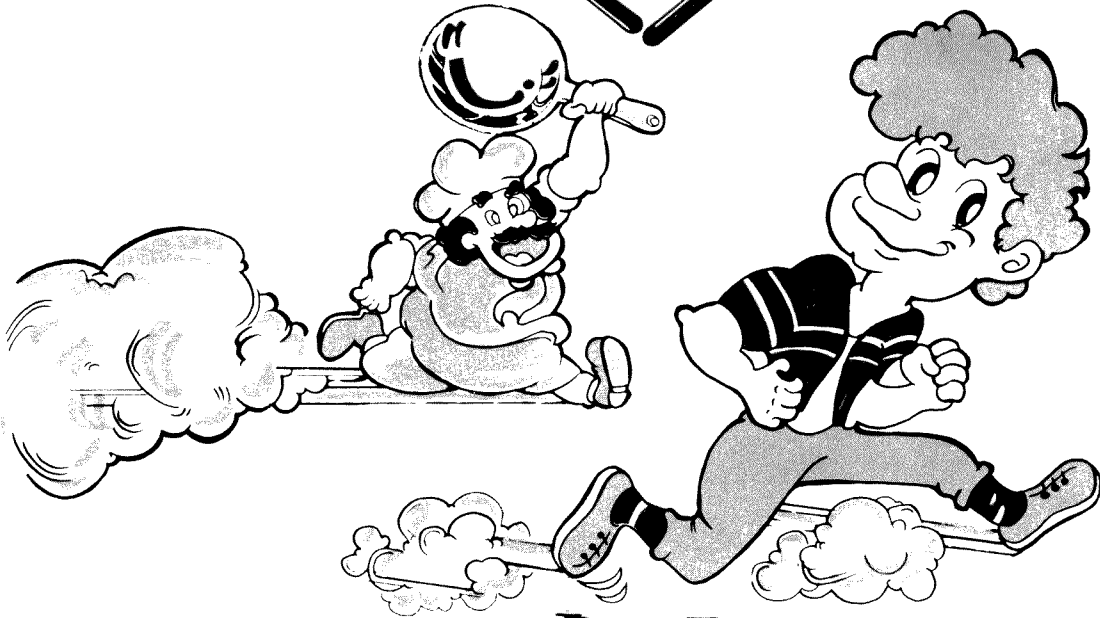


Konami/cenTuri™

**CONVERSION KIT
INSTRUCTION MANUAL**

HIGH SCHOOL GRAFFITI

Murkie™



cenTuri™ inc.

**SALES DEPT.: 305-558-5200
SERVICE: 1-800-327-7710**

MANUAL NO.: 901-2177

"MIKIE"

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CONVERSION KIT CONTENTS:

MAIN PRINTED CIRCUIT BOARD
P.C. BOARD CAGE (FCC REQUIRED)
CONNECTING WIRING HARNESS
MARQUEE (HEADER) SILKSCREENED
SIDE PANEL GRAPHICS (LEFT AND RIGHT)
CONTROL PANEL OVERLAY
CONTROL PANEL DECALS (BUTTONS AND INSTRUCTIONS)
PUSH BUTTON, WHITE (2 EA.)
PUSH BUTTON, RED (2 EA.)
SWITCH W/HOLDER ASSEMBLY (4 EA.)
4-WAY JOYSTICK
FCC COMPLIANCE LABEL
SCHEMATICS
INSTRUCTION MANUAL

ACCESSORIES, LESS MARQUEE, FOR COCKTAIL TABLE CONVERSIONS
ARE AVAILABLE UPON REQUEST THROUGH OUR SALES DEPARTMENT.

USER INFORMATION

WARNING

F.C.C. REGULATION COMPLIANCE

THE P.C. BOARD METAL CAGE SUPPLIED WITH THIS CONVERSION KIT MUST BE USED AND TERMINATED TO GROUND AT THE TIME OF INSTALLATION.

THIS IS TO AVOID RADIO FREQUENCY RADIATION AND COMPLY WITH THE LIMITS FOR A CLASS "A" COMPUTING DEVICE PURSUANT TO SUB-PART J OF PART 15 OF F.C.C. RULES, WHICH ARE DESIGNED TO PROVIDE REASONABLE PROTECTION AGAINST SUCH INTERFERENCE WHEN OPERATED IN A COMMERCIAL ENVIRONMENT.

OPERATION OF THIS EQUIPMENT IN A RESIDENTIAL AREA IS LIKELY TO CAUSE INTERFERENCE IN WHICH CASE, THE USER AT HIS OWN EXPENSE, WILL BE REQUIRED TO TAKE WHATEVER MEASURES MAY BE REQUIRED TO CORRECT THE INTERFERENCE.

INTRODUCTION

THIS MANUAL CONTAINS STEP-BY-STEP INSTRUCTIONS, WIRING DIAGRAMS, AND SUGGESTIONS TO ASSIST YOU IN PRODUCING A PROFESSIONAL CONVERTED GAME.

WE URGE YOU TO STUDY THIS MANUAL THOROUGHLY BEFORE YOU BEGIN THE CONVERSION.

"MIKIE" CAN BE INSTALLED IN ANY VERTICALLY MOUNTED RASTER SCAN MONITOR ON AN UPRIGHT, MINI, OR COCKTAIL TABLE GAME.

THE CONNECTING WIRING HARNESS PROVIDED WITH THIS KIT INCLUDES ADDITIONAL WIRES, IF NEEDED, FOR CONVERTING TABLE TYPE GAMES. DIP SWITCH SETTINGS ON THE PRINTED CIRCUIT BOARD NEED TO BE CHANGED WHEN CONVERTING TABLE TYPE GAMES.

NOTICE

THIS KIT IS INTENDED TO BE INSTALLED IN ANY VIDEO GAME MANUFACTURED AFTER DECEMBER 1, 1982.

CONVERSION OF OLD EQUIPMENT NOT PREVIOUSLY TESTED TO COMPLY WITH THE LIMITS FOR A CLASS "A" COMPUTING DEVICE PURSUANT TO SUB-PART "J" OF PART 15 OF F.C.C. RULES MAY VOID F.C.C. TYPE ACCEPTANCE.

THE P.C. BOARD CAGE COVER MUST BE REPLACED, IF REMOVED TO FACILITATE MAINTENANCE OF P.C. BOARD ASSEMBLY.

AFTER PROPER INSTALLATION AFFIX THE F.C.C. LABEL PROVIDED WITH THIS KIT IN A CLEARLY VISIBLE PLACE OUTSIDE THE EQUIPMENT.

ALTERATION OR IMPROPER INSTALLATION OF THIS KIT RELIEVES CENTURI, INC. OF ANY RESPONSIBILITIES.

CABINET PREPARATION:

NOTE: CABINET SIDE PANELS SHOULD BE THOROUGHLY CLEANED BEFORE APPLYING SIDE GRAPHICS.

USE A HOT AIR BLOWER TO REMOVE OLD "STICK-ON" SIDE GRAPHICS FROM CABINET. THE HEAT FROM THE BLOWER WILL LOOSEN UP THE ADHESIVE, ALLOWING YOU TO PEEL THEM OFF EASILY.

USE ACETONE AND A CLEAN DRY CLOTH TO REMOVE ANY ADHESIVE RESIDUE. CAUTION: DO NOT USE ACETONE ON SURFACES PAINTED WITH FLAT PAINT.

SIDE GRAPHIC APPLICATION:

- * SPRAY A MILD SOAP SOLUTION TO THE CABINET AREA WHERE THE SIDE GRAPHICS ARE TO BE APPLIED.
- * REMOVE THE PROTECTIVE BACKING FROM THE DECALS.
- * POSITION DECALS INTO PLACE.
- * WITH A SOFT SQUEEGEE, AND STARTING FROM THE CENTER OF THE DECAL, SLOWLY PRESS OUT EXCESS SOAP SOLUTION UNTIL A SMOOTH FINISH IS ACHIEVED.
- * ALLOW TO DRY, TWO TO THREE HOURS, BEFORE HANDLING.

CONTROL PANEL PREPARATION:

REMOVE CONTROL PANEL FROM CABINET AND REMOVE ALL PUSH BUTTONS AND/OR JOYSTICK.

DRILL ADDITIONAL HOLES FOR BUTTONS OR JOYSTICK IF NEEDED. REMOVE BURRS FROM DRILLED HOLES BEFORE APPLYING CONTROL PANEL OVERLAY.

OVERLAY APPLICATION:

REFER TO CONTROL PANEL DECAL PLACEMENT DRAWING IN THIS MANUAL.

- * SLOWLY APPLY OVERLAY, REMOVING BACKING AS YOU APPLY IT TO THE CONTROL PANEL SURFACE. BE SURE ALL AIR POCKETS ARE REMOVED.
- * USING AN X-ACTO KNIFE, CUT AROUND JOYSTICK AND PUSH BUTTON PLACEMENTS.
- * APPLY "PLAYER INSTRUCTIONS" DECAL, BY PEELING BACKING AND APPLYING WHERE DESIRED.
- * REMOVE BACKING FROM BUTTON DECALS AND POSITION THEM WHERE PUSH BUTTONS ARE TO BE PLACED. BE SURE DECALS ARE POSITIONED TO ALLOW ROOM FOR PUSH BUTTON PLACEMENT OVER THE DECAL DIE-CUT AREA.

MARQUEE PREPARATION:

THE MARQUEE SHOULD BE CUT TO FIT YOUR GAME. DO NOT REMOVE THE PROTECTIVE MASK UNTIL THIS IS DONE. BE SURE TO PROTECT THE SILK-SCREENED SIDE OF THE MARQUEE FROM ANY SURFACE WHICH MAY MAR OR SCRATCH THE FINISH.

MARQUEE MAY BE CUT BY USING A SCRIBING KNIFE OR A STURDY CRAFT KNIFE. DRAW THE SCRIBER SEVERAL TIMES ALONG A STRAIGHT EDGE HELD FIRMLY IN PLACE CAREFULLY USING FIRM, EVEN PRESSURE.

HOLD THE MARQUEE RIGIDLY UNDER A STRAIGHT EDGE WITH THE SCRIBED MARK HANGING JUST OVER THE EDGE OF A TABLE. USING A CLOTH TO PROTECT YOUR HANDS, APPLY AN EVEN SHARP DOWNWARD PRESSURE TO BREAK THE MARQUEE ALONG THE SCRATCHED MARK. SMOOTH ALL CORNERS AND SHARP EDGES.

CONNECTING HARNESS FAMILIARIZATION:

THE CONNECTING HARNESS HAS BEEN CAREFULLY PREPARED AND LABELED TO AVOID ANY CONNECTING ERRORS. IT IS DESIGNED TO PROVIDE DIRECTION INTO SIX (6) SEPARATE GROUPS, E.G. "TV MONITOR", "SPEAKER", "COIN DOOR", "CONTROL PANEL", "POWER SUPPLY", AND "CONTROL PANEL 2ND PLAYER" (USED ONLY ON COCKTAIL TABLE CONVERSIONS).

THE MOST COMMONLY KNOWN ERRORS MADE DURING CONVERSION, ARE IN WIRE CONNECTIONS AND EDGE CONNECTOR INSERTION. IT IS THEREFORE, OF THE UTMOST IMPORTANCE TO THOROUGHLY STUDY THE EDGE CONNECTOR PIN CONFIGURATION, SO THAT MISTAKES NOT BE MADE DURING WIRE HOOK-UP.

TO ASSIST IN IDENTIFYING THE NUMERICAL SIDE (PIN-1 THRU PIN-18) OF THE CONNECTOR, A PIECE OF TAPE HAS BEEN PLACED ON THAT SIDE. WHEN INSERTED, THE NUMERICAL SIDE OF THE CONNECTOR WILL BE FACING THE COMPONENT SIDE OF THE P.C. BOARD. TO FURTHER FAMILIARIZE YOU WITH THE EDGE CONNECTOR, WHICH CONTAINS 36 PINS DESIGNATED 1 THRU 18 AND A THRU V, THE ORANGE WIRE AT ONE END IS PIN #1 WHEREAS THE FARTHEST END IS PIN #18. ON THE OPPOSITE, OR BOTTOM SIDE OF THE CONNECTOR, PIN "A" HAS NO WIRE AND PIN "V" HAS A RED WIRE. BE SURE TO INSERT THE EDGE CONNECTOR INTO THE P.C. BOARD AS STATED ABOVE.

CONNECTING HARNESS INSTALLATION:

UNPLUG THE MACHINE FROM THE WALL OUTLET TO ELIMINATE SHOCK HAZARDS. CHECK THE POWER SUPPLY ON YOUR OLD GAME. AN ENCLOSED REGULATED POWER SUPPLY RATED AT 6 AMPS WITH VOLTAGE MAINTAINED AT +5, +12, IS MOST APPLICABLE.

IDENTIFY AND SEPARATE THE EXISTING WIRES ON THE OLD GAME INTO SEPARATE GROUPS; TV MONITOR, SPEAKER, COIN DOOR, CONTROL PANEL(S) AND POWER SUPPLY. NO DOUBT, IN SOME CASES, THE WIRE COLORS OF THE NEW KIT HARNESS WILL NOT MATCH TO THE WIRE COLORS OF THE OLD GAME HARNESS. BEFORE PROCEEDING FURTHER, TURN TO THE CPU HARNESS

DRAWING (PART NO. 008-4948) FOUND IN THIS MANUAL.

ON THE CPU HARNESS DRAWING, NEXT TO THE COLOR OF EACH WIRE ON THE ARROWED LINES, WRITE THE COLOR OF THE WIRE FROM THE OLD GAME HARNESS, WHERE IT WILL TERMINATE. FOR EXAMPLE, IF THE WIRE ON THE OLD GAME HARNESS LEADING TO 1ST PLAYER START IS "YELLOW", WRITE "YELLOW" NEXT TO WHT FROM PIN "E" ON THE ARROWED LINE.

TAKING ONE WIRE GROUP AT A TIME, AND ALLOWING ENOUGH WIRE FOR THE NEW HARNESS TO BE ATTACHED, CUT THE WIRES LEADING TO THE OLD P.C. BOARD. CUT THE WIRES DIAGONALLY TO ELIMINATE A BULKY CABLE APPEARANCE, ONCE THE CONNECTIONS ARE MADE, WIRES EITHER CAN BE ATTACHED WITH A BUTT CONNECTOR OR SOLDERED AND COVERED WITH SHRINK-TUBING FOR A MORE PROFESSIONAL LOOK.

A WORD OF CAUTION WHEN CONNECTING THE BLACK WIRES FROM THE NEW KIT EDGE CONNECTOR. THESE WIRES ARE DC GROUND AND ARE NOT TO BE CONFUSED AND CONNECTED TO THE BLACK WIRES OF THE CABINET A.C. CIRCUIT.

BLACK WIRES IN AN A.C. CIRCUIT ARE "HOT" AND CARRY A POTENTIAL OF 120 VOLTS, WHITE IS "NEUTRAL" AND GREEN IDENTIFIES EARTH GROUND.

THE BLACK GROUND WIRES ON THE EDGE CONNECTOR ARE CONNECTED IN PARALLEL WITHIN THE P.C. BOARD AND ONLY ONE WIRE (18 GAUGE PIN U) IS REQUIRED FOR DC GROUND PURPOSES. THIS WIRE SHOULD BE ATTACHED TO THE POWER SUPPLY GROUND (GND) OR FRAME GROUND (F/G) TERMINAL.

DO NOT INSERT THE 36 PIN EDGE CONNECTOR INTO THE P.C. BOARD UNTIL ALL WIRES HAVE BEEN CONNECTED AND THOROUGHLY TESTED TO EACH TERMINATING POINT.

CAGE INSTALLATION:

LOCATE AN AREA INSIDE THE CABINET WHICH WILL ALLOW YOU TO INSERT OR REMOVE THE P.C. BOARD ASSEMBLY WITHOUT ANY PROBLEM.

INSTALL THE GALVANIZED METAL WITH PLASTIC GUIDES CAGE WITH FOUR (4) LARGE SCREWS (NO.8) IN AN ACCESIBLE AREA AGAINST THE SIDE PANEL OF THE CABINET.

IF NEEDED, ELEVATE THE METAL CAGE WITH 3/4 INCH THICK PLYWOOD OR PARTICLE BOARD BETWEEN THE CAGE AND CABINET.

AFTER THE MAIN METAL CAGE HAS BEEN INSTALLED, SLIDE THE P.C. BOARD ASSEMBLY ON THE PLASTIC GUIDES AND PUSH IT ALL THE WAY IN. THE P.C. BOARD CONNECTING EDGE MUST BE FACING TOWARDS THE OUTSIDE OF THE CAGE WITH THE COMPONENT SIDE UP, FACING THE LARGE PERFORATED METAL COVER.

ATTACHED THE LARGE TOP PERFORATED METAL COVER TO THE MAIN CAGE WITH FOUR (4) SMALL SCREWS (NO.4) SUPPLIED WITH YOUR KIT.

CONNECT THE NEW HARNESS CONNECTOR TO THE P.C. BOARD WITH THE TAPE UP, VISIBLE FROM YOUR SIDE. CAREFULLY PLACE THE WHITE PROTECTIVE SLEEVE OF THE HARNESS THROUGH THE SQUARE CUT OUT ON THE SMALL PERFORATED METAL COVER.

·USING TWO (2) SMALL SCREWS (NO.4) SECURE, THROUGH THE ELONGATED HOLES, THE SMALL FRONT COVER TO THE TOP OF THE TOP COVER. PUSH THE SMALL COVER AGAINST THE BOTTOM PART OF THE CAGE AND SECURE IT WITH TWO (2) LARGE SCREWS (NO.8) TO THE SIDE WOOD PANEL.

ATTACH ONE END OF THE 36 INCH LONG GREEN GROUND WIRE, SUPPLIED WITH THIS KIT, UNDER ANY OF THE SCREWS USED TO SECURE THE CAGE. CONNECT THE OTHER END OF THE GREEN WIRE TO EARTH GROUND, E.G. POWER SUPPLY CHASSIS OR TV MONITOR CHASSIS.

P.C. BOARD ASSEMBLY:

THE COMPUTER BOARD IN THIS KIT OPERATES MOST EFFICIENTLY AND RELIABLY WHEN THE POWER SUPPLY IS SET SO THE VOLTAGE ON THE BOARD IS +5.0 VOLTS, ± 0.1 VOLT. TO CHECK THIS, PLACE A METER ACROSS +5 VOLTS (PIN-V) AND GROUND (PIN-U), AT THE EDGE CONNECTOR. ADJUST, IF NECESSARY, THE +5 VOLT CONTROL ON THE POWER SUPPLY.

THE P.C. BOARD METAL CAGE SUPPLIED WITH THIS KIT MUST BE USED AND TERMINATED TO EARTH GROUND AT THE TIME OF INSTALLATION.

POWER SUPPLY:

THE POWER SUPPLY MUST PROVIDE +5 VOLTS, 6.0 AMPS AND +12 VOLTS, 2.0 AMPS CURRENT PARAMETERS. ALL OUTPUT SOURCE VOLTAGES MUST BE STABLE FOR INPUT LINE VOLTAGE VARIATIONS OF FROM 90 TO 132 VOLTS A.C.

CHECKING YOUR GAME:

SET THE DIP SWITCHES ON THE P.C. BOARD TO THE DESIRED SETTINGS, REFER TO THE OPTIONAL DIP SWITCH SETTINGS CHART IN THIS MANUAL, AND APPLY POWER TO THE GAME.

CHECK THE VIDEO DISPLAYED ON THE TV MONITOR. IF NO VIDEO IS PRESENT, UNPLUG THE GAME AND CHECK THE POWER SUPPLY FOR PROPER OUTPUT VOLTAGES (REFER TO P.C. BOARD ASSEMBLY SECTION ABOVE). CHECK, ALSO, THE MONITOR CONNECTORS FOR OPEN OR SHORTED CIRCUITS.

IF THE VIDEO DISPLAYED IS UPSIDE DOWN, CHECK THE SETTING OF THE DIP SWITCH FOR UPRIGHT OR TABLE TYPE SELECTION.

IF THE SWITCH SETTING IS CORRECT, UNPLUG THE GAME AND INVERT THE MONITOR YOKE 90° BY UNSOLDERING, REVERSING AND RESOLDERING THE TWO INSIDE WIRES LEADING FROM THE MONITOR CIRCUIT BOARD TO THE YOKE. REPEAT THE SAME PROCEDURE WITH THE TWO OUTSIDE WIRES LEADING FROM THE MONITOR CIRCUIT BOARD TO THE YOKE.

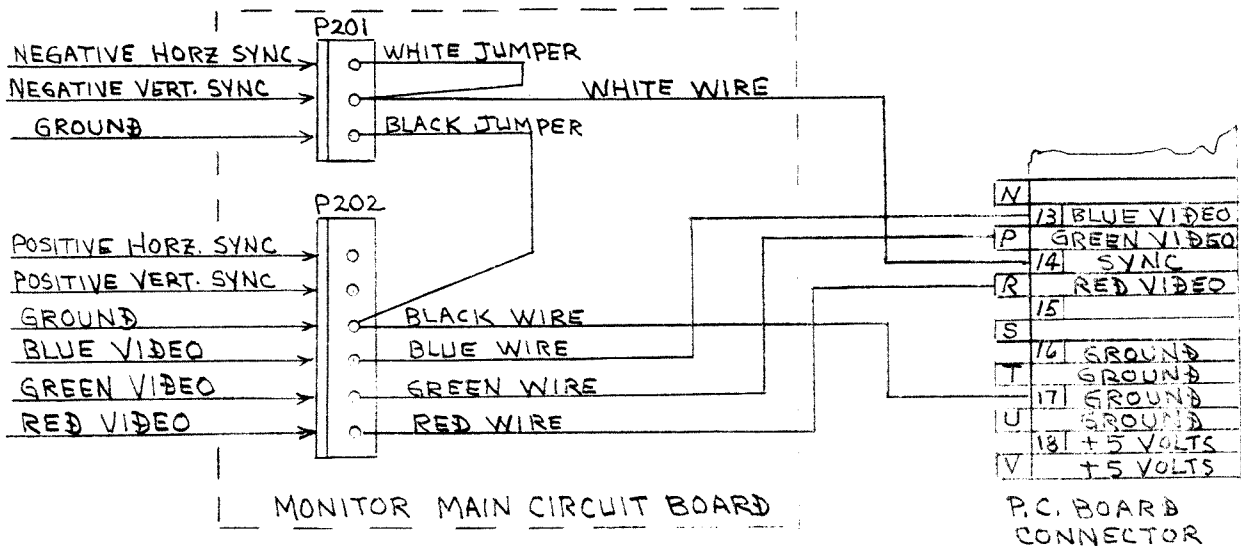
REFER TO TV MONITOR YOKE ILLUSTRATION DRAWING IN THIS MANUAL.

TV MONITOR SYNCHRONIZATION ("SYNC")

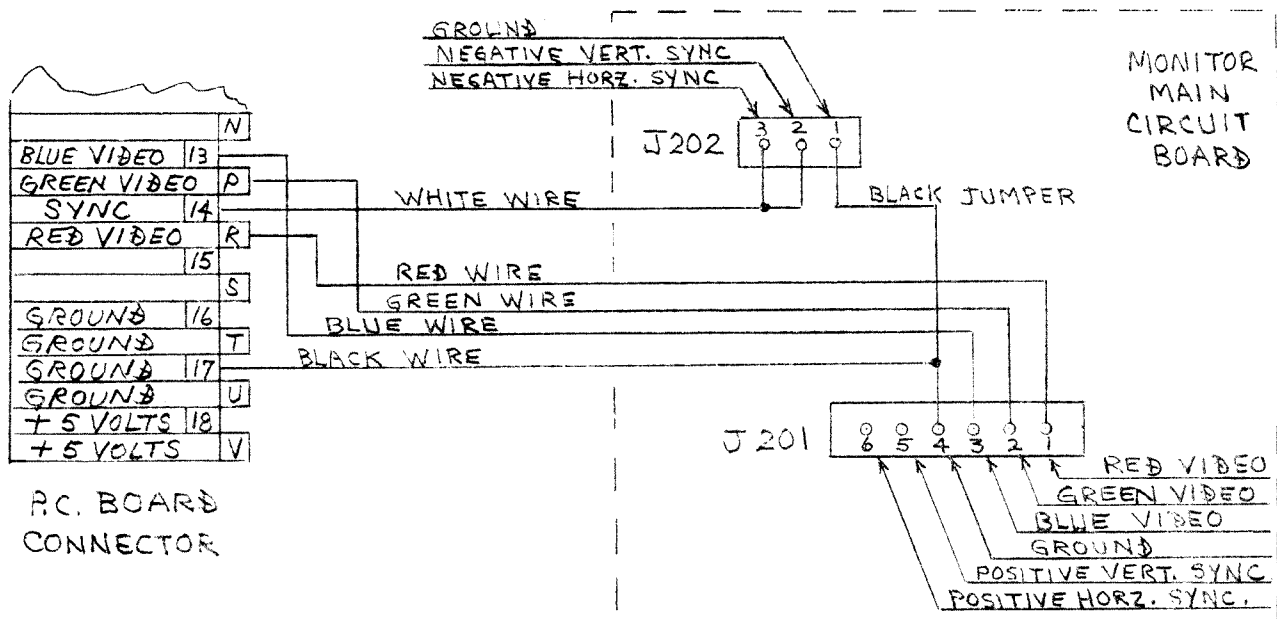
THE P.C. BOARD ASSEMBLY IN THIS KIT USES COMPOSIT NEGATIVE SYNCHRONIZATION.

THE WIRES OF THE NEW HARNESS TO THE MONITOR ARE COLOR CODED TO INDICATE THE "RED", "GREEN" AND "BLUE" VIDEO SIGNALS TO THE MONITOR. THE BLACK WIRE IS USED FOR GROUND AND THE WHITE IS FOR SYNCHRONIZATION.

ON WELLS/GARDNER TYPE MONITORS, ATTACH THE WIRES FROM THE P.C. BOARD TO THE MONITOR'S MAIN CIRCUIT BOARD AS SHOWN BELOW.



ON ELECTROHOME TYPE MONITORS, ATTACH THE WIRES FROM THE P.C. BOARD TO THE MONITOR'S MAIN CIRCUIT BOARD AS SHOWN BELOW.



MONITOR ADJUSTMENTS MAY BE NECESSARY TO ADJUST THE PICTURE ON THE SCREEN. IF MONITOR ADJUSTMENT CAN NOT CORRECT PICTURE ROLL OR JITTER RE-CHECK THE WIRES LEADING TO THE "SYNC" CIRCUIT OF THE MONITOR. BE SURE THE WHITE WIRE IS CONNECTED TO THE NEGATIVE VERTICAL AND/OR HORIZONTAL COMPOSITE "SYNC" CIRCUIT.

P.C. BOARD DIAGNOSTIC TEST:

AUTOMATIC SELF TEST: THE P.C. BOARD SYSTEM WILL AUTOMATICALLY TEST ROMS AND RAMS UPON POWER ON. THE SCREEN WILL EITHER DISPLAY A "BAD" OR "OK" CONDITION AS FOLLOWS:

RAM 1 OK

RAM 2 OK

RAM 1 BAD

RAM 2 BAD

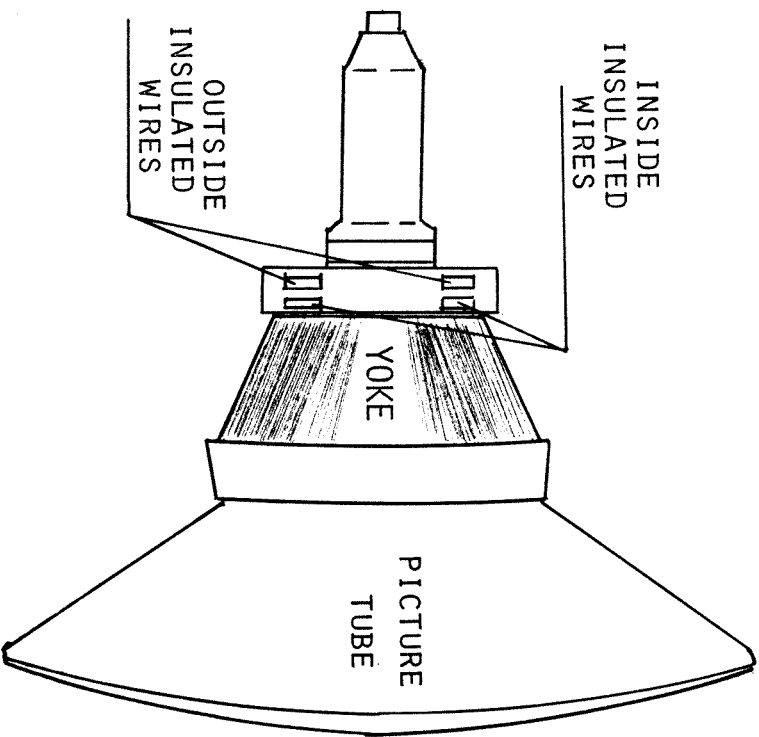
ROMS 11c, 11d, 12a, 12c, AND 12d WILL EITHER DISPLAY "OK" OR "BAD".

MANUAL TEST: A MANUAL TEST MAY BE PERFORMED BY DEPRESSING THE ONE AND TWO PLAYER START BUTTONS DURING POWER-UP. WHEN THE "CROSS-HATCH" PATTERN APPEARS, RELEASE THE BUTTONS AND PROCEED AS FOLLOWS:

- A. "CROSS-HATCH" PATTERN- WHEN THE "CROSS-HATCH" PATTERN IS DISPLAYED, ADJUSTMENT TO THE MONITOR MAY BE MADE TO CENTER AND/OR EXTEND THE BORDERS OF THE PICTURE.
- B. SWITCH TEST- FROM "CROSS-HATCH" PATTERN, PRESS ONE PLAYER START BUTTON AND THE SCREEN WILL DISPLAY ALL SWITCHES WITH A ZERO (0) TO THE RIGHT. THE ZERO (0) SHOULD CHANGE TO ONE (1) WHEN EACH SWITCH IS ACTIVATED.
- C. COIN COUNTER TEST- FROM SWITCH TEST, PRESS ONE PLAYER START BUTTON AND THE SCREEN WILL DISPLAY "COIN COUNTER"
- D. DIP SWITCH SETTINGS- FROM COIN COUNTER TEST, THE SCREEN WILL AUTOMATICALLY DISPLAY ALL PROGRAMMABLE FEATURES WITH THEIR RESPECTIVE SETTINGS. SETTINGS SHOULD CORRESPOND TO THE POSITION OF THE DIP SWITCHES ON THE P.C. BOARD.

TURN POWER "OFF" AND "ON", TO EXIT DIAGNOSTICS.

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

REV. LET.		ECN NO.		REVISION		BY	
TOLERANCES Unless Otherwise Specified							
FRACTIONS		± 1/32		DECIMALS 2 PL		± .015	
DECIMALS 3 PL		± .005		HOLES		+ .003	
ANGLES		± .001		SHT. MET BENDS		± 1/2°	
NAME centuri HIALEAH, FLORIDA 33014				TV MONITOR YOKE ILLUSTRATION			
MATERIALS		HEAT TREAT.		FINISH		SCALE	
DWN. MJ		APP'D. MJ		DATE 10-9-84		SCALE NONE	
PART NO.		REV.		REV.		REV.	

OPTIONAL DIP SWITCH SETTINGS

DIP SWITCH NO.1 (8P DIP SWITCH)

COIN-1 SWITCH SETTINGS

COIN	PLAYS	SW1	SW2	SW3	SW4
1	1	OFF	OFF	OFF	OFF
1	2	ON	OFF	OFF	OFF
1	3	OFF	ON	OFF	OFF
1	4	ON	ON	OFF	OFF
1	5	OFF	OFF	ON	OFF
1	6	ON	OFF	ON	OFF
1	7	OFF	ON	ON	OFF
2	1	ON	ON	ON	OFF
2	3	OFF	OFF	OFF	ON
2	5	ON	OFF	OFF	ON
3	1	OFF	ON	OFF	ON
3	2	ON	ON	OFF	ON
3	4	OFF	OFF	ON	ON
4	1	ON	OFF	ON	ON
4	3	OFF	ON	ON	ON
FREE PLAY		ON	ON	ON	ON

COIN-2 SWITCH SETTINGS

COIN	PLAYS	SW5	SW6	SW7	SW8
1	1	OFF	OFF	OFF	OFF
1	2	ON	OFF	OFF	OFF
1	3	OFF	ON	OFF	OFF
1	4	ON	ON	OFF	OFF
1	5	OFF	OFF	ON	OFF
1	6	ON	OFF	ON	OFF
1	7	OFF	ON	ON	OFF
2	1	ON	ON	ON	OFF
2	3	OFF	OFF	OFF	ON
2	5	ON	OFF	OFF	ON
3	1	OFF	ON	OFF	ON
3	2	ON	ON	OFF	ON
3	4	OFF	OFF	ON	ON
4	1	ON	OFF	ON	ON
4	3	OFF	ON	ON	ON
FREE PLAY		ON	ON	ON	ON

OPTIONAL DIP SWITCH SETTINGS

DIP SWITCH NO.2 (8P DIP SWITCH)

NUMBER OF MIKIES

NUMBER	SW1	SW2
3	OFF	OFF
4	ON	OFF
5	OFF	ON
7	ON	ON

GAME TYPE

STYLE	SW3
TABLE	OFF
UPRIGHT	ON

BONUS MIKIES

FIRST	EVERY	SW4	SW5
20,000	50,000	OFF	OFF
30,000	60,000	ON	OFF
30,000	----	OFF	ON
40,000	----	ON	ON

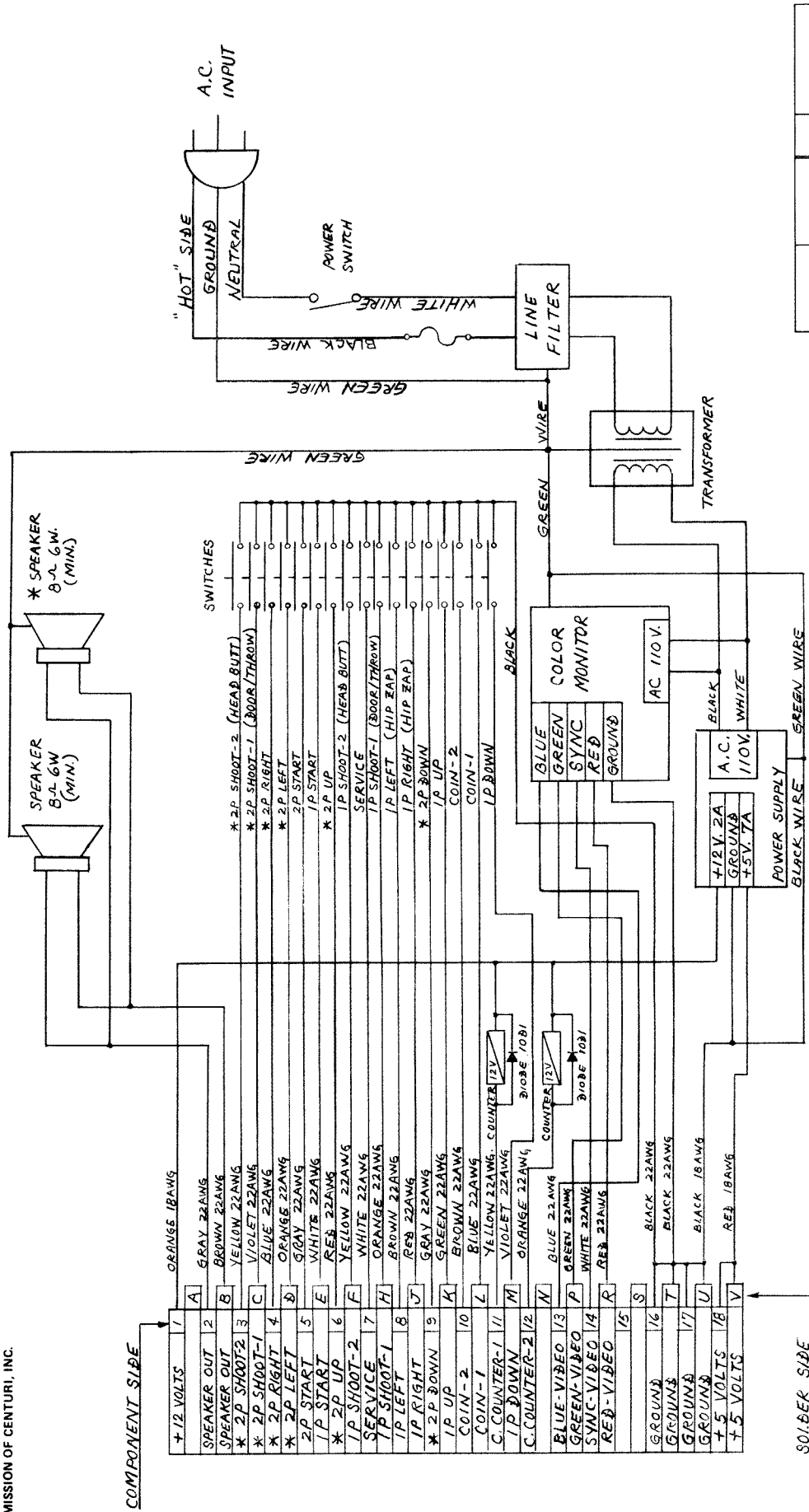
GAME LEVEL OF DIFFICULTY

LEVEL	SW6	SW7
1 (EASY)	OFF	OFF
2	ON	OFF
3	OFF	ON
4 (HARD)	ON	ON

AUDIO ATTRACTION

AUDIO MODE	SW8
SOUND OFF	OFF
SOUND ON	ON

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* NOTE -
* TABLE MODELS ONLY

REV. LET.	ECN NO.	REVISION	BY

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

REV.	DATE	SCALE	PART NO.	REV.
	10-1-84	NONE		

OC. APVD	PROD. APVD	QTY.	ASSEMBLY NO.

centuri inc.		HIALEAH, FLORIDA 33014	
NAME		GENERAL WIRING DIAGRAM - MIKIE	
MATT'S.		FINISH	
DWN	APP'D	HEAT TREAT.	
MS	MS		

COMPONENT SIDE

+12 VOLTS	1	A	GRY	TO CABINET SPEAKER
SPEAKER OUT	2	B	BRN	TO CABINET SPEAKER
* 2P SHOOT-2	3	C	YEL	* TO 2ND PLAYER CONTROL PANEL (TABLE)
* 2P SHOOT-1	4	D	BLU	* TO 2ND PLAYER CONTROL PANEL (TABLE)
* 2P RIGHT	5	E	GRY	* TO 2ND PLAYER CONTROL PANEL (TABLE)
* 2P LEFT	6	F	GRY	* TO 2ND PLAYER CONTROL PANEL (TABLE)
1P START	7	G	WHT	TO CONTROL PANEL 1ST PLAYER START
* 2P UP	8	H	WHT	* TO 2ND PLAYER CONTROL PANEL (TABLE)
1P SHOOT-2	9	I	WHT	TO CONTROL PANEL 2ND PLAYER START
1P SHOOT-1	10	J	WHT	TO CONTROL PANEL 2ND PLAYER START
1P LEFT	11	K	GRY	TO CONTROL PANEL 2ND PLAYER START
* 2P DOWN	12	L	GRY	* TO 2ND PLAYER CONTROL PANEL (TABLE)
1P UP	13	M	GRN	TO CONTROL PANEL 2ND PLAYER START
COIN-2	14	N	BLU	TO COIN 300R (COIN SW.)
COIN-1	15	O	YEL	TO COIN 300R (COIN SW.)
COIN COUNTER-1	16	P	VIO	TO COIN 300R (COIN COUNTER, 12V)
1P DOWN	17	Q	GRN	TO COIN 300R (COIN COUNTER, 12V)
COIN COUNTER-2	18	R	GRN	TO COIN 300R (COIN COUNTER, 12V)
BLUE-VIDEO	19	S	GRN	TO TV MONITOR VIDEO IN
GREEN-VIDEO	20	T	GRN	TO TV MONITOR VIDEO IN
SYNC-VIDEO	21	U	WHT	TO TV MONITOR VIDEO IN
RED-VIDEO	22	V	RED	TO TV MONITOR VIDEO IN
GROUND	23	W	BLK	TO COIN 300R-COIN SWITCHES GROUND
GROUND	24	X	BLK	TO TV MONITOR & CONTROL PANEL SWITCHES GROUND
GROUND *	25	Y	BLK	* TO 2ND PLAYER CONTROL PANEL (TABLE)
GROUND	26	Z	BLK	TO 2ND PLAYER CONTROL PANEL (TABLE)
+5 VOLTS	27	AA	BLK	TO 2ND PLAYER CONTROL PANEL (TABLE)
+5 VOLTS	28	AB	BLK	TO 2ND PLAYER CONTROL PANEL (TABLE)
+5 VOLTS	29	AC	BLK	TO 2ND PLAYER CONTROL PANEL (TABLE)
+5 VOLTS	30	AD	BLK	TO 2ND PLAYER CONTROL PANEL (TABLE)
+5 VOLTS	31	AE	BLK	TO 2ND PLAYER CONTROL PANEL (TABLE)
+5 VOLTS	32	AF	BLK	TO 2ND PLAYER CONTROL PANEL (TABLE)
+5 VOLTS	33	AG	BLK	TO 2ND PLAYER CONTROL PANEL (TABLE)
+5 VOLTS	34	AH	BLK	TO 2ND PLAYER CONTROL PANEL (TABLE)
+5 VOLTS	35	AI	BLK	TO 2ND PLAYER CONTROL PANEL (TABLE)
+5 VOLTS	36	AJ	BLK	TO 2ND PLAYER CONTROL PANEL (TABLE)
+5 VOLTS	37	AK	BLK	TO 2ND PLAYER CONTROL PANEL (TABLE)
+5 VOLTS	38	AL	BLK	TO 2ND PLAYER CONTROL PANEL (TABLE)
+5 VOLTS	39	AM	BLK	TO 2ND PLAYER CONTROL PANEL (TABLE)
+5 VOLTS	40	AN	BLK	TO 2ND PLAYER CONTROL PANEL (TABLE)
+5 VOLTS	41	AO	BLK	TO 2ND PLAYER CONTROL PANEL (TABLE)
+5 VOLTS	42	AP	BLK	TO 2ND PLAYER CONTROL PANEL (TABLE)
+5 VOLTS	43	AQ	BLK	TO 2ND PLAYER CONTROL PANEL (TABLE)
+5 VOLTS	44	AR	BLK	TO 2ND PLAYER CONTROL PANEL (TABLE)
+5 VOLTS	45	AS	BLK	TO 2ND PLAYER CONTROL PANEL (TABLE)
+5 VOLTS	46	AT	BLK	TO 2ND PLAYER CONTROL PANEL (TABLE)
+5 VOLTS	47	AU	BLK	TO 2ND PLAYER CONTROL PANEL (TABLE)
+5 VOLTS	48	AV	BLK	TO 2ND PLAYER CONTROL PANEL (TABLE)
+5 VOLTS	49	AW	BLK	TO 2ND PLAYER CONTROL PANEL (TABLE)
+5 VOLTS	50	AX	BLK	TO 2ND PLAYER CONTROL PANEL (TABLE)
+5 VOLTS	51	AY	BLK	TO 2ND PLAYER CONTROL PANEL (TABLE)
+5 VOLTS	52	AZ	BLK	TO 2ND PLAYER CONTROL PANEL (TABLE)
+5 VOLTS	53	BA	BLK	TO 2ND PLAYER CONTROL PANEL (TABLE)
+5 VOLTS	54	BB	BLK	TO 2ND PLAYER CONTROL PANEL (TABLE)
+5 VOLTS	55	BC	BLK	TO 2ND PLAYER CONTROL PANEL (TABLE)
+5 VOLTS	56	BD	BLK	TO 2ND PLAYER CONTROL PANEL (TABLE)
+5 VOLTS	57	BE	BLK	TO 2ND PLAYER CONTROL PANEL (TABLE)
+5 VOLTS	58	BF	BLK	TO 2ND PLAYER CONTROL PANEL (TABLE)
+5 VOLTS	59	BG	BLK	TO 2ND PLAYER CONTROL PANEL (TABLE)
+5 VOLTS	60	BH	BLK	TO 2ND PLAYER CONTROL PANEL (TABLE)
+5 VOLTS	61	BI	BLK	TO 2ND PLAYER CONTROL PANEL (TABLE)
+5 VOLTS	62	BJ	BLK	TO 2ND PLAYER CONTROL PANEL (TABLE)
+5 VOLTS	63	BK	BLK	TO 2ND PLAYER CONTROL PANEL (TABLE)
+5 VOLTS	64	BL	BLK	TO 2ND PLAYER CONTROL PANEL (TABLE)
+5 VOLTS	65	BM	BLK	TO 2ND PLAYER CONTROL PANEL (TABLE)
+5 VOLTS	66	BN	BLK	TO 2ND PLAYER CONTROL PANEL (TABLE)
+5 VOLTS	67	BO	BLK	TO 2ND PLAYER CONTROL PANEL (TABLE)
+5 VOLTS	68	BP	BLK	TO 2ND PLAYER CONTROL PANEL (TABLE)
+5 VOLTS	69	BQ	BLK	TO 2ND PLAYER CONTROL PANEL (TABLE)
+5 VOLTS	70	BR	BLK	TO 2ND PLAYER CONTROL PANEL (TABLE)
+5 VOLTS	71	BS	BLK	TO 2ND PLAYER CONTROL PANEL (TABLE)
+5 VOLTS	72	BT	BLK	TO 2ND PLAYER CONTROL PANEL (TABLE)
+5 VOLTS	73	BV	BLK	TO 2ND PLAYER CONTROL PANEL (TABLE)
+5 VOLTS	74	BW	BLK	TO 2ND PLAYER CONTROL PANEL (TABLE)
+5 VOLTS	75	BX	BLK	TO 2ND PLAYER CONTROL PANEL (TABLE)
+5 VOLTS	76	BY	BLK	TO 2ND PLAYER CONTROL PANEL (TABLE)
+5 VOLTS	77	BZ	BLK	TO 2ND PLAYER CONTROL PANEL (TABLE)
+5 VOLTS	78	CA	BLK	TO 2ND PLAYER CONTROL PANEL (TABLE)
+5 VOLTS	79	CB	BLK	TO 2ND PLAYER CONTROL PANEL (TABLE)
+5 VOLTS	80	CC	BLK	TO 2ND PLAYER CONTROL PANEL (TABLE)
+5 VOLTS	81	CD	BLK	TO 2ND PLAYER CONTROL PANEL (TABLE)
+5 VOLTS	82	CE	BLK	TO 2ND PLAYER CONTROL PANEL (TABLE)
+5 VOLTS	83	CF	BLK	TO 2ND PLAYER CONTROL PANEL (TABLE)
+5 VOLTS	84	CG	BLK	TO 2ND PLAYER CONTROL PANEL (TABLE)
+5 VOLTS	85	CH	BLK	TO 2ND PLAYER CONTROL PANEL (TABLE)
+5 VOLTS	86	CI	BLK	TO 2ND PLAYER CONTROL PANEL (TABLE)
+5 VOLTS	87	CJ	BLK	TO 2ND PLAYER CONTROL PANEL (TABLE)
+5 VOLTS	88	CK	BLK	TO 2ND PLAYER CONTROL PANEL (TABLE)
+5 VOLTS	89	CL	BLK	TO 2ND PLAYER CONTROL PANEL (TABLE)
+5 VOLTS	90	CM	BLK	TO 2ND PLAYER CONTROL PANEL (TABLE)
+5 VOLTS	91	CN	BLK	TO 2ND PLAYER CONTROL PANEL (TABLE)
+5 VOLTS	92	CO	BLK	TO 2ND PLAYER CONTROL PANEL (TABLE)
+5 VOLTS	93	CP	BLK	TO 2ND PLAYER CONTROL PANEL (TABLE)
+5 VOLTS	94	CQ	BLK	TO 2ND PLAYER CONTROL PANEL (TABLE)
+5 VOLTS	95	CR	BLK	TO 2ND PLAYER CONTROL PANEL (TABLE)
+5 VOLTS	96	CS	BLK	TO 2ND PLAYER CONTROL PANEL (TABLE)
+5 VOLTS	97	CT	BLK	TO 2ND PLAYER CONTROL PANEL (TABLE)
+5 VOLTS	98	CU	BLK	TO 2ND PLAYER CONTROL PANEL (TABLE)
+5 VOLTS	99	CV	BLK	TO 2ND PLAYER CONTROL PANEL (TABLE)
+5 VOLTS	100	CW	BLK	TO 2ND PLAYER CONTROL PANEL (TABLE)
+5 VOLTS	101	CX	BLK	TO 2ND PLAYER CONTROL PANEL (TABLE)
+5 VOLTS	102	CY	BLK	TO 2ND PLAYER CONTROL PANEL (TABLE)
+5 VOLTS	103	CZ	BLK	TO 2ND PLAYER CONTROL PANEL (TABLE)
+5 VOLTS	104	CA	BLK	TO 2ND PLAYER CONTROL PANEL (TABLE)
+5 VOLTS	105	CB	BLK	TO 2ND PLAYER CONTROL PANEL (TABLE)
+5 VOLTS	106	CC	BLK	TO 2ND PLAYER CONTROL PANEL (TABLE)
+5 VOLTS	107	CD	BLK	TO 2ND PLAYER CONTROL PANEL (TABLE)
+5 VOLTS	108	CE	BLK	TO 2ND PLAYER CONTROL PANEL (TABLE)
+5 VOLTS	109	CF	BLK	TO 2ND PLAYER CONTROL PANEL (TABLE)
+5 VOLTS	110	CG	BLK	TO 2ND PLAYER CONTROL PANEL (TABLE)
+5 VOLTS	111	CH	BLK	TO 2ND PLAYER CONTROL PANEL (TABLE)
+5 VOLTS	112	CI	BLK	TO 2ND PLAYER CONTROL PANEL (TABLE)
+5 VOLTS	113	CJ	BLK	TO 2ND PLAYER CONTROL PANEL (TABLE)
+5 VOLTS	114	CK	BLK	TO 2ND PLAYER CONTROL PANEL (TABLE)
+5 VOLTS	115	CL	BLK	TO 2ND PLAYER CONTROL PANEL (TABLE)
+5 VOLTS	116	CM	BLK	TO 2ND PLAYER CONTROL PANEL (TABLE)
+5 VOLTS	117	CN	BLK	TO 2ND PLAYER CONTROL PANEL (TABLE)
+5 VOLTS	118	CO	BLK	TO 2ND PLAYER CONTROL PANEL (TABLE)
+5 VOLTS	119	CP	BLK	TO 2ND PLAYER CONTROL PANEL (TABLE)
+5 VOLTS	120	CQ	BLK	TO 2ND PLAYER CONTROL PANEL (TABLE)
+5 VOLTS	121	CR	BLK	TO 2ND PLAYER CONTROL PANEL (TABLE)
+5 VOLTS	122	CS	BLK	TO 2ND PLAYER CONTROL PANEL (TABLE)
+5 VOLTS	123	CT	BLK	TO 2ND PLAYER CONTROL PANEL (TABLE)
+5 VOLTS	124	CU	BLK	TO 2ND PLAYER CONTROL PANEL (TABLE)
+5 VOLTS	125	CV	BLK	TO 2ND PLAYER CONTROL PANEL (TABLE)
+5 VOLTS	126	CW	BLK	TO 2ND PLAYER CONTROL PANEL (TABLE)
+5 VOLTS	127	CX	BLK	TO 2ND PLAYER CONTROL PANEL (TABLE)
+5 VOLTS	128	CY	BLK	TO 2ND PLAYER CONTROL PANEL (TABLE)
+5 VOLTS	129	CZ	BLK	TO 2ND PLAYER CONTROL PANEL (TABLE)
+5 VOLTS	130	CA	BLK	TO 2ND PLAYER CONTROL PANEL (TABLE)
+5 VOLTS	131	CB	BLK	TO 2ND PLAYER CONTROL PANEL (TABLE)
+5 VOLTS	132	CC	BLK	TO 2ND PLAYER CONTROL PANEL (TABLE)
+5 VOLTS	133	CD	BLK	TO 2ND PLAYER CONTROL PANEL (TABLE)
+5 VOLTS	134	CE	BLK	TO 2ND PLAYER CONTROL PANEL (TABLE)
+5 VOLTS	135	CF	BLK	TO 2ND PLAYER CONTROL PANEL (TABLE)
+5 VOLTS	136	CG	BLK	TO 2ND PLAYER CONTROL PANEL (TABLE)
+5 VOLTS	137	CH	BLK	TO 2ND PLAYER CONTROL PANEL (TABLE)
+5 VOLTS	138	CI	BLK	TO 2ND PLAYER CONTROL PANEL (TABLE)
+5 VOLTS	139	CJ	BLK	TO 2ND PLAYER CONTROL PANEL (TABLE)
+5 VOLTS	140	CK	BLK	TO 2ND PLAYER CONTROL PANEL (TABLE)
+5 VOLTS	141	CL	BLK	TO 2ND PLAYER CONTROL PANEL (TABLE)
+5 VOLTS	142	CM	BLK	TO 2ND PLAYER CONTROL PANEL (TABLE)
+5 VOLTS	143	CN	BLK	TO 2ND PLAYER CONTROL PANEL (TABLE)
+5 VOLTS	144	CO	BLK	TO 2ND PLAYER CONTROL PANEL (TABLE)
+5 VOLTS	145	CP	BLK	TO 2ND PLAYER CONTROL PANEL (TABLE)
+5 VOLTS	146	CQ	BLK	TO 2ND PLAYER CONTROL PANEL (TABLE)
+5 VOLTS	147	CR	BLK	TO 2ND PLAYER CONTROL PANEL (TABLE)
+5 VOLTS	148	CS	BLK	TO 2ND PLAYER CONTROL PANEL (TABLE)
+5 VOLTS	149	CT	BLK	TO 2ND PLAYER CONTROL PANEL (TABLE)
+5 VOLTS	150	CU	BLK	TO 2ND PLAYER CONTROL PANEL (TABLE)
+5 VOLTS	151	CV	BLK	TO 2ND PLAYER CONTROL PANEL (TABLE)
+5 VOLTS	152	CW	BLK	TO 2ND PLAYER CONTROL PANEL (TABLE)
+5 VOLTS	153	CX	BLK	TO 2ND PLAYER CONTROL PANEL (TABLE)
+5 VOLTS	154	CY	BLK	TO 2ND PLAYER CONTROL PANEL (TABLE)
+5 VOLTS	155	CZ	BLK	TO 2ND PLAYER CONTROL PANEL (TABLE)
+5 VOLTS	156	CA	BLK	TO 2ND PLAYER CONTROL PANEL (TABLE)
+5 VOLTS	157	CB	BLK	TO 2ND PLAYER CONTROL PANEL (TABLE)
+5 VOLTS	158	CC	BLK	TO 2ND PLAYER CONTROL PANEL (TABLE)
+5 VOLTS	159	CD	BLK	TO 2ND PLAYER CONTROL PANEL (TABLE)
+5 VOLTS	160	CE	BLK	TO 2ND PLAYER CONTROL PANEL (TABLE)
+5 VOLTS	161	CF	BLK	TO 2ND PLAYER CONTROL PANEL (TABLE)
+5 VOLTS	162	CG	BLK	TO 2ND PLAYER CONTROL PANEL (TABLE)
+5 VOLTS	163	CH	BLK	TO 2ND PLAYER CONTROL PANEL (TABLE)
+5 VOLTS	164	CI	BLK	TO 2ND PLAYER CONTROL PANEL (TABLE)
+5 VOLTS	165	CJ	BLK	TO 2ND PLAYER CONTROL PANEL (TABLE)
+5 VOLTS	166	CK	BLK	TO 2ND PLAYER CONTROL PANEL (TABLE)
+5 VOLTS	167	CL	BLK	TO 2ND PLAYER CONTROL PANEL (TABLE)
+5 VOLTS	168	CM	BLK	TO 2ND PLAYER CONTROL PANEL (TABLE)
+5 VOLTS	169	CN	BLK	TO 2ND PLAYER CONTROL PANEL (TABLE)
+5 VOLTS	170	CO	BLK	TO 2ND PLAYER CONTROL PANEL (TABLE)
+5 VOLTS	171	CP	BLK	TO 2ND PLAYER CONTROL PANEL (TABLE)
+5 VOLTS	172	CQ	BLK	TO 2ND PLAYER CONTROL PANEL (TABLE)
+5 VOLTS	173	CR	BLK	TO 2ND PLAYER CONTROL PANEL (TABLE)
+5 VOLTS	174	CS	BLK	TO 2ND PLAYER CONTROL PANEL (TABLE)
+5 VOLTS	175	CT	BLK	TO 2ND PLAYER CONTROL PANEL (TABLE)
+5 VOLTS	176	CU	BLK	TO 2ND PLAYER CONTROL PANEL (TABLE)
+5 VOLTS	177	CV	BLK	TO 2ND PLAYER CONTROL PANEL (TABLE)
+5 VOLTS	178	CW	BLK	TO 2ND PLAYER CONTROL PANEL (TABLE)
+5 VOLTS	179	CX	BLK	TO 2ND PLAYER CONTROL PANEL (TABLE)
+5 VOLTS	180	CY	BLK	TO 2ND PLAYER CONTROL PANEL (TABLE)
+5 VOLTS	181	CZ	BLK	TO 2ND PLAYER CONTROL PANEL (TABLE)
+5 VOLTS	182	CA	BLK	TO 2ND PLAYER CONTROL PANEL (TABLE)
+5 VOLTS	183	CB	BLK	TO 2ND PLAYER CONTROL PANEL (TABLE)
+5 VOLTS	184	CC	BLK	TO 2ND PLAYER CONTROL PANEL (TABLE)
+5 VOLTS	185	CD	BLK	TO 2ND PLAYER CONTROL PANEL (TABLE)
+5 VOLTS	186	CE	BLK	TO 2ND PLAYER CONTROL PANEL (TABLE)
+5 VOLTS	187	CF	BLK	TO 2ND PLAYER CONTROL PANEL (TABLE)
+5 VOLTS	188	CG	BLK	TO 2ND PLAYER CONTROL PANEL (TABLE)
+5 VOLTS	189	CH	BLK	TO 2ND PLAYER CONTROL PANEL (TABLE)
+5 VOLTS	190	CI	BLK	TO 2ND PLAYER CONTROL PANEL (TABLE)
+5 VOLTS	191	CJ	BLK	TO 2ND PLAYER CONTROL PANEL (TABLE)
+5 VOLTS	192	CK	BLK	TO 2ND PLAYER CONTROL PANEL (TABLE)
+5 VOLTS	193	CL	BLK	TO 2ND PLAYER CONTROL PANEL (TABLE)
+5 VOLTS	194	CM	BLK	TO 2ND PLAYER CONTROL PANEL (TABLE)
+5 VOLTS	195	CN	BLK	TO 2ND PLAYER CONTROL PANEL (TABLE)
+5 VOLTS	196	CO	BLK	TO 2ND PLAYER CONTROL PANEL (TABLE)
+5 VOLTS	197	CP	BLK	TO 2ND PLAYER CONTROL PANEL (TABLE)
+5 VOLTS	198	CQ	BLK	TO 2ND PLAYER CONTROL PANEL (TABLE)
+5 VOLTS	199	CR	BLK	TO 2ND PLAYER CONTROL PANEL (TABLE)
+5 VOLTS	200	CS	BLK	TO 2ND PLAYER CONTROL PANEL (TABLE)

SEE NOTE 3

SEE NOTE 2

NOTES

- * CONNECT ONLY ON TABLE TYPE,
- ALL WIRES ARE 72 INCHES LONG.
- UNLESS INDICATED ALL WIRES ARE 22-AWG.
- USE 4-WAY JOYSTICK.

ITEM	QTY	PART NO.	DESCRIPTION
1	1	901-2195	2ND PLAYER CTRL PNL (TABLE) LABEL
2	1	901-2172	CONTROL PANEL LABEL
3	1	901-2173	TV MONITOR HARNESS LABEL
4	1	901-2174	COIN 300R HARNESS LABEL
5	1	901-2175	SPEAKER HARNESS LABEL
6	1	901-2176	POWER SUPPLY HARNESS LABEL
7	25	417-1661	4" TY WRAPS
8	6"	417-1638	BRANDED TUBE NETL CLR PT 3/4" BRANCO
9	288"	402-1517	INSULATED WIRE 22AWG, BLACK
10	2/6"	402-1518	" " " BROWN
11	2/6"	402-1519	" " " RED
12	2/6"	402-1520	" " " ORANGE
13	2/6"	402-1521	" " " YELLOW
14	2/6"	402-1522	" " " GREEN
15	1/4"	402-1523	" " " BLUE
16	1/4"	402-1524	" " " VIOLET
17	144"	402-1525	" " " GRAY
18	144"	402-1526	" " " WHITE
19	216"	402-1527	" " " WHITE
20	72"	402-1528	" " " 18AWG
21	72"	402-1529	" " " NEED

The logo for Centuri, Inc. features the word "centuri" in a bold, lowercase, sans-serif font. Above the letters "t" and "r" are three horizontal lines of varying lengths, creating a stylized graphic element. To the right of "centuri" is the word "inc." in a smaller, uppercase, sans-serif font. A small trademark symbol (TM) is positioned above the "i" in "inc."

centuri™
inc.

CENTURI, INC. • P.O. BOX 1510 •
1780 WEST 4th AVE. • HIALEAH, FL 33011 - 1510
TELEPHONE: 305-558-5200 • TELEX: 803694 •
FAX: 305-557-3611 • ANSB CENTURI •
SALES DEPT.: 305-558-5200
SERVICE: 1-800-327-7710