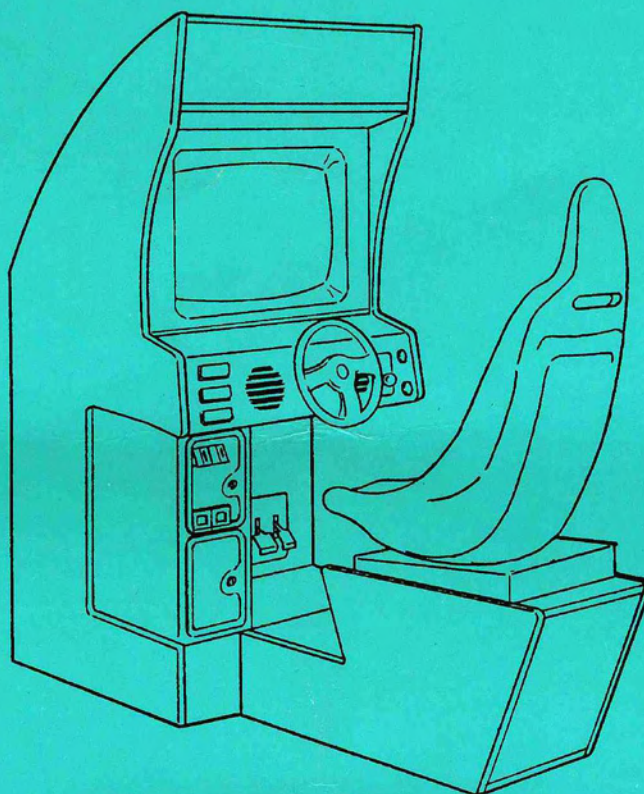


MIDWAY

January 1996
16-40036.1-101

CRUIS'N USA

SINGLE SIT DOWN



FINAL MANUAL



Operations Manual Includes:

Operations & Adjustments, Testing & Problem Diagnosis,
Parts Information, Reference Diagrams & Schematics

Midway Manufacturing Company, 3401 North California Avenue,
Chicago, Illinois 60618

DECLARATION OF CONFORMITY

MIDWAY MANUFACTURING CO., INC.

3401 N. CALIFORNIA AVE.
CHICAGO, IL 60618
U.S.A.

WE, HEREBY DECLARE UNDER SOLE RESPONSIBILITY THAT
THE MODEL: "CRUIS'N USA" 40236, 40436, 41036 (VIDEO)

TO WHICH THIS DECLARATION RELATES IS IN CONFORMITY WITH THE
FOLLOWING EUROPEAN PRODUCT SAFETY DIRECTIVES:

ELECTROMAGNETIC COMPATABILITY DIRECTIVE
(89/336/EEC AND AMENDMENTS 91/C162/08, 92/31/EEC, 93/68/EEC)

AS IS VERIFIED BY COMPLIANCE WITH THE FOLLOWING STANDARDS:

EN5014: 1993	EN61000-4-2: 1995
IEC 801-3: 1984 (EN61000-4-3)	EN61000-4-4: 1995
EN61000-4-5: 1995	

Date issued: DECEMBER 5, 1995

MANUFACTURE'S SIGNATURE



DON HASSLER

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CRUIS'N USA

SINGLE SIT DOWN

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CRUIS'N USA

SINGLE SIT DOWN

SECTION
ONE

Operation

Safety Notices

The following safety instructions apply to all game operators and service personnel. Specific warnings and cautions will be found throughout this manual where they apply. We recommend that you read this page before preparing your game for play.



DANGER OF EXPLOSION IF BATTERY IS INCORRECTLY REPLACED. Replace only with the same or equivalent type recommended by the manufacturer. Dispose of used batteries according to the manufacturer's instructions.

AC POWER CONNECTION. Before connecting the game to the AC power source, verify that the "line voltage selection chart" jumper wires are installed correctly for the line voltage in your area. For details, refer to Section 3.

PROPERLY GROUND THE GAME. To avoid electrical shocks, do not plug in the game until it has been inspected and properly grounded. MIDWAY games should only be plugged into a grounded 3-wire outlet. Shocks will also result, if the control panel is not properly grounded! After servicing any parts on the panel, be sure that the ground wires are secure. Only then should you lock up the game.

DISCONNECT POWER DURING REPAIRS. To avoid electrical shock, disconnect the game from the AC power source before removing or repairing any part of the game.

USE THE PROPER FUSE. To avoid electrical shock, use the replacement fuse which is specified in the parts list for this game. The replacement fuse must match the original fuse in fuse type, voltage rating, and current rating.

MONITOR PRECAUTIONS. When removing or repairing the monitor, extra precautions must be taken to avoid electrical shock. High voltages may exist within the monitor circuitry and cathode ray tube (CRT) even after power has been disconnected. Do not touch internal parts of the monitor with your hands or metal objects! Always discharge the CRT by the following method: Attach one end of a large, well-insulated, 20-kv jumper to ground. Momentarily touch the free end of the grounded jumper to the anode by sliding it under the anode cap. Wait two minutes and discharge the anode again.

HANDLE FLUORESCENT TUBE AND CRT WITH CARE. If you drop a fluorescent tube or CRT and it breaks, it will implode! Shattered glass can fly eight feet or more from the implosion.

ATTENTION!

PROPERLY ATTACH ALL CONNECTORS. Make sure that the connectors on each printed circuit board (PCB) are properly connected. If the connectors do not slip on easily, do not force them. A reversed connector may damage your game and void the warranty. All connectors are keyed to fit specific pins on each board.

Setup Procedure

Game Location Requirements

Power: Domestic 115V @ 60 Hz, 15 Amps
Foreign 230V @ 50 Hz, 7 Amps
Japan 100V @ 50 Hz, 15 Amps

Dimensions (assembled): Width: 30"
Depth: 61"
Height: 67"

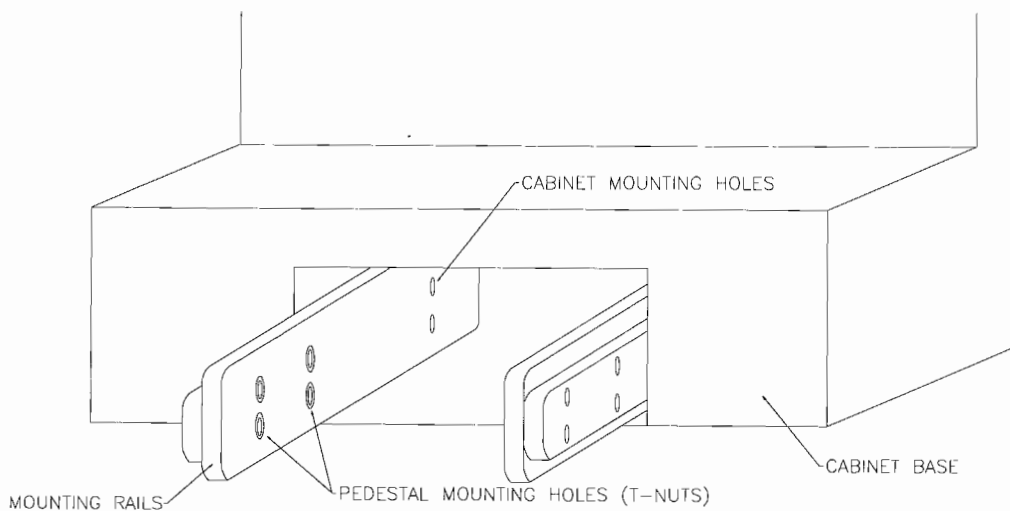
Temp.: 32° F to 100° F
(0° C to 38° C)

Humidity: Not to exceed 95% relative.

Weight: Pedestal (crated) 95 Lbs.
Game (crated) 395 Lbs.

Installation And Inspection

1. Remove all items from shipping containers and set them aside. Inspect the exterior of the cabinet for any signs of damage. Remove shipping cleats from the bottom of the cabinet. Remove pedestal mounting rails packed inside seat liner.
2. Remove keys from the taped coin return slot. Unlock and open the coin and cash box doors. (Leg levelers and spare parts are stored in the cash box).
3. Tilt or lay the cabinet down. Locate two threaded holes on the bottom of the cabinet and install one leg leveler (with its hex nut) in each hole.
4. Stand cabinet upright and make certain it is in a stable position. Level the cabinet.
5. Leg levelers come installed on the pedestal assembly and need only to be leveled before installing onto the cabinet assembly.



6. Attach mounting rails to cabinet base using four 1/4-20 hex-head bolts (see above diagram for proper placement). Do not tighten bolts completely, some movement is required in the mounting rails to align holes with pedestal assembly.
7. Place pedestal assembly on mounting rails. Align the holes and carefully pull the pedestal away. Hold mounting rails in position and tighten bolts inside cabinet.
8. Connect speaker wire from inside pedestal to cabinet. Attach pedestal assembly and bolt together using eight 1/4-20 tamper proof screws. Use the T27 wrench, included in the spare parts, to install these screws.
9. Remove rear door of cabinet. Inspect cabinet interior for any signs of damage. Check all major assemblies to assure that they are mounted securely.
10. Refer to the games Cabinet Wiring Diagram (section 3), and check to see that all cable connectors are correctly secured. **DO NOT FORCE CONNECTIONS.** Watch for damaged connectors and avoid making reversed connections.
11. Determine the value of your line voltage with a meter. Then, check the jumper wire to the main power supply transformer. Be sure it is jumpered to correspond to your local line voltage value. If necessary, change the jumper wire to the transformer in accordance with the Jumper Chart in Section Three.
12. Replace rear cabinet door and screw (lock) it securely. **NOTICE:** Tamper proof screws are included with the spare parts. These screws are optional and may be used to secure the rear door panel. The T20 wrench is used for the installation of these screws. Close and lock the front coin and cash box doors.
13. To attach line cord, the four Phillips-head screws that mount the line cord cover plate to the rear cabinet. Match the prongs on the plug with the holes in the receptacle and push line cord securely into place. Make sure cord aligns with the indentation of plate (indentation should point toward bottom of cabinet). Remount line cord cover plate. If desired, tamper resistant screws are provided to remount cover plate.
14. Connect the line cord to a grounded (3-terminal) AC wall outlet.
15. Switch ON the game using the ON/OFF switch located on the upper left top of the cabinet, to verify proper operation.

SERVICING

Always turn off power to game before servicing.

- **Control Panel**

Using the T27 wrench, remove four tamper proof screws from the monitor glass retaining bracket, and set bracket aside. Remove four tamper proof screws from under the control panel. Pull control panel out and disconnect the wiring. Before reinstalling the control panel, check for proper wire connections, including ground strap.

- **Seat**

Using the T27 tamper proof wrench, remove three screws from each side of the seat mounting plate. Lift the seat/mounting plate off the pedestal assembly and place the seat on its back, on a flat surface. The six bolts under the mounting plate can now be removed to replace the seat.

- **Seat Slide Assembly**

Using the T27 tamper proof wrench, remove three screws from each side of the seat mounting plate. Lift the seat/mounting plate off the pedestal assembly and set aside. Slide the seat assembly forward, and remove the two tamper proof torque screws from the wood panel on top of the pedestal assembly. Slide the seat back and remove the two front torque screws. Lift the wood panel out of the pedestal base and turn the unit over. Remove the four nuts holding the wood panel to the slide assembly. Place the wood panel aside and the slide assembly can be easily accessed.

- **Speakers**

Control Panel: Two speakers are located behind the control panel. Using the T27 wrench, remove four tamper proof screws from the monitor glass retaining bracket, and set bracket aside. Remove four tamper proof screws from under the control panel. Pull control panel out and disconnect the wiring. The speakers can now be accessed from the back of the control panel assembly.

Seat: One speaker is located under the seat. Slide the seat assembly forward. Using the T27 wrench remove the two tamper proof torque screws from the wood panel on top of the pedestal assembly. Slide the seat back and remove the two front torque screws. Lift seat assembly and set aside. The speaker can now be accessed from the inside of the pedestal assembly.

- **Viewing Glass**

Using the T27 wrench, remove four tamper proof screws holding the monitor glass retaining bracket, and set bracket aside. Carefully raise the glass from the bottom grooved edge and lift it clear of cabinet.

- **Monitor Bezel**


Using the T27 wrench, remove four tamper proof screws holding the monitor glass retaining bracket, and set bracket aside. Carefully raise the glass from the bottom edge and lift it clear of cabinet. Set it aside. The monitor bezel can now be removed by lifting it out of the grooved edge at the bottom.


- **Marquee Glass**
Remove five 1/4" hex-head wood screws holding the plastic strip above marquee glass. Set strip aside and carefully lift glass. Store glass carefully to prevent damage.
- **Fluorescent Light Assembly**
Remove five 1/4" hex-head wood screws holding the plastic strip above marquee glass. Set strip aside and carefully lift glass. Store glass carefully to prevent damage. Disconnect the fluorescent light assembly from its power cable. Remove the screws fastening the assembly to the cabinet and lift out the assembly.

WARNING

If a fluorescent tube drops and it breaks, it will implode!
Use care in handling.

- **Fluorescent Lamp**
Remove five 1/4" hex-head wood screws holding the plastic strip above marquee glass. Set strip aside and carefully lift glass. Store glass carefully to prevent damage. Remove the fluorescent lamp retainer brackets. Grasp the tube, give it a quarter turn and remove it from its socket. Carefully place a new tube into the socket and turn to reinstall.
- **Monitor**
We recommend that you read the WARNINGS section thoroughly before beginning this procedure.
Switch OFF power to the game. Remove the viewing glass and the monitor bezel. Completely disconnect the monitor from all of its cabling, including its chassis ground strap.
Remove the six flange nuts securing the monitors mounting flanges to its mounting panel. Pull the monitor carefully from the cabinet front.

 **CAUTION** While removing the four flange nuts, firmly support the monitor from the front of the CRT so that it will not slip.

 **CAUTION** The monitor DOES NOT contain an isolation transformer in its chassis. It is mounted instead in the Power Chassis Assembly locate on the floor of the Cabinet. When servicing the monitor on a test bench, YOU MUST ISOLATE THE MONITOR FROM THE LINE VOLTAGE WITH AN ISOLATION TRANSFORMER.

Game Features

Cruis'n USA is a one player game.

Starting Up

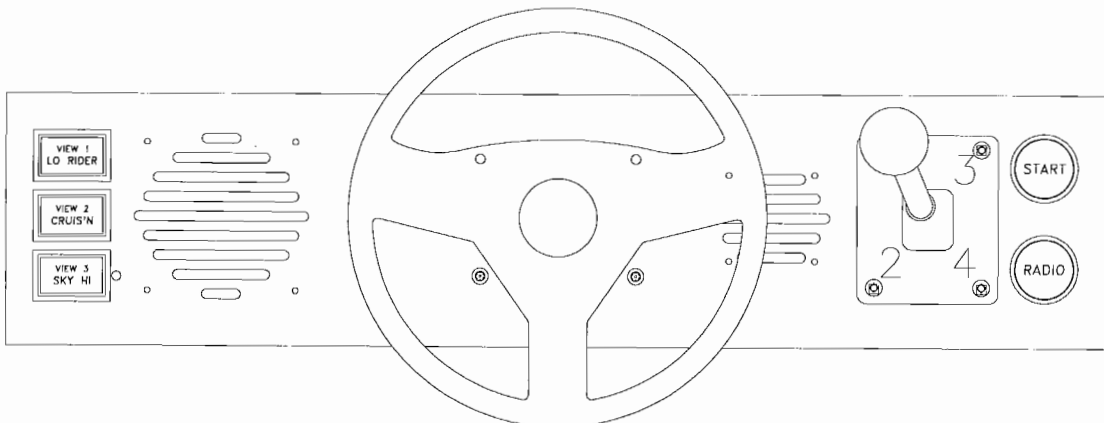
Switch ON power to the game. A "rug" pattern appears on the CRT screen. When the "rug" pattern ends, the screen shows a CPU Board map. Bad chips are indicated in red, good chips are in green. The software revision level is shown at the top of the screen.

NOTE: When an error is detected during Start-up Tests, game start-up does not progress, and an error message appears on the screen.

Insert the desired amount of coins or tokens.

Player Controls

- **Start Button (Green)**
The start button allows the player to begin game play.
- **Radio Button (Orange)**
The radio button allows the player to turn radio sounds on and off, and change stations.
- **View 1-Lo Rider Button (Red)**
View 1 drives the car from inside.
- **View 2-Cruis'n Button (White)**
View 2 drives the car from directly behind.
- **View 3-Sky Hi Button (Blue)**
View 3 drives the car from an aerial view.



Game Operation

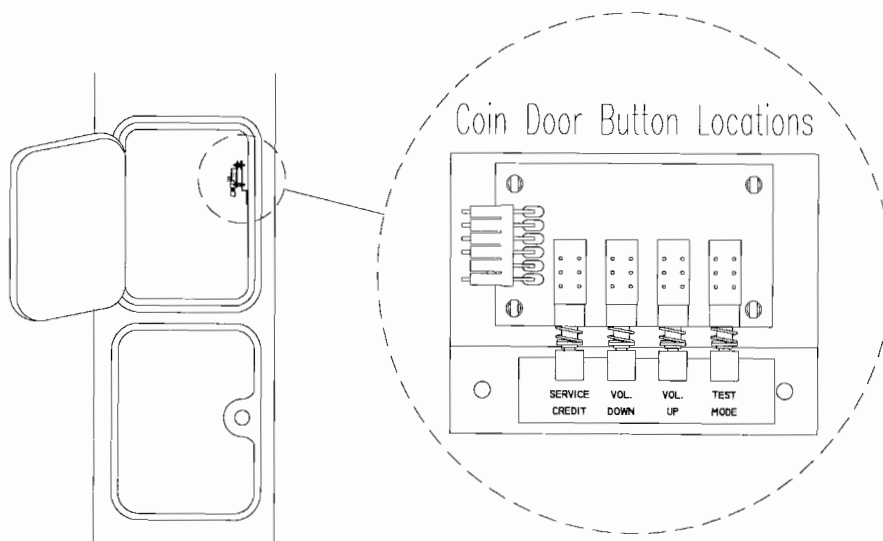
The Cruis'n' USA Control Switches are located inside the coin door. These switches allow the operator to customize some features of the game.

CABINET SWITCHES

- The **SLAM TILT SWITCH** detects any forceful vibrations against the Coin Door. This eliminates pounding for free games. It is located on the inside of the coin door.
- The **ON/OFF SWITCH** is located on the top right side of the cabinet.

CONTROL SWITCHES

- The **TEST MODE SWITCH** activates the games Menu System. Press the Test Mode Switch to access the Main Menu. To exit the menu system, use the Volume Down Switch and select EXIT TO GAME OVER from the Main Menu, then press the Test Mode Switch or use the Service Credit Switch.
- The **VOLUME UP SWITCH** moves up through the menu selections or adjustment choices, and raises the sound level of the game when in game play.
- The **VOLUME DOWN SWITCH** moves down through the menu selections or adjustment choices, and lowers the sound level of the game when in game play.
- The **SERVICE CREDIT SWITCH** is a special feature switch that allots credit without affecting the game's bookkeeping total and is used to get out of a menu selection or return to the main menu.



Menu System Operation

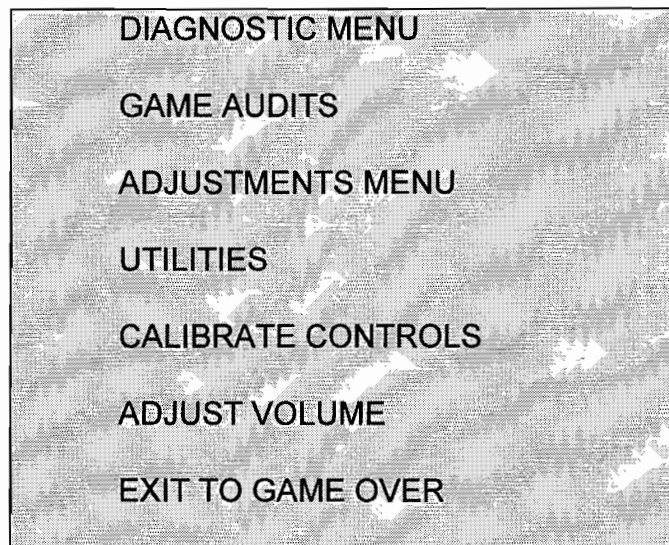
OPERATION

All CRUIS'N' USA Game Audits, Adjustments, and Diagnostics are options of the Main Menu. Each option, in turn, has its own menu, listing several choices that may be acted upon as desired.

Press the Test Mode Switch to activate the Main Menu (shown below). Game adjustments, bookkeeping, and diagnostics are all accessible from this menu.

Press the Volume Up Switch or Volume Down Switch to cycle through the menu options. Notice that the options are highlighted in sequence. Press Test Mode Switch to activate a highlighted option.

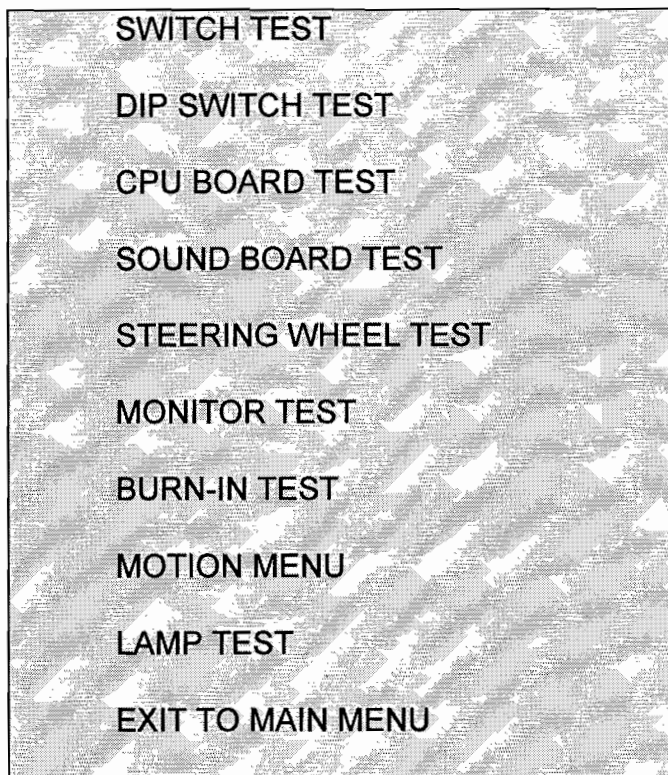
Note: Only highlighted options can be activated.



Main Test Menu

DIAGNOSTIC MENU

To enter the Diagnostic Menu from the Main Menu, press the Volume Up or Down Switch to highlight the option, then press the Test Mode Switch to activate. To exit the Diagnostic Menu, press the Volume Up or Down Switch to highlight EXIT TO MAIN MENU or press the Service Credit Switch.



Diagnostic Menu

Switch Test

The Switch Test allows the operator to test the switches on the control panel and the coin door.

Select the Switch Test by pressing the Volume Up or Down Switch to highlight the option; then press Test Mode Switch to activate. Pressing a switch on the control panel or coin door causes the corresponding switch location on the screen to light.

Press the Test Mode Switch to return to the Diagnostic Menu.

Dip Switch Test

The DIP Switch Test allows the operator to check the location of the two 8-position DIP switches on the CPU Board. The operator can also change the setting of each position of each DIP Switch during this mode.

To enter the test, press the Volume Up or Down Switch to highlight the DIP Switch Test; then, press the Test Mode Switch to activate. The screen displays a layout of their current settings.

To change a DIP Switch setting, move the switch to the desired setting, then check the screen to verify that the switch now shows the new setting.

Press Test Mode Switch to return to the Diagnostic Menu.

DIP Switch 2 Settings Table (U97)

	SW1	SW2	SW3	SW4	SW5	SW6	SW7	SW8
NOT USED	OFF* ON							
MOTION OFF MOTIN ON		OFF* ON						
STAND UP SIT DOWN			OFF ON*					
NOT USED				OFF* ON	OFF* ON			
LINK OFF LINK ON						OFF* ON		
NOT USED							OFF* ON	
SLAVE MASTER								OFF* ON

DIP Switch 3 Settings Table (U19)

COIN MODE	SW1	SW2	SW3	SW4	SW5	SW6	SW7	SW8
USA1	OFF	OFF	OFF	OFF	OFF	OFF	OFF	
USA3	OFF	OFF	OFF	OFF	OFF	ON	OFF	
USA7	OFF	OFF	OFF	OFF	OFF	OFF	ON	
USA8	OFF	OFF	OFF	OFF	OFF	ON	ON	
GERMAN1	ON	OFF	OFF	OFF	OFF	OFF	OFF	
GERMAN2	ON	OFF	OFF	OFF	OFF	ON	OFF	
GERMAN3	ON	OFF	OFF	OFF	OFF	OFF	ON	
GERMAN4	ON	OFF	OFF	OFF	OFF	ON	ON	
FRENCH1	OFF	ON	OFF	OFF	OFF	OFF	OFF	
FRENCH2	OFF	ON	OFF	OFF	OFF	ON	OFF	
FRENCH3	OFF	ON	OFF	OFF	OFF	OFF	ON	
FRENCH4	OFF	ON	OFF	OFF	OFF	ON	ON	
CANADA1	ON	ON	OFF	OFF	OFF	OFF	OFF	
CANADA2	ON	ON	OFF	OFF	OFF	ON	OFF	
CANADA3	ON	ON	OFF	OFF	OFF	OFF	ON	
SWISS1	OFF	OFF	ON	OFF	OFF	OFF	OFF	
SWISS2	OFF	OFF	ON	OFF	OFF	ON	OFF	
SWISS3	OFF	OFF	ON	OFF	OFF	OFF	ON	
ITALY1	ON	OFF	ON	OFF	OFF	OFF	OFF	
ITALY2	ON	OFF	ON	OFF	OFF	ON	OFF	
ITALY3	ON	OFF	ON	OFF	OFF	OFF	ON	
UK1	OFF	ON	ON	OFF	OFF	OFF	OFF	
UK2	OFF	ON	ON	OFF	OFF	ON	OFF	
UK3	OFF	ON	ON	OFF	OFF	OFF	ON	
SPAIN1	ON	ON	ON	OFF	OFF	OFF	OFF	
SPAIN2	ON	ON	ON	OFF	OFF	ON	OFF	
SPAIN3	ON	ON	ON	OFF	OFF	OFF	ON	
SPAIN4	ON	ON	ON	OFF	OFF	ON	ON	
AUSTRALIA1	OFF	OFF	OFF	ON	OFF	OFF	OFF	
AUSTRALIA2	OFF	OFF	OFF	ON	OFF	ON	OFF	
AUSTRALIA3	OFF	OFF	OFF	ON	OFF	OFF	ON	
AUSTRALIA4	OFF	OFF	OFF	ON	OFF	ON	ON	
JAPAN1	ON	OFF	OFF	ON	OFF	OFF	OFF	
JAPAN2	ON	OFF	OFF	ON	OFF	ON	OFF	
JAPAN3	ON	OFF	OFF	ON	OFF	OFF	ON	
TAIWAN1	OFF	ON	OFF	ON	OFF	OFF	OFF	
TAIWAN2	OFF	ON	OFF	ON	OFF	ON	OFF	
TAIWAN3	OFF	ON	OFF	ON	OFF	OFF	ON	
AUSTRIA1	ON	ON	OFF	ON	OFF	OFF	OFF	
AUSTRIA2	ON	ON	OFF	ON	OFF	ON	OFF	
AUSTRIA3	ON	ON	OFF	ON	OFF	OFF	ON	
AUSTRIA4	ON	ON	OFF	ON	OFF	ON	ON	
BELGIUM1	OFF	OFF	ON	ON	OFF	OFF	OFF	
BELGIUM2	OFF	OFF	ON	ON	OFF	ON	OFF	
BELGIUM3	OFF	OFF	ON	ON	OFF	OFF	ON	
SWEDEN1	OFF	OFF	OFF	OFF	ON	OFF	OFF	
FINLAND1	ON	OFF	OFF	OFF	ON	OFF	OFF	
NETHERLAND1	OFF	ON	OFF	OFF	ON	OFF	OFF	
NETHERLAND2	OFF	ON	OFF	OFF	ON	ON	OFF	
NORWAY1	ON	ON	OFF	OFF	ON	OFF	OFF	
DENMARK1	OFF	OFF	ON	OFF	ON	OFF	OFF	
HUNGARY1	ON	OFF	ON	OFF	ON	OFF	OFF	
GENERAL1	ON	ON	ON	OFF	ON	OFF	OFF	
GENERAL3	ON	ON	ON	OFF	ON	ON	OFF	
GENERAL5	ON	ON	ON	OFF	ON	OFF	ON	
GENERAL7	ON	ON	ON	OFF	ON	ON	ON	
COIN COUNTER MODE								
ONE COUNTER								OFF*
TWO COUNTERS								ON

*Factory Default

Note: Switches 1 thru 5 select country. Switches 6 & 7 select one of four modes in the country.

CPU Board Test

The CPU Board Test (much like the Start-up Test) allows the operator to check the RAMs and ROMs.

Highlight the CPU Board Test with the Volume Up or Down Switch; then, press the Test Mode Switch to activate. When this test is activated, a "rug" pattern appears on the screen. The screen then changes to show the layout of the RAMs and ROMs on the CPU. Any chip that is shown as gray with a white outline and should turn green during the CPU Test. During the test, chips are good if they turn green; they are faulty if they turn red.

Sound Board Test

The Sound Test allows listening to some of the sounds that Cruis'n' USA is capable of producing.

To enter the test, press the Volume Up or Down Switch to highlight the Sound Board Test; then, press the Test Mode Switch to activate.

Press the Volume Up Switch to change the music selection. Press the Volume Down Switch to trigger a sound effect. Press the Test Mode Switch to exit to the Diagnostic Menu.

Steering Wheel Test

The Steering Wheel Test allows the operator to check the left to right movement of the steering wheel.

Before proceeding, make sure hands and any other objects are clear of the steering wheel. Upon entering this test, the steering wheel will automatically turn to the left to begin the testing procedure.

Highlight the Steering Wheel Test with the Volume Up or Down Switch; then, press the Test Mode Switch to activate. The steering wheel turns to the left. Press the Test Mode Switch and it turns to the right. Press Test Mode Switch again to return to the Diagnostic Menu.

Monitor Patterns

The Monitor Patterns Test provides a menu for testing the monitor. Highlight the test with the Volume Up or Down Switch and activate with the Test Mode Switch. Continue pressing the Test Mode Switch to cycle through the test and automatically return to the Main Menu.

The **COLOR BARS** test fills the screen with several gradated colors to help with red, green and blue level adjustments. Each color should appear sharp and clear.

The **RED, GREEN, and BLUE SCREEN** tests fill the screen with either red, green or blue.

The **CROSSHATCH PATTERNS** test fills the screen with a grid and should be clear.

If any of the Monitor Pattern Tests shows a need for adjustment, use the proper white knobs on the Monitor Board.

Burn-in Test

The Burn-in Test continually repeats the CPU Board Test. Press the Volume Up or Down Switch to highlight the Burn-in Test; then, press the Test Mode Switch activate. When the Burn-in Test detects an error, the test stops and displays an error message on the screen. Use this test to find intermittent CPU problems.

To exit this test, switch the game OFF then ON again.

Motion Test (Not Used)

Lamp Test

The Lamp Test allows the operator to test the lamps on the control panel.

To enter the test, press the Volume Up or Down Switch to highlight the Lamp Test; then, press the Test Mode Switch to activate.

Press the Volume Up or Down Switch to highlight lamp selections, then press the Test Mode Switch to activate that lamp.

To exit, press the Volume Up or Down Switch to highlight EXIT TO MAIN MENU; then, press Test Mode Switch to activate, or press the Service Credits Switch.

GAME AUDITS

To enter Game Audits from the Main Menu, press the Volume Up or Down Switch to highlight the option; then, press the Test Mode Switch to activate. To advance to the next page of the Game Audit Table, press the Volume Up or Down Switch. Press the Test Mode Switch to exit.

The Game Audits Table records the game play statistics. The left side of the table names the Audit item; the right side shows the amount of play.

LEFT COIN	0
RIGHT COIN	0
THIRD COIN	0
FOURTH COIN	0
SERVICE CREDITS	0
TOTAL STARTS	0
TOTAL CONTINUES	0
FREE RACES	0
EXPIRED RACES	0
FREE RACE PERCENTAGE	0
POWER ON TIME SECS	0
GAME TIME SECS	0
AVERAGE GAME TIME SECS	0

Page 1 of Audit Table

AUTOMATIC SELECTED	0
MANUAL SELECTED	0
63 MUSCLE SELECTED	0
LABOMBA SELECTED	0
DEVASTATOR SELECTED	0
ITALIA SELECTED	0
JEEP SELECTED	0
COPCAR SELECTED	0
VIEW1 TIME SECS	0
VIEW2 TIME SECS	0
VIEW3 TIME SECS	0

Page 2 of Audit Table

EVENT	0
U-GAMES	0
WATCHDOGS	0
BURNIN LOOPS	0
GAME DIFFICULTY	0

Page 3 of Audit Table

SELECT ARIZONA	0
SELECT US101	0
SELECT LA	0
SELECT IOWA	0
SELECT DEATH VALLEY	0
SELECT USA	0
SELECT BEVHILLS	0
SELECT APPALACHIA	0
SELECT REDWOOD	0
SELECT RUSHMORE	0
SELECT CHICAGO	0
SELECT SANFRAN	0
SELECT INDIANA	0
SELECT GGATE	0

Page 4 of Audit Table

START GGATE	0
START SF	0
START US101	0
START REDWOOD	0
START BEVHILLS	0
START LA	0
START DV	0
START ARIZONA	0
START GC	0
START IOWA	0
START CHICAGO	0
START INDIANA	0
START APPALACHIA	0
START DC	0

Page 5 of Audit Table

GGATE WINS	0
SANFRAN WINS	0
US101 WINS	0
REDWOOD WINS	0
BEVHILLS WINS	0
LA WINS	0
DEATHVALLEY WINS	0
ARIZONA WINS	0
GRAND CANYON WINS	0
IOWA WINS	0
CHICAGO WINS	0
INDIANA WINS	0
APPALACHIA WINS	0
DC WINS	0

Page 6 of Audit Table

ADJUSTMENTS MENU

NOTE: Game Adjustments are explained in more detail on the following page.

Press the Volume Up or Down Switch to highlight the Adjustments Menu option on the Main Menu; then, press the Test Mode Switch to activate.

The Adjustments Menu option allows the owner/operator to change the Game Pricing and Game Difficulty.

The Adjustments Menu offers several options. Press the Volume Up or Down Switch to highlight an option; then, press the Test Mode Switch to activate. The activated item provides a setting choice. Press the Volume Up or Down Switch to change the current setting value. After an item has been changed a confirmation box appears. For example:

SELECT THIS PRICING? ARE YOU SURE?	
YES	NO

Press the Volume Up or Down Switch to YES or NO, then press the Test Mode Switch to lock in the new setting.

STANDARD PRICING
CUSTOM PRICING
FREE PLAY
FIRST PLACE AWARDS FREE GAME
START TIME BONUS SECS
TIME SECS
ATTRACT MODE SOUND
HIGH SCORE ENTRY
MIN VOLUME LEVEL
SPEED IN MPH OR KPH
SHOW ROADKILL
SHOW PRESIDENT
SHOW GIRLS
HIGH SCORE DIFFICULTY
MAX CREDITS
EXIT TO MAIN MENU

Game Adjustment Menu

To exit the Adjustments Menu, press the Volume Up or Down Switch to highlight EXIT TO MAIN MENU; then, press Test Mode Switch to activate, or press the Service Credits Switch.

Standard Pricing

Standard Pricing allows the operator to choose any of the "Standard" selections for the Standard Pricing Table.

Custom Pricing

Custom Pricing allows the operator to install pricing other than that of the Standard Pricing Table. Custom Pricing also allows the operator to select the amount of credits required to start a game and the amount of credits required to continue a game. This option is adjusted from the Dip Switch Settings.

Free Play

This option selects free play. The setting choices for this adjustment are:

- Off (**factory setting**)
- On

First Place Awards Free Game

Awards a player a free game on 1st position. The setting choices for this adjustment are:

- On (**factory setting**)
- Off

Start Time Bonus Secs

This determines the initial time a player is given to finish a race. The setting range is:

- Maximum: 90
- Minimum: 60
- Factory Setting: 75

Checkpoint Bonus Time Secs

This awards the player a time bonus for passing a checkpoint.

- Maximum: 10
- Minimum: 25
- Factory Setting: 20

Attract-Mode Sound

This determines whether the game will make sounds in the attract mode. The settings for this adjustment are:

- On
- Off (**factory setting**)

High Score Entry

This determines whether the game will allow High Score Entry and Display Table. The setting choices are:

- On (**factory setting**)
- Off

Min Volume Level

This determines the minimum level allowed when setting the volume of the Sound Board. The setting range is:

- Maximum: 30
- Minimum: 0
- Factory Setting:** 11

Speed in MPH or KPH

This determines speedometer setting in miles per hour or kilometers per hour.

- MPH (**factory setting**)
- KPH

Show Road Kill

This determines whether the game will show road kill. The settings are:

- On (**factory setting**)
- Off

Show President

This determines whether the game will show the president. The settings are:

- On (**factory setting**)
- Off

Show Girls

This determines whether the game will show girls. The settings are:

- On (**factory setting**)
- Off

High Score Reset

The number of games played before an automatic reset of High Score occurs. The setting range is 1000 to 25,000.

- Factory Setting:** 5000

Game Difficulty

This allows the operator to select the difficulty level of the game. The setting range is::

- Easiest: 0
- Hardest: 9
- Factory Setting:** 5

Max Credits

This determines the maximum credits allowed to begin a game. The setting range is:

- Maximum: 10
- Minimum: 30
- Factory Setting:** 30

Wheel Sensitivity

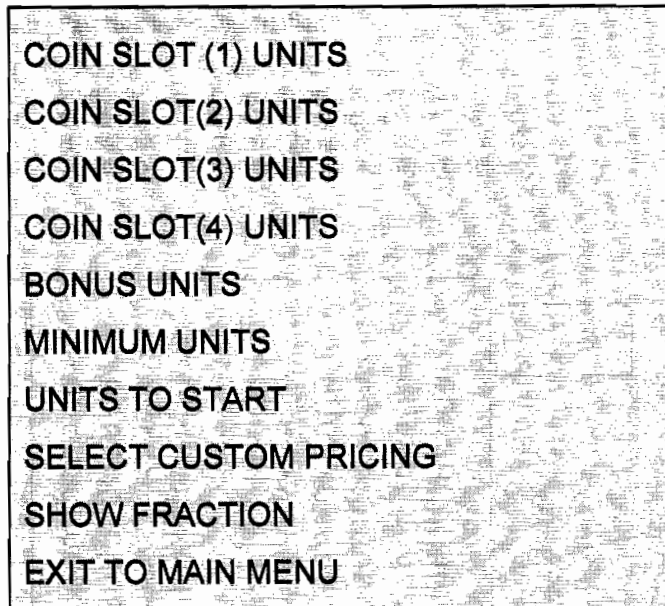
This controls the responsiveness of the steering wheel. The setting range is:

- Maximum: 5
- Minimum: 1
- Factory Setting:** 5

Standard Pricing Table

Name	Settings Credit/Coin	Left Chute	Center Chute	Right Chute	Fourth Chute
USA1	1/3X25	.25	.25	.25	\$1.00
USA2	1/2X25	.25	.25	.25	\$1.00
USA3	1/4X25	.25	.25	.25	\$1.00
USA4	1/5X25	.25	.25	.25	\$1.00
USA5	1/6X25	.25	.25	.25	\$1.00
USA6	1/8X25	.25	.25	.25	\$1.00
USA7	1/8X25, 1/2X100, 3/500	.25	.25	.25	\$1.00
USA8	1/25, 3X25/START, 2X25 CONT	.25	.25	.25	\$1.00
USA9	1/25, 2X25/START, 1/25 CONT	.25	.25	.25	\$1.00
USA10	200/START, 150 CONT	.25	.25	.25	\$1.00
USA11	1/6X25, 4/500	.25	.25	.25	\$1.00
USA12	100/START, 3X25/CONT	.25	.25	.25	\$1.00
GERMAN1	1/3X1DM, 2/5DM	1DM		5DM	
GERMAN2	1/1DM, 5/5DM	1DM		5DM	
GERMAN3	1/2X1DM, 3/5DM	1DM		5DM	
GERMAN4	2/5DM, 1/3X1DM ECA	5DM	1DM	2DM	
GERMAN5	3/5DM, 1/2DM, 1/2X1DM ECA	5DM	1DM	2DM	
GERMAN6	1/3X1DM, 2/5DM NO BONUS	1DM		5DM	
GERMAN7	1/2X1DM, 3/5DM NO BONUS	1DM		5DM	
GERMAN8	1/1DM, 6/5DM NO BONUS	1DM		5DM	
FRENCH1	1/10F, 2/20F, 4/30	10F		20F	
FRENCH2	1/10F, 2/20F, 5/40F	10F		20F	
FRENCH3	1/10F, 3/20F, 7/40F	10F		20F	
FRENCH4	1/5F, 2/10F, 5/20F	5F		10F	
FRENCH5	1/5F, 3/10F, 7/20F	5F		10F	
FRENCH6	1/10F 2/20F, 4/30F ECA	1F	10F	5F	20F
FRENCH7	1/10F 2/20F, 5/40F ECA	1F	10F	5F	20F
FRENCH8	1/10F 3/20F, 7/40F ECA	1F	10F	5F	20F
FRENCH9	1/5F 2/10F, 5/20F ECA	1F	10F	5F	20F
FRENCH10	1/5F 3/10F, 7/20F ECA	1F	10F	5F	20F
FRENCH11	1/3X5F, 4/50F	5F		10F	
CANADA1	1/2X25, 2/100	.25		\$1.00	
CANADA2	1/4X25, 1/100	.25		\$1.00	
CANADA3	1/4X25, 1/100, 3/2X100	.25		\$1.00	
SWISS1	1/3X1F, 2/5F	1F		5F	
SWISS2	1/1F, 5/5F	1F		5F	
SWISS3	1/2X1F, 3/5F	1F		5F	
ITALY1	1/500LIRE	500 LIRE		500 LIRE	
ITALY2	1/2X500LIRE	500 LIRE		500 LIRE	
ITALY3	1/4X500LIRE	500 LIRE		500 LIRE	
UK1	2/100P, 1/50P, ECA	100P	20P	50P	10P
UK2	1/100P, 1/2X50P, ECA	100P	20P	50P	10P
UK3	1/3X20P, 1/50P	20P		50P	
SPAIN1	1/100PESETA, 6/500PESETA	100P		500P	
SPAIN2	3/2X100PESETA, 7/500PESETA	100P		500P	
SPAIN3	100PESETA, 5/500PESETA	100P		500P	
SPAIN4	1/2X100PESETA, 3/500PESETA	100P		500P	
SPAIN5	2/100PESETA, 10/500PESETA	100P		500P	
SPAIN6	1/100PESETA ECA	25P	200P	100P	500P
AUSTRALIA1	1/5X20, 1/100	.20		\$1.00	
AUSTRALIA2	1/10X20, 1/2X100	.20		\$1.00	
AUSTRALIA3	1/2X100	\$1.00		\$2.00	
AUSTRALIA4	1/3X100	\$1.00		\$2.00	

Custom Pricing



Coin Slot (1) Unit:

Coin Slot (2) Unit:

Coin Slot (3) Unit:

Coin Slot (4) Unit:

Coins inserted accumulate units. This adjustment specifies the number of units given for each coin in each chute (see "units/credit").

Bonus Units:

One bonus credit is awarded after this many coin units have accumulated.

Minimum Units:

No credits will be awarded until this many coin units have accumulated.

Units to Start:

Units needed for one credit.

Select Custom Pricing:

When set to yes custom pricing is enabled.

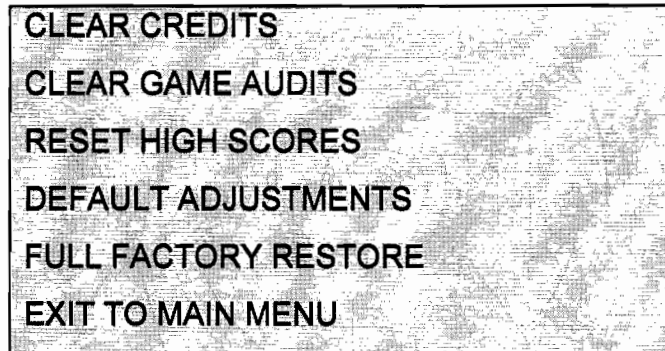
Show Fractions:

When set to yes, fractional credits will be seen on the credits screen.

UTILITIES

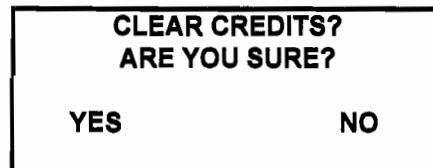
Press the Volume Up or Down Switch to highlight the Utilities option on the Main Menu; then, press the Test Mode Switch to activate.

The Utilities Menu allows the owner/operator to clear the games bookkeeping memory and to install a custom message.



Utilities Menu

Press the Volume Up or Down Switch to highlight an item from the Utilities Menu; then, press the Test Mode Switch to activate. After an item has been activated, you are given the option of resetting that item or not. For example:



Press the Volume Up or Down Switch to choose YES or NO, then press the Test Mode Switch to lock the choice and return to the Utilities Menu.

To exit the Utilities Menu, press the Volume Up or Down Switch to highlight EXIT TO MAIN MENU; then, press Test Mode Switch to activate selection or press the Service Credit Switch.

CALIBRATE CONTROLS

Press the Volume Up or Down Switch to highlight the Calibrate Controls option on the Main Menu; then, press the Test Mode Switch to activate.

Remove hands and feet from all controls. Set the steering wheel to the center position, then press the Test Mode Switch. Turn the steering wheel to the left-most position, then press the Test Mode Switch. Turn the steering wheel to the right-most position, then press the Test Mode Switch. Push the gas pedal to the maximum position, then press the Test Mode Switch. Push the brake pedal to the maximum position, then press the Test Mode Switch to complete the calibration and return to the Main Menu.

ADJUST VOLUME

Press the Volume Up or Down Switch to highlight the Adjust Volume option on the Main Menu; then, press the Test Mode Switch to activate.

Press the Volume Up Switch to increase, or the Volume Down Switch to decrease the sound level of the game. Press the Test Mode Switch to lock the volume level and return to the Main Menu.

Troubleshooting

PROBLEM

POSSIBLE SOLUTION

NO PICTURE OR DISTORTED PICTURE.

Check for faulty video board or monitor.
Check for disconnected video signal cable.

TURN GAME ON & NOTHING HAPPENS.

Check line fuse. Check for +5VDC at pins C, D, 3, and 4 of the JAMMA Connector.

NO SOUND.

Check the speaker and speaker connection to pins L and 10 on the JAMMA Connector. Check volume control setting. Check for +12VDC at pins F and 6 on the JAMMA Connector. Check inter-board wiring on CPU Board. Check sound fuses.

NO GENERAL ILLUMINATION.

Check the 1.0A., F.B. fuse located in the Power Chassis Assembly.

PRESS START BUTTON AND NOTHING HAPPENS.

Check for open wires between the button and CPU Board. Check for contamination on CPU Board pins or the button switch blade contacts. Check for proper ground.

NO CREDIT GIVEN WHEN COINS ARE INSERTED.

Check for contamination on coin switch contacts. Check for an open wire between Coin Switch 1 and pin 16 on the JAMMA Connector or Coin Switch 2 and pin T of the JAMMA Connector.

TOO MANY CREDITS FOR NUMBER OF COINS INSERTED.

Check Game Pricing setting. Check for a Short between pins T & 16 on the JAMMA Connector.

GAME STAYS IN THE TEST MODE.

Check that the Test Switch in the coin door and the Test Switch (Position 1) on DIP Switch 2 are set to Off.

CRUIS'N USA

SINGLE SIT DOWN

SECTION
TWO



Parts Information

Cabinet Hardware

Cabinet Assembly	A-17889.1
Lock Retainer Plate	01-7264
Upper Door Lock Cam	01-8989
Leg Leveler Plate	01-9155
Wheel Bracket	01-9359
Wheel Bracket	01-9359
Lock Plate	01-11285
Door Bracket	01-11291
Shaft Caster	02-4404
20" Vent Hole Cover	03-7602
Leg Adjuster, 3.0"	08-7377
Door Cam Lock	20-6542-TB
Caster Wheel	20-9627
Coin Door Assembly	09-74000-33
Coin Vault Enclosure	A-19504
Tamper Proof Screw Tool, T-20	20-9620
#555 Bulb, 6.3v	24-8768
Marquee	31-2005
Marquee Retainer	03-8252-5
Marquee Glass	08-7852
CRT Glass	08-7853
Peddle Assembly	20-10135
Floor Mat	23-6723
Floor Mat, Pedestal	23-6741

Cables

Line Voltage Cable Assembly	A-19248
Transformer Jumper Cable	H-13378
G.I. Jumper Cable	H-15945
Fluorescent Lamp Cable	H-16303
Switcher Power Cable	H-17914
Control Cable	H-18175
Four Speed Shift Cable	H-18737
AC Power Pack Cable	H-19251
Cable Bass Speaker	H-19256
Main Harness Cable	H-19302
Video Signal Cable	H-19357-3

Dash Assembly

Dash Assembly	A-19271
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Electronic Rack

Electronic Rack	A-19301
CPU Sound Board Assembly	A-19233-40033
CPU Board Cover	A-19513.2
CPU Board, Mtg. Plate	A-19539
Power Supply Switcher Assy.	A-15202-1
Steering Wheel Driver Assy.	A-18004-40033
Ribbon Cable, 20-pin	5795-10937-06
Ribbon Cable, 20-pin	5795-14465-60

Fluorescent Lamp Assembly

Fluorescent Housing & Bracket	A-15890
Lamp Lock	03-8327
18" Fluorescent Bulb, 15w	24-8809

Manual

Instruction Manual	16-40036-101
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Monitor

Monitor, 25"	5675-14041-00
Monitor Bezel	03-9098
Monitor Cover Assembly	A-19288
Monitor Support Bracket	A-19501

Seat Assembly

Pedestal w/Seat Assembly	A-19304
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Speakers

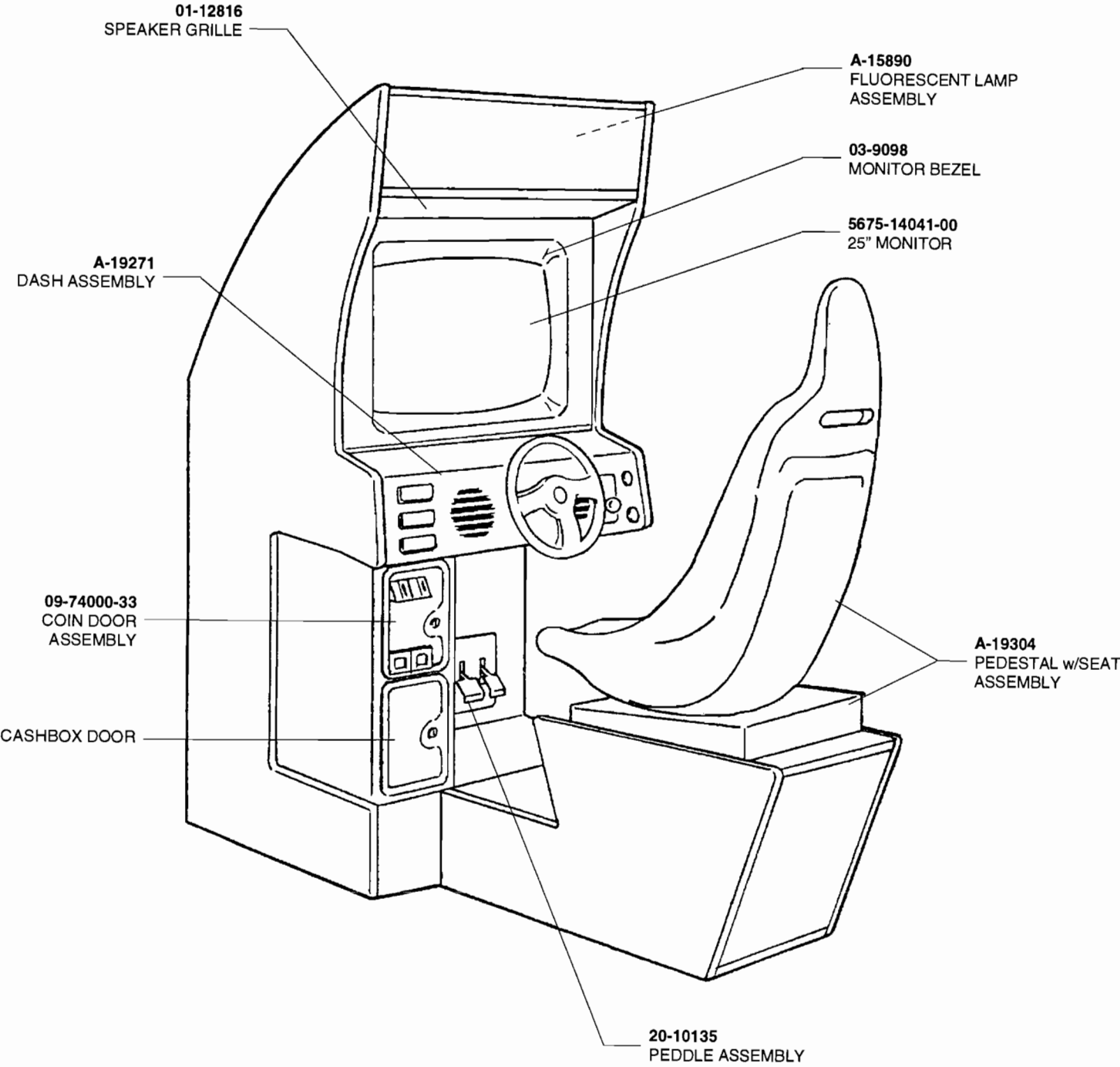
Speaker, 4 Ω , Tweeter, 15w	5555-12924-00
Speaker, 4 Ω , 6", 25w	5555-12929-00
Speaker, 4 Ω , 5-1/4", 25w	5555-12856-00
Speaker Grille	01-12816

Transformer Assembly

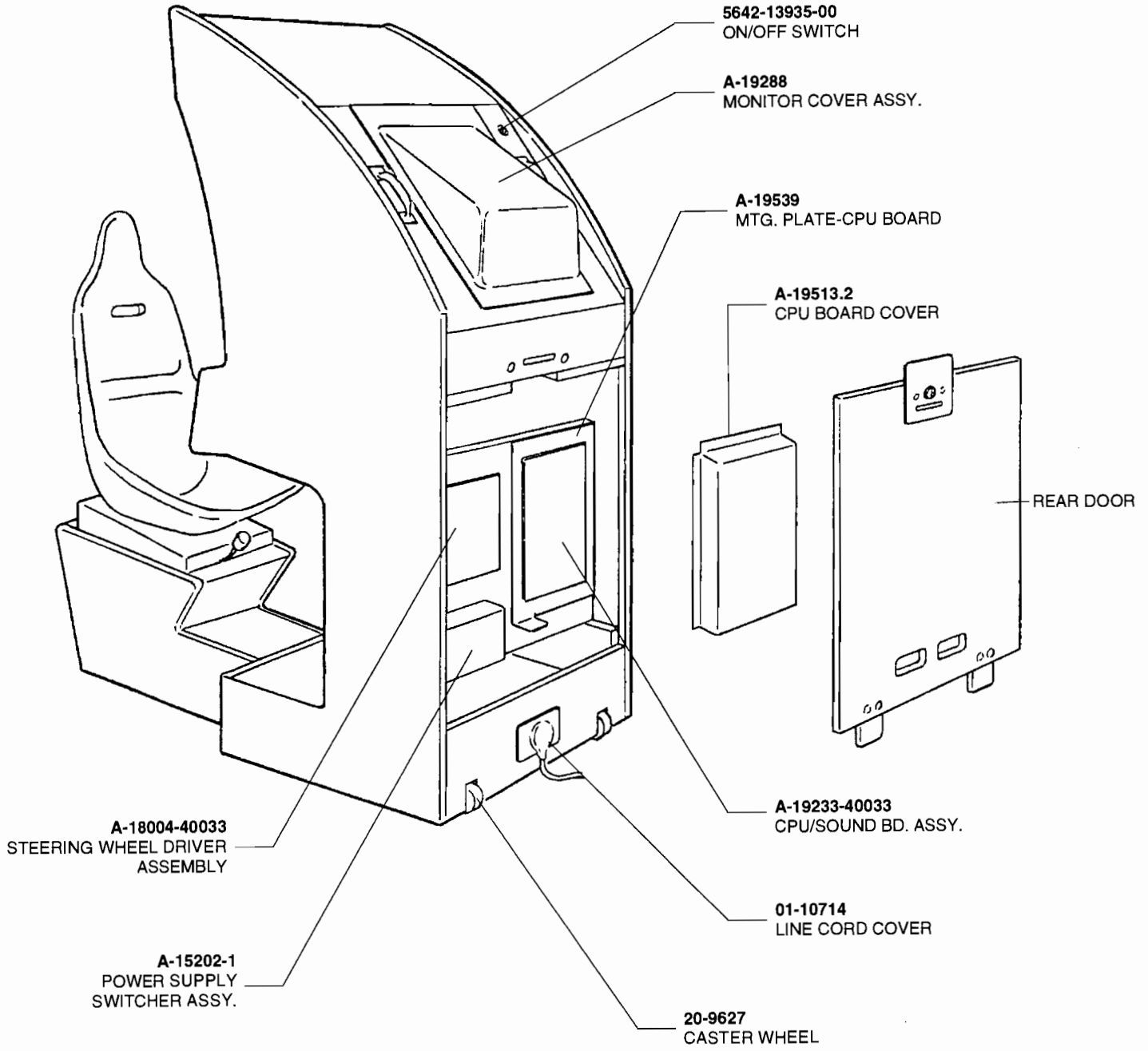
Power Pack Assembly	A-19244
AC Power Pack Chassis Assy.	A-19245
Transformer Jumper Cable	H-13378
G.I. Jumper Cable	H-15945
Cable, AC Power Pack IEC	H-19251
Line Filter, 5Amp	5102-13864-00
Power Transformer	5610-13965-00
Fuse, SB, 1A, 250v	5731-06569-00
Fuse Holder, Panel	5733-12869-00

Cabinet Assembly

(Front View)



Cabinet Assembly (Rear View)

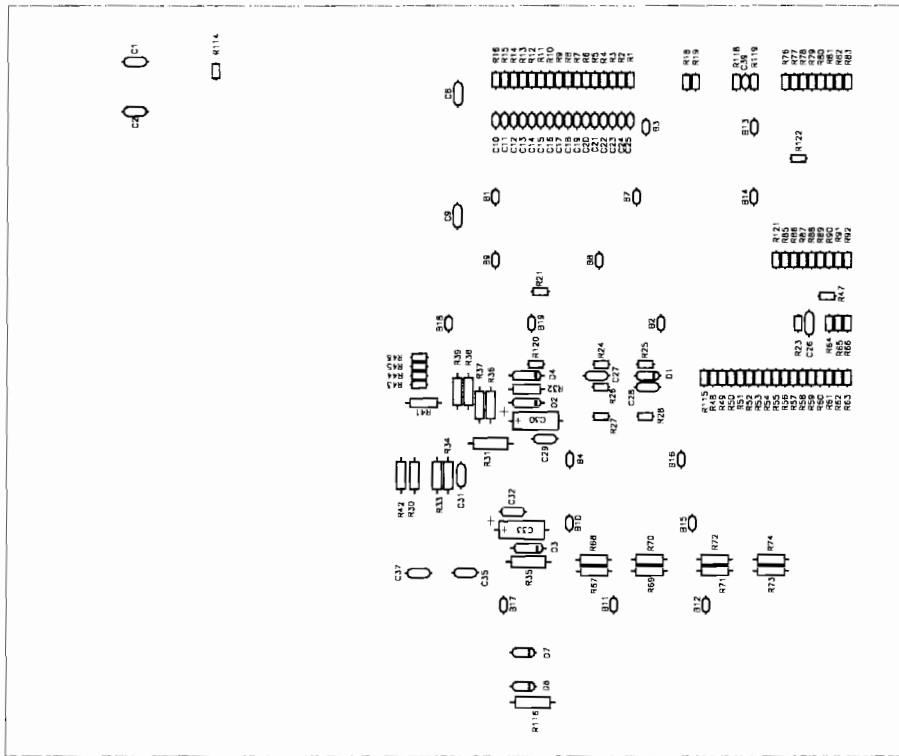
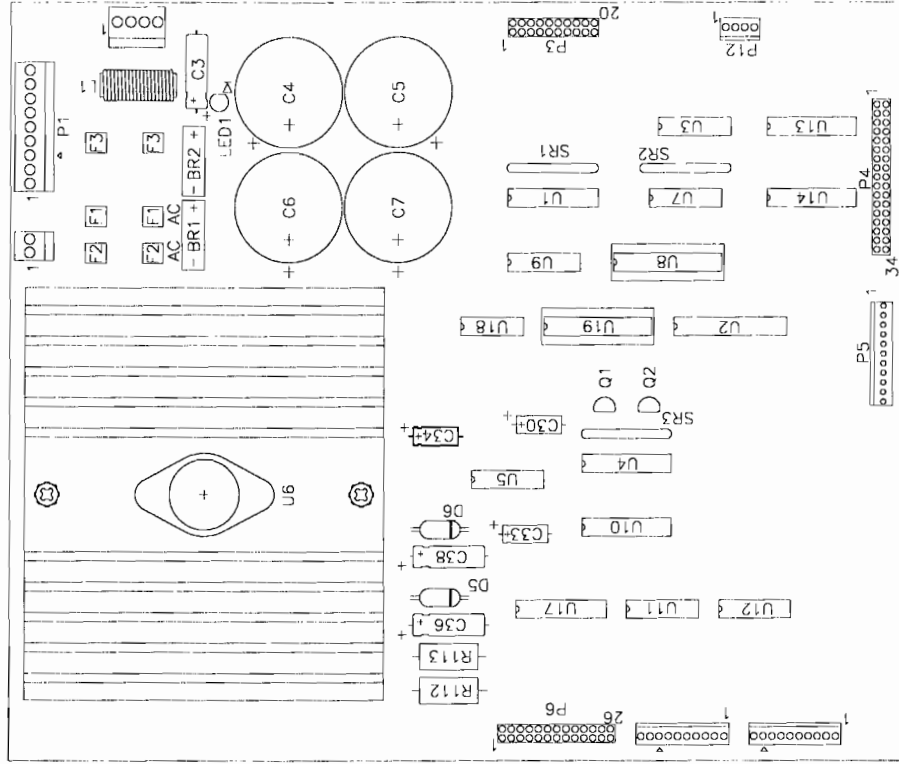


A-18004-40033

Wheel Driver Board Assembly

<u>Part Number</u>	<u>Designator</u>	<u>Description</u>	<u>Part Number</u>	<u>Designator</u>	<u>Description</u>
A-18005.1		Wheel Driver Board Assembly	5043-08980-00	B1-B4, B7-B9, B10-B12, B17-B19, C8, C9, C31	Capacitor, 01μF, 50v(+80,-20%)
5340-12958-00	U3	I.C. 26LS31	5043-08996-00	C26, C27, C29, C32, C35-C37	Capacitor, .1μF, 50v,(±20%)Ax.
5340-12959-00	U7	I.C. 26LS32	5048-12577-00	C28	Capacitor, .47μF, 50v, Axial
5311-12538-00	U18	I.C. 74HC14	5048-13375-00	C10-C25	Capacitor, 100PF, 50v,10% Ax.
5311-14067-00	U17	I.C. 74HC245	5048-11031-00	C1, C2, C39	Capacitor, .001μF,50v,10% Ax.
5311-14068-00	U4, U10	I.C. 74HC574	5040-09343-00	C30, C33	Cap. Electrolytic , 10μF, 20v
5311-10948-00	U9	I.C. 74HC138	5070-08919-00	D1	Diode, 1N4148
5430-13598-00	U1	I.C. 75160B	5075-09135-00	D4	Zener Diode, 10v, 1N4740A
5372-13323-00	U2	I.C. ADC0848	5075-12824-00	D7, D8	Zener Diode, 12v, 1N4742A
5371-14070-00	U5	I.C. DAC08, D-A Converter	5075-14066-00	D2, D3	Zener Diode, 15v, 1N4744A
5370-12602-00	U11, U12	I.C. ULN2064B	A-19674	U8	Plfd. Assy. Wheel Driver
5700-12047-00	U8, U19	Solder Socket , 24-pin, 3"	A-19675	U19	Plfd. Assy. Wheel Driver
5370-14069-00	U6	I.C. LM12, Power OP-AMP	5731-14094-00	F1, F2	Fuse, SB, 4A, 5 x 20mm
5160-10269-00	Q2	Trans. 2N3904	5731-14468-00	F3	Fuse, SB, 3A, 5 x 22mm
5100-13945-02	BR1, BR2	Bridge, 4.0A.			
5040-08986-00	C3	Cap., Electrolytic, 100μF, 10v			
5040-12298-00	C36, C38	Cap., Electrolytic, 100μF, 40v			
5040-13417-00	C4-C7	Cap., Electrolytic, 10,000μF			
5791-10862-09	P1	Connector, 9-pin Header .156			
5791-10862-02	P10	Connector, 2-pin Header .156			
5791-10862-04	P2	Connector, 4-pin Header .156			
5791-12461-04	P12	Connector, 4-pin Header .100			
5791-09437-00	P3	Connector, 20-pin Rib. Header			
5791-12461-11	P5	Connector, 11-pin Header .100			
5791-10850-00	P6	Connector, 26-pin Rib. Header			
5791-12461-10	P7, P8	Connector, 10-pin Header .100			
5733-14113-00	F1-F3	Fuse Holder, 5x20mm			
5070-09045-00	D5, D6	Diode, MR501			
5551-09822-00	L1	Inductor, 4.7μH			
5671-13732-00	LED1	LED, Red			
5010-10428-00	R112, R113	Resistor, 470Ω, 1w, 5%			
5019-09362-00	SR1-SR3	Resistor, 4.7KΩ SIP			
5705-14076-00	-	Heatsink, 4 Lead TO-3			
5701-14092-00	-	Thermal Pad For Power AMP			
4006-01003-08	-	Mach. Screw, 6-32 x 1/2"			
4008-01003-08	-	Mach. Screw, 8-32 x 1/2"			
4406-01128-00	-	Nut, 6-32 KEPS			
4408-01128-00	-	Nut, 8-32 KEPS			
03-9129	-	Nylon Spacer			
5162-08976-00	Q1	Transistor, 2N6427			
5791-10862-03	P11	Connector, 3-pin Header			
A-18005.1-A1		Wheel Driver Assy., Auto-Insert			
5010-14093-00	R23, R47, R116	Resistor, 0Ω, 1/8w, 5%			
5010-13844-00	R43, R44, R48, R49, R52, R53, R56, R57, R60, R61	Resistor, 100KΩ, 1/8w, 5%			
5010-13593-00	R30, R33, R34, R36-R39, R46, R51, R55 R59, R63-R66, R115	Resistor, 10KΩ, 1/8w, 5%			
5010-09134-00	R42	Resistor, 150KΩ, 1/4w, 5%			
5010-13594-00	R26	Resistor, 1KΩ, 1/8w, 5%			
5010-08931-00	R31, R35	Resistor, 1KΩ, 1/2w, 5%			
5010-13372-00	R19	Resistor, 220Ω, 1/8w, 5%			
5010-09999-00	R67-R74	Resistor, 2KΩ, 1/4w, 5%			
5010-13596-00	R45, R50, R54, R58, R62	Resistor, 33KΩ, 1/8w, 5%			
5010-13364-00	R1-R16,	Resistor, 33Ω, 1/8w, 5%			
5010-13371-00	R114	Resistor, 330Ω, 1/8w, 5%			
5010-13365-00	R21, R24, R27, R119	Resistor, 4.7KΩ, 1/8w, 5%			
5010-14065-00	R41	Resistor, 75KΩ, 1/8w, 5%			
5010-13366-00	R18, R28, R32, R118	Resistor, 470Ω, 1/8w, 5%			

A-18004-40033 Wheel Driver Board Assembly



A-18005.1 Wheel Driver Board Assembly

A-18005.1-AI Wheel Driver Assembly, Auto -Insert

A-19233-40033

CPU/Sound Board Assembly

<u>Part Number</u>	<u>Designator</u>	<u>Description</u>	<u>Part Number</u>	<u>Designator</u>	<u>Description</u>
5880-11056-00	B1	Battery-Litium 3V	5556-14181-00	L35-L37	FB700
5731-14468-00	F1,F2	Fuse SB 3A 5x20mm	5100-13945-02	BR1	Bridge 4A
A-19668	U52	Assy. Plfd. Crusin CPU	5733-14113-00	F1, F2	Fuse Holder
A-19669	U38	Assy. Plfd. Crusin CPU	5700-12047-00	U38, U43,	I.C. Socket, 24-pin , .3"
A-19670	U43	Assy. Plfd. Crusin CPU		U52, U54, U111, U114	
A-16971	U54	Assy. Plfd. Crusin CPU	5700-12088-00	U2-U29	I.C. Socket, 32-pin, .6"
A-19672	U114	Assy. Plfd. Crusin CPU	5881-12315-00	B1	Battery Holder
A-19673	U111	Assy. Plfd. Crusin CPU	5645-09025-00	U97, SW3	DIP Switch, 16-Pin
A-5343-40033-2, -29	U2-U29	E-PROM Assembly	5641-12551-00	SW1	Switch PCB Mount MC
A-19234	-	CPU Sub-Assembly	5791-10862-02	P1, P2	Connector, C156x2 2-pin
5040-13417-00	C191, C192	Capelectro, 10,000MF, 35v	5791-12461-04	P5	Connector, C100x5 5-pin
5370-12602-00	U122	ULN2064-Quad High Current Darlington Switch	5791-12461-05	P3, P7	Connector, C100x5 5-pin
			5791-10862-07	P4	Connector, C156x7 7-pin
5070-09054-00	D1-D4	Diode, 1N4004	5791-12461-12	P9	Connector, C100x12 12-pin
5370-13419-00	U78, U81	TDA2030	5791-12461-13	P11	Connector, C100x13 13-pin
5370-12730-00	U79, U80	TL084	5791-09437-00	P8	Connector, 20-pin Ribbon, .1"
5340-13304-00	U35, U41, U42	2K x 8 SRAM	5791-10850-00	P10	Connector, 26-pin Ribbon , .1"
5340-13597-00	U85, U87	62256, 32Kx8 BIT SRAM, 55nS	5705-12638-00	HS1, HS2	Heatsink 5299B
5340-12558-00	U31	8Kx8 CMOS SRAM, 120nS	5791-12994-00	J6	Header
5371-13299-00	U61	AS1851	4004-01005-06	-	Mach. Screw, 4-40 x 3/8"
5372-12901-00	U130	ADC0844-8 BIT A TO D Converter w/4 CH. Multiplexer	4404-01124-00	-	Nut 4-40 KEPS
5340-12958-00	U92	AM26LS31 - Quad Differential Line Drivers	A-19331		CPU Surface Mount
5340-12959-00	U91	AM26LS32 - Quad Differential Line Receivers	5052-14149-00	C173, C174	Cap., 0805 22PF, 10%, 50v
5344-14130-00	U45, U58	IDT7204, CMOS Parallel FIFO 4K x 9 BIT, 20nS	5052-14366-00	C88, C118, C159,	Cap., 0805, 47PF, 10%, 50v
5434-12255-00	U30	Max691, Power ON Reset/ WATCHDO/CMOS CTL Circuit		C160, C164, C197, C198, C212,	
5283-10551-00	U62	74F00	5052-14169-00	C224-C226, C229-C234,	
5286-14178-00	U55	74AS02 - ALS TTL Quad 2 Input NOR GATE		C255, C274, C275, C277,	
5280-09309-00	U82	7407-TTL Hex Buffer w/ High Voltage Output	5052-14167-00	C279, C278, C299-C303	
5311-12538-00	U63	74HC14	5052-14167-00	C115, C151-C153, Cap., 0805, 100PF, 10%,50V	
5281-09500-00	U36	74LS32	5052-14171-00	C155-C157, C235, C237-C239,	
5281-09487-00	U64	74LS74		C241, C242, C256-C273,	
5311-10948-00	U34	74HC138	5052-14166-00	C280-C297	
5317-12023-00	U88	74ALS138-ALS TTL 3/8 Decoder		C123, C190	Cap., 0805PF, 5%, 50v
5311-12043-00	U40, U51	74HC174	5052-14167-00	C169	Cap., 0805, 470PF, 20%, 50v
5430-14290-00	U126-U129	74176B-Bidirectional Transceiver	5052-14171-00	C95, C98, C111,	Cap., 0805, 680PF, 5%, 50v
5317-12208-00	U44, U46, U48, U49, U98,	74ALS245, ALS TTL Octal Bus Transceiver		C128	
5311-12287-00	U107, U108, U113		5052-14166-00	C94, C96, C99,	Cap., 0805, 1000PF, 5%, 50v
	U33, U39,	74HC541 - HC TTL Octal Buffer		C110, C127, C228, C252	
	U50, U93, U104,		5052-14168-00	C97, C100, C129	Cap., 0805, 3900PF, 5%, 50v
	U105, U109, U112,		5052-14350-00	C109	Cap., 0805, 4700PF, 5%, 50v
	U116, U119, U120,		5052-14164-00	C1-C8, C10, C11,	Cap., 0805, 0.01MF, 10%,50v
	U121, U125			C13- C16, C18, C19, C21-C31,	
5317-12211-00	U32, U47,	74ALS541 - ALS TTL Octal Buffer		C33-C41, C43-C48, C52, C54,	
	U65, U66,		5052-14435-00	C55, C57-C64, C66, C67, C69,	
	U86, U110			C70, C72-C75, C77-C80, C83,	
5317-12212-00	U37, U53,	74ALS574 - ALS TTL Octal Flip-Flop	5052-14385-00	C85, C87, C90, C101, C102,	
	U99, U100,		5052-14369-00	C104, C105, C107, C116, C117,	
	U103, U106, U115, U118, U123		5052-14165-00	C120, C131, C132, C135-C138,	
5430-13598-00	U117, U124	75160 - Octal Interface Bus Trans.		C140, C142-C144, C150, C162,	
				C163, C166, C175, C178-C187,	
5250-13303-00	U1085	LM79L05T		C193-C196, C199-C209, C213-C218,	
5250-13302-00	U1010	LM78L05T		C221-C223, C236, C244-C251, C305, C306	
5521-13806-06	U67	Xtal Oscillator, 33mHz	5052-14435-00	C56, C71, C84,	Cap., 0805 10PF, 5%, 50v
5521-13806-05	U89	Xtal Oscillator, 40mHz		C89, C103, C119, C165, C219	
5521-13603-01	U96	Xtal Oscillator, 50mHz	5052-14385-00	C148	Cap.,0805 0.022MF,10%,50v
5520-13301-00	Y1	Y10H 10mHz	5052-14369-00	C145-C147	Cap.,0805 0.047MF,10%, 50v
5671-13732-00	D5-D7	Light Emitting Diode, Red	5052-14165-00	C20, C51, C53,	Cap.,0805 0.1MF, 20%, 50v
				C65, C81, C82, C91, C93, C106,	
				C112-C114, C121, C124, C125,	
				C130, C133, C139, C141, C149,	
				C167, C170, C176, C210, C211, C254	
				C108, C168	B5328 0.22 MF TANT ±10%, 50v
				C1109, C1130,	Cap.,1206,0.33MF, ±20%, 50v
				C1032	50v
				C126, C171, C172,	Cap., 1MF,± 20%, 35v TANT
				C189	

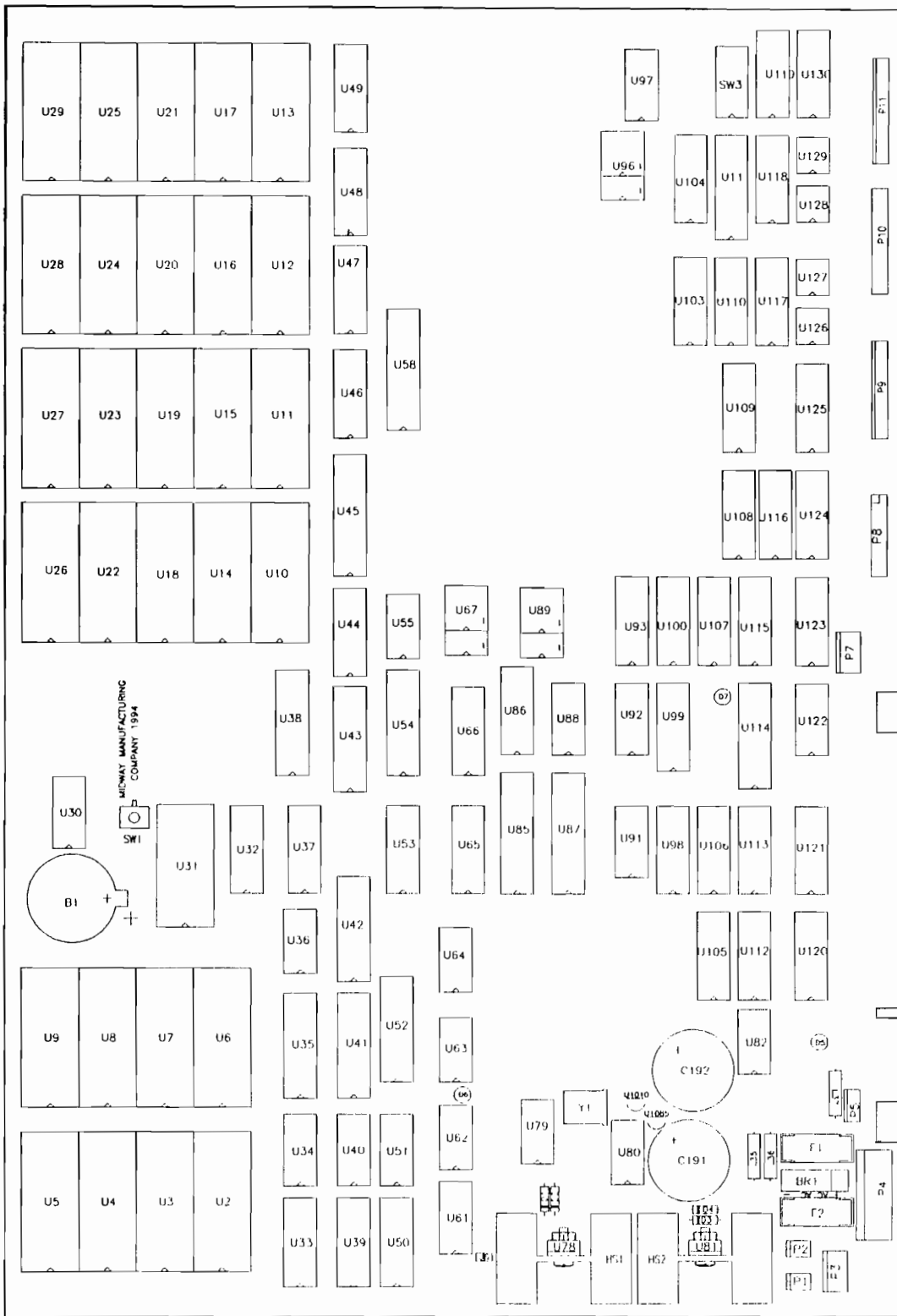
A-19233-40033

CPU/Sound Board Assembly

(Continued)

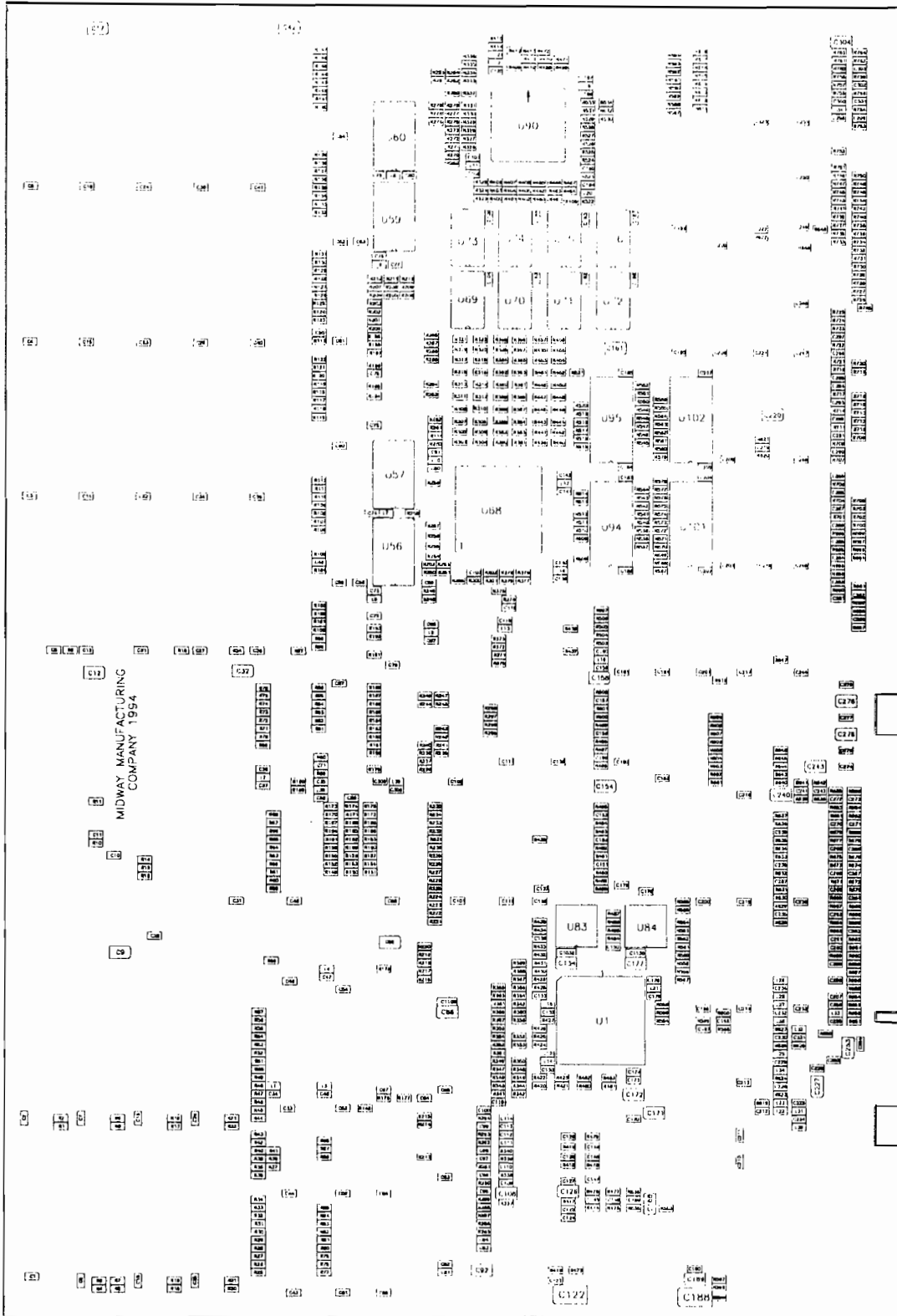
<u>Part Number</u>	<u>Designator</u>	<u>Description</u>	<u>Part Number</u>	<u>Designator</u>	<u>Description</u>
5051-14151-000	C9, C12, C17, C32, Cap., 10MF, ±20%, 16vTANT C42, C68, C86, C92, C134, C154, C158, C161, C177, C220, C227, C20, C243, C253, C276, C278, C304		5020-14380-00	R602-R605, R607, R608, R640, R643	
5051-14148-00	C122, C188	Cap., 22MF, ±20%, 16v	5020-14345-00	R285, R287	Res., 0805 3.32KΩ, 1/10w, 1%
5020-14349-00	R2, R3, R6, R7, R9, R11, R16, R18, R19, R21, R23, R24, R97, R192, R193, R238, R251, R372, R761	Resistor, ΩΩ, 1/10w	5020-14155-00	R507, R558, R563	Res., 0805 4.7K Ω, 1/10w, 5%
5020-14372-00	R337, R553	Resistor, 15Ω, 1/10w, 5%	5020-14172-00	R10, R27, R29, R31, R33, R50-R59, R62, R65, R88, R91, R94, R95, R106, R108, R109, R151, R152, R156, R160, R164, R165, R169, R170, R176, R179, R194, R201-R204, R207, R210, R213, R214, R216,	Res., 0805 4.7KΩ, 1/10w, 5%
5020-14373-00	R12-R14, R35-R42, Res., 0805 33Ω, 1/10w, 5% R60, R61, R63, R64, R66-R76, R89, R90, R92, R93, R96, R98, R99-R104, R107, R110, R111, R112, R114-R122, R124-R147, R149, R153-R155, R157-R159, R161-R163, R166-R168, R172- R175, R180-R188, R191, R195, R197-R200, R205, R206, R208, R209, R211, R212, R222, R223, R225, R226, R228, R229, R231- R233, R235, R239, R241-R243, R245, R247, R250, R254-R258, R260, R264-R273, R276, R277, R279, R282, R284, R295-R299, R301, R304, R306-R310, R312, R314-R333, R335, R357, R359- R368, R370, R373-R375, R380- R414, R425, R426, R428-R432, R434, R435, R437- R467, R472, R484-R487, R491, R493, R494, R497, R499, R501, R508-R524, R527, R528, R532, R537-R552, R567-R586, R632, R637, R688, R691, R694, R696, R697, R699, R700, R702, R703, R705, R726-R732, R734, R736, R738, R740, R742, R744, R746, R748, R751, R753, R754, R756, R759, R762, R764, R533		5020-14172-00	R481,	Res., 0805 4.7KΩ, 1/10w, 5%
5020-14161-00	R26, R28, R30, R32, R34, R43-R49, R78-R87, R148, R215, R218, R219, R342, R344-R356, R358, R369, R420, R422, R423, R482, R483, R554, R556	Res., 0805 47 Ω, 1/10w, 5%	5020-14172-00	R490, R492, R495, R496, R498, R500, R502, R525, R526, R529-R531, R534, R555, R587- R594, R606, R611-R618, R622, R629, R631, R633, R636, R638, R642, R644-R646, R652, R653, R655, R657, R660, R661, R664, R665, R668, R669, R671, R672, R675, R676, R679, R682-R684, R687, R689, R690, R692, R693, R695, R698, R701,	Res., 0805 4.7KΩ, 1/10w, 5%
5020-14152-00	R25, R77, R123, R150, R178, R217, R341, R427, R436, R601, R609, R647	Res., 0805 100 Ω, 1/10w, 5%	5020-14173-00	R288, R289,	Res., 0805 6.19KΩ, 1/10w, 1%
5020-14374-00	R737, R739, R743, R749	Res., 0805 120 Ω, 1/10w, 5%	5020-14158-00	R290-R294, R338-R340, R419	Res., 0805 8.2KΩ, 1/10w, 5%
5020-14375-00	R488	Res., 0805, 220 Ω, 1/10w, 5%	5020-14383-00	R476	Res., 0805 9.09KΩ, 1/10w, 1%
5020-14160-00	R343, R610, R650	Res., 0805 330 Ω, 1/10w, 5%	5020-14156-00	R648, R649,	Res., 0805 10KΩ, 1/10w, 5%
5020-14376-00	R489, R628, R630, R634, R635, R639, R641, R651, R654, R656, R658, R659, R662, R663, R666, R667, R670, R673, R674, R677, R678, R680, R681, R685, R686, R709, R710, R712, R713, R715, R716, R718, R720	Res., 0805 470 Ω, 1/10w, 5%	5020-14384-00	R474	Res., 0805 11KΩ, 1/10w, 1%
5020-14377-00	R504, R560, R565	Res., 0805 487 Ω, 1/10w, 1%	5020-14381-00	R416, R417, R479,	Res., 0805 22KΩ, 1/10w, 5%
5020-14378-00	R473, R595	Res., 0805 680 Ω, 1/10w, 5%	5020-14174-00	R418, R536	Res., 0805 47KΩ, 1/10w, 5%
5020-14379-00	R475, R505, R561, R566, R619, R623, R626	Res., 0805 1K Ω, 1/10w, 1%	5349-14131-00	U94, U95, U101, U102	256K x 8 BIT VRAM, 70nS
5020-14380-00	R506, R557, R562,	Res., 0805 2K Ω, 1/10w, 1%	5349-13599-00	U69-U76	44C1000, 1Megx4BIT CMOSDynamic RAM, 60nS
			5349-14132-00	U56, U57, U59, U60	6226X, 128Kx8BIT Fast Static RAM 20nS
			5400-13298-00	U1	ADSP2105
			5410-13465-00	U68	IC, VR1 ASIC
			5285-14342-00	U83, U84	74ALS374 20PSOL
			5400-14129-00	U90	DSP TMS320C31, 50MHZ
			5556-14348-00	L1-L34, L38, L39, R765	Inductor, FB0805
			5020-14347-00	R286, R424, R433	Res., 0805, 4.75KΩ, 1/10w, 1%

A-19233-40033 CPU/Sound Board Assembly



A-19234 CPU Sub-Assembly

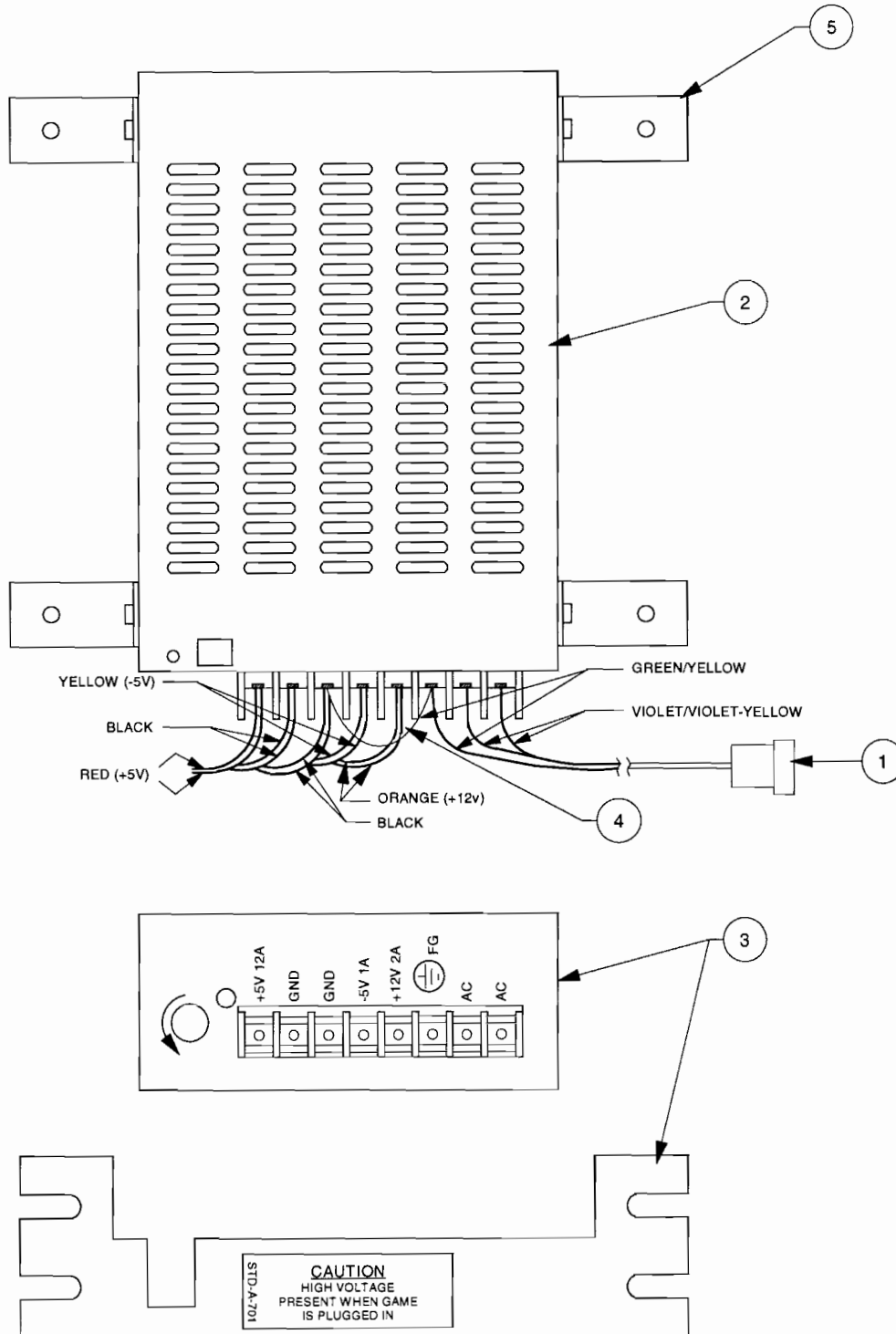
A-19233-40033 CPU/Sound Board Assembly



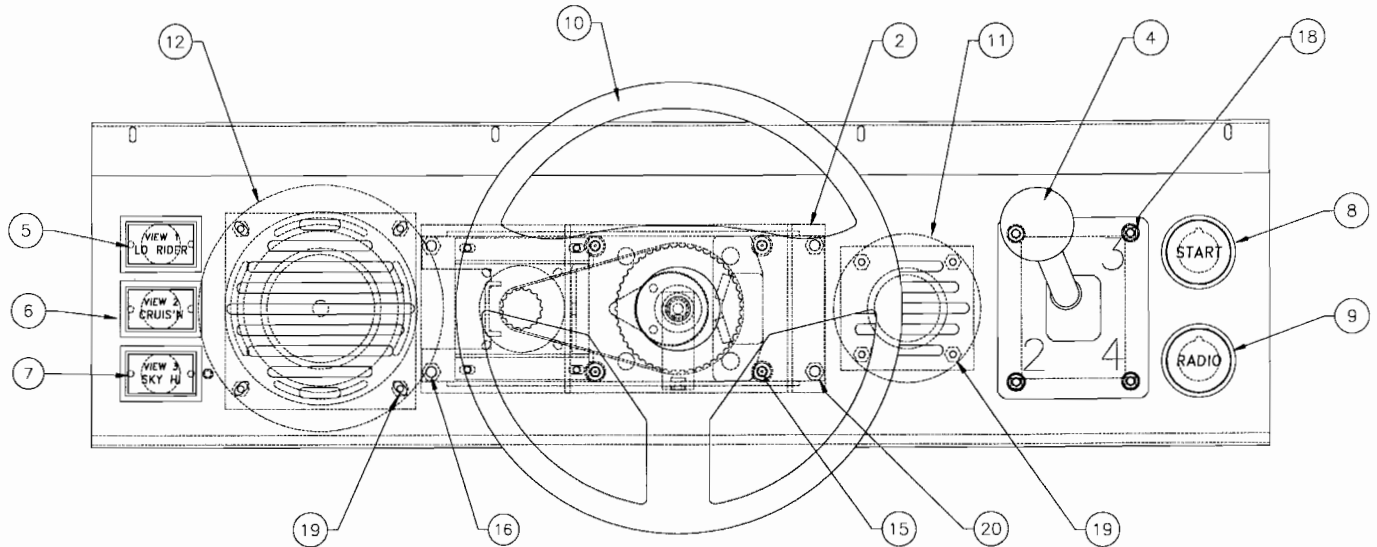
A-19331 CPU Surface Mount Sub-Assembly

A-15202-1 Power Supply Switcher Assembly

Item	Part Number	Description
1	H-17914	Switch Power Cable
2	20-9920	Power Supply Switcher/UL
3	01-12162	Shield for Switcher
4	H-15206	Ground Jumper
5	01-10500	Power Supply Mounting Bracket

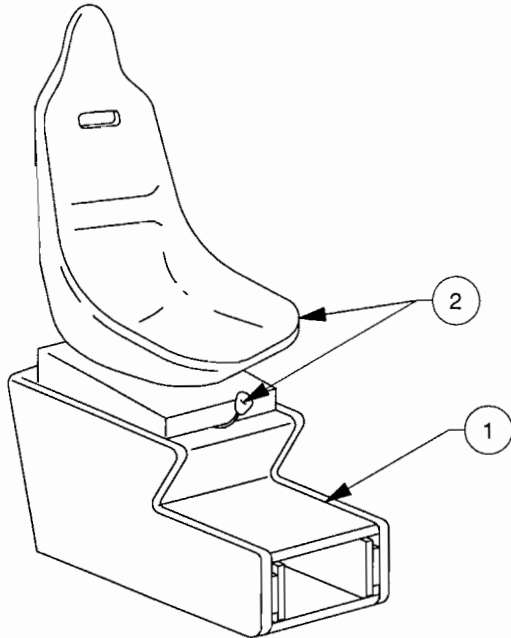


A-19271 Dash Assembly



<u>Item</u>	<u>Part Number</u>	<u>Description</u>	<u>Item</u>	<u>Part Number</u>	<u>Description</u>
1	A-19502	Dash Plate	11	5555-12924-00	Speaker, 4Ω, Tweeter 15w
2	A-19503	Steering Mech. Mtg. Plate	12	5555-12856-00	Speaker, 4Ω, 25w, 5-1/4"
3	03-7655-8	Clamp Cable, 1/2"	13	H-18175	Control Cable
4	20-10117	4-Speed Shifter	14	H-18737	Four Speed Shift Cable
5	20-10127-1	Switch P/B Rectangular, Red	15	4020-01100-20	TR, 1/4-20 x 1-1/4"
6	20-10127-2	Switch P/B Rectangular, White	16	4420-01119-00	Nut, 1/4-20 ESN/NE
7	20-10127-3	Switch P/B Rectangular, Blue	17	4310-01123-10B	Bolt, 10-24 x 5/8 CB
8	20-10129-1	Switch P/B Circular Med, Start	18	4410-01128-00	Nut, 10-24 KEPS
9	20-10129-2	Switch P/B Circular Med, Radio	19	4408-01128-00	Nut, 8-32 KEPS
10	20-10134	Steering Mechanism	20	4320-01124-12	Bolt, 1/4-20 x 3/4"

A-19034 Pedestal w/Seat Assembly



<u>Item</u>	<u>Part Number</u>	<u>Description</u>
1	A-19305	Pedestal Base Assembly (see below)
2	A-19306	Seat w/Slide Assembly
	20-10224	Seat Plate (top)
	20-10225	Seat Slide Assembly (bottom)
3	01-13551	Bottom Edge, Pedestal
4	4020-01100-20	Tr, 1/4 20 x 1-3/4"
5	4108-01042-12	Sh. Metal Screw, #8 x 3/4"
6	4700-00032-00B	Flat Washer, 1/4"

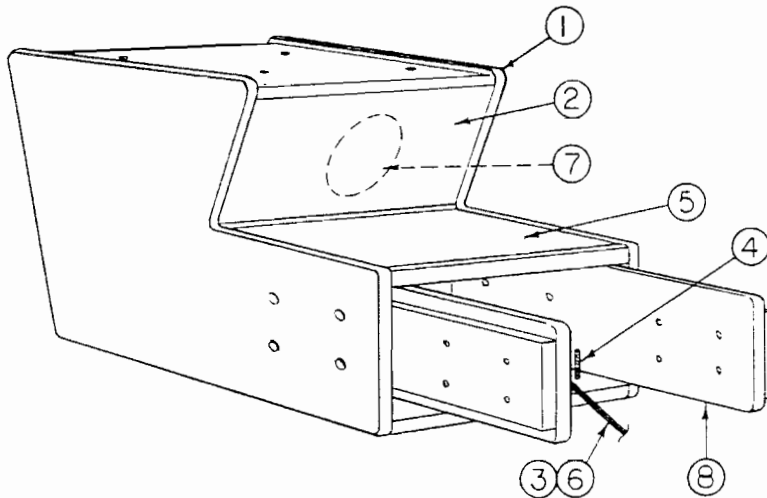
Seat to Seat Plate (top) Mounting Hardware:

4324-01124-08	Bolt 5/16-18 x 1/2 Hex Head
4700-00091-00	Flat Washer.343 x .875 x .059

Seat Plate (top) Side Mounting Hardware:

4020-01100-08	Tamper Resistant 1/4-20 x 1/2 BH
4702-00014-00B	Lock Washer 1/4-20 Internal Tooth-Black
4700-00072-00	Flat Washer.256 x .500 x .032

A-19305 Pedestal Base Assembly



Hardware

<u>Item</u>	<u>Part Number</u>	<u>Description</u>	<u>Part Number</u>	<u>Description</u>
1	A-19348	Pedestal Cabinet Assembly	4608-01081-11	H-F #8 x 11/16 PL-HWH (3)
2	01-12816	Speaker Grill	4308-01123-20B	Bolt 8-32 x 1-1/4" CB
3	03-7655-4	Cable Clamp 1/4" (3)	4408-01128-00	Nut 8-32 KEPS
4	08-7377	Leg Level Adjuster 3" (4)	4506-01106-24B	SSS 6-32 x 1-1/2" (4)
5	23-6741	Floor Mat 13-7/8 x 14-3/8"	4406-01128-00	Nut 6-32 KEPS (4)
6	H-19256	Bass Speaker Cable	4108-01092-10B	Txt #8 x 5/8 PH (8)
7	5555-12929-00	Speaker, 4Ω, 6", 25w		

Related Parts

8	A-19303	Pedestal Support Beam (2)
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A-19305 Pedestal Base Assembly (Continued)

Pedestal Base to Support Beam Mounting Hardware:

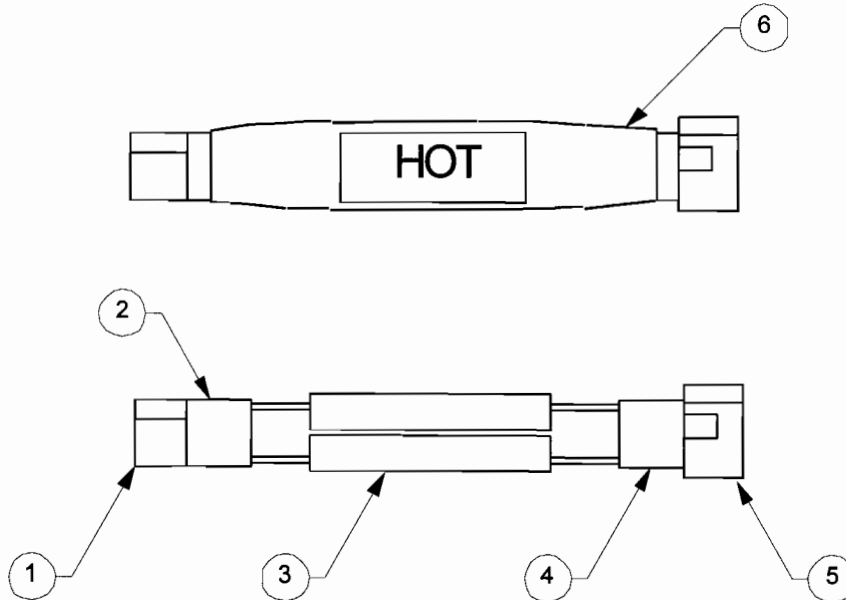
- 4020-01100-40 Tamper Resistant ¼-20 x 2 ½" Bolt
- 4700-00032-00B Flat Washer .265 x 3625 x .067
- 4702-00014-00B Lock Washer ¼-20 Internal Tooth-Black

Video Cabinet to Support Beam Mounting Hardware:

- 4320-01124-40 Bolt ¼-20 x 2 ½" Hex Head
- 4700-00032-00B Flat Washer .265 x 3625 x .067
- 4702-00014-00B Lock Washer ¼-20 Internal Tooth-Black

A-19807 Wheel Limit Resistor Assembly

<u>Item</u>	<u>Part Number</u>	<u>Description</u>
1	5821-13238-00	Female Reel Pin 18-22G
2	5792-12561-00	Female Connector
3	5012-13138-00	Resistor, 1W, 10w
4	5791-12570-00	Male Connector
5	5820-13237-00	Male Reel Pin 18-22G
6	RM-23-07	Heat Shrink Tubing 1"



Notes...

A series of 25 horizontal dotted lines for writing notes.

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SINGLE SIT DOWN

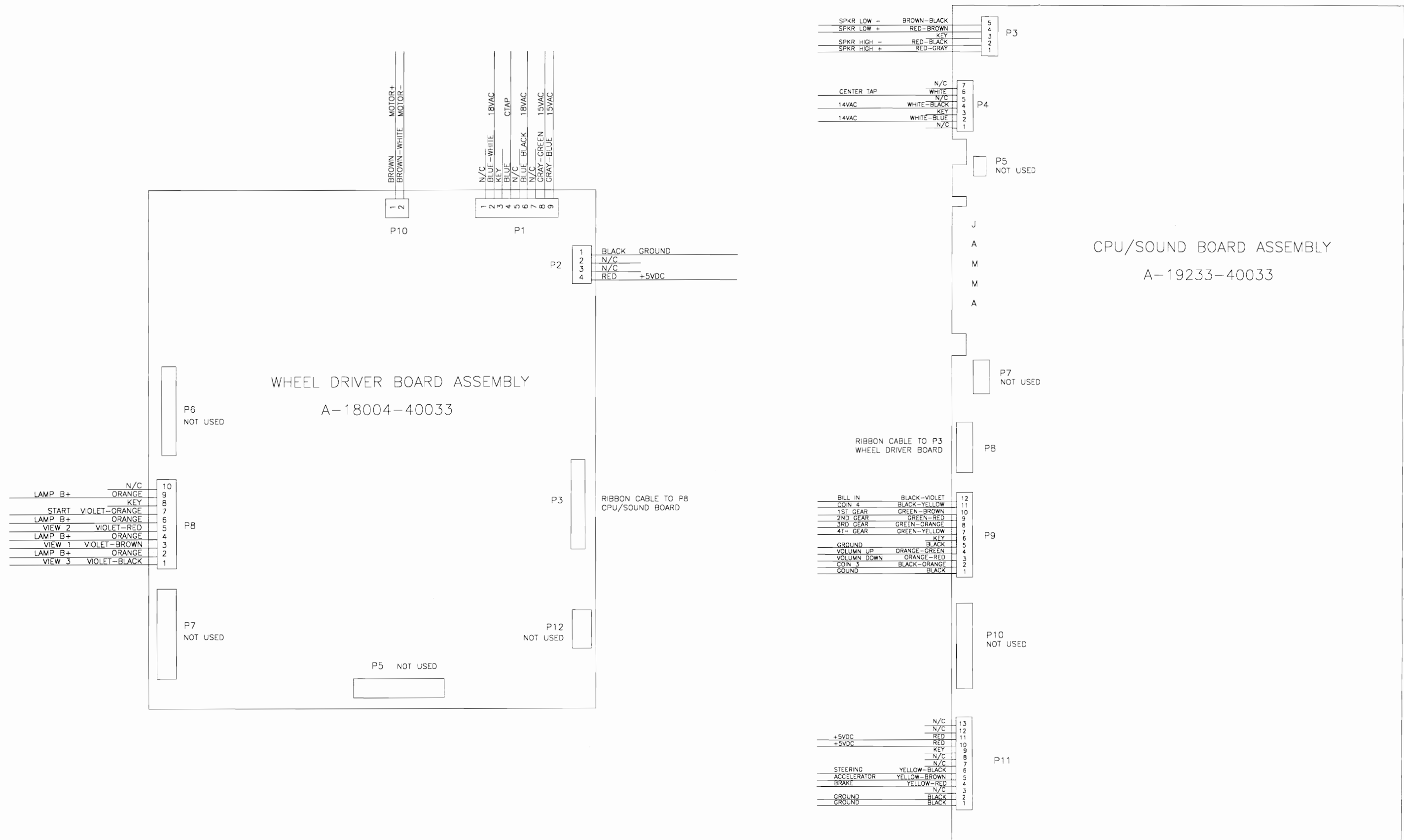
SECTION
THREE

Schematics and Wiring Diagrams

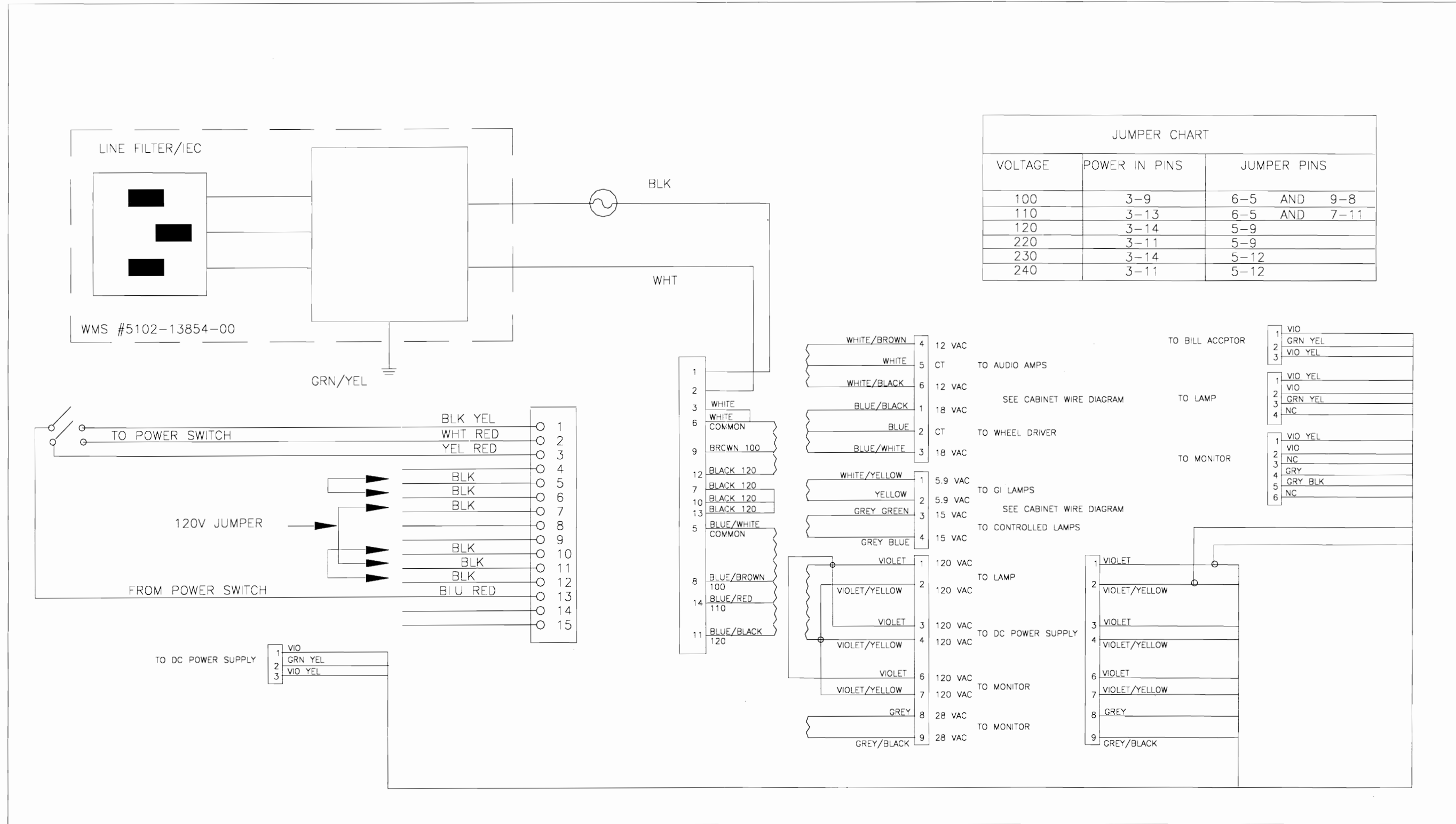
JAMMA CHART

<i>FUNCTION</i>	<i>WIRE COLOR</i>	<i>PIN</i>	<i>PIN</i>	<i>WIRE COLOR</i>	<i>FUNCTION</i>
Ground	Black	1	A	Black	Ground
Ground	Black	2	B	Black	Ground
+5VDC	Red	3	C	Red	+5VDC
+5VDC	Red	4	D	Red	+5VDC
-5VDC	Yellow	5	E	Yellow	-5VDC
+12VDC	Orange	6	F	Orange	+12VDC
	Key	7	H	Key	
Coin Counter 1	Brown	8	J	Brown-Red	Coin Counter 2
	N/C	9	K	N/C	
	N/C	10	L	N/C	
	N/C	11	M	N/C	
Video Red	Red	12	N	Green	Video Green
Video Blue	Brown	13	P	White	Video Sync
Video Ground	Shield	14	R	White-Gray	Service
Test	Black-Blue	15	S	Black-Green	Slam
Coin 1	Black-Brown	16	T	Black-Red	Coin 2
Start	White	17	U	N/C	
Not Used	White-Black	18	V	N/C	
Radio	White-Brown	19	W	N/C	
Not Used	White-Red	20	X	N/C	
	N/C	21	Y	N/C	
View 1	White-Yellow	22	Z	N/C	
View 2	White-Green	23	a	N/C	
View 3	White-Blue	24	b	N/C	
Not Used	White-Violet	25	c	N/C	
	N/C	26	d	N/C	
	N/C	27	e	Black	Ground
Ground	Black	28	f	Black	Ground

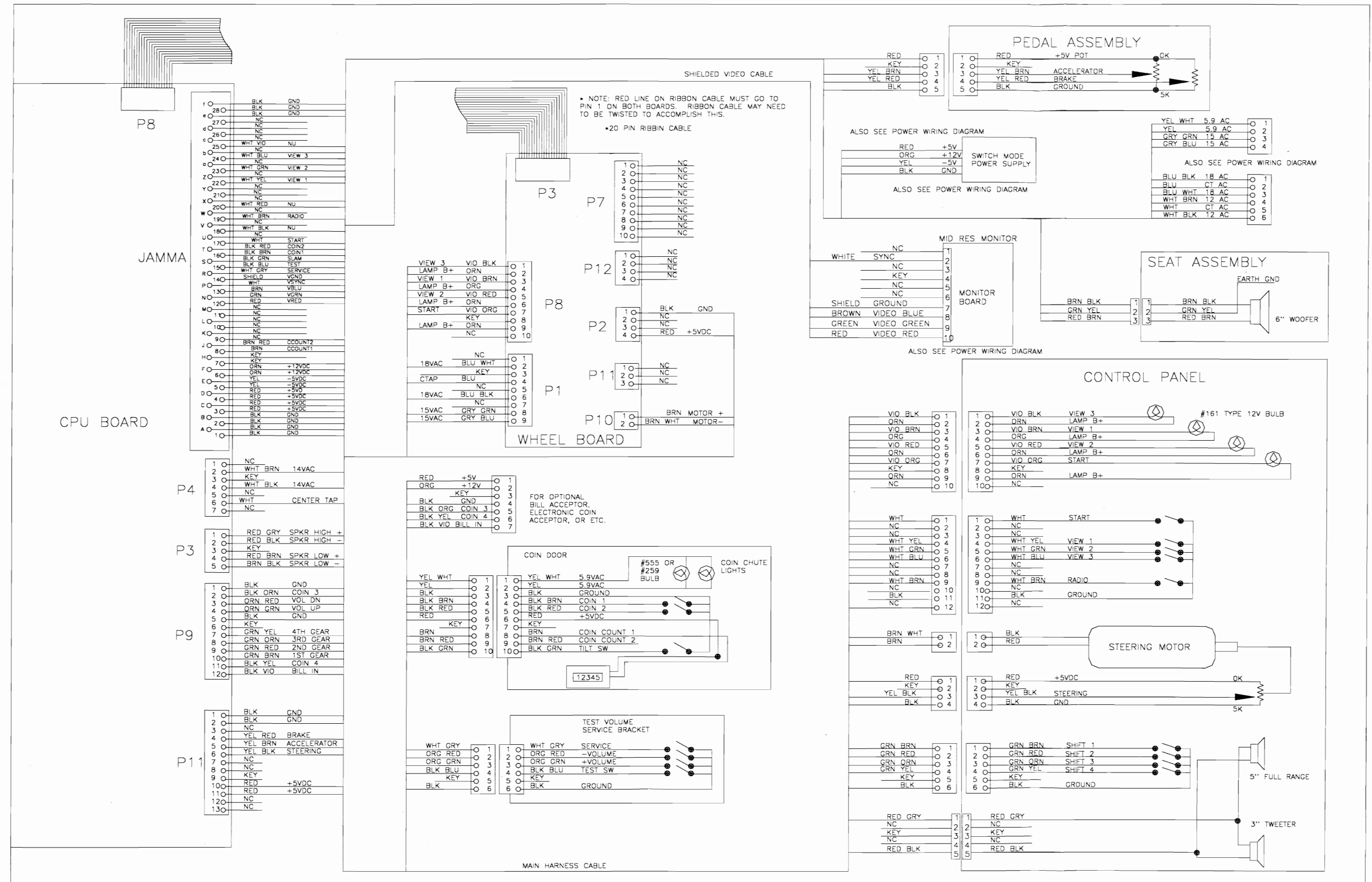
INTERBOARD WIRING DIAGRAM

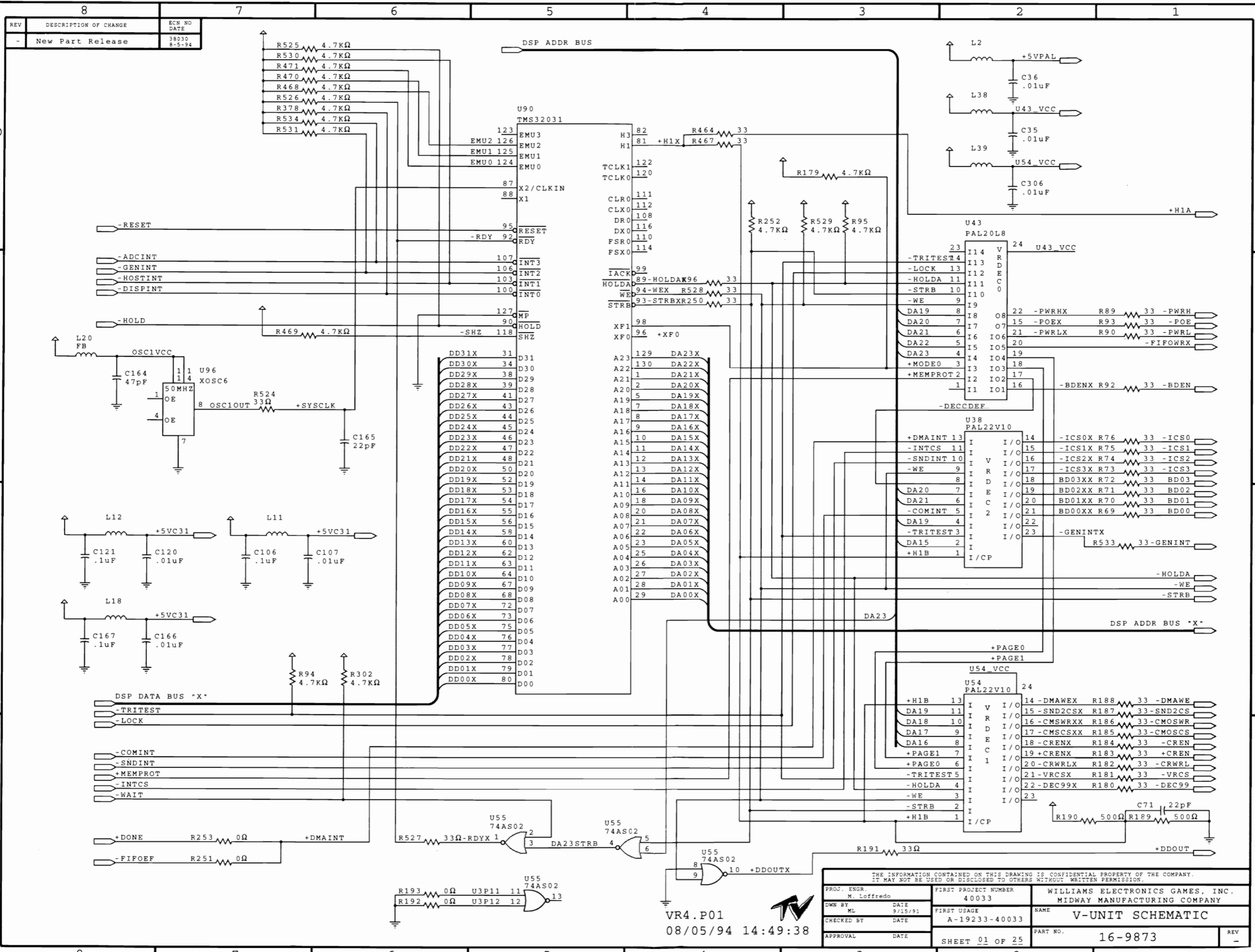


POWER WIRING DIAGRAM



CABINET WIRING DIAGRAM

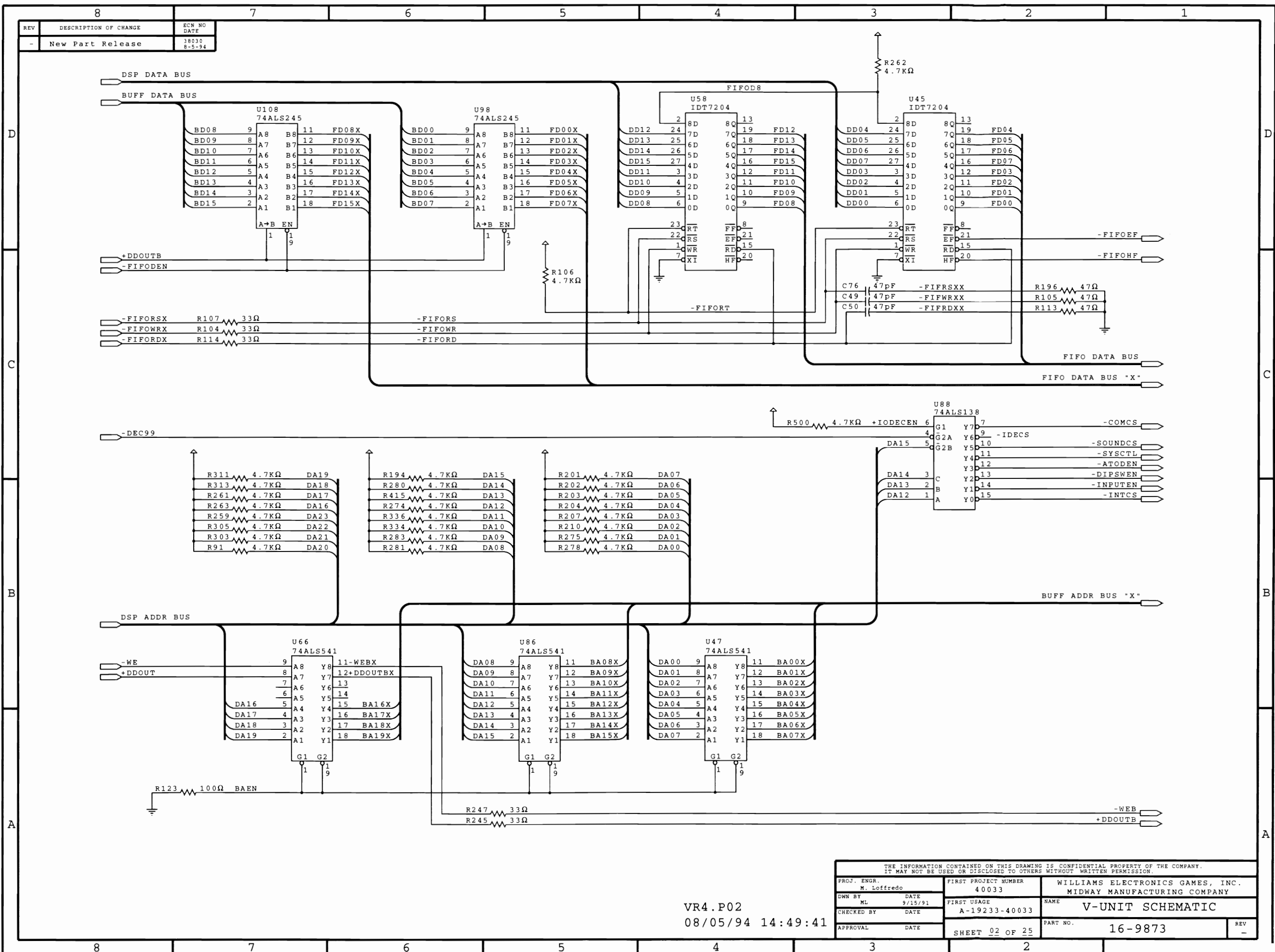




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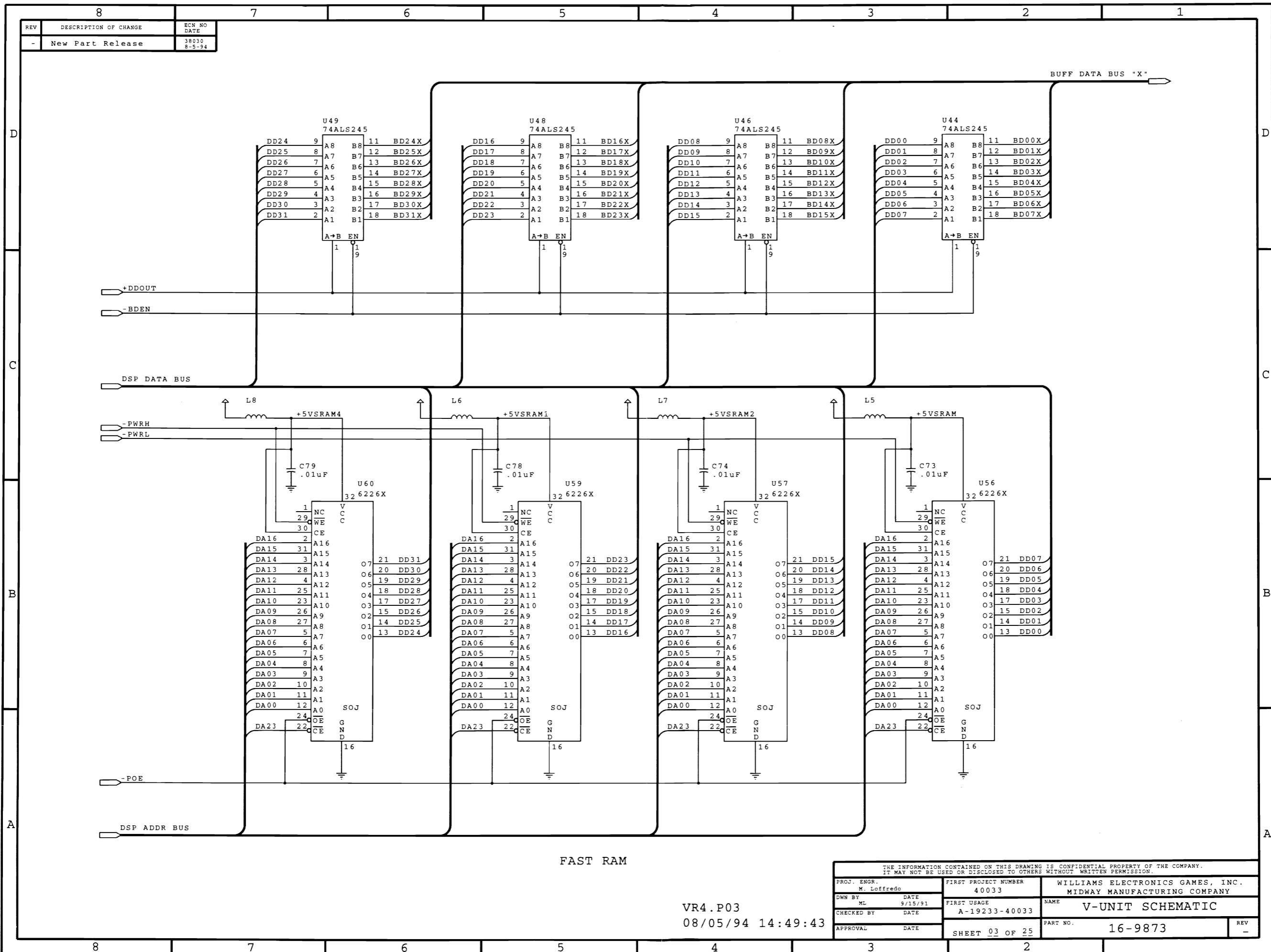
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DWN BY ML	DATE 9/15/91	FIRST USAGE A-19233-40033	NAME V-UNIT SCHEMATIC
CHECKED BY	DATE	APPROVAL	DATE
SHEET 01 OF 25		PART NO. 16-9873	REV -

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DWN BY ML	DATE 9/15/91	FIRST USAGE A-19233-40033	NAME V-UNIT SCHEMATIC
CHECKED BY	DATE	APPROVAL	DATE
SHEET 02 OF 25		PART NO. 16-9873	REV -

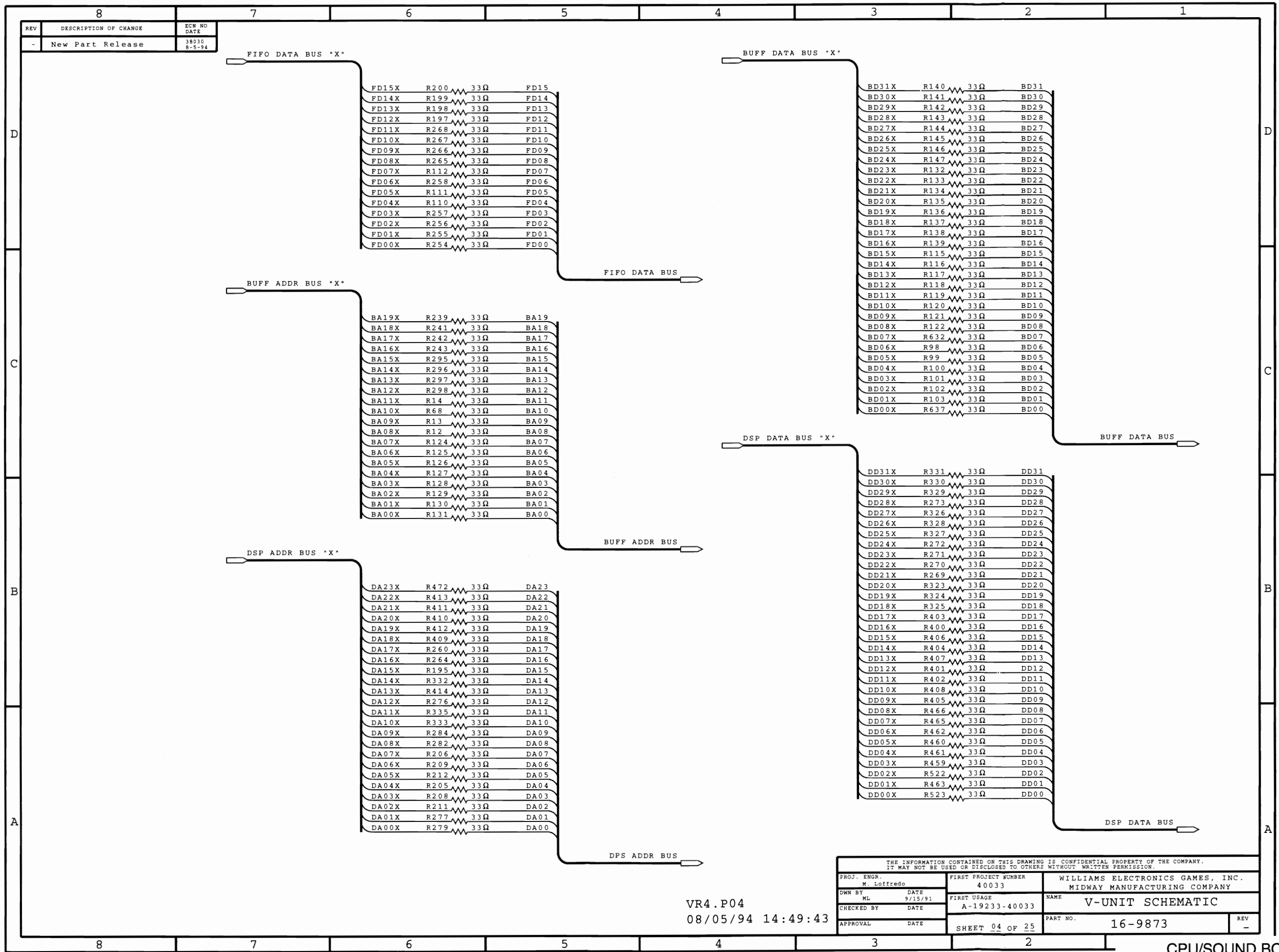


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-	New Part Release	38030 8-5-94

FAST RAM

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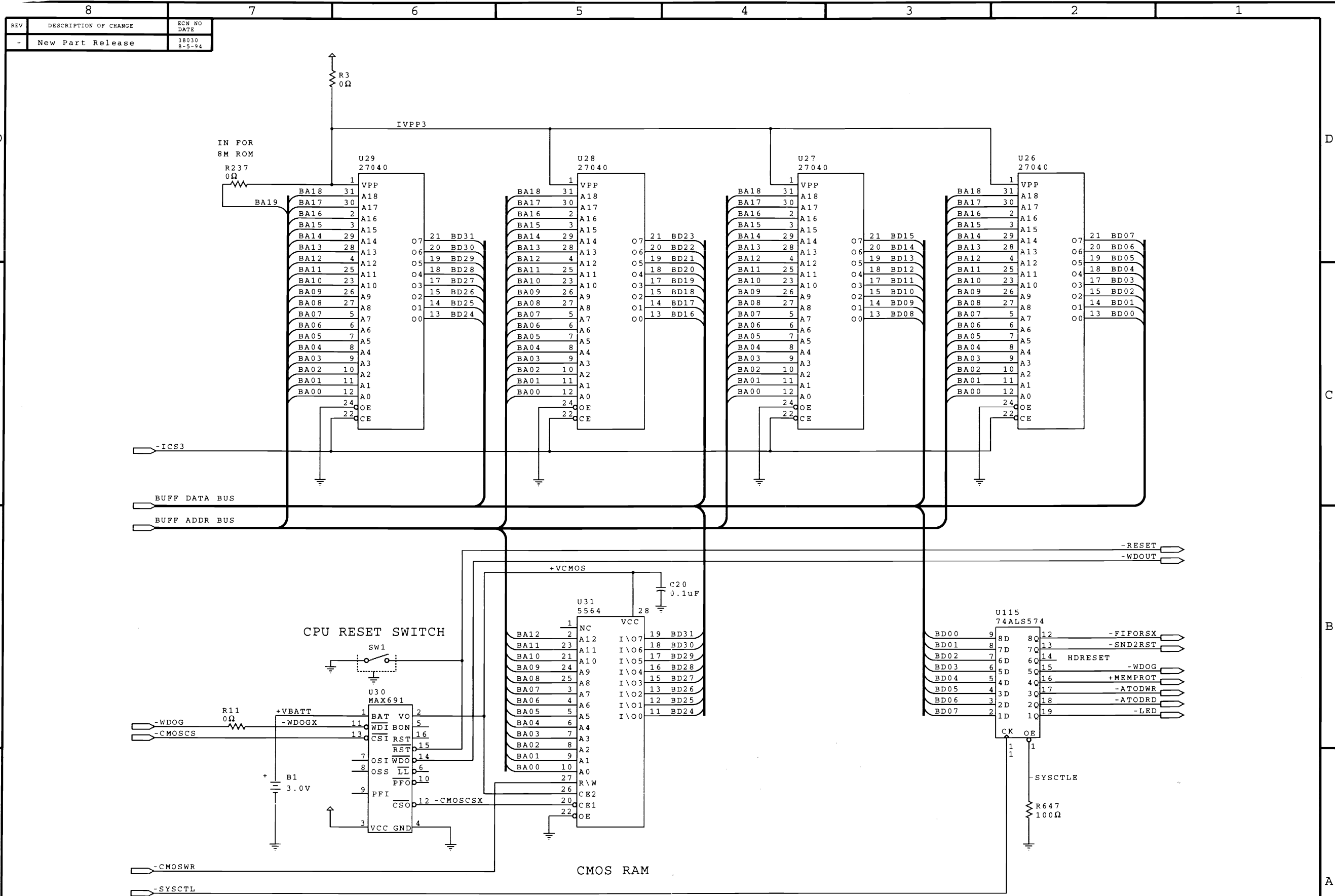
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PROJ. ENGR. M. Loffredo	FIRST PROJECT NUMBER 40033	WILLIAMS ELECTRONICS GAMES, INC. MIDWAY MANUFACTURING COMPANY	
DWN BY ML	DATE 9/15/91	FIRST USAGE A-19233-40033	NAME V-UNIT SCHEMATIC
CHECKED BY	DATE	PART NO. 16-9873	REV
APPROVAL	DATE	SHEET 03 OF 25	



REV	DESCRIPTION OF CHANGE	ECN NO DATE
-	New Part Release	38030 8-5-94

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PROJ. ENGR. M. Loffredo	FIRST PROJECT NUMBER 40033	WILLIAMS ELECTRONICS GAMES, INC. MIDWAY MANUFACTURING COMPANY	
DWN BY ML	DATE 9/15/91	FIRST USAGE A-19233-40033	NAME V-UNIT SCHEMATIC
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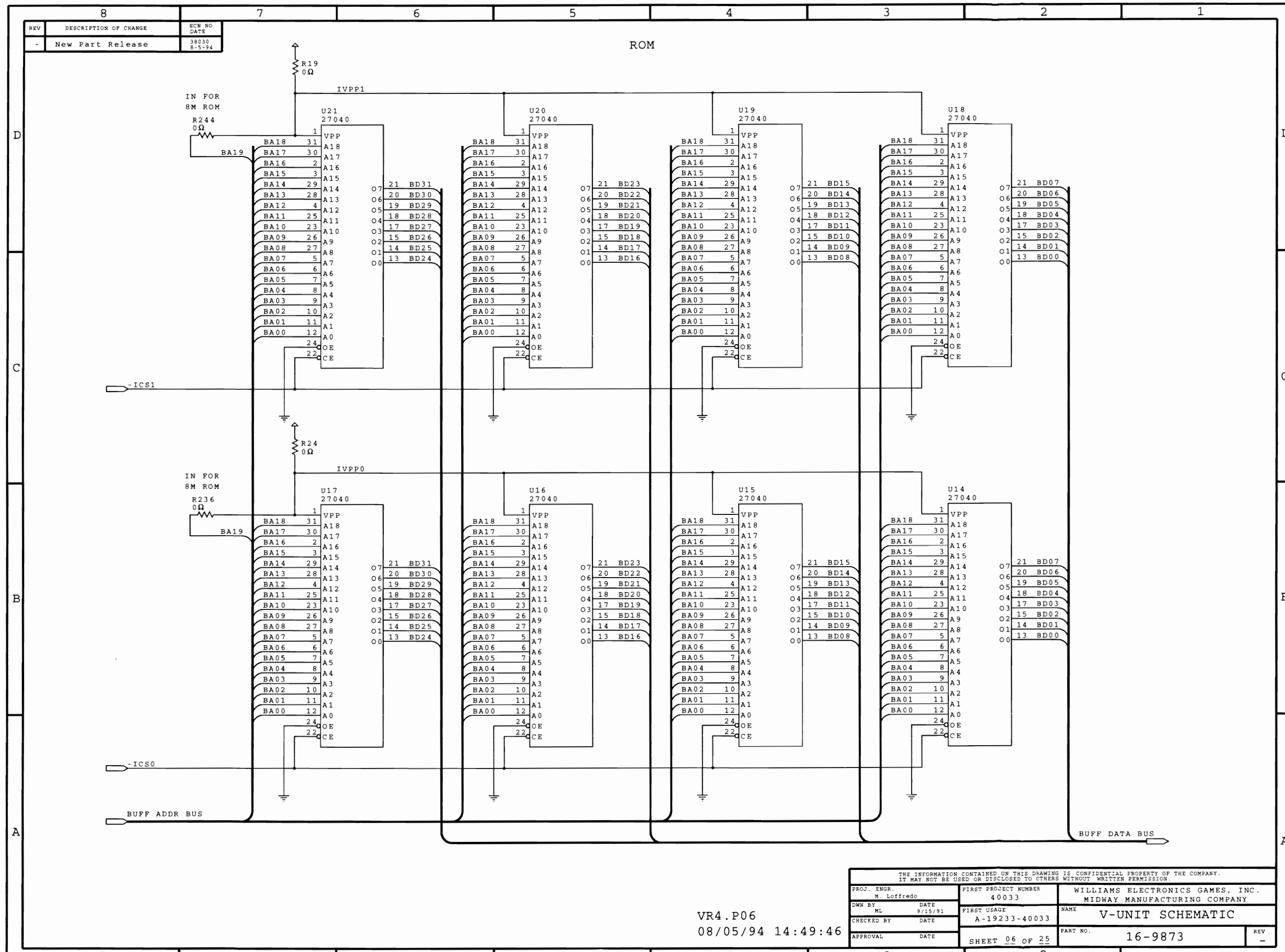


REV	DESCRIPTION OF CHANGE	ECN NO DATE
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PROJ. ENGR. M. Loffredo	FIRST PROJECT NUMBER 40033	WILLIAMS ELECTRONICS GAMES, INC. MIDWAY MANUFACTURING COMPANY	
DWN BY ML	DATE 9/15/91	FIRST USAGE A-19233-40033	NAME V-UNIT SCHEMATIC
CHECKED BY	DATE	PART NO. 16-9873	REV -
APPROVAL	DATE	SHEET 05 OF 25	

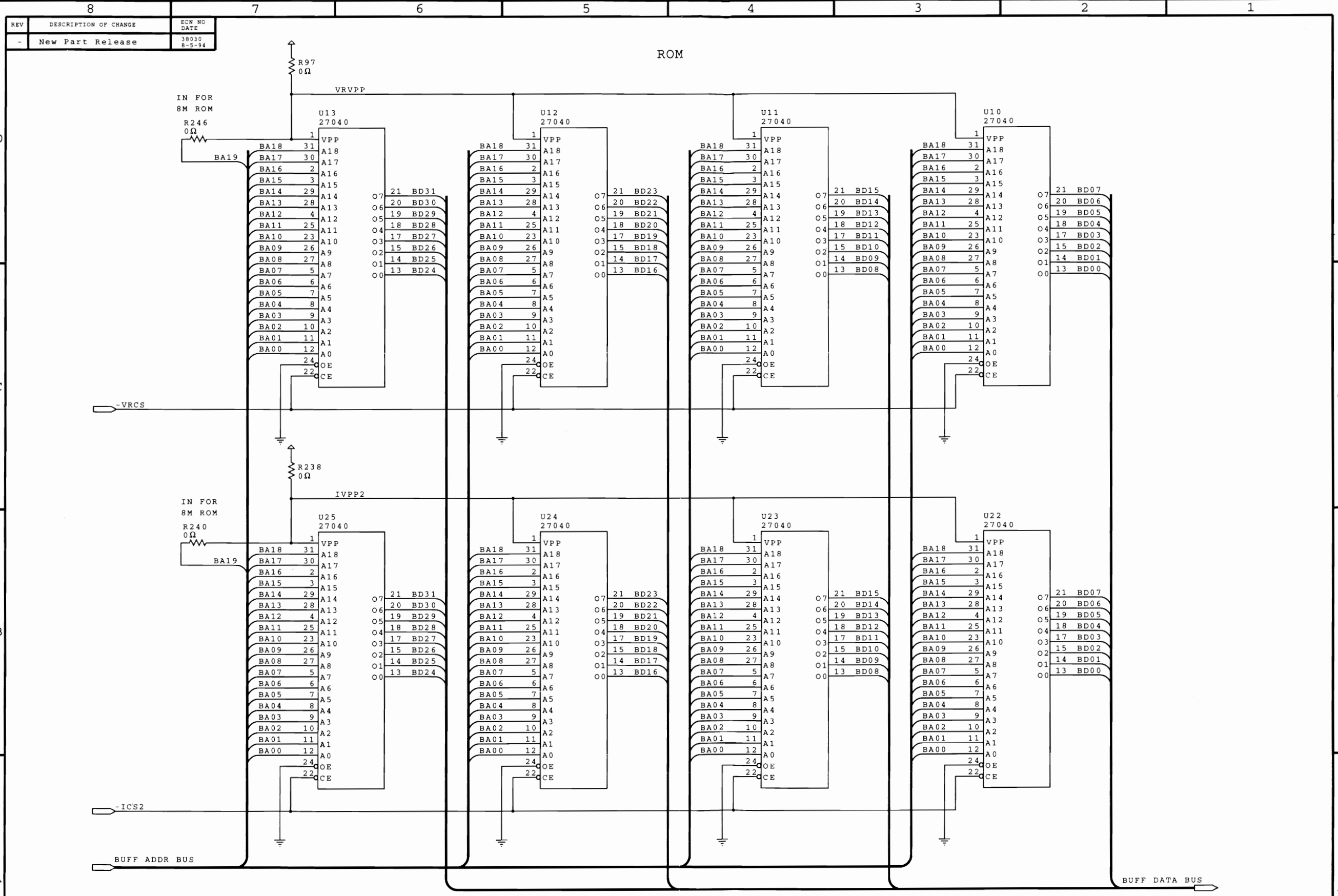
VR4.P05
08/05/94 14:49:45



REV	DESCRIPTION OF CHANGE	ECN NO	DATE
-	New Part Release	38030	8-5-94

THE INFORMATION CONTAINED ON THIS DRAWING IS CONFIDENTIAL PROPERTY OF THE COMPANY. IT MAY NOT BE USED OR DISCLOSED TO OTHERS WITHOUT WRITTEN PERMISSION.			
PROJ. ENGR. M. Loffredo	FIRST PROJECT NUMBER 40033	WILLIAMS ELECTRONICS GAMES, INC. MIDWAY MANUFACTURING COMPANY	
DWN BY ML	DATE 9/15/91	FIRST USAGE A-19233-40033	NAME V-UNIT SCHEMATIC
CHECKED BY	DATE	APPROVAL	DATE
SHEET 06 OF 25		PART NO. 16-9873	REV -

VR4.P06
08/05/94 14:49:46



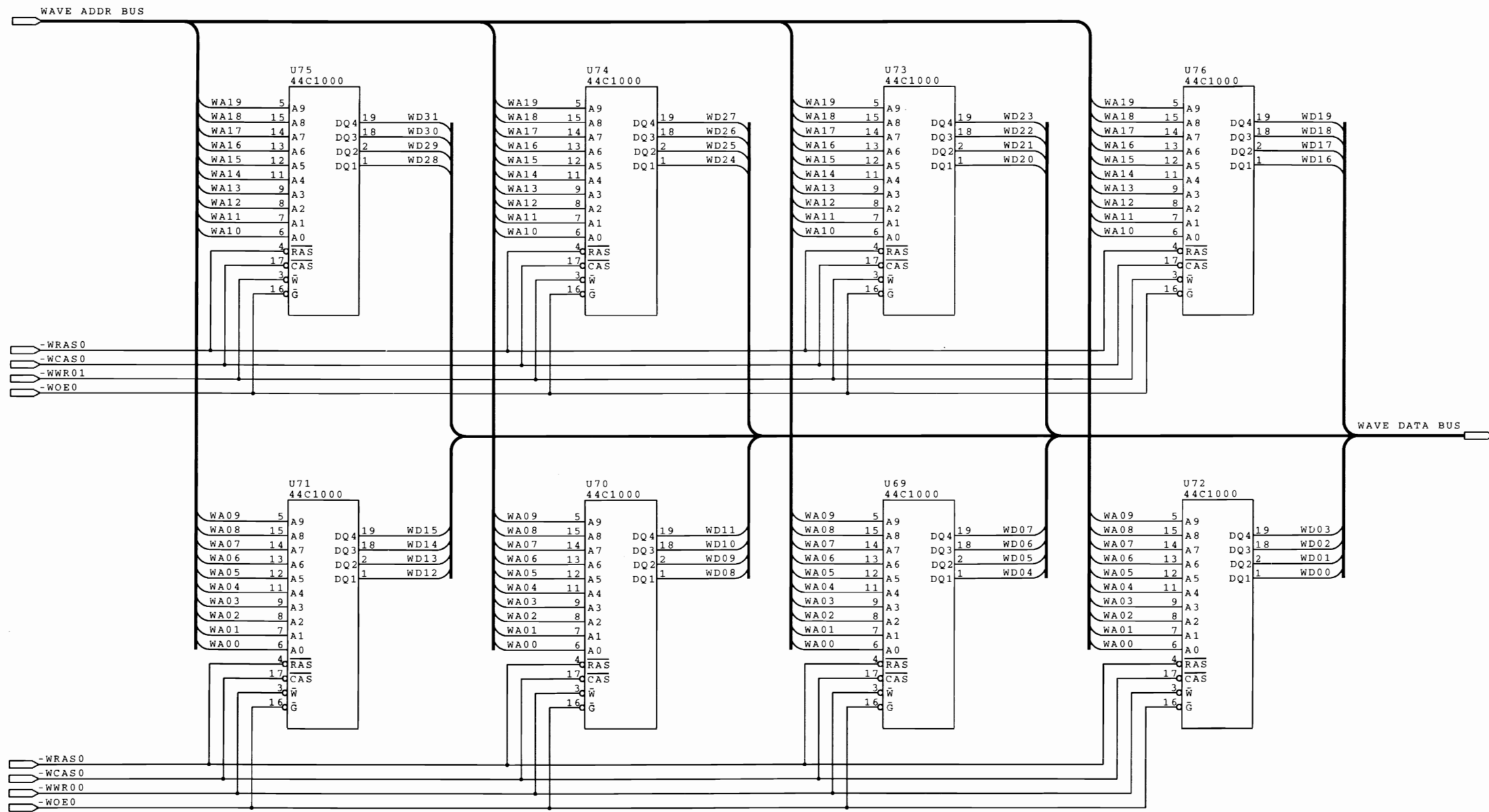
REV	DESCRIPTION OF CHANGE	ECN NO	DATE
-	New Part Release	38030	8-5-94

THE INFORMATION CONTAINED ON THIS DRAWING IS CONFIDENTIAL PROPERTY OF THE COMPANY. IT MAY NOT BE USED OR DISCLOSED TO OTHERS WITHOUT WRITTEN PERMISSION.			
PROJ. ENGR. M. Loffredo	FIRST PROJECT NUMBER 40033	WILLIAMS ELECTRONICS GAMES, INC. MIDWAY MANUFACTURING COMPANY	
DWN BY ML	DATE 9/15/91	FIRST USAGE A-19233-40033	NAME V-UNIT SCHEMATIC
CHECKED BY	DATE	APPROVAL	PART NO. 16-9873
SHEET 07 OF 25		REV	-

VR4.P07
08/05/94 14:49:47

REV	DESCRIPTION OF CHANGE	ECN NO DATE
-	New Part Release	38030 8-5-94

WAVE RAM



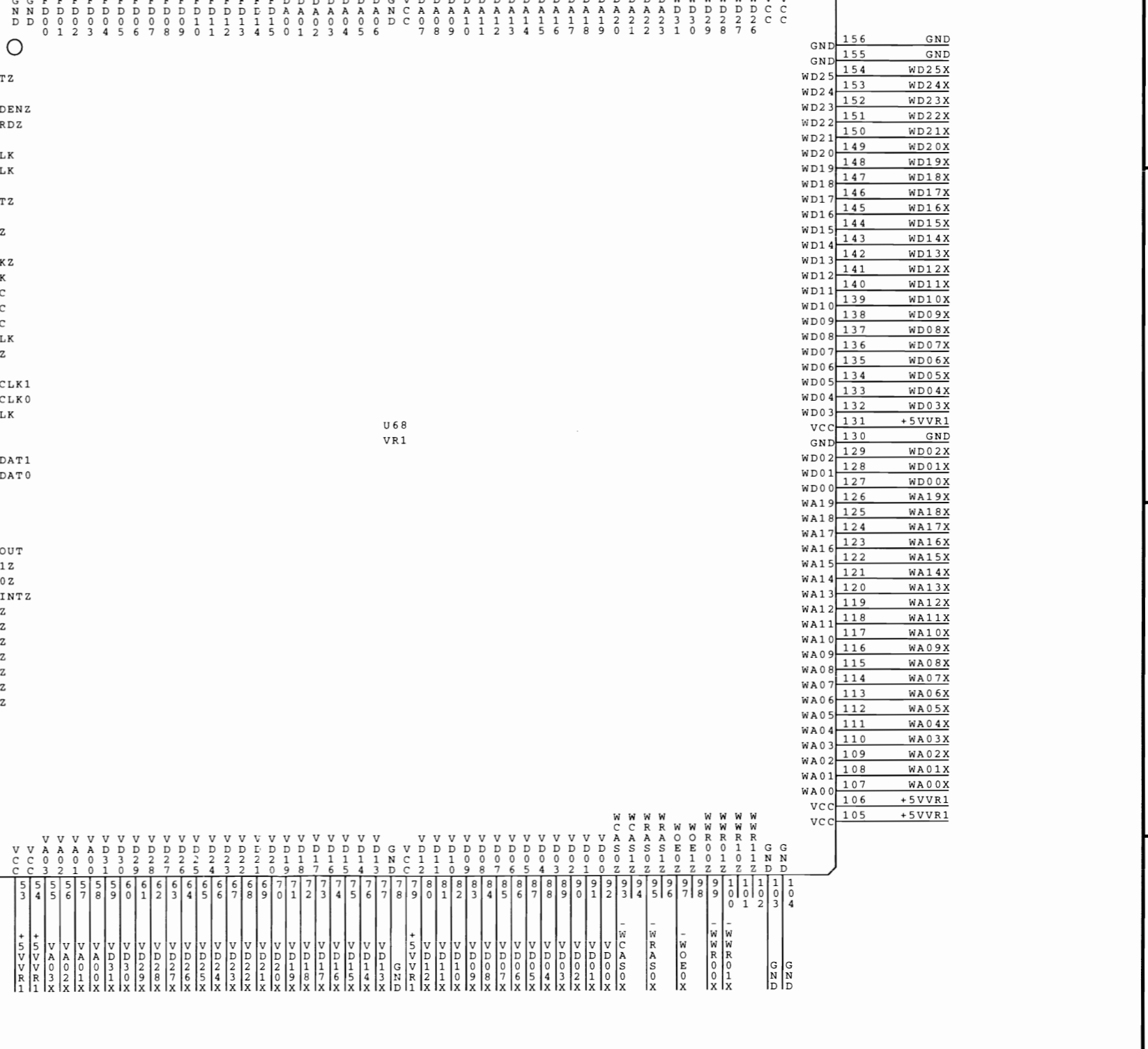
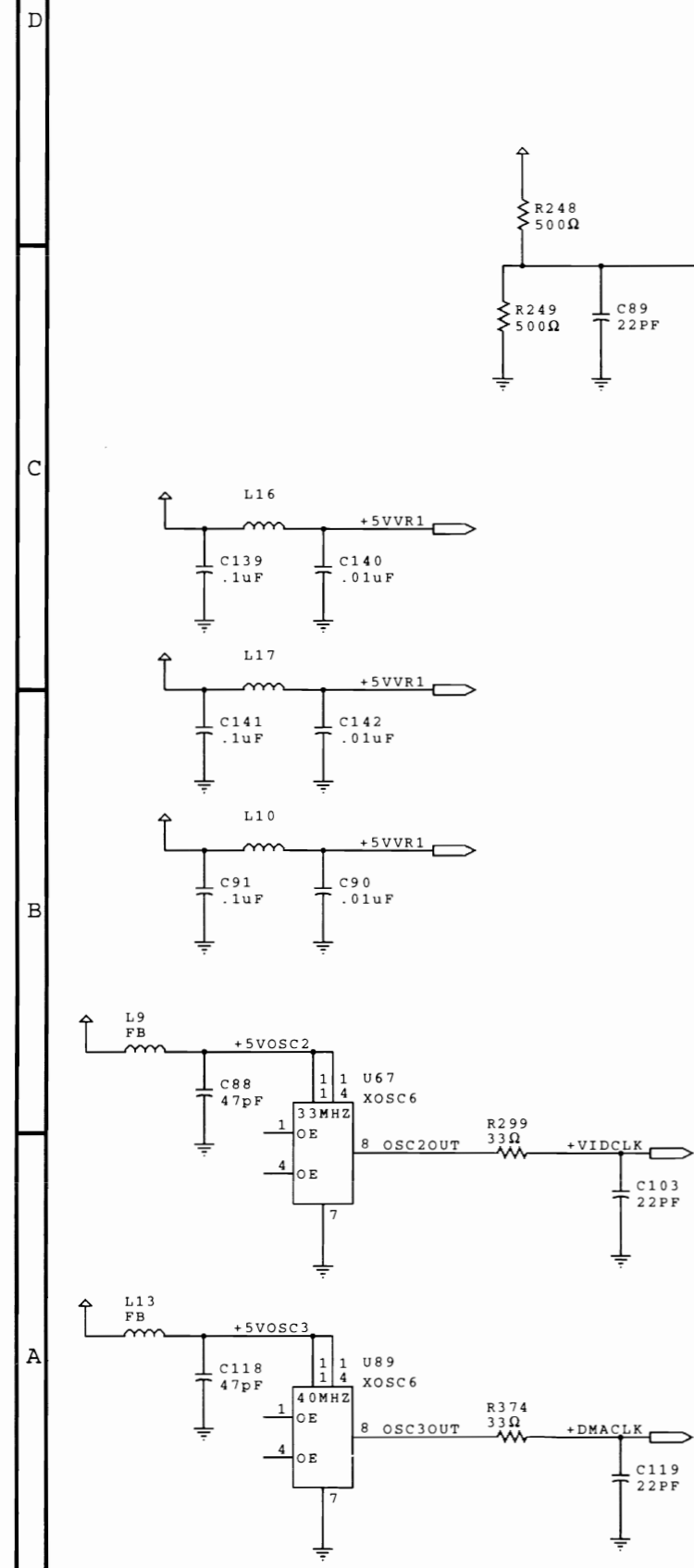
THE INFORMATION CONTAINED ON THIS DRAWING IS CONFIDENTIAL PROPERTY OF THE COMPANY. IT MAY NOT BE USED OR DISCLOSED TO OTHERS WITHOUT WRITTEN PERMISSION.			
PROJ. ENGR. M. Loffredo	FIRST PROJECT NUMBER 40033	WILLIAMS ELECTRONICS GAMES, INC. MIDWAY MANUFACTURING COMPANY	
DWN BY ML	DATE 9/15/91	FIRST USAGE A-19233-40033	NAME V-UNIT SCHEMATIC
CHECKED BY	DATE	PART NO. 16-9873	REV -
APPROVAL	DATE	SHEET 08 OF 25	

VR4.P08
08/05/94 15:12:30

REV	DESCRIPTION OF CHANGE	ECN NO DATE
-	New Part Release	38030 8-5-94

GND	FDD0	FDD1	FDD2	FDD3	FDD4	FDD5	FDD6	FDD7	FDD8	FDD9	FDD0	FDD1	FDD2	FDD3	FDD4	FDD5	FDD6	FDD7	FDD8	FDD9	DA00	DA01	DA02	DA03	DA04	DA05	DA06	DA07	DA08	DA09	DA10	DA11	DA12	DA13	DA14	DA15	DA16	DA17	DA18	DA19	DA20	DA21	DA22	DA23	DA24	DA25	WD25	WD24	WD23	WD22	WD21	WD20	WD19	WD18	WD17	WD16	WD15	WD14	WD13	WD12	WD11	WD10	WD09	WD08	WD07	WD06	WD05	WD04	WD03	WD02	WD01	WD00	WA19	WA18	WA17	WA16	WA15	WA14	WA13	WA12	WA11	WA10	WA09	WA08	WA07	WA06	WA05	WA04	WA03	WA02	WA01	WA00	VCC	VCC											
208	207	206	205	204	203	202	201	200	199	198	197	196	195	194	193	192	191	190	189	188	187	186	185	184	183	182	181	180	179	178	177	176	175	174	173	172	171	170	169	168	167	166	165	164	163	162	161	160	159	158	157	156	155	154	153	152	151	150	149	148	147	146	145	144	143	142	141	140	139	138	137	136	135	134	133	132	131	130	129	128	127	126	125	124	123	122	121	120	119	118	117	116	115	114	113	112	111	110	109	108	107	106	105		

+5VVR1	1	VCC	23	OPTOCLK1	24	OPTOCLK0	25	DMACLK	26	+5VVR1	27	GND	28	GND	29	OPTODAT1	30	OPTODAT0	31	BD03	32	BD02	33	BD01	34	BD00	35	-TEST2	36	TESTOUT	37	TEST1Z	38	TEST0Z	39	-DISPINT	40	DISPINTZ	41	-VWR1X	42	VWR1Z	43	-VWR0X	44	VWR0Z	45	-VRASX	46	VRASZ	47	-VCASX	48	VCASZ	49	-TROEX	50	TROEZ	51	-SOE1X	52	SOE1Z	53	-SOE0X	54	SOE0Z	55	+SCLKX	56	SCLK	57	VA08X	58	VA08	59	VA07X	60	VA07	61	VA06X	62	VA06	63	VA05X	64	VA05	65	VA04X	66	VA04	67	GND	68	GND	69	GND	70	GND
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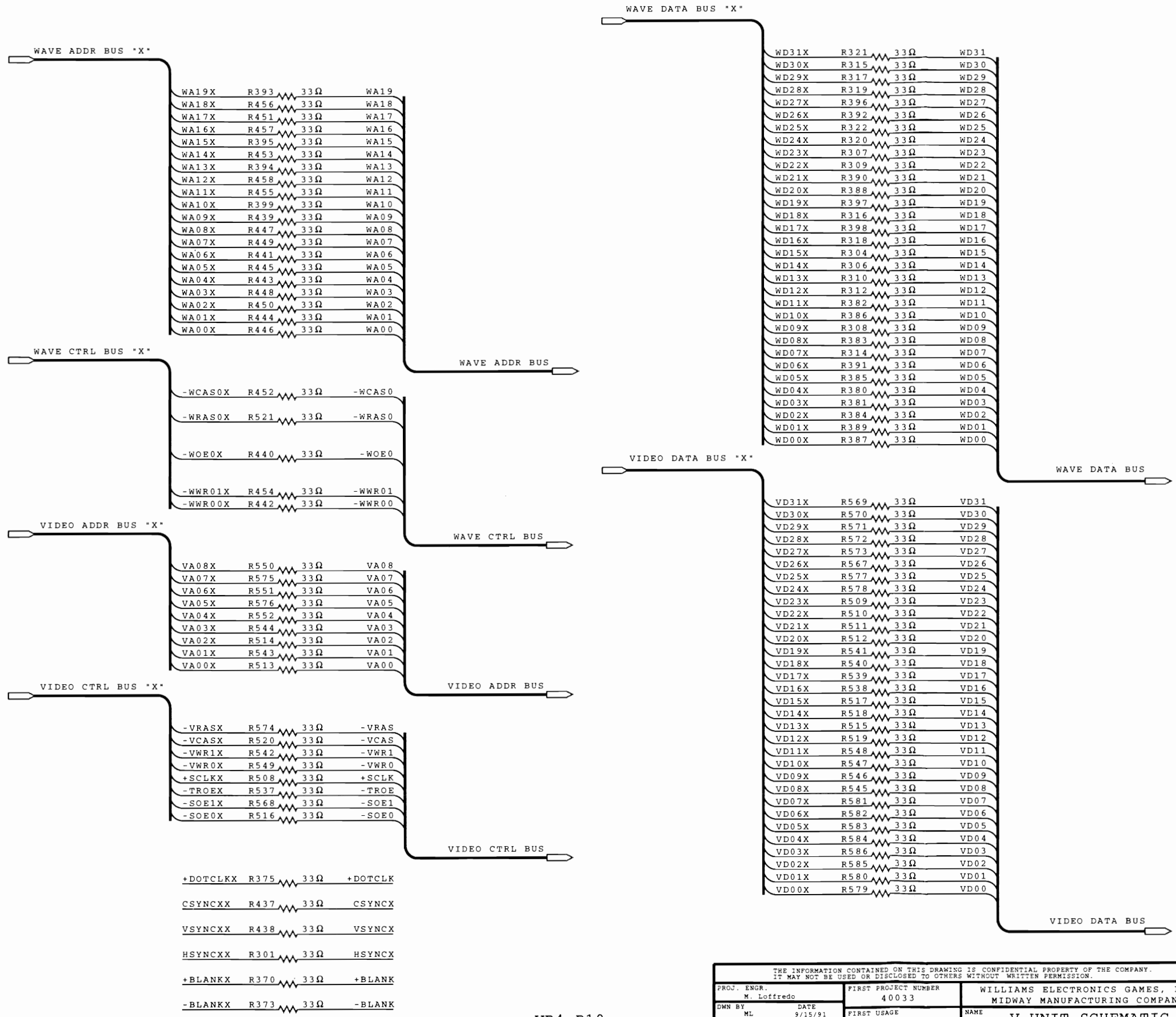
THE INFORMATION CONTAINED ON THIS DRAWING IS CONFIDENTIAL PROPERTY OF THE COMPANY. IT MAY NOT BE USED OR DISCLOSED TO OTHERS WITHOUT WRITTEN PERMISSION.

PROJ. ENGR. W. Loffredo	FIRST PROJECT NUMBER 40033	WILLIAMS ELECTRONICS GAMES, INC. MIDWAY MANUFACTURING COMPANY	
OWN BY ML	DATE 9/15/91	FIRST USAGE A-19233-40033	NAME V-UNIT SCHEMATIC
CHECKED BY	DATE	APPROVAL	DATE
SHEET 09 OF 25		PART NO. 16-9873	REV -

VR4.P09
08/05/94 15:12:33

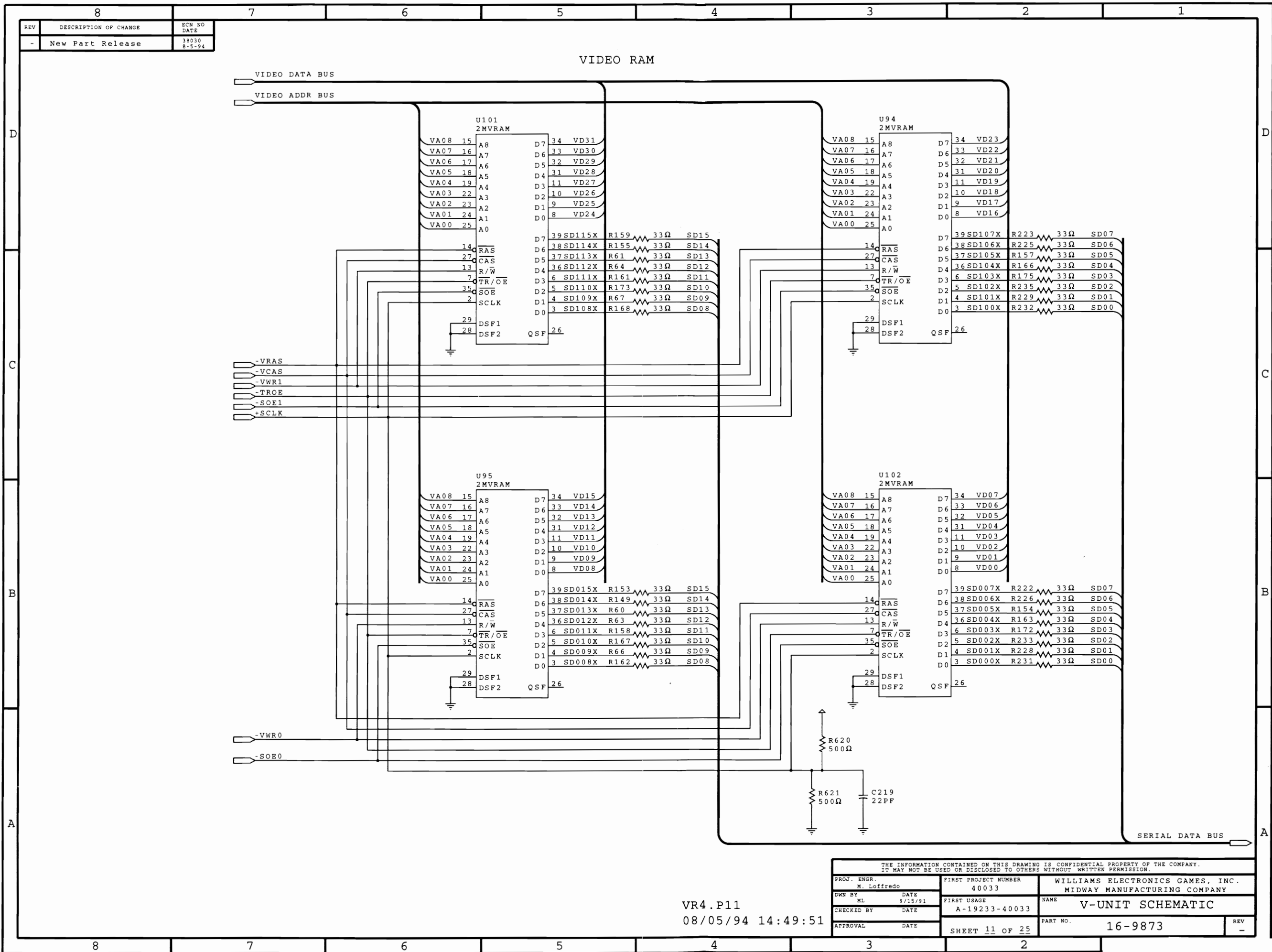
REV	DESCRIPTION OF CHANGE	ECN NO DATE
-	New Part Release	38030 8-5-94

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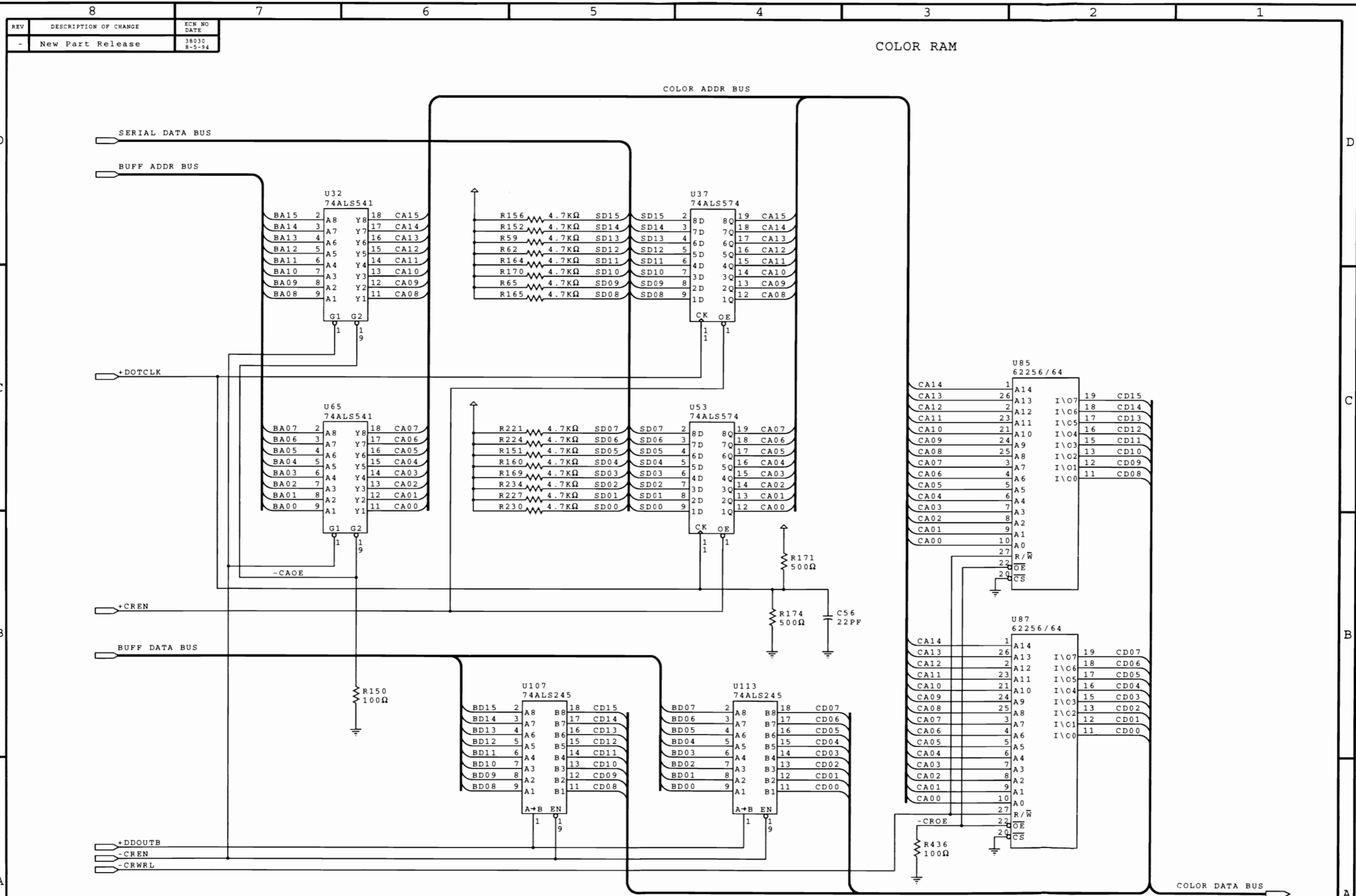
VR4.P10
08/05/94 14:49:49

THE INFORMATION CONTAINED ON THIS DRAWING IS CONFIDENTIAL PROPERTY OF THE COMPANY. IT MAY NOT BE USED OR DISCLOSED TO OTHERS WITHOUT WRITTEN PERMISSION.			
PROJ. ENGR. M. Loffredo	FIRST PROJECT NUMBER 40033	WILLIAMS ELECTRONICS GAMES, INC. MIDWAY MANUFACTURING COMPANY	
DWN BY ML	DATE 9/15/91	FIRST USAGE A-19233-40033	NAME V-UNIT SCHEMATIC
CHECKED BY	DATE	APPROVAL	DATE
SHEET 10 of 25		PART NO. 16-9873	REV -



VR4.P11
08/05/94 14:49:51

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PROJ. ENGR. M. Loffredo	FIRST PROJECT NUMBER 40033	WILLIAMS ELECTRONICS GAMES, INC. MIDWAY MANUFACTURING COMPANY	
DWN BY ML	DATE 9/15/91	FIRST USAGE A-19233-40033	NAME V-UNIT SCHEMATIC
CHECKED BY	DATE	SHEET 11 OF 25	PART NO. 16-9873
APPROVAL	DATE		REV -

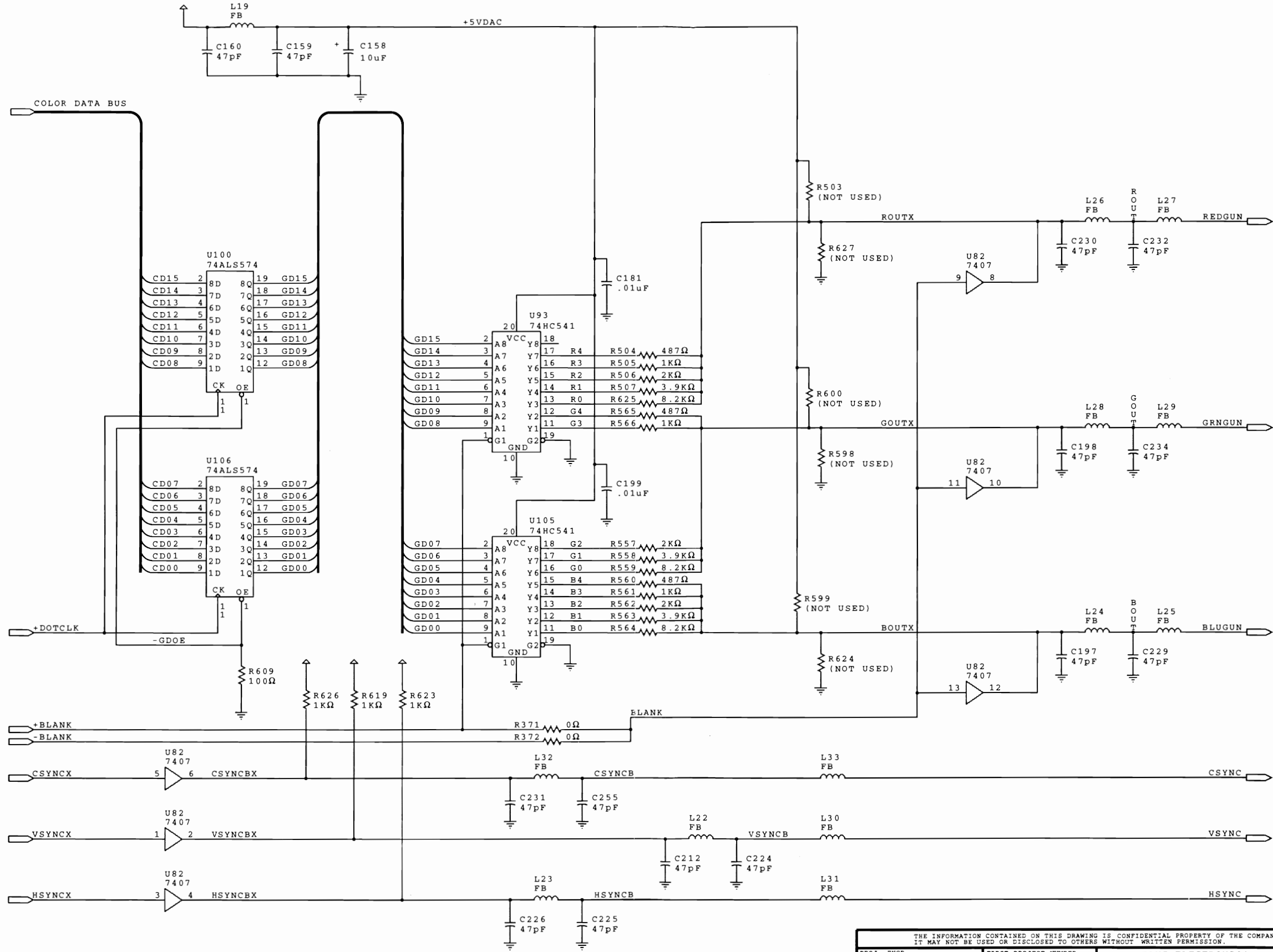


THE INFORMATION CONTAINED ON THIS DRAWING IS CONFIDENTIAL PROPERTY OF THE COMPANY.
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PROJ. ENGR. M. Loffredo	FIRST PROJECT NUMBER 40033	WILLIAMS ELECTRONICS GAMES, INC. MIDWAY MANUFACTURING COMPANY	
DWN BY ML	DATE 9/15/91	FIRST USAGE A-19233-40033	NAME V-UNIT SCHEMATIC
CHECKED BY	DATE	APPROVAL	PART NO. 16-9873
SHEET 12 OF 25		REV	

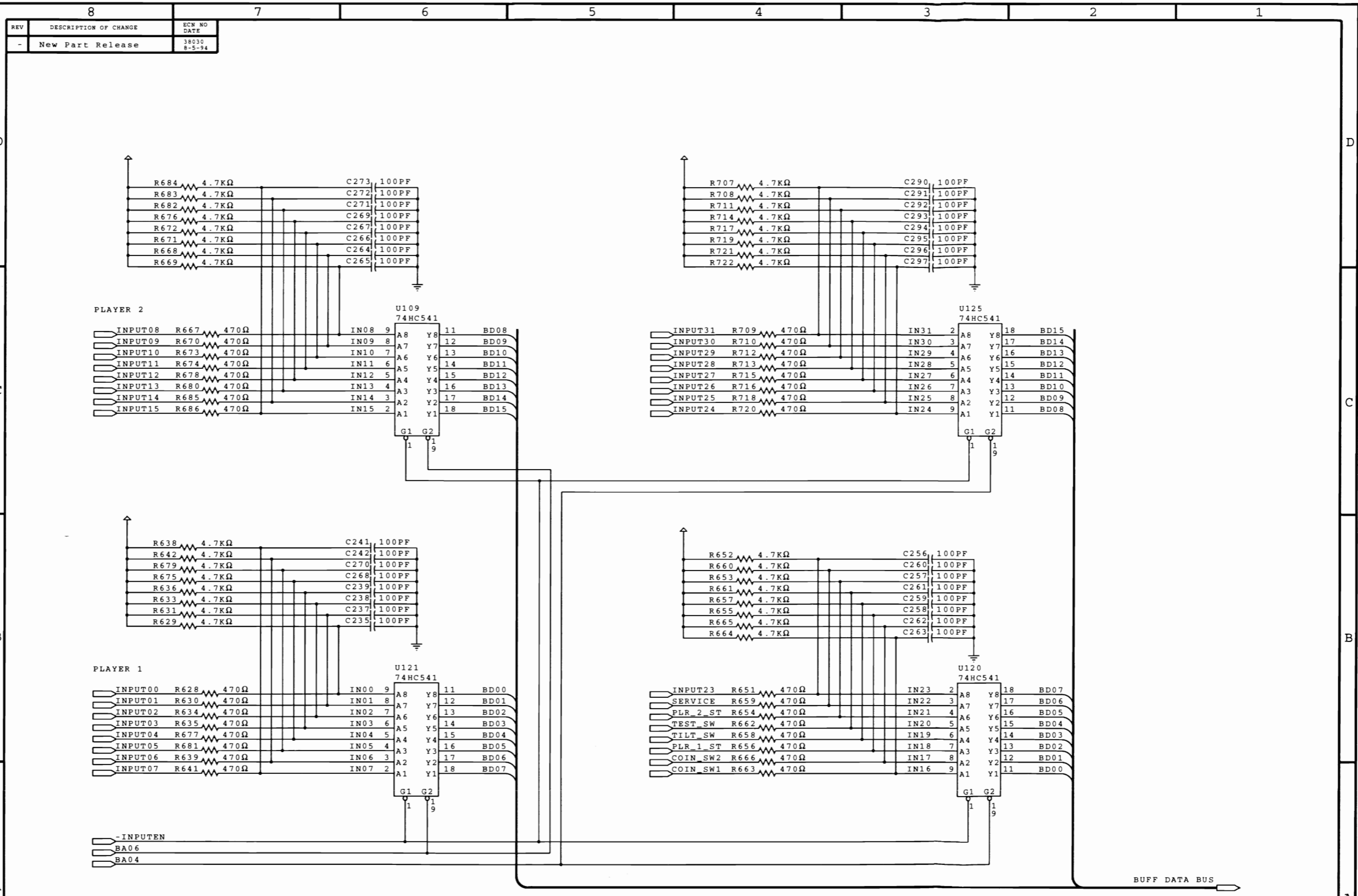
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08/05/94 14:49:52

REV	DESCRIPTION OF CHANGE	ECN NO DATE
-	New Part Release	38030 8-5-94



VR4.P13
08/05/94 14:49:53

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PROJ. ENGR. M. Loffredo	FIRST PROJECT NUMBER 40033	WILLIAMS ELECTRONICS GAMES, INC. MIDWAY MANUFACTURING COMPANY			
DWN BY ML	DATE 9/15/91	FIRST USAGE A-19233-40033	NAME V-UNIT SCHEMATIC		
CHECKED BY	DATE	APPROVAL	DATE	SHEET 13 OF 25	REV
				PART NO. 16-9873	



REV	DESCRIPTION OF CHANGE	ECN NO	DATE
-	New Part Release	38030	8-5-94

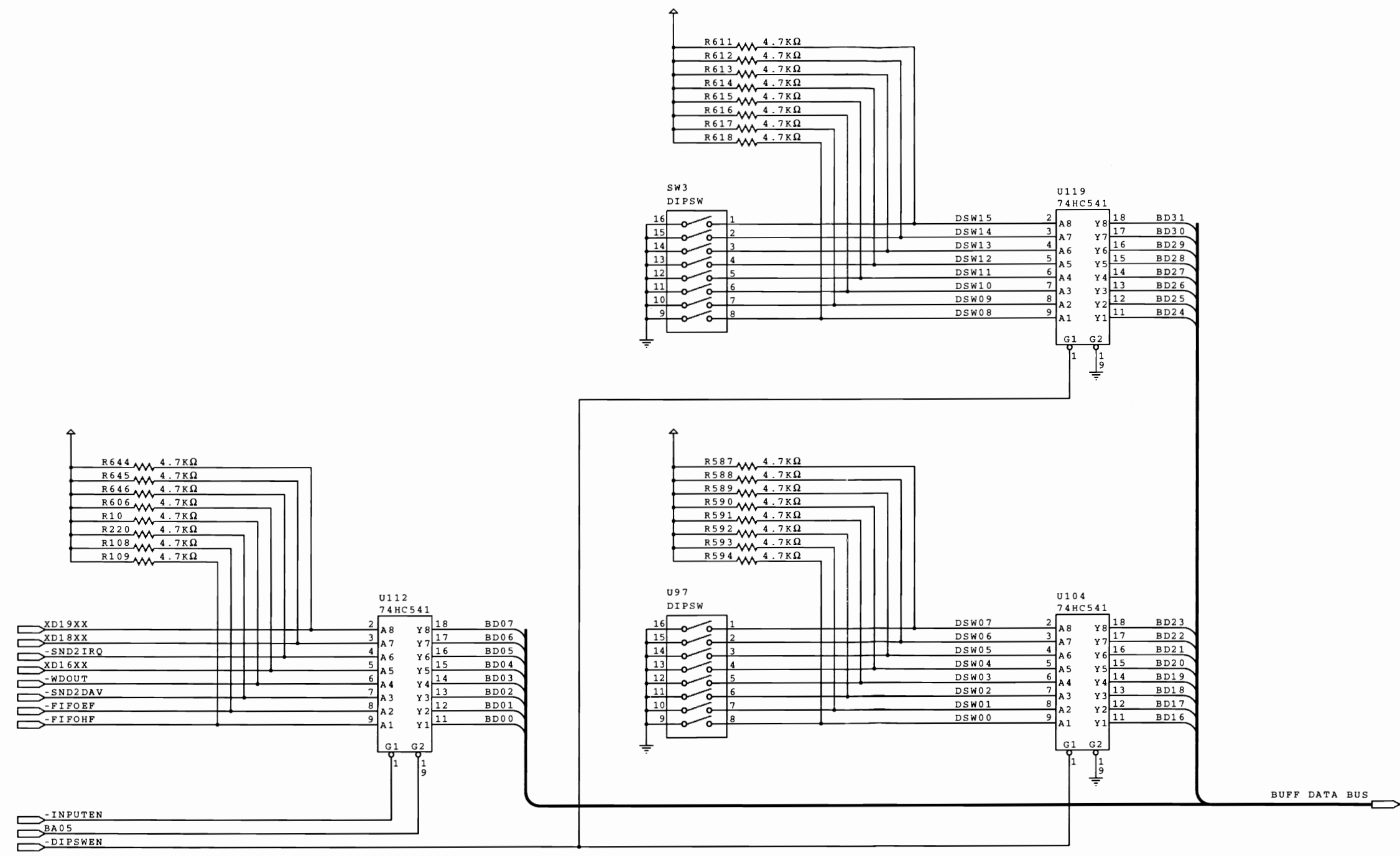
THE INFORMATION CONTAINED ON THIS DRAWING IS CONFIDENTIAL PROPERTY OF THE COMPANY. IT MAY NOT BE USED OR DISCLOSED TO OTHERS WITHOUT WRITTEN PERMISSION.			
PROJ. ENGR. M. Loffredo	FIRST PROJECT NUMBER 40033	WILLIAMS ELECTRONICS GAMES, INC. MIDWAY MANUFACTURING COMPANY	
DWN BY ML	DATE 9/15/91	FIRST USAGE A-19233-40033	NAME V-UNIT SCHEMATIC
CHECKED BY	DATE	APPROVAL	DATE
SHEET 14 OF 25		PART NO. 16-9873	REV -

VR4.P14
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REV	DESCRIPTION OF CHANGE	ECN NO DATE
-	New Part Release	38030 8-5-94

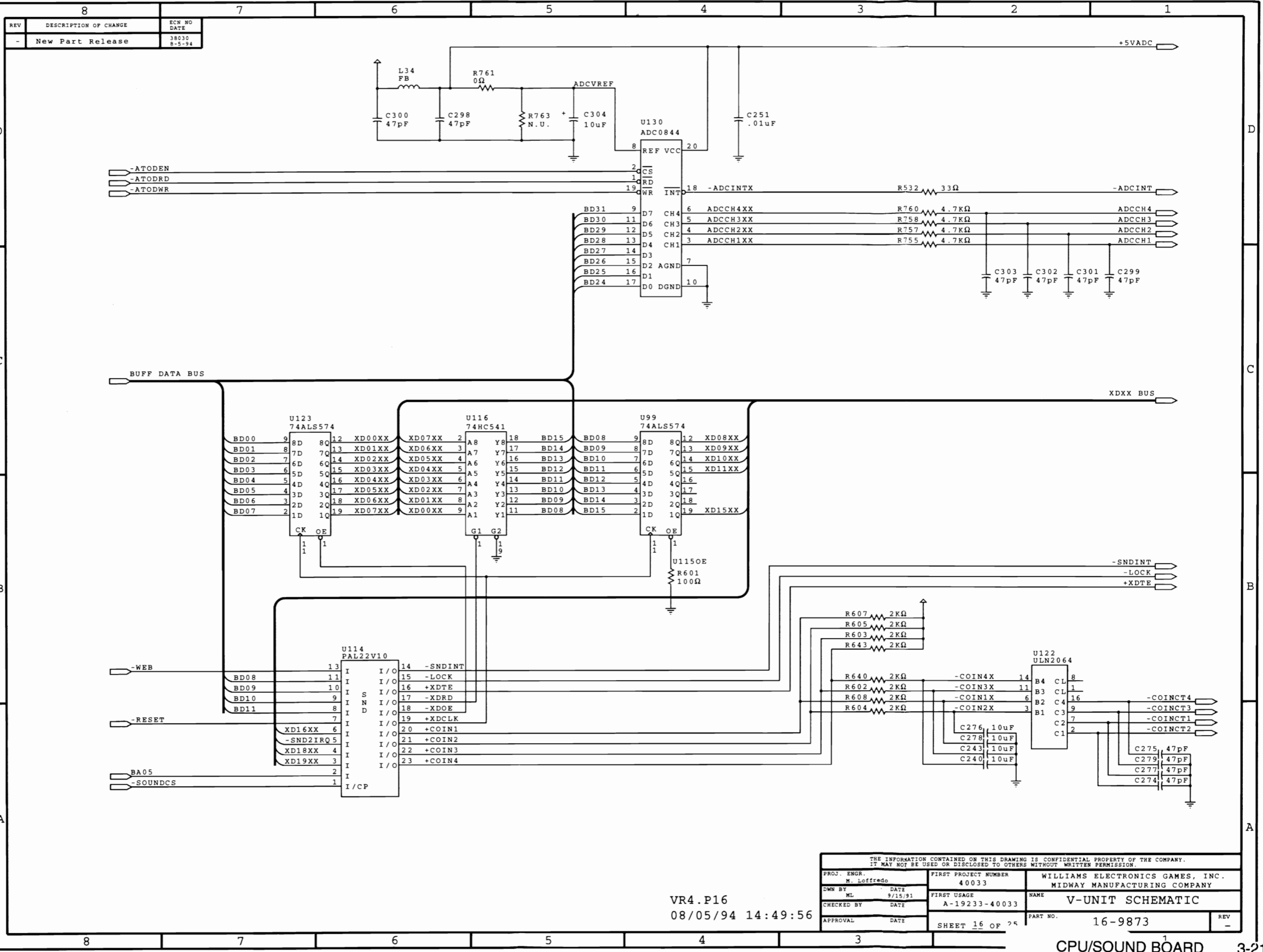
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VR4.P15
08/05/94 14:49:55

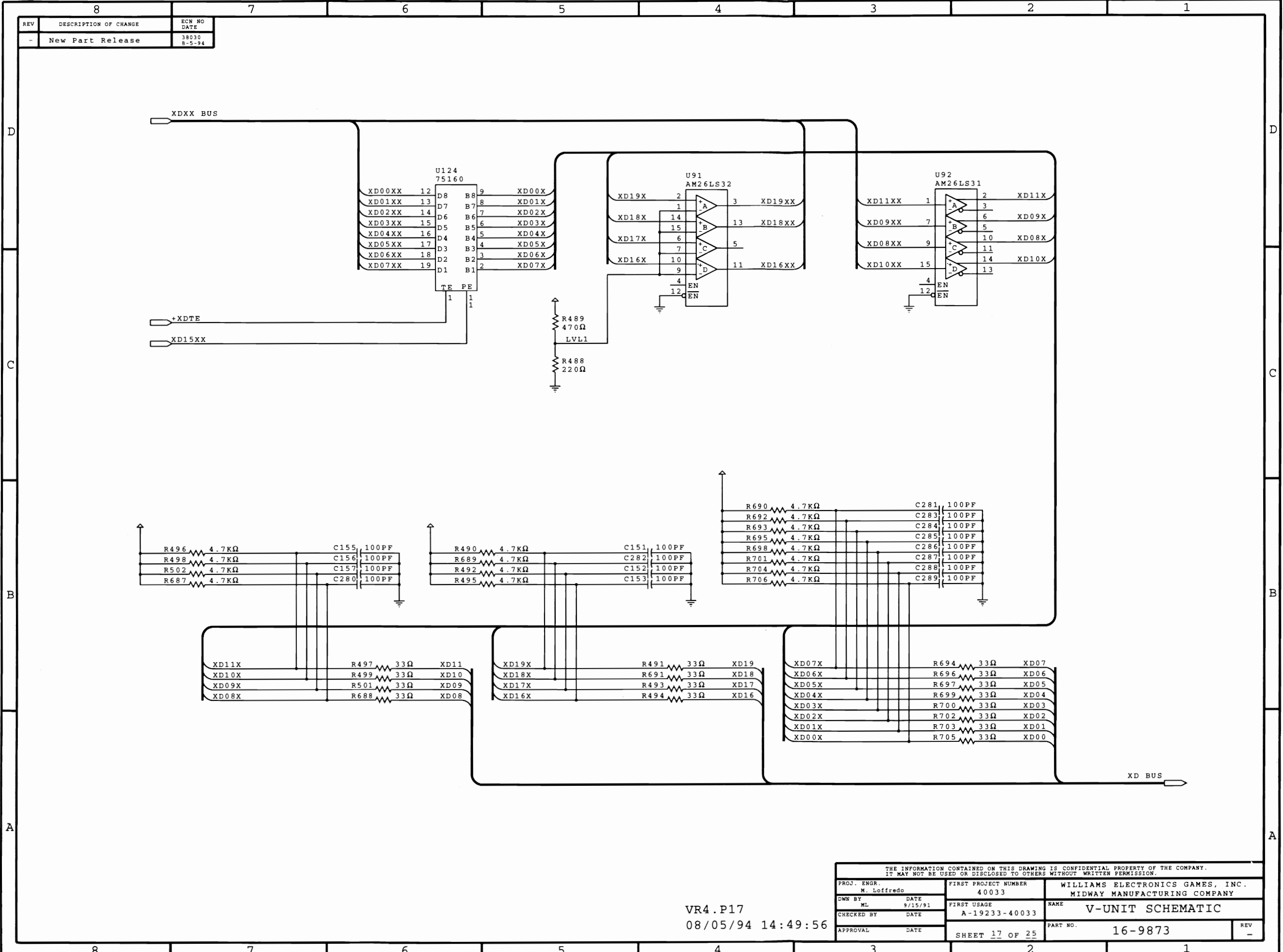
THE INFORMATION CONTAINED ON THIS DRAWING IS CONFIDENTIAL PROPERTY OF THE COMPANY. IT MAY NOT BE USED OR DISCLOSED TO OTHERS WITHOUT WRITTEN PERMISSION.			
PROJ. ENGR. M. Loffredo	FIRST PROJECT NUMBER 40033	WILLIAMS ELECTRONICS GAMES, INC. MIDWAY MANUFACTURING COMPANY	
DWN BY ML	DATE 9/15/91	FIRST USAGE A-19233-40033	NAME V-UNIT SCHEMATIC
CHECKED BY	DATE	APPROVAL	DATE
SHEET 15 OF 25		PART NO. 16-9873	REV -



REV	DESCRIPTION OF CHANGE	ECN NO	DATE
-	New Part Release	38030	8-5-94

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PROJ. ENGR. M. Loffredo	FIRST PROJECT NUMBER 40033	WILLIAMS ELECTRONICS GAMES, INC. MIDWAY MANUFACTURING COMPANY	
DWN BY ML	DATE 9/15/91	FIRST USAGE A-19233-40033	NAME V-UNIT SCHEMATIC
CHECKED BY	DATE	APPROVAL	DATE
SHEET 16 OF 25		PART NO. 16-9873	REV -

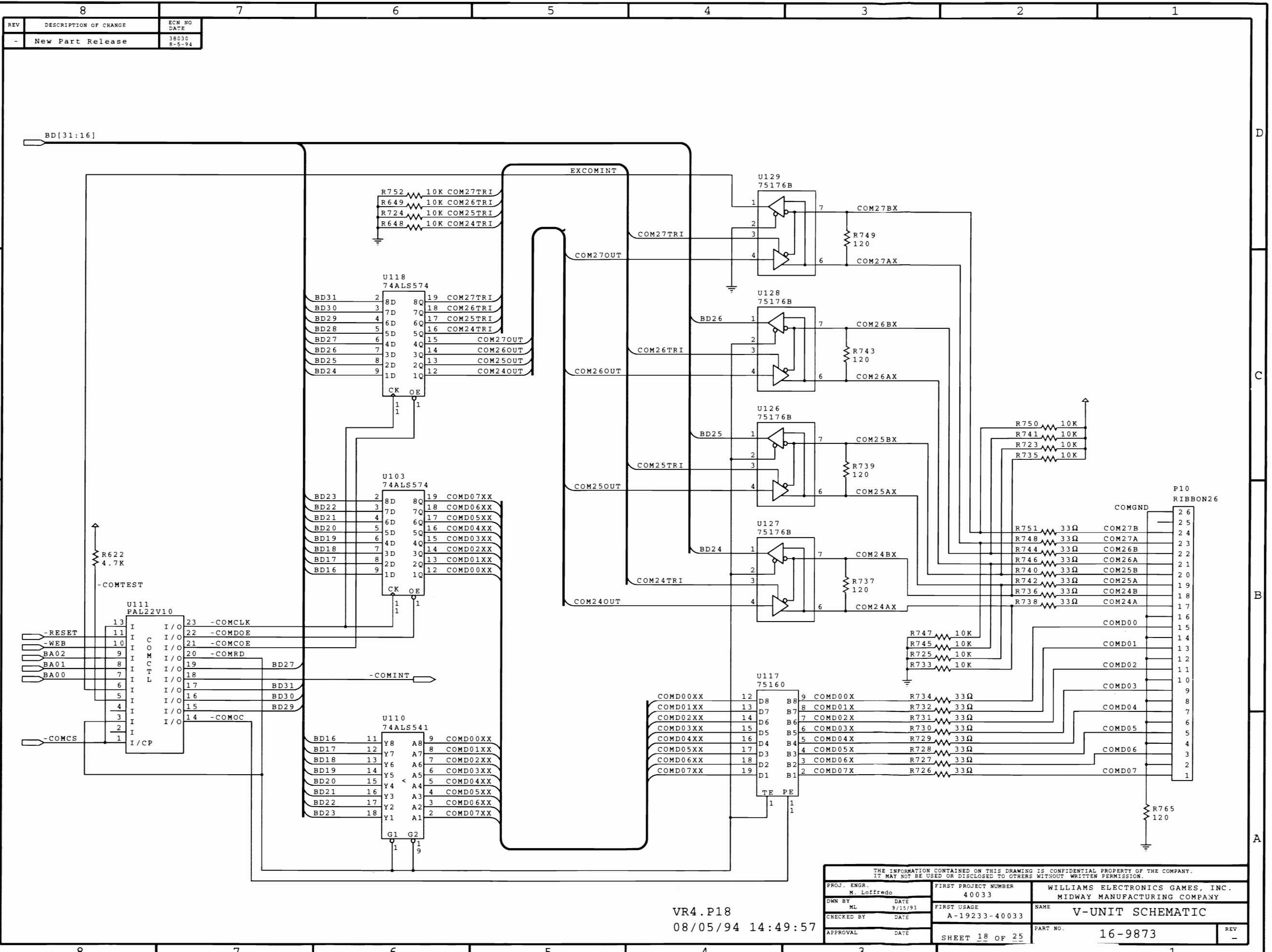
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REV	DESCRIPTION OF CHANGE	ECN NO DATE
-	New Part Release	38030 8-5-94

THE INFORMATION CONTAINED ON THIS DRAWING IS CONFIDENTIAL PROPERTY OF THE COMPANY. IT MAY NOT BE USED OR DISCLOSED TO OTHERS WITHOUT WRITTEN PERMISSION.			
PROJ. ENGR. M. Loffredo	FIRST PROJECT NUMBER 40033	WILLIAMS ELECTRONICS GAMES, INC. MIDWAY MANUFACTURING COMPANY	
DWN BY ML	DATE 9/15/91	FIRST USAGE A-19233-40033	NAME V-UNIT SCHEMATIC
CHECKED BY	DATE	APPROVAL	DATE
SHEET 17 OF 25		PART NO. 16-9873	REV -

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08/05/94 14:49:56



REV	DESCRIPTION OF CHANGE	ECN NO DATE
-	New Part Release	38030 8-5-94

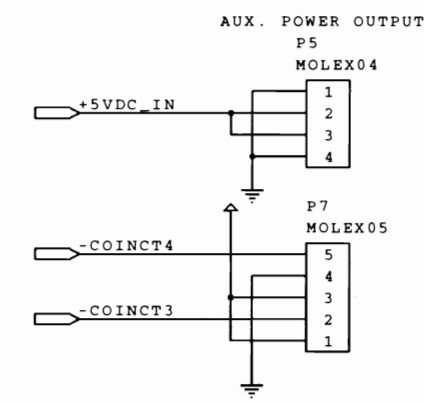
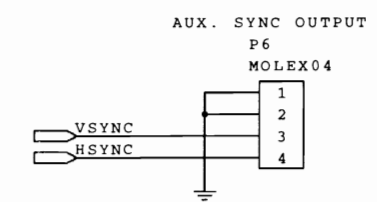
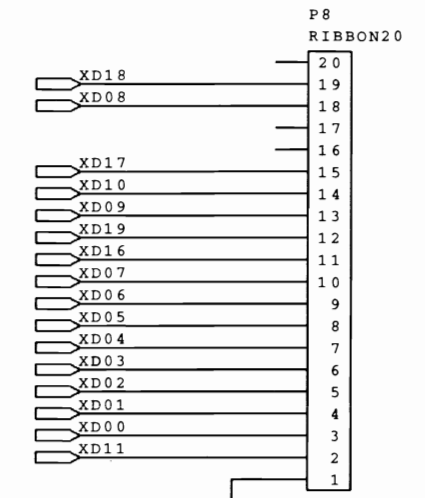
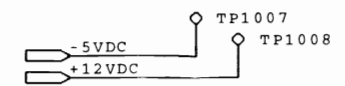
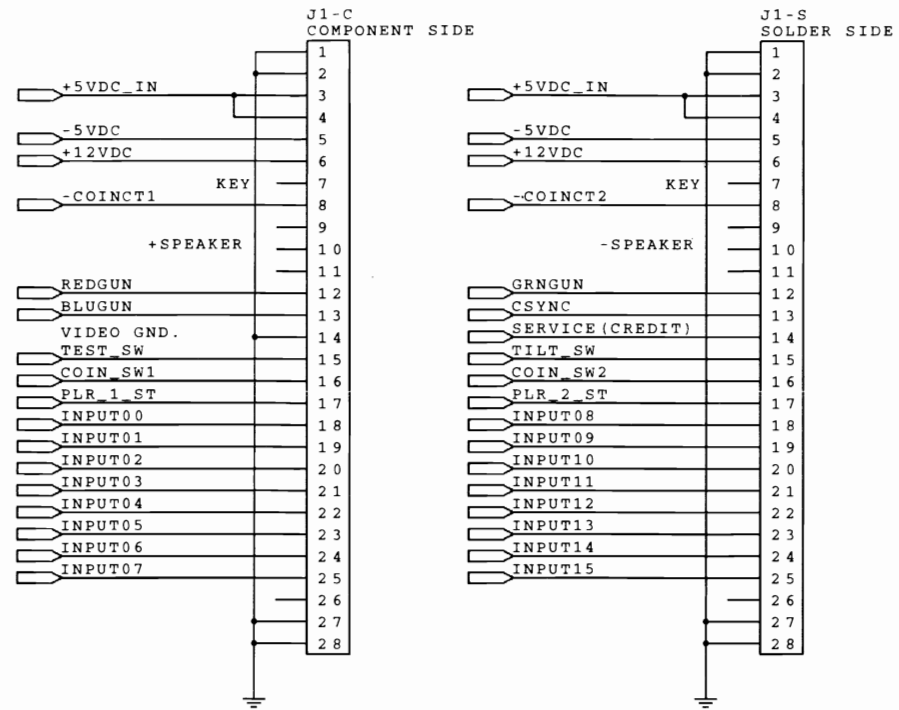
THE INFORMATION CONTAINED ON THIS DRAWING IS CONFIDENTIAL PROPERTY OF THE COMPANY.
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PROJ. ENGR. M. Loffredo	FIRST PROJECT NUMBER 40033	WILLIAMS ELECTRONICS GAMES, INC. MIDWAY MANUFACTURING COMPANY	
DWN BY ML	DATE 9/15/91	FIRST USAGE A-19233-40033	NAME V-UNIT SCHEMATIC
CHECKED BY	DATE	SHEET 18 OF 25	PART NO. 16-9873
APPROVAL	DATE		REV -

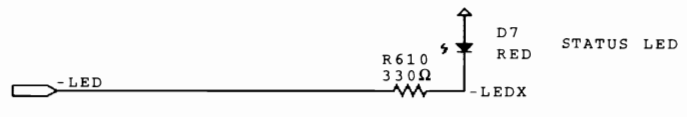
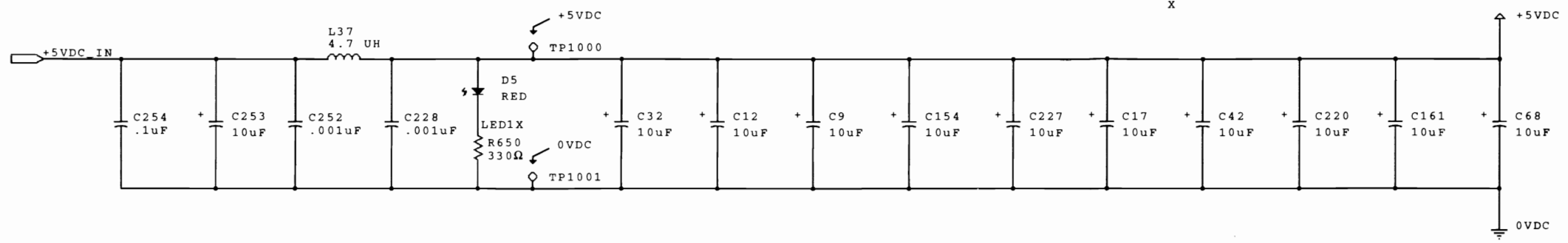
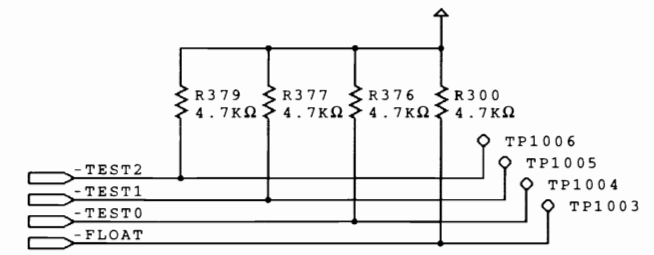
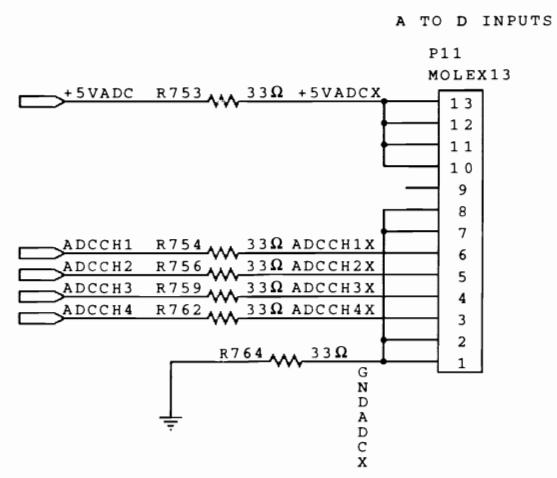
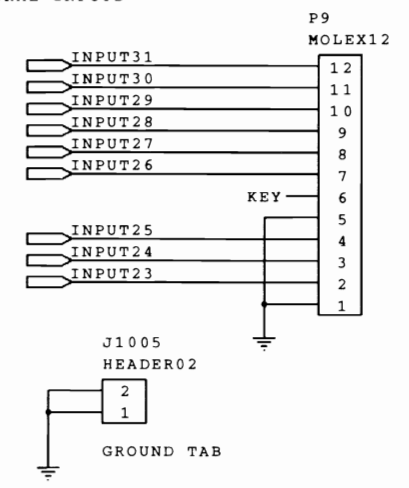
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REV	DESCRIPTION OF CHANGE	ECN NO DATE
-	New Part Release	38030 8-5-94

JAMMA INTERFACE

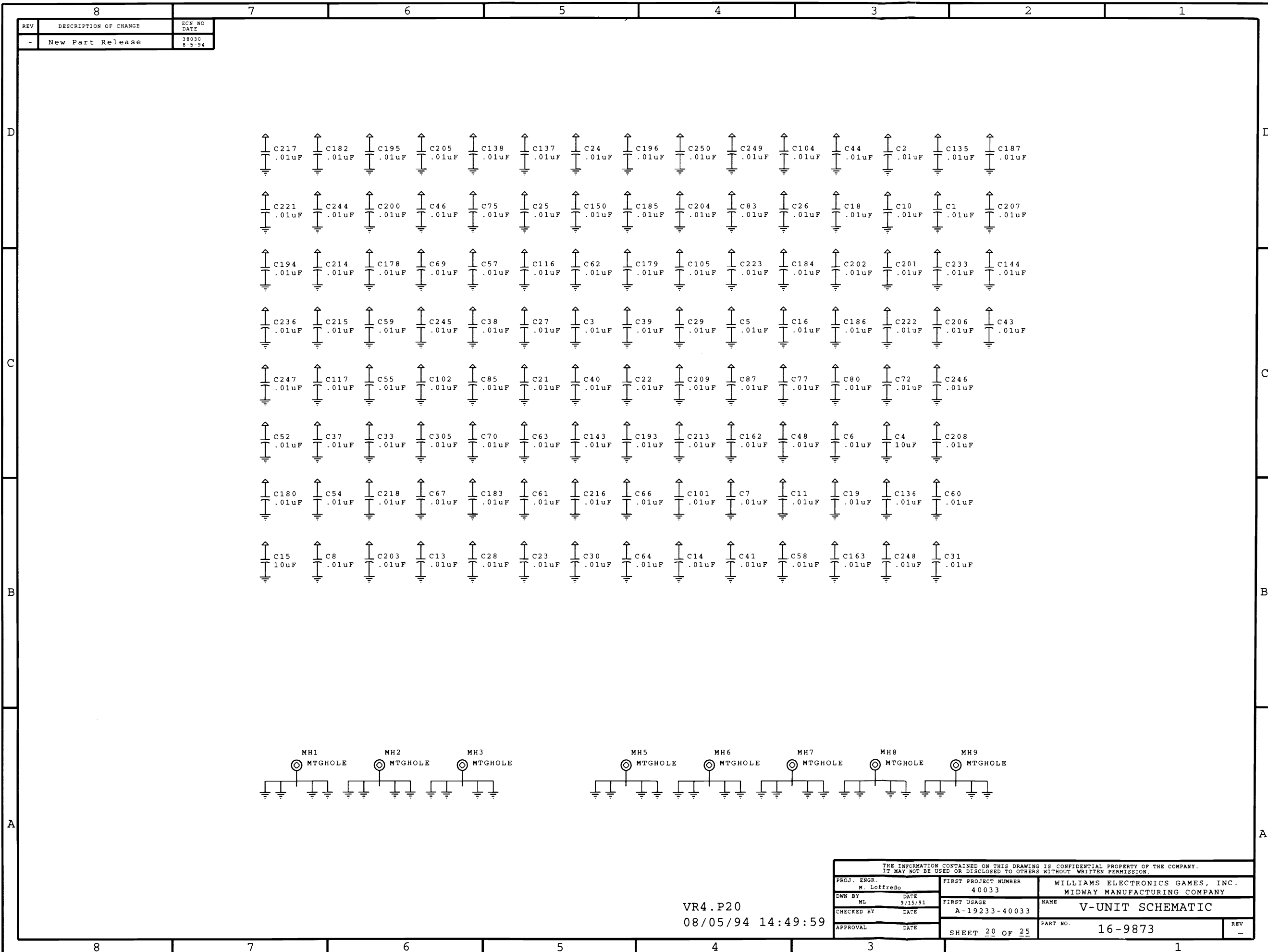


ADDITIONAL INPUTS



VR4.P19
08/05/94 14:49:59

THE INFORMATION CONTAINED ON THIS DRAWING IS CONFIDENTIAL PROPERTY OF THE COMPANY. IT MAY NOT BE USED OR DISCLOSED TO OTHERS WITHOUT WRITTEN PERMISSION.			
PROJ. ENGR. M. Loffredo	FIRST PROJECT NUMBER 40033	WILLIAMS ELECTRONICS GAMES, INC. MIDWAY MANUFACTURING COMPANY	
DWN BY ML	DATE 9/15/91	FIRST USAGE A-19233-40033	NAME V-UNIT SCHEMATIC
CHECKED BY	DATE	PART NO. 16-9873	REV
APPROVAL	DATE	SHEET 19 OF 25	



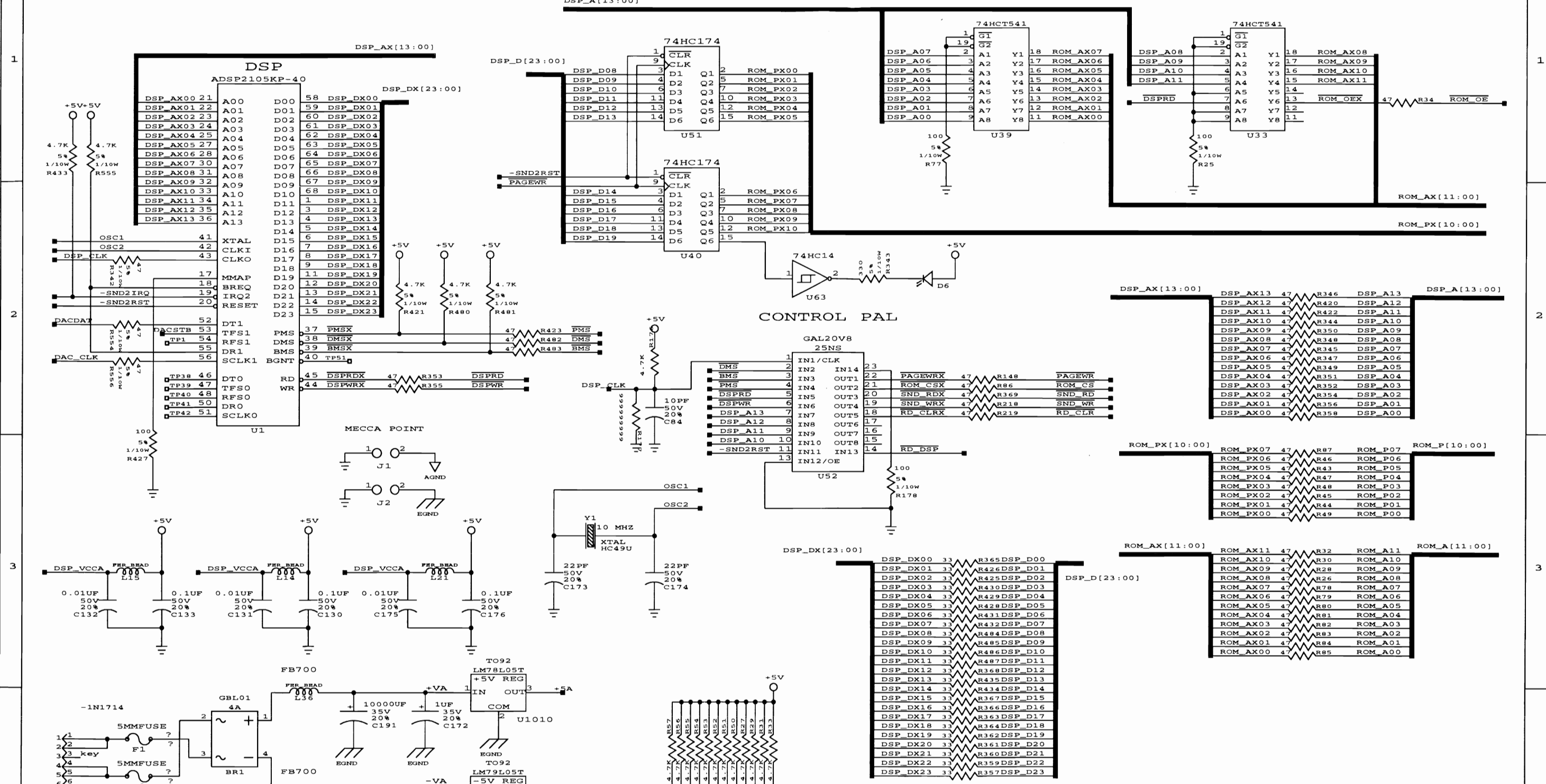
REV	DESCRIPTION OF CHANGE	ECN NO DATE
-	New Part Release	38030 8-5-94

THE INFORMATION CONTAINED ON THIS DRAWING IS CONFIDENTIAL PROPERTY OF THE COMPANY. IT MAY NOT BE USED OR DISCLOSED TO OTHERS WITHOUT WRITTEN PERMISSION.			
PROJ. ENGR. M. Loffredo	FIRST PROJECT NUMBER 40033	WILLIAMS ELECTRONICS GAMES, INC. MIDWAY MANUFACTURING COMPANY	
DWN BY ML	DATE 9/15/91	FIRST USAGE A-19233-40033	NAME V-UNIT SCHEMATIC
CHECKED BY	DATE	APPROVAL	DATE
SHEET 20 OF 25		PART NO. 16-9873	REV -

VR4.P20
08/05/94 14:49:59

REV	DESCRIPTION OF CHANGE	ECN NO	DATE
-	NEW PART RELEASE	38030	8-5-94

ROM DATA/ADDRESS
BUFFERS

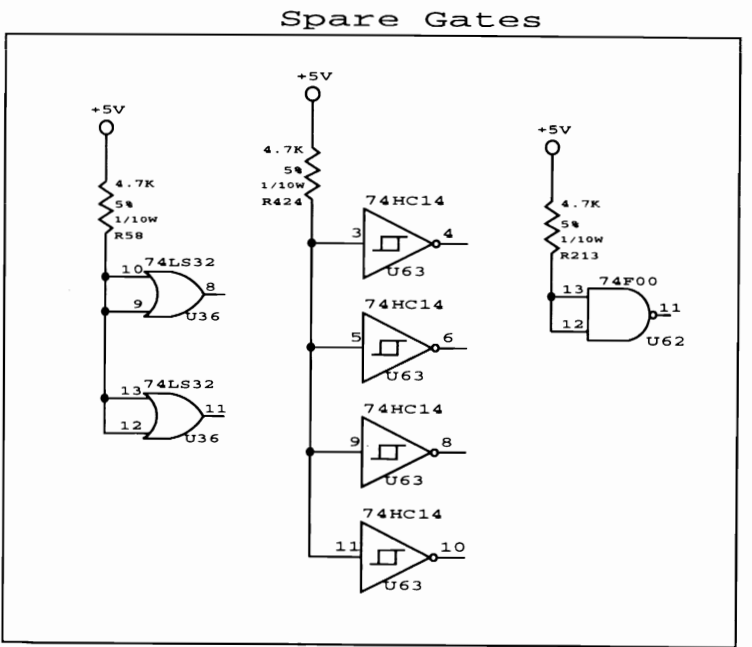
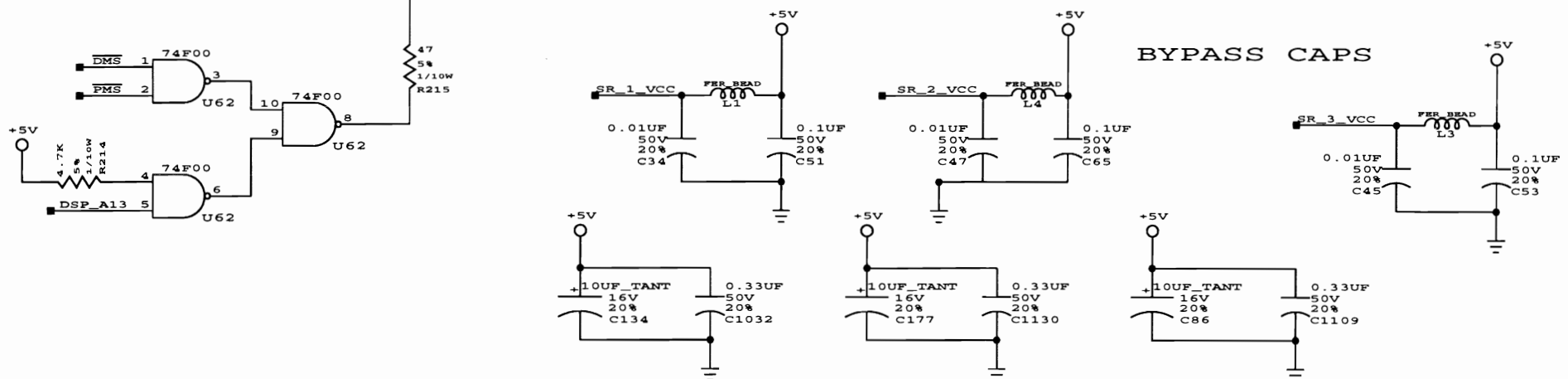
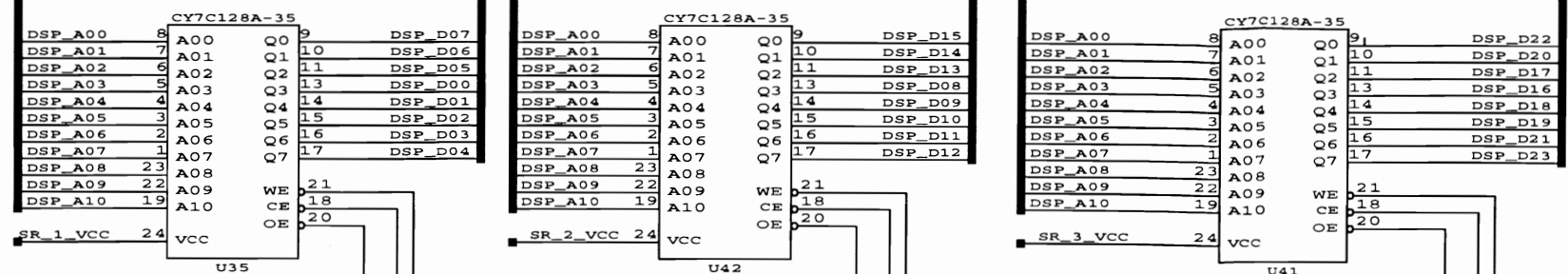


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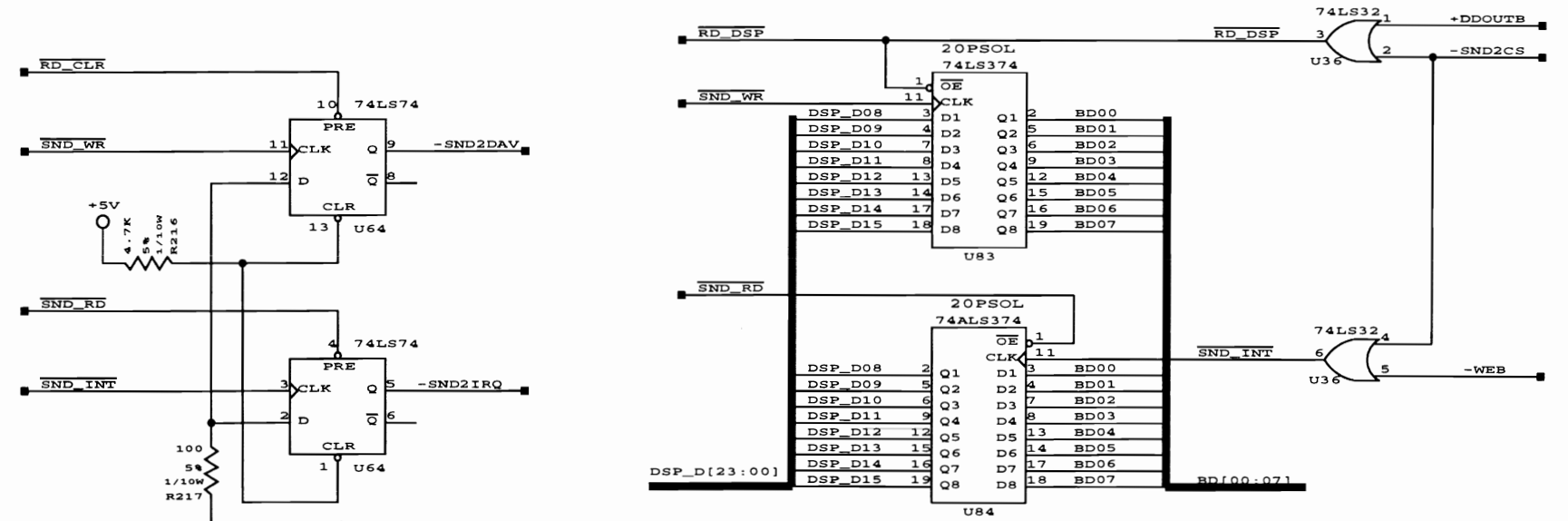
PROJECT ENG.	1ST PROJ. NO.	WILLIAMS ELECTRONICS GAMES	
EJK	40033	MIDWAY MANUFACTURING CO.	
DWN. BY	DATE	3401 N. CALIFORNIA AVENUE	
EJK	8-5-1994_14:22	CHICAGO ILLINOIS USA	
CHECKED	DATE	TITLE	
		Cruisin' USA Sound Board	
		DSP/BUS Interface	
APPROVED	DATE	SHEET	OF
		21	25
		PART NO.	REV.
		16-9873	-

REV	DESCRIPTION OF CHANGE	ECN NO DATE
-	NEW PART RELEASE	38030 8-5-94

DSP_A[13:00]
DSP_D[23:00]



SOUND INTERFACE



INFORMATION CONTAINED HEREIN IS CONFIDENTIAL PROPERTY AND MAY NOT BE USED OR DISCLOSED WITHOUT EXPRESS WRITTEN CONSENT FROM THE COMPANY.			
PROJECT ENG.	EJK	1ST PROJ. NO.	40033
DWN. BY	DATE	1ST USAGE	A-19233-40033
EJK	8-5-1994_14:16	CURRENT PROJ.	40033
CHECKED	DATE	SHEET	22
APPROVED	DATE	OF	25
TITLE		PART NO.	16-9873
Cruisin' USA Sound Board System RAMs		REV.	-

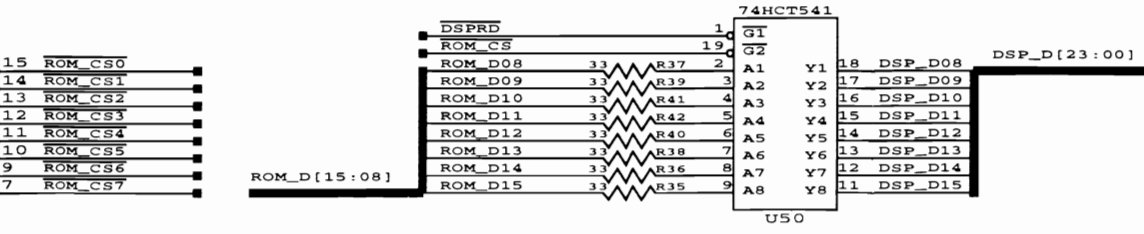
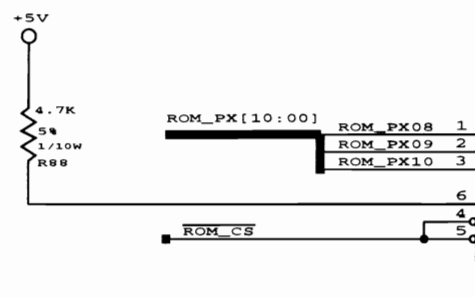
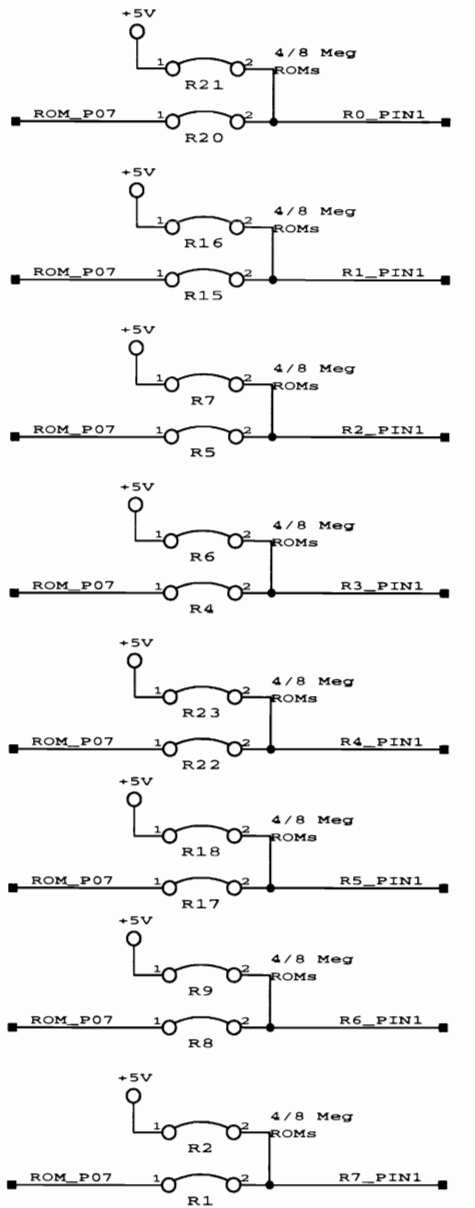
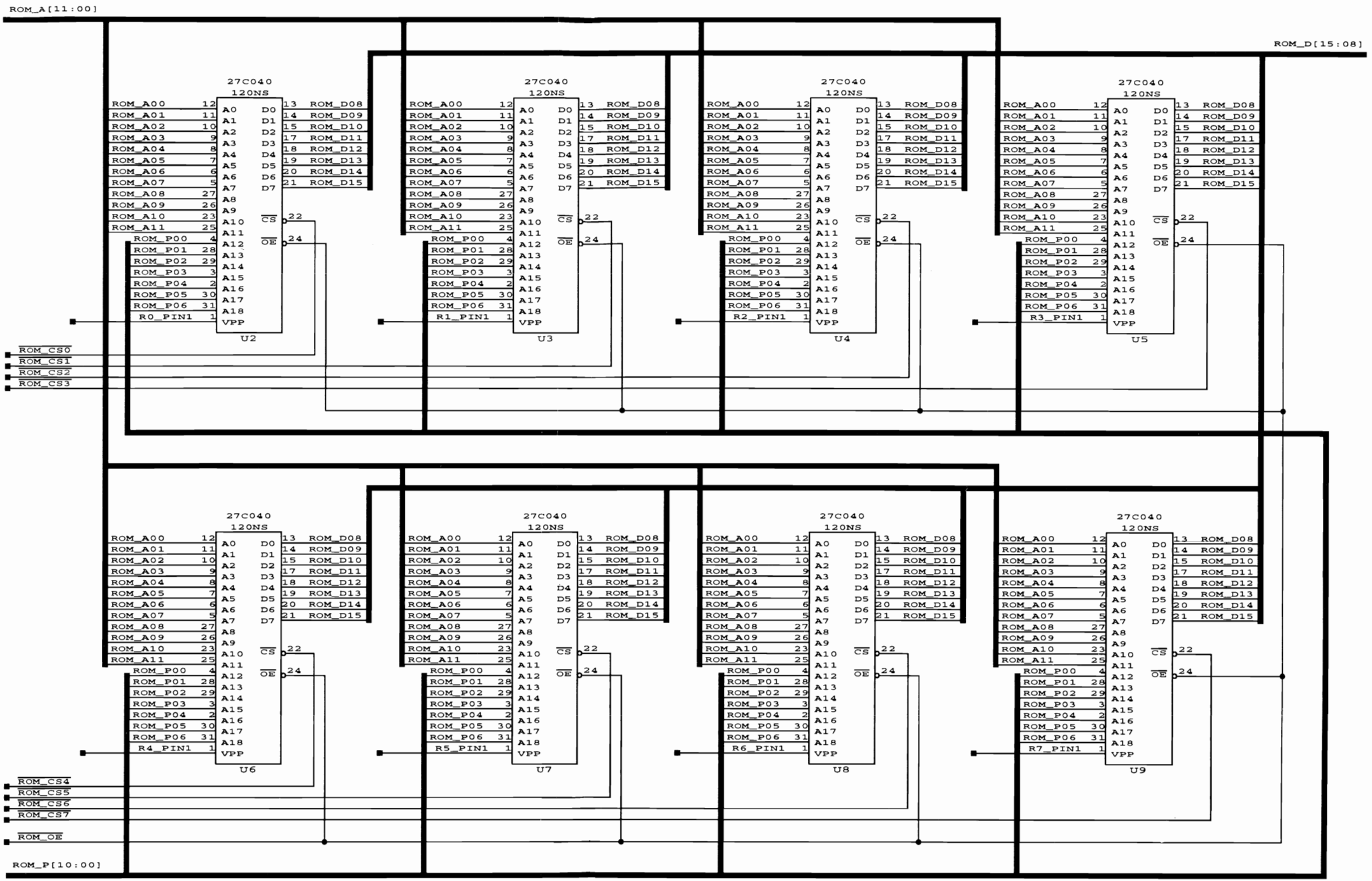
REV	DESCRIPTION OF CHANGE	ECN NO DATE
-	NEW PART RELEASE	38030 8-5-94

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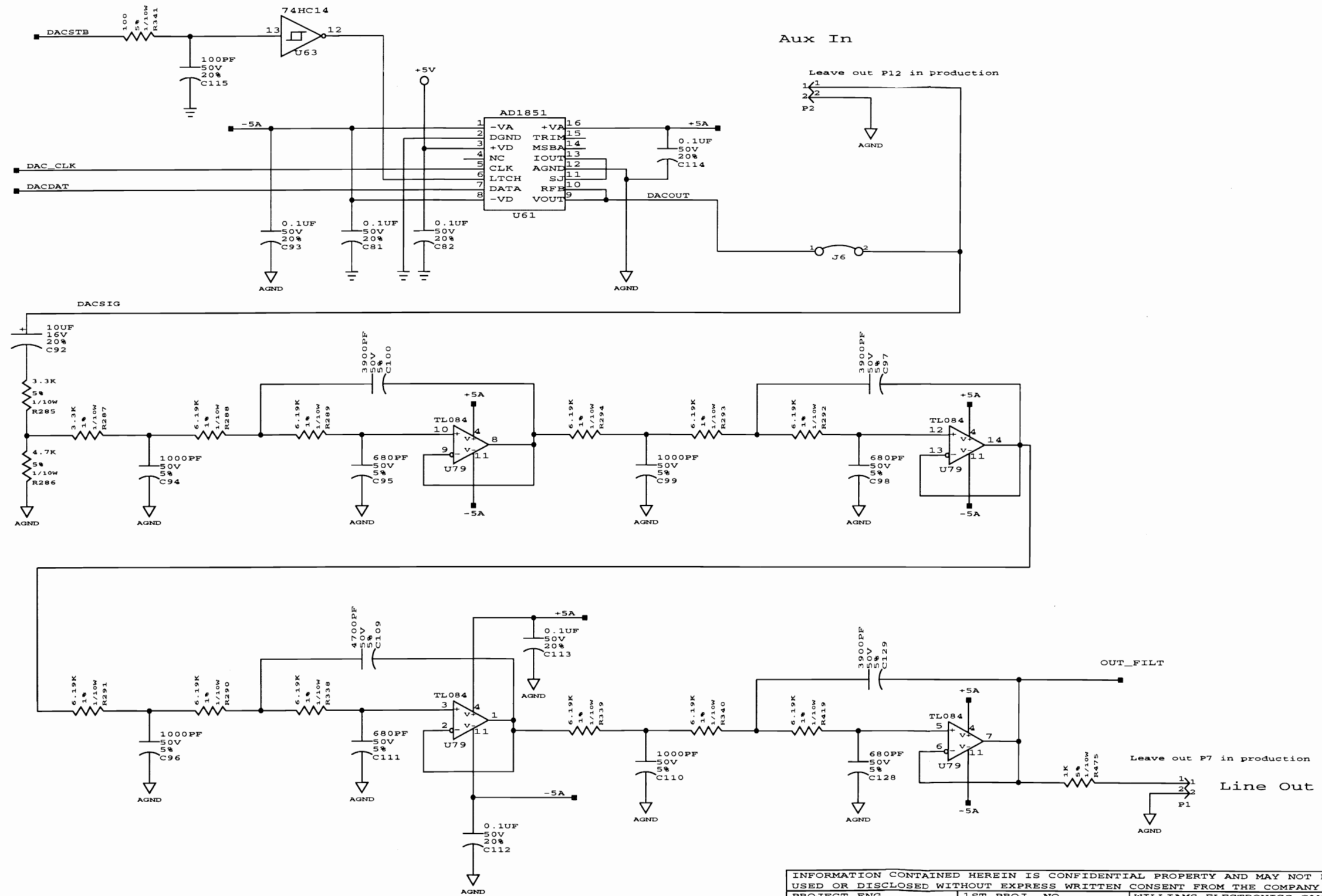
INFORMATION CONTAINED HEREIN IS CONFIDENTIAL PROPERTY AND MAY NOT BE USED OR DISCLOSED WITHOUT EXPRESS WRITTEN CONSENT FROM THE COMPANY.			
PROJECT ENG.	1ST PROJ. NO.	WILLIAMS ELECTRONICS GAMES MIDWAY MANUFACTURING CO. 3401 N. CALIFORNIA AVENUE CHICAGO ILLINOIS USA	
EJK	40033	TITLE	
DWN. BY	DATE	1ST USAGE	Cruisin' USA Sound Board Program/Data Rom
EJK	8-5-1994_14:24	A-19233-40033	
CHECKED	DATE	CURRENT PROJ.	PART NO. 16-9873
		40033	
APPROVED	DATE	SHEET	REV.
		23	-

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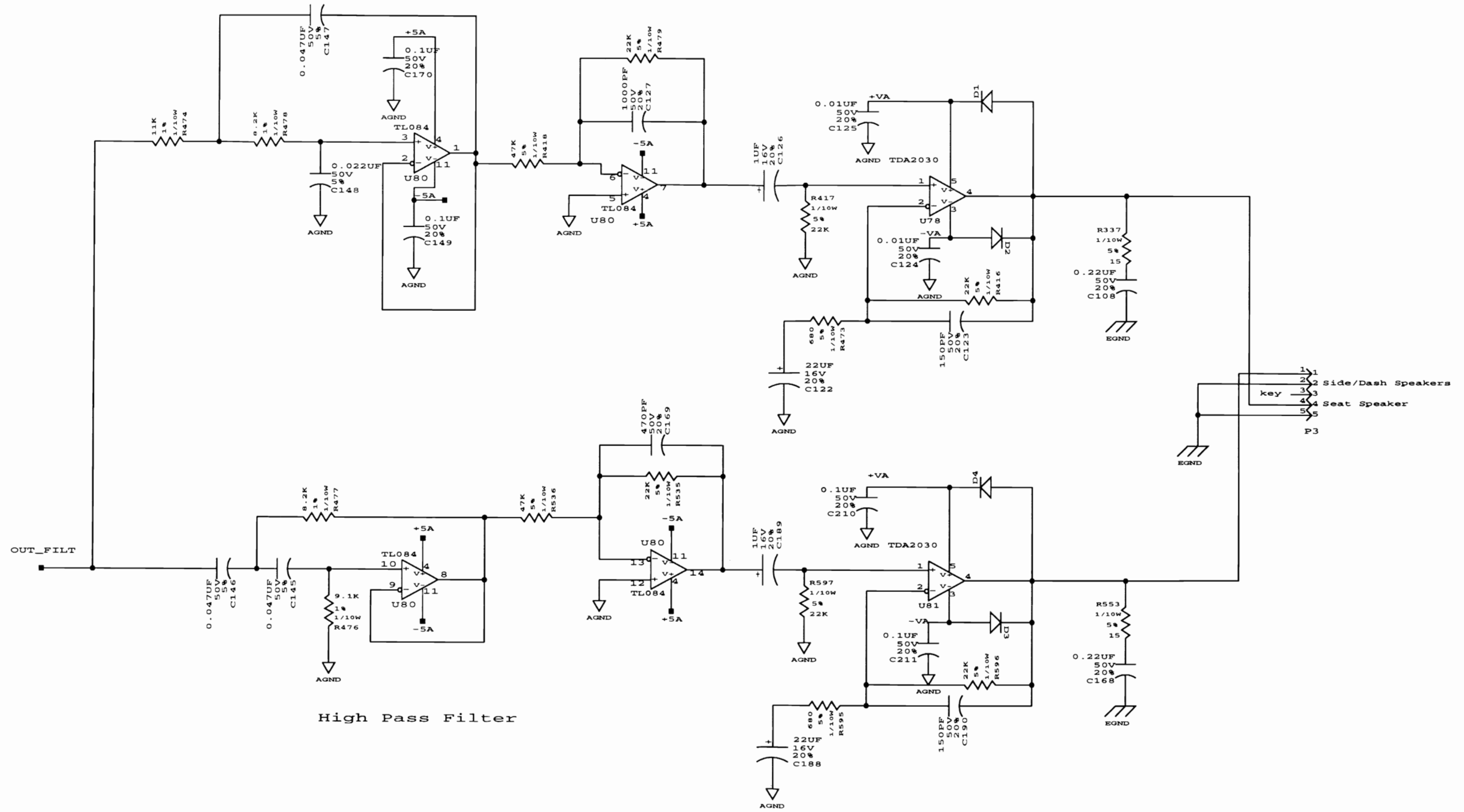
REV	DESCRIPTION OF CHANGE	ECN NO DATE
-	NEW PART RELEASE	38030 8-5-94



INFORMATION CONTAINED HEREIN IS CONFIDENTIAL PROPERTY AND MAY NOT BE USED OR DISCLOSED WITHOUT EXPRESS WRITTEN CONSENT FROM THE COMPANY.				
PROJECT ENG.	EJK	1ST PROJ. NO.	40033	WILLIAMS ELECTRONICS GAMES MIDWAY MANUFACTURING CO. 3401 N. CALIFORNIA AVENUE CHICAGO ILLINOIS USA
DWN. BY	EJK	DATE	8-5-1994_14:25	
1ST USAGE	A-19233-40033		TITLE	Cruisin' USA Sound Board Digital To Analog Converter Anti-Aliasing Filter
CHECKED	DATE	CURRENT PROJ.	40033	
APPROVED	DATE	SHEET	24	PART NO.
		OF	25	16-9873
				REV.
				-

REV	DESCRIPTION OF CHANGE	ECN NO DATE
-	NEW PART RELEASE	38030 8-5-94

Low Pass Filter

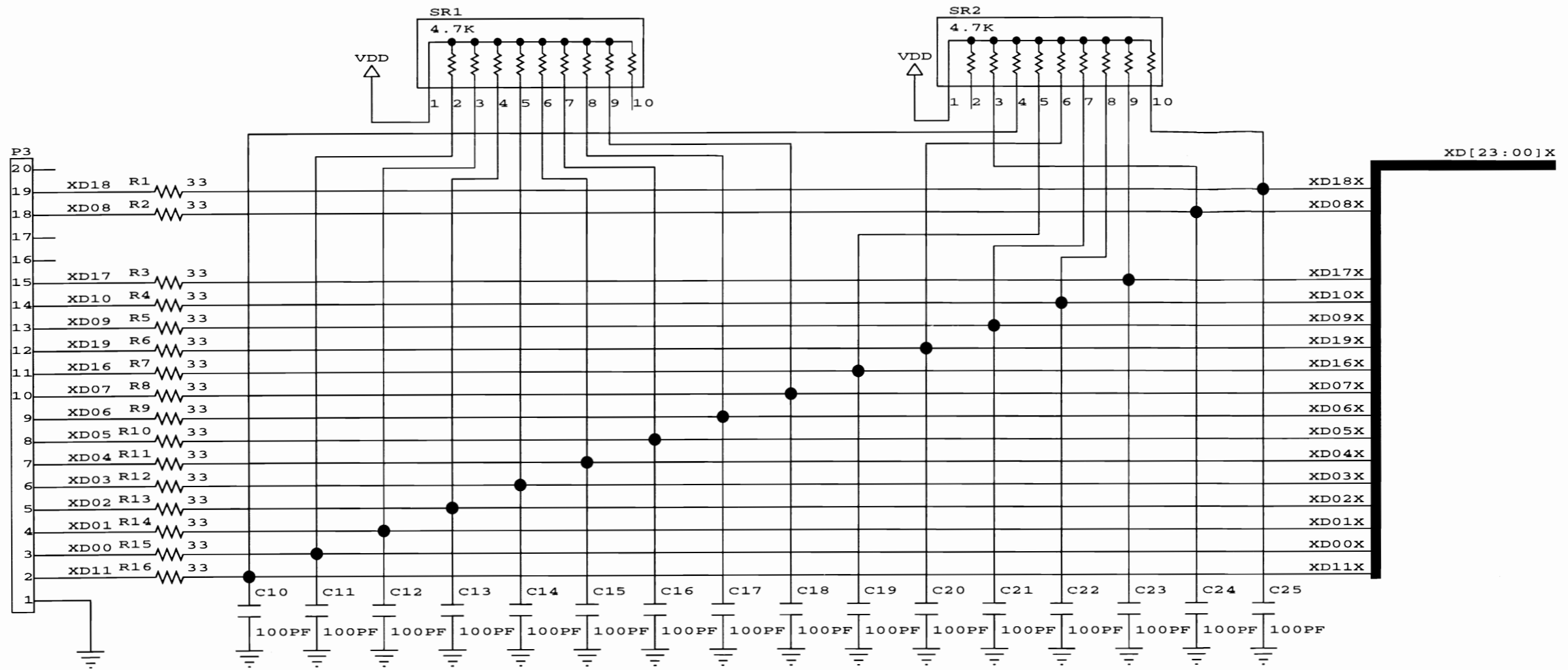


High Pass Filter

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PROJECT ENG.	1ST PROJ. NO.	WILLIAMS ELECTRONICS GAMES	
EJK	40033	MIDWAY MANUFACTURING CO.	
DWN. BY	DATE	1ST USAGE	3401 N. CALIFORNIA AVENUE
EJK	8-5-1994_14:18	A-19233-40033	CHICAGO ILLINOIS USA
CHECKED	DATE	CURRENT PROJ.	TITLE
		40033	Cruisin' USA Sound Board
APPROVED	DATE	SHEET OF	Active Crossover
		25 25	Power Amplifiers
		PART NO.	REV.
		16-9873	-

REV	DESCRIPTION OF CHANGE	ECN NO DATE
-	NEW PART RELEASE	38030 8-5-94

TO
CPU
BOARD

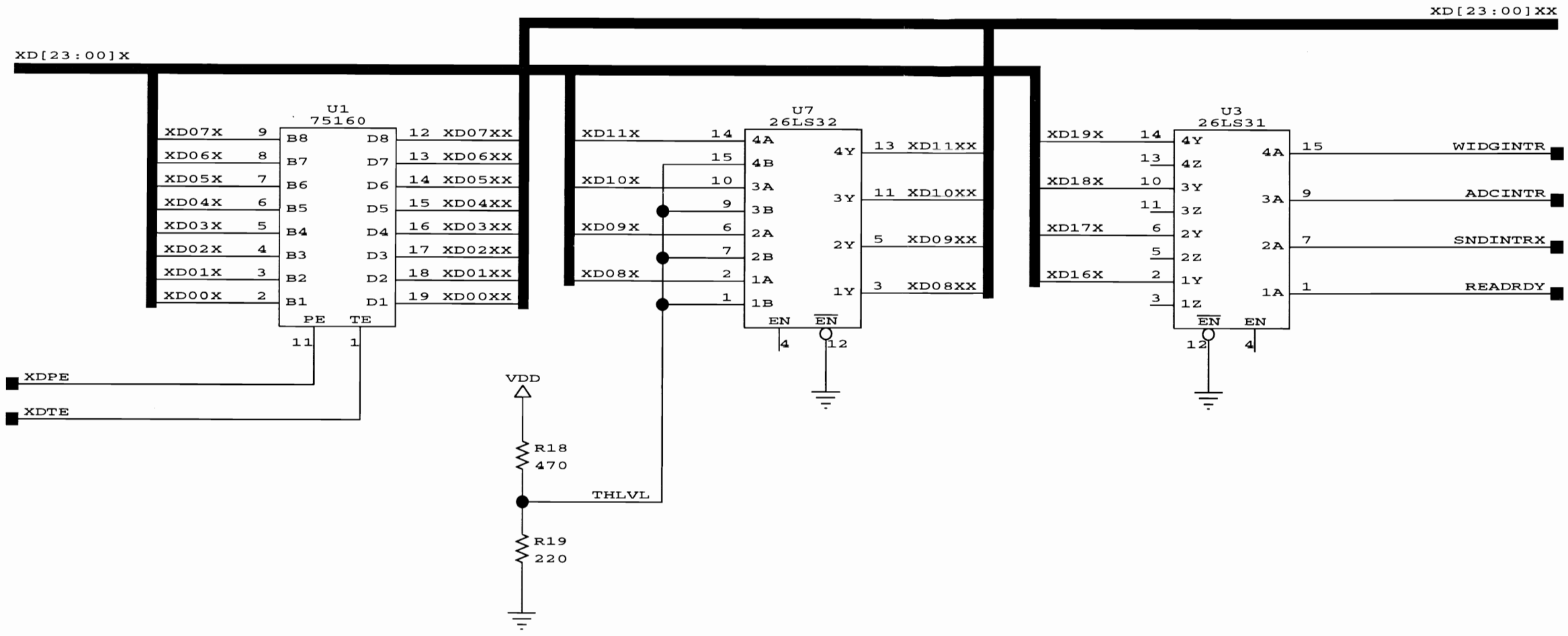


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PROJ. ENGR. M.L.	FIRST PROJECT 40033	WILLIAMS ELECTRONIC GAMES INC. MIDWAY MANUFACTURING COMPANY 3401 N. CALIFORNIA AVE. CHICAGO, ILL.
DRAWN BY DATE G.S. 12-30-93	FIRST USAGE A-18004 -40033	
CHECKED DATE	SHEET 1 OF 10	TITLE WHEEL DRIVER BOARD
APPROVED DATE	PART NUMBER 16-9677	REV. -

WHEEL 1
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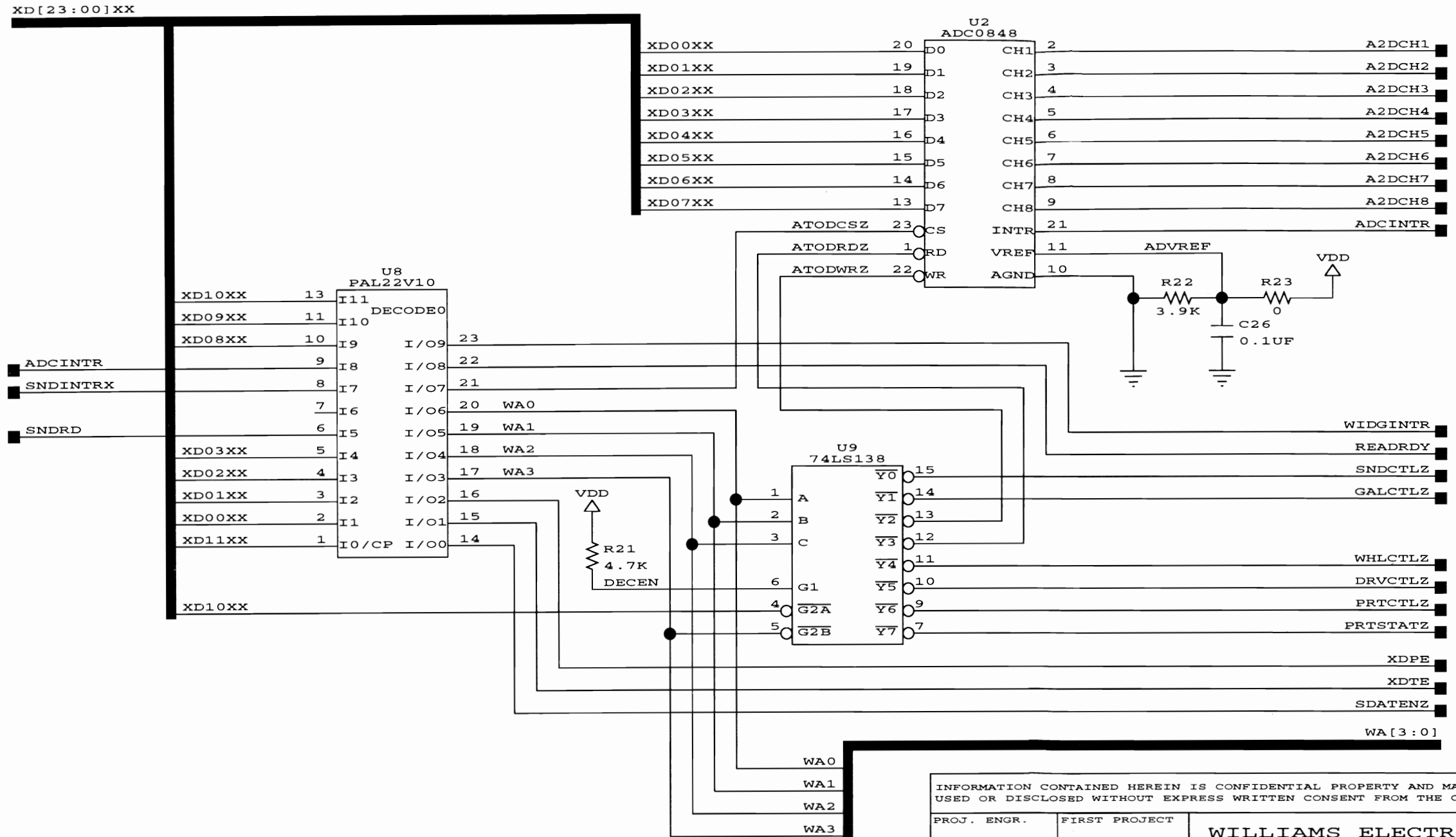
REV	DESCRIPTION OF CHANGE	ECN NO DATE
-	NEW PART RELEASE	38030 8-5-94



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PROJ. ENGR. M.L.	FIRST PROJECT 40033	WILLIAMS ELECTRONIC GAMES INC.	
DRAWN BY DATE G.S. 12-30-93	FIRST USAGE A-18004	MIDWAY MANUFACTURING COMPANY	
CHECKED DATE -40033	SHEET 2 OF 10	3401 N. CALIFORNIA AVE. CHICAGO, ILL.	
APPROVED DATE	PART NUMBER 16-9677	TITLE WHEEL DRIVER BOARD	
	REV. -		

WHEEL 2
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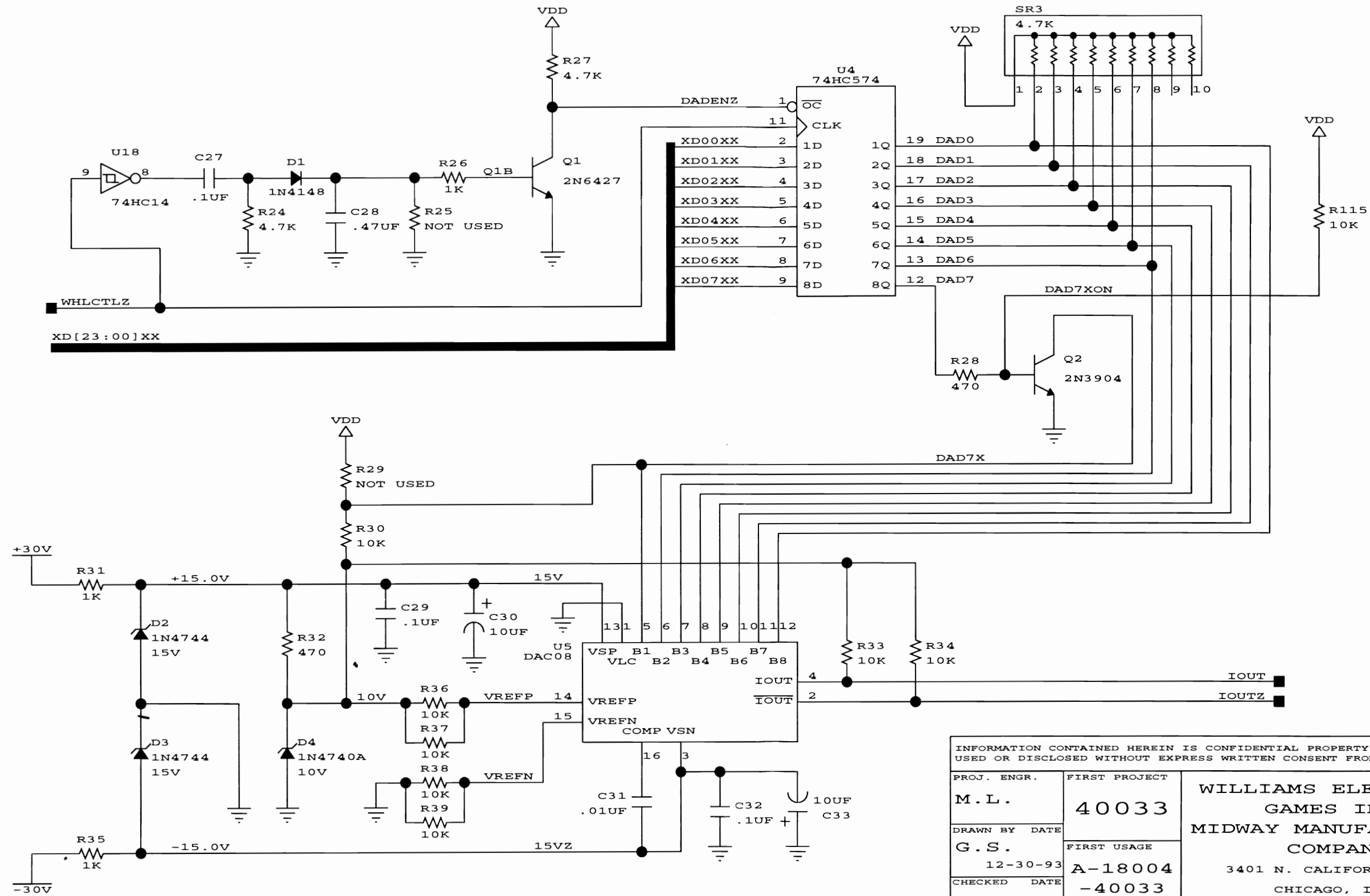
REV	DESCRIPTION OF CHANGE	ECN NO DATE
-	NEW PART RELEASE	38030 8-5-94



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PROJ. ENGR. M.L.	FIRST PROJECT 40033	WILLIAMS ELECTRONIC GAMES INC. MIDWAY MANUFACTURING COMPANY 3401 N. CALIFORNIA AVE. CHICAGO, ILL.
DRAWN BY DATE G.S. 12-30-93	FIRST USAGE A-18004 -40033	
CHECKED DATE	SHEET 3 OF 10	TITLE WHEEL DRIVER BOARD
APPROVED DATE	PART NUMBER 16-9677	REV. -

WHEEL 3
2-2-1994_18:27

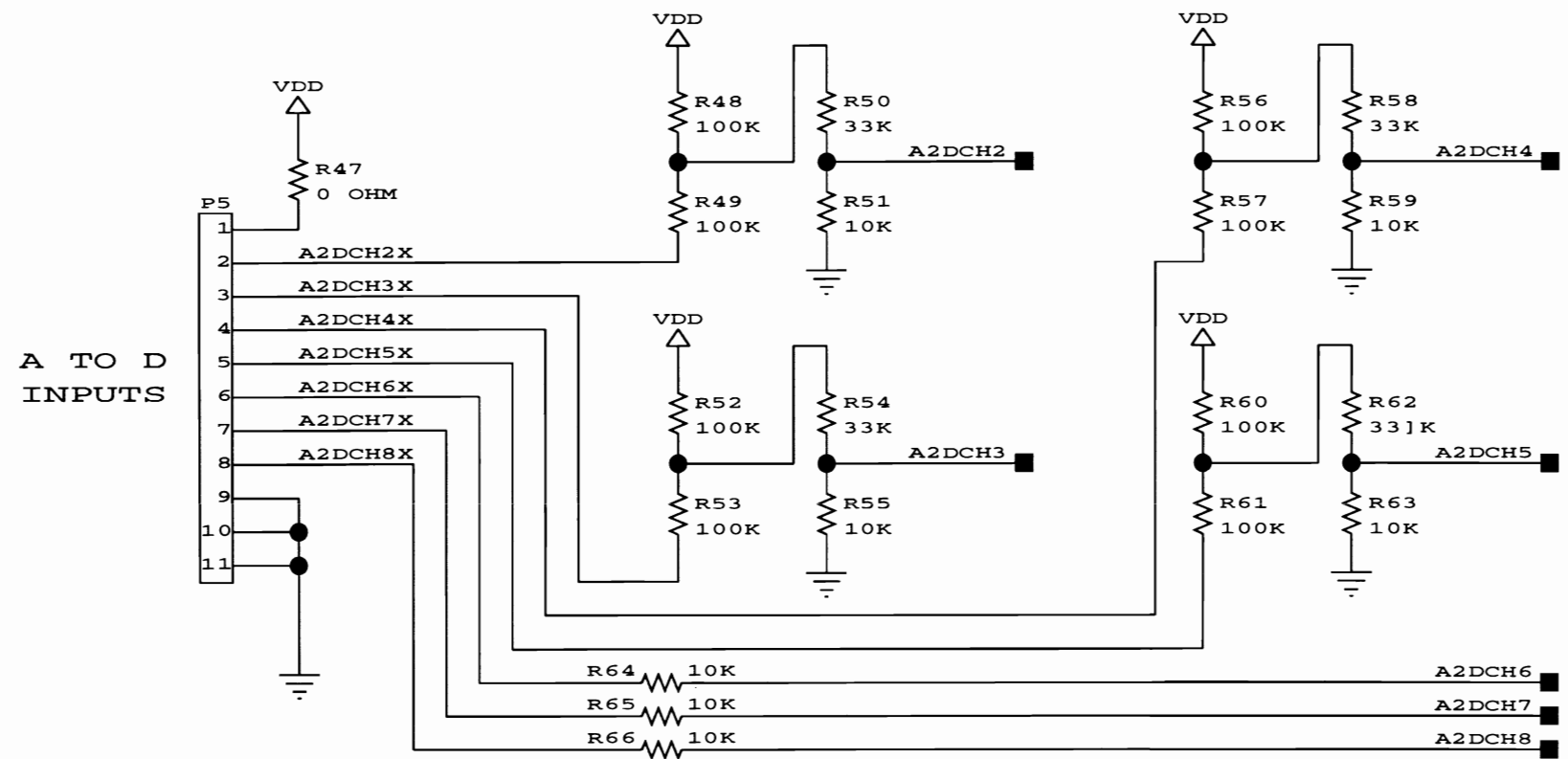
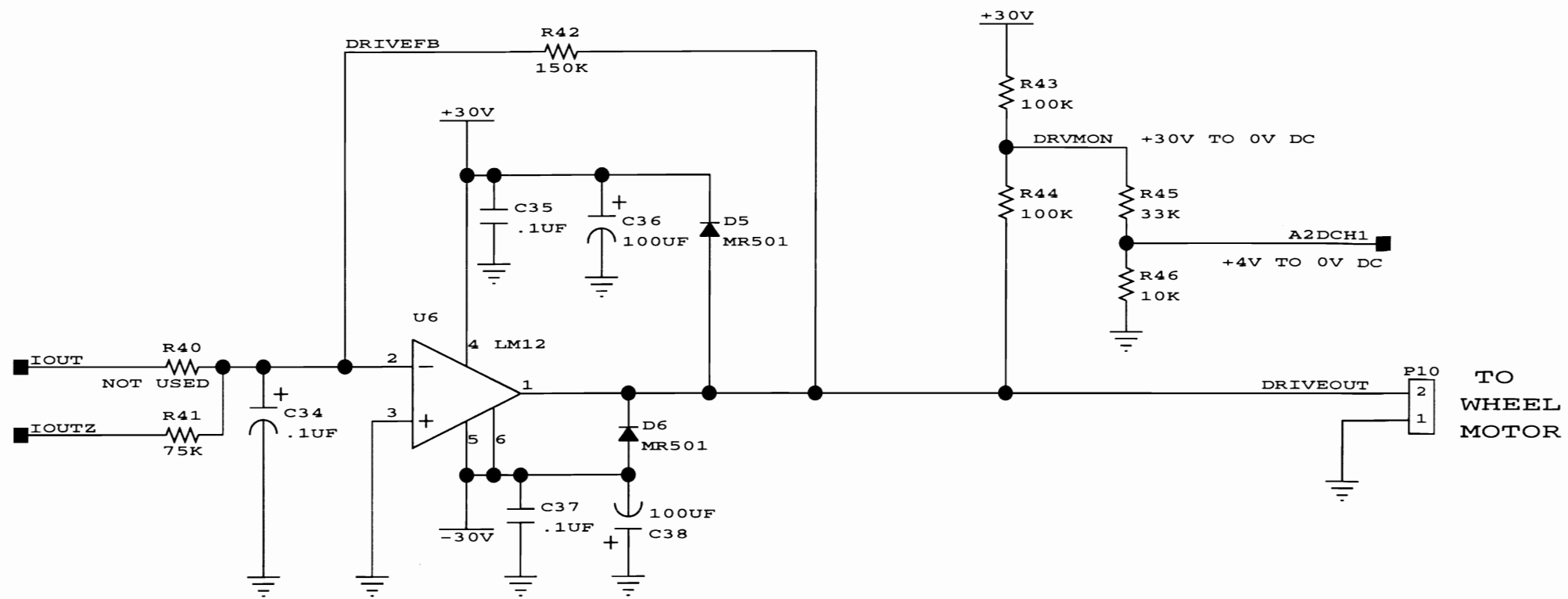
REV	DESCRIPTION OF CHANGE	ECN NO DATE
-	NEW PART RELEASE	38030 8-5-94



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PROJ. ENGR. M.L.	FIRST PROJECT 40033	WILLIAMS ELECTRONIC GAMES INC. MIDWAY MANUFACTURING COMPANY 3401 N. CALIFORNIA AVE. CHICAGO, ILL.
DRAWN BY DATE G.S. 12-30-93	FIRST USAGE A-18004	
CHECKED DATE -40033	SHEET 4 OF 10	TITLE WHEEL DRIVER BOARD
APPROVED DATE	PART NUMBER 16-9677	REV. -

WHEEL 4
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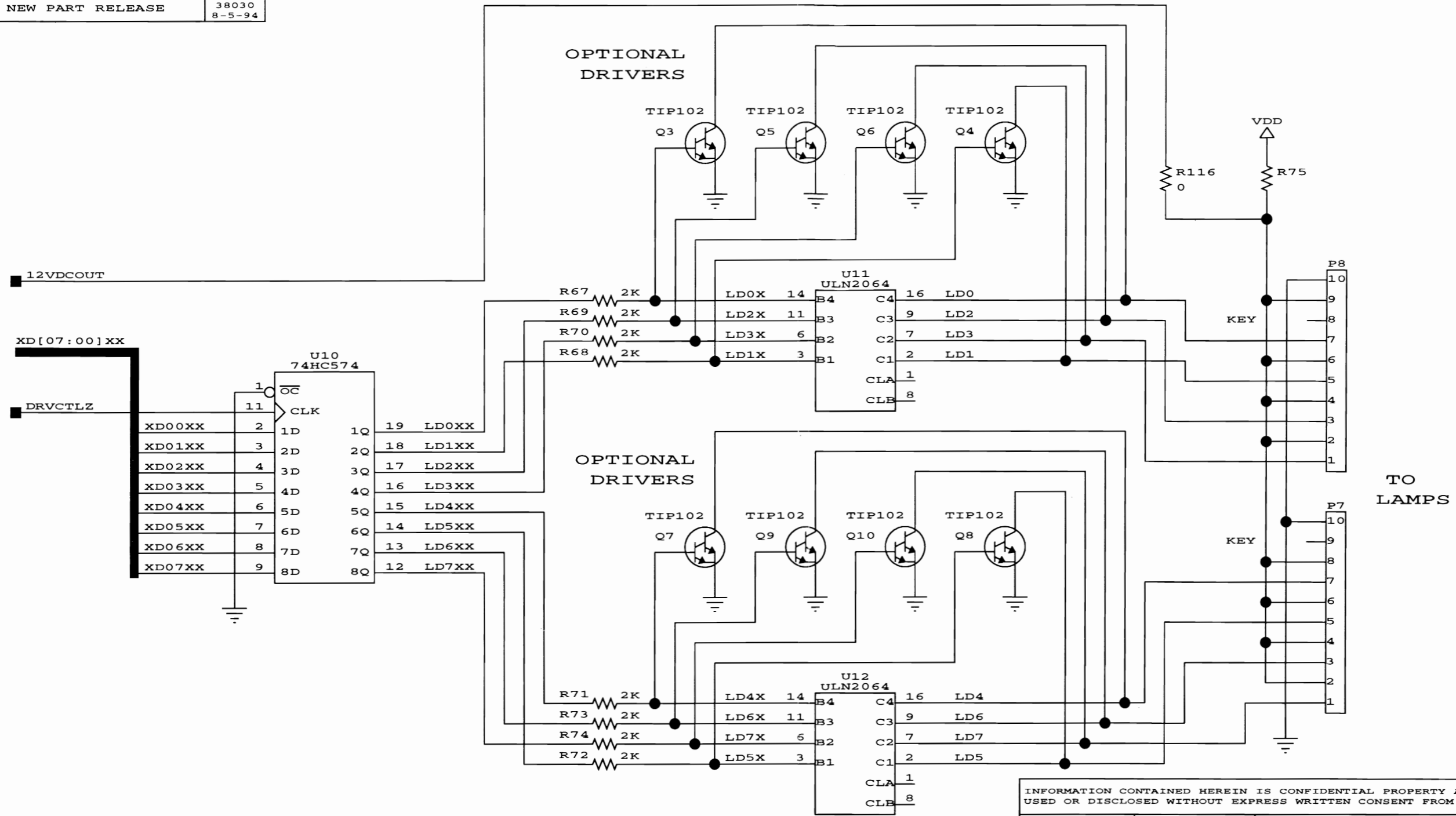
REV	DESCRIPTION OF CHANGE	ECN NO DATE
-	NEW PART RELEASE	38030 8-5-94



WHEEL 5
1-14-1994_12:12

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PROJ. ENGR. M.L.	FIRST PROJECT 40033	WILLIAMS ELECTRONIC GAMES INC. MIDWAY MANUFACTURING COMPANY 3401 N. CALIFORNIA AVE. CHICAGO, ILL.
DRAWN BY DATE G.S. 12-30-93	FIRST USAGE A-18004 -40033	
CHECKED DATE	SHEET 5 OF 10	TITLE WHEEL DRIVER BOARD
APPROVED DATE	PART NUMBER 16-9677	REV. -

REV	DESCRIPTION OF CHANGE	ECN NO DATE
-	NEW PART RELEASE	38030 8-5-94

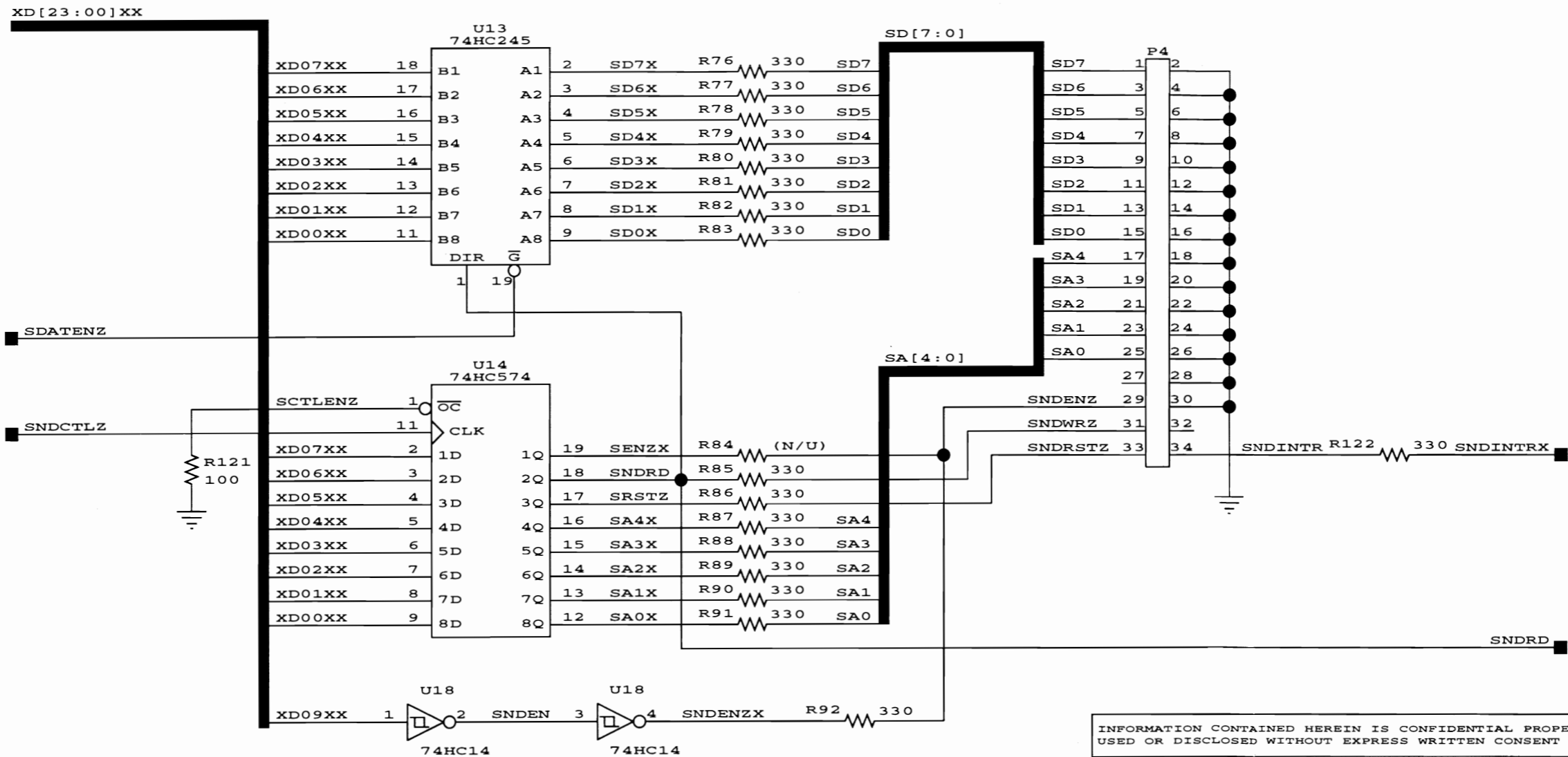


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PROJ. ENGR. M.L.	FIRST PROJECT 40033	WILLIAMS ELECTRONIC GAMES INC. MIDWAY MANUFACTURING COMPANY 3401 N. CALIFORNIA AVE. CHICAGO, ILL.	
DRAWN BY DATE G.S. 12-30-93	FIRST USAGE A-18004 -40033	TITLE WHEEL DRIVER BOARD	
CHECKED DATE	SHEET 6 OF 10	PART NUMBER 16-9677	REV. -
APPROVED DATE			

WHEEL 6
2-2-1994_18:29

REV	DESCRIPTION OF CHANGE	ECN NO DATE
-	NEW PART RELEASE	38030 8-5-94



TO SOUND BOARD

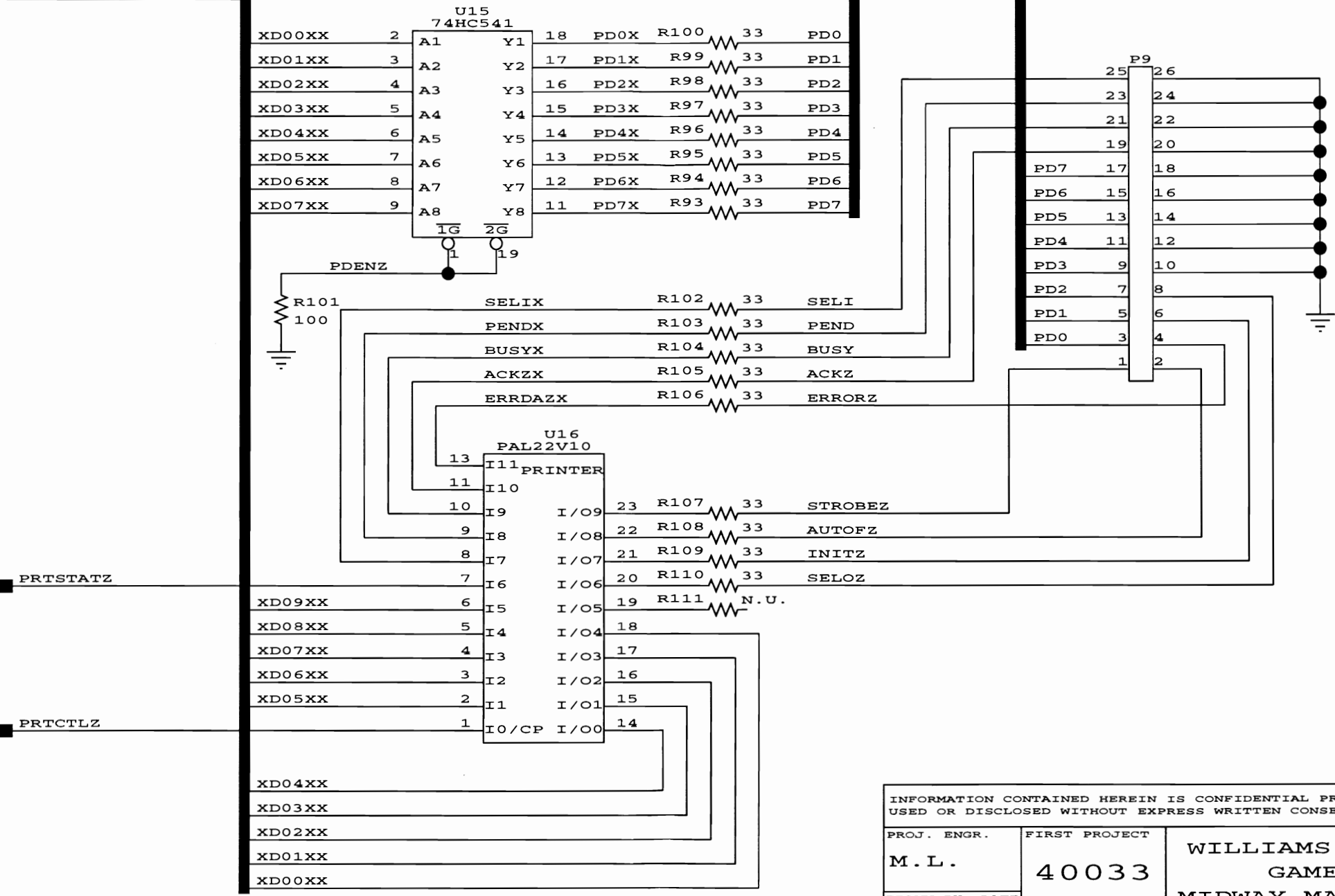
INFORMATION CONTAINED HEREIN IS CONFIDENTIAL PROPERTY AND MAY NOT BE USED OR DISCLOSED WITHOUT EXPRESS WRITTEN CONSENT FROM THE COMPANY.		
PROJ. ENGR. M.L.	FIRST PROJECT 40033	WILLIAMS ELECTRONIC GAMES INC. MIDWAY MANUFACTURING COMPANY 3401 N. CALIFORNIA AVE. CHICAGO, ILL.
DRAWN BY DATE G.S. 12-30-93	FIRST USAGE A-18004 -40033	
CHECKED DATE	SHEET 7 OF 10	TITLE WHEEL DRIVER BOARD
APPROVED DATE	PART NUMBER 16-9677	REV. -

WHEEL 7
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REV	DESCRIPTION OF CHANGE	ECN NO DATE
-	NEW PART RELEASE	38030 8-5-94

XD[23:00]XX

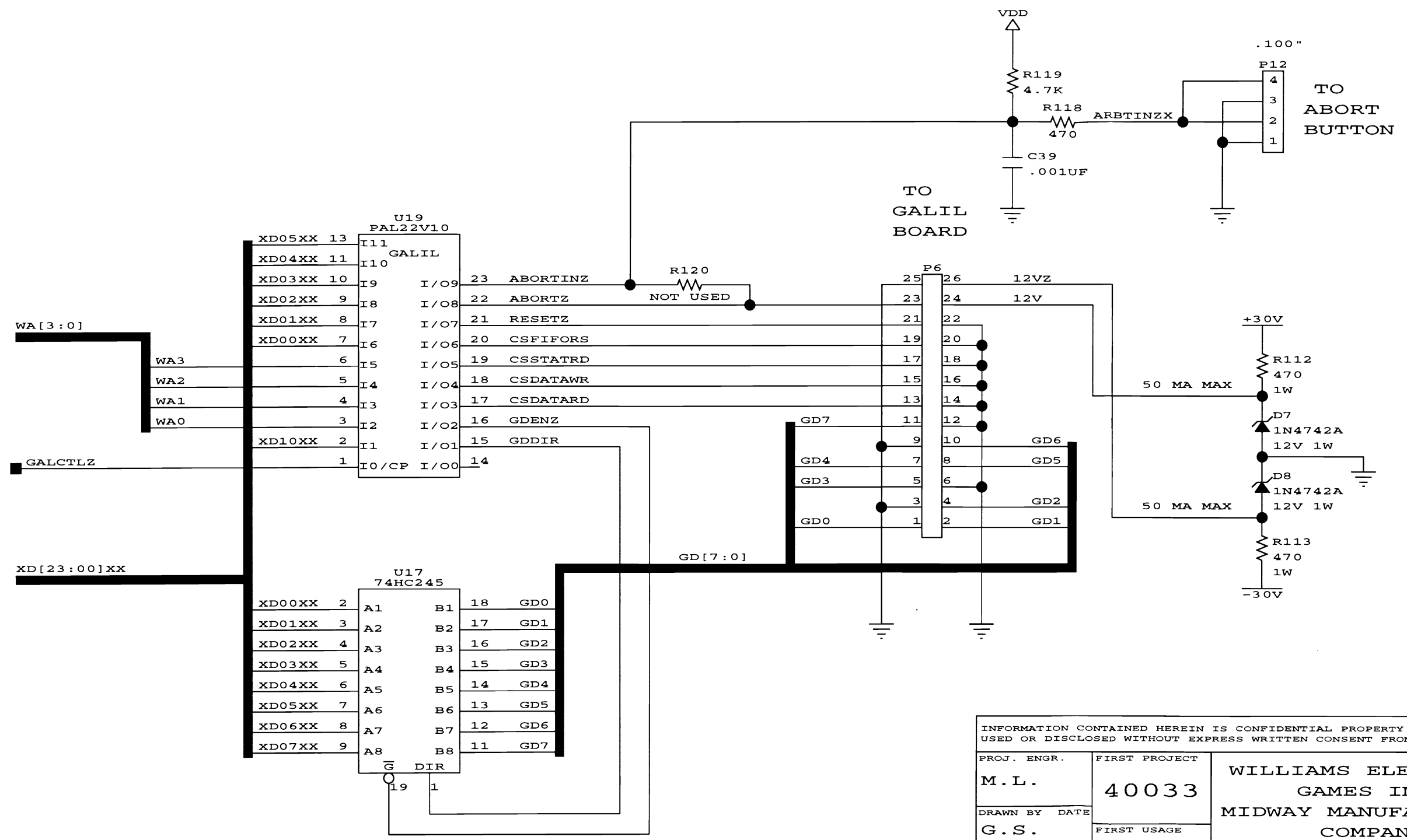
TO PRINTER



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PROJ. ENGR. M.L.	FIRST PROJECT 40033	WILLIAMS ELECTRONIC GAMES INC.	
DRAWN BY DATE G.S. 12-30-93	FIRST USAGE A-18004 -40033	MIDWAY MANUFACTURING COMPANY 3401 N. CALIFORNIA AVE. CHICAGO, ILL.	
CHECKED DATE	SHEET 8 OF 10	TITLE WHEEL DRIVER BOARD	
APPROVED DATE	PART NUMBER 16-9677	REV. -	

WHEEL 8
12-30-1993_11:32

REV	DESCRIPTION OF CHANGE	ECN NO DATE
-	NEW PART RELEASE	38030 8-5-94

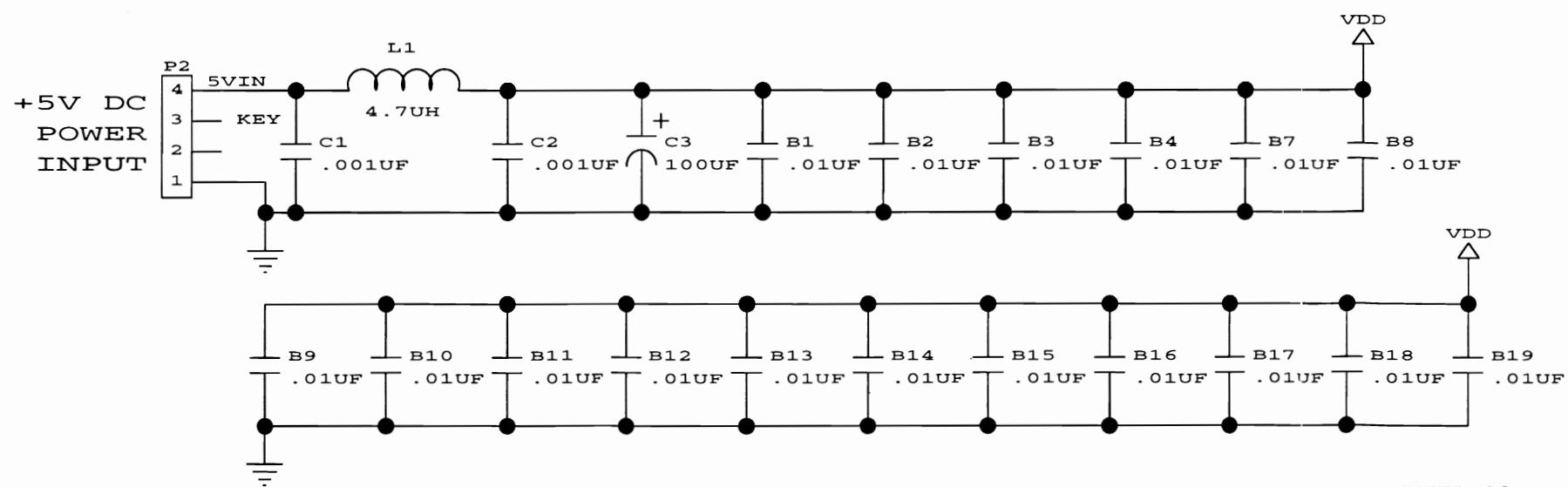
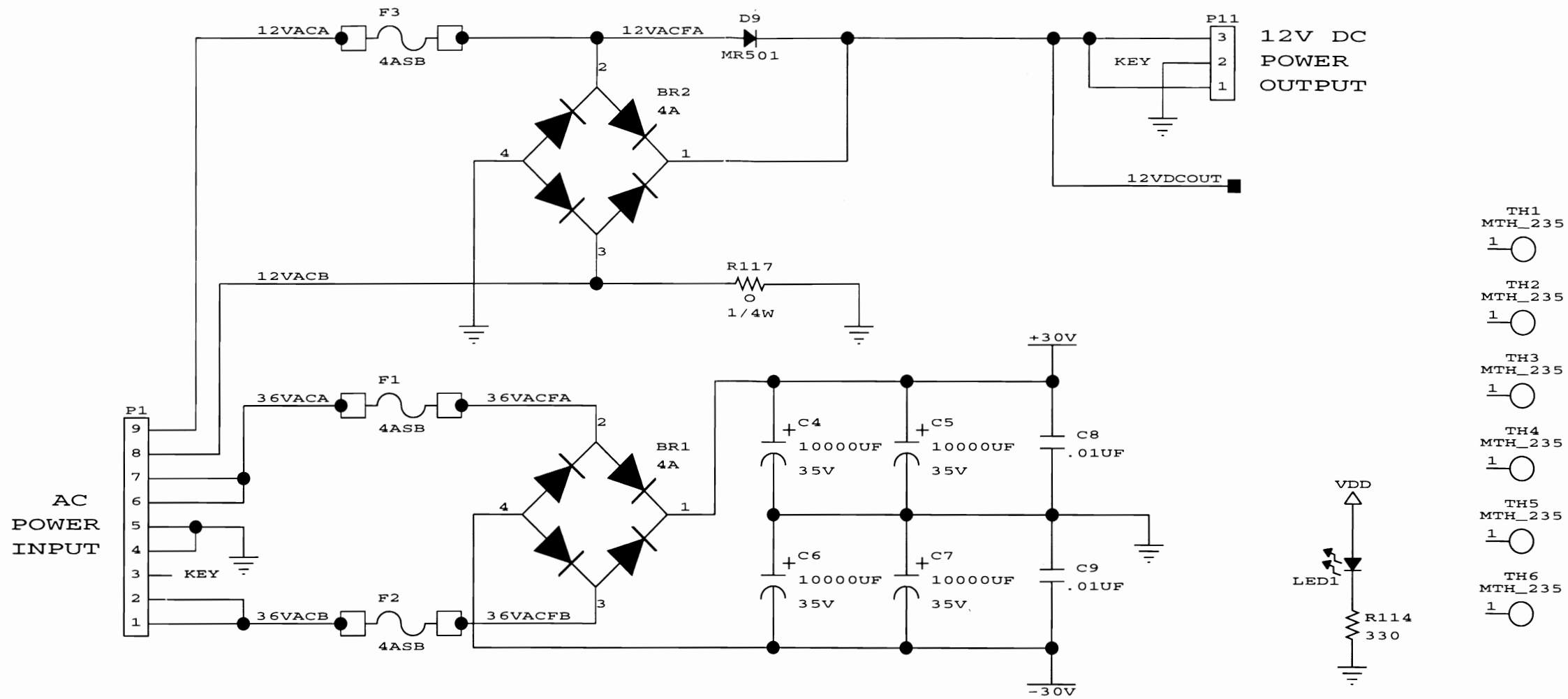


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DRAWN BY DATE G.S. 12-30-93	FIRST USAGE A-18004 -40033	
CHECKED DATE	SHEET 9 OF 10	TITLE WHEEL DRIVER BOARD
APPROVED DATE	PART NUMBER 16-9677	REV. -

WHEEL 9
8-4-1994_13:57

REV	DESCRIPTION OF CHANGE	ECN NO DATE
-	NEW PART RELEASE	38030 8-5-94

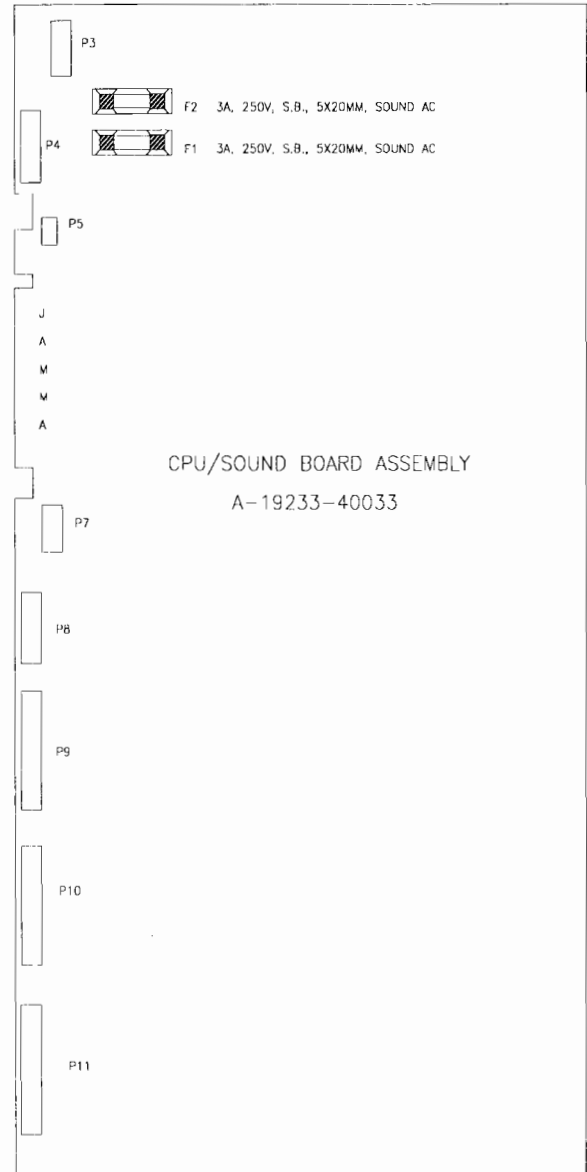
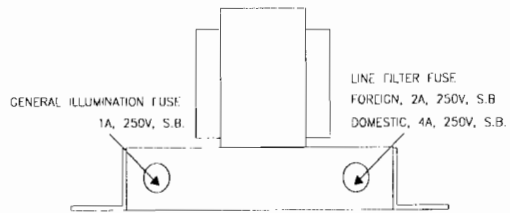
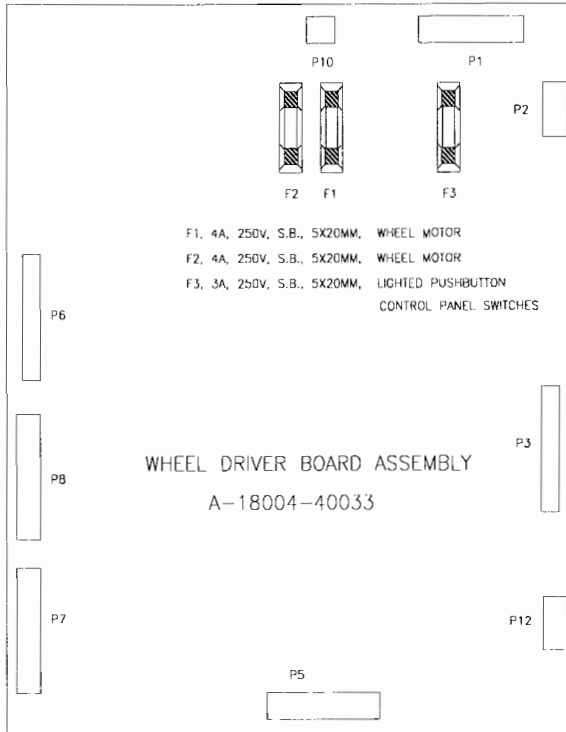


WHEEL 10
2-16-1994_12:28

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DRAWN BY DATE G.S. 12-30-93	FIRST USAGE A-18004	
CHECKED DATE -40033	SHEET 10 OF 10	TITLE WHEEL DRIVER BOARD
APPROVED DATE	PART NUMBER 16-9677	REV. -

FUSES



WARNINGS & NOTICES

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