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Consumer Product Service
Manager of Tehnical Support
TECH TIP

number 6

MODEL: ATARI CX5200	DATE: 11/17/82

SUBJECT:

CX5200 Power Adaptor

DESCRIPTION:

Do not use an HCD Power Adaptor with the CX5200 as it will damage both the HCD Power Adaptor and the CX5200 Switchbox.

The proper Power Adaptor to use with the CX5200 is:

CX521 AC/DC Power Adaptor, Part Number C018187

Output: 9.3 volts DC at 1.95 A.

TROUBLESHOOTING AND MAINTENANCE:

N/A

TESTING PROCEDURES:

N/A

ENCLOSURES:

N/A

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TECH TIP

VCS number 7

MODEL: CX5200	DATE: 1/20/83

SUBJECT:

Defective Rockwell 6502 MPU on CX5200 PC Board.

DESCRIPTION:

Rockwell MPUs with date code of 8250 and later (stamped with the letters RC) have a timing defect.

A factory modification adds an R-C network on the component side of the CX5200 PC Board at IC U14A (pin 1) and U6A (pin 4) (see Figures 1 and 2).

Note: You do not need to remove this network to use any other manufacturer's MPU or a Rockwell MPU with a different date code.

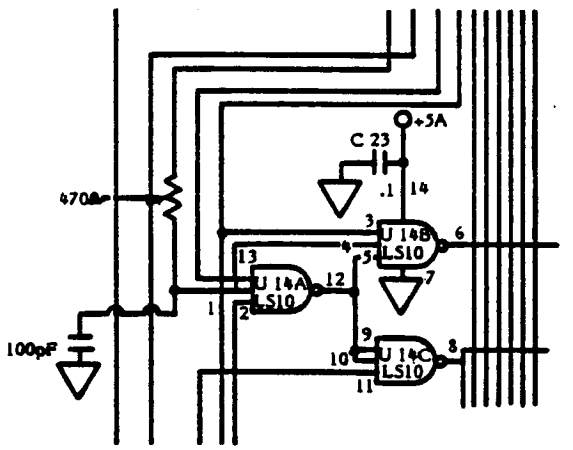

Figure 1. CX5200 Schematic (R-C Network)

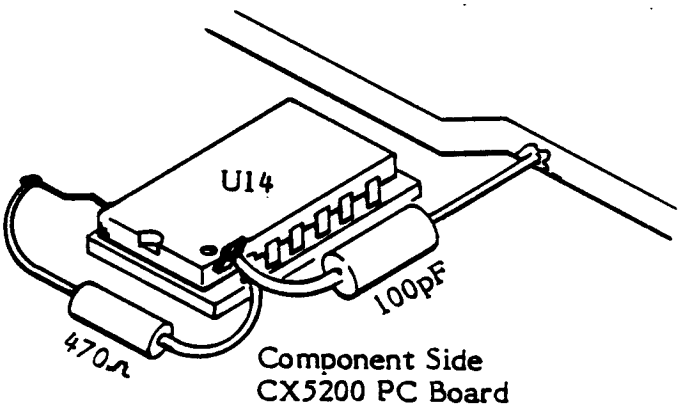

Figure 2. Factory Modification

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TECH TIP

VCS number 7CONT

MODEL: CX5200	DATE: 1/20/83

If you are installing an RC stamped 6502 on a CX5200 PC Board which has not had the factory modification added to the component side:

Add an R-C network to the solder side of the PC Board (See Figure 3).

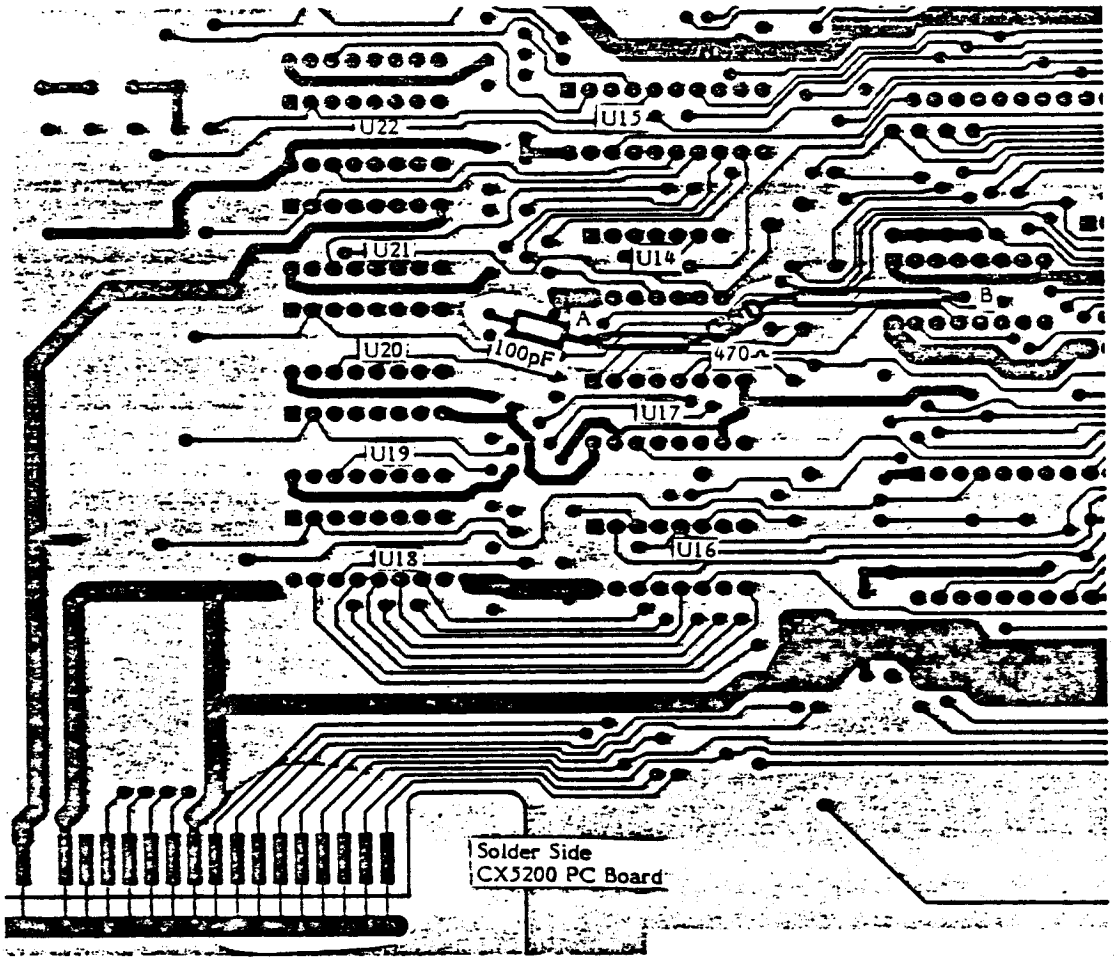

Figure 3. R-C Network (Add to solder side of CX 5200 PC Board)

PROCEDURES:

You will need:

- 1 - 100 pf capacitor (P/N C014180-03)
- 1 - 470Ω resistor (P/N 14-5471)
- Sleeving (approximately 2" in length)

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VCS number 7CONT.

MODEL: CX5200	DATE: 1/20/83

See Figure 3 for the following steps:

1. Straighten the lead of C27 (solder side) and solder one lead of the 100 pf capacitor to it.

2. Point A is an unoccupied well between IC's U14 and U17. It is connected directly to Pin 1 of U14. Cut the trace running between points A and B as close to Point A as possible. Use a DVM to insure that the trace is now open.

3. Add sleeving to one lead of the 470 Ω resistor. Insert the lead into the well at Point A and solder.

4. Wrap the remaining lead of the 100 pf capacitor around the lead of the 470 Ω resistor at Point A and solder.

5. Remove the solder from well at Point B which is directly beneath U6. Add sleeving to the remaining lead of the 470 Ω resistor. Insert this lead into the hole at Point B and solder.

TESTING PROCEDURES

Use standard testing procedures as outlined in the CX5200 Field Service Manual (P/N FD100127, Rev. 2).

DIFFICULTY REPORTING

If you have any questions or need further clarification concerning this Tech Tip, contact the ATARI Tech Line Specialist.

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TECH TIP

VCS number 8

MODEL: CX5200	DATE: 1/20/83

SUBJECT: CX5200 Controller

DESCRIPTION:

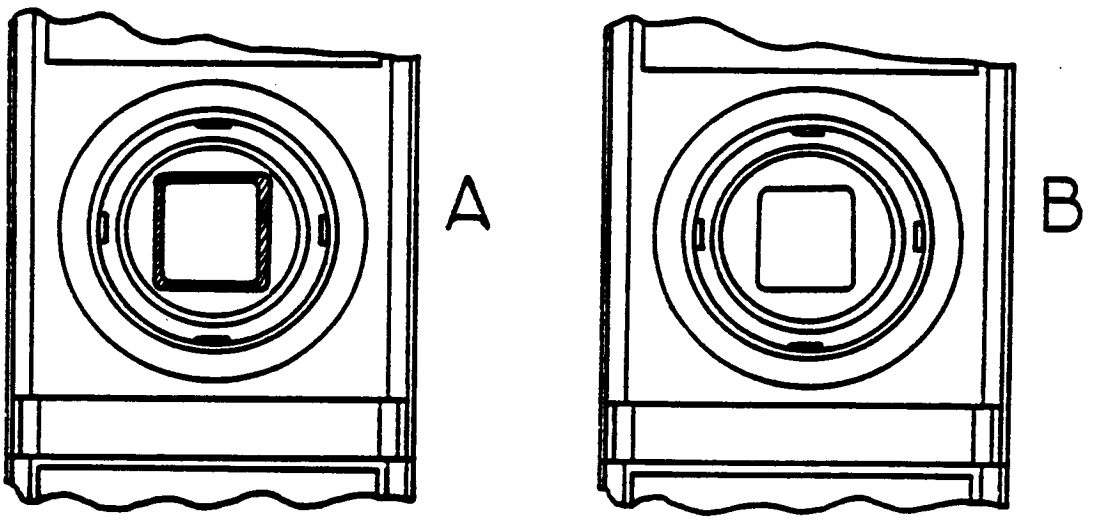
Repair CX5200 Controllers with damaged boots in the following manner:

1) Follow Disassembly instructions for the CX5200 Controller in the CX5200 Field Service Manual.

2) Remove the top controller case and pull off the joystick handle.

3) Remove the boot retaining ring. Remove and discard the damaged boot.

4) If the top controller case contains the square ridge around the access well, as illustrated in "A" below, remove and discard it. Replace it with the new top controller case in which this square ridge has been removed, as illustrated in "B".



Old Top Controller Case

New Top Controller Case

5) Insert new boot, retaining ring, and joystick handle.

6) Reassemble controller according to the instructions in the CX5200 Field Service Repair Manual.

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VCS
number 8CONT

MODEL: CX5200	DATE: 1/20/83

SUBJECT: CX5200 Controller

DIFFICULTY REPORTING:
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ENCLOSURES:
20 modified top controller cases

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TECH TIP

TT VCS number 09

MODEL: 5200	DATE: April 8, 1983

SUBJECT:

5200 Controller Knob Puller Tool

PROBLEM AND SOLUTION:

It has been learned that removal of the 5200 Controller Knob is difficult.

To assist you with this task, a 5200 Controller Knob Puller Tool (FC100214) is now available from our Sales Order Department.

USE AND METHODOLOGY:

This tool is used to easily remove the controller knob without damaging the controller.

Push the knob shaft into one of the corners of the top housing opening. Push down the boot with the tool to expose the shaft. Push the tool toward the shaft until the shaft is inside the notch of the tool's head (See Figure 1). Now, gently lever the tool, and the knob will pop off.

NOTE: By using care, you will not damage the boot during this process.

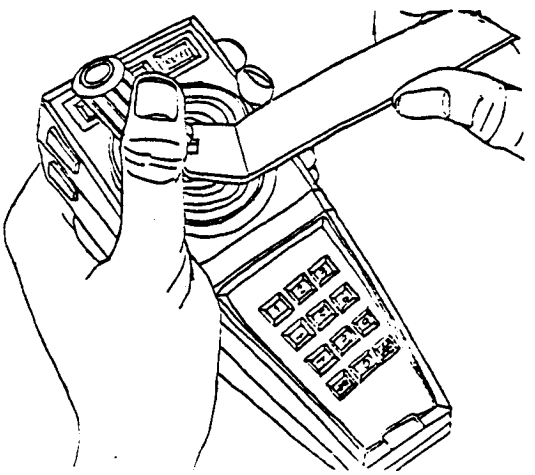

Figure 1. Controller Knob Removal.

PROBLEM REPORTING:

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TECH TIP

TT
VCS
number 10

MODEL: 5200	DATE: April 8, 1983

SUBJECT:

New Fire Button (C020501)

PROBLEM:

The fire button on current 5200 controllers have been accused of being "mushy and slow to respond".

SOLUTION:

Atari has designed a fire button which is not mushy and reacts rapidly. This new fire button will replace the old models. When ordering fire buttons use part number C020501.

TESTING AND TROUBLESHOOTING:

There is no change to either maintenance or trouble shooting techniques because of this change.

PROBLEM REPORTING:

If you have questions or require further explanation concerning this Tech Tip, contact your Atari Tech-line Specialists:

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TECH TIP

TT
VCS
number 12

MODEL: 5200	DATE: June 6, 1983

SUBJECT:

Printed Circuit Board (CA018087)

PROBLEM AND SOLUTION:

Some 5200 units display a blank dark screen or a screen with garbled information. The probable cause for either of these symptoms is an intermittent solder short (bridge) on the PCB between the A0 Address line trace and the feedthru pad of the $\overline{\text{REF}}$ Line trace (near connector J1).

TROUBLESHOOTING:

The problem has been seen to occur during one of the following three instances:

1) When the system is powered-up - the screen is usually blank and dark.

2) After the system is powered-up with a cartridge in place - the screen will display random garbled data.

3) Either of the above can be seen when the PCB is moved or slightly flexed near connector J1.

SOLUTION:

To remedy the problem, perform the following five procedures in the exact order given:

1) Turn off power, and disconnect AC and interconnect cables.

2) Disassemble unit to expose the component side of the PCB (CA018087).

3) Locate connector J1, the adjacent A0 Address trace and the feed-thru pad of the $\overline{\text{REF}}$ Trace (See Figure 1).

4) Carefully remove the excess solder from the pad and wipe the area clean. Inspect the pad and if necessary use an X-acto knife to cut a shallow groove between the A0 Address Line and the feedthru pad. Be very carefuly not to nick or cut the trace adjacent to the pad.

5) Reassemble and test the unit.

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TECH TIP

TT VCS number 12

MODEL: CX5200	DATE:

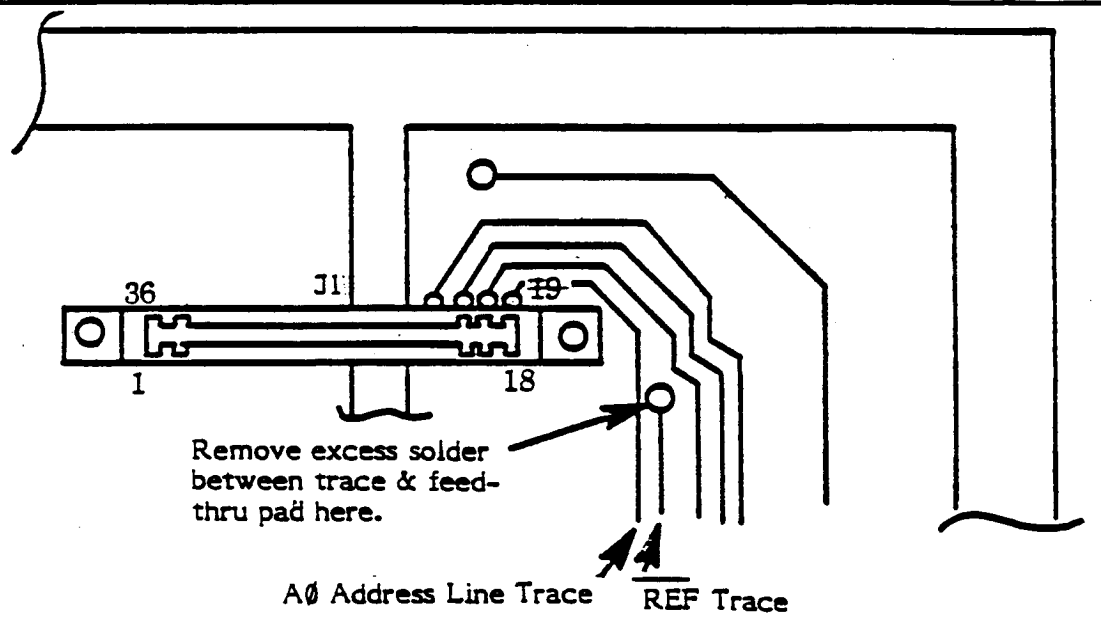

Figure 1. 5200 PCB Solder Side at J1

DIFFICULTY REPORTING:

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TECH TIP

TT VCS number 13

MODEL: Atari CX5200™ Supergame	DATE: July 7, 1983

SUBJECT:

Signetics 74LS258AN I.C. (C019052) at locations A16 and A17 on 4-Port (CA020109) and 2-Port (CA021375) PCB's.

DESCRIPTION:

The timing of some Signetics I.C.'s causes RAM information to be distorted. This results in a scrambled screen display or worse - no video at all.

Manufacturing has corrected this problem in some units. However an unknown quantity have been released to the field.

This tech tip is to make you aware of the problem, its manufacturing installed solution, and procedures for your repair of Signetic I.C.'s which cause the display of a scrambled or no video screen.

SOLUTION:

C145 (C014179-24) should be paralleled with another 390pf capacitor (C014179-24) and a 470 Ohm resistor (14-5471) be added from C137 to R134 (See Figure 1).

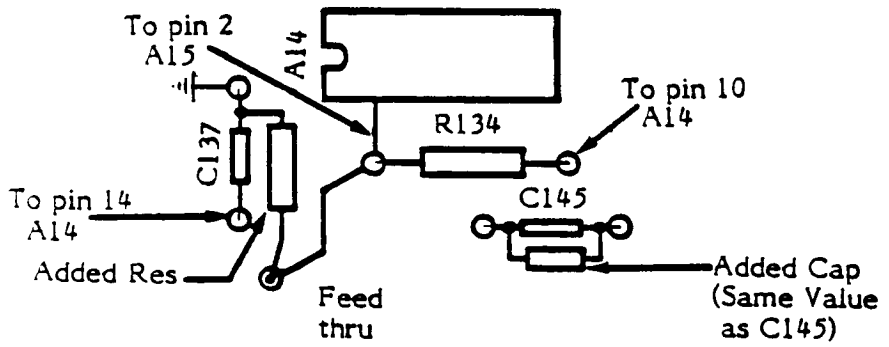

Figure 1. Resistor/Capacitor Fix

If the unit still displays a faulty screen, swapout A16 and A17 with another vendor's component. DO NOT USE A SIGNETICS I.C.

TROUBLESHOOTING AND MAINTENANCE:

These changes do not effect the troubleshooting procedures outlined in the Atari CX5200 Field Service Manual (FD100127).

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TECH TIP

TT
VCS
number 13

MODEL:	DATE:
Atari CX5200™ Supergame	June 22, 1983

DIFFICULTY REPORTING:

If you have any questions or need further assistance, call the Atari Techline Specialist.

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TT VCS number 14

MODEL: 5200™ Supergame	DATE: July 8, 1983

SUBJECT:

Paddle Jitter on CX5200 PCB (P/N CA018087)

DESCRIPTION:

Some 5200 PCB's demonstrate paddle jitter caused bya ripple on the +5v power supply to the POKEY IC (U7), and an inadequate groundtrace at Pin 1 of U7.

SOLUTION:

To eliminate paddle jitter a 10uf capacitor (C017516) must be soldered directly across the +5v and ground legs (Pins 1 and 17) of U7. A sleeved jumper wire must also be connected between Pin 1 of U7 and another ground trace.

MATERIAL:

10uf Tantalum Cap 20v 10%	P/N C017516
16 Gauge Buss wire	2 inches
16 Gauge Plastic Sleeving	4 inches

PROCEDURE:

Perform the following seven steps ONLY on those 5200 PCB's which exhibit paddle jitter.

1) Trim Capacitor to an overall length of 1 5/8 - 1 3/4 inches.

2) Cover the capacitor leads with sleeving. Approximately 1/8 inch of the lead must extend beyond the sleeving for soldering.

3) Solder the "+" lead of the cap to Pin 17 of U7 (+5 volts). Solder to the I.C. Leg

4) Solder other cap lead to Pin 1 of U7 (ground). Solder to the I.C. Leg.

5) Cover 1 1/4 inches of buss wire with plastic sleeving leaving sufficient length at each end for soldering.

6) On the solder side of the PCB solder one end of the sleeved buss wire to Pin 1 of U7. See Figure 1.

7) Solder the other end of the sleeved wire to the ground lead of C104. See Figure 1.

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TECH TIP

TT
VCS
number 14

MODEL: 5200™ Supergame	DATE: July 8, 1983

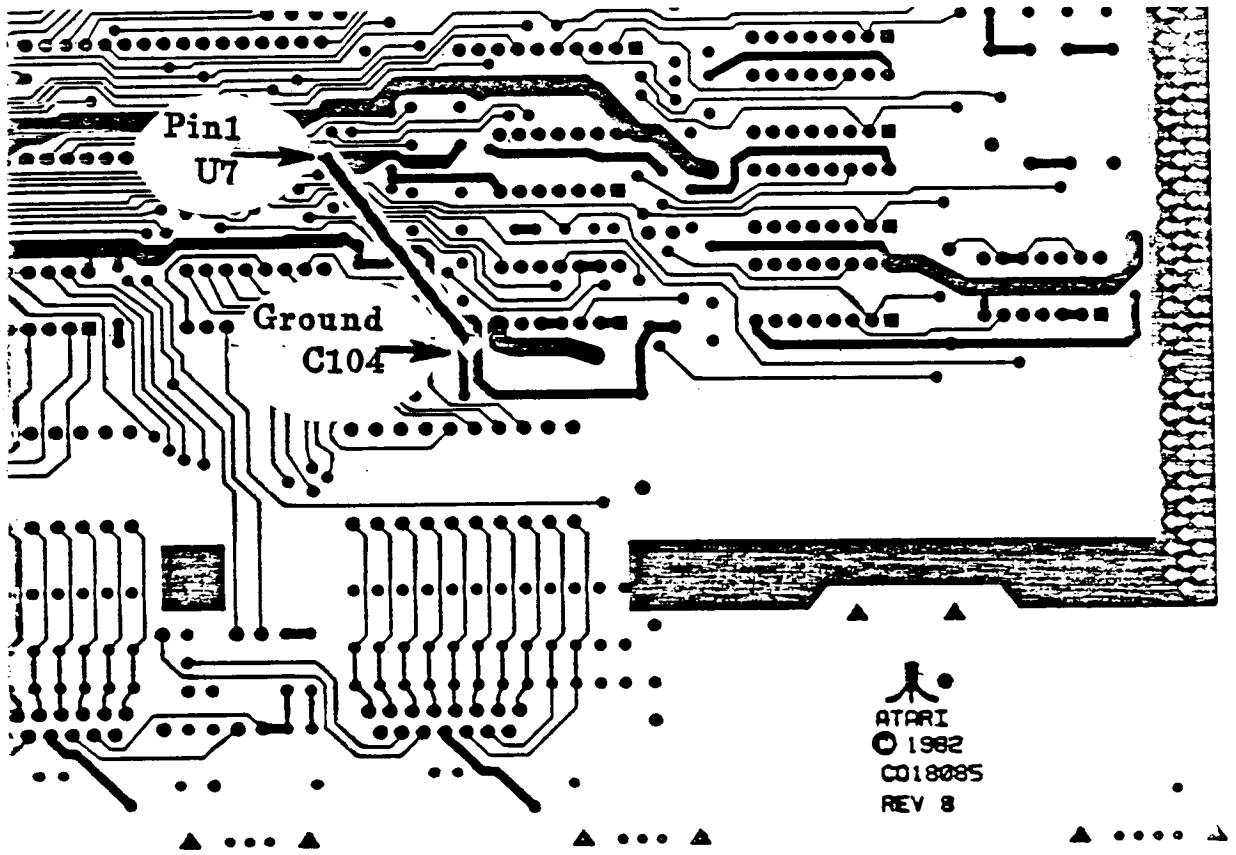

Figure 1. Sleeve Buss Wire Placement

TESTING:

Reassemble unit and test unit with a game cartridge ensuring that paddle jitter no longer exists.

TROUBLE REPORTING:

If you have any questions or need further assistance, call the Atari Techline Specialist.

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TECH TIP

TT
VCS
number 15

MODEL:	DATE:
ATARI CX55™ Atari Cartridge Adaptor	September 12, 1983

SUBJECT:

Modifying the CX55.

DESCRIPTION

Screen jitters when Ms. Pacman is played.

SOLUTION:

On the solder side of the PCB, use two jumper wires to reroute traces between J1, Pins 15 and 16 and the data bus (See MODIFICATION PROCEDURES).

MODIFICATION PROCEDURES:

On Adaptors which exhibit screen jitter when Ms. Pacman is played, perform the following modifications:

NOTE: Some CX55's may have been modified during production. Use these procedures to make certain the jumpers have not become detached.

1. On the solder side of the Adaptor PCB, carefully cut the traces shown in Figure 1.

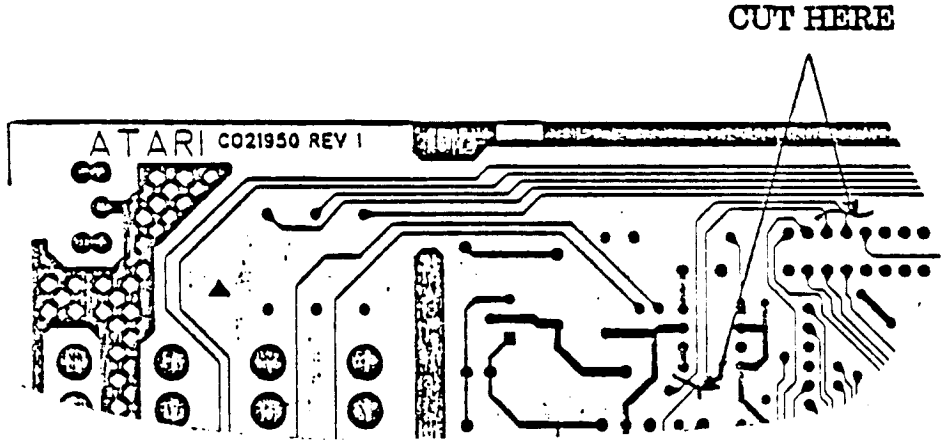

Figure 1. Trace Cuts

MODEL: ATARI CX55 Atari Cartridge Adaptor	DATE: September 12, 1983

2. Wrap one end of the jumper wire around Pin 15 of J1, and attach the other end of the wire to the feed-thru identified as A in Figure 2 (below R9).

3. Wrap one end of another jumper wire around Pin 16 of J1, and attach the other end of the wire to the feed-thru identified as B in Figure 2 (near the ends of C12 and R14).

4. Use a non-conductive material and tack the jumper wires to the board. Tack the wires at locations identified as C in Figure 2.

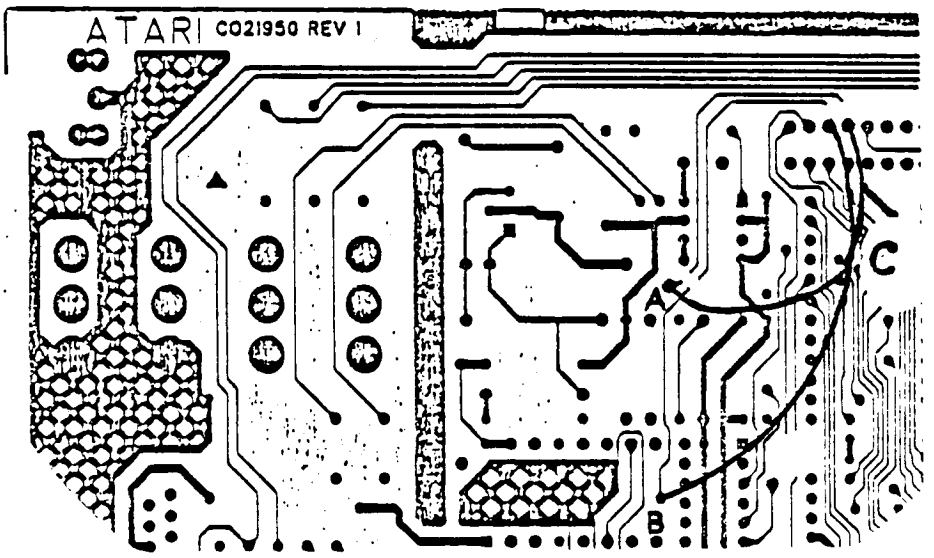

Figure 2. Jumper Wire Placement

TESTING PROCEDURES:

These changes do not effect the troubleshooting procedures outlined in the CX55 Cartridge Adaptor Field Service Manual (FD100570).

PROBLEM REPORTING:

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TT VCS number 17

MODEL: ATARI CX5200C Two-Port (CA021375)	DATE: August 2, 1983

SUBJECT:

Additional information to accompany TT VCS 13, dated July 7, 1983.

DESCRIPTION:

Due to the unavailability of 74LS258 (C019052) I.C.'s, some units were manufactured with 74LS158 (C014345) I.C.'s at locations A16 and A17.

When 74LS158 I.C.'s are used the following modifications were performed on the PCB.

1. Traces between Pin 11 and Pin 12 of A15 were cut on both sides of the PCB.

2. Jumpers were installed in the following areas:

   A. between Pin 11 of A15 and Pin 3 of A27.

   B. between Pin 1 of A27 and Pin 9 of A14.

   C. across Pins 1 and 2 of A27.

3. Capacitors C55 and C145 were changed from 390pf to 470pf (C014179-16).

TESTING AND TROUBLESHOOTING:

Troubleshooting A16 and A17 do not change.

The only changes occur when troubleshooting CAS/RAS timing. Using the DESCRIPTION (above), you should have little difficulty identifying the circuit differences.

NOTE: If you must replace A16 or A17, make certain that you replace both I.C.'s with a 74LS258 (C019052).

Circuitry changes required for the 74LS158 do not effect the operation of the newly installed 74LS258's.

DIFFICULTY REPORTING:

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TECH TIP

TT
VCS
number 18

MODEL: 5200 POP	DATE: August 11, 1983

SUBJECT:

5200 Retail Demonstrator Keyboard Spacers

DESCRIPTION:

The backing of the telephone-style keypads used on the 5200 Retail Demonstrator have been breaking because of insufficient support.

SOLUTION:

When repairing or replacing a controller assembly, perform the following modification to the controllers keyboard.

Using two Tie Mounting Sticky Back Spacers (FC100604), perform the MODIFICATION PROCEDURES, below:

MODIFICATION PROCEDURES:

1) Remove the four nuts and washers that hold the keyboard plate to the control panel.

2) Remove the keyboard plate.

3) Install spacers (see Figure 1).

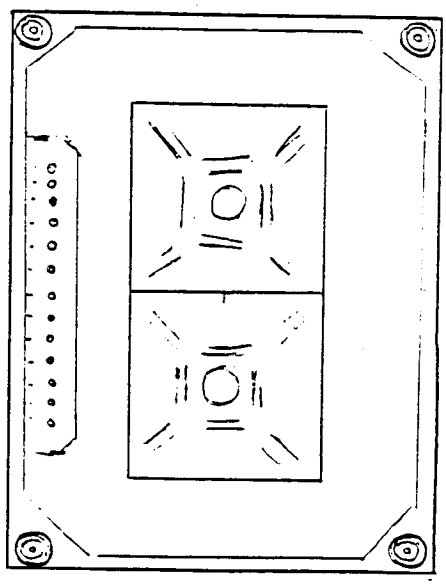

Figure 1. Spacer Installation

4) Reassemble the keyboard plate and keyboard.

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TT
VCS
number 18

MODEL: 5200 POP	DATE: August 11, 1983

TESTING AND TROUBLESHOOTING:

Use testing procedures outlined in the 5200 Field Service Manual (FD100127).

PROBLEM REPORTING:

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TECH TIP

TT VCS number 19

MODEL: ATARI CX53 TRAKBALL	DATE: October 20, 1983

SUBJECT:

This Tech Tip covers two CX53 problems.

1) The metal domes under the fire buttons shift around under the mylar sheeting causing sporadic contact.

2) The 12-button keypad or the SELECT keypad slips under the top case.

SOLUTION:

Use eleven ATARI 810™ Disk Drive hole covers (C014106) and place them in the positions on the bottom case shown in Figure 1.

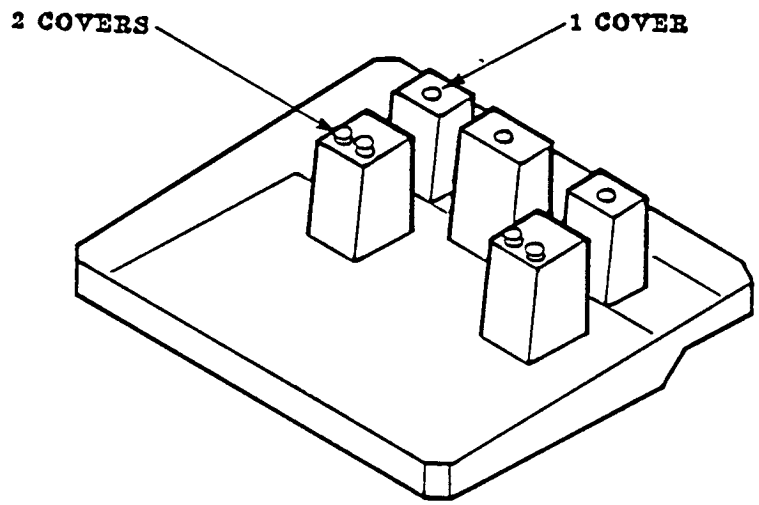

Figure 1. Hole Cover Placement

TESTING AND TROUBLESHOOTING:

This does not change the testing and troubleshooting procedures found in the ATARI CX5200™ Field Service Manual (FD100127 Rev. 4).

PROBLEM REPORTING:

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UPGRADE BULLETIN

UB VCS number 01

MODEL: Atari CX5200 Supergame (PCB CA018087)	DATE: July 7, 1983

SUBJECT:

PCB Retrofit to allow use of Atari VCS™ Cartridge Adaptor

UPGRADE DESCRIPTION:

Applies only to CX5200 PCB, P/N CA018087. Allows use of the new Atari VCS Cartridge Adaptor (CX55). All other CX5200 PCB's have the retrofit components built into them and require no modification to accommodate the adaptor.

INSTALLATION PROCEDURE:

Use attached retrofit procedure.

TESTING PROCEDURE:

As outlined in retrofit procedure.

DIFFICULTY REPORTING:

If you have questions or need further assistance, call the Atari Techline Specialist.

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VCS CARTRIDGE ADAPTOR PCB

RETROFIT PROCEDURE

1. Remove the top cover of the CX5200.

2. Verify that the PCB Part Number is CA018087. (If it is not this number, there is no need for the modification. Reinstall cover, insert adaptor, go to step 13 and test.)

3. Remove both the top and bottom PCB shields.

4. Using either an X-ACTO knife or a Dremel tool (150 Bit), isolate Pin 24 of J1 from ground by making a "V" or "U" shaped cut in the trace on the component side of the PCB (See Figure 1). Be careful not to isolate Pins 23 and 25 from ground.

   IT IS EXTREMELY IMPORTANT THAT PIN 24 OF J1 BE COMPLETELY ISOLATED FROM GROUND.

   Use an Ohm Meter to verify that Pin 24 has been isolated from ground.

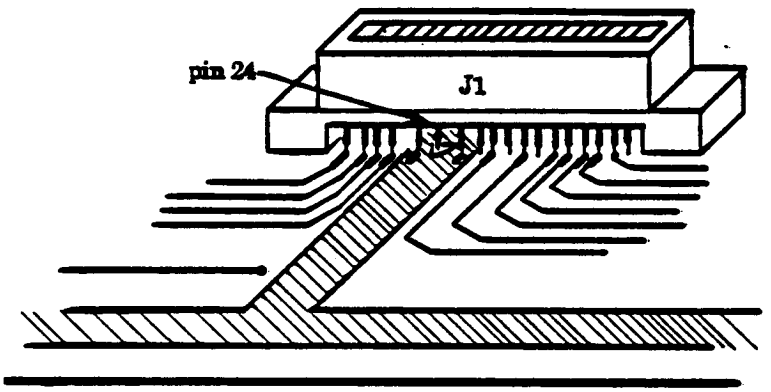


Figure 1. Pin 24 Isolation.

5. If the kit has not already been pre-formed (see Figure 2), use needle-nosed pliers and wire cutters to pre-form the kit. Use Figure 2 as a reference.

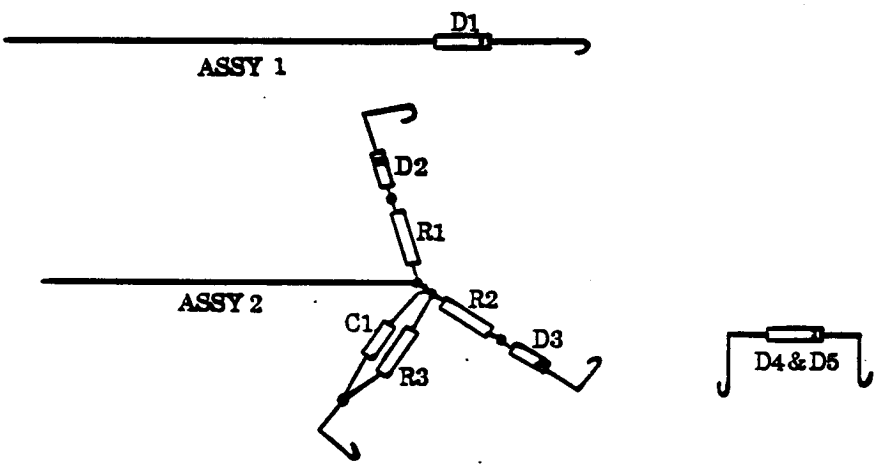


Figure 2. Pre-form Assembly

6. Using Figure 3 as a reference perform the following:

A. Solder cathode of D1, Assembly 1 to R26.
B. Pass Assembly 1 wire, (BLACK) through hole in J1.
C. Solder cathode of D4, to C13.
D. Solder anode of D4, to C14.
E. Solder D5 to R10 (Note polarity).
F. Solder cathode of D2, Assembly 2 to C10.
G. Solder cathode of D3, Assembly 2 to R11.
H. Solder R3, and C1, Assembly 2 to R12.
I. Pass Assembly 2 wire (GREEN) through hole in J1.
J. Solder one end of RED jumper wire to L8.
K. Pass RED jumper wire through hole in J1.

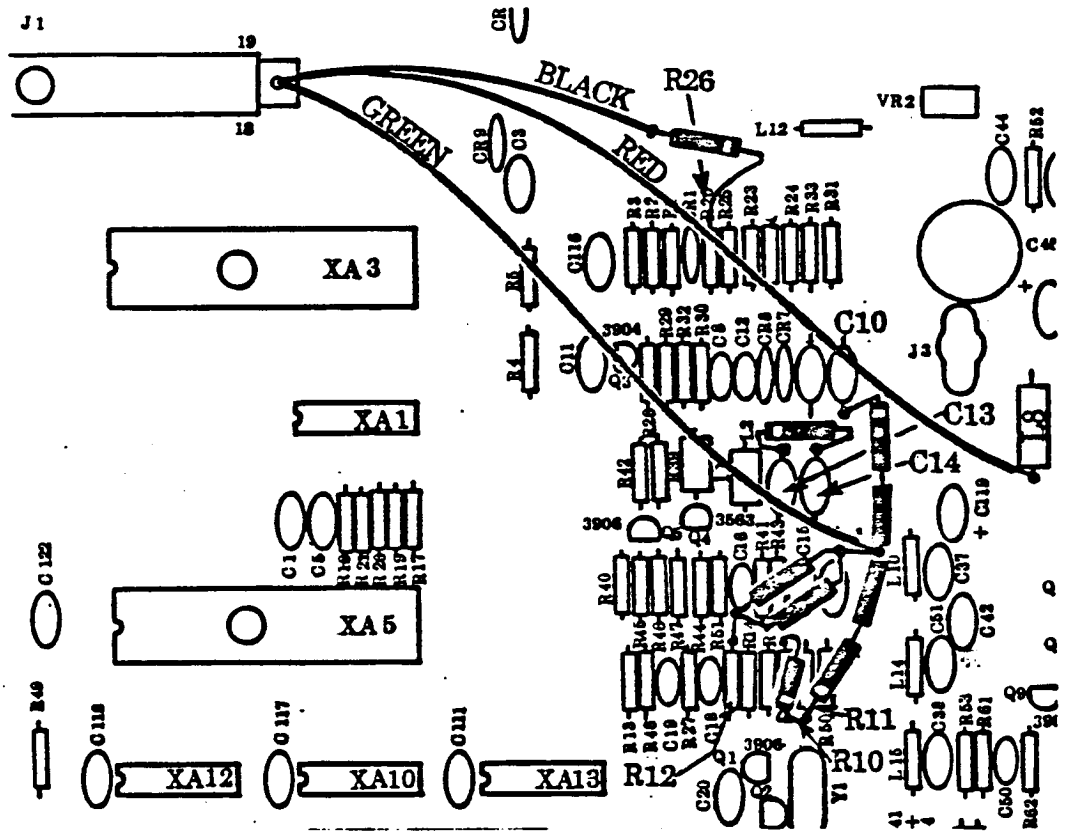


Figure 3. Retrofit Diagram.

7. Using Figure 4 as a reference, perform the following:

   A. Solder Assembly 1 wire (BLACK) to Pin 24 of J1.
   B. Solder Assembly 2 wire (GREEN) to Pin 30 of J1.
   C. *Solder RED jumper wire to Pin 11 of J1.

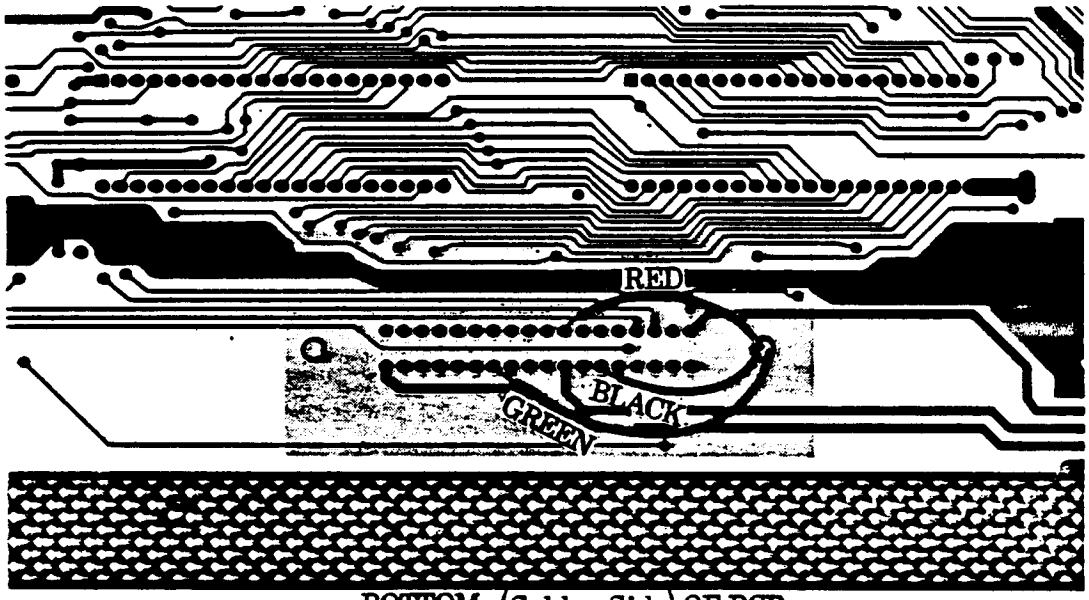
NOTE: Be sure to leave enough slack in the wires to allow reassembly of the shield.

**************************CAUTION****************************

After soldering, use an Ohm Meter to make sure that no solder bridges or shorts were formed adjacent to Pins 11, 24, and/or 30 of J1.

**************************CAUTION****************************

*** = Take extra care to avoid connecting the RED wire to any ground pins. If the RED wire is grounded, the 5200 Power Adaptor will burn out.**



BOTTOM (Solder Side) OF PCB

Figure 4. Wire Connection Diagram.

8. Place the top housing face down on the workbench.

9. Using needle-nosed pliers, grasp the pin indicated in Figure 5, and twist it off.

10. Before reassembling the unit, place the PCB into the bottom housing and replace the top housing. DO NOT SECURE HOUSINGS.

11. Using the 1.1 Diagnostic Cartridge perform a quick check to ensure that the modifications did not affect the performance of the unit. If the unit fails, return to the modification procedures, and make certain that all steps were fully and completely performed. The modifications will not affect game play or the unit's performance.

12. Turn off the unit.

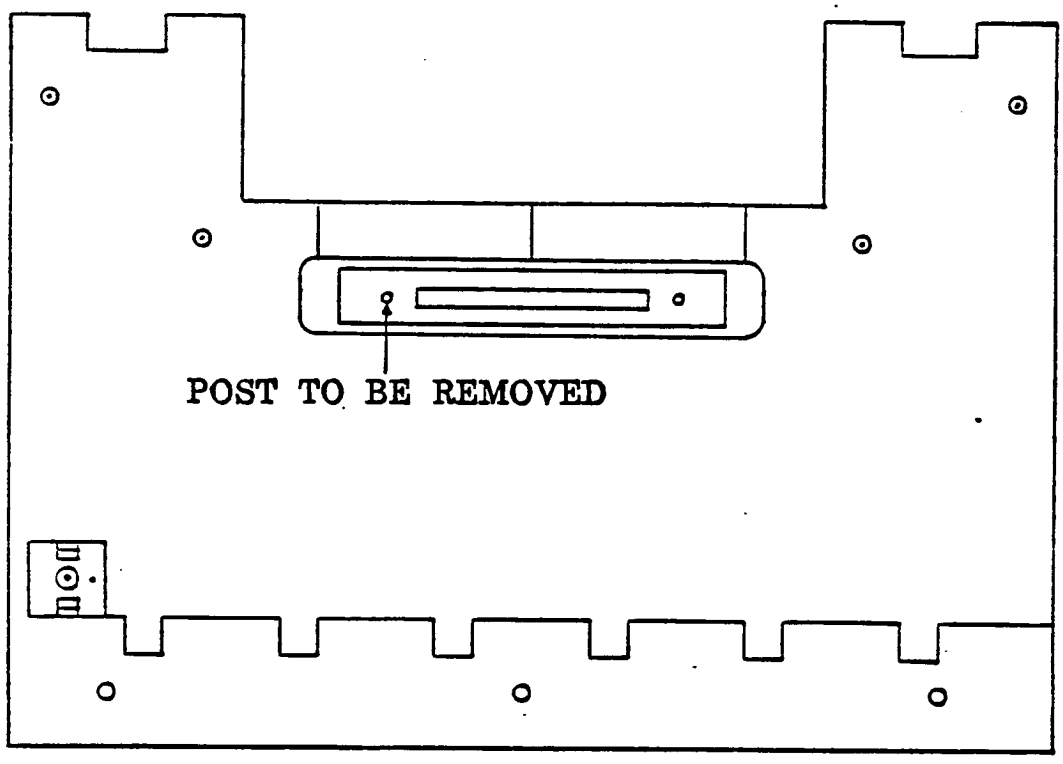


Figure 5. Top Cover Pin Removal

13. Remove the Diagnostic Cartridge and install the Cartridge Adaptor.

14. Use the 2.6 Diagnostic Cartridge to perform a quick check to ensure that the adaptor is functional.

15. If the adaptor does not function properly, step through the modification procedures to ensure that all modifications were completely and correctly performed.

16. If all modifications were installed correctly and the Cartridge Adaptor does not function properly, use a DVM to determine which retrofit component or assembly is defective.

17. Replace the defective component or assembly.

18. Completely reassemble the unit, using the screws removed in Step 1 to secure the two housings together.