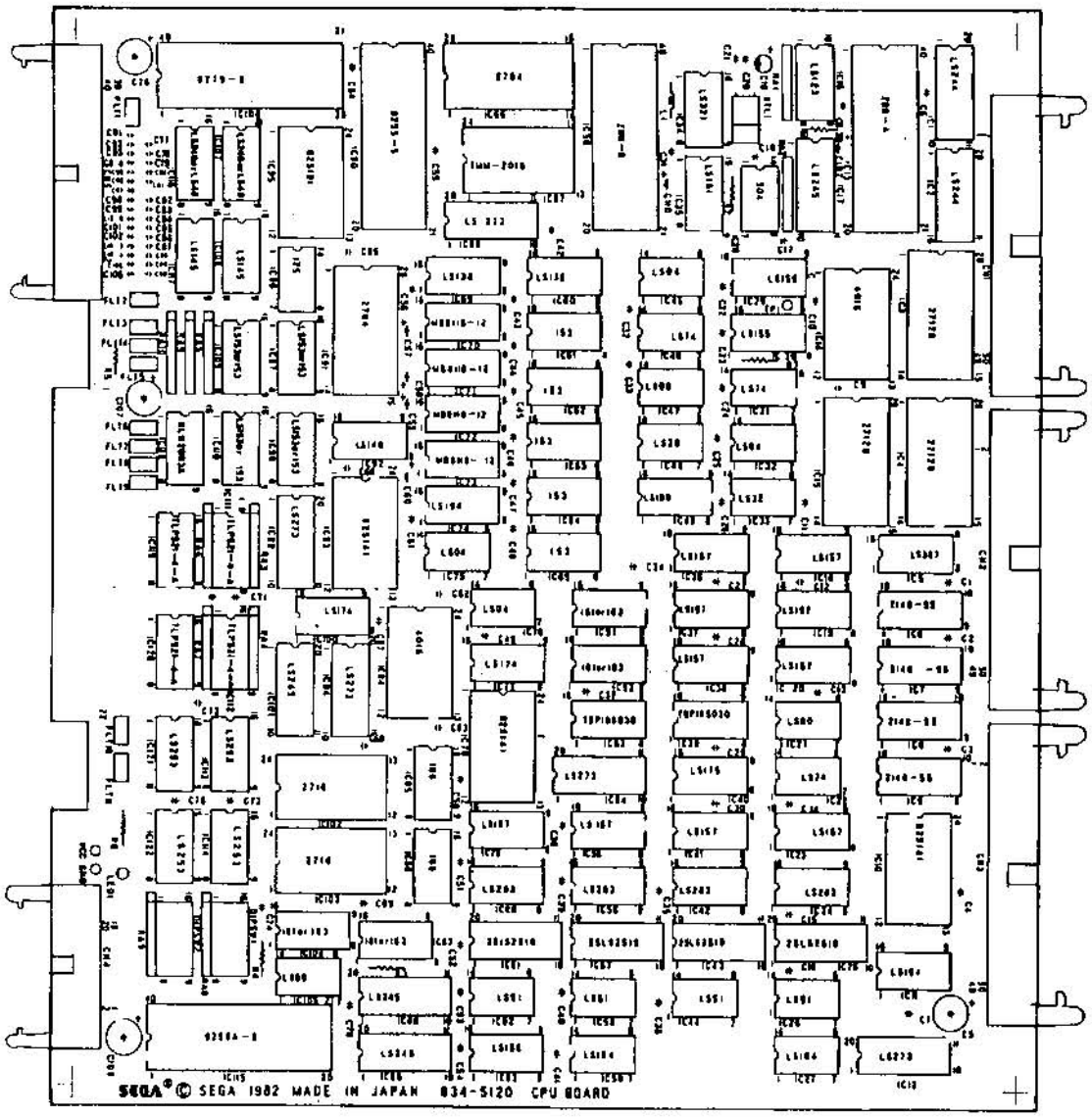
Just as the microprocessor Z80A is the heart of the game computer, so too is the 8255A-5 (IC113, Zone 2-D, Sht. 4, CPU Bd., 834-5120) the center of activity for Sound. Called a Sound Generator, IC113 interfaces data and address bus, as well as the noise generators on the Sound Bd. (834-5122), through the 20 pin flat cable, enabling specific sounds processing circuits. These circuits consist of individual sounds for Player ship flying sounds, rebound, explosion, laser and alarm. Those complete sounds not originating within the 8255A-5 are enabled by the Sound Generator through the noise generators on the Sound Bd. IC28 and VR1 (Volume Control, Sht. 1, Zone 6-A, Sound Bd.) set input biasing for the Audio Amplifier LA446 at an 8 ohm load.



LOGIC BOARD BLOCK DIAGRAM

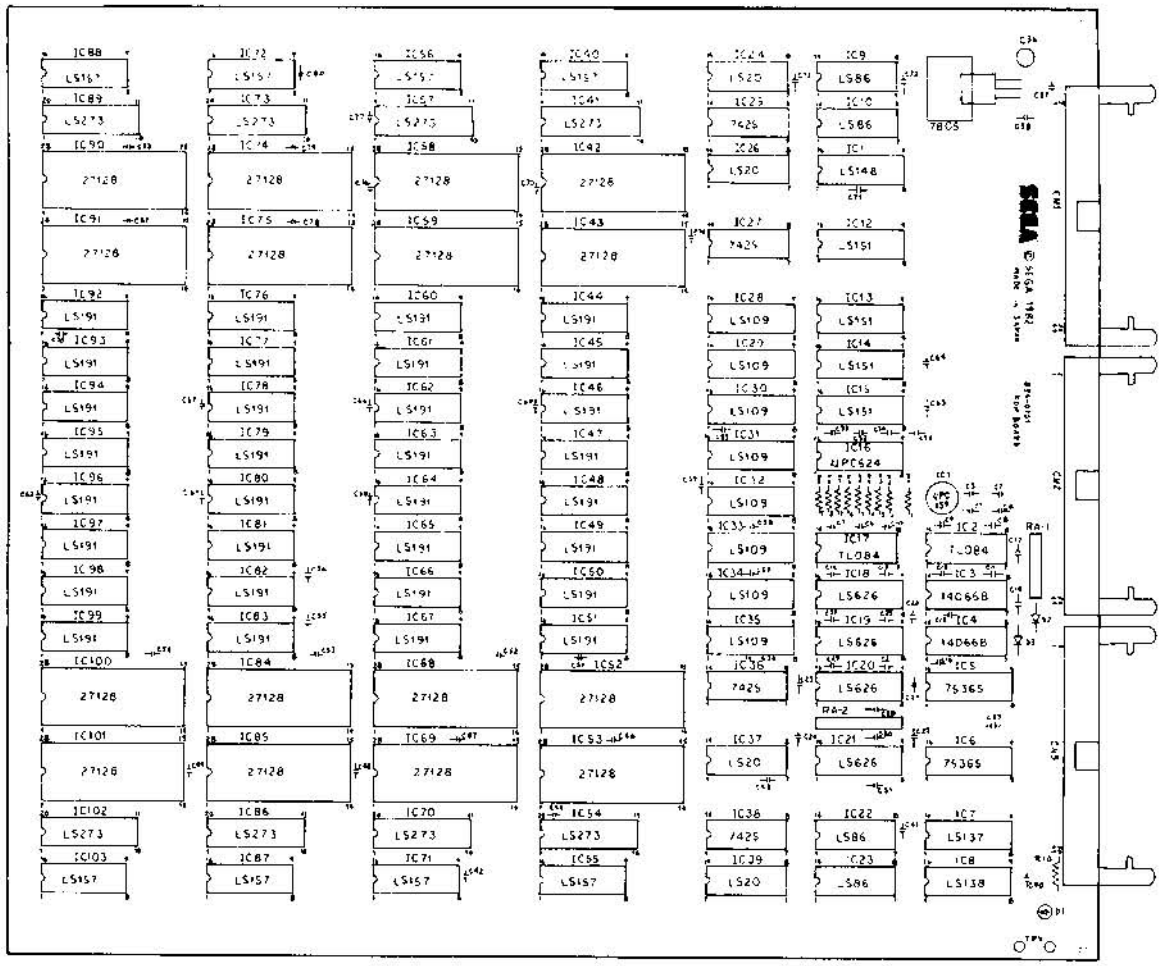
CPU Board Assembly

834-5120



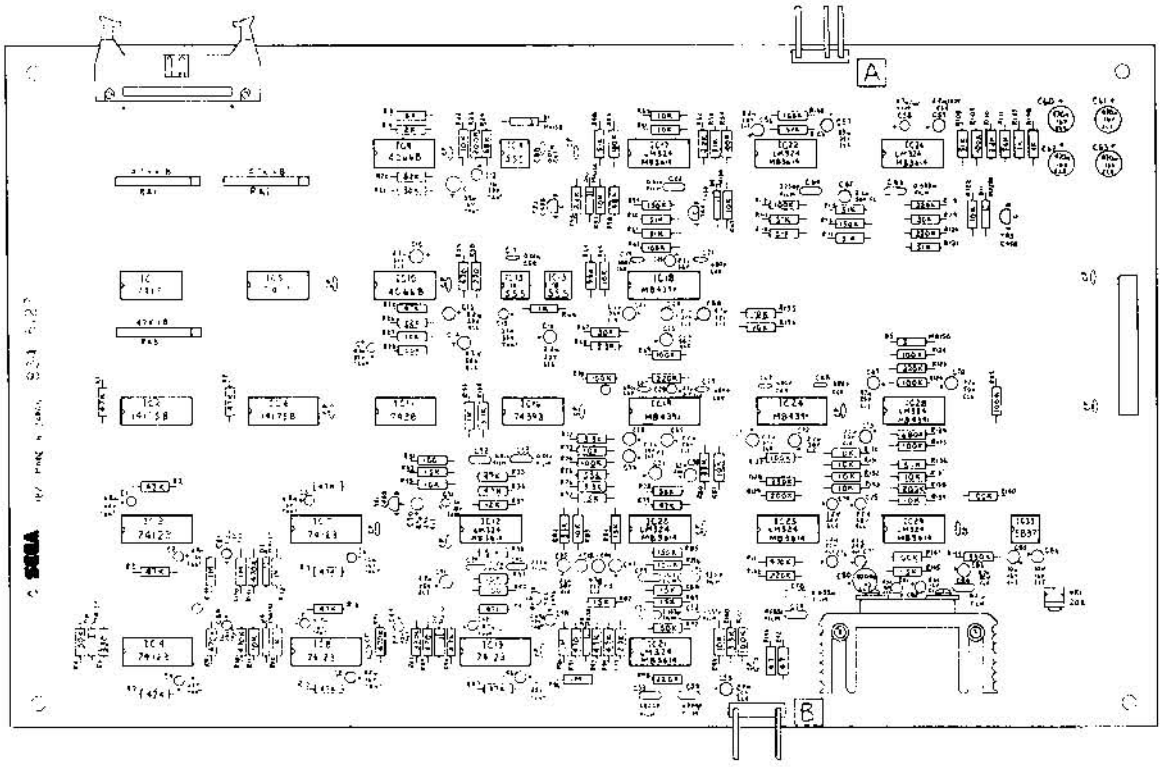
EPROM Board Assembly

834-5121



Sound Board Assembly

834-5122



REVISIONS				
ZONE	LTR	DESCRIPTION	DATE	APPROVED
	–	SEE SHT #1 M.G.R		

ASSY, JUNCTION BOX 800-3244-00 FUSE 2 AMP
EMI FILTER
800-0408-04
ASSY, MONITOR COLOR 800-0362-02
P27B
P27A
AC IN
250-0615-01 P/O 800-3315-00
P40
E
800-0369-01 P/O 800-0362-02
250-0615-00 P/O 800-0367-02
P26 A
B P16
ASSY, FLUOR LAMP 800-0147-04
XFMR
ASSY, POWER SUPPLY 800-0367-02
+5V
-5V
GND
+12V
D P24
ASSY, COMPONENT SHELF 800-3315-00
C P16
ASSY, FLUOR LAMP 800-0147-02
SPEAKER 8Ω, 10 W 130-0020-00
ASSY, LAMP/SPEAKER 800-0415-01
P9
P8
SOUND BOARD
ASSY GAME ELECTRONICS 800-3328-00 P/O 800-3315-00
800-3352-00 P/O 800-0362-02
P32
P10
ASSY, CONTROL PANEL 800-3314-00
8 WAY JOYSTICK ASSY 834-0462 P/O 800-3314
S5 S8 S4 S2 S3 S1 S7 S9 S6 S12 S10 S11
2 PLAYER FIRE
FIRE RT
LEFT
SLOW LEFT
FAST LEFT
SLOW RIGHT
FAST RIGHT
UP
DOWN
1 PLAYER
GND
800-0403-03
P2
800-3316-00 P/O 800-3315-00
ASSY COIN SYSTEM 800-3274-01
COIN COUNTER P/O 800-3274-01
COIN MECH A
COIN MECH B
NO
C
GRN/YEL
ASSY, SERVICE & RESET BUTTON BOX 800-3282-01 P/O 800-3294-01
SERVICE
TEST
800-3331-00 P/O 800-3328-00
P1

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

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES
TOLERANCES ARE:
FRACTIONS ± DECIMALS .XX ± .XXX ANGLES ±
MATERIAL
FINISH
NEXT ASSY | USED ON
APPLICATION
DO NOT SCALE DRAWING

CONTRACT NO.
APPROVALS | DATE
DRAWN
CHECKED
MECH
ELEC
MFG
PROJECT

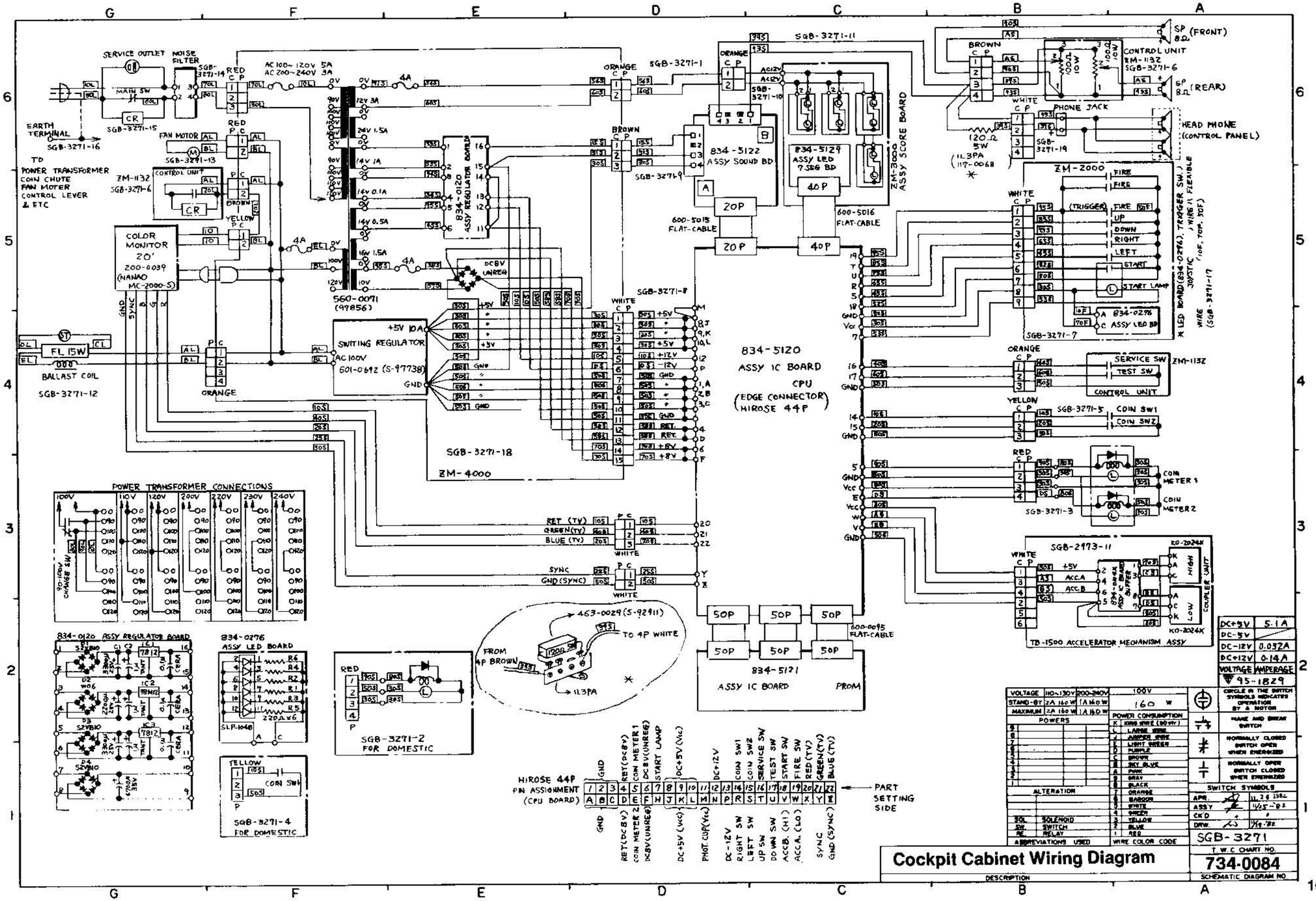
Gremlin/SEGA

Upright Cabinet Wiring Diagram

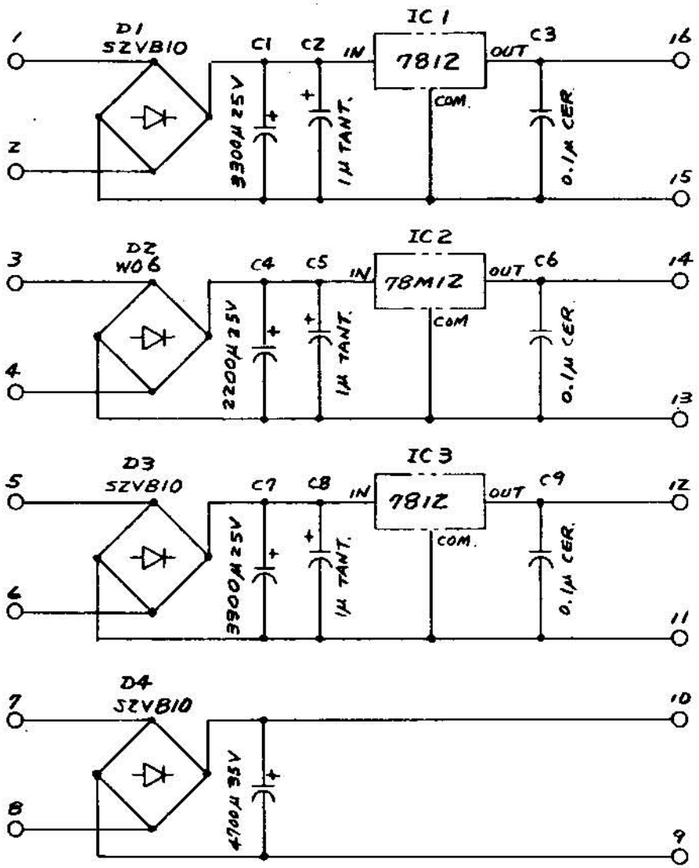
SIZE	CODE IDENT NO.	DRAWING NO	REV
D		700-0113	A

SCALE NONE | SHEET 3 OF

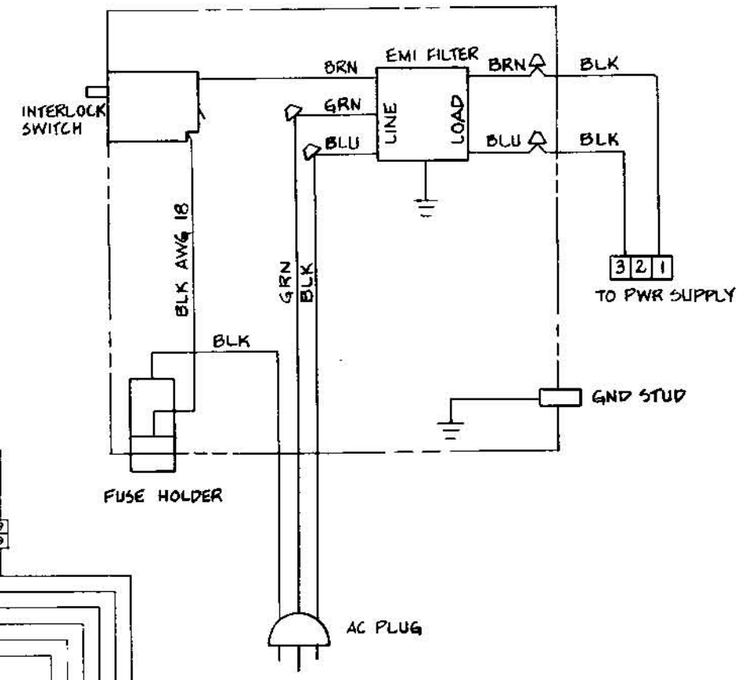
700-0113 A


SERVICE OUTLET
NOISE FILTER
SGB-3271-14
MAIN SW
CR
SGB-3271-15
EARTH TERMINAL
SGB-3271-16
TO POWER TRANSFORMER COIN CHUTE FAN MOTER CONTROL LEVER & ETC
FAN MOTOR
SGB-3271-13
ZM-1132 SGB-3271-6
CONTROL UNIT
COLOR MONITOR 20' 200-0039 (NANAO MC-2000-S)
AC 100~120V 5A
AC 200~240V 3A
560-0071 (97856)
834-0120 ASSY REGULATOR BOARD
SGB-3271-1
834-5122 ASSY SOUND BD
SGB-3271-9
834-5129 ASSY LED 7 SEG BD
SGB-3271-10
ZM-3000 ASSY SCORE BOARD
600-5015 FLAT-CABLE
600-5016 FLAT-CABLE
SGB-3271-11
SP (FRONT) 8Ω
SP (REAR) 8Ω
CONTROL UNIT ZM-1132 SGB-3271-6
PHONE JACK
SGB-3271-19
HEAD PHONE (CONTROL PANEL)
120Ω 5W
IL3PA (117-0068)
ZM-2000
FIRE
(TRIGGER)
UP
DOWN
RIGHT
LEFT
START
START LAMP
834-0278 ASSY LED BD
SGB-3271-7
LED BOARD (834-0278), TRIGGER SW, JOYSTIC (10P, 7DM, 5DF)
WIRE (SGB-3271-17)
FL 15W
BALLAST COIL
SGB-3271-12
+5V 10A
SWITING REGULATOR
AC 100V
601-0692 (S-97738)
GND
SGB-3271-8
834-5120
ASSY IC BOARD
CPU
(EDGE CONNECTOR)
HIROSE 44P
SGB-3271-18
ZM-4000
SERVICE SW
TEST SW
CONTROL UNIT
ZM-113Z
COIN SW1
COIN SW2
SGB-3271-5
COIN METER 1
COIN METER 2
SGB-3271-3
SGB-2273-11
KO-2024K
TD-1500 ACCELERATOR MECHANISM ASSY
POWER TRANSFORMER CONNECTIONS
834-0120 ASSY REGULATOR BOARD
834-0276 ASSY LED BOARD
SGB-3271-2 FOR DOMESTIC
SGB-3271-4 FOR DOMESTIC
463-0029 (S-92911)
TO 4P WHITE
FROM 4P BROWN
834-5121 ASSY IC BOARD
PROM
500-0095 FLAT-CABLE
PART SETTING SIDE
Cockpit Cabinet Wiring Diagram
SGB-3271
734-0084
168

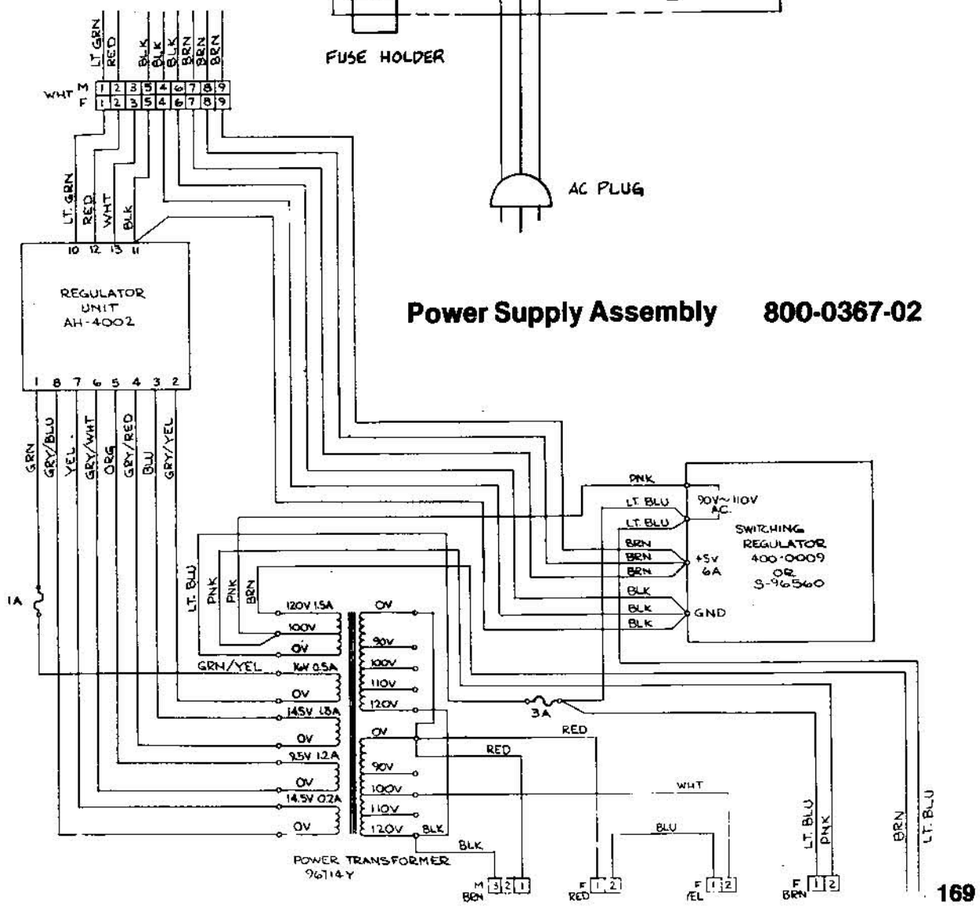
Regulator Board Assembly 834-0120

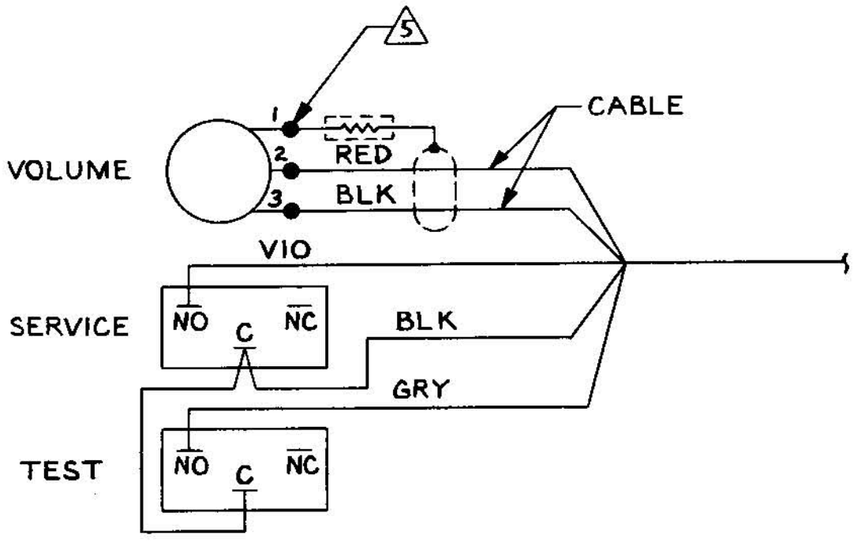


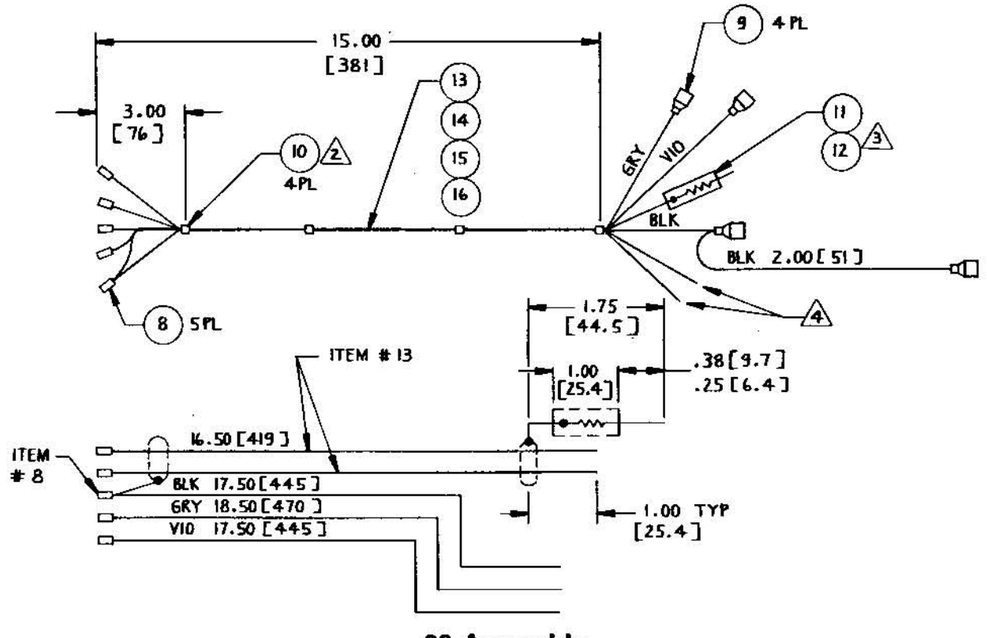
AC Junction BoxAssembly 800-3244



Power Supply Assembly 800-0367-02

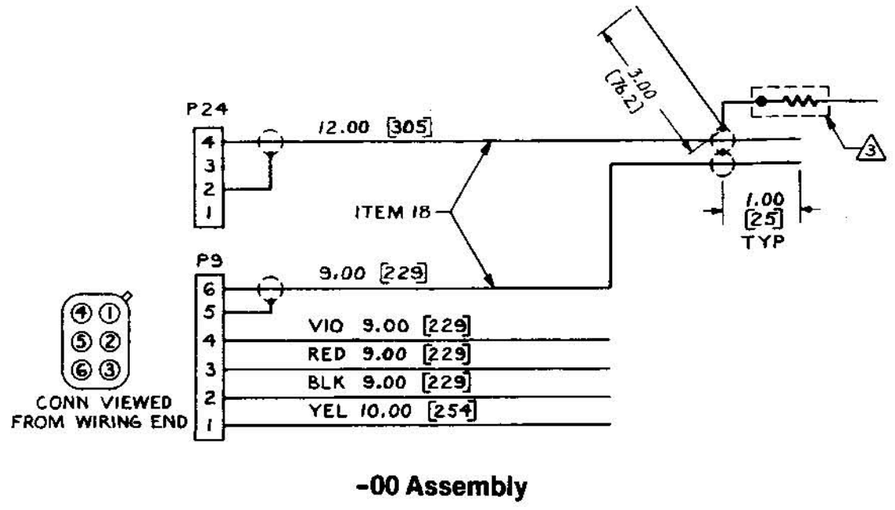




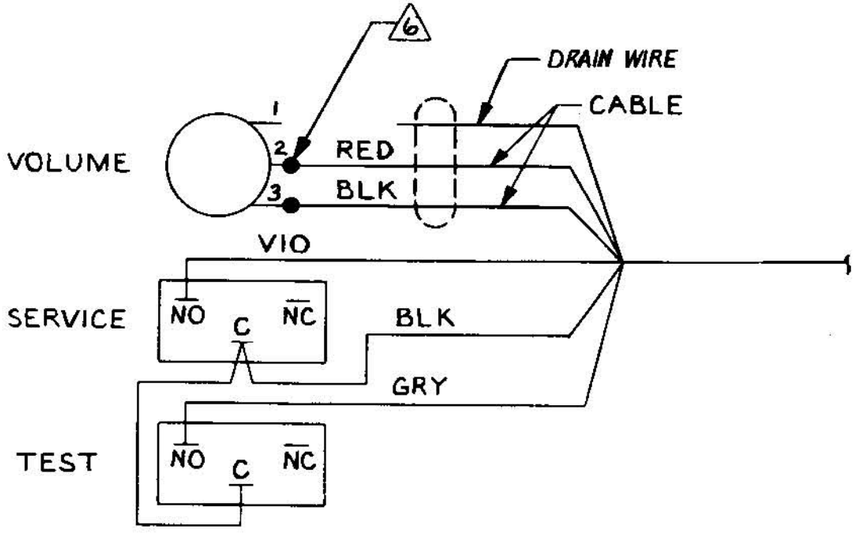


-00 Assembly

Volume Control Block Assembly 800-3282



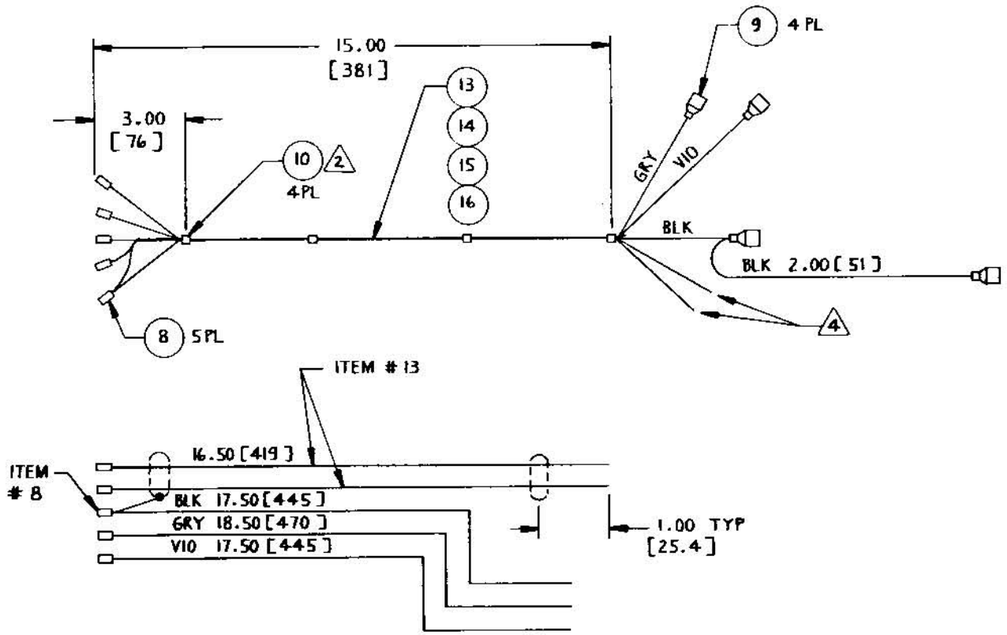
-00 Assembly



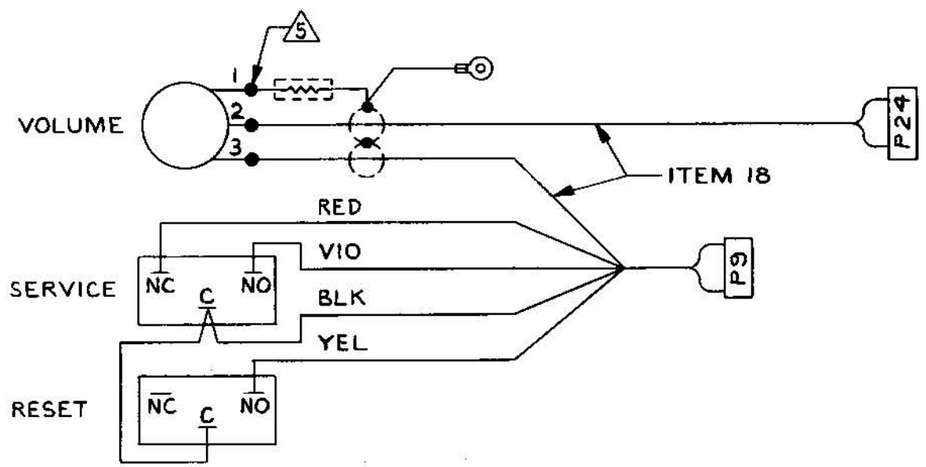
-01 Assembly

Volume Control Block Assembly

800-3282



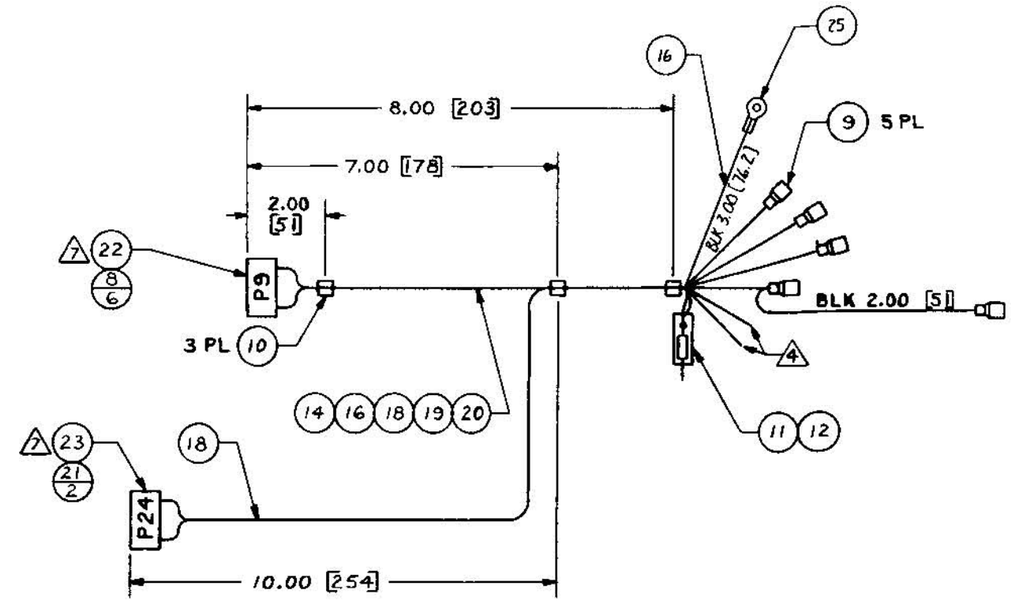
-01 Assembly



-02 Assembly

Volume Control Block Assembly

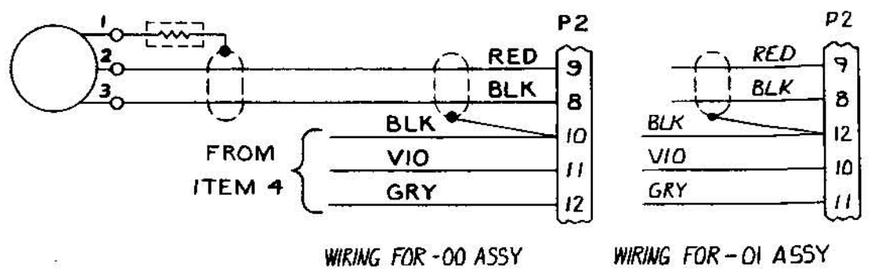
800-3282



-02 Assembly

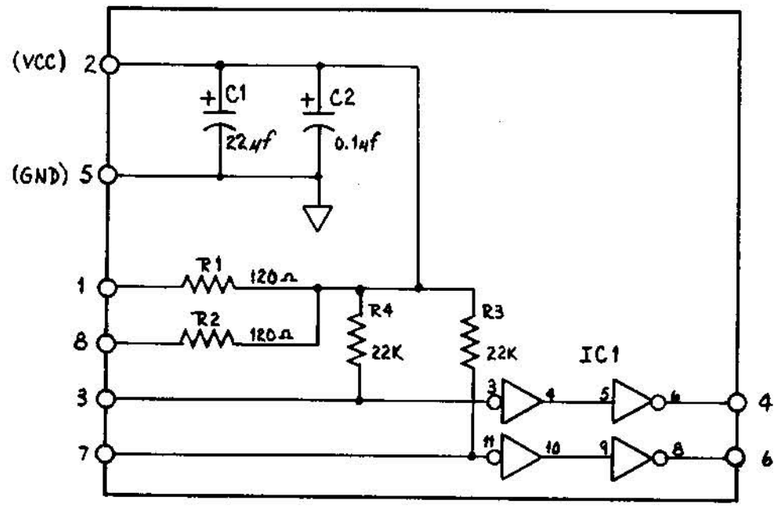
Coin System Assembly

800-3294-01



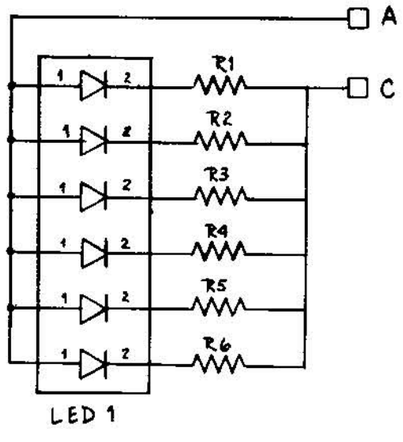
IC Buffer Board Assembly

834-0104



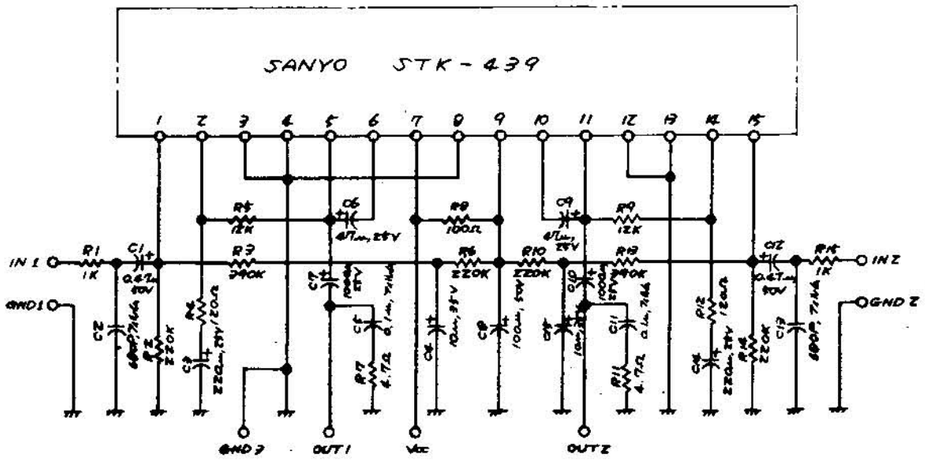
LED Board Assembly

834-0276



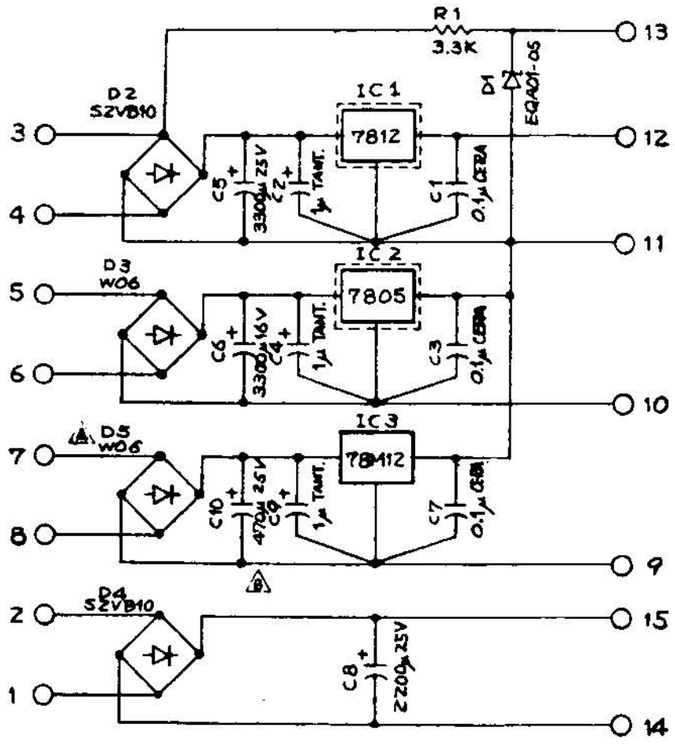
Power Amp Assembly

834-0121

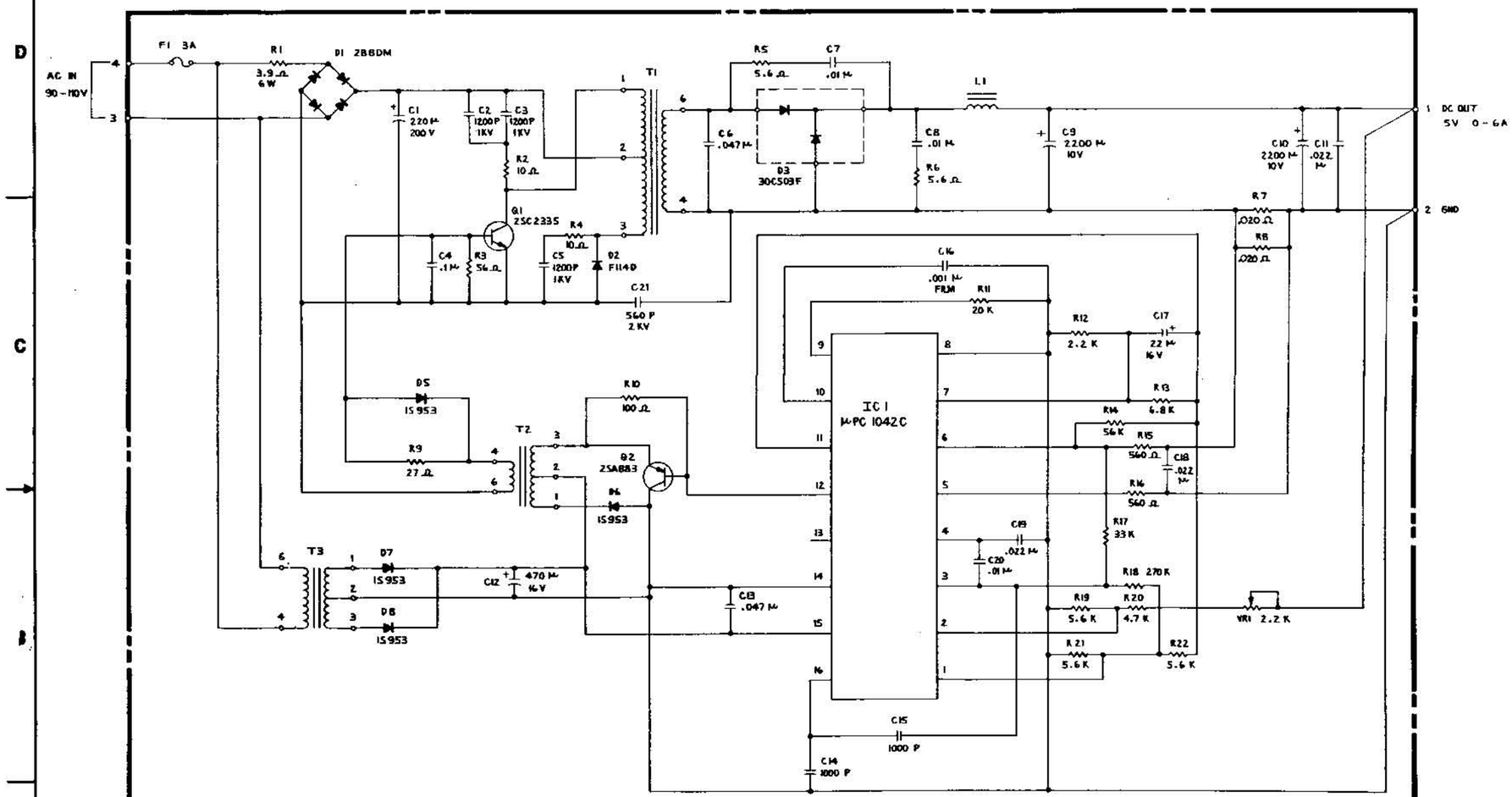


Regulator Unit

601-0612



REVISIONS				
ZONE	LTR	DESCRIPTION	DATE	APPROVED
	A	RELEASED SD	8-14-81	



NOTES :

1. R7, R8 AS REQUIRED OTHERWISE USE JUMPER WIRE .

QTY REQD	CODE IDENT	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	ITEM NO.

PARTS LIST

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES TOLERANCES ARE: FRACTIONS ± DECIMALS .XX ± .XXX ± ANGLES ±

MATERIAL

FINISH

NEXT ASSY | USED ON

APPLICATION

DO NOT SCALE DRAWING

CONTRACT NO.

APPROVALS	DATE
DRAWN SOM DUONG	8-17-81
CHECKED G. GRICE	8-17-81
MECH	
ELEC	
MFG	
PROJECT	

Granville/SGCA
San Diego, California 92123

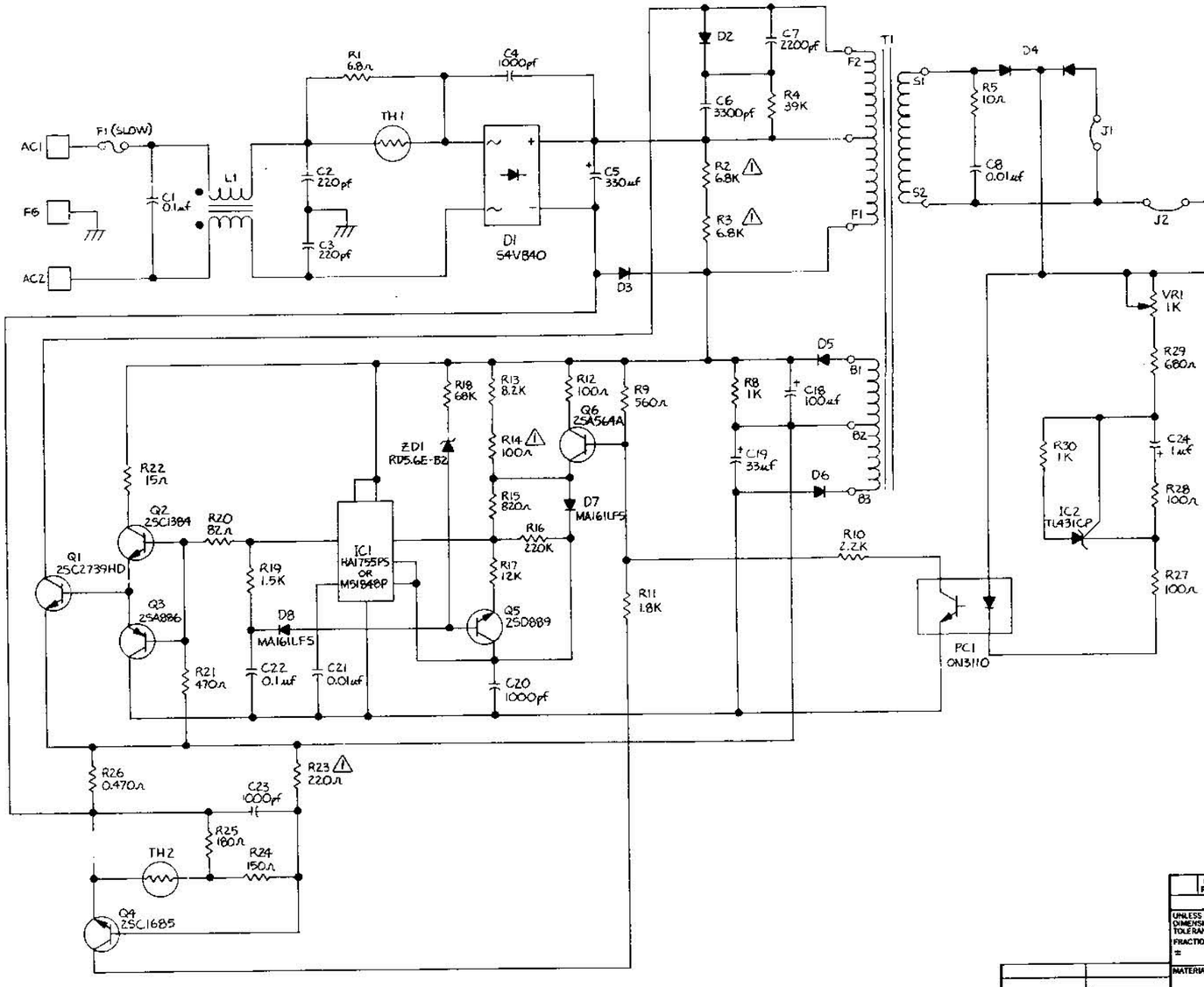
Switching Regulator

SIZE	CODE IDENT NO.	DRAWING NO.	REV
D		601-0158	A

SCALE MORE | SHEET 1 OF 1

601 - 0158 A

REVISIONS				
ZONE	LTR	DESCRIPTION	DATE	APPROVED
	—	SEE SHT 1		



LAST USED	UNUSED
R30	C9, C10, C14,
C26	C15, C25, R6,
D8	R31
ZD1	
IC2	
PC1	
TH2	
F1	
T2	
L2	
J2	
Q6	
VR1	

⚠ VALUE MAY VARY.

NOTES:

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

NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES
TOLERANCES ARE:
FRACTIONS ± DECIMALS .XX ± .XXX ± ANGLES ±

MATERIAL

FINISH

DO NOT SCALE DRAWING

CONTRACT NO.

APPROVALS	DATE
DRAWN DYNA PAC	4-82
CHECKED	5-6-82
MECH	
ELEC	
MFG	
PROJECT	

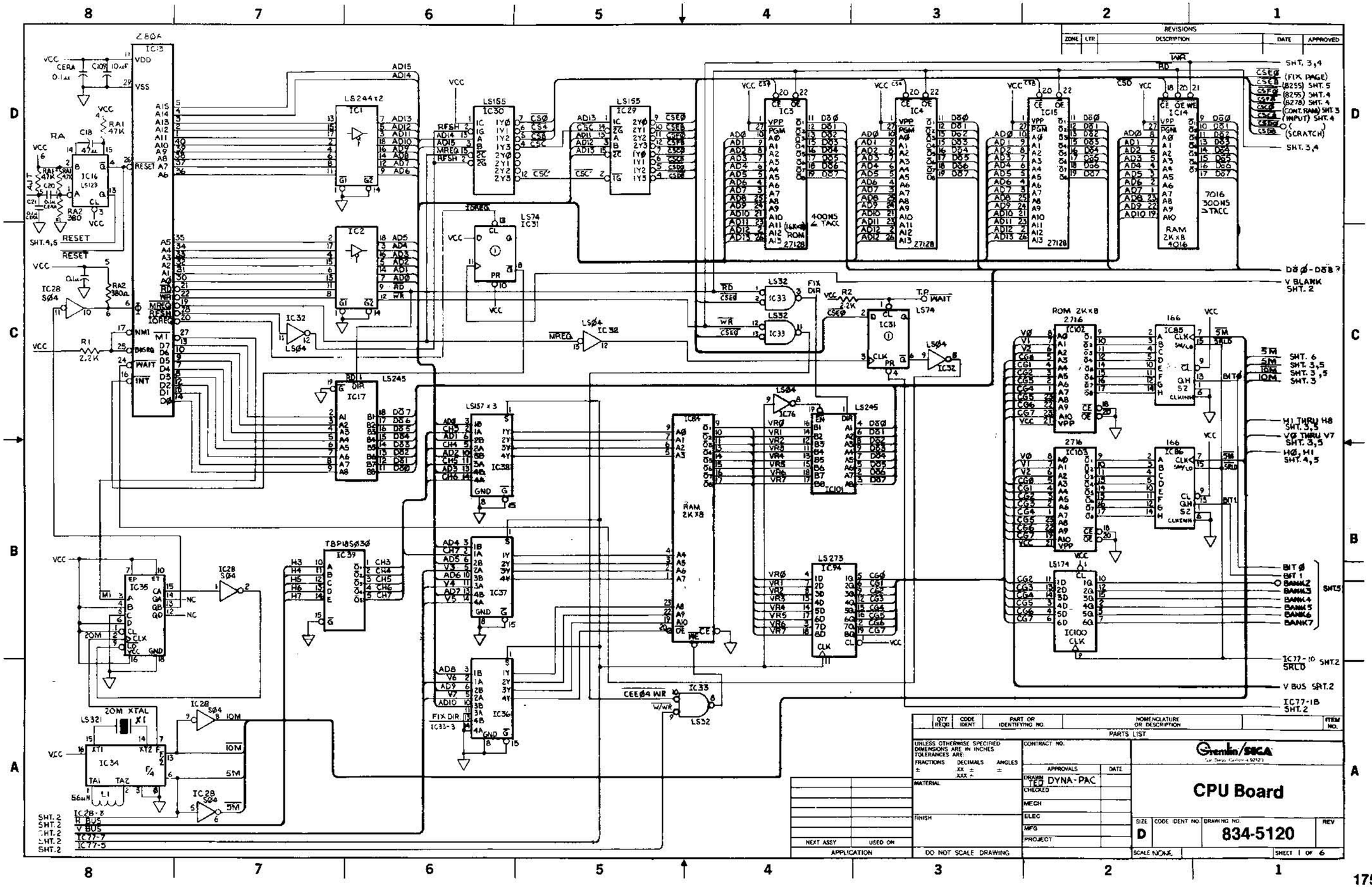
Gremlin/SEGA
San Diego California 92121

Switching Regulator

SIZE	CODE IDENT NO.	DRAWING NO.	REV
D		601-0692	A

SCALE NONE SHEET 5 OF 5

601-0692 A


REVISIONS
ZONE | LTR | DESCRIPTION | DATE | APPROVED
Z80A CPU
IC13
IC1
IC2
LS244 x2
LS155
IC30
IC29
IC5
IC4
IC15
IC14
7016
300NS
RAM
2K x 8
4016
400NS
27128
ROM 2K x 8
2716
IC102
IC103
IC101
IC100
IC84
IC76
IC94
IC17
LS245
IC38
IC37
IC36
LS157 x 3
TBP18S030
IC39
IC35
IC34
20M XTAL
LS321
IC28
S04
IC32
LS04
IC33
LS32
LS74
IC31
LS273
LS174
IC85
IC86
166
RESET
WAIT
INT
NMI
BUSRQ
MREQ
IORQ
RD
WR
M1
RFSH
D0Ø-D07
V BLANK SHT. 2
IOM
5M
BNT Ø
BNT 1
BANK2
BANK3
BANK4
BANK5
BANK6
BANK7
M1 THRU H8 SHT. 3,5
V0 THRU V7 SHT. 3,5
HØ, H1 SHT. 4,5
IC77-10 SRLD
V BUS SHT. 2
IC77-1B SHT. 2
SHT. 3,4
SHT. 4,5
SHT. 6
SHT. 3,5
SHT. 3
SHT. 2
SHT. 5
SHT. 4
SHT. 3
(FIX PAGE)
(8255)
(8255)
(8278)
(CONT. RAM)
(INPUT)
(SCRATCH)
PARTS LIST
QTY REQD | CODE IDENT | PART OR IDENTIFYING NO. | NOMENCLATURE OR DESCRIPTION | ITEM NO.
UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES
TOLERANCES ARE:
FRACTIONS ± | DECIMALS .XX ± .XXX ± | ANGLES ±
MATERIAL
FINISH
NEXT ASSY | USED ON
APPLICATION
DO NOT SCALE DRAWING
CONTRACT NO.
APPROVALS | DATE
DRAWN TED DYNA-PAC
CHECKED
MECH
ELEC
MFG
PROJECT
Gremlin/SEGA
CPU Board
SIZE D | CODE IDENT NO. | DRAWING NO. 834-5120 | REV
SCALE NONE | SHEET 1 OF 6

REVISIONS				
ZONE	LTR	DESCRIPTION	DATE	APPROVED

SHT 1 V0-V7

W/WR IC33-9
W/CL IC31-4
W/SEL IC76-9
SHT 1
V BLANK IC31-11
1-LINE SHT. 3
VBLANK SHT. 3
CMP SYC SHT. 6
BLANK SHT. 3
1-LINE SHT. 3
BLANK SHT. 6
HBB
H SYNC
V SYNC
WORN SHT 3

IC78 82S141
IC77 LS174
IC52
IC51
LS161 OR LS163
IC47 LS00
IC37 LS04
IC48 LS20
IC49 LS109
IC32 LS04
IC48 LS20
IC33 LS32
IC32 LS04
IC105 LS86
IC105 LS86
R3 2.2K

SHT 1 H0-H8
SHT 1 5M
IC28 S04
IC87
IC104
LS161 OR LS163

IC10 82S141
IC11 LS151
SHT 3 AL0-AL7
SHT 3 R56-R012

QTY REQD	CODE IDENT	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	ITEM NO.

PARTS LIST

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES
TOLERANCES ARE:
FRACTIONS ± DECIMALS .XX ± .XXX ± ANGLES ±

MATERIAL —
FINISH —

NEXT ASSY | USED ON
APPLICATION

DO NOT SCALE DRAWING

CONTRACT NO.

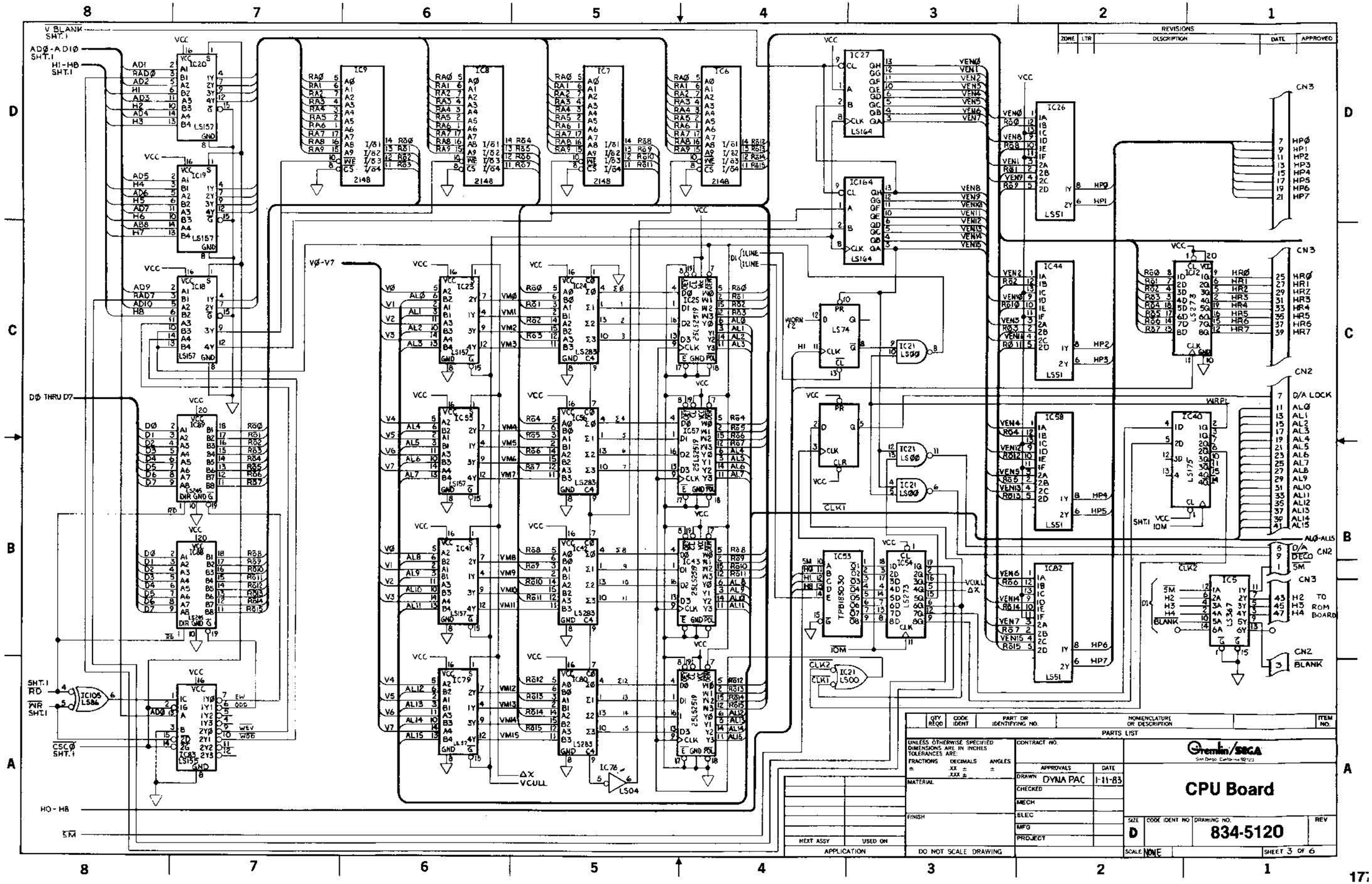
APPROVALS	DATE
DRAWN DYNA PAC ES	1-8-82
CHECKED	
MECH	
ELEC	
MFG	
PROJECT	

Gremlin/SEGA
San Diego, California 92121

CPU Board

SIZE	CODE IDENT NO.	DRAWING NO.	REV
D		834-5120	

SCALE NONE | SHEET 2 OF 6


V BLANK SHT.1
AD0-AD10 SHT.1
HI-HB SHT.1
D0 THRU D7
SHT.1 RD
WR SHT.1
CSC0 SHT.1
H0 - H8
5M
V0-V7
ΔX
VCULL
1LINE
1LINE
WORN
WRPL
CLK1
CLK2
IOM
CN3
CN2
HP0
HP1
HP2
HP3
HP4
HP5
HP6
HP7
HR0
HR1
HR2
HR3
HR4
HR5
HR6
HR7
D/A LOCK
AL0
AL1
AL2
AL3
AL4
AL5
AL6
AL7
AL8
AL9
AL10
AL11
AL12
AL13
AL14
AL15
D/A DECO CN2
5M
CN3
H2 TO ROM BOARD
H3
H4
CN2 BLANK
IC9
IC8
IC7
IC6
IC27
IC164
IC26
IC44
IC58
IC40
IC82
IC5
IC20
IC19
IC18
IC89
IC88
IC79
IC105
IC23
IC24
IC25
IC41
IC42
IC43
IC57
IC55
IC56
IC80
IC53
IC54
IC12
IC21
IC76
LS74
LS51
LS273
LS367
LS175
LS04
LS00
LS86
LS157
LS245
LS283
LS161
LS299
2148
TPB18S030
25LS2519
REVISIONS
ZONE | LTR | DESCRIPTION | DATE | APPROVED
PARTS LIST
QTY REQD | CODE IDENT | PART OR IDENTIFYING NO. | NOMENCLATURE OR DESCRIPTION | ITEM NO.
UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES
TOLERANCES ARE:
FRACTIONS ± DECIMALS .XX ± .XXX ± ANGLES ±
MATERIAL
FINISH
NEXT ASSY
USED ON
APPLICATION
DO NOT SCALE DRAWING
CONTRACT NO.
APPROVALS | DATE
DRAWN DYNA PAC | 1-11-83
CHECKED
MECH
ELEC
MFG
PROJECT
Gremlin/SEGA
CPU Board
SIZE D | CODE IDENT NO | DRAWING NO. 834-5120 | REV
SCALE NONE
SHEET 3 OF 6

CSF0 SHT. 1
RESET SHT 1
RD SHT. 1
WR SHT. 1
CSF8
CSC8

REVISIONS				
ZONE	LTR	DESCRIPTION	DATE	APPROVED

RA6 RA7 560Ω ARRAY
TLP521-4-A 4
RA3 RA4 4.7K ARRAY
VCC

ACC. HI
ACC. LO
DOWN
UP
LEFT
RIGHT
SHOOT
START
TEST
SERVICE
COIN
COIN

IC111 IC112 IC111 IC112 IC119 IC120 IC119 IC120 IC111 IC112 IC111 IC112 IC119 IC120 IC119 IC120

I00 I01 I02 I03 I04 I05 I06 I07 I10 I11 I13 I14 I15 I16 I17

I00 I01 I02 I03 I04 I05 I06 I07

I10 I11 I20 I21 I30 I31

I22 I32 I23 I33

I24 I34 I25 I35

I26 I36 I27 I37

LS253X4 IC114 1Y1 2Y1 D80 D81
IC113 1Y2 2Y2 D82 D83
IC122 1Y3 2Y3 D84 D85
IC121 1Y4 2Y4 D86 D87
ADØ ADI

ADØ THRU ADI SHT.1
DØ THRU D87 SHT.1
RESET
RD
WR
HI

8279-5 IC106
CSF8 RESET RD WR CLK
SLØ SL1 SL2 SL3
CS RESET RD WR
AØ DØ D1 D2 D3 D4 D5 D6 D7
BØ B1 B2 B3
AØ A1 A2 A3
BD

LS145X2 IC117 IC108 IC116 IC107
LS04 IC45
LS245 OR LS640X2
RBI BI/RB
220PX8 220PX7

DRIVEØ DRIVE1 DRIVE2 DRIVE3 DRIVE4 DRIVE5 DRIVE6 DRIVE7
DRIVE8 DRIVE9 DRIVE10 DRIVE11 DRIVE12 DRIVE13 DRIVE14 DRIVE15

40 PIN FLAT CABLE

DC 8V UNREG
222M FLT

8255A-5 IC115
CSØ SHT.1 RESET SHT.1 RD SHT.1 WR SHT.1
PAØ PA1 PA2 PA3 PA4 PA5 PA6 PA7 PBØ PB1 PB2 PB3 PB4 PB5 PB6 PB7
PCØ PC1 PC2 PC3 PC4 PC5 PC6 PC7
OBCHØ OBCH1 OBCH2 OBCH3 COM1 COM2 STLA NOUSE

FOR SOUND
20 PIN FLAT CABLE
SHT. 6 O 3

ULN2003A IC118
COM1 COM2 STLA NOUSE
1B 2B 3B 4B 5B 6B 7B
1C 2C 3C 4C 5C 6C 7C

5 COIN METER 1
E COIN METER 2
7 START LAMP
H BODY SONIC

QTY REQD	CODE IDENT	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	ITEM NO.

PARTS LIST

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES
TOLERANCES ARE:
FRACTIONS ± DECIMALS .XX ± .XXX ± ANGLES ±

MATERIAL
FINISH
NEXT ASSY | USED ON
APPLICATION
DO NOT SCALE DRAWING

CONTRACT NO.

APPROVALS	DATE
DRAWN DYNA-PAC	12-29-88
CHECKED	
MECH	
ELEC	
MFG	
PROJECT	

Gremlin/SEGA
San Diego California 92121

CPU Board

SIZE	CODE IDENT NO.	DRAWING NO.	REV
D		834-5120	

SCALE NONE SHEET 4 OF 6

REVISIONS				
ZONE	LTR	DESCRIPTION	DATE	APPROVED

NOTE:
1 CONNECTOR FOR UPRIGHT IS IDENTICAL EXCEPT FOR THE FOLLOWING:
A. PIN V – ACC LO
B. PIN W – ACC HI
C. PIN X – PLAYER1
D. PIN 18 – PLAYER2

QTY REQD	CODE IDENT	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	ITEM NO.

PARTS LIST

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES
TOLERANCES ARE:
FRACTIONS ± DECIMALS .XX ± .XXX ± ANGLES ±

MATERIAL

FINISH

NEXT ASSY | USED ON

APPLICATION

DO NOT SCALE DRAWING

CONTRACT NO.

APPROVALS	DATE
DRAWN DYNA PAC	12-28-82
CHECKED	
MECH	
ELEC	
MFG	
PROJECT	

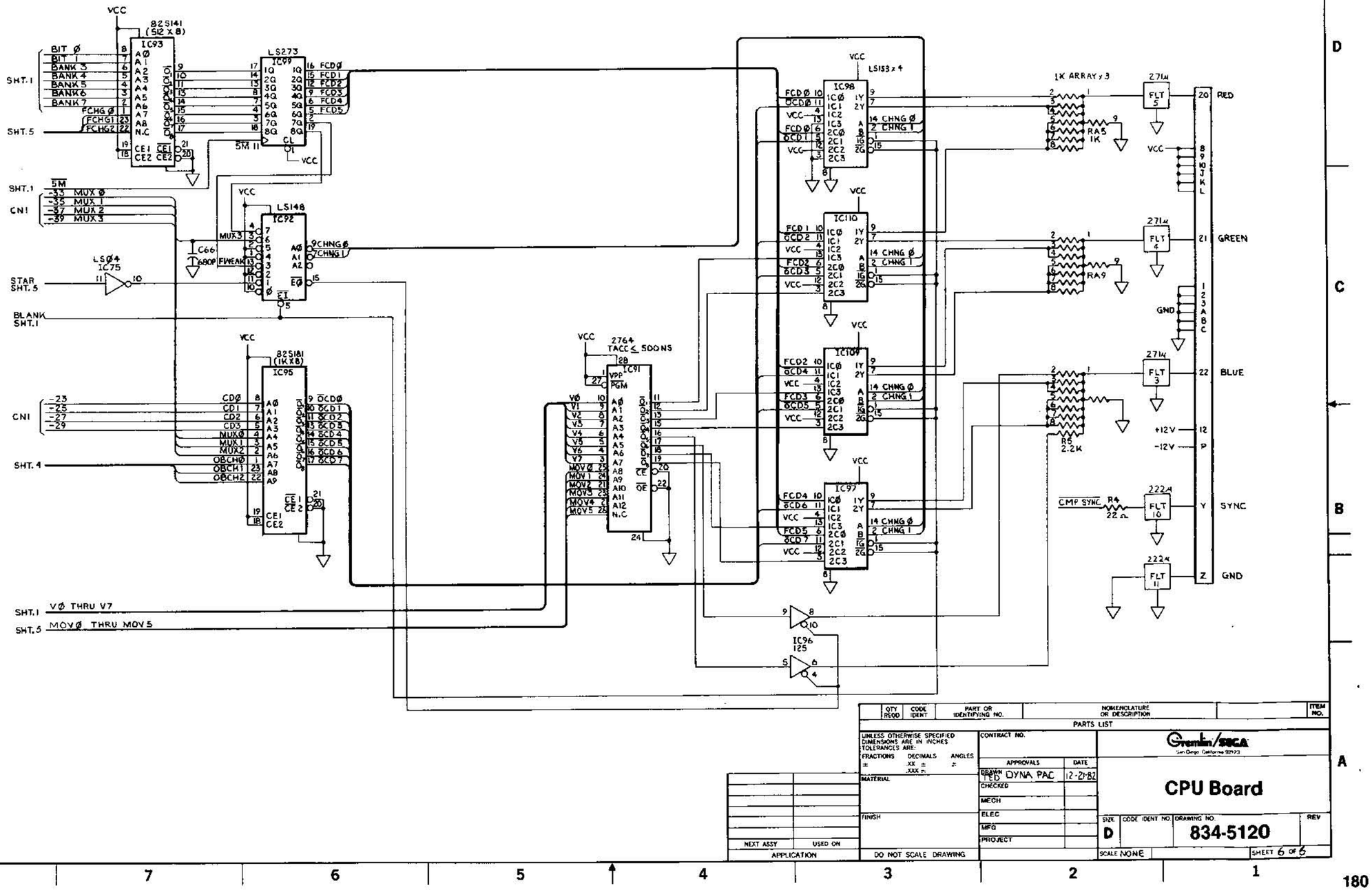
Gremlin/SEGA

CPU Board

SIZE	CODE IDENT NO.	DRAWING NO.	REV
D		834-5120	

SCALE NONE | SHEET 5 OF 6

REVISIONS				
ZONE	LTR	DESCRIPTION	DATE	APPROVED



QTY REQD	CODE IDENT	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	ITEM NO.

PARTS LIST

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES
TOLERANCES ARE:
FRACTIONS ± DECIMALS .XX ± .XXX ± ANGLES ±

MATERIAL

FINISH

NEXT ASSY | USED ON

APPLICATION

DO NOT SCALE DRAWING

CONTRACT NO.

APPROVALS	DATE
DRAWN TED DYNA PAC	12-21-82
CHECKED	
MECH	
ELEC	
MFG	
PROJECT	

Gremlin/SEGA
San Diego California 92123

CPU Board

SIZE	CODE IDENT NO	DRAWING NO.	REV
D		834-5120	

SCALE NONE | SHEET 6 OF 6

REVISIONS				
ZONE	LTR	DESCRIPTION	DATE	APPROVED

MPC624 OR DAC08

TTL TO MOS DRIVER SN75365 x 2

BI-FET OP AMP TL084 (IC2, IC11)

LS626 x 4

CLKØ – CLK7 SHT. 3 THRU SHT. 10

CWEØ – CWE7 SHT. 3 THRU SHT. 10

ADLØ – ADL7 SHT 3 – SHT 10

HEAT SINK

QTY REQD	CODE IDENT	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	ITEM NO.

PARTS LIST

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES
TOLERANCES ARE:
FRACTIONS ± DECIMALS .XX ± .XXX ± ANGLES ±

MATERIAL

FINISH

DO NOT SCALE DRAWING

CONTRACT NO.

APPROVALS	DATE
DRAWN TED DYNA-PAC	12-13-82
CHECKED	
MECH	
ELEC	
MFG	
PROJECT	

NEXT ASSY | USED ON

APPLICATION

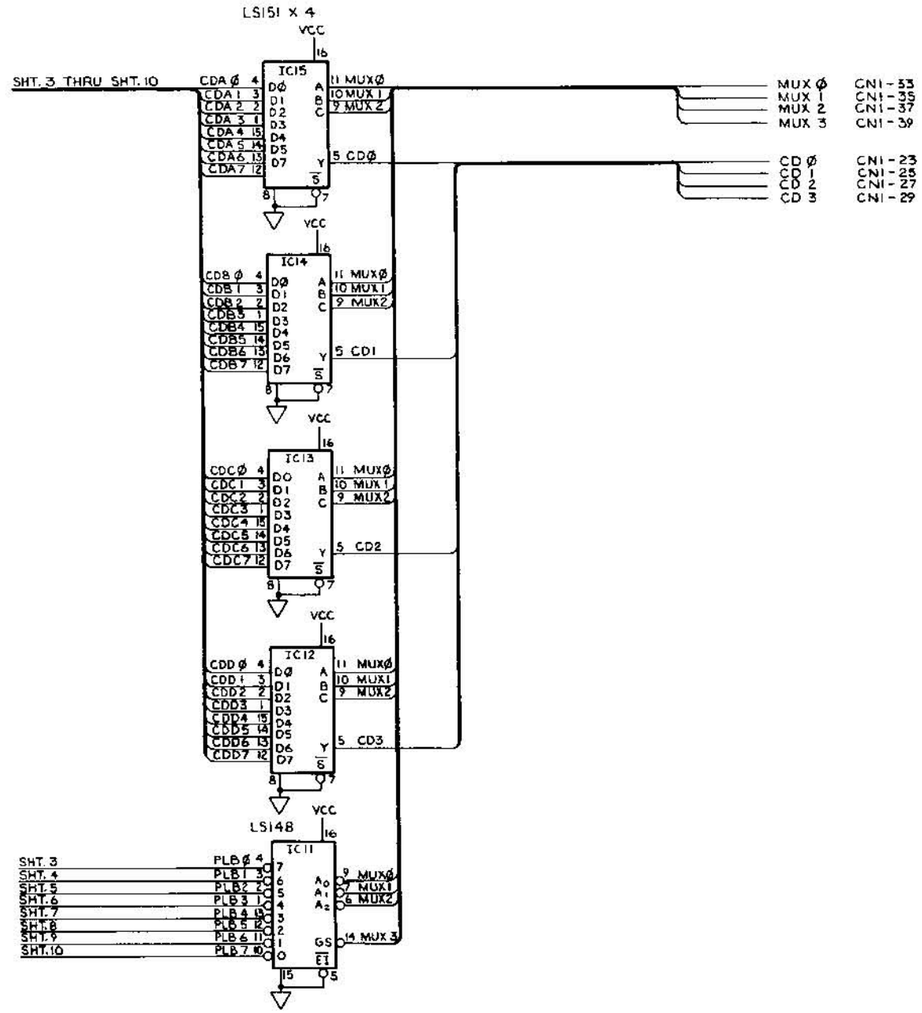
Gremlin/SIGA
San Diego, California 92123

EPROM Board

SIZE	CODE IDENT NO.	DRAWING NO.	REV
D		834-5121	

SCALE NONE SHEET 1 OF 10

REVISIONS				
ZONE	LTR	DESCRIPTION	DATE	APPROVED



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

NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES TOLERANCES ARE.
FRACTIONS ± DECIMALS .XX ± .XXX ± ANGLES ±

MATERIAL

FINISH

DO NOT SCALE DRAWING

CONTRACT NO.

APPROVALS	DATE
DRAWN TLD DYNA PAC	12-15-82
CHECKED	
MECH	
ELEC	
MFG	
PROJECT	

Gremlin/SEGA
San Diego, California 92121

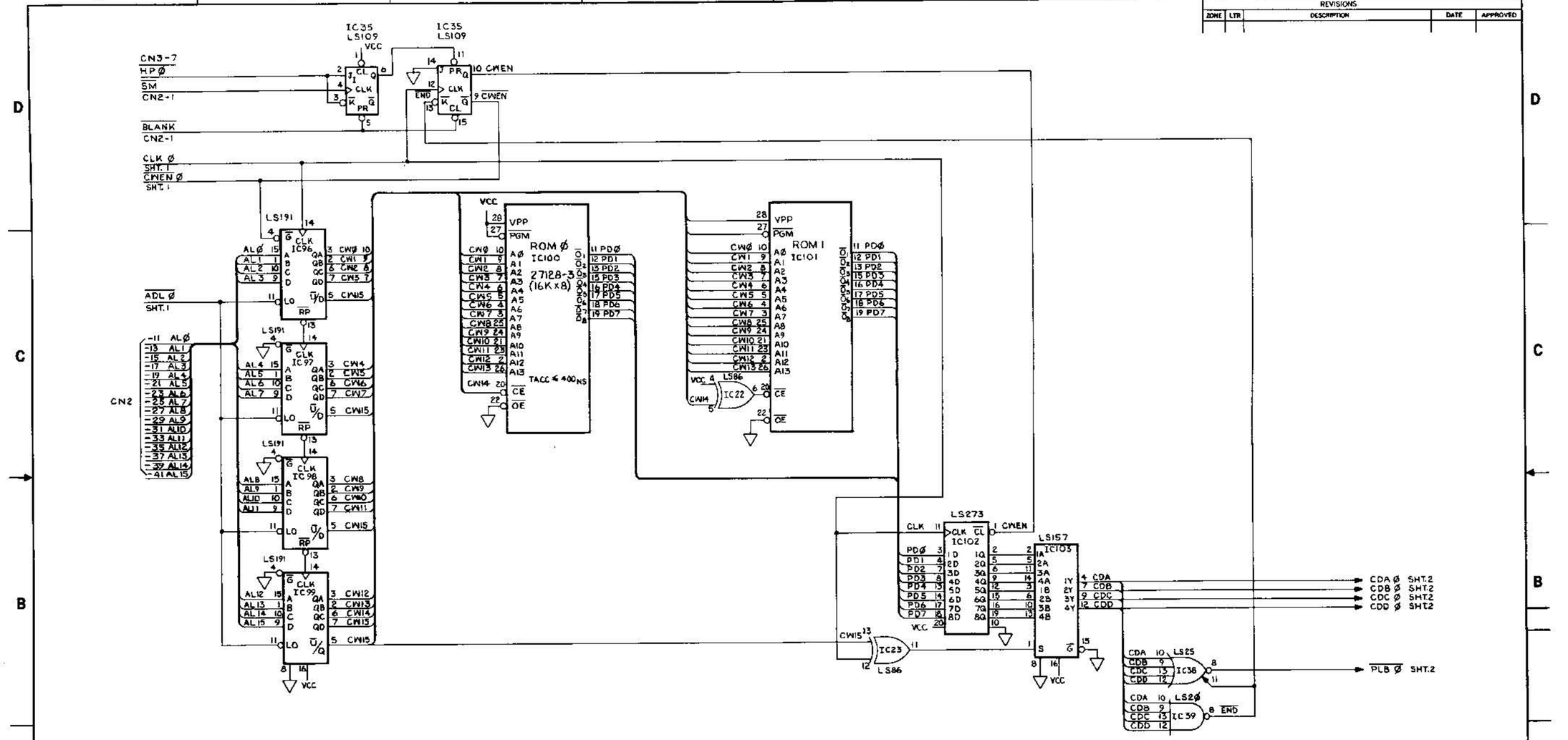
EPROM Board

SIZE	CODE IDENT NO.	DRAWING NO.	REV
D		834-5121	

SCALE NONE | SHEET 2 OF 10

182

REVISIONS				
ZONE	LTR	DESCRIPTION	DATE	APPROVED



LEVEL Ø

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

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES
TOLERANCES ARE:
FRACTIONS ± DECIMALS .XX ± .XXX ± ANGLES ±

MATERIAL

FINISH

DO NOT SCALE DRAWING

CONTRACT NO.

APPROVALS	DATE
DRAWN TED DYNA-PAC	12-8-82
CHECKED	
MECH	
ELEC	
MFG	
PROJECT	

NEXT ASSY | USED ON
APPLICATION

Gremlin/SEGA
San Diego, California 92123

EPROM Board

SIZE	CODE IDENT NO.	DRAWING NO	REV
D		834-5121	

SCALE | SHEET 3 OF 10

REVISIONS				
ZONE	LTR	DESCRIPTION	DATE	APPROVED

LEVEL 1

QTY REQD	CODE IDENT	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	ITEM NO.

PARTS LIST

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES
TOLERANCES ARE
FRACTIONS ± DECIMALS XX ± XXX ± ANGLES ±

MATERIAL

FINISH

NEXT ASSY | USED ON

APPLICATION

DO NOT SCALE DRAWING

CONTRACT NO.

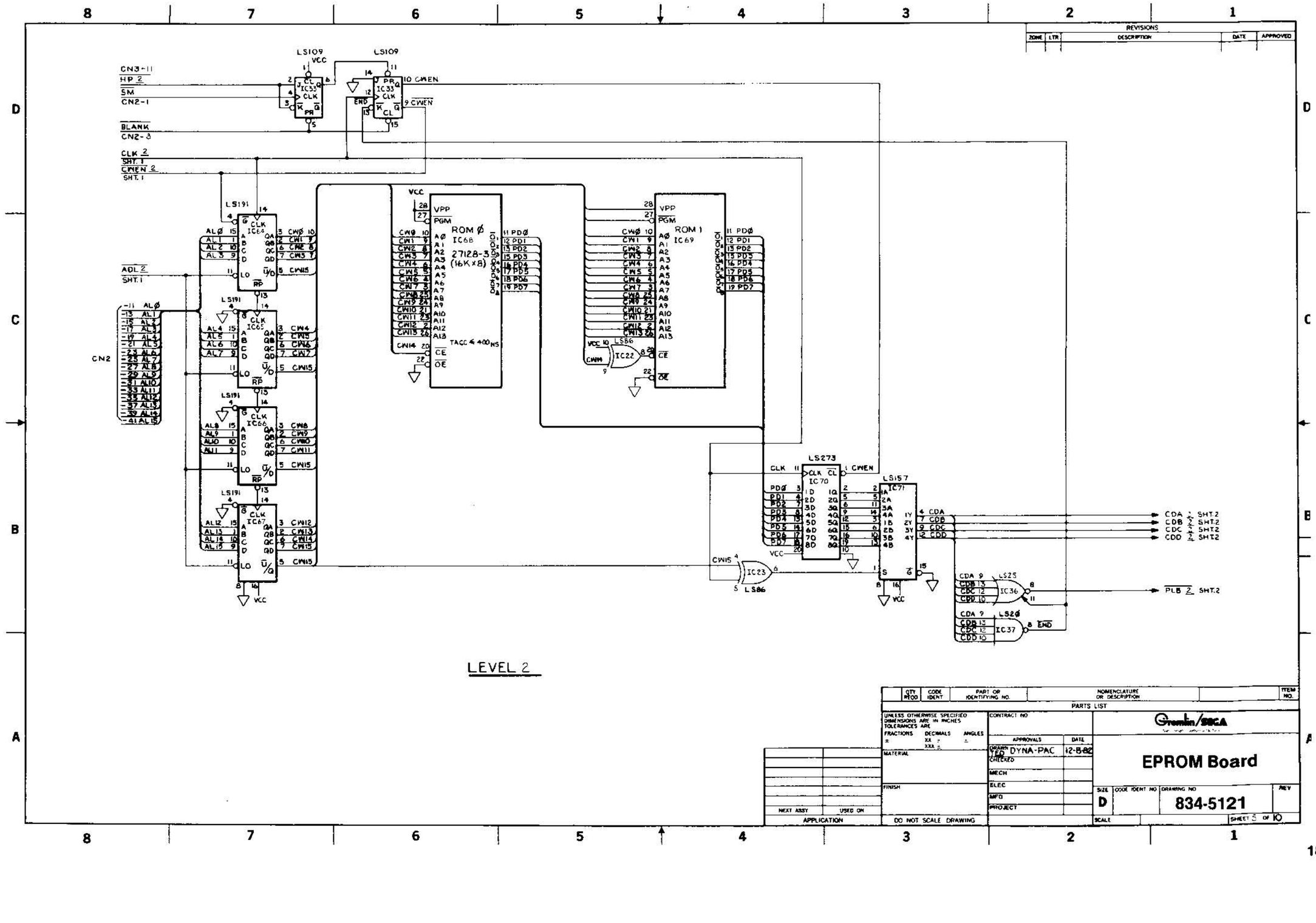
APPROVALS	DATE
DRAWN TED DYNA-PAC	12-8-82
CHECKED	
MECH	
ELEC	
MFG	
PROJECT	

Grantin/SOCA

EPROM Board

SIZE	CODE IDENT NO	DRAWING NO.	REV
D		834-5121	

SCALE | SHEET 4 OF 10


REVISIONS
ZONE | LTR | DESCRIPTION | DATE | APPROVED
LS109
LS109
VCC
CN3-11
HP 2
SM
CN2-1
BLANK
CN2-3
CLK 2
SHT. 1
CMEN 2
SHT. 1
LS191
ADL 2
SHT. 1
CN2
ROM Ø
IC68
27128-3
(16K x 8)
TACC ≤ 400 NS
ROM 1
IC69
LS86
IC22
LS273
IC 70
LS157
IC71
IC23
LS86
LS25
IC36
LS20
IC37
CDA 2 SHT.2
CDB 2 SHT.2
CDC 2 SHT.2
CDD 2 SHT.2
PLB 2 SHT.2
LEVEL 2
PARTS LIST
QTY REQD | CODE IDENT | PART OR IDENTIFYING NO. | NOMENCLATURE OR DESCRIPTION | ITEM NO.
UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES
TOLERANCES ARE
FRACTIONS ± DECIMALS XX ± XXX ± ANGLES ±
MATERIAL
FINISH
NEXT ASSY | USED ON
APPLICATION
DO NOT SCALE DRAWING
CONTRACT NO
APPROVALS | DATE
DRAWN TED DYNA-PAC 12-8-82
CHECKED
MECH
ELEC
MFG
PROJECT
Franklin/SBCA
EPROM Board
SIZE D | CODE IDENT NO | DRAWING NO 834-5121 | REV
SCALE | SHEET 5 OF 10

REVISIONS				
ZONE	LTR	DESCRIPTION	DATE	APPROVED

LEVEL 3

QTY REQD	CODE IDENT	PART OR IDENTIFYING NO	NOMENCLATURE OR DESCRIPTION	ITEM NO.

PARTS LIST

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES
TOLERANCES ARE
FRACTIONS ± DECIMALS .XX ± .XXX ± ANGLES ±

MATERIAL

FINISH

NEXT ASSY | USED ON

APPLICATION

DO NOT SCALE DRAWING

CONTRACT NO

APPROVALS	DATE
DRAWN TED DYNA-PAC	12-8-82
CHECKED	
MECH	
ELEC	
MFG	
PROJECT	

Gremlin/SEGA

EPROM Board

SIZE	CODE IDENT NO	DRAWING NO	REV
D		834-5121	

SCALE | SHEET 6 OF 10

REVISIONS				
ZONE	LTR	DESCRIPTION	DATE	APPROVED

LEVEL 4

QTY REQD	CODE IDENT	PART OR IDENTIFYING NO	NOMENCLATURE OR DESCRIPTION	ITEM NO.

PARTS LIST

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES
TOLERANCES ARE:
FRACTIONS ± | DECIMALS .XX ± .XXX ± | ANGLES ±

MATERIAL

FINISH

DO NOT SCALE DRAWING

CONTRACT NO.

APPROVALS	DATE
DRAWN TED DYNA-PAC	12-8-82
CHECKED	
MECH	
ELEC	
MFG	
PROJECT	

NEXT ASSY | USED ON
APPLICATION

Franklin/BOCA

EPROM Board

SIZE	CODE IDENT NO.	DRAWING NO.	REV
D		834-5121	

SCALE | SHEET 7 OF 10

REVISIONS				
ZONE	LTR	DESCRIPTION	DATE	APPROVED

LEVEL 5

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

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES
TOLERANCES ARE:
FRACTIONS ± DECIMALS .XX ± .XXX ± ANGLES ±

MATERIAL

FINISH

NEXT ASSY | USED ON

APPLICATION

DO NOT SCALE DRAWING

CONTRACT NO.

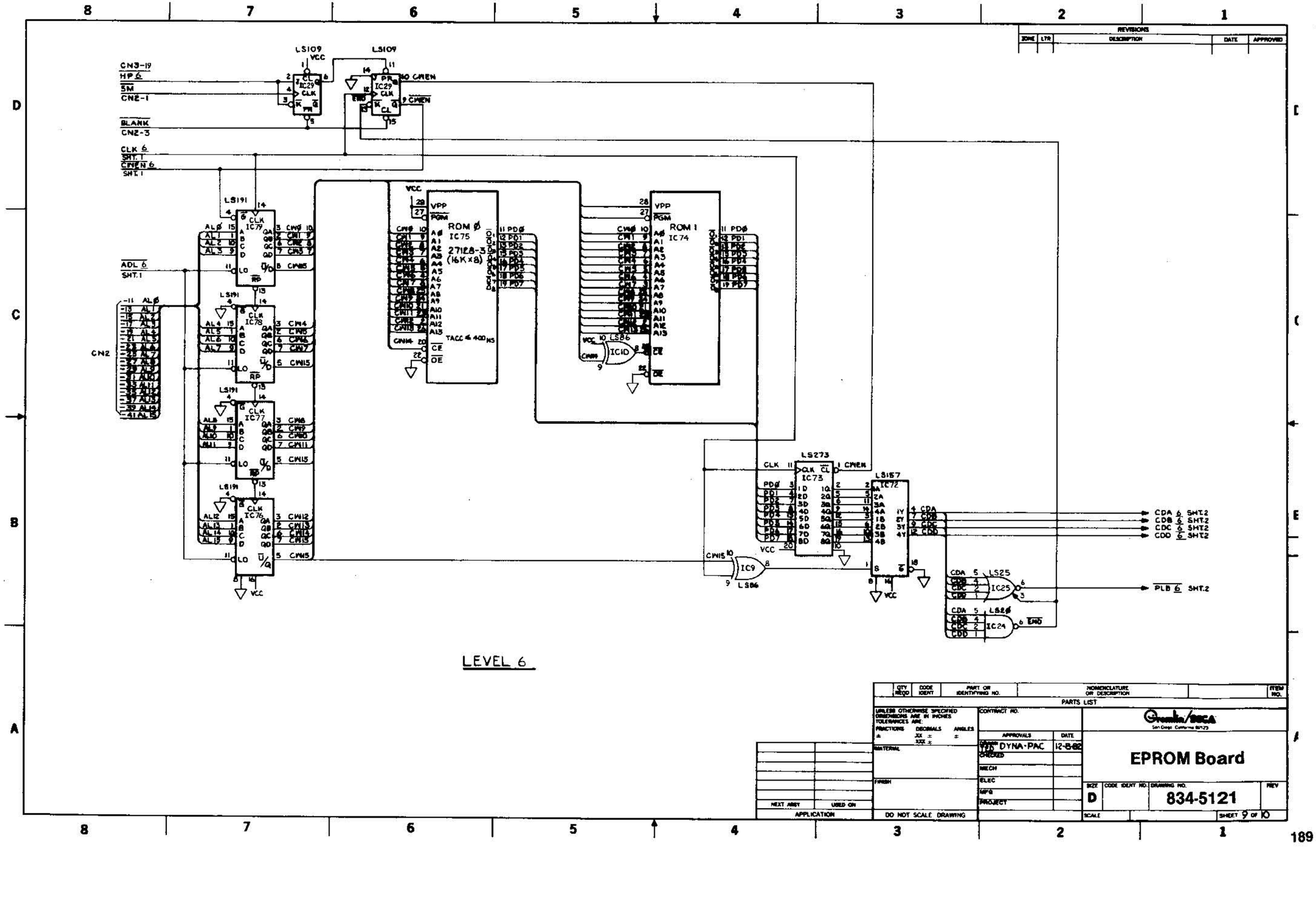
APPROVALS	DATE
DRAWN YLD DYNA-PAC	12-8-82
CHECKED	
MECH	
ELEC	
MFG	
PROJECT	

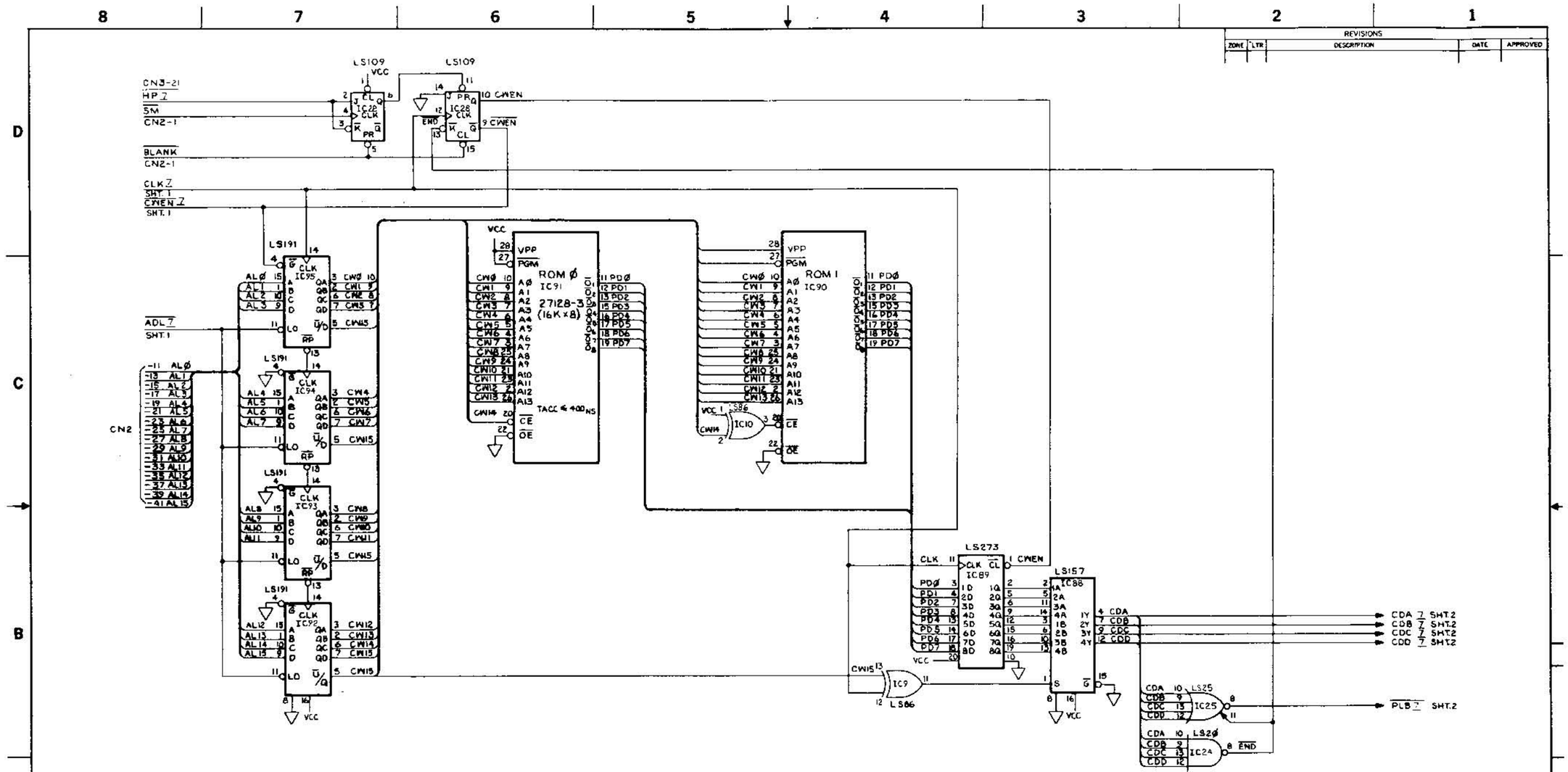
Franklin/SSCA

EPROM Board

SIZE	CODE IDENT NO.	DRAWING NO.	REV
D		834-5121	

SCALE | SHEET 8 OF 10


LS109
LS109
VCC
CN3-19
HP 6
SM
CN2-1
BLANK
CN2-3
CLK 6
SHT.1
CMEN 6
SHT.1
CMEN
LS191
ADL 6
SHT.1
CN2
ROM Ø
IC75
2712B-3
(16K x 8)
TACC ≤ 400 NS
ROM 1
IC74
LS86
IC10
LS273
IC73
LS157
IC72
IC9
LS25
IC25
LS08
IC24
CDA 6 SHT.2
CDB 6 SHT.2
CDC 6 SHT.2
CDD 6 SHT.2
PLB 6 SHT.2
LEVEL 6
REVISIONS
ZONE
LTR
DESCRIPTION
DATE
APPROVED
PARTS LIST
QTY REQD
CODE IDENT
PART OR IDENTIFYING NO.
NOMENCLATURE OR DESCRIPTION
ITEM NO.
UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES
TOLERANCES ARE:
FRACTIONS
DECIMALS
ANGLES
CONTRACT NO.
APPROVALS
DATE
DRAWN DYNA-PAC
12-8-82
CHECKED
MECH
ELEC
MFG
PROJECT
MATERIAL
FINISH
DO NOT SCALE DRAWING
NEXT ASSY
USED ON
APPLICATION
Grumman/BOCA
EPROM Board
SIZE
D
CODE IDENT NO.
DRAWING NO.
834-5121
REV
SCALE
SHEET 9 OF 10


LS109
LS109
VCC
CN3-21
HP 7
5M
CN2-1
BLANK
CN2-1
CLK 7
SHT. 1
CWEN 7
SHT. 1
10 CWEN
9 CWEN
END
LS191
ADL 7
SHT. 1
CN2
ROM Ø
IC91
27128-3
(16K x 8)
TACC ≤ 400NS
ROM 1
IC90
LS86
IC10
LS273
IC89
LS157
IC88
IC9
LS25
IC25
LS20
IC24
CDA 7 SHT.2
CDB 7 SHT.2
CDC 7 SHT.2
CDD 7 SHT.2
PLB 7 SHT.2
LEVEL 7
REVISIONS
ZONE
LTR
DESCRIPTION
DATE
APPROVED
PARTS LIST
QTY REQD
CODE IDENT
PART OR IDENTIFYING NO.
NOMENCLATURE OR DESCRIPTION
ITEM NO.
UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES TOLERANCES ARE
FRACTIONS
DECIMALS
ANGLES
CONTRACT NO.
APPROVALS
DATE
DRAWN YED DYNA-PAC 12-8-82
CHECKED
MECH
ELEC
MFG
PROJECT
MATERIAL
FINISH
NEXT ASSY
USED ON
APPLICATION
DO NOT SCALE DRAWING
Gremlin/SEGA
EPROM Board
SIZE D
CODE IDENT NO.
DRAWING NO 834-5121
REV
SCALE
SHEET 10 OF 10

REVISIONS				
ZONE	LTR	DESCRIPTION	DATE	APPROVED

FAP-20-07
20 P
FLAT CABLE

HIT DIS Ø
HIT DIS 1
HIT DIS 2
HIT (SHT. 2)

ACC Ø
ACC 1
ACC 2
ACC 3
MY SHIP (SHT. 1)

ALARM Ø
ALARM 1
ALARM 2
ALARM 3
FIRE
EXP
HIT
REBOUND
(SHT. 3)
(SHT. 2)

SHIP ON
GAME ON
(SHT. 1)

SHIP MIX (SHT 1)

MY SHIP (SHT. 1)
ACC Ø
ACC 1
ACC 2
ACC 3
SHIP ON (SHT. 1)
(SHT. 1) SHIP MIX
(SHT. 2) HIT MIX
(SHT. 3) FIRE MIX
(SHT. 2) EXP MIX
(SHT. 2) REBOUND MIX
(SHT. 3) ALARM MIX
(SHT. 1) GAME ON

SANYO POWER AMP LA 4460

QTY REQD	CODE IDENT	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	ITEM NO.

PARTS LIST

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES
TOLERANCES ARE:
FRACTIONS ± DECIMALS .XX ± .XXX ± ANGLES ±

MATERIAL

FINISH

NEXT ASSY | USED ON

APPLICATION

DO NOT SCALE DRAWING

CONTRACT NO.

APPROVALS	DATE
DRAWN DYNA-PAC	12-9-82
CHECKED	
MECH	
ELEC	
MFG	
PROJECT	

Gremlin/SEGA

Sound Board

SIZE	CODE IDENT NO.	DRAWING NO.	REV
D		834-5122	

SCALE ~ SHEET 1 OF 3

REVISIONS				
ZONE	LTR	DESCRIPTION	DATE	APPROVED

NOISE · B (SHT. 3)

HIT (SHT. 1)

HIT (SHT. 1) HIT DIS Ø, HIT DIS 1, HIT DIS 2

HIT MIX (SHT. 1)

(SHT. 3) NOISE · B

EXP (SHT. 1)

EXP. MIX (SHT. 1)

NOISE·A (SHT. 3)

REBOUND (SHT. 1)

REBOUND MIX (SHT. 1)

QTY REQD	CODE IDENT	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	ITEM NO.

PARTS LIST

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES
TOLERANCES ARE:
FRACTIONS ± DECIMALS .XX ± .XXX ± ANGLES ±

MATERIAL

FINISH

NEXT ASSY | USED ON

APPLICATION

DO NOT SCALE DRAWING

CONTRACT NO.

APPROVALS	DATE
DRAWN DYNA-PAC	12-15-82
CHECKED	
MECH	
ELEC	
MFG	
PROJECT	

Gremlin/SEGA

Sound Board

SIZE	CODE IDENT NO	DRAWING NO.	REV
D		834-5122	

SCALE ~ SHEET 2 OF 3

REVISIONS				
ZONE	LTR	DESCRIPTION	DATE	APPROVED

NOISE - A (SHT. 3)

FIRE (SHT. 1)

ALARM Ø (SHT. 1)

ALARM 1 (SHT. 1)

ALARM 2 (SHT. 1)

ALARM 3 (SHT. 1)

FIRE MIX (SHT. 1)

ALARM MIX (SHT. 1)

NOISE - A (SHT. 2 & 3)

NOISE - B (SHT. 2)

QTY REQD	CODE IDENT	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	ITEM NO.

PARTS LIST

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES
TOLERANCES ARE:
FRACTIONS ± DECIMALS .XX ± .XXX ± ANGLES ±

CONTRACT NO.

APPROVALS	DATE
DRAWN DYNA-PAC n.a.	12-16-82
CHECKED	
MECH	
ELEC	
MFG	
PROJECT	

MATERIAL

FINISH

NEXT ASSY | USED ON

APPLICATION

DO NOT SCALE DRAWING

Gremlin/SEGA

Sound Board

SIZE	CODE IDENT NO.	DRAWING NO.	REV
D		834-5122	

SCALE ~ SHEET 3 OF 3