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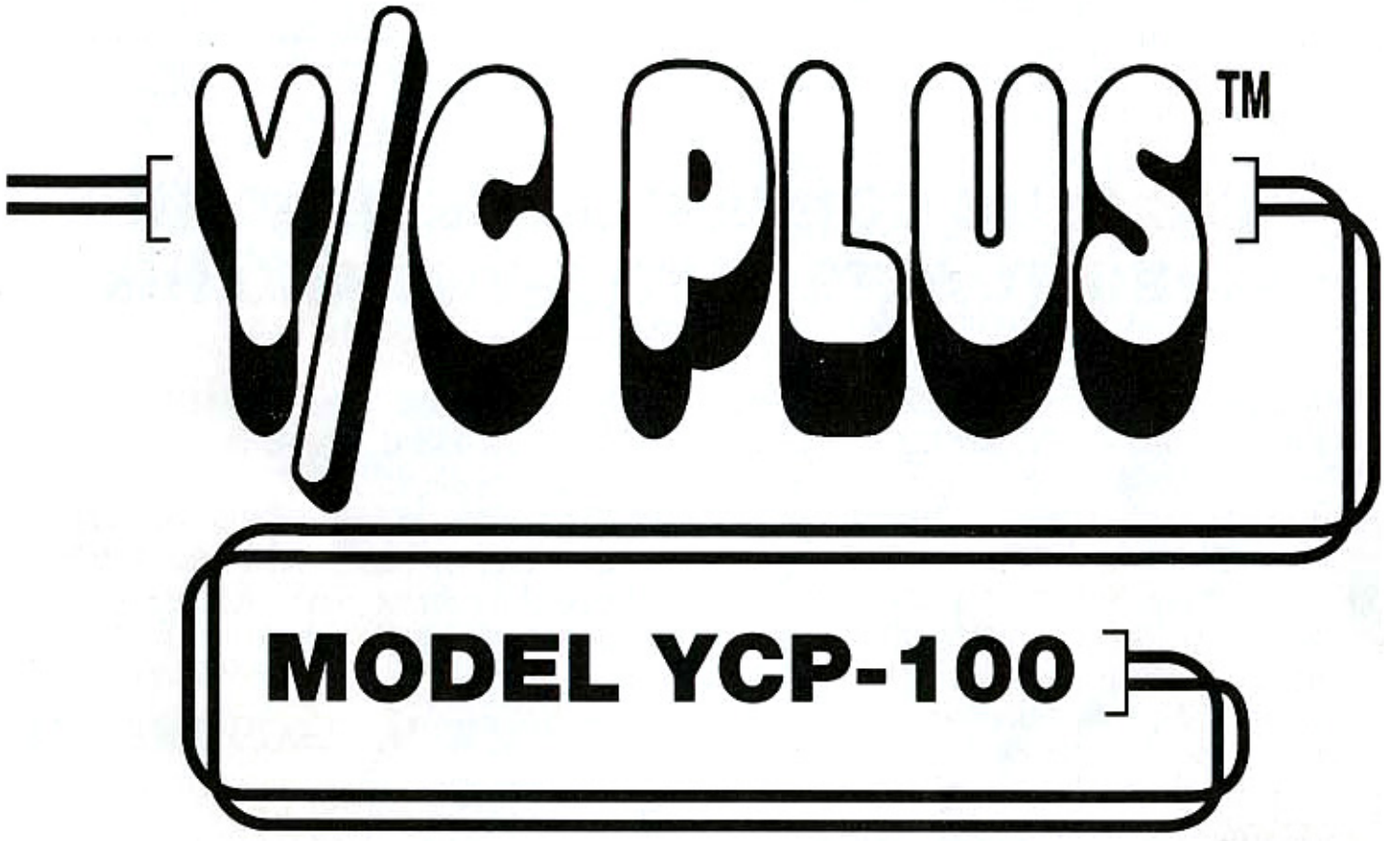
SUPER VHS AND Hi8 FOR YOUR VIDEO TOASTER



BENEFITS OF Y/C PLUS IN THE SYSTEM.

- True Y/C (Hi-8 & S-VHS) is passed through the Video Toaster.
- The bandwidth of the Video Toaster is fully utilized.
- Horizontal Resolution is greater than 450 Lines.
- Less Video Artifacting occurs.
- Sharper Vertical and Horizontal Lines.
- Superb Character Generation and overall sharper video image.

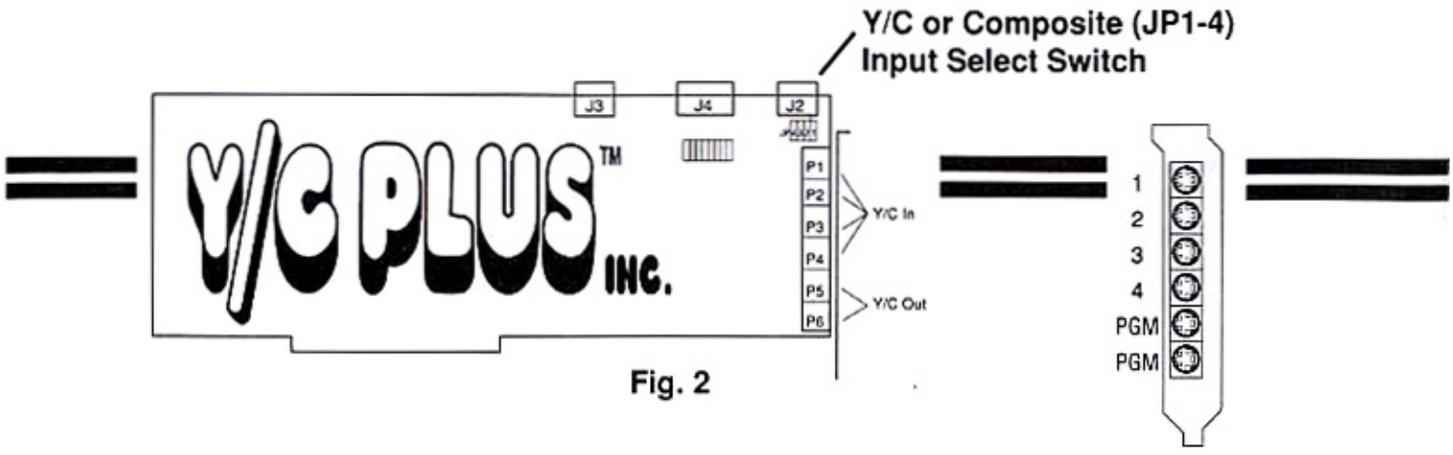


Fig. 2

Y/C PLUS CONVERTS THE NEWTEK VIDEO TOASTER™ TO S-VHS AND Hi8

- Simply by adding the YCP-100 Y/C PLUS to one of the Amiga Zorro Expansion Slots you have (4) Y/C Inputs and (2) Y/C Program Outputs.

- Combinations of Y/C and composite video can be used. A jumper plug is used to select the kind of source required, these are noted as JP-1 thru JP-4.

- When Y/C inputs are selected (factory preset), the composite inputs of the Video Toaster become composite outputs. These outputs can be used to monitor the incoming component signals. This is an excellent feature for "Live Camera Switching" or A/B Roll Editing systems.

- The system uses four (4) pin micro din connectors. We recommended high quality Y/C cables for optimum connection.

- Composite preview output from the Video Toaster remains intact and is used like always.

- Composite Program output from the Video Toaster is still active but has been terminated. To use this output, a video distribution amplifier is required. VCR's are self terminating and can not be used without the video D.A. Monitors can also be used if the 75 ohm switch is set to "Hi-Z".

- Y/C PLUS accepts S-VHS, Hi-8, S-Video and Y/C signals. Y/C is the industry standard for separate luminance and chrominance.

Y/C PLUS IMPROVEMENTS

- Y/C PLUS reduces Cross Color. What is cross color? This is a video artifact of the NTSC system manifested as a rainbow pattern found in high detailed objects. A typical example of this is the rainbow effects produced by striped shirts or jackets. This happens when the size of the lines approach 286 lines of resolution. This produces a frequency approaching color subcarrier which the color decoder misinterprets as color information and adds in a color component. This causes luminance crossing into the color signal. Y/C PLUS reduces cross color from the Video Toaster.

- Y/C PLUS reduces dot crawl and cross luminance. This NTSC artifact appears on edges of color with complementary hues, such as blue and yellow. At these boundaries the color decoder misinterprets the

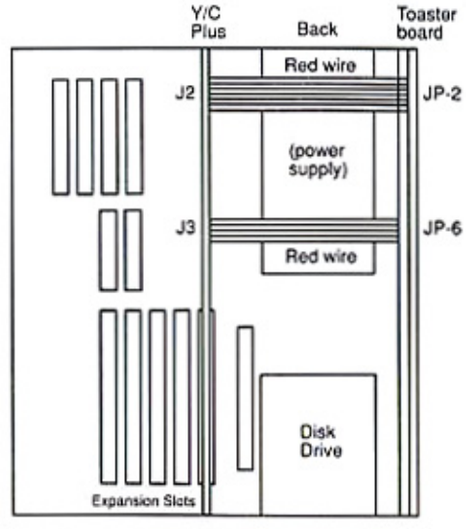
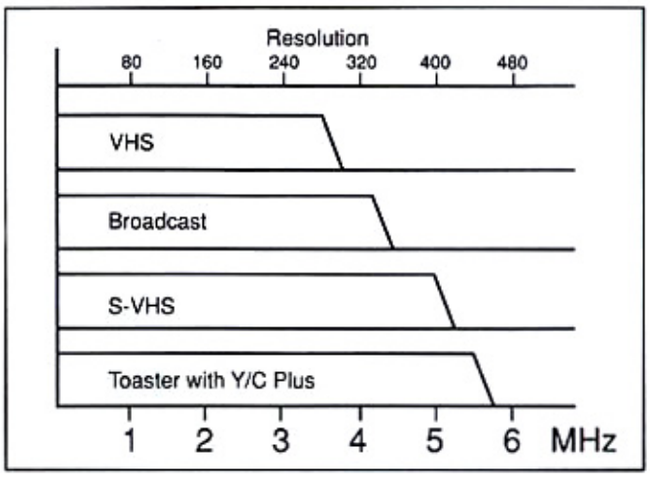


Fig. 1 Amiga Top View



Resolution Comparison

abrupt shift in color phase as luminance signal and alternating dark and light dots form with color information. Since color phase is reversed from line to line and field to field the dots, which alternate at a 30 Hz rate, appear to crawl on the screen. Cause of this problem is color crossing in the luminance signal. When the colors are in opposite phase the greater amount of "dot crawl" will appear. This is most visible in character generation. Consequently in the past the user has had to pick certain colors as background and certain foreground characters restricting the user to fewer color combinations. Y/C PLUS gives the user a much greater, almost endless selection of color combinations.

- Y/C PLUS reduces Moiré (herringbone) or wavy lines introduced as artifacts of NTSC video system. As non parallel lines converge they produce frequencies approaching the color subcarrier frequency. As this happens the color decoder splits some of the luminance information into the color information and produces a beat pattern which makes the lines appear to wave. This is reduced with the use of Y/C PLUS.

- The most important component of the Y/C PLUS is the Faroudja Laboratories Two Dimensional Digital Adaptive Comb Filter. This component was developed for the future Advance Television process (Digital HDTV). In the NTSC color system, certain information is contained in sidebands of discrete frequencies centered about the 3.58 Mhz color subcarrier. With the higher color saturation, the number and size of the bands will increase. Any information which falls between the sidebands is luminance information. A standard comb filter only eliminates the color sidebands and lets more luminance information through. An adaptive comb filter analyzes the color information in a pixel and controls how much and how many sidebands are allowed through based on how much color each pixel has. If no color information is present all information is passed to the luminance channel. If larger amounts of color are present all the color sidebands are passed to the color channel and the rest are passed to the luminance channel, resolution is reduced by only one pixel. In the case of the Faroudja's two dimensional digital adaptive comb filter, color and luminance are sampled not only for the current pixel but for adjacent pixels on the same line as well as the pixel on the preceding line above the current pixel. All this information is processed and used to control the comb filter settings for the current pixel. This enables Y/C PLUS to correct not only for vertical dot crawl, but also for dot crawl between the horizontal lines.

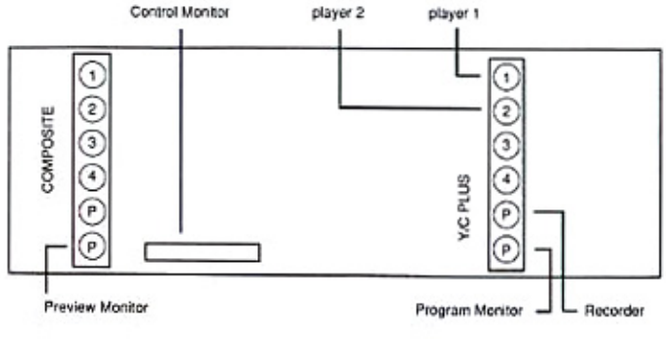


Fig. 4 Back View of Video Toaster

INTRODUCTION

Congratulations! You have just purchased the most useful addition to your NewTek Video Toaster. The Y/C PLUS VCP-100 allows you to use up to four (4) S-Video (Y/C, S-VHS, or Hi-8) inputs and has two S-Video program outputs while maintaining the full quality of you S-Video tape equipment. The YCP-100 is intended for use with the NewTek Video Toaster in the Amiga A2000 or A2500 computers. The YCP-100 is also intended to work in the Amiga A4000 computer and will be tested in the near future. The VCP-100 will operate with the A3000 computer when a Toaster Cozzy is used, there is not room in the A3000 for the Video Toaster without modification of the housing of the computer. The VCP-100 is a full length card designed to be installed in any one of the (5) Amiga Expansion Slots, also known as the "Zorro Slots". No software is provided with the YCP-100, none is required for correct operation.

CONFIGURING

The YCP-100 four (4) jumpers to be configured. Each jumper controls whether your Video Toaster inputs are either S-Video or NTSC composite. This is extremely useful. An example of this is when house sync is fed to the Video Toaster to Video Input #1. JP-1 must be removed. All inputs are set for Y/C In from the factory. IN means the jumper is in place. OUT means the jumper is removed. Each jumper acts independently of any other jumper allowing any combination of inputs to be either S-Video or Composite. See Fig. #2.

INPUT SELECT CHART

Input	Jp#	S-Video	NTSC Composite
1	JP-1	in	out
2	JP-2	in	out
3	JP-3	in	out
4	JP-4	in	out

In the case of S-Video inputs, the Toaster input terminator 75 must be turned on for the channel selected. This procedure is found in the Preference Screen of the Video Toaster (Check page SW4 of your Toaster Manual). See Fig. 3.

Preview for the Video Toaster remains the composite out from the Video Toaster. See Fig. #4.

The Auto Hue procedure remains the same (composite).

INSTALLATION: See Fig. #1.

STEP 1: Remove power cord to prevent electrical shock.

STEP 2: Remove the computer cover, (5) screws.

STEP 3: Check jumper configuration. Fig. #2.

STEP 4: Select an unused Amiga "Zorro" slot and remove the blank plate in the rear of the slot.

STEP 5: Hold the YCP-100 card by the edge insert it into the "Zorro slot" with the S-Video connectors visible from the back of the computer.

STEP 6: Install the one ribbon cable from J-2 on the YCP-100 to jack JP-2 on the Toaster analog board. The red side of the ribbon cable, which will be toward the back of the computer, denotes pin 1 of the cable. Make sure the header plug pin one matches pin one on JP-2 of the Toaster board. Pin one is toward the back of the computer. JP-2 is just above the input one BNC connector on the board toward the outside (right hand side as viewed from the front) of the computer.

STEP 7: Install the other ribbon cable from J-3 on the YCP-100 to jack JP-6 on the Toaster main board. Make sure that pin one of the header (identified by the red wire) is closest to pin one on JP-6 of the Toaster main board. Pin one of JP-6 on the main Toaster board is toward the computer front.The red wire should also be toward the front. The Toaster main board is the board closest to the inside of the computer. The main board is also the biggest of the three boards of the Toaster hardware.

STEP 8: Replace the computer cover.

STEP 9: Install the appropriate S-Video cables or composite cables.

STEP 10: Replace power cord.

STEP 11: Turn on the computer and startup the Video Toaster software.

STEP 12: Check Toaster terminations are turned on for S-Video used inputs.

TROUBLESHOOTING:

Problem: No video signal from VCP-100.

Solution: Check Y/C cables. The Y/C cables must be locked in place. Some inexpensive cables have extra plastic around the hood that must be cut back, so the there is positive connection. Check ribbon cables (Fig.1) Red wire must be in right position.

Problem: Video out of VCP-100 only from Video Toaster.

Solution: Check JP-1 through JP-4 Input Select. (Fig. 2)

Problem: No Video Inputs of #1, #2, or #4. Only on #3.

Solution: Reinstall ribbon cables correctly.

Problem: Computer will not boot with YCP-100.

Solution: Too many devices in computer. Remove YCP-100 or any other card. Try booting again. If system now boots a larger power supply may be required. The original power supply in the A2000 is only 200 watt. A 230 watt is available.

Problem: System needs to be hooked to house sync.

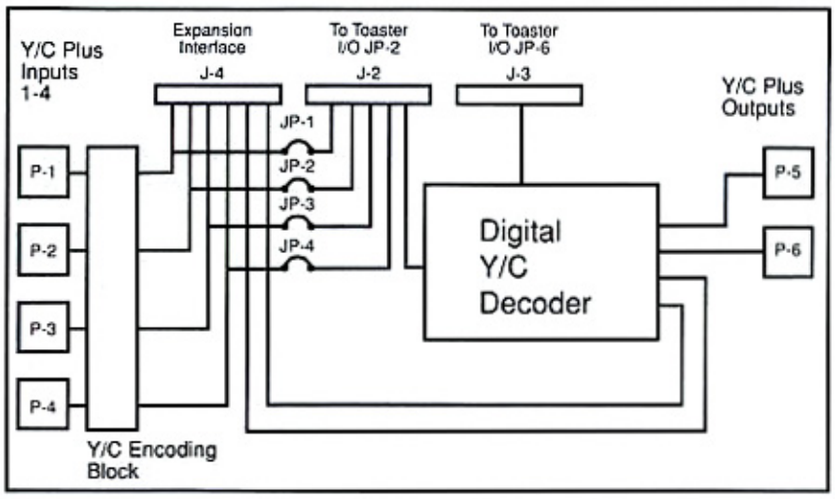
Solution: Remove jumper JP-1, connect sync to #1 input on Video Toaster board.

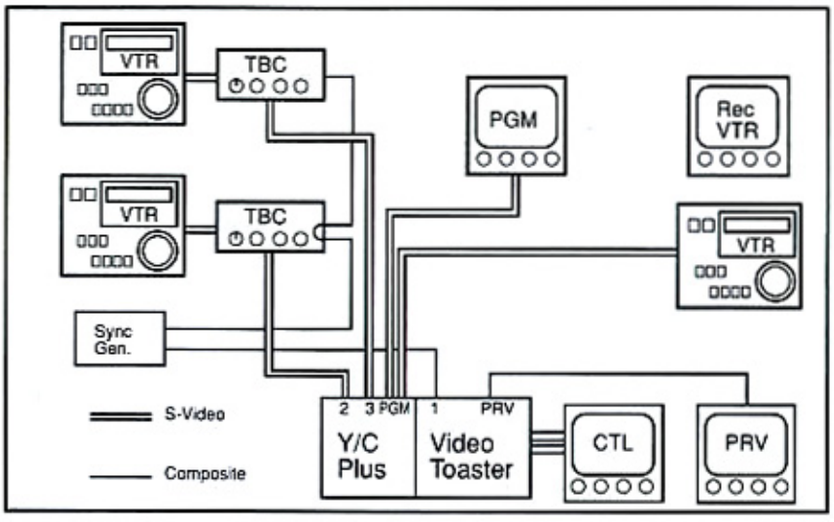
In case of additional problems call our technical support department. The department is open from 8:00 am to 5:00 pm Monday through Friday Central Standard Time.

If in the unlikely event a board should need to be repaired or replaced follow the steps below:

First: Call technical support for assistance.

Second: If unit needs repaired or replaced. Call for a RMA Return Materials Authorization. Place the RMA number prominently on the outside of the shipping box. Please enclose note about the problem.





SPECIFICATIONS

Video In:	(4) Y/C or composite Inputs (Configurable)
Video Out:	(2) Y/C Outputs.
Luminance:	1 Volt p-p, 75 ohms, unbalanced, negative sync
Chrominance:	286mV p-p, 75 ohms unbalanced
Horizontal Resolution:	Better than 450 lines minimum
Signal-To-Noise:	Better than 60 Db
Diff Phase:	Less than 1.0 degree
Diff Gain:	Less than 1.0 %
Response:	-3Db at 5.5 MHz
K Factor:	Less than .7%
YCP 100 Delay:	1360 nanoseconds
Video Toaster Delay:	400 nanoseconds
Total Delay:	1760 nanoseconds
Y/C Combiner Delay:	12 nanoseconds

POWER REQUIREMENTS

+5 Volts:	60 Ma
+12 Volts:	108 Ma
–12 Volts:	96 Ma

Design and specifications are subject to change without notice.

SYSTEM NOTES

- High quality Y/C Cables are recommended.
- Y/C Monitors are recommended for quality control.
- Time Base Correctors with a bandwidth of 5.5 MHz or greater are recommended.
- Time Base Correctors with Y/C inputs and outputs will increase picture quality.
- A larger power supply may be required on fully loaded systems, the basic 200 watt should be replaced with a 230 watt.

WARRANTY

YCP-100 provides a limited one-year warranty.

Accessories Supplied:
(2) header cables.

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Hi8 is the trademark of Sony Corp. of America