

SERVICE MANUAL

centuri INC.

MANUAL NO.
382-10-0200

LOCO - MOTION

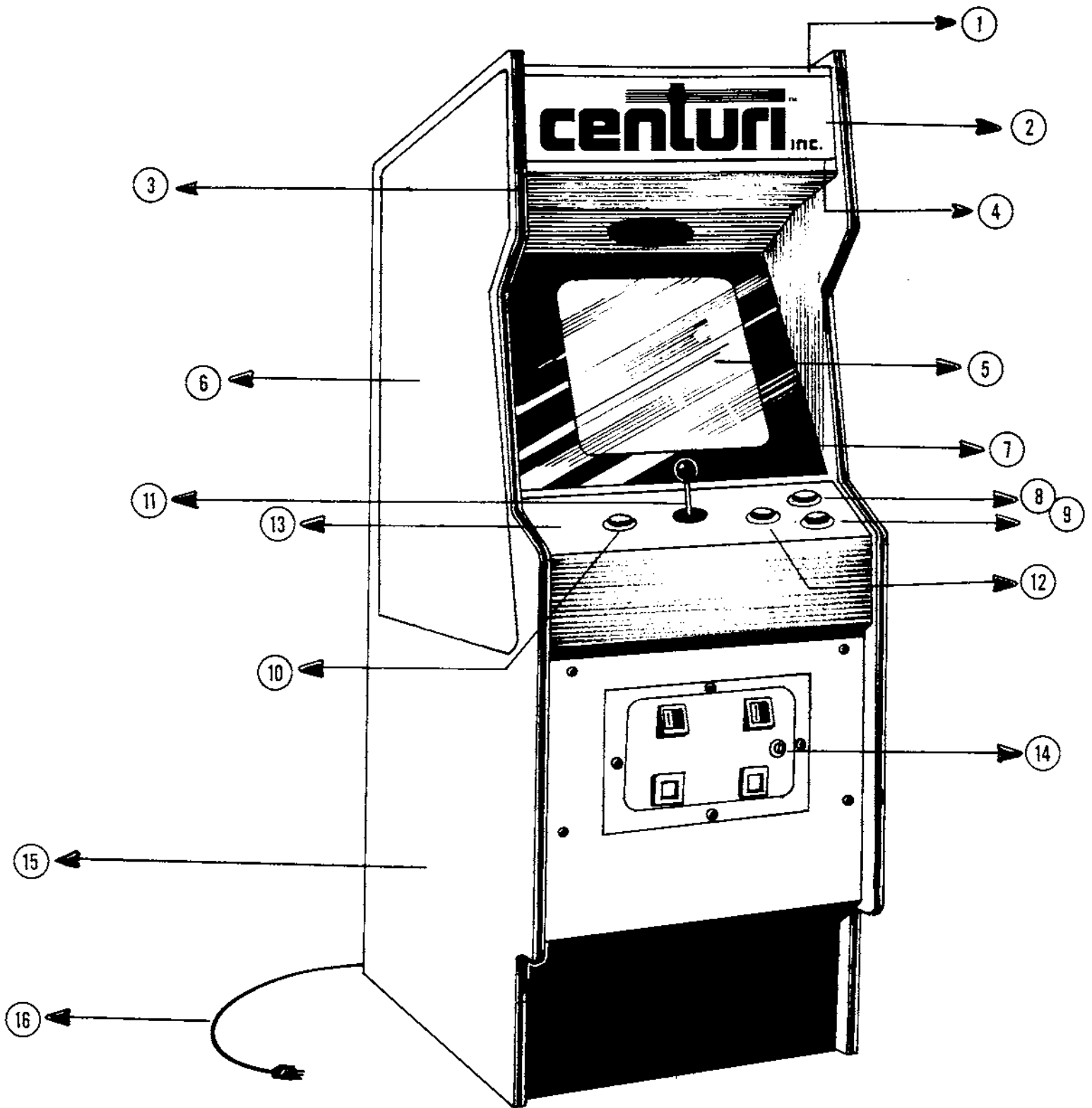
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TELEX: 803694 ANSB CENTURI CABLE: CENTURI

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(FIG, 1)

FRONT VIEW OF CABINET.

LOCO-MOTION CABINET

(FIGURE 1)

PARTS LIST

ITEM	CENTURI P/N	PART DESCRIPTION
1.	343-03-0200	TOP ANGLE HOLD DOWN BRACKET
2.	382-06-0400	SILK SCREENED MARQUEE PANEL
3.	361-10-0200	VINYL TRIM, 7 1/4" LONG
4.	361-03-0300	GLASS HOLDING BRACKET
5.	361-14-1000	VIEWING GLASS
6.	382-06-0200 382-06-0300	LEFT SIDE DECAL RIGHT SIDE DECAL
7.	382-06-0500	SILK SCREENED MONITOR OVERLAY
8.	-----	1-PLAYER START BUTTON
9.	-----	2-PLAYER START BUTTON
10.	-----	SPEED BUTTON - LEFT
11.	-----	4-POSITION JOYSTICK
12.	-----	SPEED BUTTON - RIGHT
13.	382-14-0100	CONTROL PANEL WIRED ASSEMBLY
14.	360-14-0700	COINCO COIN DOOR (MODIFIED)
15.	375-01-0900A	WOOD CABINET ASSEMBLY
16.	361-12-0900A	LINE CORD

LOCO-MOTION

LOCO-MOTION is the newest video game produced by CENTURI, INC. To a short rendition of "I've Been Working On The Railroad", a cubical network of track appears on screen. The network is composed of connecting squares of different colors, with each square containing a different shaped section of Train Track, and one blank square.

The Train is guided along on its destiny to all the stations by adjusting the direction of the Track. This is accomplished by moving the Joystick up, down, right, or left. The Track can be connected at any of the four blocks surrounding the blank square. The Track the Train travels over is distinguished by its bright yellow color. By connecting the Track at any one of the Junction points, also known as the Bonus Lines, a Bonus of 150 points is added to the game score, however which direction the Train will take is unknown until it reaches the Junction. The speed of the Train is increased by holding down the right or left Speed Button. Dead ends must be avoided.

As the Train travels through each station and picks up the passengers, 100 points are added to the game score. For each block of Track it crosses to reach the Stations, 10 points are added to the score. The Train must reach the Bonus Station before the Bonus reaches zero, or the Crazy Trains will appear and impose the danger of crashing into the Train. The Crazy Trains can be eliminated by connecting the Track in such a way they will crash into each other or dead ends. This portion of the Track is no longer usable after such a crash.

If the Train gets caught in a loop, beware of the Loop Sweeper appearing and chasing the Train in attempt to destroy it.

The Bonus Points of the Bonus Station are randomly determined, beginning with a high of 2470 points. The points are counted down randomly with each passing second, so the quicker the Bonus Station is reached, the greater the Bonus Points earned.

If all the Stations are successfully cleared before the Bonus Station reaches zero, 5,000 points are awarded. If the Train successfully clears the Stations after this time, 1,000 points are awarded.

When all the Stations have been perfectly cleared, a new network of Track appears on screen.

The game is over when all the Trains have eliminated.

LOCO-MOTION GAME INSTRUCTIONS

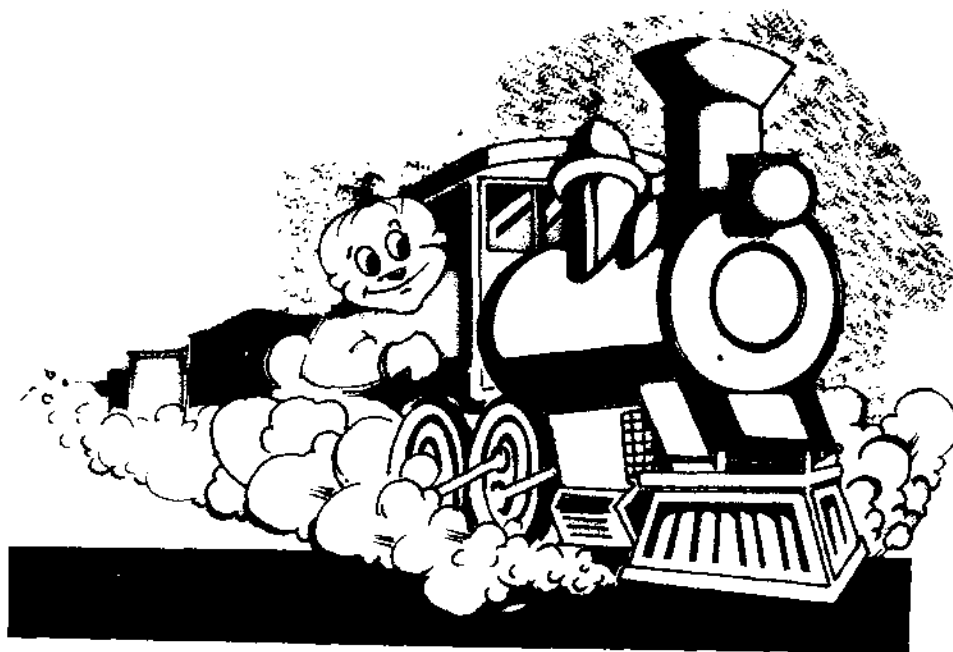
1. INSERT COIN(S).
2. PRESS 1 or 2 PLAYER BUTTON.
3. GUIDE TRAIN PAST ALL STATIONS, PICKING UP PASSENGERS(100 pts.) AT EACH RAILROAD STOP.
4. TO INCREASE SPEED OF TRAIN, PRESS RIGHT OR LEFT SPEED BUTTON.
5. ADJUST COURSE OF TRACKS WITH JOYSTICK. YOUR TRAIN COURSE IS DISTINGUISHED BY BRIGHT COLOR CHANGES. BE CAREFUL TO AVOID DEAD ENDS.
6. BE CAREFUL TO AVOID LOOP SWEEPER WHEN FORMING LOOP LINES OF THE TRACK.
7. BONUS POINTS CAN BE EARNED BY TRAVELING OVER BONUS LINE TRACK (150 pts.), BUT DIRECTION OF TRAIN IS UNKNOWN UNTIL JUNCTION.
8. REACH STATION DISPLAYING BONUS POINTS BEFORE STATION BLOWS UP OR A CRAZY TRAIN APPEARS.
9. ELIMINATE CRAZY TRAINS BY CONNECTING TRACKS, CAUSING THEM TO CRASH. THIS TRACK CANNOT BE USED AFTER CRASH.
10. NEW SCREEN APPEARS AFTER ALL TRAIN STATIONS ARE CLEARED.

GAME POINT SCORING

"LOCO-MOTION"

<u>STRATEGY</u>	<u>POINTS</u>
1. TRAVELLING ACROSS BONUS LINES (LINES WHICH CONNECT AT JUNCTION).	SCORE 150 POINTS
2. PICKING UP PASSENGERS AT EACH RAILROAD STOP.	SCORE 100 POINTS
3. CROSSING EACH BLOCK OF TRAIN TRACK TO REACH RAILROAD STOPS.	SCORE 10 POINTS PER BLOC
4. PERFECTLY CLEARING ALL STATIONS WHEN BONUS STATION HAS NOT COUNTED DOWN TO ZERO POINTS.	SCORE 5,000 POINTS
5. PERFECTLY CLEARING ALL STATIONS AFTER BONUS STATION REACHES ZERO BONUS.	SCORE 1,000 POINTS

** BONUS STATION POINTS ARE RANDOMLY DETERMINED, WITH A BEGINNING HIGH OF 2470 POINTS.



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.

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, ± 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.

The following Dip Switches for Loco-Motion are found on both the C.P.U. and Logic Board, and the Sound Board. The settings below are a guide in selecting optional game format.

DIP SWITCH 1

<u>SW. 1</u>	<u>SW. 2</u>	<u>SW. 3</u>	<u>SW. 4</u>	<u>COIN/PLAY OPTIONS</u>
Off	Off	Off	Off	1 Coin, 1 Play
Off	Off	Off	On	1 Coin, 2 Plays
Off	Off	On	Off	1 Coin, 3 Plays
Off	Off	On	On	1 Coin, 4 Plays
Off	On	Off	Off	1 Coin, 5 Plays
Off	On	Off	On	1 Coin, 6 Plays
Off	On	On	Off	1 Coin, 7 Plays
Off	On	On	On	2 Coins, 1 Play
On	Off	Off	Off	2 Coins, 3 Plays
On	Off	Off	On	2 Coins, 5 Plays
On	Off	On	Off	3 Coins, 1 Play
On	Off	On	On	3 Coins, 2 Plays
On	On	Off	Off	3 Coins, 4 Plays
On	On	Off	On	4 Coins, 1 Play
On	On	On	Off	4 Coins, 3 Plays
On	On	On	On	FREE PLAY

DIP SWITCH 2

<u>SWITCH 1</u>	<u>SWITCH 2</u>	<u>NUMBER OF TRAINS</u>
Off	Off	Three (3)
Off	On	Four (4)
On	Off	Five (5)
On	On	Two Hundred-Fifty Five (255)

SWITCH 3

Off
On

GAME CABINET VERSION

Cocktail Table
Upright Cabinet

SWITCH 4 has no assigned function.

SWITCH 5 - Off position Attract Mode is on
- On position, no Attract Mode

SWITCH 6 - On, Sound along with Attract Mode
Off, no sound in Attract Mode

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.

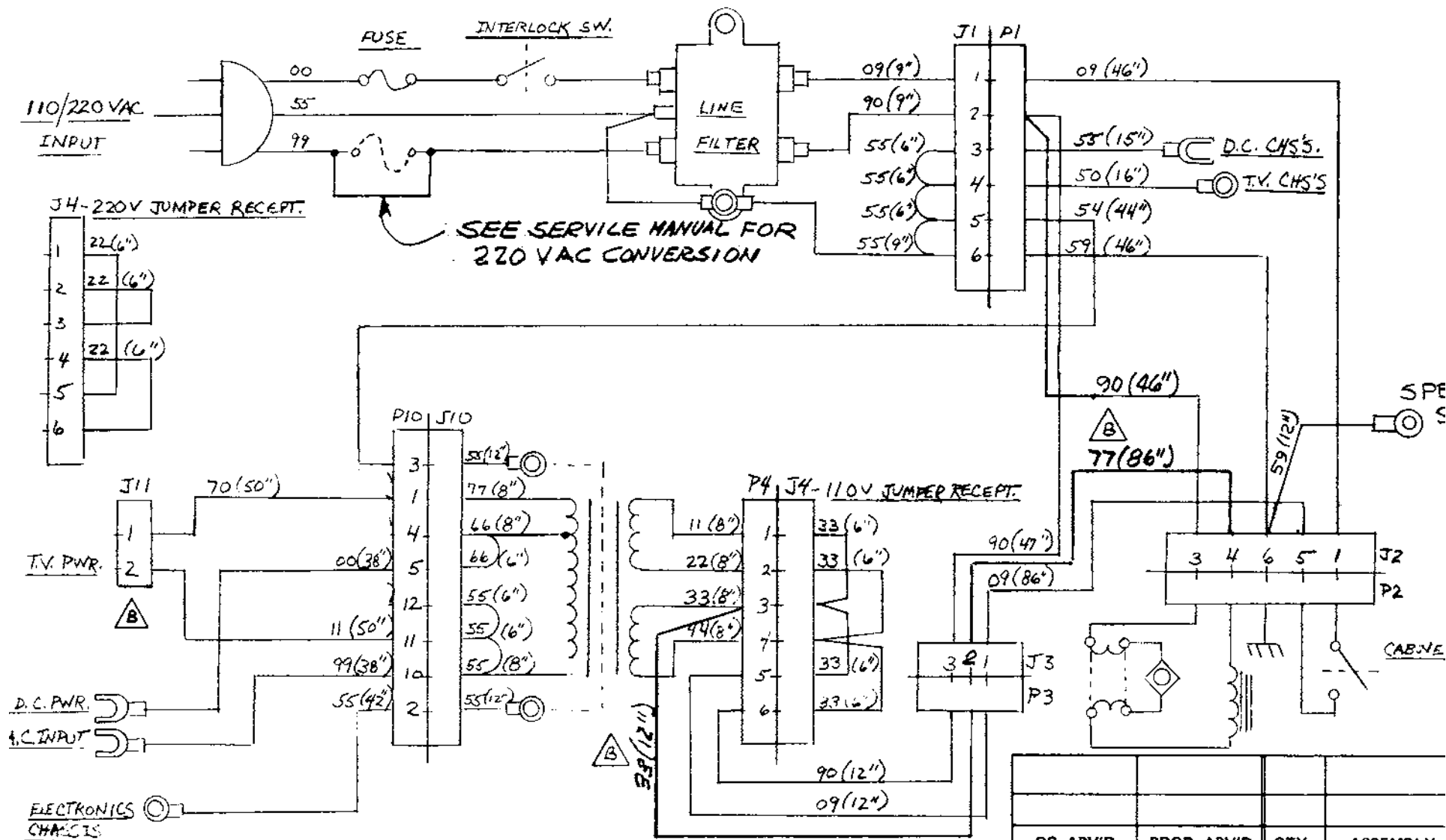
THIRD: On the game power transformer, locate the "orange" jumper plug which is marked, 110 VAC. Unplug the "orange" jumper, and plug in the "red" jumper marked 220 VAC.

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.

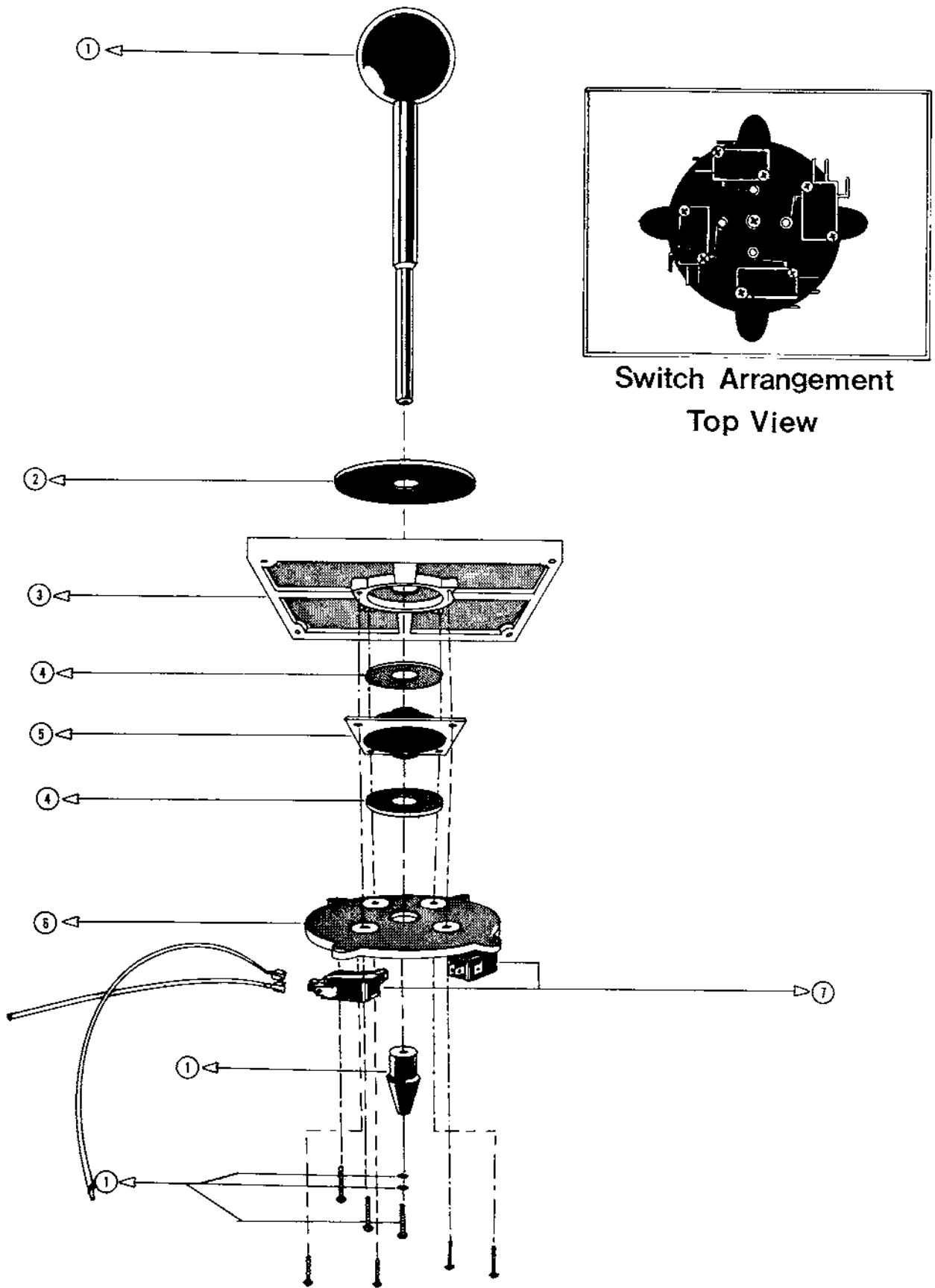
(Refer also to FIG. 2, 110/220 POWER INTERCONNECT DIAGRAM, #370-10-0400B)

FIGURE 2



QC. APV'D	PROD. APV'D	QTY.	ASSEMBLY
-----------	-------------	------	----------

				TOLERANCES		centuri _{inc}			
				Unless Otherwise Specified		HIALEAH, FLORIDA 331			
				FRACTIONS	± 1/32	NAME			
				DECIMALS 2 PL	± .015	110/220 V POWER INTERCONNECT			
				DECIMALS 3 PL	± .005	MATERIALS			
				HOLES	+ .003	HEAT TREAT.		FINISH	
				ANGLES	± 1/2°	DWN		SCALE	
REV. LET.	ECN NO.	REVISION	BY	SHT. MET BENDS	± 2°	APV'D	DATE	PART NO.	R
B		DELETED TV POW 3 ADDED WIRE 33(12") & 77(86")				VAP	5-8-81	370-10-0400	
A									



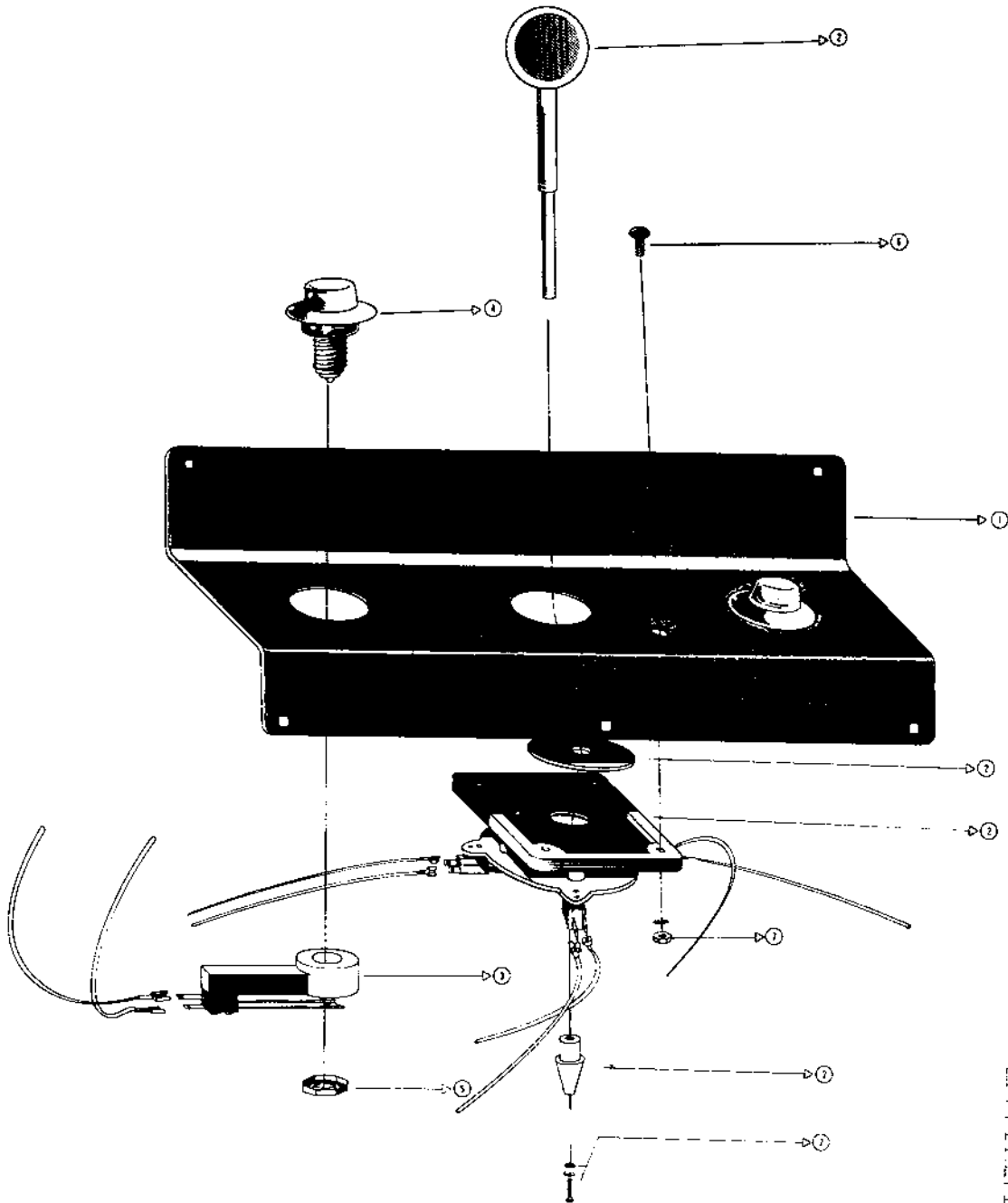
(FIG.3) EXPLODED VIEW OF JOY STICK ASS'Y

WICO JOYSTICK ASSEMBLY

(FIGURE 3)

PARTS LIST

<u>ITEM</u>	<u>CENTRUI P/N:</u>	<u>MANUFACTURING P/N:</u>	<u>DESCRIPTION:</u>	<u>QNTY.</u>
1.	50270174	151419-01	KNOB & SHAFT ASS'Y. w/ACTUATOR & E RING	1
2.	50270175	15950401	PLASTIC WASHER, 2"DIA.	1
3.	50270176	15954101	TOP PLATE FOR JOYSTICK	1
4.	50270177	15950501	BOTTOM WASHER	2
5.	50270178	15952301	DIAPHRAGM	1
6.	50270179	15954201	SWITCH MOUNTING PLATE	1
7.	50130072	V-15FL22-1C2-K	MICROSWITCH	4
8.	50270180	15954501	ACTUATOR GUARD	4
9.	50270182	15950601	SWITCH MOUNTING BRKT.	4



ITEM	QTY	PART No	DESCRIPTION
7	1	1015 0007	10-24 KEP NUT
6	4	10110052	*10-24L% CARRIAGE BOLT
5	2	50130050	RED NUT
4	2	50130049	RED BUTTON ASSY
3	2	50130047	SWITCH & BRACKET
2	1	50130057	W/CG POSITION JOYSTICK
1	1	375-03-0100	CONTROL PANEL
ITEM	QTY	PART No	DESCRIPTION

BILL OF MATERIALS

(FIG.4) EXPLODED VIEW OF CONTROL PANEL ASS'Y

2800-0 FRONT PLATE EXPLODED VIEW

(FIGURE 5)

PARTS LIST

<u>NO.</u>	<u>CENTURI P/N:</u>	<u>MANUFACTURING P/N:</u>	<u>DESCRIPTION:</u>
1.	50270144	5031-10	25¢ COIN ACCEPTOR
5.	50270169	904717	LAMP SOCKET
6.	50270170	904716	#47 LAMP (6.3 VOLT)
8.	50270172	404464	INNER PANEL/LEVER ASS'Y.
10.	50270145	904591	COIN RETURN BUTTON
11.	50270146	904703	25¢ PRICE DECAL
12.	50270147	904589-2	REJECT COVER BUTTON (25¢)
16.	50270149	904588	COIN INLET HOUSING
17.	50270157	904590	COIN RETURN BEZEL
18.	50270150	904599	COIN RETURN DOOR
19.	50270173	404463	FRONTPLATE ASS'Y. (3 ¹ / ₈ "x9 ¹ / ₄ ")
21.	50270168	905115	BAR
25.	50270141	900651	RETAINER
26.	50270142	904710-1	SWITCH-WIRE, SILVER
27.	50130061	904845	SWITCH
29.	50270165	404354	12 VOLT C.R.E.M. ASS'Y.
30.	50270164	904762	SWITCH COVER

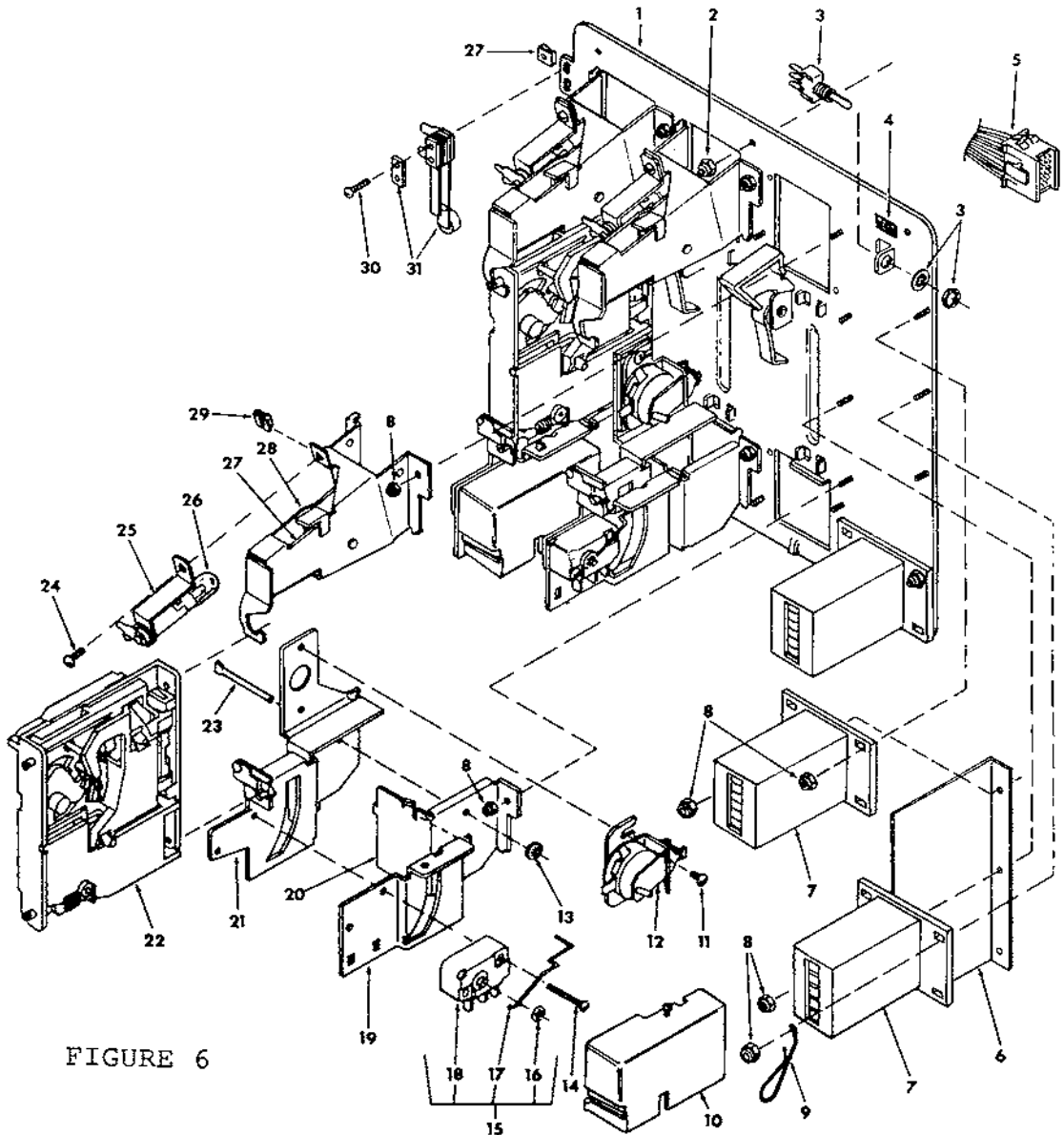


FIGURE 6

Index No.	Part No.	Description	Index No.	Part No.	Description
1	404429	Inner Panel With Levers Sub-Assembly	17	904710-1	Silver Switch Wire — for U.S. 25¢ Coin
2	400-8	Nut	18	904845	Switch
3	904782	Toggle Switch	19	904701	Coin Chute
4	904706	Test Switch Decal	20	904598	Coin Return Box
5		Custom Harness Assembly	21	404428	Switch and C.R.E.M. Coil Bracket Assembly
6	904822	Insulation	22	5301-10	25¢ Acceptor
7	404352	Coin Counter Assembly (6 Volt D.C.)	23	905115	Bar
8	400-4	Nut	24	110-4-6	Screw
9	904722	Wire Key Holder	25	904717	Miniature Bayonet-Base Lamp Socket
10	904762	Switch Cover	26	904716	#47 Lamp (6.3 Volt)
11	100-6-3	Screw	27	404418	Coin Inlet Chute Sub-Assembly
12	404354	C.R.E.M. Coil Assembly. 12 Volts D.C.	28	904594	Right Half of Coin Inlet Chute
13	904936	Keeper	29	904712	"U"-Type Fastener
14	100-4-12	Screw	30	116-4-8	Screw
15	404353	Coin Switch Assembly for U.S. 25¢ Coin	31	904704	Slam Switch Assembly
16	900651	Retainer			

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

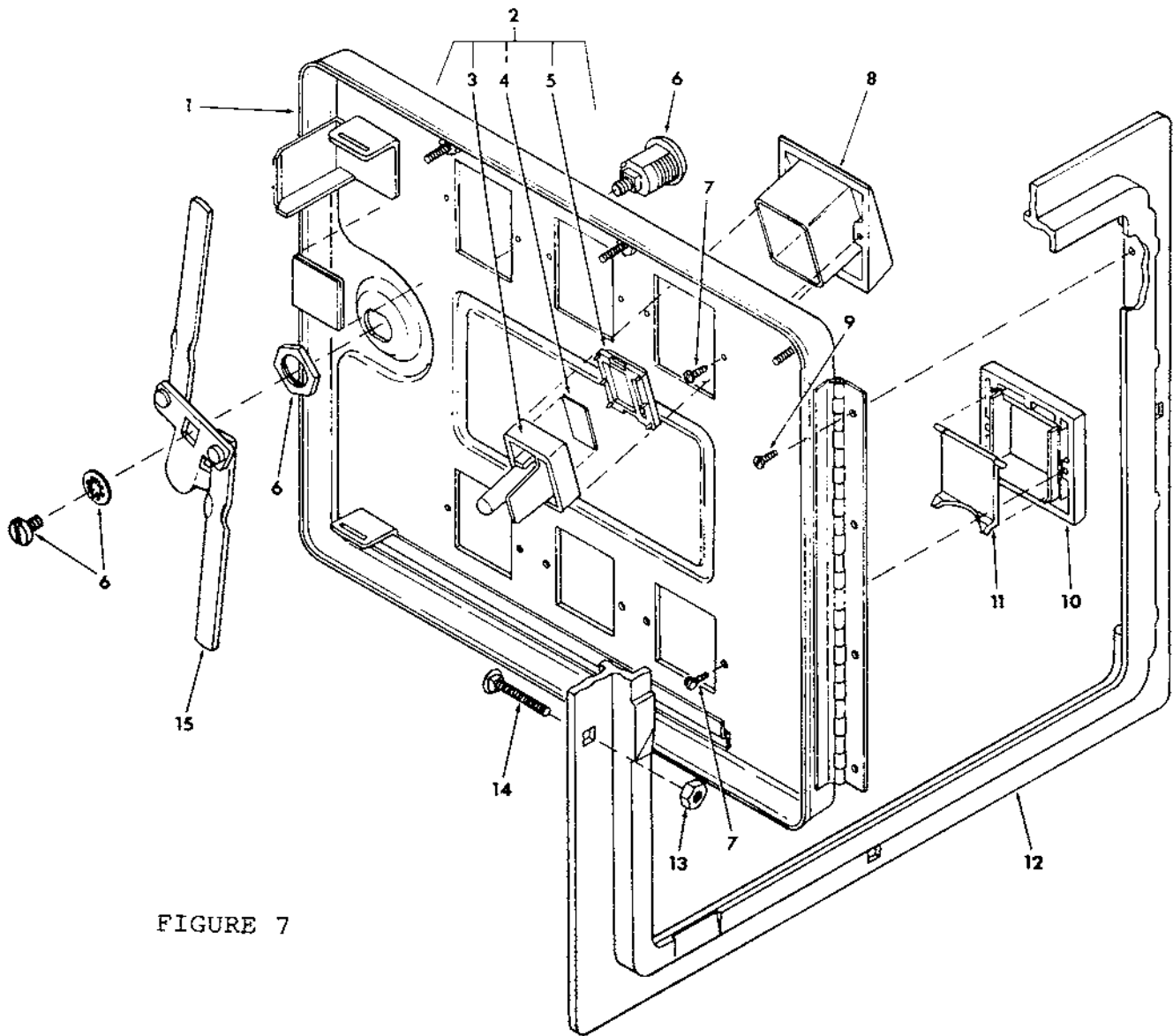


FIGURE 7

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

<u>ITEM.</u>	<u>PART NUMBER</u>	<u>DESCRIPTION</u>	<u>QNTY.</u>
1.	50010341	Z-80A CPU	1
2.	50010035LS	74LS161 I.C.	9
3.	50010248LS	74LS138 I.C.	2
4.	50010224LS	74LS259 I.C.	1
5.	50010195LS	74LS367 I.C.	3
6.	50010008LS	74LS20 I.C.	3
7.	50010019LS	74LS74 I.C.	5
8.	50010026LS	74LS107 I.C.	1
9.	50010264LS	74LS368 I.C.	2
10.	50010249LS	74LS245 I.C.	2
11.	50010344LS	74LS373 I.C.	2
12.	50010247LS	74LS241 I.C.	2
13.	50010022LS	74LS86 I.C.	6
14.	50010035	74161 I.C.	1
15.	50010192LS	74LS139 I.C.	4
16.	50010105LS	74LS32 I.C.	2
17.	50010005LS	74LS04 I.C.	2
18.	50010045LS	74LS157 I.C.	10
19.	50010004LS	74LS02 I.C.	2
20.	50010030LS	74LS174 I.C.	2
21.	50010002LS	74LS00 I.C.	2
22.	50010262LS	74LS283 I.C.	2
23.	50010096LS	74LS08 I.C.	3
24.	50010343LS	74LS109 I.C.	2
25.	50010252LS	74LS374 I.C.	1
26.	50010245LS	74LS21 I.C.	1
27.	50010261LS	74LS273 I.C.	1
28.	50010222LS	74LS194 I.C.	2
29.	50010218LS	74LS377 I.C.	3
30.	50010345LS	74LS375 I.C.	2
31.	50010270	MMI 633-1J	3
32.	50001329	2125A I.C.	6
33.	50010231	MMI 6301-I I.C.	2
34.	50010342	7489 I.C.	1

C.P.U. AND LOGIC BOARD

#50330023

<u>ITEM</u>	<u>PART NUMBER</u>	<u>DESCRIPTION</u>	<u>QNTY.</u>
35.	50010314	2732 I.C.	7
36.	50010317	MSM 2128 (OKI)	3
37.	50150061	24 PIN I.C. SOCKET	9
38.	50150330	34 PIN RT. ANGLE PCB HEADER	1
39.	50020128	2SC2320 TRANSISTOR	1
40.	50020130	2SA697 TRANSISTOR	1
41.	50130034	8 POSITION DIP SWITCH	1
42.	50360007	1K OHM x 4 S.I.P.	4
43.	50360015	1K OHM x 6 S.I.P.	1
44.	50360006	1K OHM x 8 S.I.P.	3
45.	50070013	18.432 MHz CRYSTAL	1
46.	50040010	0.1mfd, 16V., DISC CERAMIC CAPACITOR	54
47.	50040006	100pfd, 50V., DISC CERAMIC CAPACITOR	3
48.	50040073	470pfd, 25V., DISC CERAMIC CAPACITOR	1
49.	50060138	220mfd, 16V., ELECTROLYTIC RADIAL CAP.	1
50.	50060214	220mfd, 10V., ELECTROLYTIC RADIAL CAP.	1
51.	50060139	47mfd, 16V., ELECTROLYTIC RADIAL CAP.	1
52.	50040146	.047mfd, 50V., MYLAR CAPACITOR	1
53.	50060218	22mfd, 16V., TANTALUM CAPACITOR	1
54.	50030095	330 OHM, 1/4W., 5% RESISTOR	2
55.	50030006	4.7K OHM, 1/4W., 5% RESISTOR	3
56.	50030125	220 OHM, 1/4W., 5% RESISTOR	4
57.	50030256	100 OHM, 1/4W., 5% RESISTOR	1
58.	50030215	20K OHM, 1/4W., 5% RESISTOR	1
59.	50030063	10K OHM, 1/4W., 5% RESISTOR	1
60.	50030051	1K OHM, 1/4W., 5% RESISTOR	6
61.	50030010	470 OHM, 1/4W., 5% RESISTOR	5
62.	382-12-0200	C.P.U. LOGIC TO SOUND BOARD HARNESS	1
63.	50170014	BUSS WIRE, 24 AWG.	1"
64.	50170007	INSULATED WIRE, 24 AWG.	26"
65.	50100100	10D1 DIODE	1
66.	50210246	KT-7198-1 CPU LOGIC BOARD CARD	1

1.	50010030LS	74LS174 I.C.	2
2.	50010248LS	74LS138 I.C.	1
3.	50010019LS	74LS74 I.C.	1
4.	50010004LS	74LS02 I.C.	1
5.	50010195LS	74LS367 I.C.	5
6.	50010002LS	74LS00 I.C.	1
7.	50010105LS	74LS32 I.C.	1
8.	50010204LS	74LS393 I.C.	1
9.	50010023LS	74LS90 I.C.	1
10.	50010024LS	74LS93 I.C.	1
11.	50010261LS	74LS273 I.C.	1
12.	50010136	4066 I.C.	3
13.	50010005	7404 I.C.	1
14.	50010088	LM 741	1
15.	50010187	Z-80 C.P.U.	1
16.	50010177	AY-3-8910 PSG	2
17.	50010314	2732 EPROM	1
18.	50010202	2114L-3 RAM	2
19.	50010340	M51516L (MITSUBISHI)	1
20.	50020128	2SC2320 TRANSISTOR	3
21.	50020129	2SD361 TRANSISTOR	2
22.	50360006	1K x 8 S.I.P. NETWORK RESISTOR	3
23.	50130046	6 POSITION DIP SWITCH	1
24.	50080048	VR 200 OHM TRIMMER EVM-JOG (NATIONAL)	1
25.	50070019	14.318 MHz CRYSTAL	1
26.	50150060	40 PIN I.C. SOCKET	2
27.	50150061	24 PIN I.C. SOCKET	2
28.	50090026	HEAT SINK (HS-516)	1
29.	50100100	10D1 DIODE	2
30.	50040008	0.1mfd., 12 V., DISC CERAMIC CAPACITOR	45
31.	50040073	470pfd, 25 V., DISC CERAMIC CAPACITOR	1
32.	50040006	100pfd, 50 V., DISC CERAMIC CAPACITOR	1
33.	50040146	0.047mfd, 50 V., MYLAR CAPACITOR	6
34.	50040182	.01mfd, 50 V., MYLAR CAPACITOR	1
35.	50040180	1000pfd, 50 V., MYLAR CAPACITOR	1
36.	50040169	0.1mfd, 50 V., MYLAR CAPACITOR	1
37.	50060203	.22mfd, 35 V., TANTALUM CAPACITOR	1
38.	50060219	.15mfd, 35 V., TANTALUM CAPACITOR	1
39.	50060192	6.8mfd, 16 V., TANTALUM CAPACITOR	1
40.	50060220	100mfd, 25 V., ELECTROLYTIC, RADIAL, CAP.	2
41.	50060190	47mfd, 25 V., ELECTROLYTIC, RADIAL, CAP.	1
42.	50060214	220mfd, 20 V., ELECTROLYTIC, RADIAL, CAP.	1
43.	50030125	220 OHM, 1/4W., 5% RESISTOR	19
44.	50030213	820 OHM, 1/4W., 5% RESISTOR	2
45.	50030352	2K OHM, 1/4W., 5% RESISTOR	1
46.	50030001	2.2K OHM, 1/4W., 5% RESISTOR	1
47.	50030051	1K OHM, 1/4W., 5% RESISTOR	9
48.	50030197	5.1K OHM, 1/4W., 5% RESISTOR	7
49.	50030063	10K OHM, 1/4W., 5% RESISTOR	2
50.	50170007	INSULATED JUMPER, 24 AWG.	3"
51.	50170014	BUSS WIRE, 24 AWG.	1"
52.	50150330	34 PIN RT. ANGLE HEADER w/RETAINER	1
53.	12010004	M3 x 10 MACHINE SCREW	2
54.	12010006	M3 x 6 MACHINE SCREW	2
55.	12010005	M3 SPRING SCREW	4
56.	50150331	RTB-1.5-2F (J.S.T.) 2 PIN WAFER	1
57.	50210247	KT-3106-2 SOUND BOARD CARD	1

PARTS LIST - SHINDENGEN POWER SUPPLY

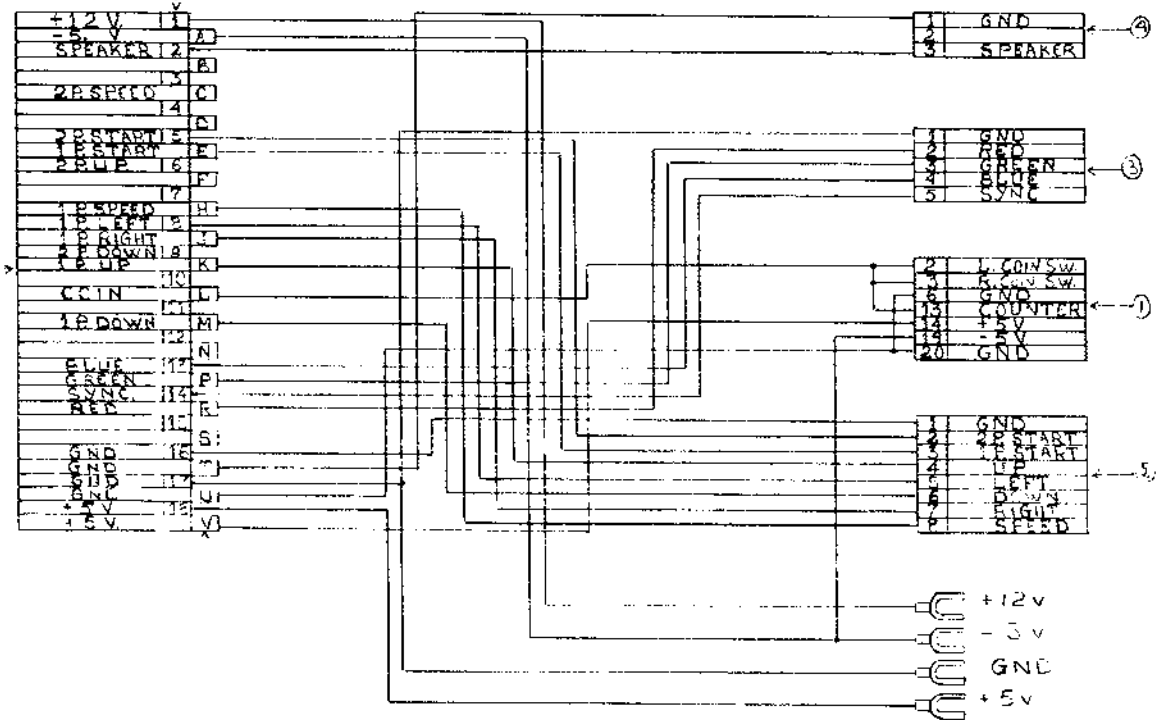
<u>SYMBOL:</u>	<u>DESCRIPTION:</u>	<u>USAGE:</u>
T1	TRANSFORMER, SINGLE PHASE, 2A VA	1
L1	CHOKING COIL, 1.6mH, 1.5A	1
L2, L4	CHOKING COIL, SF-T8-50S-03	2
L3	CHOKING COIL, SF-HP-2A-03	1
D1	DIODE, V19G	1
D2	DIODE, V06C	1
D3, D6	DIODE, 1S1588	2
D4	DIODE, S15S3	1
D5, D7	DIODE, 5CH1M	2
D12, D13	DIODE, F113B	2
D14	DIODE, F113B	1
RF1	DIODE, S4VB40 (BRIDGE TYPE)	1
Q1	TRANSISTOR, 2SC2504	1
Q2	TRANSISTOR, 2SD467(B)	1
Q3	TRANSISTOR, 2SC460(B)	1
Q4	TRANSISTOR, 2SA673(B)	1
IC1	INTEGRATED CIRCUIT, RM723DC or HA17723G-02	1
PC1	PHOTO COUPLER, PS2001	1
R1	RESISTOR, 2 WATT, 18 OHM	1
R8, R9	RESISTOR, 2 WATT, 47K OHM	2
R3, 1-4	RESISTOR, 2 WATT, 15 OHM	4
R4	RESISTOR, 1 WATT, 56 OHM	1
R12	RESISTOR, 1 WATT, 100 OHM	1
R28	RESISTOR, 1 WATT, 470 OHM	1
R7	RESISTOR, 1 WATT, 0.56 OHM	1
R26	RESISTOR, 1 WATT, 0.82 OHM	1
R23	RESISTOR, 1/4 WATT, 22 OHM	1
R10	RESISTOR, 1/4 WATT, 33 OHM	1
R27	RESISTOR, 1/4 WATT, 68 OHM	1
R2	RESISTOR, 1/4 WATT, 330-470 OHM	1
R22	RESISTOR, 1/4 WATT, 220 OHM	1
R21	RESISTOR, 1/4 WATT, 270 OHM	1
R6	RESISTOR, 1/4 WATT, 330 OHM	1
R11	RESISTOR, 1/4 WATT, 68 OHM	1
R20	RESISTOR, 1/4 WATT, 470 OHM	1
R17	RESISTOR, 1/4 WATT, 680 OHM	1
R19	RESISTOR, 1/4 WATT, 800 OHM	1
R18	RESISTOR, 1/4 WATT, 1.2K OHM	1
R5	RESISTOR, 1/4 WATT, 10K OHM	1
R16	RESISTOR, 1/4 WATT, 220K OHM	1
R29	RESISTOR, 3 WATT, 27 OHM	1
R39	RESISTOR, 1/4 WATT, 4.7K OHM	1
R38	RESISTOR, 1/4 WATT, 5.6K OHM	1
R24	RESISTOR, 1/4 WATT, 330 OHM	1
R25	RESISTOR, 1/4 WATT, 150 OHM	1
RV1	VARIABLE RESISTOR, RJ-6P501	1

<u>SYMBOL:</u>	<u>DESCRIPTION:</u>	<u>USAGE:</u>
C1, C2	CAPACITOR, ECK-DAL102E	2
C3-1,-2	CAPACITOR, 160VSN100	2
C9, C10	CAPACITOR, SM10VB-2200	2
C11, C23	CAPACITOR, SM10VB-2200	2
C12, C13, C15	CAPACITOR, SL25VB-10	3
C27	CAPACITOR, SL25VB-10	1
C18, C19, C20	CAPACITOR, SM35VB-1000	3
C26	CAPACITOR, SM35VB-1000	1
C21, C22, C25	CAPACITOR, SM16VB-1000	3
C5	CAPACITOR, DMY21H472K	1
C6	CAPACITOR, DMY21H104K	1
C14, C16	CAPACITOR, DMY21H222K	2
C4	CAPACITOR, CM20XC511K5	1
C8	CAPACITOR, MDD22G473K	1
C5-2	CAPACITOR, DMY21H222K	1
F1, F2	ENCLOSED TYPE FUSE, 3A	2

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Component

Qual 18 EDGE Connector



22	15	50170003	TY-WT3PS 4"
21	85	50170006	WHITE "
20	10	50175906	" GRAY "
19	10	50177706	" VIOLET "
18	105	50176606	" BLUE "
17	55	50175506	" GREEN "
16	48	50174406	" YELLOW "
15	66	50173306	" ORANGE "
14	81	50172206	" RED "
13	48	50171106	" BROWN "
12	194	50170008	" BLACK 22AWG
11	12	50179904	" BLACK "
10	15	50172204	INDICATING RED 12AWG
9	21	50150318	AMP TERM (MATER # 21-3-105)
8	7	50150269	FEMALE PIN (32-2-105)
7	15	50150223	FEMALE PIN (32-2-105)
6	4	50150215	INDICATING OPEN LUG
5	1	50150211	DOUBLE END OF 22AWG
4	1	50150231	3P RECEPT (32-2-105)
3	1	50150262	6P RECEPT (32-2-105)
2	1	50150265	12P RECEPT (32-2-105)
1	1	50150268	24 PIN RECEPT (32-2-105)

QTY PART N DESCRIPTION

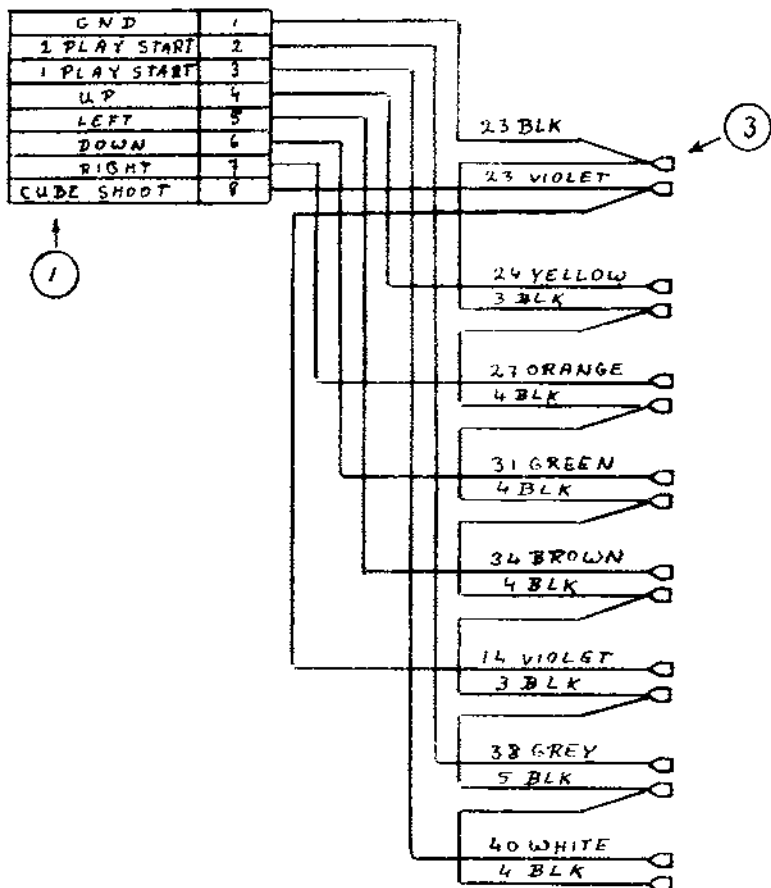
BILL OF MATERIAL

QC APV'D	PROD APV'D	QTY	ASSEMBLY NO
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				TOLERANCES		centuri		MIALEAH, FLORIDA 33014	
				Unless Otherwise Specified		NAME		CPU HARNESS	
				FRACTIONS	± 1/32	MAT'L'S		HEAT TREAT.	
				DECIMALS 2 PL	± .015	SCALE		PART NO	
				DECIMALS 3 PL	± .006	DATE		382-12-0100	
				HOLES	+ .003	SCALE		REV	
				ANGLES	- .001	DATE		2/15/82	
				SHT. MET BENDS	± 1/2°	SCALE		REV	
					± 2°	SCALE		REV	
REV. LET.	ECN NO.	REVISION	BY						

AF 178939

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BILL OF MATERIALS			
ITEM	QTY	PART NR	DESCRIPTION
1	1	50150261	12 PIN PLUG, MOLEX # 03-09-212
2	8	50150222	PIN TERMINAL, MOLEX # 02-09-21
3	16	50150029	3/16" PUSH-ON TERMINAL
4	10	50290003	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 "

		1	377-01-0
QC. APV'D	PROD. APV'D	QTY.	ASSEMBLY

REV. LET.	ECN NO.	REVISION	BY	TOLERANCES	
				Unless Otherwise Specified	
				FRACTIONS	± 1/32
				DECIMALS 2 PL	± .015
				DECIMALS 3 PL	± .005
				HOLES	+ .003
					- .001
				ANGLES	± 1/2'
				SHT. MET BENDS	± 2'

centuri HIALEAH, FLORIDA 33

NAME **CONTROL PANEL HARNESS.**

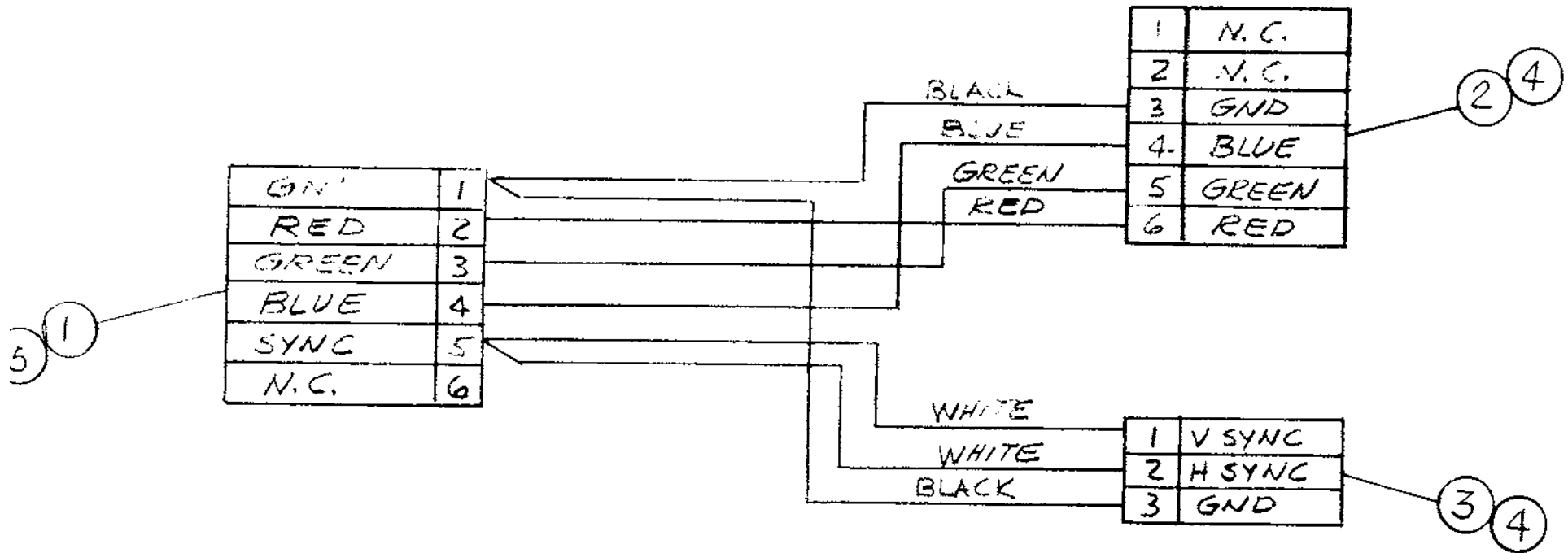
MATL'S. *SEE D.L.M.* HEAT TREAT. *~* FINISH *~*

DWN. *J.A.* APP'D. *WJ* DATE *10-8-81* SCALE *≡* PART NO. *377-12-0400*

AF 17899A

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NOTE ALL WIRES 22 AWG., 12" LONG

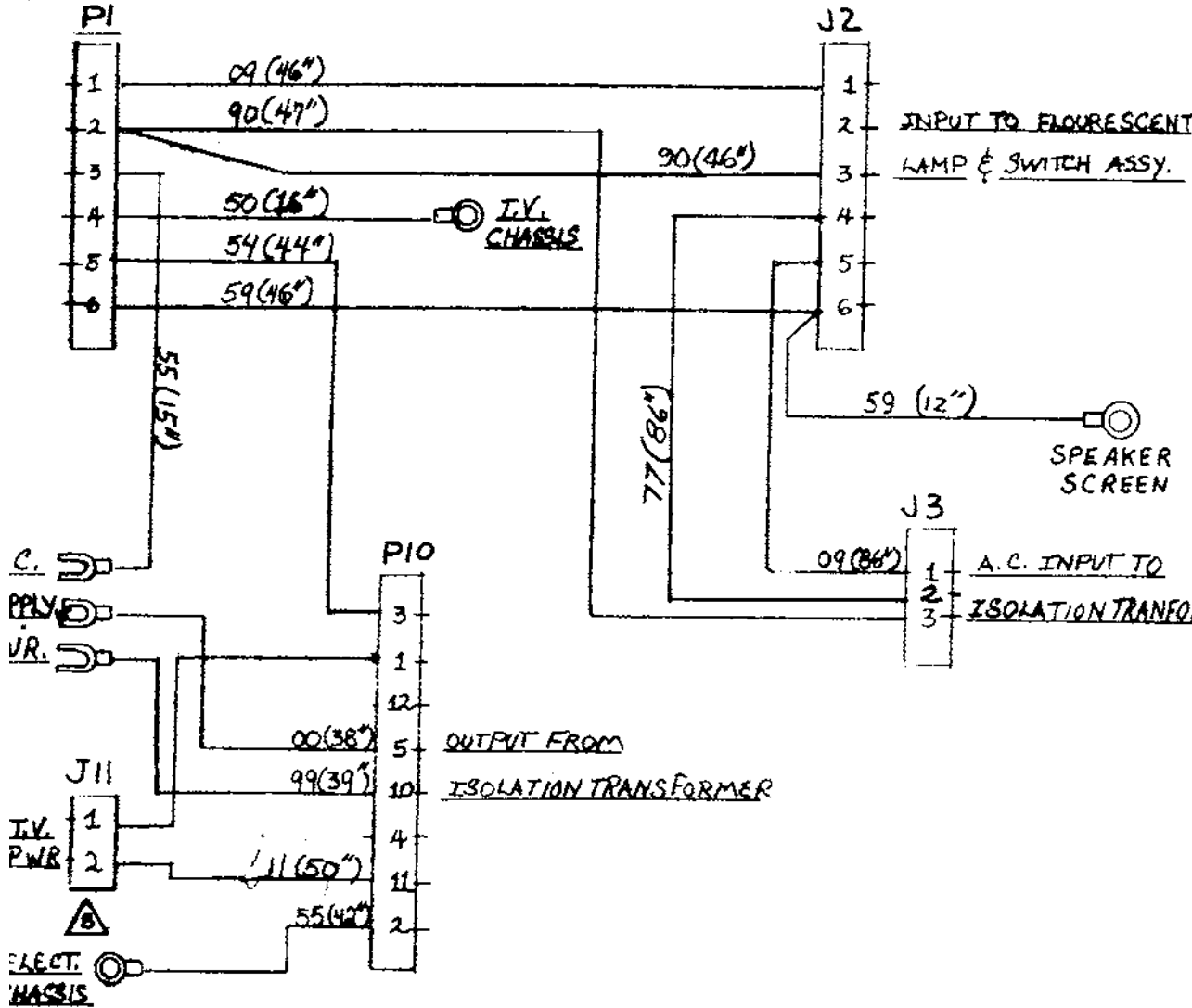


ITEM	QTY	PART NO	DESCRIPTION	MFG	QC. APV'D	PROD. APV'D	QTY.	ASSEMBLY
5	5	50150222	CRIMP TERMINAL, MALE, REEL	MOLEX				
4	7	50150274	CRIMP TERMINAL	MOLEX				
3	1	50150301	CRIMP TERMINAL HOUSING 3 PIN	MOLEX				
2	1	50150303	CRIMP TERMINAL HOUSING 6 PIN	MOLEX				
1	1	50150260	PLUG, 6 PIN	MOLEX			1	377-01-01
							1	364-01-01

REV. LET.	ECN NO.	REVISION	BY	TOLERANCES	centuri _{INC.}			
D		CHANGE PART NO. OF ITEM 4 From 50150104 TO 50150274	JTS	Unless Otherwise Specified	HIALEAH, FLORIDA 33			
B	2		2	FRACTIONS ± 1/32	NAME ELECTROHOME MONITOR SIGNAL HARNE			
C	364-37	CHG'D CRIMP TERAL HOUSING + MATERIAL BILL OF MATERIAL	J.T.S.	DECIMALS 2 PL ± .015	MATL'S. SEE ABOVE		HEAT TREAT.	FINISH
				DECIMALS 3 PL ± .005	DWN. E.A.N.		SCALE	PART NO. 364-12-0500
				HOLES + .003	APP'D. W.J.		DATE 5-22-81	
				- .001				
				ANGLES ± 1/2°				
				SHT. MET BENDS ± 2°				

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A.C. LINE CONV.



QTY	PART NO.	DESCRIPTION
22	50151104	Brown wire #18
21	50157004	Violet black stripe #18A
20		
19		
18	50175904	Green white stripe #18A
17	4450175404	Green yellow stripe #18A
16	1650175004	Green black stripe #18A
15	13250170904	Black white stripe #18A
14	9350179004	White/black stripe #18A
13	8650177704	VIOLET WIRE #18A
12	6750175504	Green wire #18A
11	3950170004	White wire #18A
10	3850174904	Black wire #18A
9	150150231	3 PIN RECEPT W/EARST MOLEX #03-09-1031
8	950150278	FEMALE PINS REEL MOLEX #03-09-1116
7	1250150277	MALE PINS REEL MOLEX #03-09-2016
6	350150096	HOLLINGSWORTH #R-20162 RING LUG
5	350150105	HOLLINGSWORTH #R41225 RING LUG
4	150150322	Z-CKT RECEPT MOLEX 19-09-1029
3	150150260	6 PIN PLUG W/EARST MOLEX #03-09-2061
2	150150262	6 PIN RECEPT W/EARST MOLEX #03-09-1062
1	150150261	12 PIN PLUG W/EARST MOLEX #03-09-2222

QC. APV'D	PROD. APV'D	QTY.	ASSEMBLY

REV. LET.	ECN NO.	REVISION	BY
B		ADDED ITEM 4: CHGD QTY ITEM 7 & 9 11 J11, J3, J2, P1, P10 DELETED TYPING. 3/20	JTS
A	370-24	ADDED GREEN/WHITE WIRE - 12 AND 1 RING LUG * 50150105	JTS

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

centuri HIALEAH, FLORIDA 3

NAME: Cabinet Power Harness

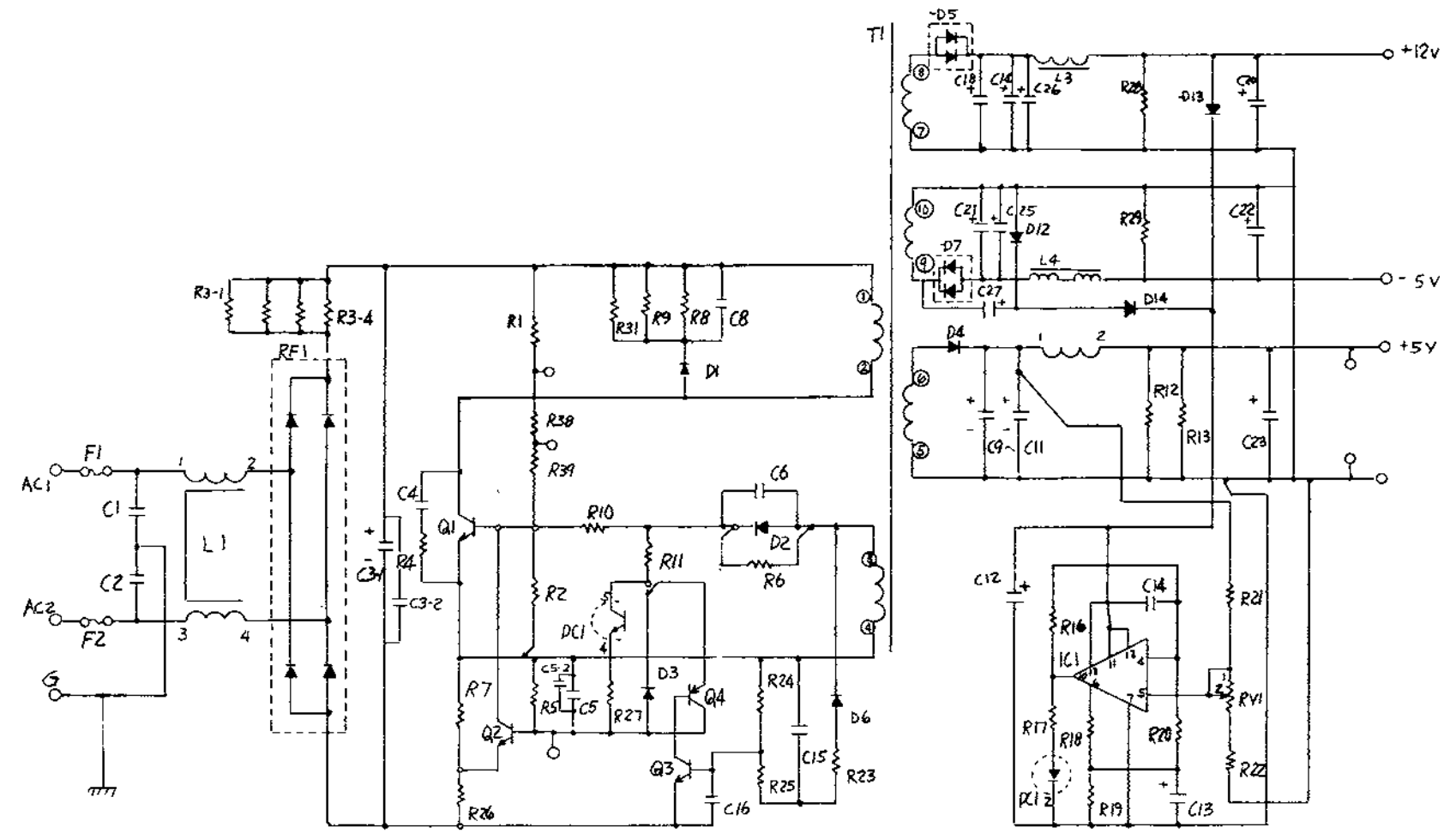
MAT'L'S. HEAT TREAT. FINISH

DWN. DATE SCALE PART NO.

5-6-81 X 370-12-0200

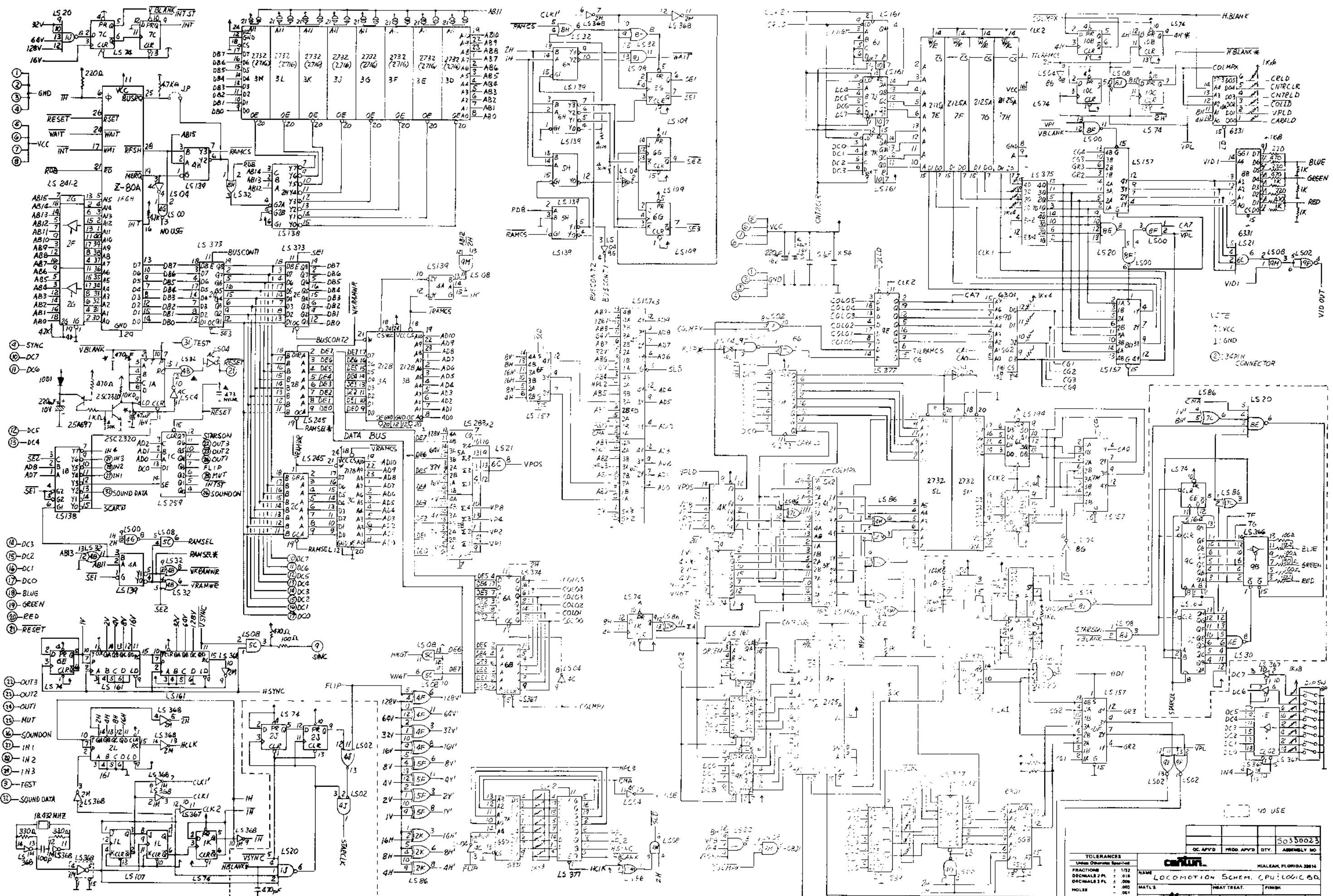
AF 17899A

REVISIONS						
REV. LETTER	ITEM NO.	ECN NO.	DESCRIPTION	DISPOSITION OF EXISTING PARTS		ENGR'G APP'D
				RE-WORK	SCRAP	



BRUNING 40.21.19207

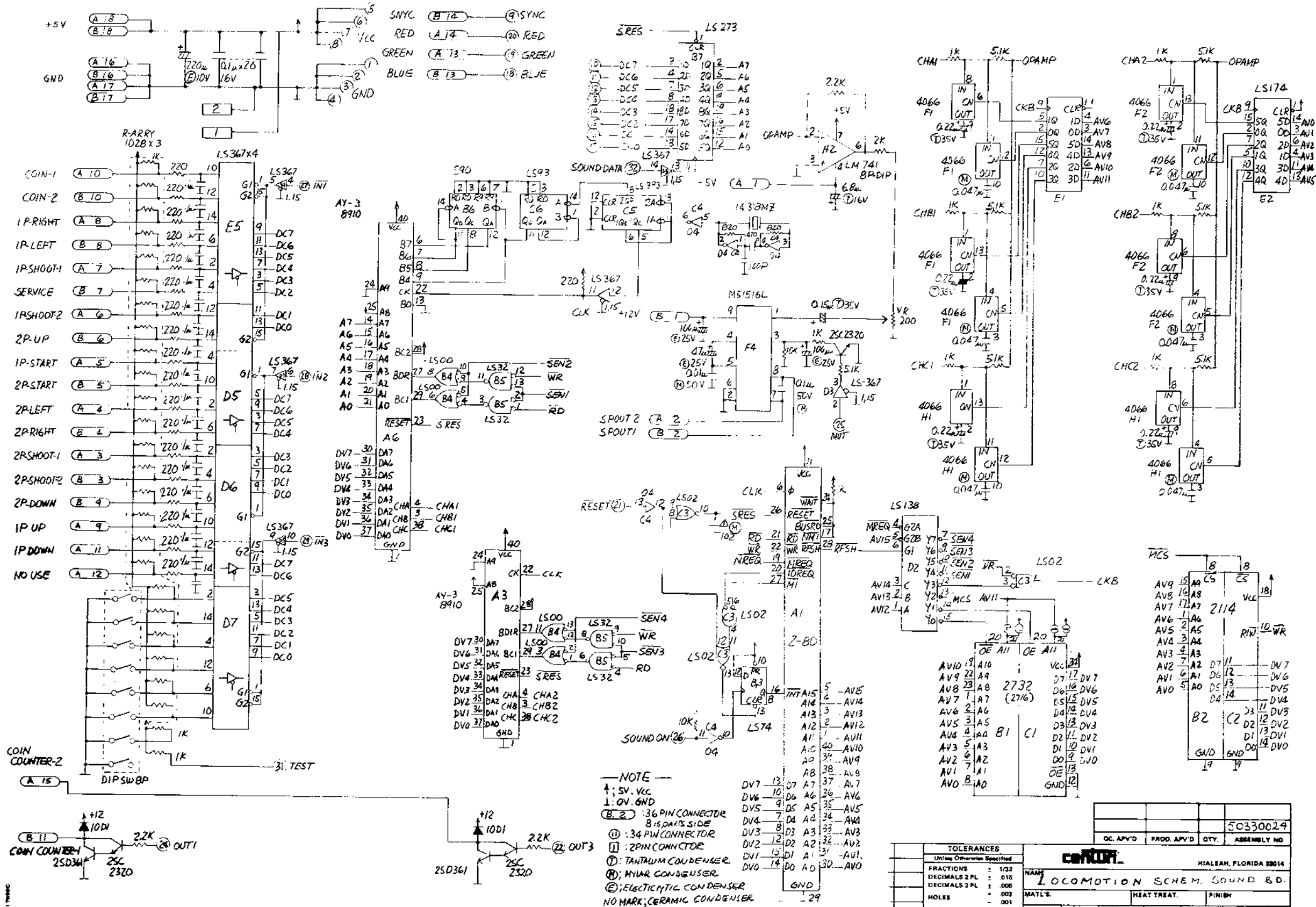
TOLERANCES UNLESS OTHERWISE SPECIFIED		centur.		MIALEAH, FLORIDA 33014	
FRACTIONS	± 1/32	TITLE SHINDENGEN POWER SUPPLY SCHEMATIC			
DECIMALS	± .03	OWN	APP'D	DATE	SCALE
DECIMALS	± .010	AAN	[Signature]	1-14-81	363-17-0300
HOLES	± .002	DWG NO	REV		
ANGLES	± 1.2°	NEXT ASSEMBLY			



- ① VCC
- ② GND
- ③ WAIT
- ④ INT
- ⑤ RESET
- ⑥ DB7
- ⑦ DC7
- ⑧ DC6
- ⑨ DC5
- ⑩ DC4
- ⑪ DC3
- ⑫ DC2
- ⑬ DC1
- ⑭ DC0
- ⑮ BLUE
- ⑯ GREEN
- ⑰ RED
- ⑱ RESET
- ⑲ OUT3
- ⑳ OUT2
- ㉑ OUT1
- ㉒ MUT
- ㉓ SOUNDON
- ㉔ IN1
- ㉕ IN2
- ㉖ IN3
- ㉗ TEST
- ㉘ SOUND DATA

TOLERANCES		5035023	
UNLESS OTHERWISE SPECIFIED:		OC APVD	PROG APVD
FRACTIONS	1/100	DATE	2-18-82
DECIMALS	3 PL	SCALE	382-17-0100
DECIMALS	2 PL	REV	
HOLDERS	0.001	NAME	LOCOMOTION SCHEM. CPU LOGIC BD.
ANGLER	0.01	MAT'L	
SHT. MET BANDS	0.005	HEAT TREAT.	
		FINISH	
		OWN	AA
		SCALE	1:1
		PART NO.	382-17-0100
		REV.	

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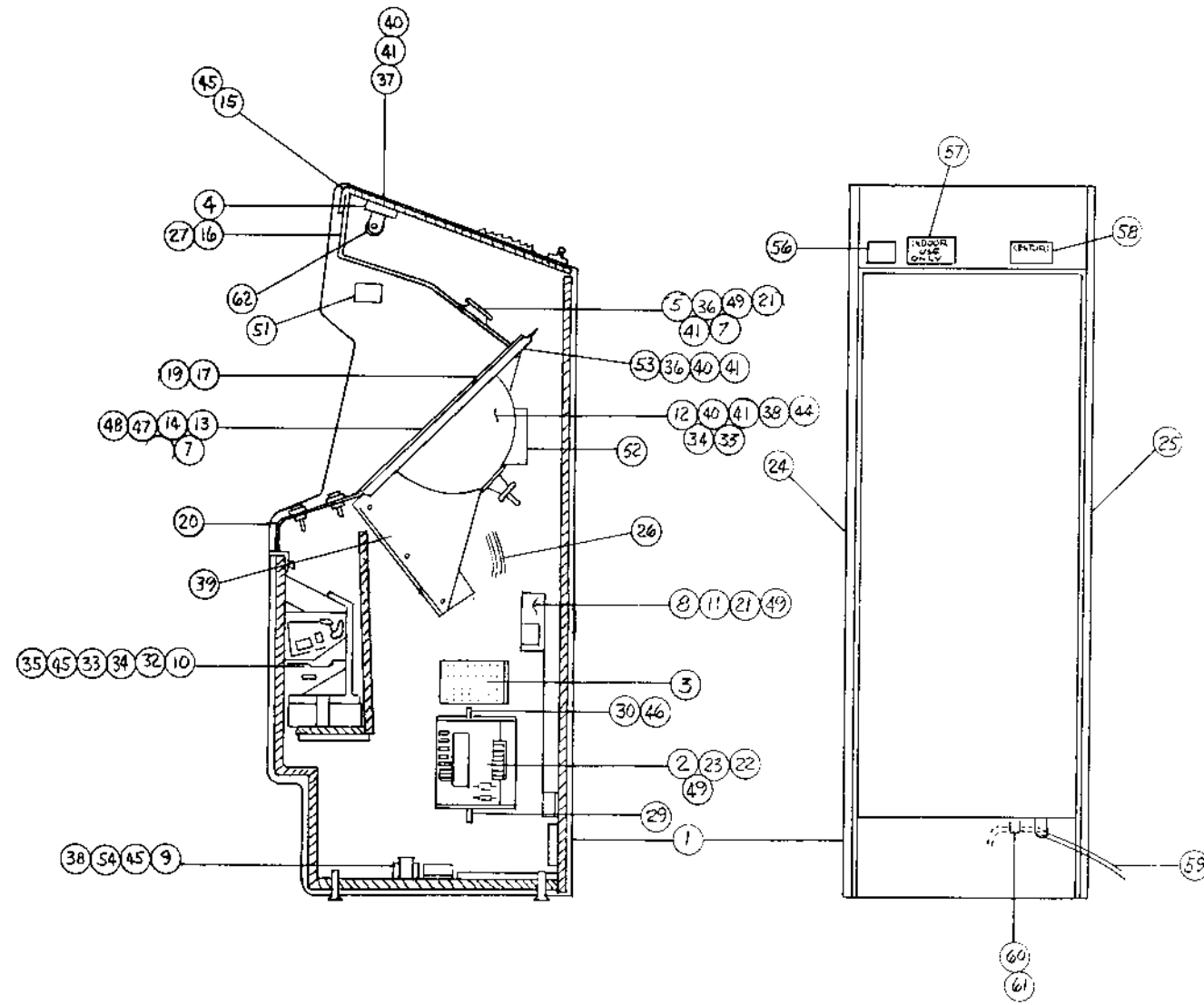


NOTE
 ↑ 5V. VCC
 ↓ 0V. GND
 (B-2) : 36 PIN CONNECTOR
 B IS PARTS SIDE
 (1) : 34 PIN CONNECTOR
 (11) : 2 PIN CONNECTOR
 (T) : TANTALUM CAPACITOR
 (C) : MYLAR CAPACITOR
 (E) : ELECTROLYTIC CAPACITOR
 NO MARK; CERAMIC CAPACITOR

TOLERANCES		UNLESS OTHERWISE SPECIFIED	
FRACTIONS	± 1/32		
DECIMALS 2 PL	± 0.15		
DECIMALS 3 PL	± 0.08		
HOLES	± 0.03		
ANGLES	± 1/2°		
SHT. MET BENDS	± 2°		

QC. APV'D	PROD. APV'D	QTY.	ASSEMBLY NO.
			50330029

CENTURI		MIALEAH, FLORIDA 32814	
NAME: LOCOMOTION SCHEM. SOUND B.D.			
MAT'L'S.	HEAT TREAT.	FINISH	
OWN: AAN	DATE: 2-23-82	SCALE: 382-17-0100	REV.



ITEM QTY	PART N°	DESCRIPTION
62	1	50180031 FLOURESCENT BULB 15WATT
61	12"	244-B-6 DOUBLE SIDED TAPE
60	1	50270007 3/8" CABLE CLAMP
59	1	50270095 GROUND WARNING LABEL
58	1	50270155 CENTURI SERIAL NUMBER TAG
57	1	50270184 FOR INDOOR USE ONLY LABEL
56	1	50270185 DISCONNECT POWER CORD... LABEL
55	1	50270187 CENTURI CABINET CARD
54	1	380-01-0700 110-VOLT 220VOLT JUMPER ASSY
53	1	361-03-0100 GLASS HOLDING BRKT.
52	1	382-01-0600 MANUAL & SCHEMATIC ASSY
51	1	364-06-0500 F.C.C. LABEL
50	4E	STAPLES
49	25	50270012 WIRE TYS 5/16"
48	6"	50270121 VELCRO LOOP ADHESIVE FASTENER
47	6"	50270120 VELCRO HOOK ADHESIVE FASTENER
46	1	10100001 #8-32x3/8 THUMB SCREW
45	25	10040031 #8x5/8 PA/PH/MS
44	4	10120003 1/4-20x1/2 MACHINE BOLT HEX HEAD
43	5	10170002 #10-24 WING NUT
42	6	10200005 #10 SPLIT LOCK WASHER
41	14	10190009 #10 FLAT WASHER
40	11	10150007 10-24 KEP NUT
39	4	10010151 10-24x3/4 PA/PH/MS
38	2	10010101 10-24x1" RP/PH/MS
37	2	10111010 10-24x1/4 CARRIAGE BOLT BLACK OXIDE
36	8	10111008 10-24x1" CARRIAGE BOLT BLACK OXIDE
35	1	10111006 1/4-20x3/4 CARRIAGE BOLT BLACK OXIDE
34	4	10190014 1/4-20 FLAT WASHER
33	18	10150006 1/4-20 KEP NUT
32	1	10111014 1/4-20x1/4 CARRIAGE BOLT BLACK OXIDE
31	2	366-03-0400A MONITOR MOUNTING BRKT
30	1	364-03-0400 C.P.U. SHIELD LOCKING BRKT
29	1	364-03-0300 C.P.U. SHIELD REINFORCING BRKT
28	REF	235-B-28A REF VINYL TRIM
27	2	361-10-0200 VINYL TRIM 7/16"
26	1	364-12-0500 ELECTRONOME OR WELLS GARDNER MONITOR SIGNAL HARNESS
25	1	382-06-0300 RIGHT SIDE DECAL
24	1	382-06-0200 LEFT SIDE DECAL
23	1	382-0-0100 P.C.B. ASSY (MODIFIED)
22	1	382-12-0100 C.P.U. HARNESS
21	1	364-01-1400 FUSE COVER ASSY
20	1	382-4-0100 CONTROL PANEL WIRED ASSY
19	1	382-06-0500 MONITOR OVERLAY (SILKSCREEN)
18	REF	361-08-0600A REF VEL WING GLASS
17	1	361-04-1000 VEL WING GLASS
16	1	382-06-0400 MARQUEE PANEL (SILKSCREEN)
15	1	363-03-0200 70° ANGLE HOLD DOWN BRKT
14	1	375-10-0300 MONITOR BEZEL
13	1	375-03-0200 GLASS HOLDING BRKT. (BACK)
12	1	52250120124 19" COLOR MONITOR
11	1	370-12-0200B CABINET POWER HARNESS ASSY
10	1	360-14-0700 CONCO CON DOOR
9	1	371-14-0700A ISOLATION TRANSFORMER WIRED ASSY
8	1	362-12-0100C A.C. LINE DISTRIBUTION WIRED ASSY
7	1	375-12-0500 SPEAKER WIRED ASSY
6	REF	360-08-0900 REFERENCE "SPEAKER SCREEN"
5	1	361-03-0300 SPEAKER SCREEN
4	1	361-14-0300A FLOURESCENT LAMP SWITCH WIRED ASSY
3	1	377-01-0500A POWER SUPPLY ASSY
2	1	375-01-0500 C.P.U. HOLDING ASSY
1	1	375-01-0900A WOOD CABINET ASSY

BILL OF MATERIALS

REV LET	EDN NO.	REVISION	BY	DATE	SCALE	PART NO.	REV.
						382-01-0200	

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

TOLERANCES		UNLESS OTHERWISE SPECIFIED	
FRACTIONS	± .02	DECIMALS 2 PL.	± .015
DECIMALS 3 PL.	± .005	DECIMALS 4 PL.	± .002
Holes	± .003		
ANGLES	± .001		
SHY. MET BENDS	± .12		

CENTURI		HALEAH, FLORIDA 33014	
NAME: COMPLETE GAME LESS PKG			
MATERIALS		HEAT TREAT	FINISH
DATE: JAN 16 1982	SCALE: 1/8" = 1"	PART NO: 382-01-0200	REV: 1