

SERVICE MANUAL

385-01-0300

# SWIMMER



# **SWIMMER**

CENTURI, INC.  
245 W. 74TH PLACE  
HIALEAH, FLA. 33014

CUSTOMER SERVICE:  
TEL. #(305) 558-5200 (IN FLORIDA)  
TEL. #(800) 327-7710 (OUTSIDE FLORIDA)

TELEX: 803694 ANSB CENTURI CABLE: CENTURI

"SWIMMER"

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USER INFORMATION - F.C.C.

WARNING

THIS EQUIPMENT GENERATES, USES, AND CAN RADIATE RADIO FREQUENCY ENERGY, AND IF NOT INSTALLED AND USED IN ACCORDANCE WITH THE INSTRUCTION MANUAL, MAY CAUSE INTERFERENCE TO RADIO COMMUNICATIONS. AS TEMPORARILY PERMITTED BY REGULATION, IT HAS NOT BEEN TESTED FOR COMPLIANCE PURSUANT TO SUBPART J OF PART 15 OF F.C.C. RULES, WHICH ARE DESIGNED TO PROVIDE REASONABLE PROTECTION AGAINST SUCH INTERFERENCE. 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 WATEVER MEASURES MAY BE REQUIRED TO CORRECT THE INTERFERENCE.

## INTRODUCTION

"SWIMMER" IS A MICROPROCESSOR BASED COIN-OPERATED ELECTRONIC GAME, THAT MAKES EXTENSIVE USE OF DIGITAL INTEGRATED CIRCUITRY AND TELEVISION MONITOR CONCEPTS. THIS MANUAL IS DESIGNED FOR THE USE OF MAINTENANCE TECHICIANS 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, TROUBLE-SHOOTING AND REPAIR WILL BE FACILITATED BY ACCESS TO GENERAL-TYPE HANDTOOLS, A MULTIMETER, A 50 OR 100 MHZ OSCILLOSCOPE AND A LOGIC PROBE WOULD BE HELPFUL.

TECHNICAL ASSISTANCE IS AVAILABLE BY CALLING (305) 558-5200. QUESTIONS OR COMMENTS CONCERNING "SWIMMER" OR ANY OF OUR GAMES ARE WELCOME AND SHOULD BE DIRECTED TO:

CENTURI, INC.

CUSTOMER SERVICE DEPARTMENT  
#800-327-7710 (OUTSIDE THE STATE OF FLA.)  
#305-556-5888 (IN FLORIDA)

## NOTES

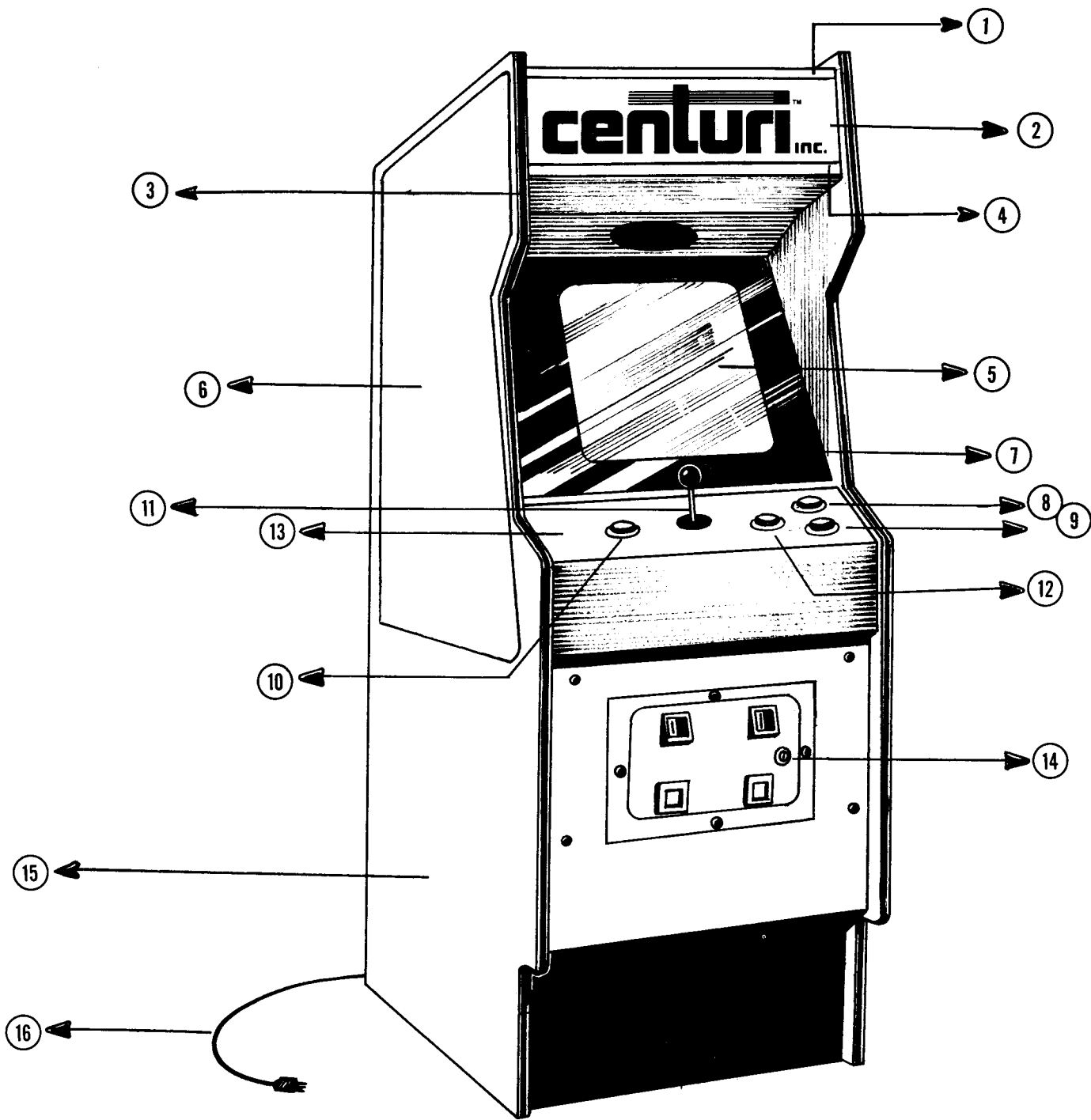
NEVER REPLACE ANY COMPONENTS WITH ANYTHING OTHER THAN EXACT REPLACEMENT PARTS.

NEVER REMOVE CIRCUIT BOARD 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.



**(FIG, 1) FRONT VIEW OF CABINET.**

SWIMMER CABINET

(FIGURE 1)

PARTS LIST

<u>ITEM</u>	<u>CENTURI P/N:</u>	<u>DESCRIPTION:</u>
1.	343-03-0200	TOP ANGLE HOLD DOWN BRACKET
2.	385-06-0100	SILK SCREENED MARQUEE PANEL
3.	361-10-0200	VINYL TRIM, 7 1/4" LONG
4.	361-03-0100	GLASS HOLDING BRACKET
5.	361-04-1000	VIEWING GLASS
6.	385-06-0200	LEFT TOP DECAL
	385-06-0600	LEFT BOTTOM DECAL
	385-06-0300	RIGHT TOP DECAL
	385-06-0700	RIGHT BOTTOM DECAL
7.	385-06-0500	SILK SCREENED MONITOR OVERLAY
8.	-----	1-PLAYER START BUTTON
9.	-----	2-PLAYER START BUTTON
10.	-----	DIVE BUTTON - LEFT
11.	50130109	8-POSITION JOYSTICK
12.	-----	DIVE BUTTON - RIGHT
13.	385-14-0200	CONTROL PANEL WIRED ASS'Y
14.	360-01-0600	COINCO COIN DOOR
15.	385-01-0400	WOOD CABINET ASS'Y
16.	361-12-0900A	LINE CORD

## "SWIMMER"

### Game Description:

Continuing with its policy of producing high quality games, Centuri, Inc., adds to its successful line, "SWIMMER". Centuri incorporates into this game, all the elements of sight and sound necessary to attract a player of any skill level.

The player controls the "Swimmer" with the 8 way joystick and avoids obstacles using the "Dive" Button.

The game "Swimmer" consists of 4 different rounds of play which are as follows:

ROUND 1: The Swimmer must avoid the logs and turtles while collecting the maximum of fruits as he can. To complete the round, the Swimmer should dive under the "giant crab". If during any round you lose the Swimmer the round is restarted at the same level in which the Swimmer was lost but without any fruit. In order to receive the highest bonus, all fruits shown on the instruction panel must be collected.

ROUND 2: Round 2 differs from Round 1 in that "guerrilla crabs" replace the turtles as obstacles and the number of logs and crabs are increased. A new element called "power feed" appears in this round. Upon taking the "power feed" pill, the Swimmer is transformed into a super power for a short period of time. While a super power, the Swimmer can eat the "guerilla crabs" as well as the fruit. The sound changes to warn the player when the super power of the Swimmer is about to fade away. The end of the round is completed by avoiding the "giant crab". Points are awarded by eating fruits or destroying enemies.

ROUND 3: This fast-paced round includes water-spiders that move randomly in any direction and changing their direction unexpectedly. The "power feed" enables the Swimmer to stay alive until the "giant crab" appears. Again, the crab should be avoided.

ROUND 4: This is the most difficult round of the game and starts with a pond that has boulders in it. Three "piranhas" challenge the Swimmer. The "power feed" should be used to destroy the "piranhas" before their heads flash red. When all the "cannibal piranhas" are destroyed, the mission is complete and the Swimmer is displayed on the Treasure Island and awarded all bonuses gained.

If any Swimmers are remaining, the game restarts with Round 1 but becomes more difficult and faster.

Manufactured Under License from Tehkan, Ltd.



"SWIMMER" GAME INSTRUCTIONS

1. Insert Coin(s). Push Start Button.
2. Control Swimmer with joystick.
3. To dive push joystick forward and depress Dive Button at the same time.
4. Collect fruits for points.
5. Avoid Logs.
6. Avoid Crabs, Water Spiders and Piranhas except when you are energized by catching "POWER FEED".
7. Bonus:

	<u>1st</u>	<u>2nd</u>	<u>3rd</u>	<u>4th</u>
<u>Strawberries</u>	100	200	300	400
<u>Bananas</u>	200	400	600	800
<u>Grapes</u>	300	600	900	1200
<u>Melon</u>	400	800	1200	1600
8. Free Swimmer at 10,000 pts. or when you match the lucky numbers.
9. Game over when all Swimmers are used.

SCORING FOR EATING FRUITS

	<u>1st</u>	<u>2nd</u>	<u>3rd</u>	<u>4th</u>
Cherries	50	100	150	200
Peaches	50	100	150	200
Apples	50	100	150	200
Oranges	50	100	150	200

## DIP SWITCH SETTINGS

The following Dip Switches for the Game "SWIMMER" are found on the C.P.U. Board. The settings are a guide in selecting optional game format.

### DIP SWITCH A (8 P DIP SWITCH)

	<u>SW.1</u>	<u>SW.2</u>	<u>SW.3</u>	<u>SW.4</u>	<u>SW.5</u>	<u>SW.6</u>	<u>SW.7</u>	<u>SW.8</u>
1 Coin, 1 Play							Off	Off
1 Coin, 2 Play							On	Off
1 Coin, 3 Play							Off	On
1 Coin, 6 Play							On	On
1 Coin, 1 Play					Off	Off		
2 Coin, 1 Play					On	Off		
1 Coin, 2 Play					Off	On		
1 Coin, 3 Play					On	On		
10,000 Point - 1 EXTRA			Off	Off				
20,000 Point - 1 EXTRA			On	Off				
30,000 Point - 1 EXTRA			Off	On				
No EXTRA			On	On				
3 SWIMMER	Off	Off						
4 SWIMMER	On	Off						
5 SWIMMER	Off	On						
FREE PLAY	On	On						

### DIP SWITCH B (4 P DIP SWITCH)

	<u>SW.1</u>	<u>SW.2</u>	<u>SW.3</u>	<u>SW.4</u>
COCKTAIL TABLE	Off			
UPRIGHT	On			
NO SOUND IN DEMONSTRATION			Off	
SOUND IN DEMONSTRATION				
BEGINNER (EASY)			Off	Off
DIFFICULT			Off	On
VERY DIFF.			On	On

## INSTALLATION

Your game was shipped from the factory in ready-to-play condition. A brief inspection is suggested before the machine is removed from the carton. If there is damage to the shipping carton, contact the freight carrier for claim purposes. External damage could indicate possible damage to the cabinet and/or electronics components.

After the carton has been satisfactorily inspected, remove the machine from the shipping carton.

Examine the interior of the game for disconnected wires, cables, or harnesses. Make sure the electronic devices are securely mounted in their sockets, etc. Record the game serial number, since it will be required for reference and servicing.

## ELECTRICAL REQUIREMENTS

Unless otherwise specified, this game is set to operate at 110 Volts A.C. (See Fig. 2 and 110/220 VAC conversion instructions.)

Power supply chassis schematic information and parts list are included in this manual.

## 110/220 VAC CONVERSION INSTRUCTIONS

This game contains a harness configuration which allows the machine to be operated from either a 110 VAC or 220 VAC, 50 Hz or 60 Hz power source. All games shipped from Centuri, Inc., are in the 220 VAC configuration. To change to the 220 VAC configuration follow the procedure below.

FIRST: Unplug the machine from the wall outlet to completely eliminate shock hazards.

SECOND: Remove the single 3 AMP slow-blow fuse found in the A.C. Distribution Bracket, and install two, 1.5 AMP slow-blow fuses. Next cut the #18 AWG. white jumper at both ends of the fuse holder, and replace the cover.

THIRD: On the game power transformer, locate the "orange" jumper plug which is marked, 110 VAC. Unplug the "orange" jumper, and plug in the "red" jumper marked 220 VAC.

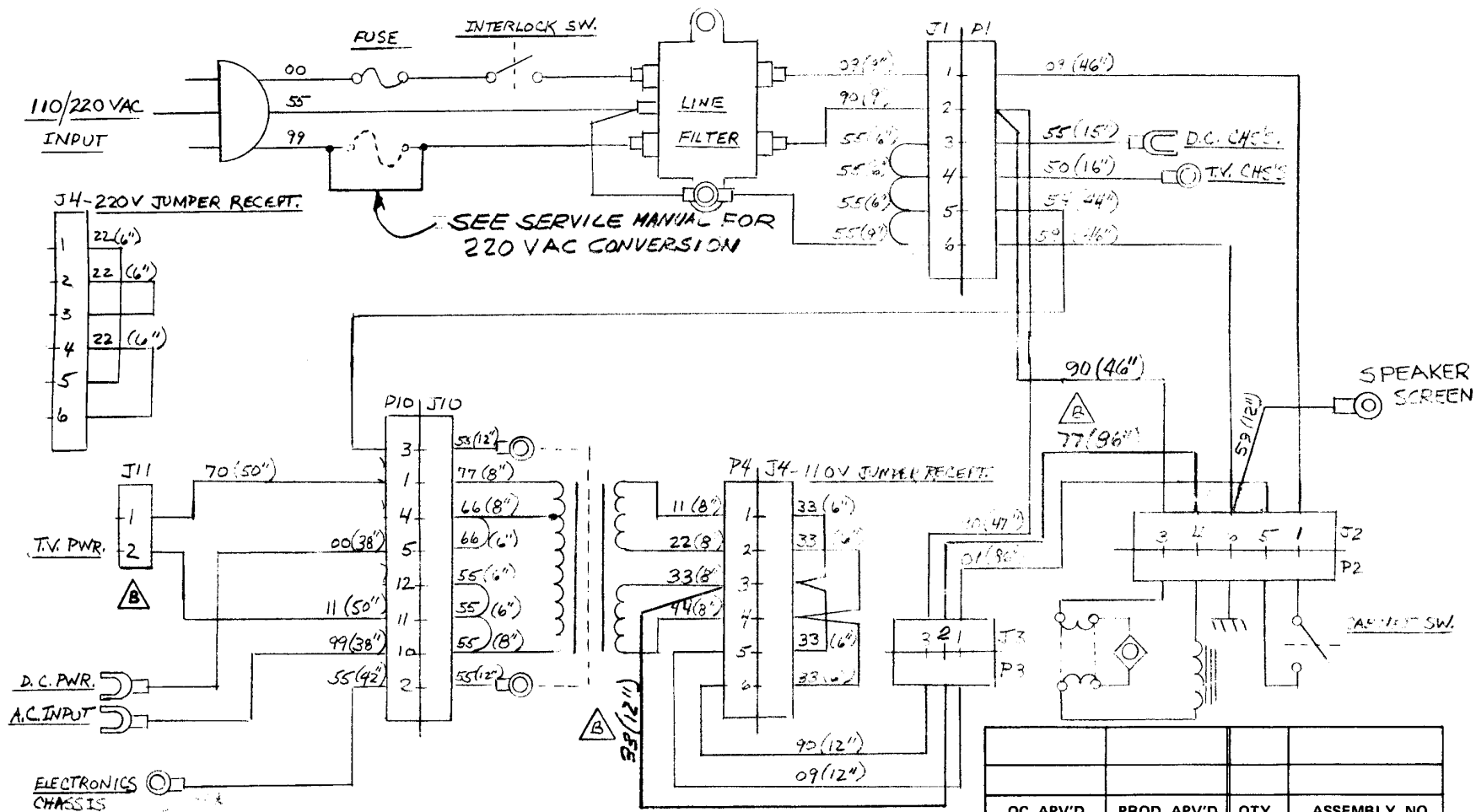
To revert back to 110 VAC, replace the components originally removed from the Steps above.

\*\*\*NOTE: The common side of the A.C. Line must not be fused in the 110 VAC configuration- Replace the #18 AWG., white jumper wire.

(Refer also to FIG. 2, 110/220 POWER INTERCONNECT DIAGRAM, #370-10-0400B

THE MATERIAL CONTAINED HEREIN IS CONFIDENTIAL  
AND NO PART OF IT CAN BE REPRODUCED WITHOUT THE  
EXPRESSED PERMISSION OF CENTURI, INC.

FIGURE 2



REV. LET.	ECN NO.	REVISION	BY	TOLERANCES	centuri inc. HIALEAH, FLORIDA 33014			
				Unless Otherwise Specified	NAME 110/220V POWER INTERCONNECT DIAG			
				FRACTIONS ± 1/32	MAT'L'S.	HEAT TREAT.	FINISH	
				DECIMALS 2 PL ± .015	DWN VAP	APV'D [Signature]	DATE 5-8-51	SCALE
				DECIMALS 3 PL ± .005			PART NO. 370-10-0400	REV. B
				HOLES + .003				
				- .001				
				ANGLES ± 1/2°				
				SHT. MET BENDS ± 2°				

AF 17899A

## ROUTINE MAINTENANCE & SERVICE

Because of the solid state electronic circuitry, this machine should require very little maintenance, and only occasional adjustments. However, it is necessary to take steps to insure this.

The volume control is located on the bottom side of the printed circuit board, farthest from the side of the cabinet, and can be accessed through the rear door.

The video monitor has been properly adjusted before shipping. Occasionally minor adjustments are necessary. Technical information, along with schematics, can be found in this manual. Adjustment controls for the monitor are located on the rear of the monitor.

"DO NOT MAKE ANY ADJUSTMENTS ON THIS MACHINE WHILE THE POWER IS ON!" This machine should only be adjusted by a "qualified" technician.

For Service Information, contact:

CENTURI, INC.

CUSTOMER SERVICE DEPARTMENT

#800-327-7710 (Outside the State of Fla.)

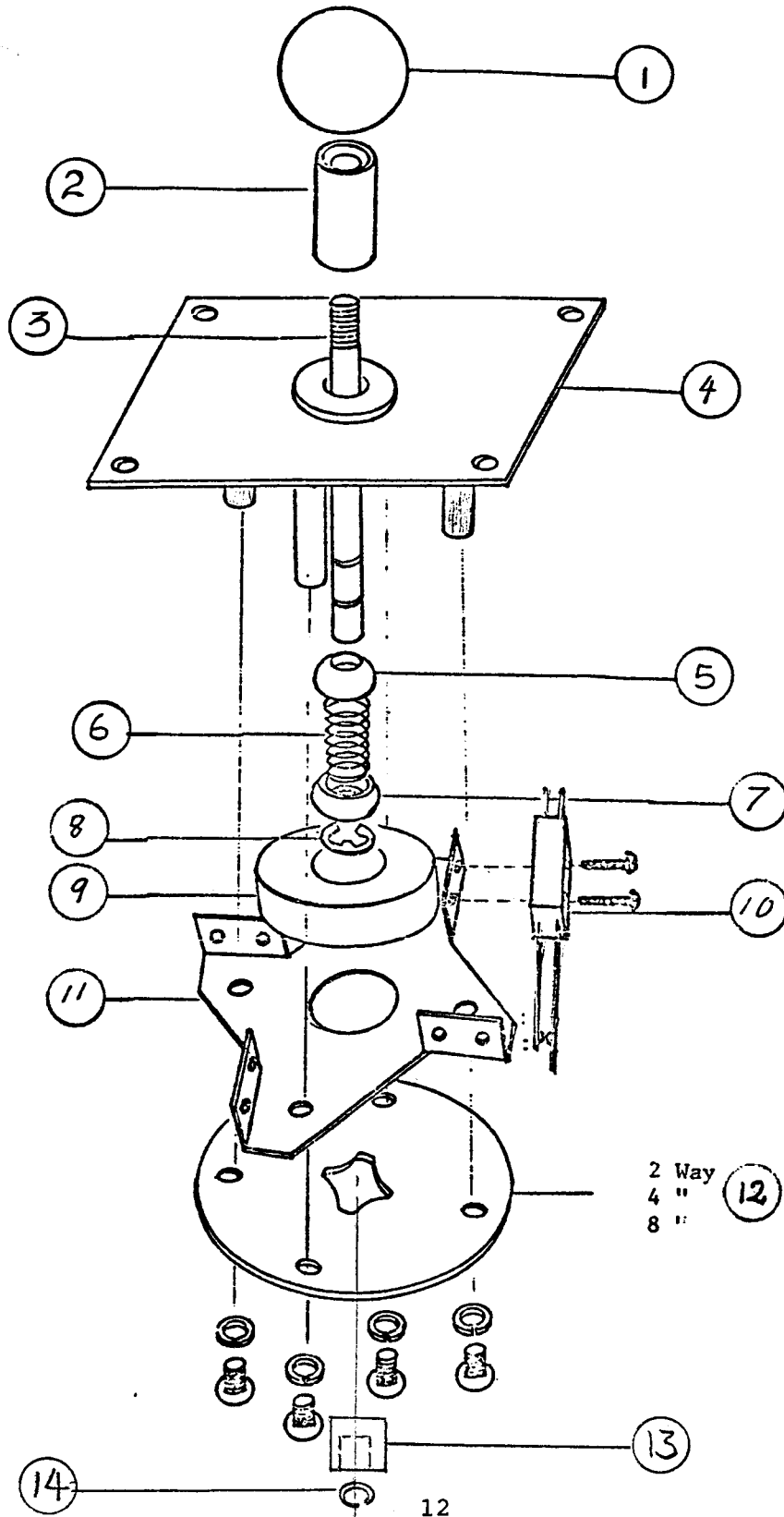
#305-556-5888 (In Florida)

### POWER SUPPLY

The Computer Board in this game operates most efficiently and reliably when the power supply is set so the voltage on the Board is 5.0 Volts,  $\pm 0.1$  Volts. To check this, place a meter across 5 Volts, and ground, at the edge connector. If necessary, adjust the screwdriver control on the power supply, so the meter reads between 4.9 and 5.1 Volts.

(FIG. 3) EXPLODED VIEW OF JOYSTICK ASS'Y

2-4-8 Way JOYSTICK

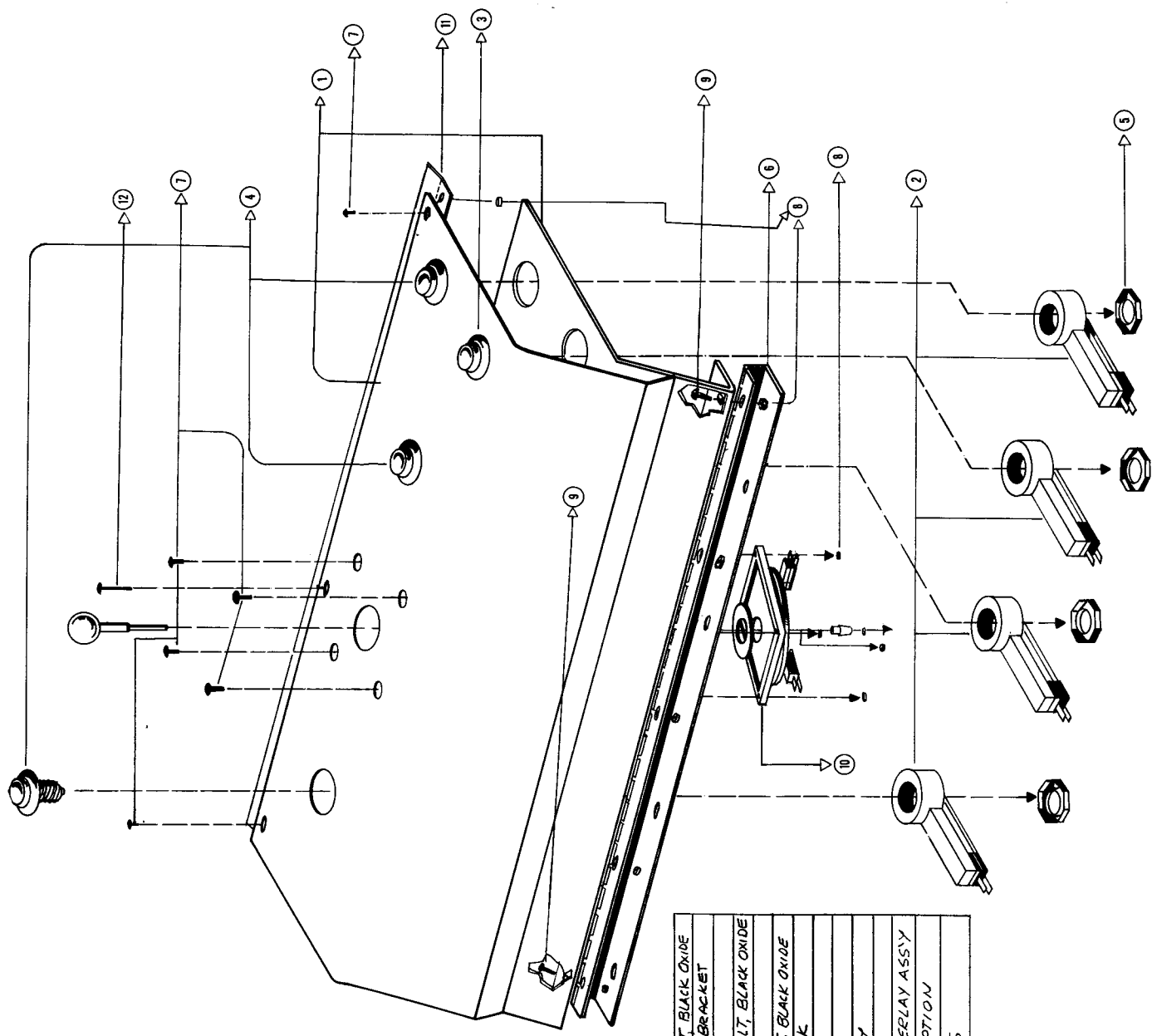


JOYSTICK 8 WAY MONROE LEAF SW. ASS'Y

PARTS LIST

<u>ITEM</u>	<u>CENTURI P/N:</u>	<u>DESCRIPTION:</u>	<u>QNTY.</u>
1.	50130079	1 1/4" O.D. BALL	1
2.	50130080	SPACER	1
3.	50130110	SHAFT	1
4.	50130082	TOP PLATE WELDING ASS'Y	1
5.	50130083	TOP BALL	1
6.	50130084	SPRING	1
7.	50130085	BOTTOM BALL	1
8.	50130086	E-RING	1
9.	50130087	NYLON ACTUATOR	1
10.	50130078	MOLDED BLADE SW., WICO	4
11.	50130091	BOTTOM SUPPORT PLATE	1
12.	50130088	2 WAY FUNCTION PLATE	1
	50130089	4 WAY FUNCTION PLATE	1
	50130090	8 WAY FUNCTION PLATE	1
13.	50130111	ROLLER	1
14.	50130112	C-RING	1





CONTROL PANEL

12	1	10111014	#10-24 x 1 3/4 CARRIAGE BOLT, BLACK OXIDE
11	1	375-03-0400	DECK & GLASS ANGLE BRACKET
10	1	5013 0109	JOYSTICK, B POSITION
9	5	10111006	#10-24 x 3/4 CARRIAGE BOLT, BLACK OXIDE
8	12	1015 0007	#10-24 KEP NUT
7	6	10111004	#10-24 x 1/2 CARRIAGE BOLT, BLACK OXIDE
6	1	36110-0600D	HINGE, CONTROL DECK
5	4	50130050	PAL NUT
4	3	5013 0049	RED BUTTON ASSY
3	1	5013 0048	WHITE BUTTON ASSY
2	4	50130047	SWITCH & BRACKET
1	1	377-01-0800	CONTROL PANEL & OVERLAY ASSY
ITEM	QTY	PART No	DESCRIPTION
BILL OF MATERIALS			

(FIG,4) EXPLODED VIEW OF CONTROL PANEL ASSY.

## 2800-0 FRONT PLATE EXPLODED VIEW 25¢ COIN

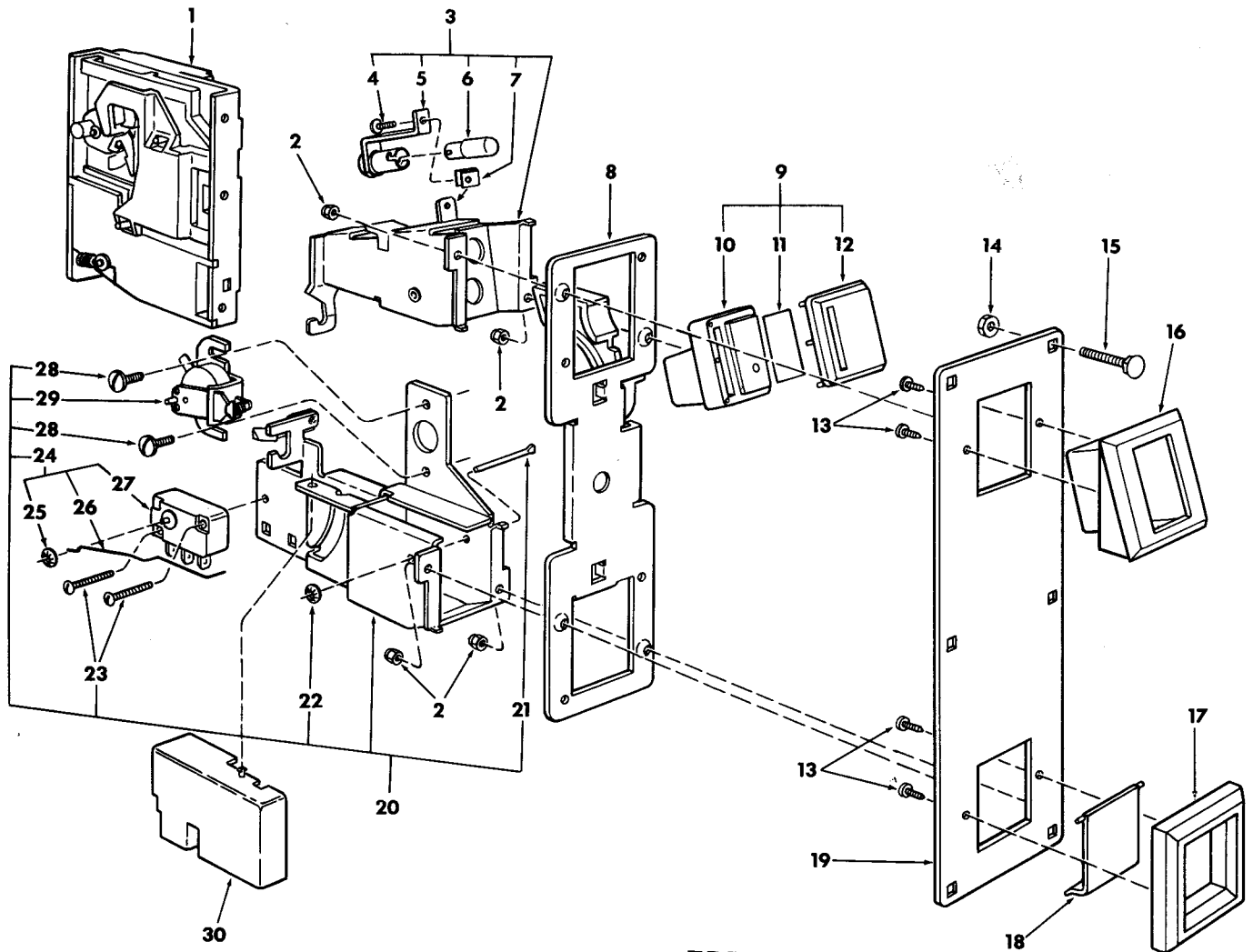


FIGURE 5

Index No.	Part No.	Description	Index No.	Part No.	Description
1	5301-10	25¢ Coin Acceptor	16	904588	Coin Inlet Housing
2	400-4	#4-40 Self Locking Nut	17	904590	Coin Return Cover
3	404351	Coin Inlet Chute Assembly	18	904599	Coin Return Door
4	110-4-6	4 x 3/8 Screw	19	404463	Frontplate Assembly, 3-1/8" x 9-1/4"
5	904717	Lamp Socket	20	404350	Coin Return Chute Assembly
6	904716	#47 Lamp (6.3 Volt)	21	905115	Bar
7	904712	Fastener	22	904936	Keeper
8	404464	Inner Panel/Lever Assembly	23	100-4-12	4-40 x 3/4 Screw
9	404348	Coin Return Button Assembly	24	404353	Switch & Wire Assembly
10	904591	Coin Return Button	25	900651	Retainer
11	904703	25¢ Price Decal	26	904710-1	Switch Wire-Silver
12	904589-2	Reject Cover Button (25¢)	27	904845	Switch
13	345-4-5	#4 x 5/16 Pan Head Screw	28	100-6-3	6-32 x 3/16 Screw
14	406-10	#10-24 Hex Nut (Mounting Hardware)	29	404354	12 Volt Crem Assembly
15	905022	#10-24 x 1-1/8 Carriage Bolt (Mounting Hardware)	30	904762	Switch Cover

2800 SERIES COIN DOOR EXPLODED VIEW

25¢ U.S. COIN

(FIGURE 6)

PARTS LIST

<u>NO.</u>	<u>CENTURI P/N:</u>	<u>MANUFACTURING P/N:</u>	<u>DESCRIPTION:</u>
1.	50270160	404429	INNER PANEL w/LEVERS SUBASS'Y.
3.	50130062	904782	TOGGLE SWITCH
4.	50270161	904706	TEST SWITCH DECAL
5.	364-62-1000A	-----	CUSTOM HARNESS ASS'Y.
6.	50270162	904822	INSULATION
7.	50270140	404352	COIN COUNTER ASS'Y.
9.	50270163	904722	WIRE KEY HOLDER
10.	50270164	904762	SWITCH COVER
12.	50270165	404354	C.R.E.M. COIL ASS'Y. (12 VOLT D.C.)
17.	50270142	904710-1	SILVER SWITCH WIRE- FOR 25¢ U.S. COIN
18.	50130061	904845	SWITCH
19.	50270143	904701	COIN CHUTE
20.	50270166	904598	COIN RETURN BOX
21.	50270167	404428	SWITCH & C.R.E.M. COIL BRACKET ASS'Y.
22.	50270144	5301-10	25¢ ACCEPTOR
23.	50270168	905115	BAR
25.	50270169	904717	MINIATURE BAYONET-BASE LAMP SOCKET
26.	50270170	904716	#47 LAMP (6.3 VOLTS)
27.	50270171	404418	COIN INLET CHUTE-SUBASS'Y.
31.	50130063	904707	SLAM SWITCH ASSEMBLY

**2800 SERIES COIN DOOR EXPLODED VIEW**  
**25¢ U.S. COIN**

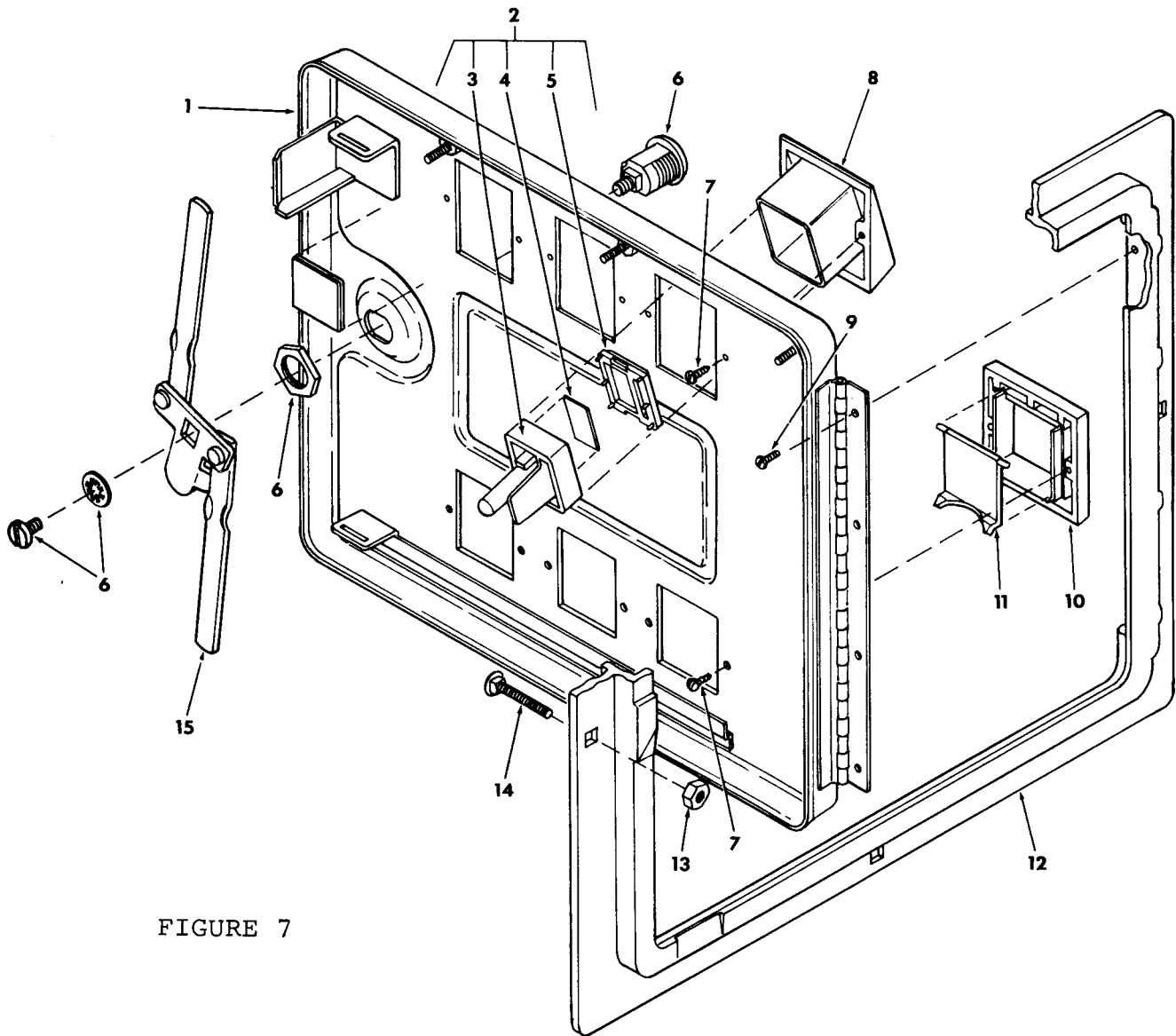


FIGURE 7

Index No.	Part No.	Description	Index No.	Part No.	Description
1	404341	Coin Door Only (2 Coin)	7	345-4-5	Screw
	404341-1	Coin Door Only (3 Coin)	8	904588	Coin Button Housing
2	404348-1	Coin Return Button Assembly for U.S. 25¢ Coin	9	325-4-4	Screw
3	904591	Coin Return Button	10	904590	Coin Return Bezel
4	904703	U.S. 25¢ Price Decal	11	904599	Coin Return Cover
5	904589-2	Coin Return Button Cover for U.S. 25¢ Coin	12	904581	Coin Door Frame, 11-5/8" x 13-3/8" Mounts in a 10-3/8" x 12-3/16" Opening
6	904707-1	Lock Assembly	13	406-416	Hex Nut
			14	904734	Carriage Bolt
			15	404357	Locking Arm Assembly

2800 SERIES COIN DOOR EXPLODED VIEW

25¢ U.S. COIN

(FIGURE 7)

PARTS LIST

<u>NO.</u>	<u>CENTURI P/N:</u>	<u>MANUFACTURING P/N:</u>	<u>DESCRIPTION:</u>
1.	50270152	404341	COIN DOOR ONLY (2 COIN)
2.	50270158	404348-1	COIN DOOR BUTTON ASS'Y. FOR U.S. 25¢ COIN
3.	50270145	904591	COIN RETURN BUTTON
4.	50270146	904703	U.S. 25¢ PRICE DECAL
5.	50270147	904589-2	COIN RETURN BUTTON COVER
6.	50270148	904707-1	LOCK ASSEMBLY w/KEYS
8.	50270149	904588	COIN BUTTON HOUSING (INLET HOUSING)
10.	50270157	904590	COIN RETURN BEZEL
11.	50270150	904599	COIN RETURN COVER
12.	50270151	904581	COIN DOOR FRAME (11 5/8"x13 3/8")
15.	50270159	404357	LOCKING ARM ASSEMBLY

P.C.B. ASS'Y A 102-401PARTS LIST

<u>ITEM</u>	<u>PART NUMBER</u>	<u>DESCRIPTION:</u>	<u>USAGE:</u>
1.	50010314	2732, EPROM	3
2.	50070013	18.432 MHz, CRYSTAL	1
3.	50010329	2125AL-2, STATIC RAM	7
4.	50010372 LS	74LS126, I.C.	1
5.	50010096 LS	74LS08, I.C.	4
6.	50010019 LS	74LS74, I.C.	8
7.	50010002 LS	74LS00, I.C.	3
8.	50010252 LS	74LS374, I.C.	1
9.	50010045 LS	74LS157, I.C.	13
10.	50010022 LS	74LS86, I.C.	10
11.	50010005 LS	74LS04, I.C.	4
12.	50010004 LS	74LS02, I.C.	2
13.	50010161 LS	74LS11, I.C.	1
14.	50010035 LS	74LS161, I.C.	6
15.	50010310	2114-200 NS	4
16.	50010105 LS	74LS32 I.C.	1
17.	50010026 LS	74LS107 I.C.	1
18.	50010232	74S288, I.C.	1
19.	50010030 LS	74LS174, I.C.	5
20.	50010195 LS	74LS367	2
21.	50010249 LS	74LS245, I.C.	2
22.	50010192 LS	74LS139, I.C.	3
23.	50010231	74S287, I.C.	2
24.	50010245 LS	74LS21, I.C.	1
25.	50010010 LS	74LS27, I.C.	2
26.	50010261 LS	74LS273, I.C.	4
27.	50010139 LS	74LS175, I.C.	3
28.	50010007 LS	74LS10, I.C.	1
29.	50010009	7425, I.C.	2
30.	50010262 LS	74LS283, I.C.	2
31.	50010369 LS	74LS163, I.C.	2
32.	50010222 LS	74LS194, I.C.	6
33.	50360006	1K OHM, 9 PIN SIP RESISTOR	9

P.C.B. ASS'Y A 102-401PARTS LIST

<u>ITEM</u>	<u>PART NUMBER</u>	<u>DESCRIPTION:</u>	<u>USAGE:</u>
34.	50360017	5.6K OHM, 9 PIN RESISTOR	1
35.	50060226	2.2 MFD, 50V, ELECTROLYTIC, RADIAL CAP.	1
36.	50040010	0.1 MFD, 16V, DISC CERAMIC CAPACITOR	39
37.	50040210	200 PF, 16V, DISC CERAMIC CAPACITOR	1
38.	50030095	330 OHM, 1/4 WATT, 5% RESISTOR	2
39.	50030051	1K OHM, 1/4 WATT, 5% RESISTOR	2
40.	50030010	470 OHM, 1/4 WATT, 5% RESISTOR	2
41.	50030085	390 OHM, 1/4 WATT, 5% RESISTOR	1
42.	50030038	100 OHM, 1/4 WATT, 5% RESISTOR	1
43.	50150061	24 PIN I.C. SOCKET	3
44.	50150256	50 PIN RIGHT ANGLE PCB HEADER W/EJECTOR	2
45.	50150346	6 PIN RIGHT ANGLE WAFER	1
46.	50210252	A 102-401 P.C.B. (BARE)	1

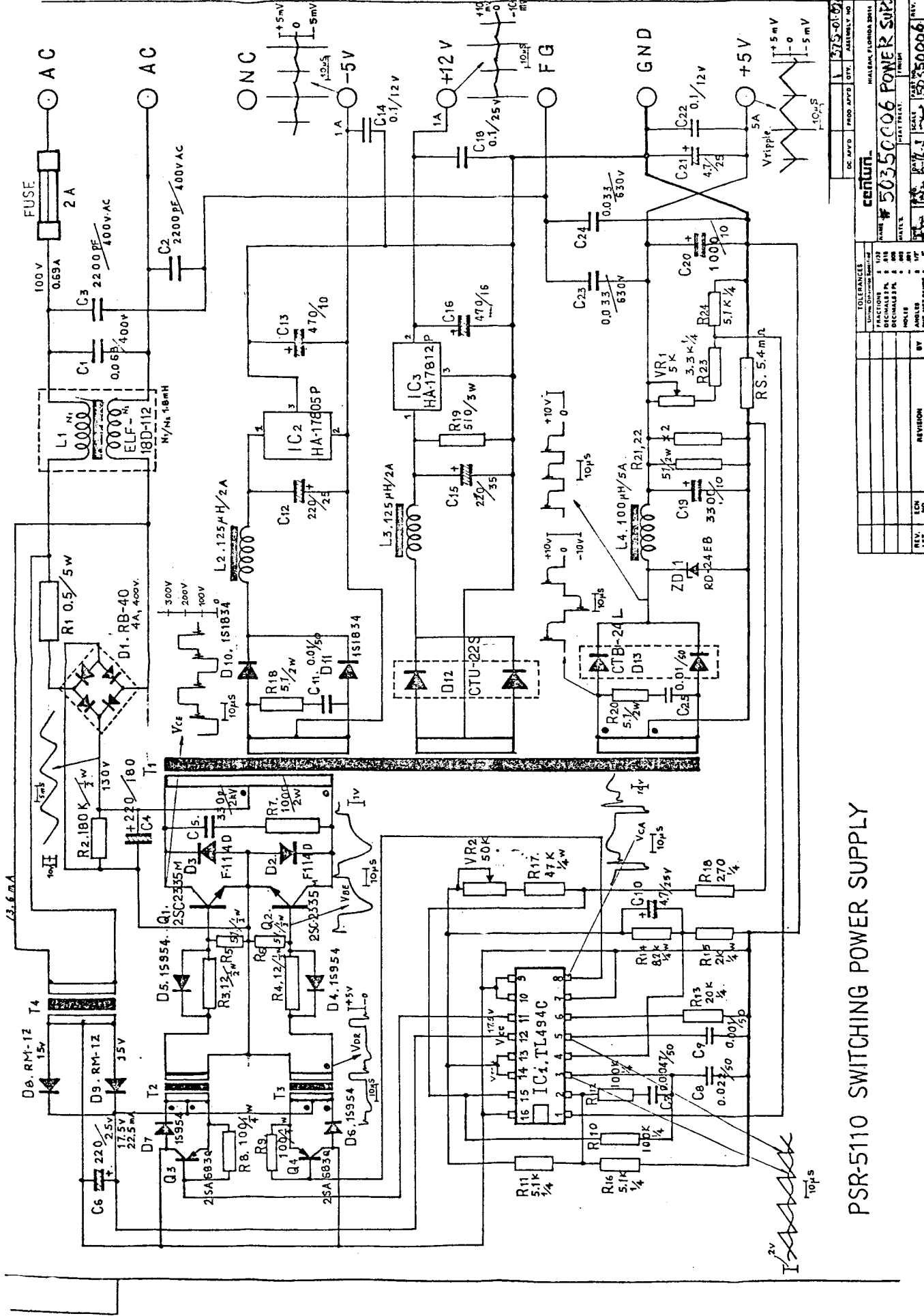
P.C.B. ASS'Y B 102-402PARTS LIST

<u>ITEM</u>	<u>PART NUMBER</u>	<u>DESCRIPTION:</u>	<u>USAGE:</u>
1.	50010187	Z-80 CPU	1
2.	50010177	AY-3-8910 SOUND GENERATOR	2
3.	50010171	2716, EPROM	3
4.	50010314	2732, EPROM	9
5.	50010341	Z80-A CPU	1
6.	50010370	2K x 8, RAM M58725P (MITSUBISHI)	1
7.	50010340	AUDIO AMPLIFIER M51516L (MITSUBISHI)	1
8.	385-08-0100	HEAT SINK	1
9.	50120016	1K OHM, TRIMMER POT	1
10.	50070024	4 MHz, CRYSTAL	1
11.	50010264 LS	74LS368, I.C.	6
12.	50010004 LS	74LS02, I.C.	2
13.	50010222 LS	74LS194, I.C.	6
14.	50010249 LS	74LS245, I.C.	3
15.	50010252 LS	74LS374, I.C.	1
16.	50010310	2114-200 NS	4
17.	50010248 LS	74LS138, I.C.	5
18.	50010096 LS	74LS08, I.C.	5
19.	50010105 LS	74LS32, I.C.	2
20.	50010005 LS	74LS04, I.C.	1
21.	50010019 LS	74LS74, I.C.	2
22.	50010024 LS	74LS93, I.C.	1
23.	50010002 LS	74LS00, I.C.	1
24.	50010045 LS	74LS157, I.C.	4
25.	50010195 LS	74LS367, I.C.	3
26.	50010224 LS	74LS259, I.C.	1
27.	50010192 LS	74LS139, I.C.	1
28.	50010138	4020, I.C.	1
29.	50010373	40H00 4P	1
30.	50060107	1000 MFD, 16V, ELECTROLYTIC, AXIAL CAP.	2
31.	50060227	470 MFD, 16V, ELECTROLYTIC, RADIAL CAP.	1
32.	50060177	100 MFD, 16V, ELECTROLYTIC, RADIAL CAP.	1
33.	50060139	47 MFD, 16V, ELECTROLYTIC, RADIAL CAP.	1

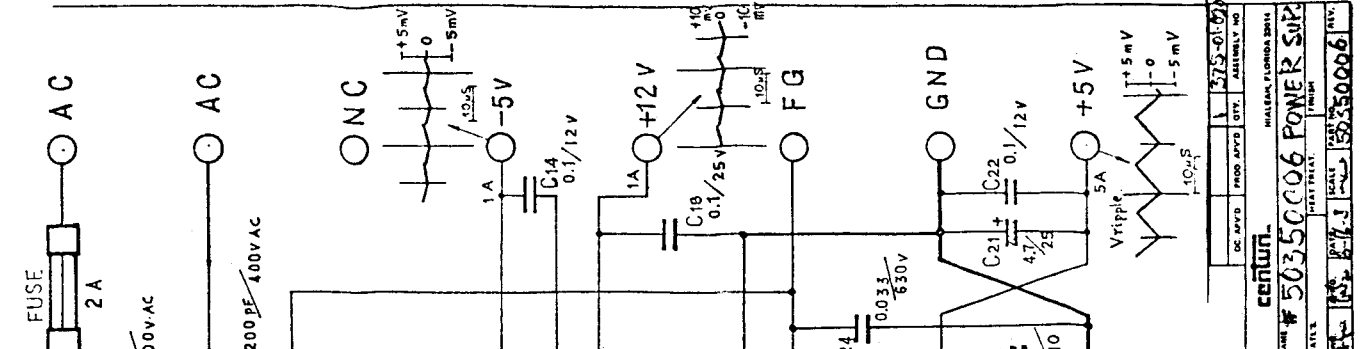


P.C.B. ASS'Y B 102-402PARTS LIST

<u>ITEM</u>	<u>PART NUMBER</u>	<u>DESCRIPTION:</u>	<u>USAGE:</u>
34.	50060120	10 MFD, 16V, ELECTROLYTIC, RADIAL CAP.	1
35.	50060228	4.7 MFD, 25V, ELECTROLYTIC, RADIAL CAP.	1
36.	50060226	2.2 MFD, 50V, ELECTROLYTIC, RADIAL CAP.	6
37.	50130034	8 POSITION DIP SWITCH	1
38.	50130075	4 POSITION DIP SWITCH	1
39.	50360006	1K OHM, 9 PIN SIP RESISTOR	3
40.	50040010	0.1 MFD, 16V, DISC CERAMIC CAP.	62
41.	50040059	1000 PF, 25V, DISC CERAMIC CAP.	6
42.	50040211	0.15 MFD, 50V, MYLAR CAPACITOR	1
43.	50040182	0.01 MFD, 50V, MYLAR CAPACITOR	1
44.	50100007	DIODE	2
45.	50100008	LED (MINIATURE)	2
46.	50030125	220 OHM, 1/4 WATT, 5% RESISTOR	22
47.	50030006	4.7K OHM, 1/4 WATT, 5% RESISTOR	7
48.	50030051	1K OHM, 1/4 WATT, 5% RESISTOR	12
49.	50030151	22K OHM, 1/4 WATT, 5% RESISTOR	1
50.	50030063	10K OHM, 1/4 WATT, 5% RESISTOR	1
51.	50030092	1MEG OHM, 1/4 WATT, 5% RESISTOR	1
52.	50150256	50 PIN RIGHT ANGLE PCB HEADER W/EJECTOR	2
53.	50210252	B 102-402 P.C.B. (BARE)	1
54.	50150061	24 PIN I.C. SOCKET	9
55.	10010087	5-40x1/2 PA/PH/MS	4
56.	10150002	5-40 KEP NUT	4
57.	50100014	DIODE	1



PSR-5110 SWITCHING POWER SUPPLY

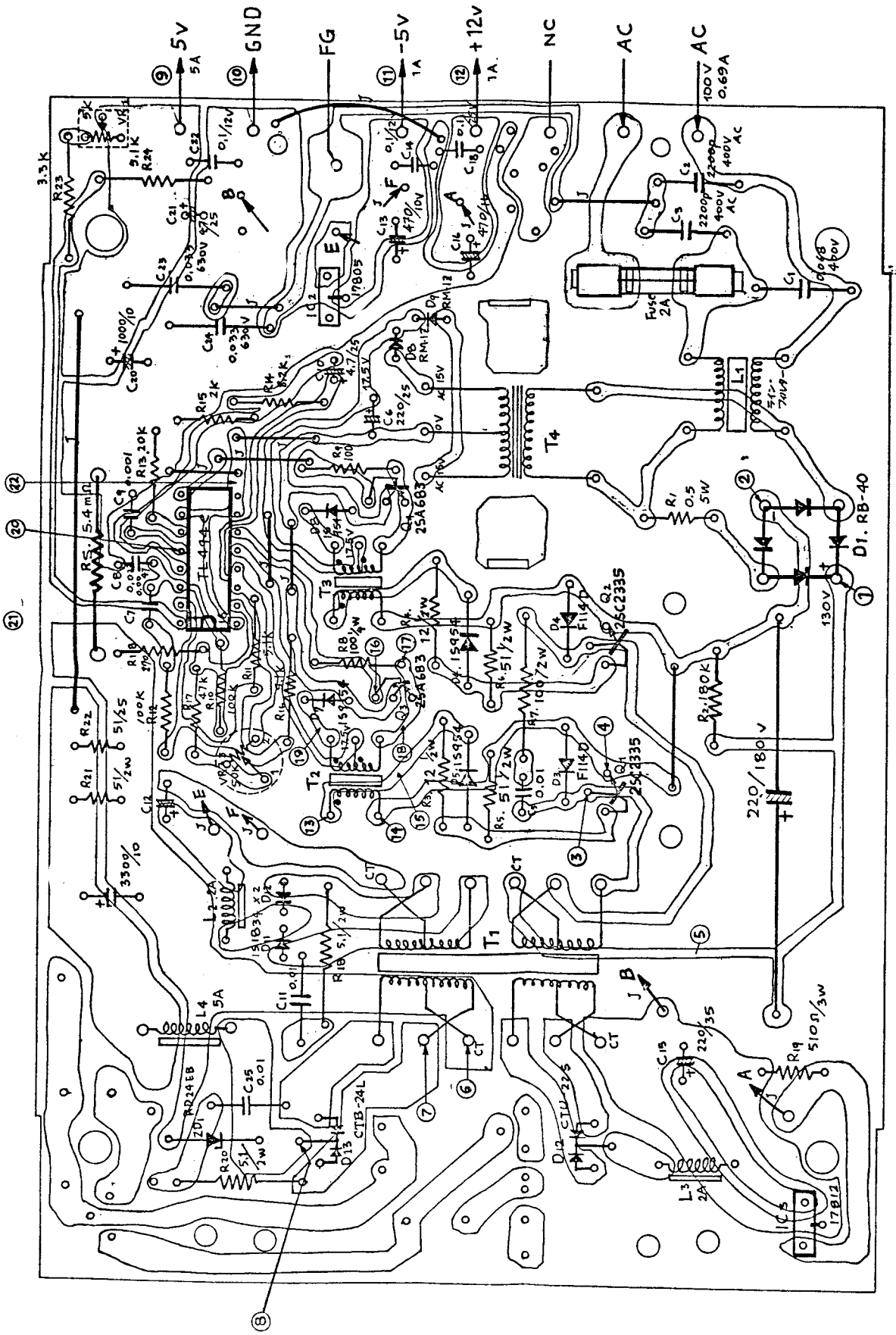


REV. LET.	EN. NO.	REVISION	BY

TOLERANCES	
RESISTORS	± 1%
INDUCTORS	± 1%
CAPACITORS	± 5%
DIODES	± 1%
TRANSISTORS	± 1%
IC'S	± 1%

DC APP'D.	PROD APP'D.	ASSEMBLY NO.

CENTRUM	
MILWAUKEE, FLORIDA 33151	
PART NO. 5035CC06 POWER SUPPLY	
DATE	REVISED



CENTURI	
#50350006 Power	
SUPPLY	

PSR-5110 SWITCHING POWER SUPPLY

PSR-5110 SWITCHING POWER SUPPLYPARTS LIST

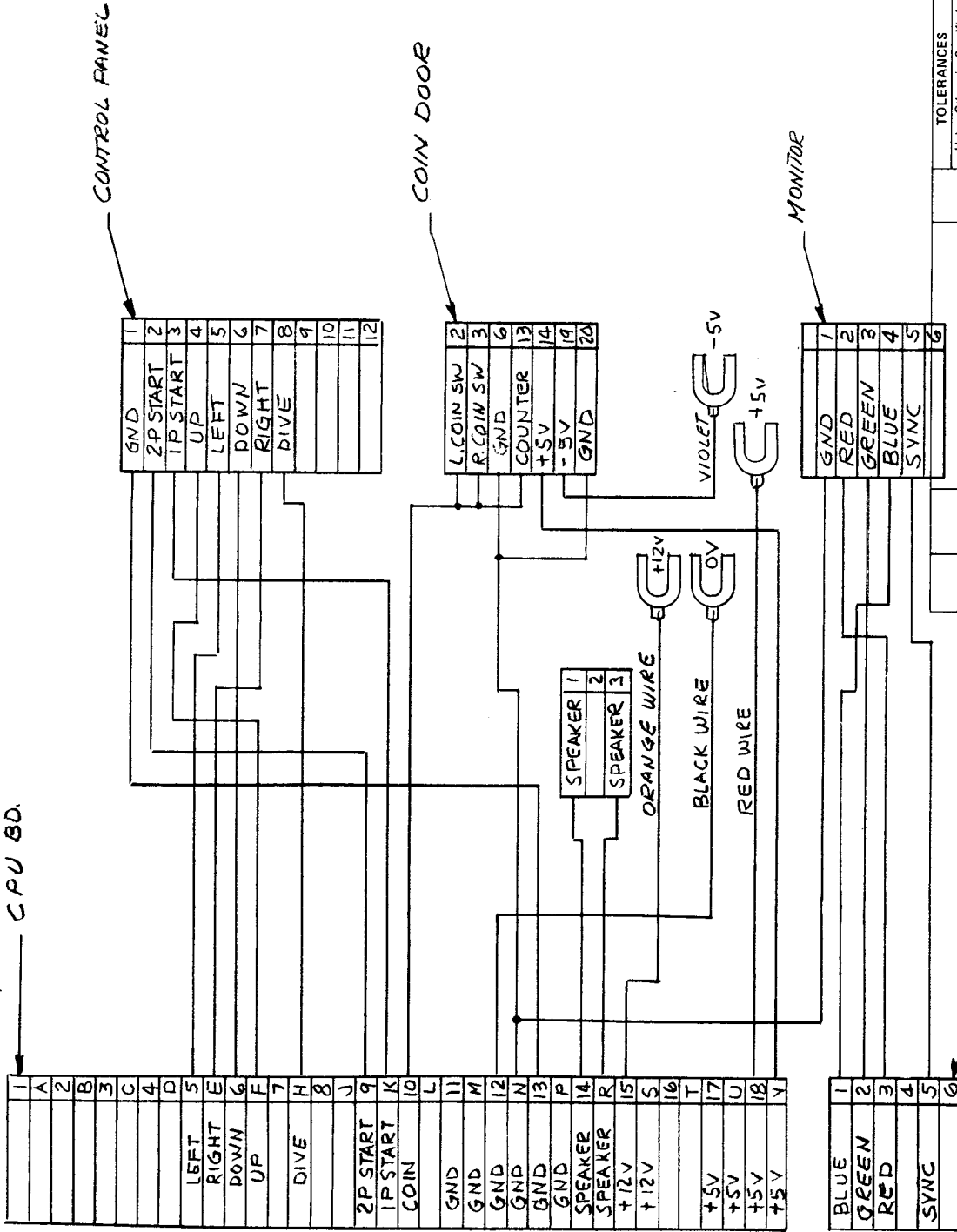
<u>SYMBOL:</u>	<u>DESCRIPTION:</u>	<u>QNTY.</u>
D1	STACK DIODE	1
D8, D9	RECTIFIER	2
D2, D3	HIGH SPEED DIODE	2
D4, D5, D6, D7	HIGH SPEED DIODE	4
D13	HIGH SPEED DIODE	1
D12	HIGH SPEED DIODE	1
D10, D11	HIGH SPEED DIODE	2
ZD1	ZENER DIODE	1
Q1, Q2	TRANSISTOR	2
IC1	I.C.	1
IC2	I.C.	1
IC3	I.C.	1
T1	PULSE POWER TRANSFORMER	1
T2, T3	PULSE DRIVE TRANSFORMER	2
T4	BIAS TRANSFORMER	1
L2, L3	R.F. CHOK TRANSFORMER	2
L4	R.F. CHOK TRANSFORMER	1
L1	A.C. LINE FILTER	1
C2, C3	LINE BY-PASS CONDENSER	3
C1, C23, C24	METALIZED POLIESTER CONDENSER	3
C9	MYLAR CONDENSER	1
C7	MYLAR CONDENSER	1
C11, C25	MYLAR CONDENSER	2
C8	MYLAR CONDENSER	1
C5	CERAMIC CONDENSER	1
C14, C18, C24	CERAMIC CONDENSER	3
C10, C21	ELECTROLYTIC CONDENSER	2
C13, C16	ELECTROLYTIC CONDENSER	2
C20	ELECTROLYTIC CONDENSER	1
C19	ELECTROLYTIC CONDENSER	1
C12, C15	ELECTROLYTIC CONDENSER	2
C6	ELECTROLYTIC CONDENSER	1
C4	ELECTROLYTIC CONDENSER	1
R1	CEMENT FUSE RESISTOR	1
R21, R22	METAL RESISTOR	2
R19	METAL RESISTOR	1
R7	METAL RESISTOR	1
R18, R20	METAL RESISTOR	2
R2, R3, R4, R5, R6, R8, R9, R10, R11, R12, R13, R14, R15, R16, R17, R18, R23, R24	METAL RESISTOR	18
RS	MANGAN WIRE, 5.4M, OHM	1
VR1	SEMI-FIXED RESISTOR	1
VR2	SEMI FIXED RESISTOR	1
F1	FUSE	1
F2	FUSE HOLDER	1
10m/m	NICKEL WIRE, 0.7 $\phi$	1
150m/m	TUBE, 1.0 $\phi$	1
100m/m	TUBE, 1.5 $\phi$	1
J11	LEAD WIRE	1

PSR-5110 SWITCHING POWER SUPPLYPARTS LIST

<u>SYMBOL:</u>	<u>DESCRIPTION:</u>	<u>QNTY.</u>
J12	LEAD WIRE	1
J13	LEAD WIRE	1
J14	LEAD WIRE	1
	BIND TUBE	3
SM221	MAIN P.C. BOARD	1
	TERMINAL	1
	RATING LABEL	1
	TERMINAL LABEL	1
	BIND SCREW	5
	TRUSS SCREW	8
	TAPPING SCREW	13
	HEX NUT	7
	FLAT WASHER	7
	RECTANGULAR WASHER	6
	SPRING WASHER	7
	MICA WASHER	12
	INSULATION BUSHING	6
	TOP CASE/BOTTOM CASE	2
	FRONT PANEL	1
	REAR PANEL	1
	TERMINAL SUPPORT	1
	HEAT SINK A	1
	HEAT SINK B	1
	HEAT SINK C	1
	HEAT SINK D	1
	METAL HOLDER	4

THE MATERIAL CONTAINED HEREIN IS CONFIDENTIAL AND NO PART OF IT CAN BE REPRODUCED WITHOUT THE EXPRESSED PERMISSION OF CENTURI, INC.

CPU BD.



VIDEO BD.

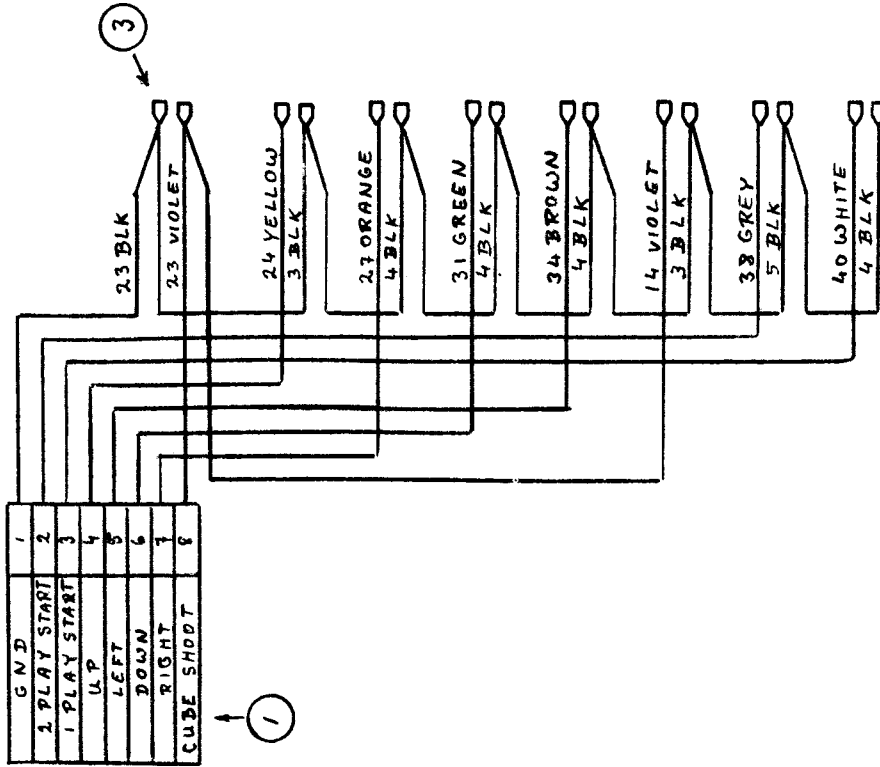
NOTE: NUMBERS (COMPONENTS SIDE)

OC. APV'D	PROD. APV'D	QTY.	ASSEMBLY NO.
		1	
<b>centuri</b> HIALEAH, FLORIDA 33014			
NAME		C. P. U. HARNESS	
MATERIALS		HEAT TREAT. FINISH	
DATE	SCALE	PART NO.	REV.
7-26-82	3/8	385-12-0100	
APV'D	DATE	FINISH	
AAN	7-26-82		

TOLERANCES		Unless Otherwise Specified	
FRACTIONS	± 1/32	DECIMALS 2 PL	± .015
DECIMALS 3 PL	± .005	HOLES	± .003
ANGLES	± .001	SHT. MET BENDS	± 1/2°

REV. LET.	ECN NO.	REVISION	BY

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BILL OF MATERIALS			
ITEM	QTY	PART NO	DESCRIPTION
1	1	50150261	12 PIN PLUG, MOLEX #03-09-2122
2	8	50150222	PIN TERMINAL, MOLEX #02-09-2116
3	16	50150029	3/16" PUSH-ON TERMINAL.
4	10	50270003	TY - WRAP, 4"
5	50	50179906	INSULATED WIRE, BLACK, 22 AWG
6	34	50171106	" " BROWN "
7	27	50173306	" " ORANGE "
8	24	50174406	" " YELLOW "
9	31	50175506	" " GREEN "
10	38	50178806	" " GREY "
11	40	50170006	" " WHITE "
12	37	50177706	" " VIOLET "

QC. APV'D	PROD. APV'D	QTY.	ASSEMBLY NO
		1	377-01-0700

**centuri**  
INC.

HIALEAH, FLORIDA 33014

NAME CONTROL PANEL HARNESS.

MAT'L'S. SEE B.O.M. HEAT TREAT. FINISH

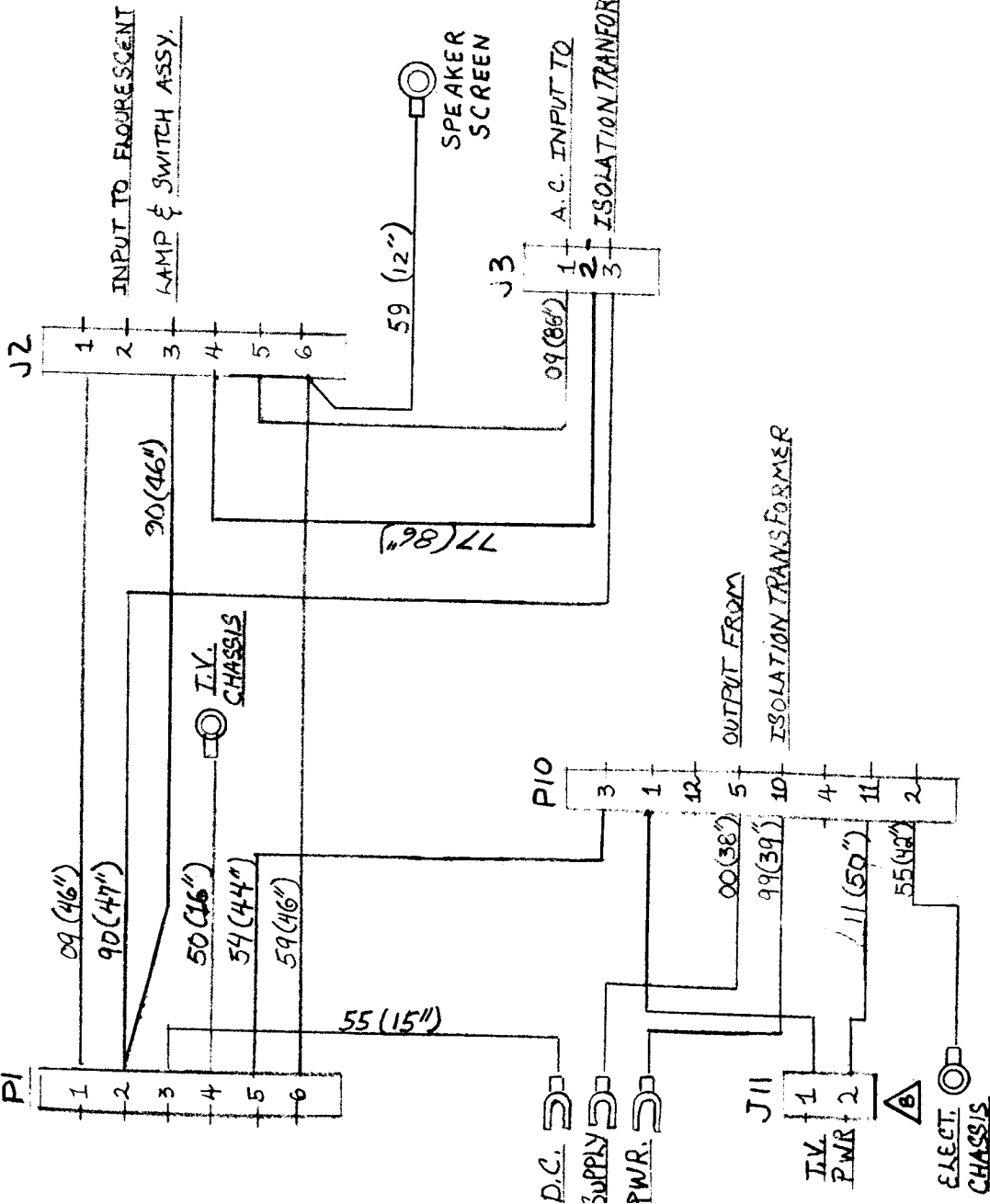
DWN. J.A.	DATE 10-8-81	SCALE 3/8"	PART NO. 377-12-0400	REV.
APP. [Signature]				

TOLERANCES	
Unless Otherwise Specified	
FRACTIONS	± 1/32
DECIMALS 2 PL	± .015
DECIMALS 3 PL	± .005
HOLES	+ .003
ANGLES	- .001
SHT. MET BENDS	± 1/2°

REV. LET. ECN NO. REVISION BY

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A.C. LINE CONN.



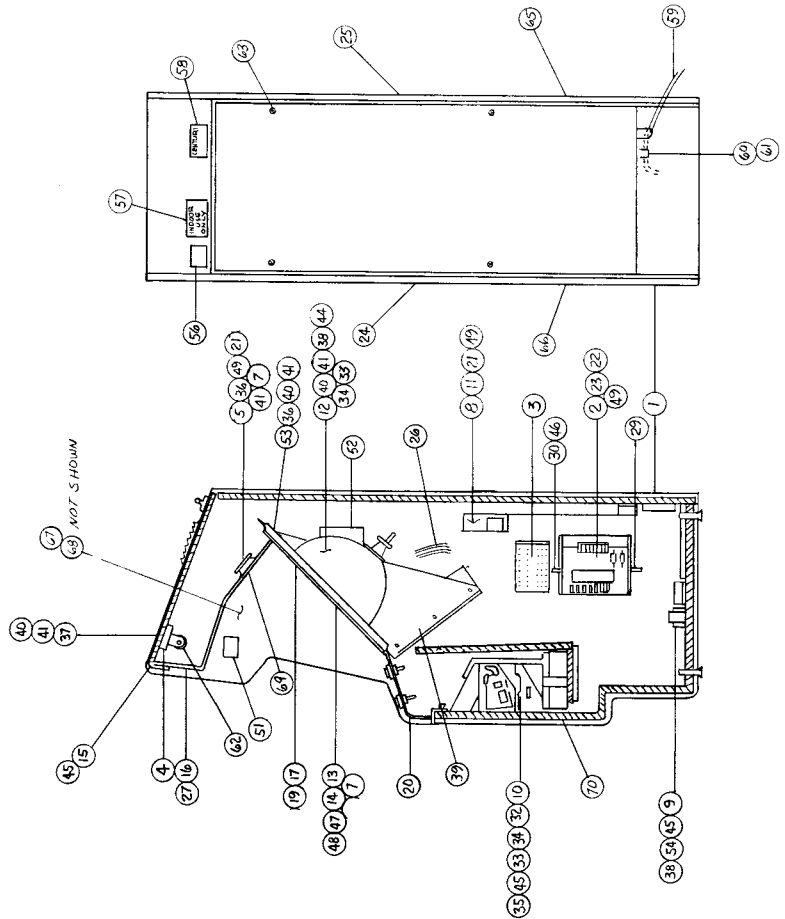
23	30	50270003	4" wire ties
22	50	50151104	BROWN WIRE #18 AWG
21	50	50157004	Violet wire #18 AWG
20			
19			
18	56	50175904	Green white stripe #18 AWG
17	44	50175404	Green yellow stripe #18 AWG
16	16	50175004	Green black stripe #18 AWG
15	12	50170904	Black white stripe #18 AWG
14	93	50179004	White/green stripe #18 AWG
13	86	50177704	VIOLET WIRE #18 AWG
12	57	50175504	GREEN WIRE #18 AWG
11	39	50170004	White wire #18 AWG
10	38	50174404	Black wire #18 AWG
9	1	50150231	3 PIN RECEPT W/INSULATED HOLES MOLEX #03-07-1031
8	9	50150278	FEMALE PINS #03-09-1118
7	12	50150277	MALE PINS #03-09-1117
6	3	50150095	OPEN ZIG #03-09-1116
5	3	50150105	RING LUG #03-09-1115
4	1	50150372	HOLDING WIRE #03-09-1114
3	1	50150260	ZIG ZAG RECEPT MOLEX #03-09-1113
2	1	50150262	6 PIN PLUG W/ENTS MOLEX #03-09-1112
1	1	50150261	12 PIN PLUG W/ENTS MOLEX #03-09-1111
			Bill of Materials

centuri inc		HIALEAH, FLORIDA 33014	
NAME		Cabinet Power Harness	
MATERIALS		FINISH	
DWN. <i>AB</i>	DATE	SCALE	PART NO.
<i>AB</i>	5-6-81	<i>X</i>	370-12-0200
REV. LET.	ECN NO.	REVISION	BY
B		ADDED ITEM 4: CHASSIS QTY ITEM 7: 50	JTS
A	370-24	ADDED GREEN/WHITE WIRE - 12" AND 1/4" RING LUG #50150105	JTS
TOLERANCES		Unless Otherwise Specified	
FRACTIONS	±	1/32	
DECIMALS 2 PL	±	.015	
DECIMALS 3 PL	±	.005	
HOLES	+	.003	
ANGLES	-	.001	
SHT. MET BENDS	±	1/2"	
		2"	

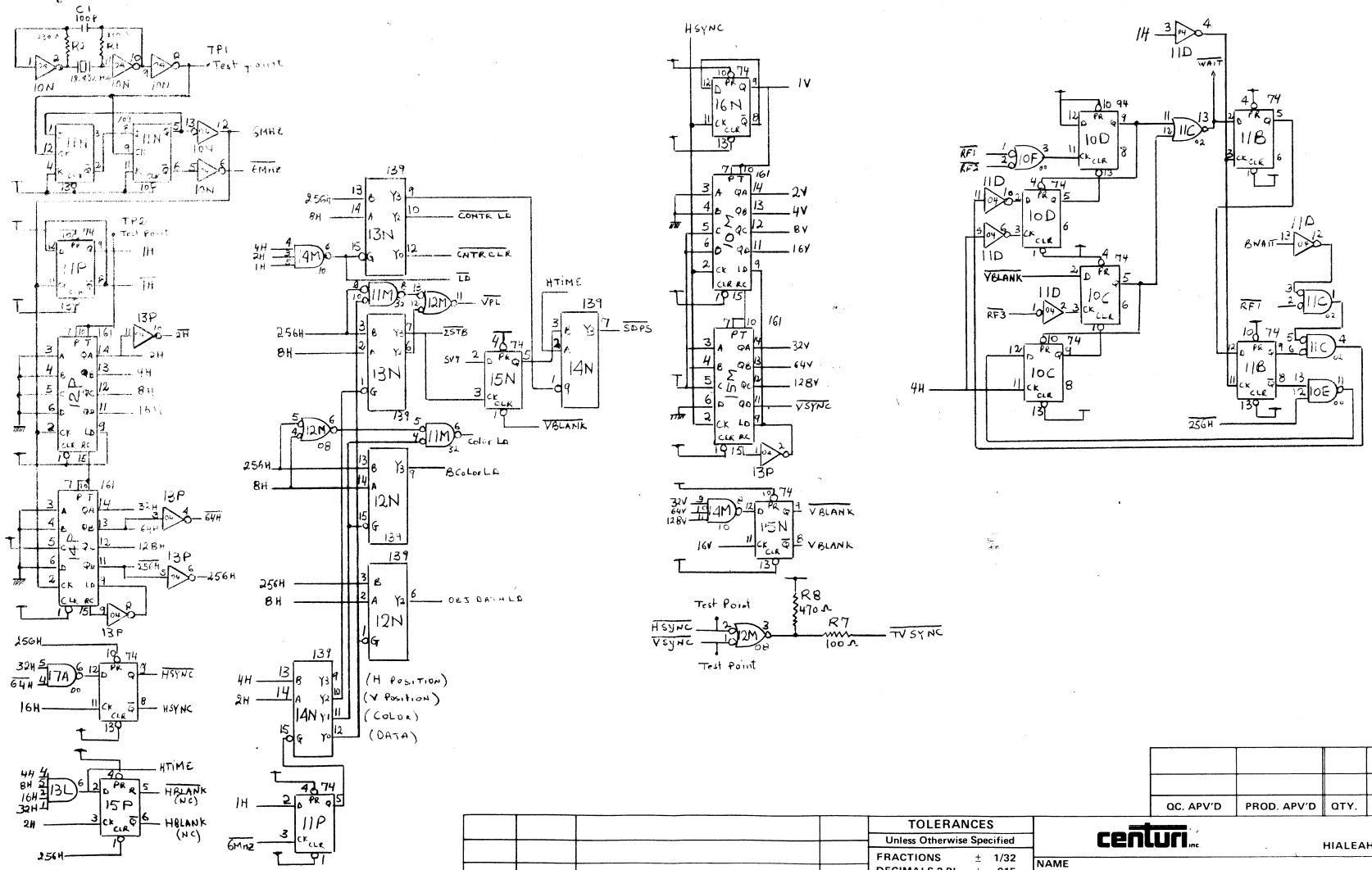


70	1	385-06-100	FRONT DECAL
49	1	385-16-100	BREAKERS USE 1
48	1	385-16-100	RIGHT INSIDE DECAL
47	1	385-06-990	LEFT INSIDE DECAL
46	1	385-06-990	RIGHT INSIDE DECAL
45	1	385-06-990	LEFT BOTTOM DECAL
44	1	385-06-990	RIGHT BOTTOM DECAL
43	1	385-06-990	QUALITY CONTROL CARD
42	4	10020038	* 8X1/8 FH/WH/MS. ZINC.
41	1	50270037	FLOURESCENT BULBS 1/8 WATT
40	1	50270019	DOUBLE SIDED TAPE
39	1	50270007	3/8 CABLE CLAMP
38	1	50270095	GROUND WARMING LABEL
37	1	50270155	CENTRAL SERIAL NUMBER TAG
36	1	50270184	FOR INDOOR USE ONLY LABEL
35	1	50270195	DISCONNECT POWER CORD... LABEL
34	1	50270187	CENTRAL CABINET CARD
33	1	385-01-0700	110-VOLT 220VOLT JUMPER ASSY
32	1	385-01-0300	GLASS HOLDING BRKT
31	1	385-06-0550	MANUAL E SCHEMATIC ASSY
30	4	10020018	STAPLES 8 ANKS
29	25	50270072	WIRE TIE 57X
28	6	50270121	VELCRO LOOP ADHESIVE FASTENER
27	6	50270120	VELCRO HOOK ADHESIVE FASTENER
26	1	10020001	* 8-32X3/8 TIUMIN SCREEN
25	25	10020031	* 8-32 PA/PH/MS
24	4	10120003	* 10-24X1/2 MACHINE BOOT HEX HEAD
23	4	10170002	* 10-24 WIN 9 NUT
22	6	10020025	* 10 SENT LOCK WASHER
21	14	10190009	* 10 SENT LOCK WASHER
20	11	10150007	10-24 KEP NOT
19	4	10010187	10-24X3/4 PA/PH/MS
18	2	10010101	10-24X1/2 ED/PH/MS
17	6	10110100	10-24X1/4 CARRIER* BOLT BLACK OXIDE
16	6	10110109	10-24X1/4 CARRIER* BOLT BLACK OXIDE
15	1	10120106	14-20X1/4 CARRIER* BOLT BLACK OXIDE
14	8	10120104	14-20 FLAT WASHER
13	1	10120105	14-20 FLAT WASHER
12	1	14240115	14-20 FLAT WASHER
11	2	14240115	14-20 FLAT WASHER
10	2	303-03-0100	MONITOR MOUNTING BRKT
9	1	364-03-0200	C.P.M. SHIELD COVER'S BRKT
8	1	364-03-0200	C.P.M. SHIELD COVER'S BRKT
7	2	235-9-2854	REF. UNIT W/100 G. GLASS
6	1	364-10-0200	REF. UNIT W/100 G. GLASS
5	1	364-10-0200	REF. UNIT W/100 G. GLASS
4	1	364-10-0200	REF. UNIT W/100 G. GLASS
3	1	364-10-0200	REF. UNIT W/100 G. GLASS
2	1	364-10-0200	REF. UNIT W/100 G. GLASS
1	1	364-10-0200	REF. UNIT W/100 G. GLASS

ITEM QTY		PART NO		DESCRIPTION	
BILL OF MATERIALS					
REV	LET	ECN	NO	BY	DATE
TOLERANCES		UNLESS OTHERWISE SPECIFIED			
FINISH	AS SHOWN				
DIMENSIONS	FRACTIONS	1/16			
	DECIMALS	1/100			
	HOLE	1/100			
MATERIAL		COMPLETE GAME LESS PKG			
NAME		CENTRON			
ADDRESS		HALLEMAN, FLORIDA 32814			
CITY		TAMPA			
STATE		FL			
COUNTRY		USA			
DATE		12/19/82			
DRAWN		JAN 1983			
CHECKED		JAN 1983			
APPROVED		JAN 1983			
REV		385-01-0200			



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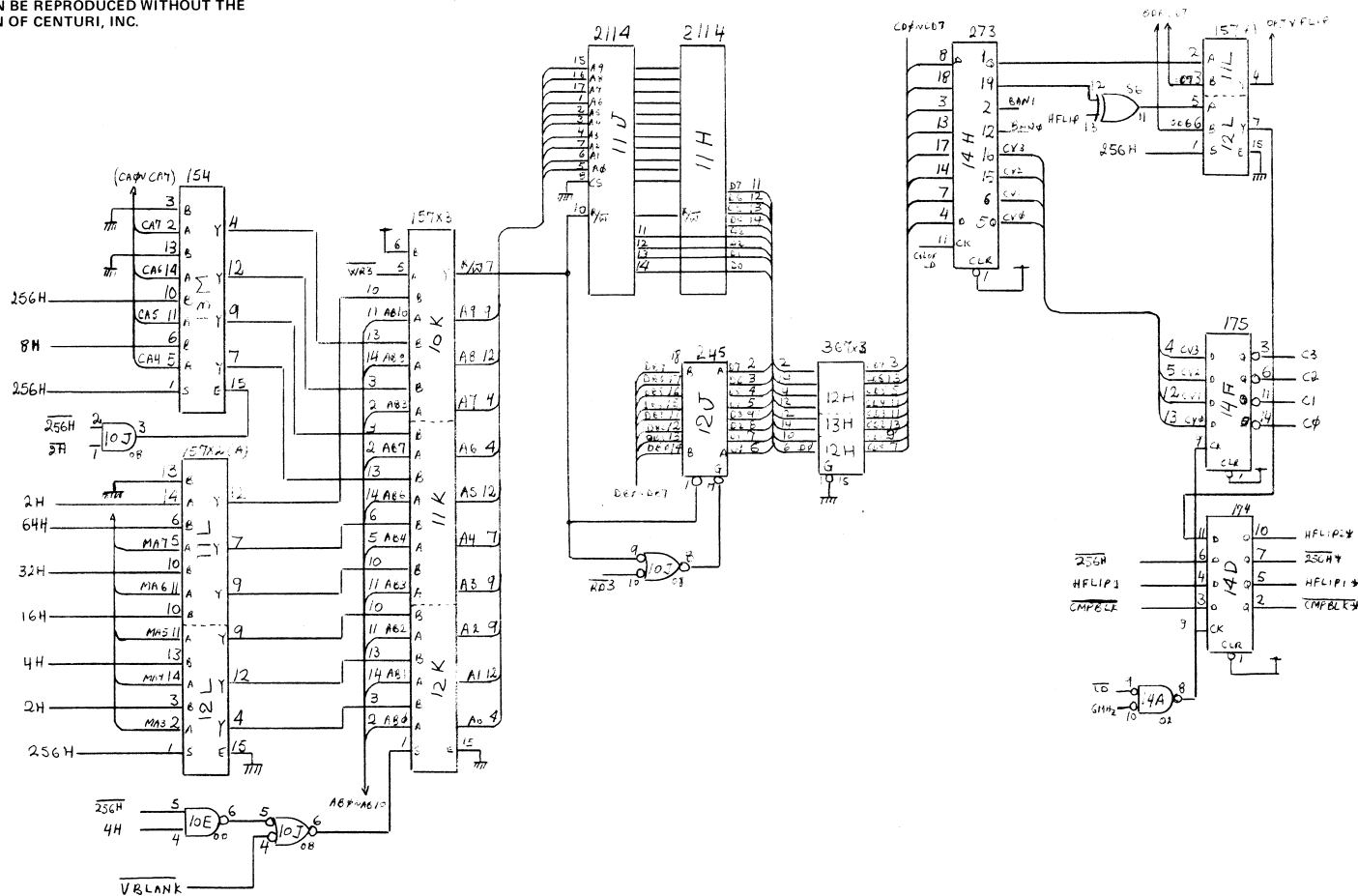
PAGE 1

QC. APV'D	PROD. APV'D	QTY.	ASSEMBLY NO
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REV. LET.	ECN NO.	REVISION	BY

TOLERANCES Unless Otherwise Specified		centuri inc. HIALEAH, FLORIDA 33014	
FRACTIONS	± 1/32	NAME CLOCK WAIT Swimmer A102-401	
DECIMALS 2 PL	± .015	MATERIALS HEAT TREAT. FINISH	
DECIMALS 3 PL	± .005	DWN APP'D DATE SCALE PART NO. REV.	
HOLES	+ .003	8/18/82	385-17-0100
ANGLES	- .001		
SHT. MET BENDS	± 2°		

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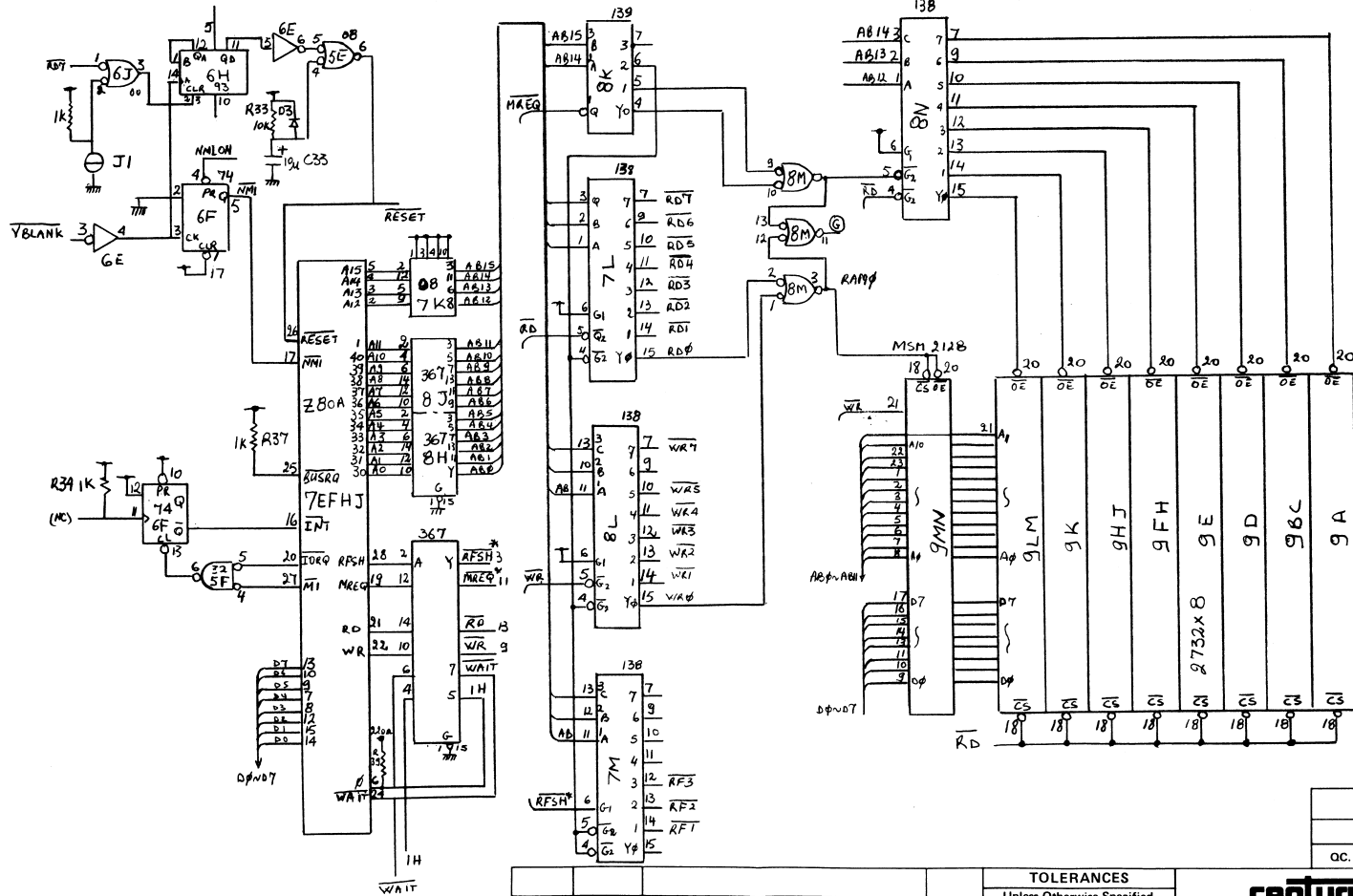
PAGE 2

QC. APV'D	PROD. APV'D	QTY.	ASSEMBLY NO
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				TOLERANCES		centuri inc		HIALEAH, FLORIDA 33014	
				Unless Otherwise Specified		NAME		OBJ. RAM	
				FRACTIONS	± 1/32	SWIMMER		A102-401	
				DECIMALS 2 PL	± .015	MATL'S.		HEAT TREAT.	
				DECIMALS 3 PL	± .005	DWN.		FINISH	
				HOLES	+ .003	APP'D.		SCALE	
				ANGLES	- .001	DATE		PART NO.	
REV. LET.	ECN NO.	REVISION	BY	SHT. MET BENDS	± 2'	8/19/82		385-17-0100	
						REV.			



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EXPRESSED PERMISSION OF CENTURI, INC.

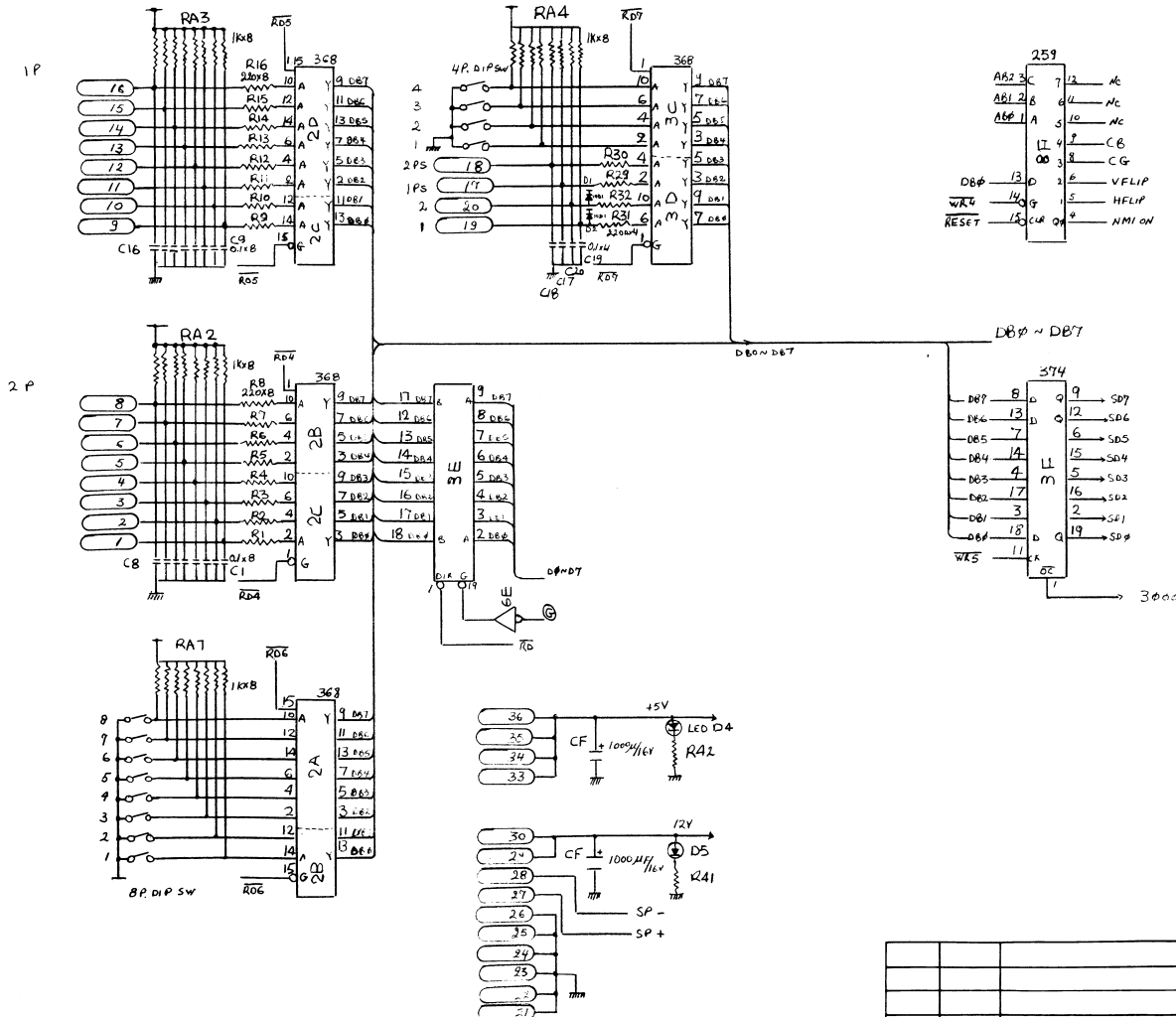


PAGE 4

QC. APV'D	PROD. APV'D	QTY.	ASSEMBLY NO

TOLERANCES				centuri inc.		HIALEAH, FLORIDA 33014	
Unless Otherwise Specified				NAME			
FRACTIONS	±	1/32	CPU - RAM - ROM swimmer B102-402				
DECIMALS 2 PL	±	.015	MATL'S.				HEAT TREAT.
DECIMALS 3 PL	±	.005	FINISH				
HOLES	±	.003	DWN.	APP'D.	DATE	SCALE	PART NO.
ANGLES	±	.001	8/17/82		1/2"	385-17-0200	REV.
SHT. MET BENDS	±	2'					

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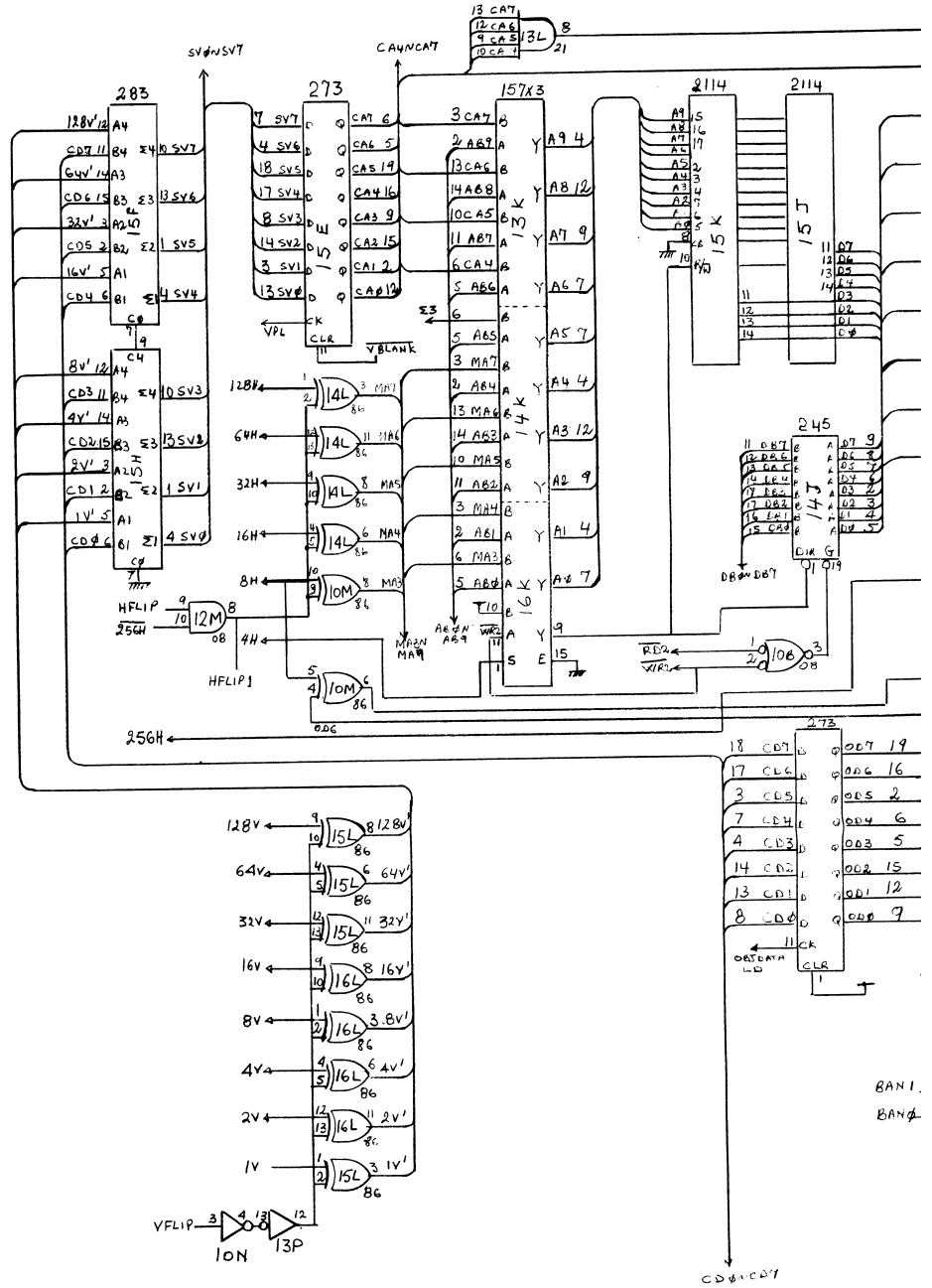


PAGE 5

QC. APV'D	PROD. APV'D	QTY.	ASSEMBLY NO

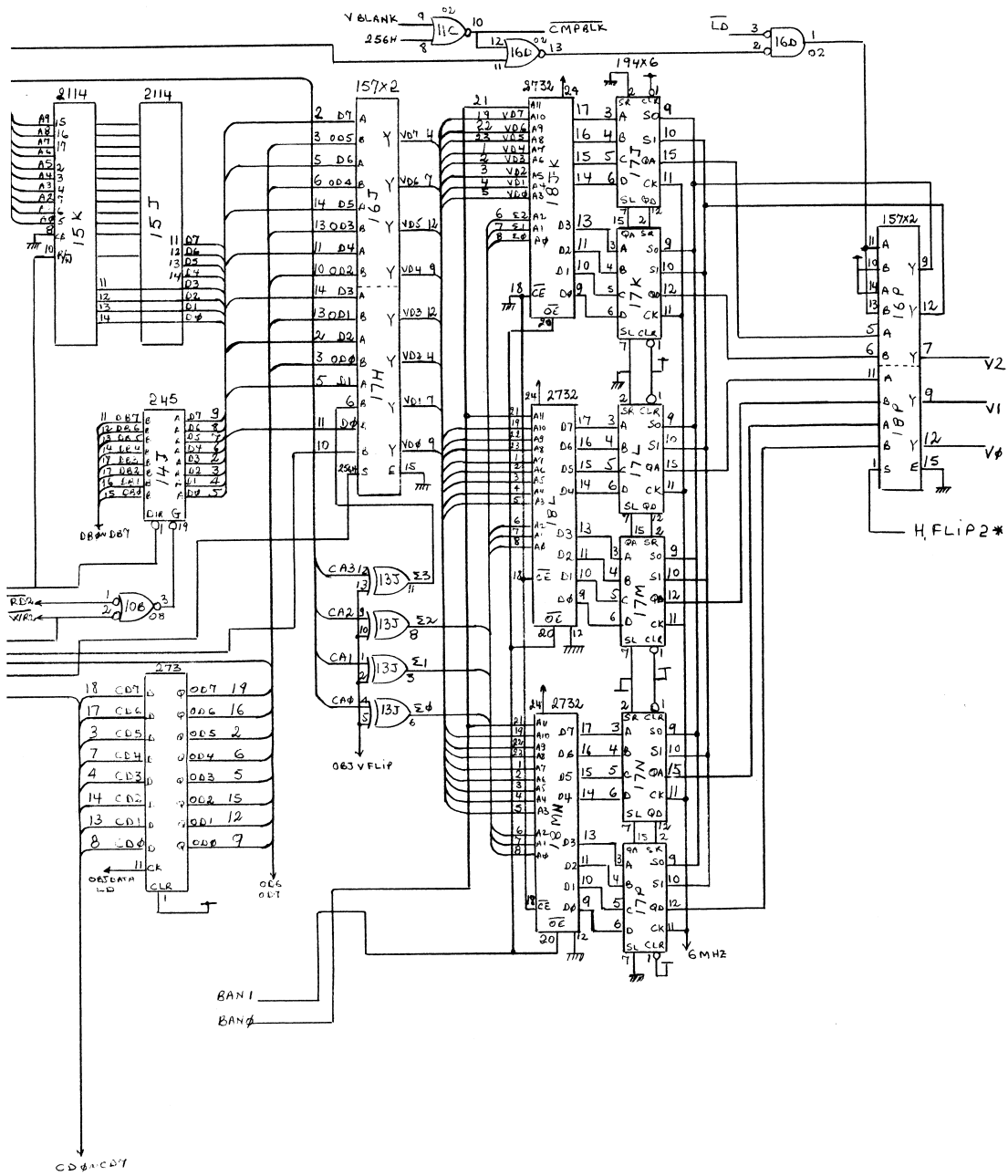
TOLERANCES				centuri			
Unless Otherwise Specified				HIALEAH, FLORIDA 33014			
FRACTIONS	±	1/32	NAME	I 10 Swimmer 8102-402			REV
DECIMALS 2 PL	±	.015	MAT'L'S.	HEAT TREAT.			FINISH
DECIMALS 3 PL	±	.005	DWN.	APP'D.	DATE	SCALE	PART NO.
HOLES	+	.003	W. J. J.		8/19/82		385-17-0200
ANGLES	±	1/2°	REV				
SHT. MET BENDS	±	2°					

CHARTRAY LENSE, MASS. SPN. 13710



BAN 1.  
BAN 2.

REV.  
LET.

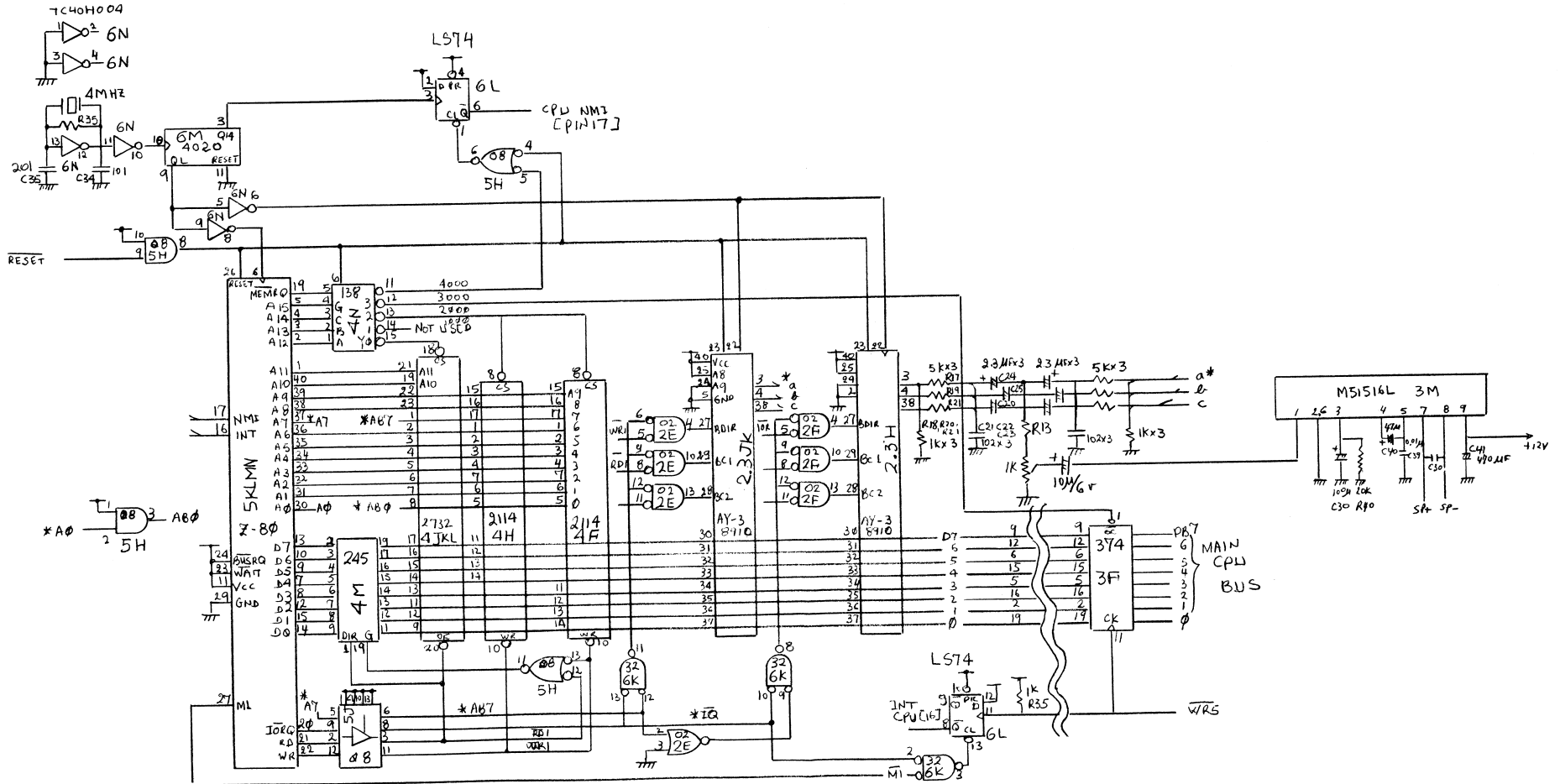


QC. APV'D	PROD. APV'D	QTY.	ASSEMBLY N
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				TOLERANCES		centuri inc.		HIALEAH, FLORIDA 330'		
				Unless Otherwise Specified		NAME				
				FRACTIONS	± 1/32	VRAM				
				DECIMALS 2 PL	± .015	Swimmer A102-401				
				DECIMALS 3 PL	± .005	MAT'L'S.		HEAT TREAT.		FINISH
				HOLES	+ .003					
				ANGLES	± 1/2'	DWN.		APP'D.	DATE	SCALE
REV. LET.	ECN NO.	REVISION	BY	SHT. MET BENDS	± 2'	APPROVA	8/17/82			PART NO. 385-17-0100



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EXPRESSED PERMISSION OF CENTURI, INC.



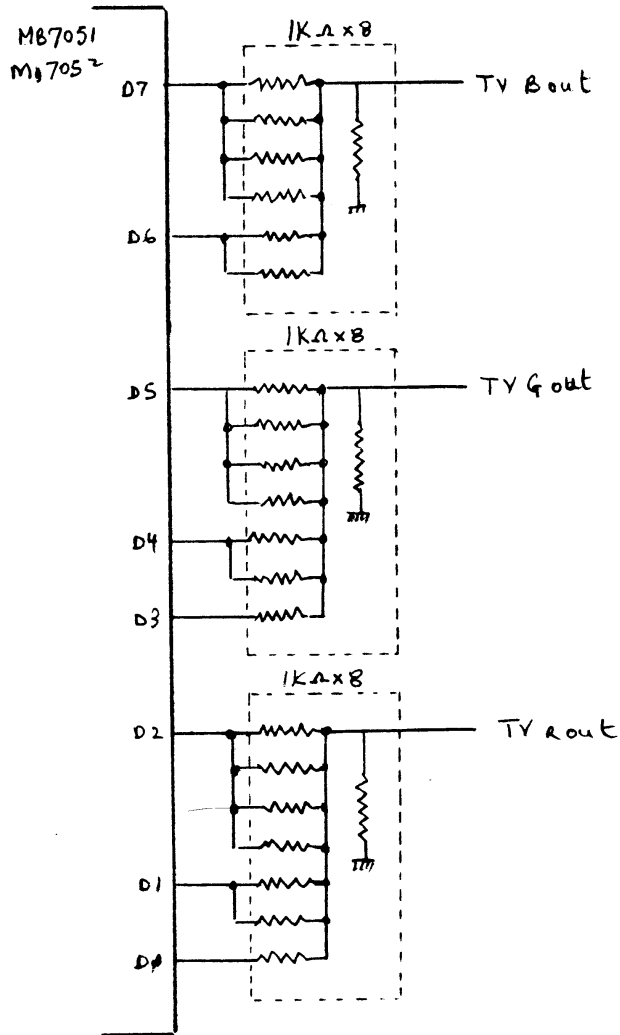
PAGE 8

QC. APV'D	PROD. APV'D	QTY.	ASSEMBLY NO

REV. LET.				ECN NO.				REVISION				BY																																							
<table border="1"> <tr> <th colspan="4">TOLERANCES</th> </tr> <tr> <td colspan="4">Unless Otherwise Specified</td> </tr> <tr> <td>FRACTIONS</td> <td>±</td> <td>1/32</td> <td></td> </tr> <tr> <td>DECIMALS 2 PL</td> <td>±</td> <td>.015</td> <td></td> </tr> <tr> <td>DECIMALS 3 PL</td> <td>±</td> <td>.005</td> <td></td> </tr> <tr> <td>HOLES</td> <td>+</td> <td>.001</td> <td></td> </tr> <tr> <td>ANGLES</td> <td>±</td> <td>1/2°</td> <td></td> </tr> <tr> <td>SHT. MET BENDS</td> <td>±</td> <td>2'</td> <td></td> </tr> </table>												TOLERANCES				Unless Otherwise Specified				FRACTIONS	±	1/32		DECIMALS 2 PL	±	.015		DECIMALS 3 PL	±	.005		HOLES	+	.001		ANGLES	±	1/2°		SHT. MET BENDS	±	2'						HIALEAH, FLORIDA 33014			
TOLERANCES																																																			
Unless Otherwise Specified																																																			
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SHT. MET BENDS	±	2'																																																	
NAME				swimmer sound				B 102-402																																											
MAT'L'S.				HEAT TREAT.				FINISH																																											
DWN		APP'D.		DATE		SCALE		PART NO.		REV.																																									
				8/18/82				385-17-0200																																											

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Big V RAM



PAGE 9

QC: APV'D	PROD. APV'D	QTY.	ASSEMBLY NO

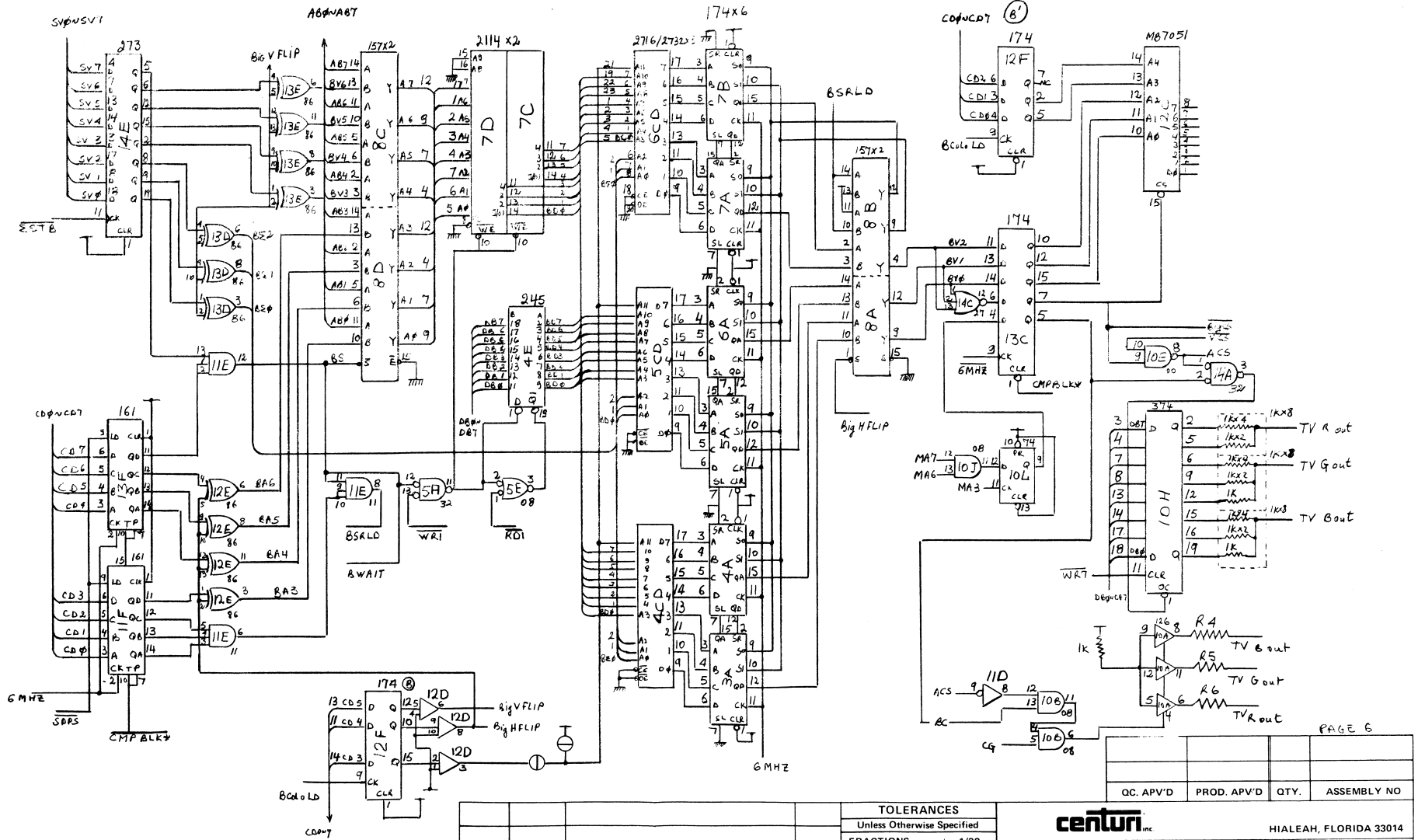
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REV. LET.	ECN NO.	REVISION	BY

TOLERANCES	
Unless Otherwise Specified	
FRACTIONS	$\pm 1/32$
DECIMALS 2 PL	$\pm .015$
DECIMALS 3 PL	$\pm .005$
HOLES	$+ .003$
	$- .001$
ANGLES	$\pm 1/2^\circ$
SHT. MET BENDS	$\pm 2^\circ$

<b>centuri</b> <sub>inc.</sub>		HIALEAH, FLORIDA 33014		
NAME				
Swimmer				
MAT'L'S.		HEAT TREAT.	FINISH	
DWN <i>midline</i>	APP'D.	DATE 8/19/82	SCALE	PART NO.
				REV.

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				TOLERANCES		centuri		HIALEAH, FLORIDA 33014			
				Unless Otherwise Specified							
REV.	ECN NO.	REVISION	BY	FRACTIONS	± 1/32	NAME		Swimmer A102-401-B102-402			
				DECIMALS 2 PL	± .015	MAT'L'S.		HEAT TREAT.		FINISH	
				DECIMALS 3 PL	± .005	DWN		SCALE		PART NO	
				HOLES	+ .003	APP'D.		DATE		385-17-0100	
				ANGLES	± 1/2°	DATE		SCALE		385-17-0200	
				SHT. MET BENDS	± 2°	REV.					