Gottlieb's

GENIE



SOLID STATE

INSTRUCTION MANUAL



D. Gottlieb & Co.
A Columbia Pictures Industries Company
165 W. Lake Street - Northlake, Illinois 60164
Phone: 312/562-7400 Telex: 72-8463

Price

$3.00

GENIE

GAME PROM IS MARKED

"L"

INSERT GAME PROM WITH INDENT NOTCH UP

SEE SECTION IX FOR DISCUSSION OF PROM USED ON ELECTRONIC SOUND BOARD

I. INSTALLATION

To assemble the game, first bolt the legs to the cabinet. Place the lightbox atop the pedestal and inset the four #8 x ¾ hex-head screws into the back of the pedestal. Open the lightbox and bolt it to the cabinet. Connect all cables and gently but fully insert the connectors onto the printed circuit boards. Be sure to touch only the edges of the boards.

Inspecting the following items before plugging in the line cord may prevent future trouble:

1. Check that cables are clear of moving parts.
2. Look for any disconnected wires.
3. Check switches for loose solder or other foreign matter.
4. Check the soldering generally for cold joints.
5. Be certain all fuses are firmly seated.
6. Check the transformers for foreign matter across the terminals.
7. Be sure that the transformer wiring corresponds to the supply voltage.
8. Check the setting of the tilt switch on the underside of the playfield. One blade of this switch is free-floating with a weight on the end.

After levelling the machine, adjust the plumb-bob tilt (on left side of cabinet near front door) to the sensitivity desired.

II. GAME ADJUSTMENTS

A. Playfield Adjustments

Posts controlling access to the left and right outlanes can be adjusted. See page 8. The "conservative" (easier entry) position decreases playing time and scoring while the "liberal" position has the opposite effect.

The game is shipped with adjustable posts in the position found to be suitable for the greatest number of players. Therefore the posts should not be changed unless the need is clearly evident.

NOTE: TOUCHING THE STATIC-SENSITIVE MOS COMPONENTS ON THE CPU CONTROL BOARD CAN DAMAGE THEM, MAKING THE GAME INOPERATIVE AND INVALIDATING THE WARRANTY.

CAUTION: IF GAME WAS SUBJECTED TO EXTREME COLD, ALLOW GAME TO WARM UP TO ROOM TEMPERATURE BEFORE PLUGGING IN LINE CORD.

B. Lightbox Adjustments

There are 24 switches on the Control Board (A1) which permit adjustment of the game parameters. These switches are contained in three packages of eight switches each, as shown below.



WARNING: TURN OFF POWER BEFORE MAKING ADJUSTMENTS!

SWITCHES — COIN CHUTE ADJUSTMENTS

S1 S2 S3 S4 ..... #1 Coin Chute
S5 S6 S7 S8 ..... #2 Coin Chute

				Coins/Credits	
OFF	OFF	OFF	OFF	1/1	
OFF	OFF	OFF	ON	1/2	
OFF	OFF	ON	OFF	1/3	
OFF	OFF	ON	ON	1/4	
OFF	ON	OFF	OFF	1/5	
OFF	ON	OFF	ON	1/6	
OFF	ON	ON	OFF	1/7	
OFF	ON	ON	ON	1/8	
ON	OFF	OFF	OFF	1/9	
ON	OFF	OFF	ON	2/1	
ON	OFF	ON	OFF	2/2	
ON	OFF	ON	ON	2/3	Note 1
ON	ON	OFF	OFF	2/4	
ON	ON	OFF	ON	2/5	
ON	ON	ON	OFF	2/3	Note 2
ON	ON	ON	ON	3/1	Note 3

Note 1: No credits until second coin is deposited.

Note 2: First coin gives one credit. Second coin gives two credits provided that no score is made between first and second coin. If scoring occurred, second coin becomes a "first" coin, giving one credit.

Note 3: No credit until third coin is deposited.

SWITCH 9 — BALLS PER GAME
ON 3
OFF 5

SWITCH 10 — MATCH FEATURE
ON ..... IN
OFF ..... OUT

SWITCH 11 — (See Note A) — GAME MODE
ON ..... REPLAY
OFF ..... EXTRA BALL

SWITCH 12 — TILT EFFECT
ON ..... BALL IN PLAY ONLY
OFF ..... GAME OVER

SWITCH 13 — CREDITS DISPLAYED?
ON ..... YES
OFF ..... NO

SWITCH 14 — CREDIT BUTTON TUNE?
ON ..... YES
OFF ..... NO

SWITCH 15 — NOT USED — MAY BE ON OR OFF
SWITCH 16 — NOT USED — MAY BE ON OR OFF

SWITCHES — MAXIMUM CREDITS

17	18	
OFF	OFF	5
OFF	ON	8
ON	OFF	10
ON	ON	15

SWITCH 19 — (See Note B) — COIN CHUTE CONTROL
ON ..... CHUTES SAME
OFF ..... CHUTES SEPARATE

SWITCH 20 — TONES WHEN SCORING?
ON ..... YES
OFF ..... NO

SWITCH 21 — HIGH GAME TO DATE DISPLAYED?
ON ..... YES
OFF ..... NO

SWITCH 22 — BEATING HIGH GAME TO DATE AWARDS.
ON ..... 3 REPLAYS
OFF ..... NO REPLAYS

SWITCH 23 — COIN SWITCH TUNE?
ON ..... YES
OFF ..... NO

SWITCH 24 — NOT USED — MAY BE ON OR OFF

Note A: IF SWITCH 11 IS OFF, SWITCHES 10 AND 22 HAVE NO EFFECT; THE MATCH FEATURE IS DISABLED AND NO REPLAYS ARE AWARDED FOR BEATING HIGH GAME TO DATE.

Note B: WHEN SWITCH 19 IS ON, SWITCHES 5-8 HAVE NO EFFECT; SWITCHES 1-4 CONTROL BOTH COIN CHUTES.

III. GENIE

GAME FEATURES (5 BALL)

Completing the red drop targets lights the "Special" target, resets red and white drop targets, scores 5000 points and lights the white drop targets for increased scoring. Maximum one special per ball in play. Completing the white drop targets lights the right "Extra Ball" target, resets red and white drop targets, scores 5000 points and lights the white drop targets for increased scoring.

The A-B-C-D rollovers score 500 or 5000 points when lit. Completing A-B-C-D rollover sequence lights the left "Extra Ball" target. Hitting the left "Extra Ball" target when lit gives the player an extra ball and resets the A-B-C-D sequence.

NOTE: Maximum one extra ball per ball in play.

Hitting lit yellow drop target advances bonus multiplier. Completing yellow drop targets scores 5000 points and resets the yellow drop targets.

The rollover buttons and star pop bumpers score 200 points. The kickout hole scores 5000 and bonus value when lit.

FEATURE CHANGES FOR 3 BALL OPERATION ARE:

A-B-C-D rollovers score 2000 or 5000 points when lit.

Completing either red or white drop targets scores 10,000 points.

The rollover buttons and star pop bumpers score 2000 points. The kickout hole scores 10,000 and bonus value when lit.

IV. GAME OPERATION

With the line cord unplugged drop a coin into one of the chutes. It should be rejected. Plug the line cord *only* into a properly-grounded 3-wire receptacle of the correct voltage. Turn on the game by pressing the main switch located on the cabinet bottom near the front right corner.

After a five-second delay all score displays will light and read zeros. The credit display will show the number of credits remaining and the ball in play display will show "70." If the credits fail to light, turn off the game and inspect the normally closed switch on the ball-roll assembly and on the front door. Turn on the game; if the problem remains, refer to Section VI. (Troubleshooting).

Five seconds after the score displays light, they will flash "High Game to Date" score for one second. This cycle continues until the game is started. All playfield lights controlled by the micro-processor will be off.

Insert one or more coins and note that the correct number of credits are added on the credit display according to the information on the coin entrance plate. Press the credit button to reset the game; the ball should now be at the shooter. The first player score reads "0" and flashes, indicating that that player is now scoring. The other player displays are blank and a "1" appears on the ball-in-play display.

Additional players are indicated by a "0" showing in each corresponding player display. Thus if there are three players, a "0" will show in the first three player displays. After the fourth player has been added (or when the credit display reads "0"), the credit button has no effect.

The game features are described in Section III. When the ball enters the outhole, the bonus is scored, the ball is kicked to the shooter, and the display of the player now scoring begins to flash and continues to flash until a score is made. All playfield features reset after each ball. When the "Shoot Again" light is lit, neither the player designation (the flashing display) nor the ball-in-play display changes when the ball enters the outhole. Only one extra ball per ball in play can be given.

The number of balls per game is adjustable. When the last ball enters the outhole, the "Game Over" and "Number to Match"

lights come on. A random number appears in the ball-in-play display and if this number matches the last two digits in the player's score, a replay is added to the credit display. At this time a "High Game to Date" score is periodically flashed in all four player displays. When this score is achieved, three replays are given. This feature is adjustable.

Tilting the machine results in the loss of the ball in play or the entire game, depending upon the Tilt Reset adjustment. With this adjustment "on," the game comes on again when the ball enters the outhole, and play resumes. There is a normally-closed switch on the front door and one in the ball-roll assembly. If either of these switches opens from raising the front of the cabinet or pounding the front door, the entire game is ended. The "Game Over" light comes on and for three seconds the coin chute switches and replay button are inactive. This prevents accidental closing of these switches from residual vibration.

V. BOOKKEEPING FUNCTIONS AND SELF-TESTING

The circuitry in this game helps the operator perform many bookkeeping functions. The information is shown one step at a time on the first player score display while the step number is shown in the credit display. Pressing the button on the inside of the front door (the play/test button) begins the bookkeeping and advances it to the next step each time the button is pressed. If the button is not pressed within sixty seconds of each step, the machine returns to normal playing condition.

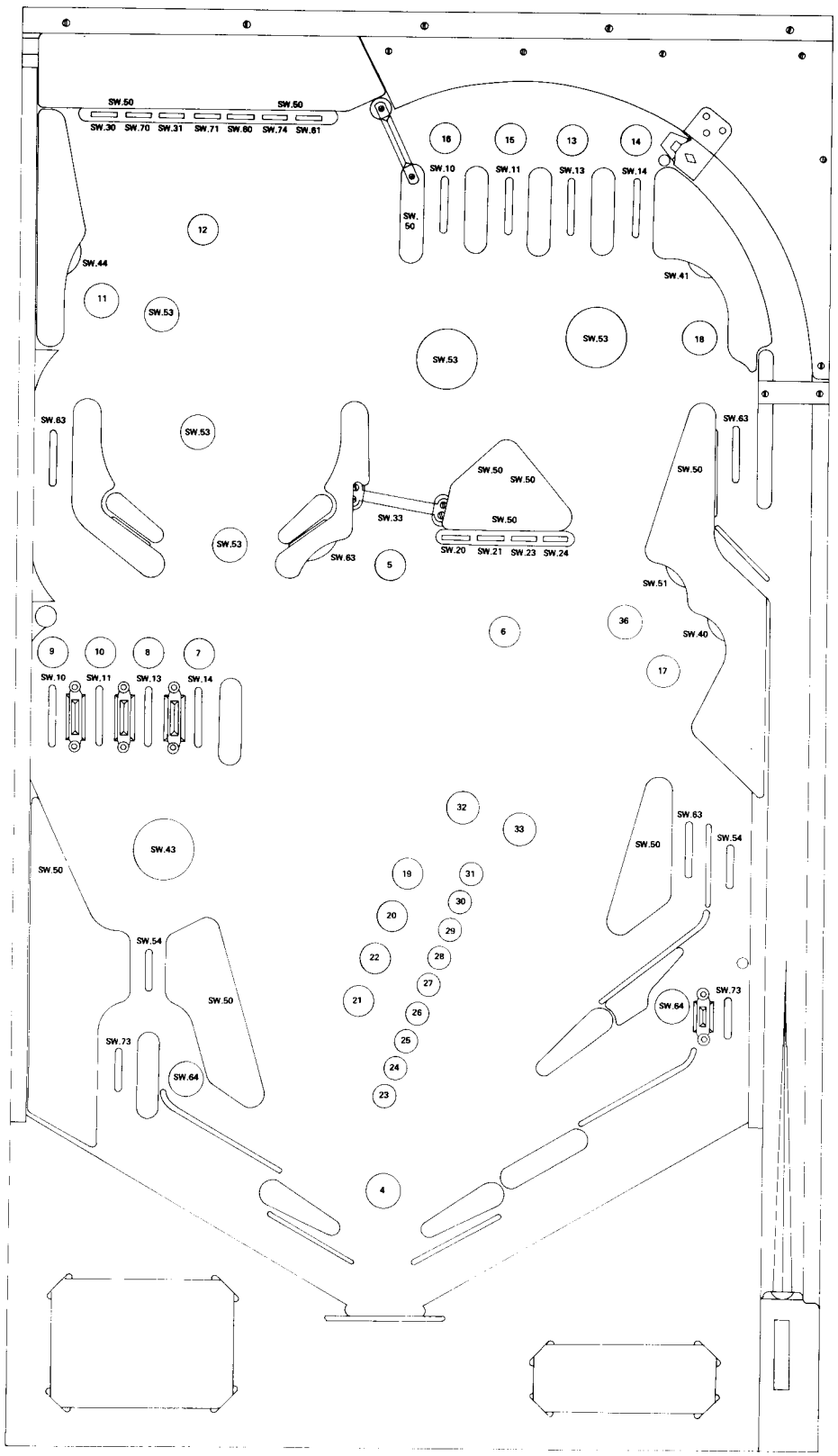
The data in any bookkeeping step may be reset to zero while it is displayed by pressing Switch Button #25 on A1, the CPU control board in the lightbox. Then the play/test button must be pressed to enter the zero.

NOTE:
RESET ALL DROP TARGETS BEFORE STARTING SELF/TEST.

STEP (Credit Display)	INFORMATION SHOWN (First Player Display)
0	Total coins through #1 coin chute (left chute).
1	Total coins through #2 coin chute.*
2	Total plays.
3	Total replays given.
4	Number of times anti-cheat switches on front door and on ball-roll assembly have opened.
5	Total extra balls.
6	Number of tilts.
7	First high score replay.
8	Second high score replay.
9	Third high score replay.
10	Current "High Game to Date" score.
11	Display test: All digits in first and third player displays step "0" through "9."**
12	Display test: All digits in second and fourth player displays step "0" through "9."**
13	Self-test: All CPU-controlled lights come on for five seconds. Each solenoid is energized one at a time. All closed switches noted by a code number in ball-in-play display.

*If chutes are adjusted to be the same, coins deposited in either chute add only to the #1 chute total.

**If button is not pressed within two 0-9 cycles, machine returns to normal playing condition.



SWITCH MATRIX AND LAMP LOCATION

SWITCHES ON MATRIX

SW. MATRIX NUMBER	SWITCH FUNCTION
SW.00	Test Button (On Front Door)
SW.01	#1 Coin Chute (On Front Door)
SW.02	#2 Coin Chute (On Front Door)
SW.03	Replay Button (On Front Door)
SW.04	Tilt Switches
SW.10	"A" Rollover (2)
SW.11	"B" Rollover (2)
SW.13	"C" Rollover (2)
SW.14	"D" Rollover (2)
SW.20	#1 Yellow Drop Target
SW.21	#2 Yellow Drop Target
SW.23	#3 Yellow Drop Target
SW.24	#4 Yellow Drop Target
SW.30	#1 Red Drop Target
SW.31	#3 Red Drop Target
SW.33	Spinning Target
SW.40	Special Target
SW.41	Hole Switch
SW.43	Bottom Pop Bumper
SW.44	Left Extra Ball Target
SW.50	10 Point Switches (10)
SW.51	Right Extra Ball Target
SW.53	Top Rollover Buttons & Pop Bumper
SW.54	3000 Points Rollover (2)
SW.60	#5 Red Drop Target
SW.61	#7 Red Drop Target
SW.63	500 and Add Bonus Target (1), and Rollovers (3)
SW.64	Bottom Rollover Buttons (2)
SW.70	#2 White Drop Target
SW.71	#4 White Drop Target
SW.73	Outside Rollovers (2)
SW.74	#6 White Drop Target

CPU CONTROLLED LAMPS

LAMP NUMBER	LAMP FUNCTION
1	Game Over Relay (Lamp in Lightbox)
2	Tilt Relay (Lamp in Lightbox)
3	High Game to Date (Lamp in Lightbox)
4	Same Player Shoots Again (Playfield & Lightbox)
5	Spin Target
6	Advance Multiplier
7	Bottom "D" Rollover
8	Bottom "C" Rollover
9	Bottom "A" Rollover
10	Bottom "B" Rollover
11	Left Extra Ball
12	5000 When Lit
13	Top "C" Rollover
14	Top "D" Rollover
15	Top "B" Rollover
16	Top "A" Rollover
17	Special
18	Collect Bonus When Lit
19	5X Bonus
20	4X Bonus
21	2X Bonus
22	3X Bonus
23	1000 Bonus
24	2000 Bonus
25	3000 Bonus
26	4000 Bonus
27	5000 Bonus
28	6000 Bonus
29	7000 Bonus
30	8000 Bonus
31	9000 Bonus
32	10,000 Bonus
33	20,000 Bonus
36	Right Extra Ball

TO CHANGE REPLAY SCORES OR "HIGH GAME TO DATE" SCORE:

1) Press the play/test button on the front door at one-second intervals to advance to step 7 (first high score replay).
2) Reset the display by pressing Switch Button #25 on A1, the CPU control board.
3) Press the replay button. This causes the display to advance by 10,000's. Hold in the replay button until the desired replay score is shown.
4) The new score is entered by advancing to the next function by pressing the play/test button.

To eliminate entirely one or more replay scores, set step 7, 8, or 9 at zero (as in #2 above), then press the play/test button to enter the value.

The switches and solenoides are checked in Step 13 in the order given in the following lists. A faulty solenoid or a closed switch that should be open will not stop the test sequence; the code number of the component will be shown in the ball-in-play display. The machine returns to the normal playing condition at the end of the test. It will do also if a tilt switch is closed, if an anti-cheat switch is opened, or if the power is interrupted.

SOLENOID NUMBER	SOLENOID
1	Outhole
2	Knocker
3	Tens
4	Hundreds
5	Thousands
6	Kickout Hole
7	Yellow Target Bank Reset
8	Red and White Target Bank Reset

VI. TROUBLE-SHOOTING GUIDE

Trouble-shooting the solid-state pinball game on location includes inspection and repair of the electro-mechanical devices and wiring, and inspection and replacement of printed circuit boards. Repair of printed circuit boards on location, while possible, is best done in a properly equipped shop.

Before replacing the control board (A1) or the driver board (A3), measure the voltages on the power supply (A2) after first disconnecting the two connectors A2J2 and A2J3. Before replacing any printed circuit board, check all connectors, crimp connections, and wire continuity.

WARNING! TURN OFF POWER BEFORE REMOVING ANY WIRE CONNECTORS OR REPLACING ANY PRINTED CIRCUIT BOARDS. ALL CONNECTORS MUST BE RECONNECTED BEFORE TURNING POWER ON AGAIN.

Basic game troubleshooting involves determing that the game powers up 5 seconds after power is turned on. If the 5 second delay does not occur, check the TILT and SLAM (anti-cheat) switches. Cycle the game through the self-test procedures described in SECTION V and observe any malfunctions. Detailed troubleshooting procedures and diagrams are in the Solid-State Pinball Game Service Manual.

VII. ROUTINE MAINTENANCE

After a successful completion of the self-test, check the playfield for dirt or particles. The playfield should be cleaned frequently with a non-abrasive wax-based cleaner. Any of the polishes made specifically for use on pinball machine playfields may be used. Make certain that kicker fulcrums and all pivot points receive a drop of fine oil. The pop bumper cup switches, the drop target shanks and the discs of Vari-targets should be lightly coated with White Lube, a special Gottlieb lubricant available at distributors.

When the playboard is clean and all components are working properly, start the game and try each feature. Make certain each rollover operates, that each pop bumper scores and kicks correctly and that in general everything works as it should. If an intermittent or dirty switch is found, clean the points by pressing them together with a piece of paper or a business card between them, moving the card back and forth.

WARNING: DO NOT FILE, BURNISH OR IN ANY WAY ABRADE GOLD-PLATED SWITCH CONTACTS.

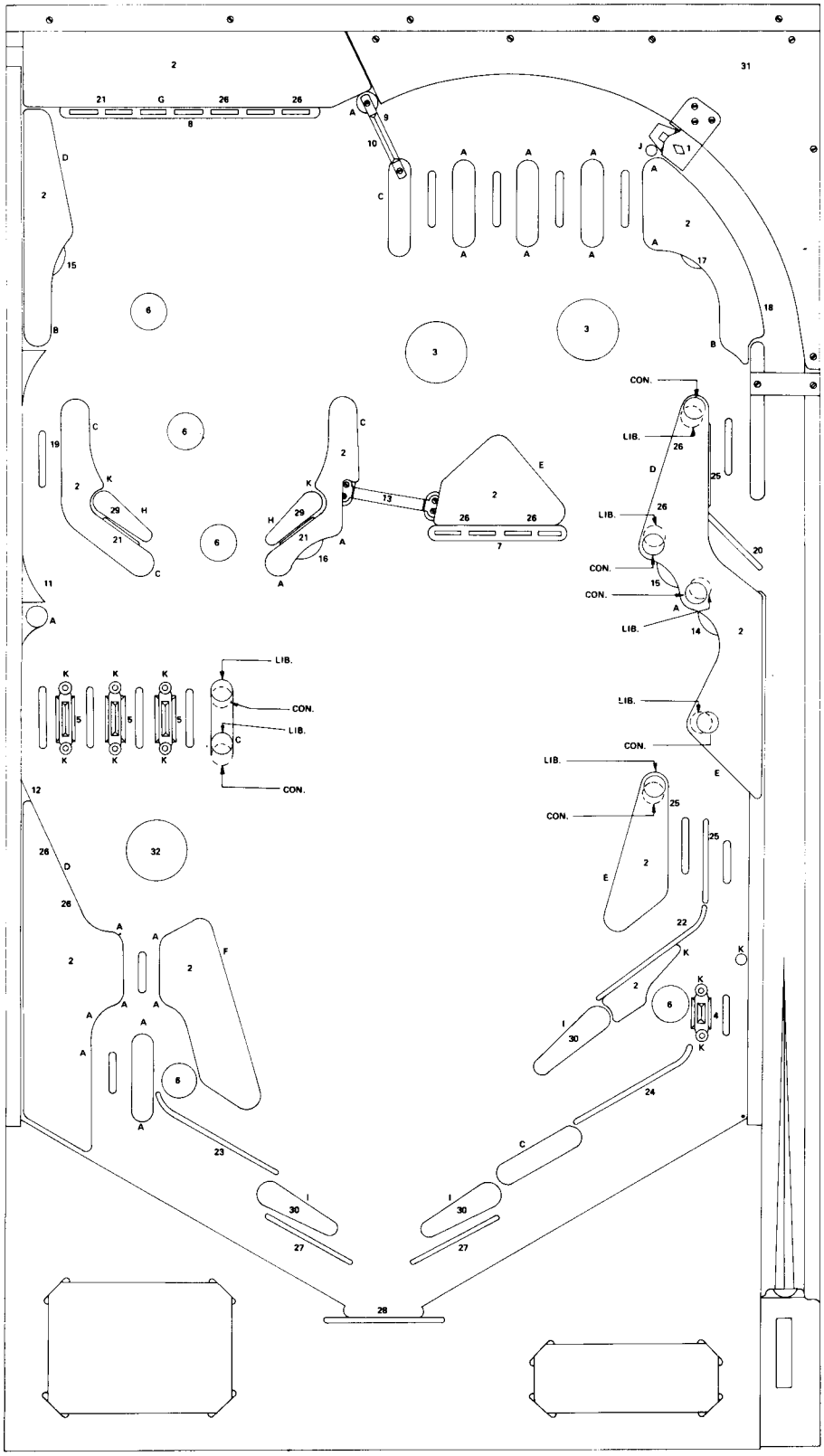
The only switches whose points may be burnished are the pop bumper cup switches, the rubber-actuated switches on kicking rubber units, and the flipper button switches.

VIII. SERVICE & PARTS

PARTS LIST

D-18780	Left Side Moulding
D-18781	Right Side Moulding
C-18782	Glass Channel
A-18785	Lower Hinge and Pin-Lightbox
D-18915	Cabinet (Less Trim & Hardware)
D-18923	Lightbox (Less Hardware)
D-18926	Lightbox Frame (Less Hardware)
A-18931	Glass Seal
D-18936	Lockdown Slide
C-18945	Ball Return Unit (Less Fences)
D-19017	Lockdown Moulding
B-19160	Flipper Switch Assembly
B-19161	Flipper Switch Assembly

NOTE: Genie Uses Prom Marked "L"



PLAYBOARD INFORMATION

RUBBER RINGS

A—A-10217	(21)
B—A-10219	(2)
C—A-10220	(6)
D—A-10221	(3)
E—A-10222	(3)
F—A-10223	(1)
G—A-10226	(1)
H—A-13149	(2)
I—A-13151	(3)
J—A-14793	(1)
K—A-15705	(12)

PARTS LIST

1. A-3290 Ball Gate.
2. C-19183 Plastic Shield Set.
3. Red Pop Bumper A-13905 & (2) A-15200 Cap in Red & Yellow.
4. C-15646 Red Rollover Guide.
5. C-15647 Yellow Rollover Guide. (3)
6. Rollover Button D-11968 & D-11966 Red Insert. (5)
7. 4 Pos. Drop Target Bank A-13179 in Black.
8. 7 Pos. Drop Target Bank A-15177 in White & Blue.
9. A-17300 Rollunder Gate Shield.
10. A-17299 Rollunder Gate Wire Form.
11. A-16452 Metal Flat Rail.
12. A-5337 Metal Flat Rail.
13. A-19477 Spinning Target.
14. A-9383 Target. (Switch B-18075)
15. A-17385 Purple Target. (2) (Switch B-18075)
16. A-14787 White Target. (Switch B-18075)
17. A-19099 Hole Guard.
18. A-5775 Ball Guide Rail.
19. A-4831 Ball Guide Rail.
20. A-3722 Ball Guide Rail.
21. A-6931 Ball Guide Rail. (3)
22. A-14505 Ball Guide Rail.
23. A-14568 Ball Guide Rail.
24. A-14571 Ball Guide Rail.
25. A-17106 Ball Guide Rail. (3)
26. A-18070 Ball Guide Rail. (8)
27. A-13798 Ball Snubber. (2)
28. C-18945 Ball Return Unit.
29. C-11241 Small Flipper. (2)
30. C-13150 Jumbo Flipper. (3)
31. D-18982 Top Arch "I"
32. Yellow Pop Bumper A-13905 & A-19479 Cap in Red

Clear Plastic Post 1" High.—(56)
Clear Plastic Post 1-3/16" High—(3)
C-17492 Siamese Post.—(2)

LIB. = LIBERAL.
CON. = CONSERVATIVE.

IX. ELECTRONIC SOUND

A. DESCRIPTION

The electronic sound circuitry produces tunes in response to the following conditions: TILT switch closure, coin switch closure, credit button closure, and GAME OVER. In addition, tones or sounds are produced by scoring switches and by carry generation from 10's to 100's and 100's to 1000's. Either tones or sounds are selectable with SWITCH S1.

An attract mode tune will play every six minutes when the game is idle, if SWITCH S2 is off.

All tunes, tones, and sounds will be generated sequentially when the TEST SWITCH, S3 is closed.

Volume is controlled by adjusting the potentiometer on the electronic sound circuit board.

The component location diagram indicates the location of all available adjustments (SECTION IX-E).

PROM U4 is programmed with specific sounds for each game and is marked with the same letter as the game PROM on the control board, plus the letters SND. PROM U4 must be inserted with the indent notch down.

B. TROUBLE SHOOTING

Press TEST SWITCH S3 to test the electronic sound circuitry.

Check voltages at points indicated on the schematic diagram.

Check that PROM U4 is installed properly. The sound circuitry will not operate without a PROM.

Check edge connector A7 for secure connection.

C. PARTS LIST AND CABLE CONNECTORS

CONNECTOR A7

PIN	WIRE COLOR	FUNCTION
1	—	Spare
2	—	Spare
3	077	Game Over thru A6-P5-Pin 13
4	244	100 Point
5	255	1000 Point
6	311	10 Point
7	177	Tilt thru A6-P5-Pin 14
8	066	Output
9	444	AC Input
10	411	AC Input
11	*54	Ground
12	—	Spare Ground

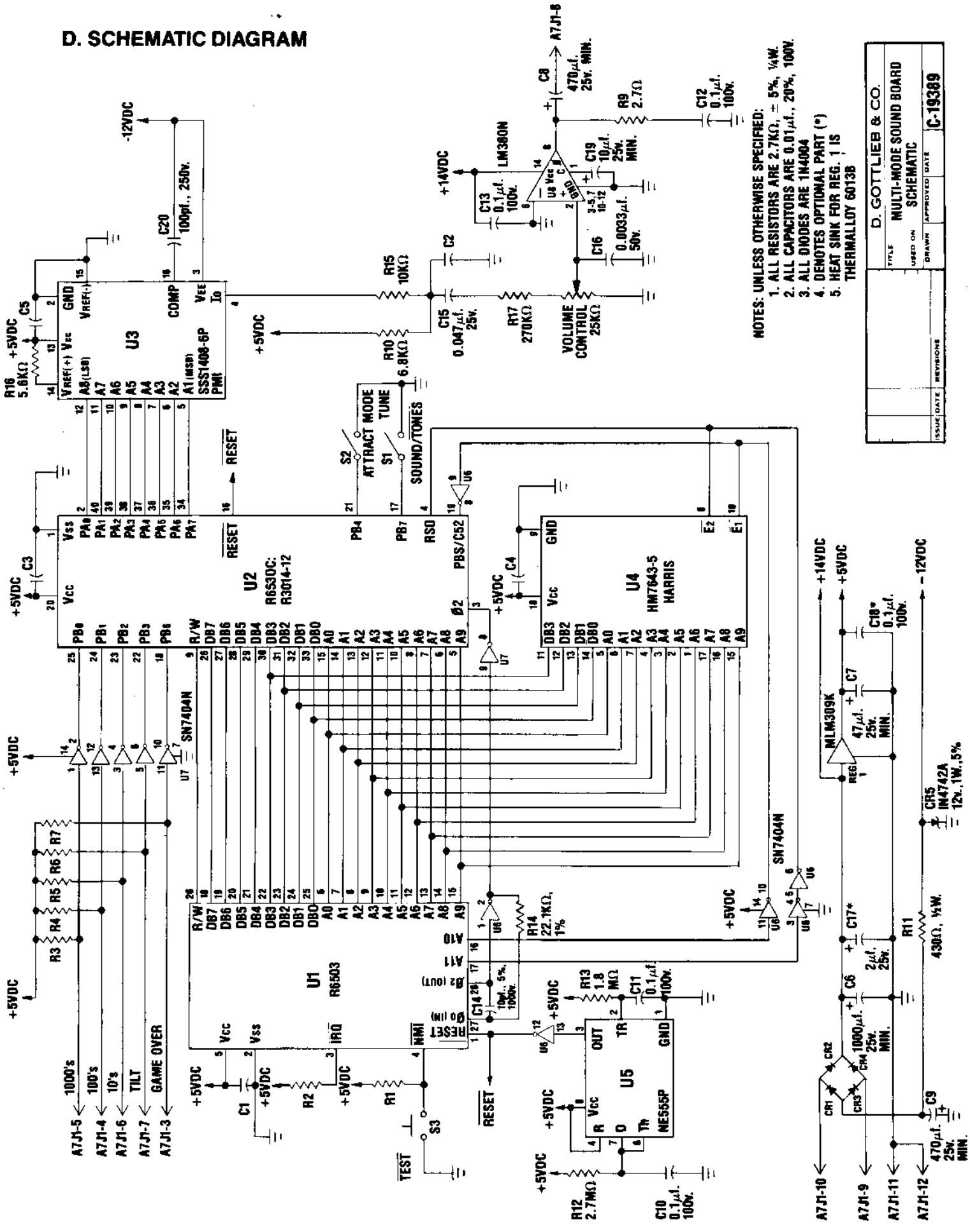
All wires #22 gauge unless specified *(18 gauge)

C. PARTS LIST AND CABLE CONNECTORS

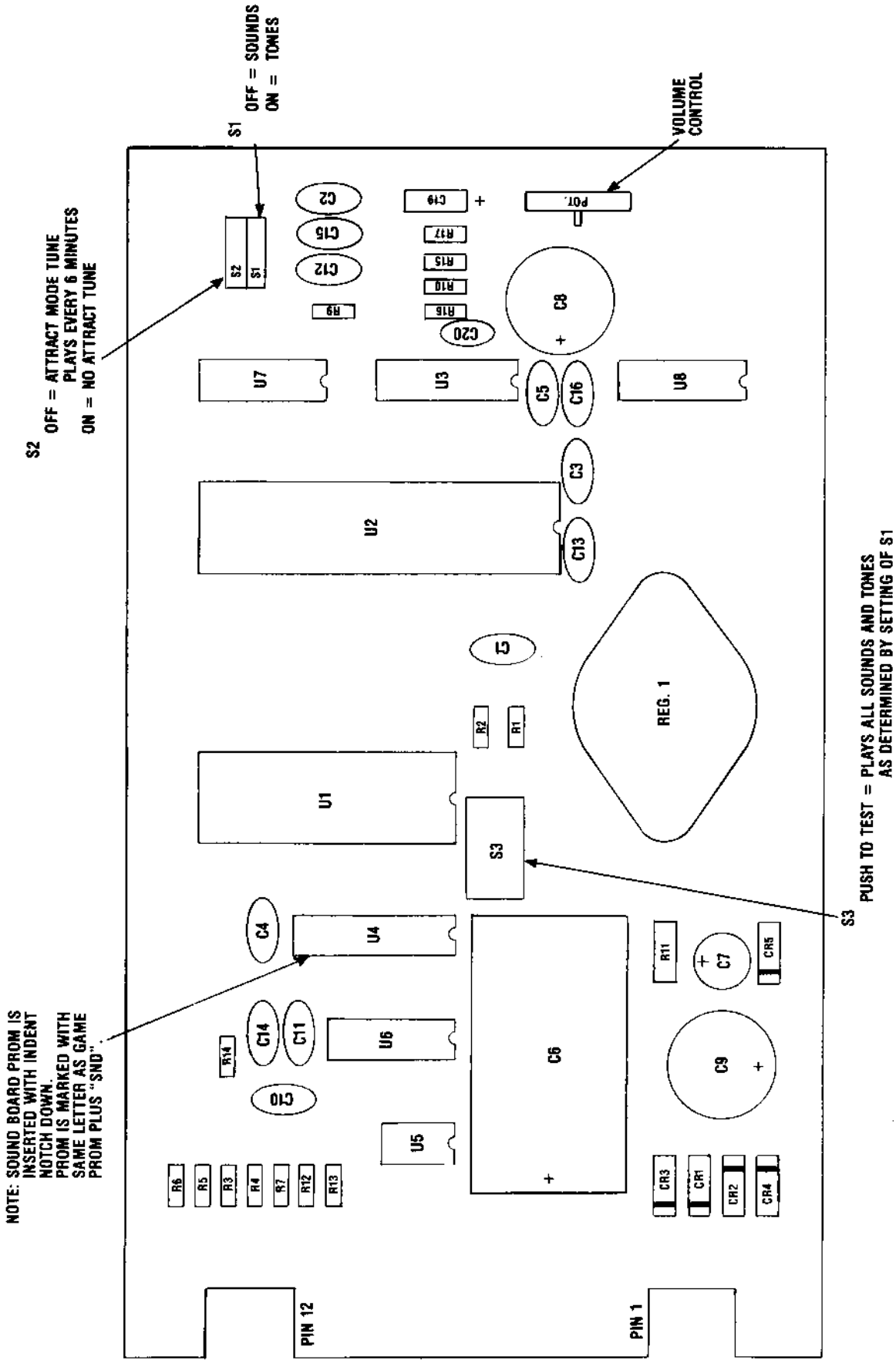
PARTS LIST

		RESISTORS
7		2.7K OHM, ¼W. 5% (R1-R7)
1		2.7 OHM, ¼W. 5% (R9)
1		6.8K OHM, ¼W. 5% (R10)
1		430 OHM, ½W. 5% (R11)
1		2.7M OHM, ¼W. 5% (R12)
1		1.8M OHM, ¼W. 5% (R13)
1		22.1K OHM, ¼W. 1% (R14)
1		10K OHM, ¼W. 5% (R15)
1		5.6K OHM, ¼W. 5% (R16)
1		270K OHM, ¼W. 5% (R17)
1	X201R 253B	25K OHM, ¼W. 10% Potentiometer (Pot. 1) CTS
		CAPACITORS
5	C320C103MIR5CA	0.01 MFD, 100 V. 20% (C1-C5) KEMET
1	501D108F025QS	1,000 MFD, 25V. Min. (C6) SPRAGUE
1	5030476F035NB	47 MFD, 25V. Min. (C7) SPRAGUE
2	503D477F035QE	470 MFD, 25V. Min. (C8-C9) SPRAGUE
4	C330C104MIR5CA	0.1 MFD, 100V. 20% (C10-C13) KEMET
1	561CC0GBD102AE100J	10 PFD, 1000V. 5% (C14) NPO Type SPRAGUE
1	563CY5SJA250AG473M	0.047 MFD, 25V. 20% (C15) SPRAGUE
1	562CX5EBA251AE101M	100 PFD, 250V. 20% (C20)
1		0.0033 MFD, 50V. 20% (C16) KCK
1	501D106F035LL	10 MFD, 25V. Min. (C19) SPRAGUE
		INTEGRATED CIRCUITS & SEMICONDUCTORS
1	R6503	CPU-(U1) ROCKWELL
1	R6530C: R3014-12	ROM/RAM/I/O—(U2) ROCKWELL
1	SSS1408-6P	DAC—(U3) PMI
1	HM7643-5	PROM—(U4) HARRIS
1	NE555P	Timer—(U5) T.I.
2	SN7404N	Inverter—(U6, U7) T.I.
1	LM380N	Amplifier—(U8) NATIONAL
4	1N4004	Diode (CR1-CR4)
1	1N4742A	12V., 1W. 5% Zener Diode (CR5)
1	MLM309K	5V. Regulator (Reg. 1) MOTOROLA
		MISCELLANEOUS
1	76SB02	2 Pos. Dip Sw. (S1, S2) GRAYHILL
1	EVQ-PAR-11K	Momentary Push Button Sw. (S3) PANASONIC
1	640359-1	Socket, 18 Pin (Prom Socket) AMP INC.
1	09-01-6121	12 Pin PCB Connector (A7-J1) MOLEX
1	#6013B	Heat Sink—THERMALLOY

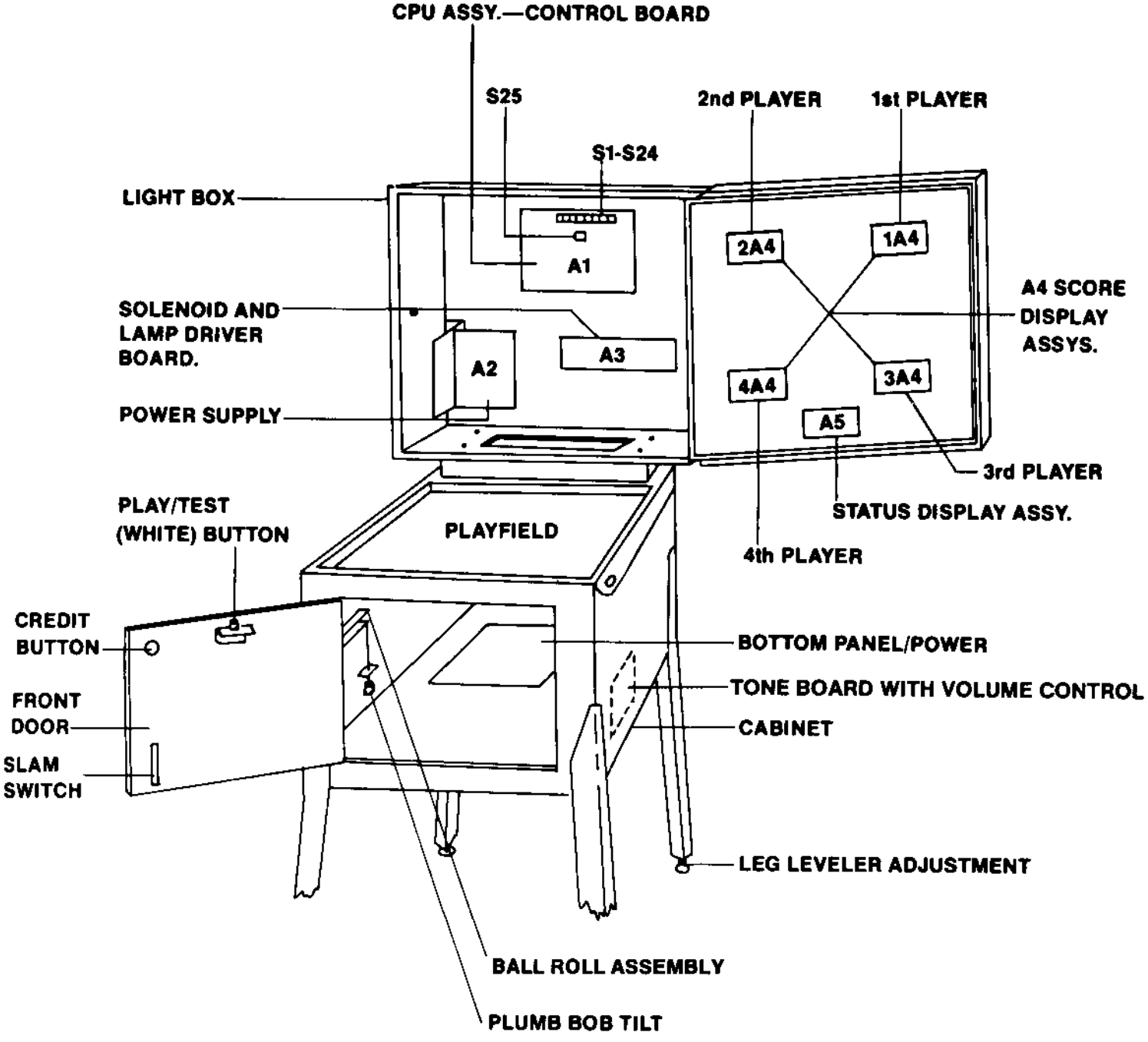
D. SCHEMATIC DIAGRAM

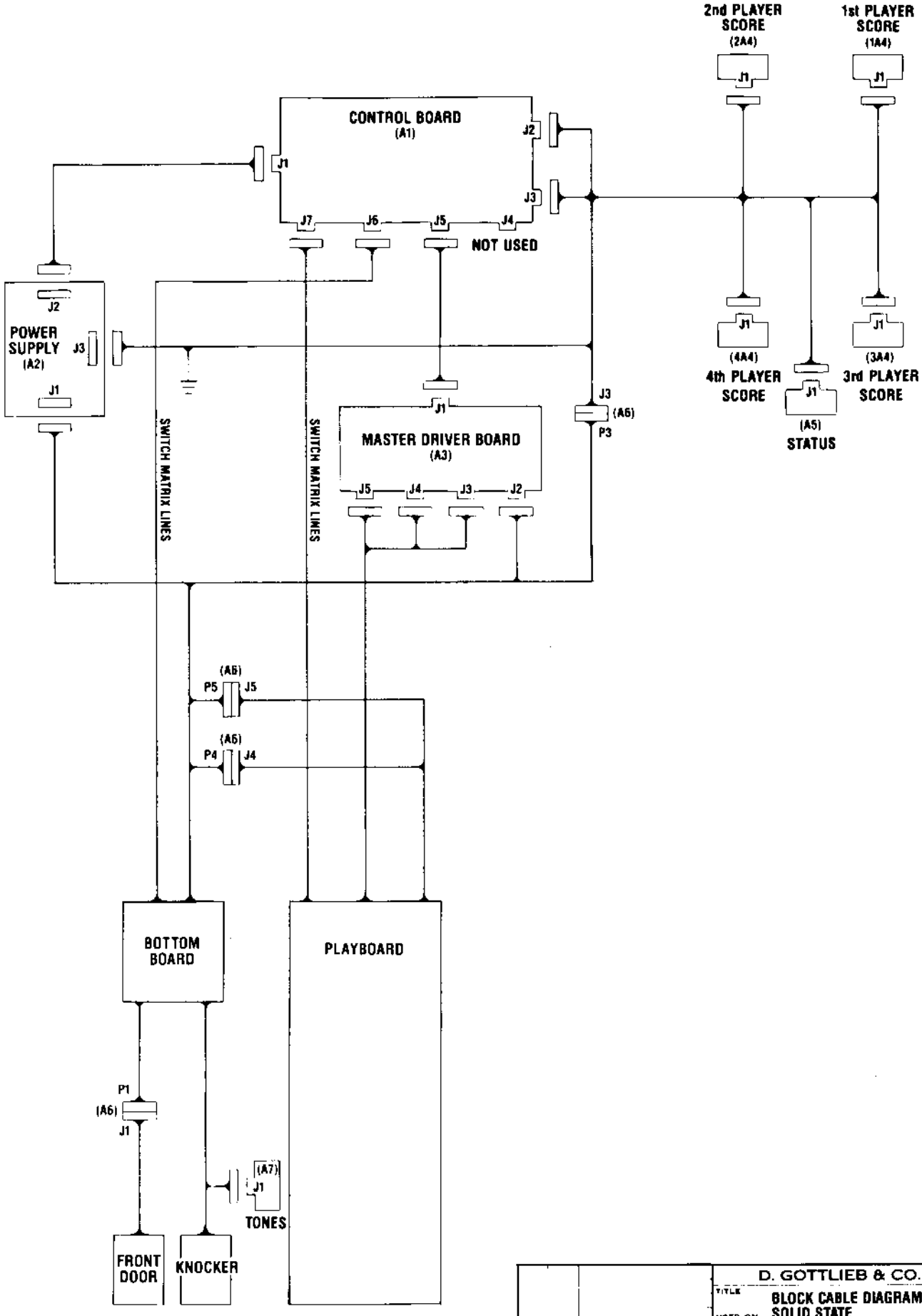


E. COMPONENT LOCATION

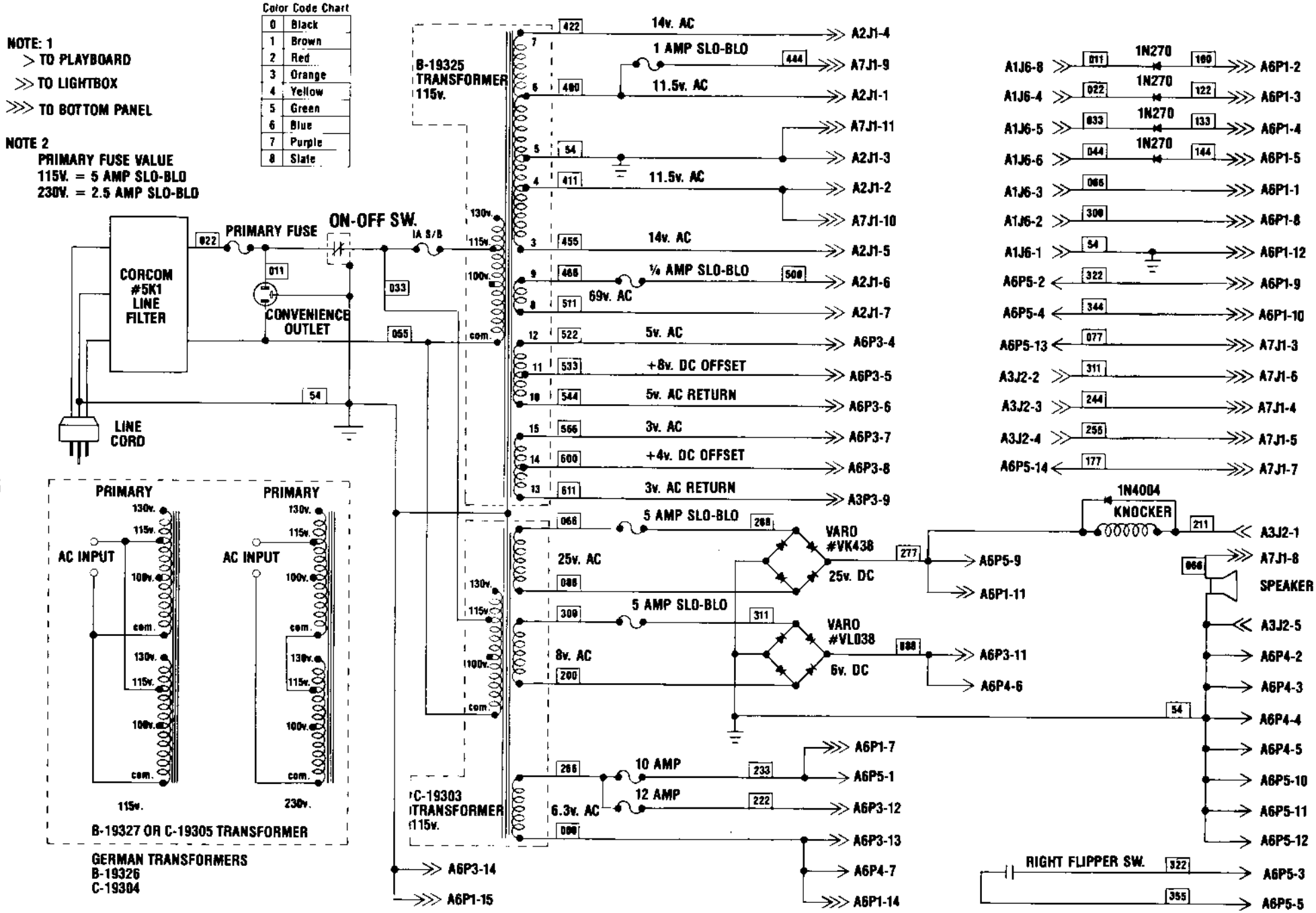


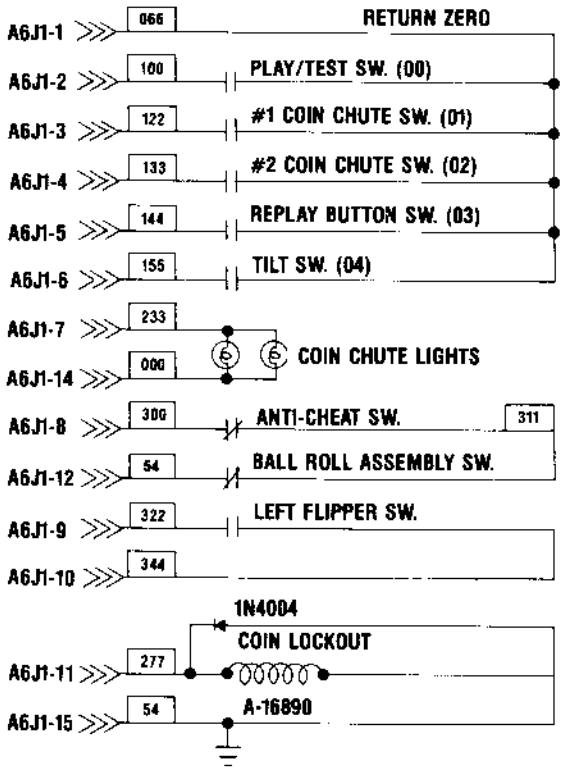
COMPONENT LOCATION DIAGRAM

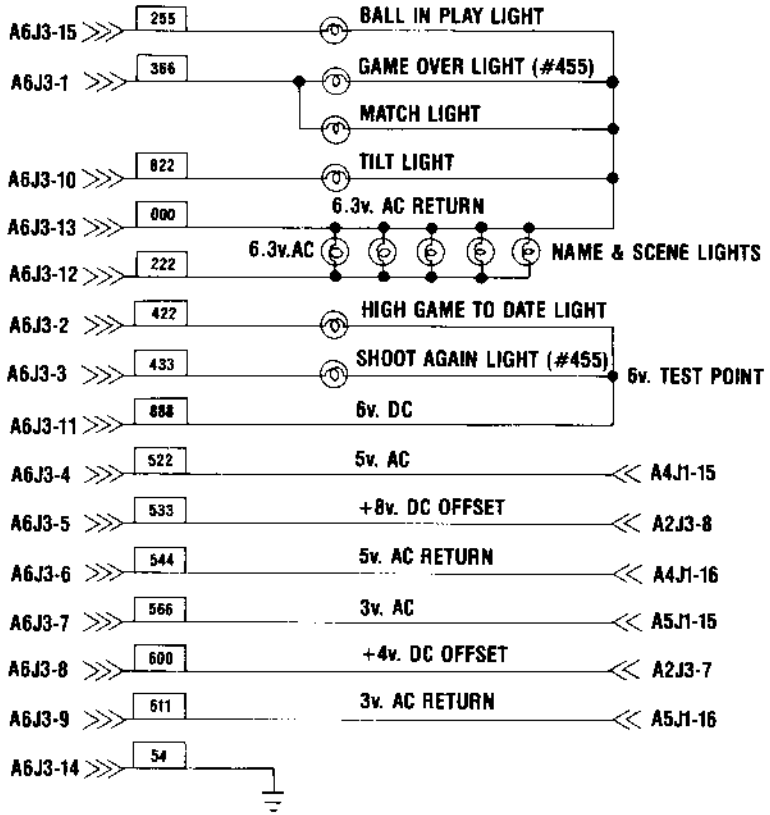


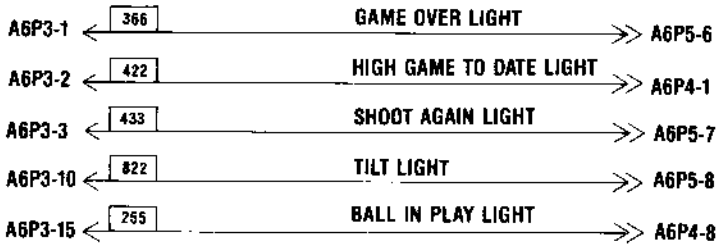


ISSUE	DATE	REVISIONS	D. GOTTLIEB & CO.			
			TITLE: BLOCK CABLE DIAGRAM			
			USED ON: SOLID STATE			
			DRAWN	APPROVED	DATE	C-16012


Color Code Chart
0 Black
1 Brown
2 Red
3 Orange
4 Yellow
5 Green
6 Blue
7 Purple
8 Slate
NOTE: 1
> TO PLAYBOARD
>> TO LIGHTBOX
>>> TO BOTTOM PANEL
NOTE 2
PRIMARY FUSE VALUE
115V. = 5 AMP SLO-BLO
230V. = 2.5 AMP SLO-BLO
B-19325 TRANSFORMER 115v.
CORCOM #5K1 LINE FILTER
PRIMARY FUSE
ON-OFF SW.
CONVENIENCE OUTLET
LINE CORD
14v. AC
1 AMP SLO-BLO
11.5v. AC
11.5v. AC
14v. AC
⅛ AMP SLO-BLO
69v. AC
5v. AC
+8v. DC OFFSET
5v. AC RETURN
3v. AC
+4v. DC OFFSET
3v. AC RETURN
5 AMP SLO-BLO
25v. AC
VARO #VK438
25v. DC
5 AMP SLO-BLO
8v. AC
VARO #VL038
6v. DC
10 AMP
12 AMP
6.3v. AC
C-19303 TRANSFORMER 115v.
1N270
1N4004
KNOCKER
SPEAKER
RIGHT FLIPPER SW.
PRIMARY
AC INPUT
115v.
230v.
B-19327 OR C-19305 TRANSFORMER
GERMAN TRANSFORMERS
B-19326
C-19304
D. GOTTLIEB & CO.
BOTTOM BOARD SCHEMATIC
SOLID STATE
C-19393







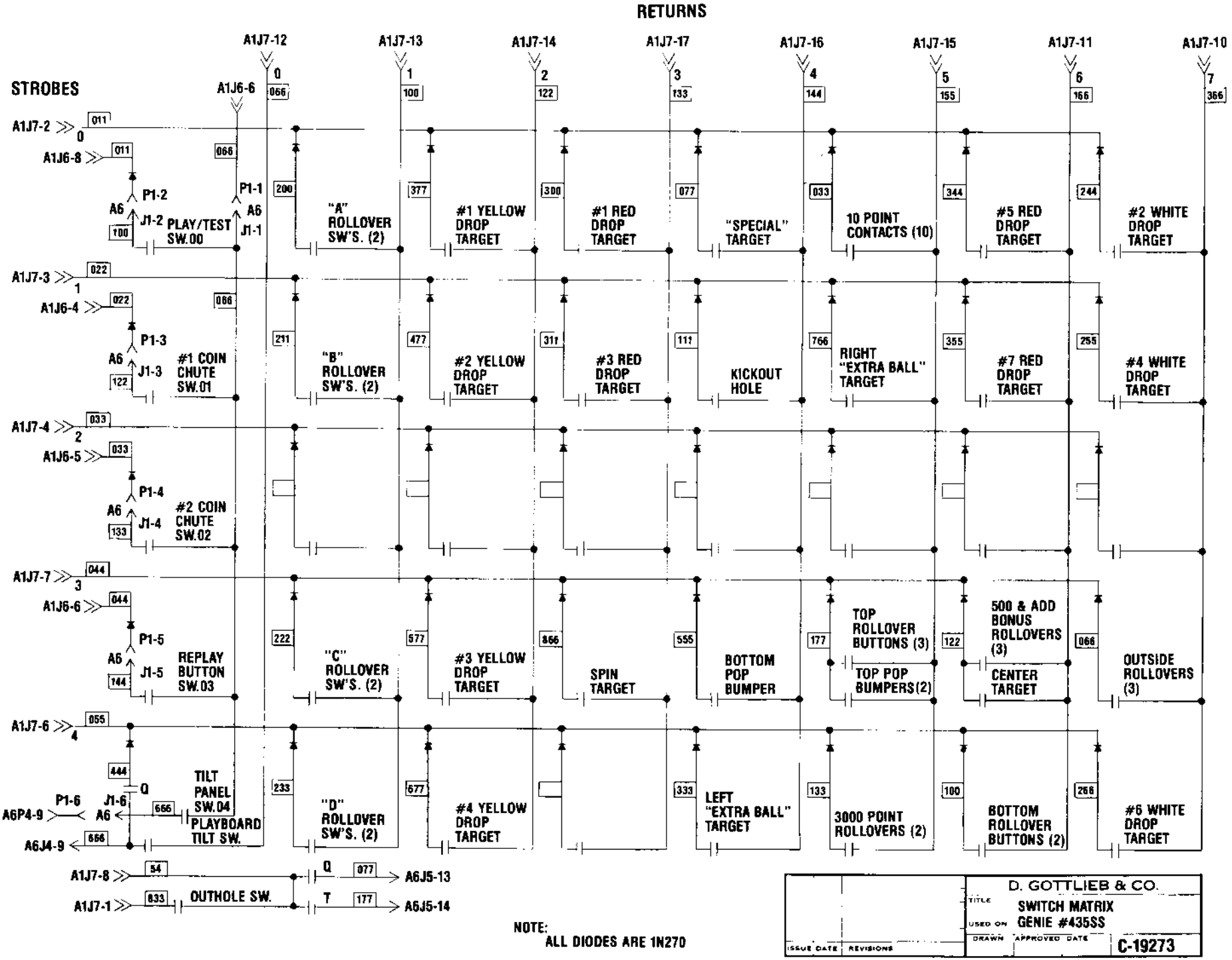
Color Code Chart

0	Black
1	Brown
2	Red
3	Orange
4	Yellow
5	Green
6	Blue
7	Purple
8	Slate
9	White

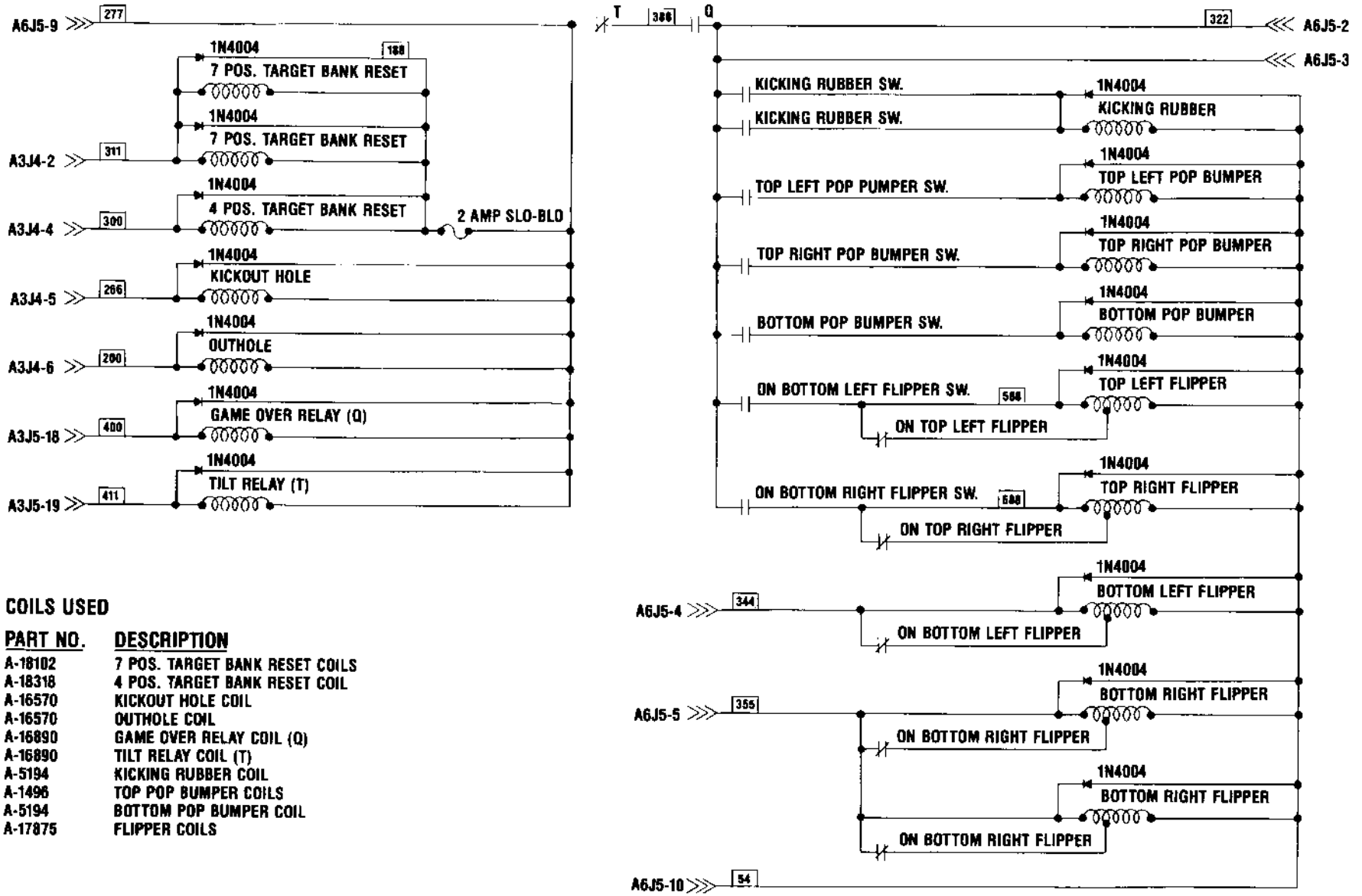
NOTE:

- > FROM PLAYBOARD
- >> FROM LIGHT BOX
- >>> FROM BOTTOM BOARD

ISSUE DATE / REVISIONS	D. GOTTLIEB & CO.	
	TITLE: BOTTOM BOARD & LIGHT BOX	
	USED ON: SCHEMATIC	
	DRAWN / APPROVED / DATE	C-19410



NOTE:
ALL DIODES ARE 1N270



COILS USED

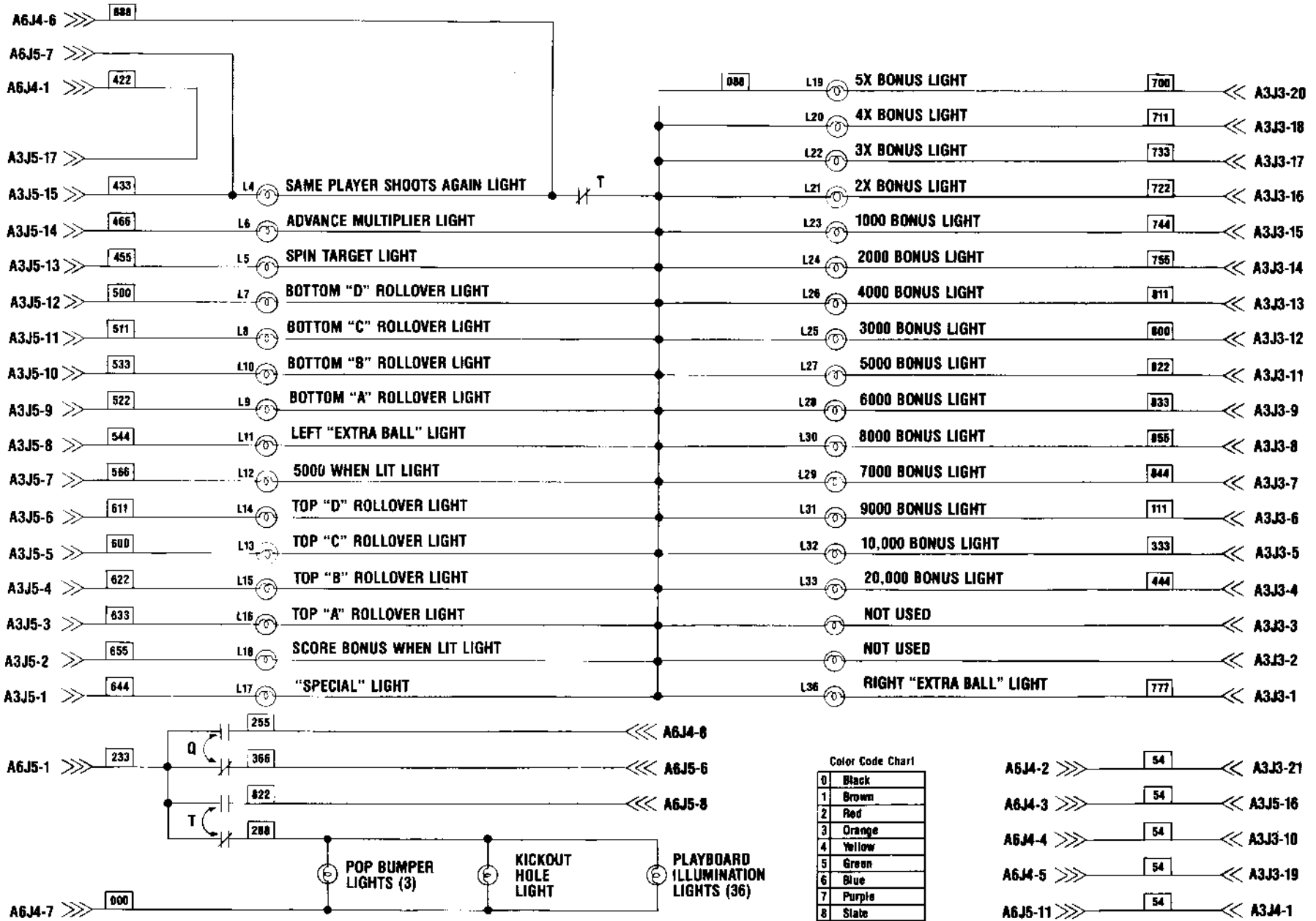
PART NO.	DESCRIPTION
A-18102	7 POS. TARGET BANK RESET COILS
A-18318	4 POS. TARGET BANK RESET COIL
A-16570	KICKOUT HOLE COIL
A-16570	OUTHOLE COIL
A-16890	GAME OVER RELAY COIL (Q)
A-16890	TILT RELAY COIL (T)
A-5194	KICKING RUBBER COIL
A-1496	TOP POP BUMPER COILS
A-5194	BOTTOM POP BUMPER COIL
A-17875	FLIPPER COILS

NOTE:

≫ FROM LIGHTBOX

⋙ FROM BOTTOM BOARD

ISSUE	DATE	REVISIONS	D. GOTTLIEB & CO.
			TITLE: PLAYBOARD SOLENOIDS
			USED ON: GENIE #435SS
			DRAWN / APPROVED / DATE: C-19271



Color Code Chart

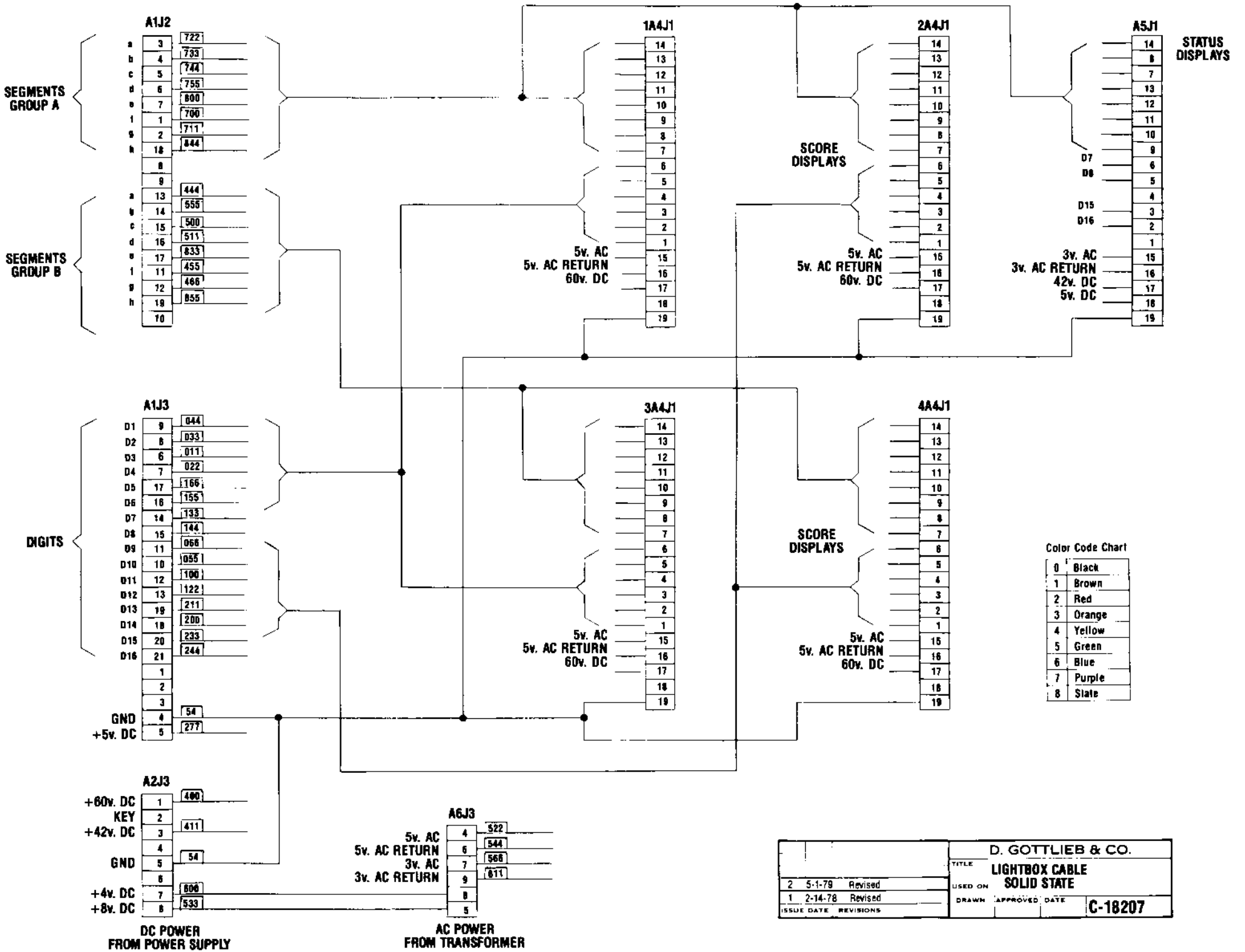
0	Black
1	Brown
2	Red
3	Orange
4	Yellow
5	Green
6	Blue
7	Purple
8	Slate
9	White

NOTE:

» FROM LIGHTBOX

»» FROM BOTTOM BOARD

ISSUE	DATE	REVISIONS	D. GOTTLIEB & CO.
			TITLE PLAYBOARD ILLUMINATION
			USED ON GENIE #435SS
			DRAWN / APPROVED / DATE — C-19272


A1J2
SEGMENTS GROUP A
SEGMENTS GROUP B
a 3 722
b 4 733
c 5 744
d 6 755
e 7 800
f 1 700
g 2 711
h 18 844
8
9
a 13 444
b 14 555
c 15 500
d 16 511
e 17 833
f 11 455
g 12 466
h 19 855
10
1A4J1
5v. AC
5v. AC RETURN
60v. DC
2A4J1
SCORE DISPLAYS
5v. AC
5v. AC RETURN
60v. DC
A5J1
STATUS DISPLAYS
D7
D8
D15
D16
3v. AC
3v. AC RETURN
42v. DC
5v. DC
A1J3
DIGITS
D1 9 044
D2 8 033
D3 6 011
D4 7 022
D5 17 166
D6 16 155
D7 14 133
D8 15 144
D9 11 066
D10 10 055
D11 12 100
D12 13 122
D13 19 211
D14 18 200
D15 20 233
D16 21 244
1
2
3
GND 4 54
+5v. DC 5 277
3A4J1
5v. AC
5v. AC RETURN
60v. DC
4A4J1
SCORE DISPLAYS
5v. AC
5v. AC RETURN
60v. DC
Color Code Chart
0 Black
1 Brown
2 Red
3 Orange
4 Yellow
5 Green
6 Blue
7 Purple
8 Slate
A2J3
+60v. DC 1 490
KEY 2
+42v. DC 3 411
4
GND 5 54
6
+4v. DC 7 800
+8v. DC 8 533
DC POWER FROM POWER SUPPLY
A6J3
5v. AC 4 522
5v. AC RETURN 6 544
3v. AC 7 566
3v. AC RETURN 9 611
8
5
AC POWER FROM TRANSFORMER
2 5-1-79 Revised
1 2-14-78 Revised
ISSUE DATE REVISIONS
D. GOTTLIEB & CO.
TITLE
LIGHTBOX CABLE
USED ON SOLID STATE
DRAWN APPROVED DATE
C-18207