

Inter Office Memo

PR# 851



Consumer Electronics Division

To: Distribution

From: Gary Rubio - Product Reliability

Subject: Procedure for Modifying CX-5200 Units
to Allow Use of the CX-55 VCS Adaptor

Date: 5/4/83

The CX-55 VCS adaptor requires an interface which utilizes 8 of the 36 pins on the J1 (cartridge socket) connector. As shown in the below chart, the original CX-5200 units with C018087 PWAs (PCB = C018085, Rev. X) do not interface with the CX-55.

CHART #1: CX-55 VCS Adaptor Interface Requirements and PWA C018087 Interface

<u>PIN</u>	<u>FUNCTION</u>	<u>PWA C018087</u>
P1-10	$\bar{Y}I$	$\bar{Y}I$ (OK)
P1-11	Unreg DC (<u>filtered</u>)	N.C. (not OK)
P1-12	Ground	VSS (OK)
P1-13	Ground	VSS (OK)
P1-23	Ground	Shield (OK)
P1-25	Ground	Ground (OK)
P1-24	Composite Video	Ground (not OK)
P1-30	Osc. Control Line	N.C. (not OK)

The following is the procedure for modifying the original CX-5200 units to achieve compatibility with the CX-55 VCS adaptor. See attached PC board drawings for reference.

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In order to accomplish the implementation of this modification, the following tools are necessary:

- o Fine tipped solder iron and solder
- o Wire cutters
- o Needle nose pliers
- o Tool capable of cutting traces (drill with small bit is highly recommended)
- o Parts listed in Chart #2
- o Patience

CHART #2: Modification Parts List

<u>COMPONENT</u>	<u>QTY</u>	<u>VALUE</u>	<u>ATARI P/N</u>
Resistor	2	1K ohm 1/4 w 5%	14-5102
Resistor	1	3.3K ohm 1/4 w 5%	14-5332
Capacitor	1	0.1 uF ceramic axial	C014181-03
Diode	4	1N914	31-1N914
Wire	24"	24 AWG	

NOTE: This modification was accomplished on a C018085, Rev. 6 PCB in 70 minutes (including disassembly and reassembly of the CX-5200).

PROCEDURE:

1. Remove the 7 mounting screws from the base of the CX-5200 and separate the covers from the PC board assembly.
2. Carefully remove the RF shields from the PC board.
3. Inspect the J1 connector (cartridge socket) and verify if pins 23, 24 and 25 are common (ground). If pin 24 is isolated from pins 23 and 25 and is tied to a diode, the unit is compatible with the CX-55.
4. Isolate pin 24 from both pins 23 and 25 by using a knife or drill. Verify isolation from pins 23 and 25 using ohmmeter on high range.
5. On front side, ("F.S." or component side of PC board) add a diode (1N914) with a 5" wire from J1-24 to R25/R26 junction (anode to J1-24).
6. On front side of PC board add a 8.75" wire from J1-11 to L8 (unreg DC filtered side). (Note: the wire can instead be attached to the back side of the PC board, however, approximately 12.5 VDC is on this wire and adequate protection is necessary when reassembling RF shields (ground)). Verify isolation (greater than 100 ohms) from pin 11 to pin 12 using ohmmeter.
7. Add 2 diodes and 2 resistors in series to the back side of the PC board from R11 to C10 as shown in the attached PC board drawings. Also add the resistor, capacitor and 9.5" wire as shown on the drawings to the backside of the PC board.
8. Add 1 diode (1N914) to the frontside of the PC board on C13/C14 (cathode to C13) as shown on the PC board drawings.
9. This completes the modification. If possible, connect power and install the CX-55 and verify operation (picture will be slightly noisy without RF shields).
10. Reassemble the CX5200 unit and enjoy the capability of playing VCS cartridges on your CX-5200.



Consumer Product Service
Manager of Technical Support
UPGRADE BULLETIN

UB
VCS
01
number

MODEL: Atari CX5200 Supergame (PCB CA018087)

DATE: July 7, 1983

SUBJECT:

PCB Retrofit to allow use of Atari VCSTTM 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.

Inside California
(800) 672-1466

Outside California
(800) 538-1535

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.

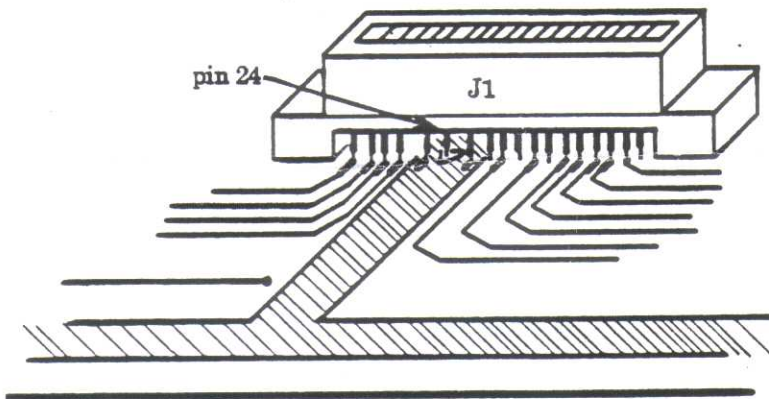


Figure 1. Pin 24 Isolation.

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.

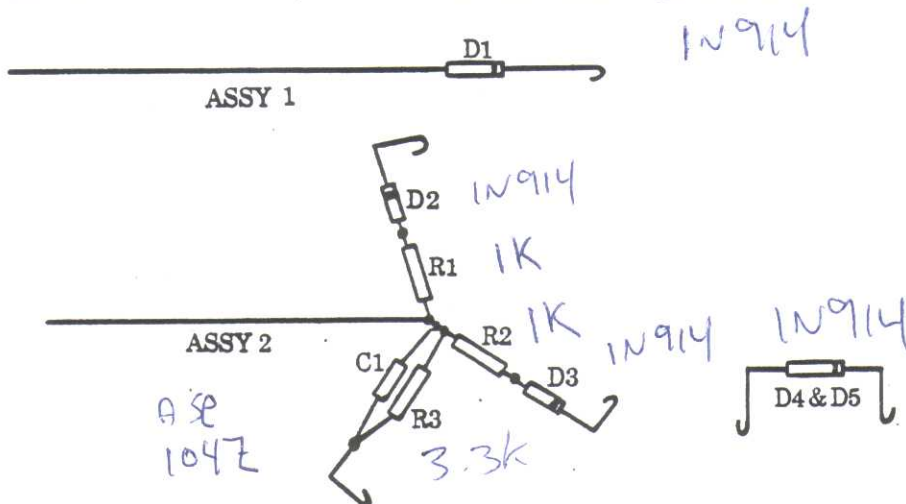


Figure 2. Pre-form Assembly

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.

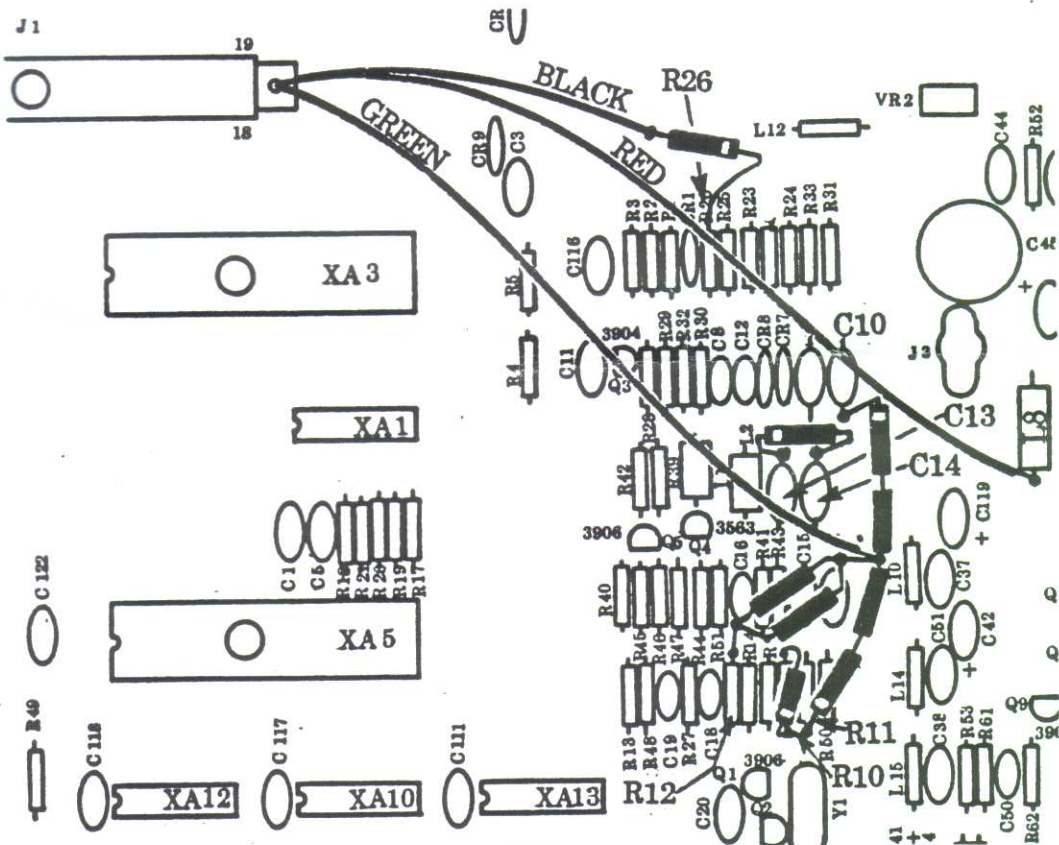


Figure 3. Retrofit Diagram.

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.
- D. *Solder other end of RED wire to bottom leg of L8.

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.

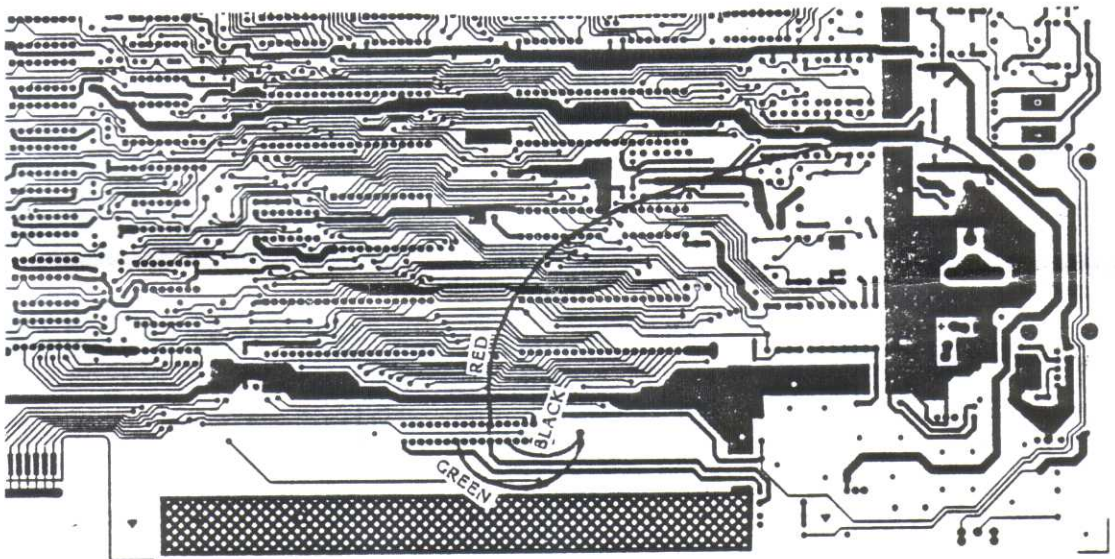


Figure 4. Wire Connection Diagram.

- 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. Replace the shielding on the unit ensuring that the red wire is routed as in Fig. 4.
- 11. Before reassembling the unit, place the PCB into the bottom housing and replace the top housing. DO NOT SECURE HOUSINGS.
- 12. 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.
- 13. Turn off the unit.

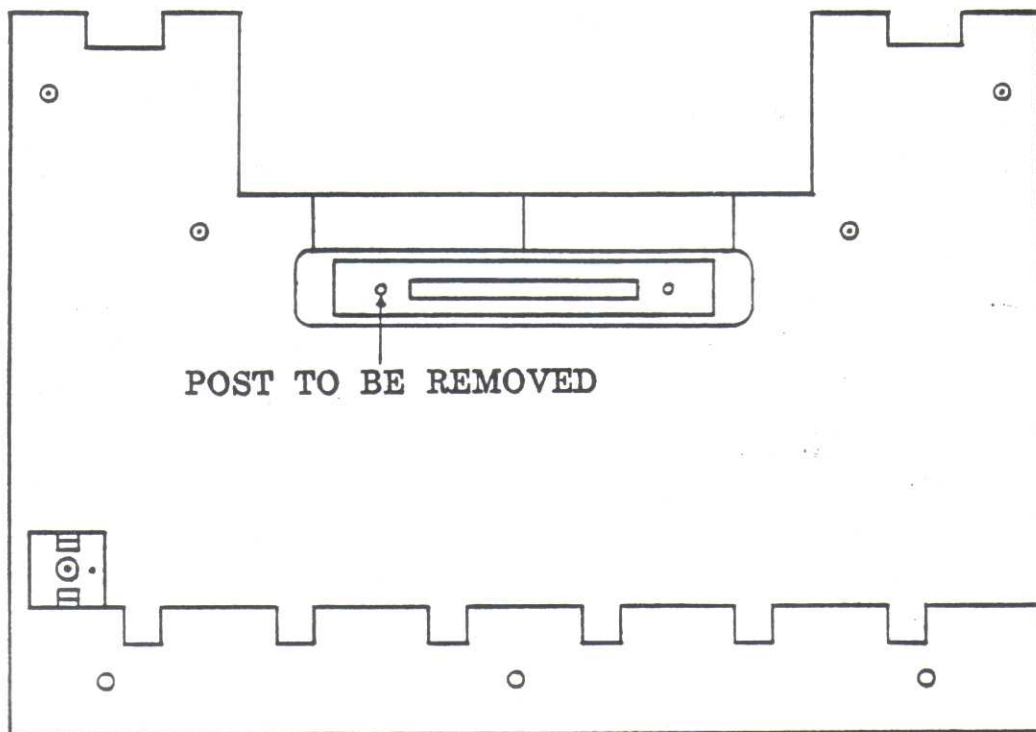


Figure 5. Top Cover Pin Removal

14. Remove the Diagnostic Cartridge and install the Cartridge Adaptor.
15. Use the 2.6 Diagnostic Cartridge to perform a quick check to ensure that the adaptor is functional.
16. If the adaptor does not function properly, step through the modification procedures to ensure that all modifications were completely and correctly performed.
17. If all modifications were installed correctly and the Cartridge Adaptor does not function properly, use a DVM to determine which component or assembly is defective.
18. Replace the defective component or assembly.
19. Completely reassemble the unit, using the screws removed in Step 1 to secure the two housings together.