



CRASH 'N SCORE

Operation • Maintenance • Service Manual

(TM-048)

The technical manual for Crash 'N Score was in progress when this game went into production. The manual will be released shortly and will be available through your distributor.

In the meantime, we have enclosed copies of the most vital documentation, to assist in maintaining and servicing this game. Should you have any questions that cannot be answered by this documentation, please contact your distributor or the Atari Customer Service Department, 2175 Martin Avenue, Santa Clara, CA 95050. You may also use our toll-free telephone number: (800) 538-6892. The Customer Service Dept. is open from 7:30 am to 4:30 pm Pacific time, Monday through Friday.

Thank you for your patience.



## CRASH 'N SCORE

### INSTRUCTIONS FOR USING EXTENDED-PLAY CARD AND INSTRUCTION PLATE CARD

Enclosed in this game's coin box are two small cards. The extended-play card, after its blank area has been filled in with the applicable number, is placed behind the front plex's bottom edge.

The instruction plate card should be cut apart, and the proper numbers should be taped to two different areas in the silk-screened instructions. One of these areas tells players how many games per quarter will be given (either one or two). The other area tells the player how long the blinking-score period of each game will be. During this part of the game (the last seventh of the game), any player's hit will actually count as twice that flag's indicated value. Procedures for using both cards are as follows:

Instruction plate card: Find the only slide switch on the game's PCB. Its two positions are labeled 1 PLAY and 2 PLAY. Choose one of the positions to structure the game for either one or two games per quarter. [In the two-game case, the player(s) will still have to push either the ONE PLAYER START or TWO PLAYER START button to begin the second game.] Then cut out the "1" or "2" from this card and using transparent tape, attach it to the inside of the silk-screened plexiglass in the appropriate blank area.

Second, cut out the "10" from this card and attach it with transparent tape to the blank area in the phrase "Bonus score value doubles in last          seconds." The period in each game during which the player's score blinks is not variable by the operator.

Free play card: If you wish to offer extended play after a certain number of points in each game, you should fill in the appropriate number of points on this card. To set the game correspondingly, find the small switch on the PCB near the end opposite the edge connector. This switch has four small white levers that can be set with their pointed ends facing either up or down.

Point value:	10	20	40	80
Lever number:	1	2	3	4

Push forward (so pointed end faces down) any of the levers, so that their respective point values add up to the desired sum. We suggest total values between 40 and 90 points. For example, to set the game for extended play after 50 points, push forward the levers #1 and 3. On this switch, any values set for 100 or more points means that no free game will be allowed.

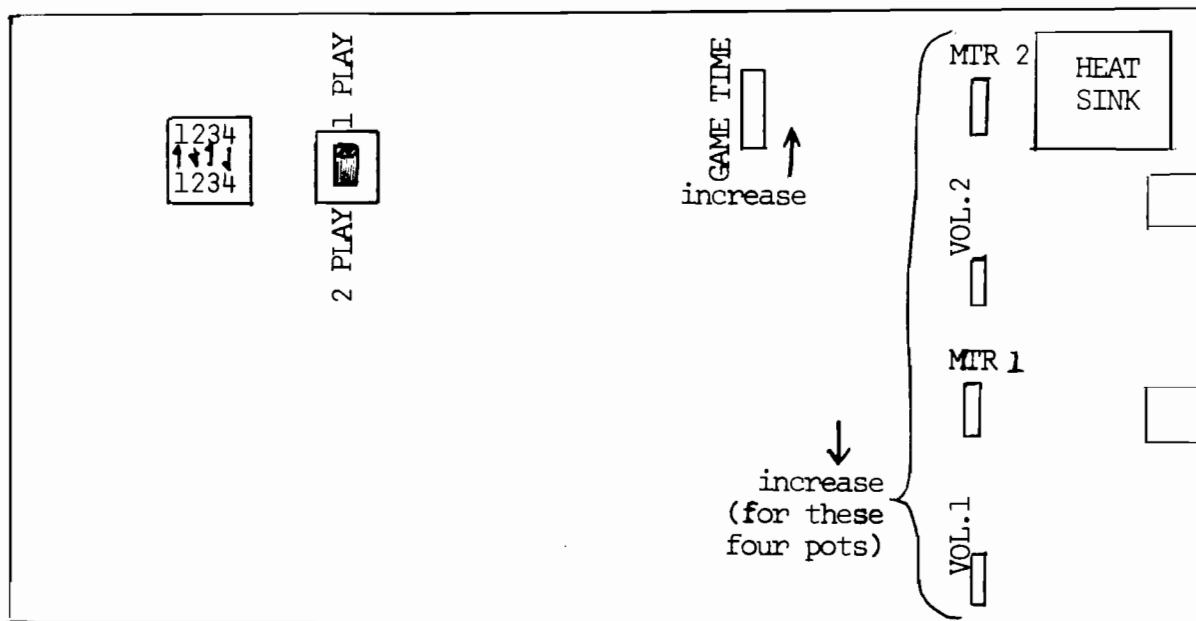
After setting the switch to the appropriate value, place the free play card behind the smoked plex so it rests along the retainer at the plex's bottom edge.

ADJUSTMENTS OF VARIOUS POTENTIOMETERS ON THE PCB (see drawing below)

The game length is controlled by the GAME TIME pot, located near the top center of the PCB. The range is approximately 30 seconds to 3 minutes.

The pitch of each car's motor is varied with the MTR 1 and MTR 2 pots, located near the edge-connector end of the PCB. The former controls the pitch of the white car (left steering wheel); the latter controls the pitch of the black car (right steering wheel).

The volume of each car's motor is varied with the VOL 1 and VOL 2 pots, located inward from the MTR 1 and -2 pots. Similar to the pitch, each volume pot controls one of the cars on the TV screen.



Crash 'N Score:  
Operator-Adjustable Controls  
for Game Structuring  
on Printed Circuit Board



ASSEMBLY TITLE	TOP ASSEMBLY	P/L 004172
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PARTS LIST SPECIFICATION		Page 1 of 2
Drawn Wayne Sauter		
Checked <i>M.J. 9/19/75</i>	Mech. Eng. <i>E.L. Shocho</i>	
Proj. Eng. <i>K.W. 9/19/75</i>	Elec. Eng.	REV. C

Rev.	Description	Date	Apprv.	Rev.	Description	Date	Apprv.
A	PROD REL	9/30/75	<i>W.S.</i>				
B	Rev per ECN 1674	10/5/75	<i>W.S.</i>				
C	Rev per ECN 1701	10/14/75	<i>W.S.</i>				

Item	Part Number	Qty.	DESCRIPTION
1	A004155	1	Cabinet Assembly
2	A004175	1	Control Panel Assembly
3	A004215	1	Electronics Tray Assembly
4	A004174	2	Foot Pedal Assembly
5	004214	1	Playfield Plex Screen, Clear
6	003920-02	2	Plexiglass Retainers
7	004166	1	Bottom Plex Retainer
8	004171	1	ABS Bezel, Black
9	004216-XX	1	Instruction Plate, Number Card
10	000869	2	Speaker Grill
11	000531	2	Control Panel Mntg Bracket
12	A003637	1	Coin Door Assembly
13	A004232	1	Decal Location Diagram
14	48-002	2	Speakers, 4" Motorola
15	92-007	1	23" T.V. Monitor
16	71-2114	1	Hudson Lock
17	72-6810	20	Screws, Self Tapping, #8 x 5/8 Phil Pan Hd
18	75-931	2	Wing Nuts, #10-24
19	75-5124N	10	Carriage Bolts, #10-24 x 1 1/2
20	75-010S	20	#10 Flat Washer
21	75-040	22	#10 Lock Washer
22	75-911S	20	#10-24 Hex Nuts
23	82-8116B	4	Socket Hex, Cap Screws, #10-24 x 1"
24	82-404	2	Eye Bolt, #1/2-20 x 3"
25	004212	1	R.H. Side Panel S/Screen
26	004213	1	L.H. Side Panel S/Screen
27	A004217	1	Main Harness
28	004218	Ref	Wiring Diagram
29	004177	1	Shipping Carton
30	TM-048	1	Technical Manual
31	004211	1	Plexiglas, Playfield, Smoked
32	75-915S	2	#1/2-20, Hex Nuts
33	75-015S	2	#1/2 Flat Washers
34	75-045	2	#1/2 Lock Washers
35	75-5120B	10	Carriage Bolts, #10-24 x 1 1/2
36	73-77004	8	Rivets, 3/16 x .68
37	004355	1	Free Play Card
38	72-6620	6	Screws, Self Tap, #6 x 1 1/4 Pan Hd Phil
39	A004278	1	Coin Mech Housing Harness
40	72-6616	1	Screw, Self Tap, #6 x 1" Pan Hd Phil

## PARTS LIST SPECIFICATION

Item	Part Number	Qty.	DESCRIPTION
41	A004236	1	Fluorescent Light Mounting Assembly
42	A004286-04	1	Final Assy - R.F. Shielding Enclosure
43			
44			
45	75-5132N	2	Carriage Bolts, #10-24 x 2"



PARTS LIST SPECIFICATION		Page 1 of 3
Drawn <b>D. Storie</b>		
Checked <b>D. Storie</b>	Mech. Eng. <i>[Signature]</i>	
Proj. Eng. <i>[Signature]</i>	Elec. Eng. <i>[Signature]</i>	REV. A

Rev.	Description	Date	Apprv.	Rev.	Description	Date	Apprv.
1	PRE-PROD REL	10/13/75					
A	PROD REL	10/21/75	<i>[Signature]</i>				

Item	Part Number	Qty.	DESCRIPTION	
1	004257	1	Printed Circuit Board	
2	37-7400	11	I.C. 7400	A3,B5,C9,E4,F9,H3,J4,K5,L9,P3,P9
3	37-7402	9	I.C. 7402	C8,E6,F1,F4,H2,L4,L8,N4,N6
4	37-7404	12	I.C. 7404	A1,A6,C3,C10,D7,E10,J3,J6,J9,M7,N10,R3
5	37-7406	1	I.C. 7406	L10
6	37-7408	3	I.C. 7408	F3,J8,MN1
7	37-7410	5	I.C. 7410	B6,D3,F10,K6,P2
8	37-7414	1	I.C. 7414	H10
9	37-7420	4	I.C. 7420	C4,E8,N3,N8
10	37-7430	1	I.C. 7430	B1
11	37-7432	1	I.C. 7432	R4
12	37-7448	1	I.C. 7448	J1
13	37-7474	14	I.C. 7474	A5,A7,A8,B3,DE1,H9,J5,J7,K3,K4,M4,N1,R2,R9
14	37-7475	2	I.C. 7475	H7,R7
15	37-7485	3	I.C. 7485	B4,D9,M9
16	37-7486	3	I.C. 7486	D4,M3,L3
17	37-7490	7	I.C. 7490	B8,K8,L1,L2,M1,M2,P10
18	37-7492	2	I.C. 7492	B9,K9
19	37-7493	5	I.C. 7493	A4,D1,D8,E1,M8
20	37-74107	6	I.C. 74107	C7,F5,FH1,L7,P1,P5
21	37-74153	3	I.C. 74153	F2,K1,K2
22	37-74192	1	I.C. 74192	E3
23	37-74193	7	I.C. 74193	E9,F8,H8,N9,P4,P8,R8
24	37-74279	2	I.C. 74279	MN2,N2
25	37-9312	4	I.C. 9312	H1,H5,J2,R5
26	37-9316	13	I.C. 9316	A2,B2,C2,C5,C6,D5,D6,E5,L5,L6,M5,M6,N5
27	37-9602	2	I.C. 9602	H4,R1
28	37-555	5	I.C. 555	B7,D10,K7,M10,R10
29	37-LM323	1	Reg LM323 + 5V	
30	37-LM324	2	I.C. LM324 OP AMP	C11,L11
31	37-LM340T-15	1	Reg LM340T-15 +15V or 7815	
32	37-LM380	2	I.C. LM380 Audio AMP	B10,K10



## PARTS LIST SPECIFICATION

Page 2 of 3

Item	Part Number	Qty.	DESCRIPTION
33	003186	2	Rom, RT8 Car Video F6,P6
34	003187	2	P-Rom, RT8, Car Motion Code F7,P7
35	004248	1	P-Rom, Crash 'N Score, Location Code D2
36	004247	1	P-Rom, Crash 'N Score, Shape Code E2
37	79-42424	2	24 pin I.C. Socket
38	79-42116	4	16 pin I.C. Socket
39	31-MR501	2	Diode MR501 Power D10,D11
40	31-A14F	2	Diode A14F Power D18,D19
41	31-1N4001	2	Diode 1N4001 Power D27,D28
42	31-1N914	17	Diode 1N914 D3,D5-D9,D12,D15, D16,D17,D20-D26
43	33-2N3644	3	Transistor PNP 2N3644 Q1,Q4,Q9
44	34-2N3643	2	Transistor NPN 2N3643 Q7,Q8
45	34-2N3565	2	Transistor NPN 2N3565 Q3,Q6
46	003629	2	Selected NPN Noise Source 2N3643 Q2,Q5
47	35-MCR106	3	SCR Transistor MCR106 Q10,Q11,Q12
48	38-MV5013	5	Light Emitting Diode, Visible Red D1,D2,D4,D13,D14
49	21-500103	2	Capacitor, Mylar, .01uf, 50V C10,C49
50	21-500104	2	Capacitor, Mylar, .1uf, 50V C15,C52
51	24-160808	1	Capacitor, Elect. 8000uf 16V C45
52	24-250105	4	Capacitor, Elect. 1uf 25V C14,C16,C53,C54
53	24-250505	4	Capacitor, Elect. 5uf 25V C7,C18,C48,C59
54	24-250106	9	Capacitor, Elect. 10uf 25V C5,C8,C9,C12,C23, C47,C56,C67,C68,
55	24-250107	3	Capacitor, Elect. 100uf 25V C4,C38,C39
56	24-060257	1	Capacitor, Elect. 250uf 6V C1
57	24-250507	2	Capacitor, Elect. 500uf 25V C25,C66
58	24-250478	1	Capacitor, Elect. 4700uf 25V C57
59	27-250103	10	Capacitor, Ceramic .01uf 25V C3,C11,C19,C36, C37,C41,C42,C50, C60,C69
60	27-250104	21	Capacitor, Ceramic .1uf 25V C13,C21,C22,C24, C26-C35,C43,C44, C51,C55,C62,C63, C65
61	28-101101	7	Capacitor, Mica 100pf 100V C2,C17,C20,C40, C58,C61,C64
62	28-101391	2	Capacitor, Mica 390pf 100V C6,C46
63	10-5101	3	Resistor, Carbon, 5%, 1/4W, 100 ohm R75,R77,K79
64	10-5151	4	Resistor, " " " 150 ohm R9,R10,R73,R74
65	10-5221	6	Resistor, " " " 220 ohm R14,R32,R33,R66, R72,R76
66	10-5331	3	Resistor, " " " 330 ohm R78,R118,R119
67	10-5471	4	Resistor, " " " 470 ohm R24,R31,R65,R71
68	10-5102	16	Resistor, " " " 1K R3,R7,R8,R25,R36, R69,R70,R95,R103,R104,R120,R121,R49,R54,R55,R64





## PARTS LIST SPECIFICATION

Page 3 of 3

Item	Part Number	Qty.	DESCRIPTION		
69	10-5272	4	Resistor, Carbon, 5%, 1/4W, 2.7K	R126-R129	
70	10-5152	1	Resistor, " " " 1.5K	R23	
71	10-5472	16	Resistor, " " " 4.7K	R15-R22, R80-R87	
72	10-5103	15	Resistor, " " " 10K	R2, R12, R37, R46, R56, R58, R59, R60, R93, R98, R105, R110, R111, R112, R122	
73	10-5123	2	Resistor, " " " 12K	R62, R114	
74	10-5153	2	Resistor, " " " 15K	R38, R99	
75	10-5333	3	Resistor, " " " 33K	R1, R48, R107	
76	10-5563	3	Resistor, " " " 56K	R67, R68, R123	
77	10-5683	2	Resistor, " " " 68K	R34, R96	
78	10-5823	2	Resistor, " " " 82K	R50, R108	
79	10-5104	17	Resistor, " " " 100K	R5, R11, R39, R41, R47, R51, R52, R53, R61, R100, R102, R106, R113, R115, R116, R117, R124	
80	10-5224	4	Resistor, " " " 220K	R30, R35, R92, R97	
81	10-5474	4	Resistor, " " " 470K	R29, R40, R91, R101	
82	10-5105	4	Resistor, " " " 1 Meg	R26, R63, R88, R125	
83	10-5225	2	Resistor, " " " 2.2M	R28, R90	
84	10-5475	2	Resistor, " " " 4.7M	R27, R89	
85	17-54P0	1	Resistor, WW, 5%, 10W, 4 ohm	R6	
86	19-311103	2	Trim Pot, 10K ohm	R57, R109	
87	19-311254	2	Trim Pot, 250K ohm	R13, R94	
88	19-311105	1	Trim Pot, 1M ohm	R4	
89	66-024P1T	1	Dip Switch, 4SPST	S2	
90	69-001	1	Switch, DPDT	S1	
91	72-1408C	2	Screw, Mach, Pan Hd, Phil 4-40 x 1/2, CRES		
92	75-016C	2	Washer, Flat #6, CRES		
93	75-914C	2	Nut, Hex 4-40, CRES		
94	75-054	2	Lockwasher, Int Star #4		
95	75-056	2	Lockwasher, Int Star #6		
96	75-916C	2	Nut, Mach, Hex, 6-32, CRES		
97	78-06004	1	Heat Sink, Wakefield #680-.75A		
98	78-16005	1	Silpad, Wafer, Insulator, To-3		
99	90-101	1	Crystal 14.31818	Y1	
100	72-1610C	2	Screw, Mach, Pan Hd, Phil, 6-32 x 5/8", CRES		

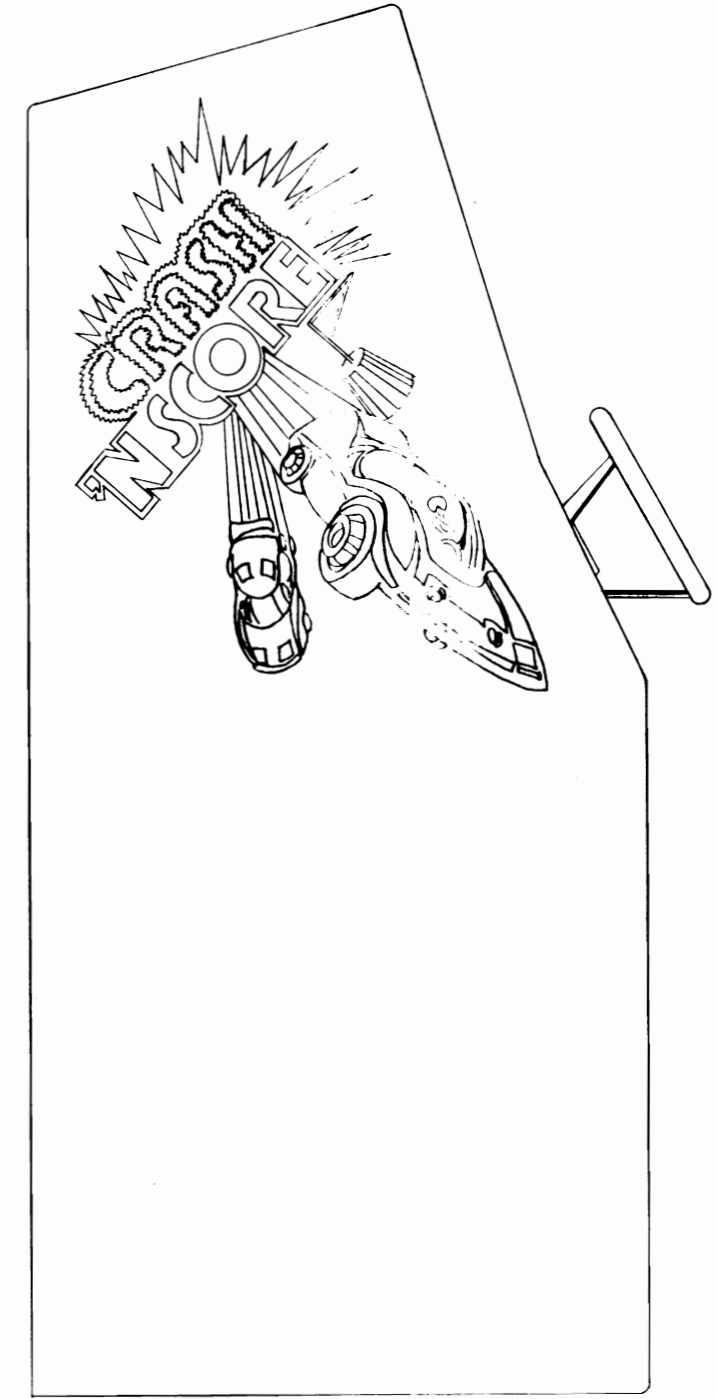
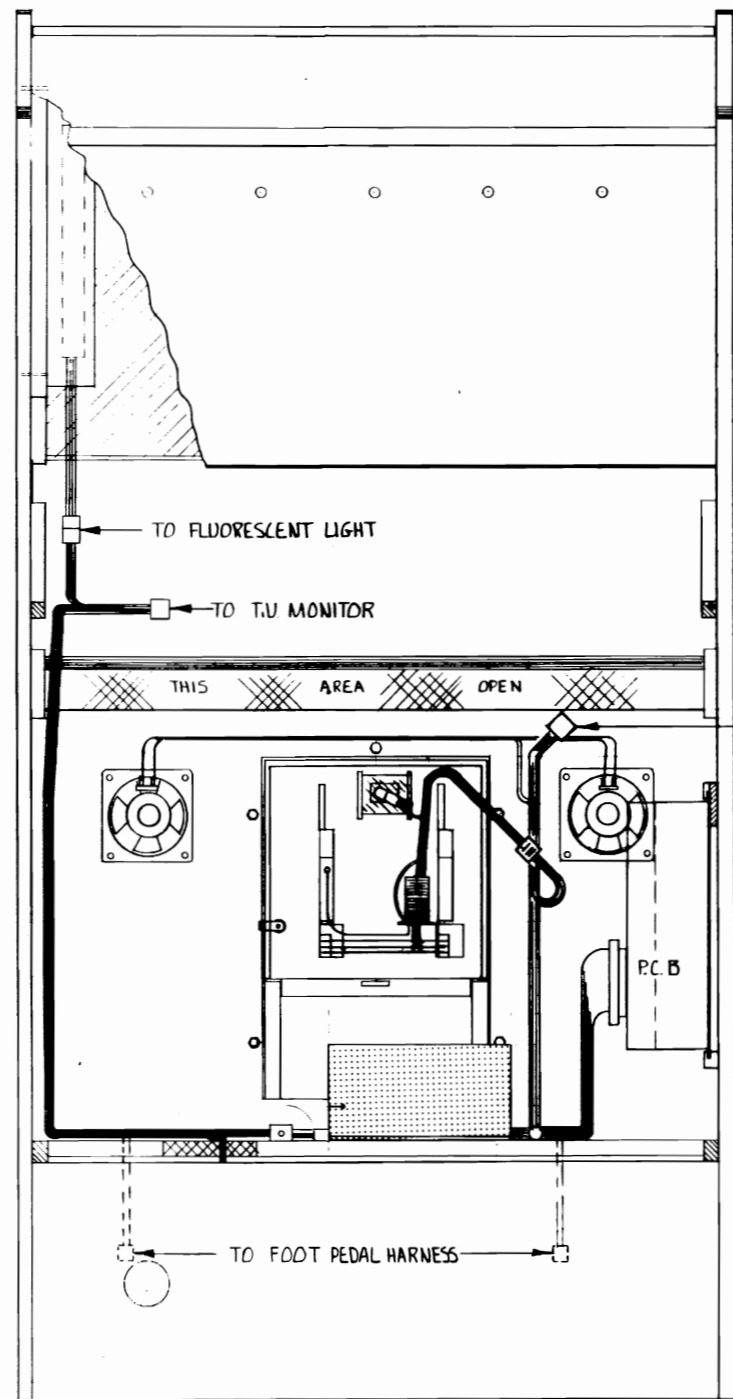
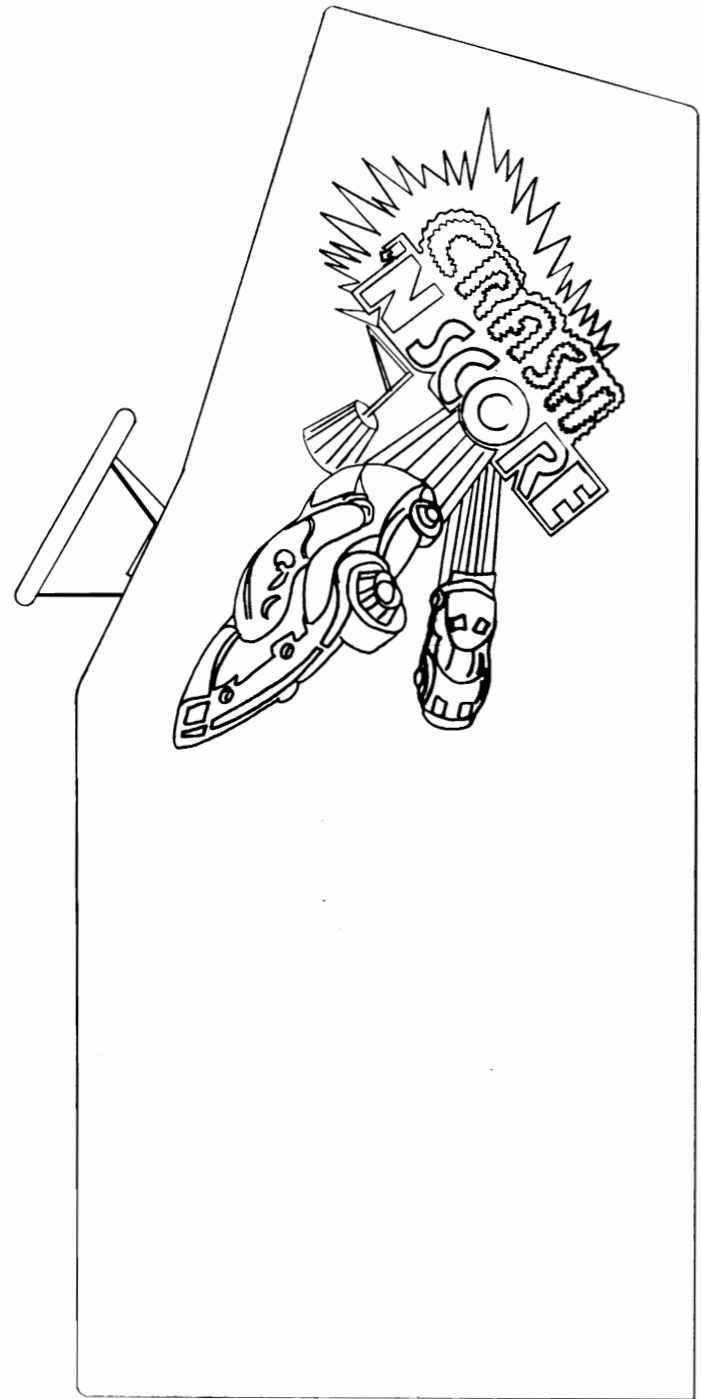






8 7 6 5 4 3 2 1

REVISIONS			
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	SEE SHEET 1 OF 2		ES



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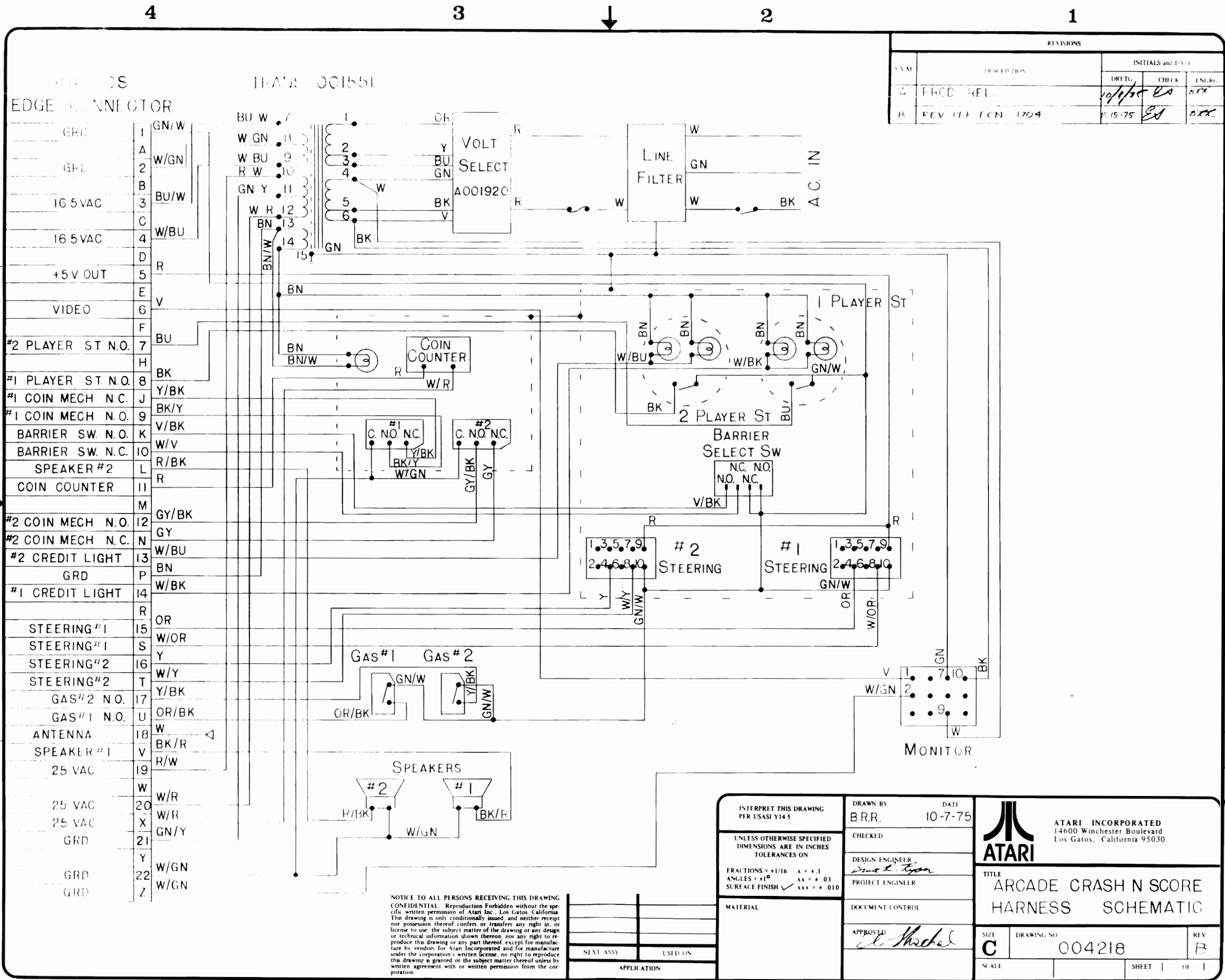
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INTERPRET THIS DRAWING PER USASI Y145	DRAWN BY: WS	DATE: 9-29-75
UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES TOLERANCES ON:	CHECKED:	DESIGN ENGINEER: <i>James Austin</i>
FRACTIONS = 1/16	ANGLES = 45°	PROJECT ENGINEER:
SURFACE FINISH = 0.010	APPROVED: <i>[Signature]</i>	DOCUMENT CONTROL:
MATERIAL: SEE P.I.L. 004172	SCALE:	REV: C
NEXT ASSY:	USED ON:	SHEET 2 OF 2
APPLICATION:		

<p>ATARI INCORPORATED 14600 Winchester Boulevard Los Gatos, California 95030</p>		<p>ATARI</p>	
<p>TITLE: CABINET-TOP ASS'Y</p>		<p>SIZE: D</p>	
<p>DRAWING NO: 40014112</p>		<p>REV: C</p>	
<p>SCALE:</p>		<p>SHEET 2 OF 2</p>	



REVISIONS				
SYM	DESCRIPTION	INITIALS and DATE		
		DRG	CHEK	ENGR
A	FRCD REL.	10/1/75	ES	OK
B	REV 177 ECN 1704	10-15-75	ES	OK

TERMINAL	WIRE COLOR	FUNCTION
D	GN/W	GRD
A	W/GN	GRD
B	BU/W	16.5 VAC
C	W/BU	16.5 VAC
D	R	+5 V OUT
E	V	VIDEO
F	BU	#2 PLAYER ST N.O.
H	BK	#1 PLAYER ST N.O.
J	Y/BK	#1 COIN MECH N.C.
K	BK/Y	#1 COIN MECH N.O.
L	V/BK	BARRIER SW N.O.
M	W/V	BARRIER SW N.C.
N	R/BK	SPEAKER #2
O	R	COIN COUNTER
P	BN	#2 COIN MECH N.O.
Q	GY/BK	#2 COIN MECH N.C.
R	GY	#2 COIN MECH N.C.
S	W/BU	#2 CREDIT LIGHT
T	BN	GRD
U	W/BK	#1 CREDIT LIGHT
V	OR	STEERING #1
W	W/OR	STEERING #1
X	Y	STEERING #2
Y	W/Y	STEERING #2
Z	Y/BK	GAS #2 N.O.
1	OR/BK	GAS #1 N.O.
2	W	ANTENNA
3	BK/R	SPEAKER #1
4	R/W	25 VAC
5	W	25 VAC
6	W/R	25 VAC
7	X	GRD
8	GN/Y	GRD
9	Y	GRD
10	W/GN	GRD
11	W/GN	GRD

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MATERIAL	USED ON

INTERPRET THIS DRAWING PER USASI Y14.5	DRAWN BY B.R.R.	DATE 10-7-75
UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES TOLERANCES ON	CHECKED	
FRACTIONS = +1/16 X = +.1	DESIGN ENGINEER <i>Eric L. Ryan</i>	
ANGLES = 45° XX = .03	PROJECT ENGINEER	
SURFACE FINISH ✓ XXX = .010	DOCUMENT CONTROL	
	APPROVED <i>[Signature]</i>	

**ATARI** INCORPORATED  
 14600 Winchester Boulevard  
 Los Gatos, California 95030

TITLE  
**ARCADE CRASH N SCORE HARNESS SCHEMATIC**

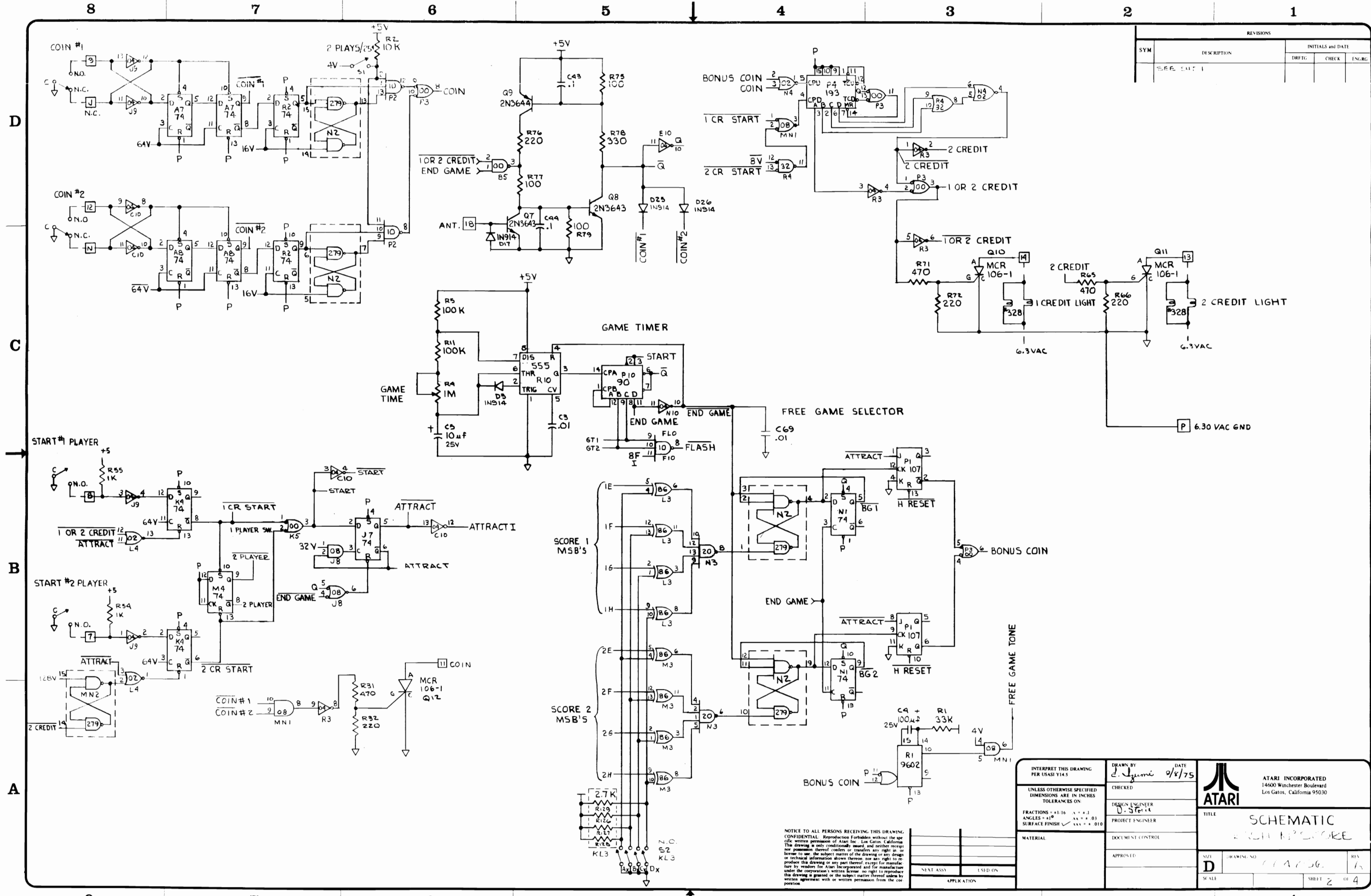
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SCALE SHEET **1** OF **1**

DRAWING NO.  
SHEET  
REV

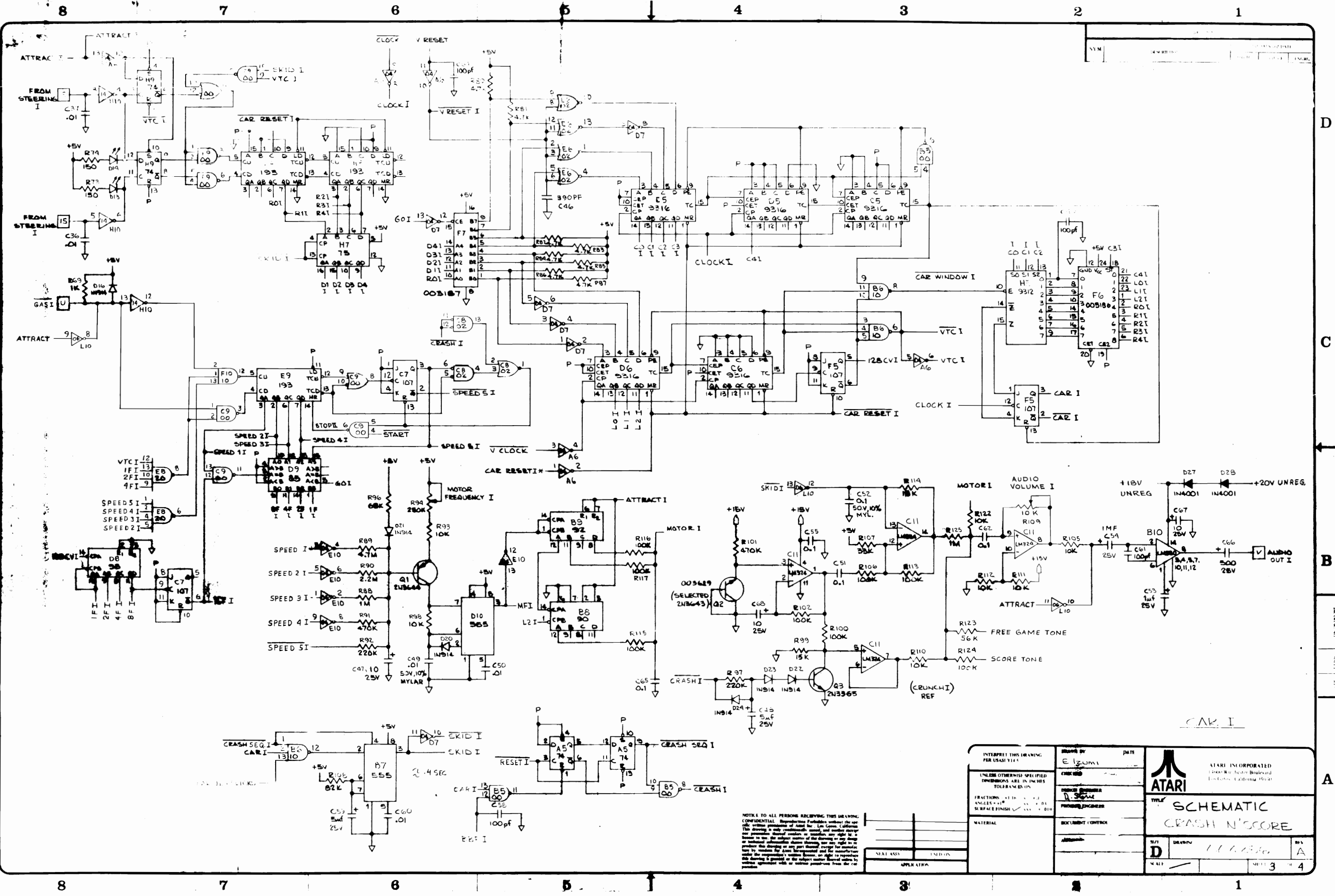


REVISIONS				
SYM	DESCRIPTION	INITIALS and DATE		
		DRETC	CHECK	ENGR
SEE ENT 1				



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INTERPRET THIS DRAWING PER USASI Y14.5 UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES TOLERANCES ON: FRACTIONS - +1/16 -0.003 ANGLES - ±1° SURFACE FINISH - XXX # 4 010	DRAWN BY: <i>D. Zygmunt</i> DATE: <i>9/8/75</i> CHECKED:	ATARI INCORPORATED 14600 Winchester Boulevard Los Gatos, California 95030	TITLE: SCHEMATIC 1000000 SCORE	
	DESIGN ENGINEER: <i>D. Zygmunt</i> PROJECT ENGINEER:			SIZE: <i>D</i> DRAWING NO: <i>114706</i> REV: <i>1</i>
	MATERIAL:			SCALE:
	APPROVED:			SHEET: <i>2</i> OF <i>4</i>

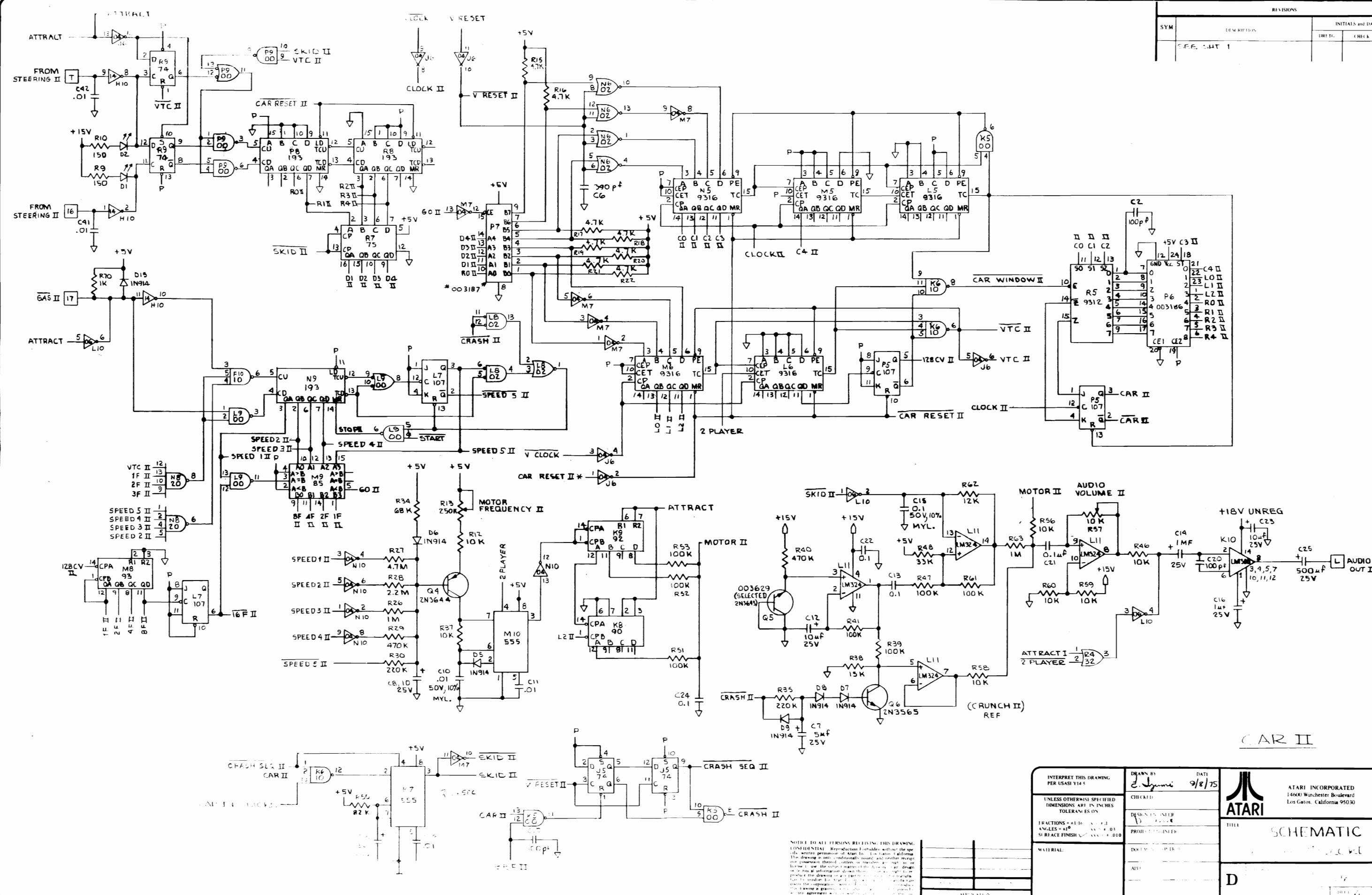


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INTERPRET THIS DRAWING PER USASI Y14.5	DESIGNED BY E. Izumi	DATE	ATARI INCORPORATED 1300 Wilshire Boulevard Los Angeles, California 90017
UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES TOLERANCES IN:	CHECKED BY D. S. ...		
FRACTIONS: 1/16, 1/8, 1/4, 1/2, 1, 2, 3, 4, 5, 6, 8, 10, 12	DESIGNED BY D. S. ...		TITLE SCHEMATIC CRASH N' SCORE
MATERIAL	DOCUMENT CONTROL		S/N D
			REV A
			DATE 11/1/80
			SHEET 3 OF 4



REVISIONS			INITIALS and DATE		
SYM	DESCRIPTION		DRG. I.	CHK. I.	ENGR.
SEE PART 1					



CAR II

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