

THE DIJIT SYSTEMS ADVANCED VIDEO PROCESSOR CARD SYSTEM FOR THE TEXAS INSTRUMENTS TI-99/4A HOME COMPUTER

The DIJIT Systems Advanced Video Processor Card System for the TI-99/4A Home Computer is based on the Yamaha V9938 MSX Video Display Processor. This video processor was designed and implemented by the ASCII Corp. (Japan Microsoft) and Yamaha for the MSX II computer. The AVPC allows the TI-99/4A not only to display 80 columns of text but also video and graphics approaching the Atari ST and Amiga. For this reason we chose to call our card the Advanced Video Processor Card and not just an "80 column card". The AVPC is limited only by the imagination of the software designer.

While there are other approaches to incorporate the V9938 into the existing TI-99/4A environment, the DIJIT Systems approach has been to abandon the existing TMS 9918A Video Display Processor and move the video processing to a separate card in the Peripheral Expansion Box. The advantage of this approach is the reduction in "lock-up" potential due to I/O port connection instability with no additional power drain on the computer console. As a practical consideration there is no additional hardware on the programmers table. The P-Box card also eases the addition of accessories to the AVPC.

This approach is not without its consequences however, one of which involves a simple hardware modification to the console in which the existing VDP is effectively "put to sleep" to avoid bus contention while maintaining the necessary system timing. Additionally it is necessary to allow VDP control data to access the main system bus. Resident software in the AVPC controls power-up and corrects the TI-99/4A monitor errors.

The V9938 is directly upward compatible with the TMS 9918A VDP; however, it is not directly compatible with the TI-99/4A due to both the hardware and software design of the latter. The TMS 9918A, 9928A and 9929A were designed by the TI Video Display Products group in Houston. The implementation of these VDPs is explicitly laid out in a manual published by that group, "Video Display Processors Programmer's Guide", SPPU004. Most TI-99/4A software developers followed those rules as does the Yamaha V9938 and so most existing software will run on the AVPC. There were however some offenders, among which was the TI-99/4A design group in Lubbock.

Errors in most disk based programs should be readily correctible. For example, corrections to TI FORTH screens #53 and #54 have already been disseminated to FORTH interest groups. However, there is little that can be done with cartridge software, in which the errors have been "frozen in silicon" other than having the programs translated to disk format and subsequently corrected with a sector editor. We are aware of other programs that have problems and as we have time, we will look for solutions. In this regard we would appreciate the input of you, our customers, concerning offending software and any solutions you may have found which we can disseminate to others.

INSTRUCTIONS FOR MODIFYING THE TI-99/4A

IMPORTANT NOTICE

Only install the AVPC in a computer that is in good working order. If your computer malfunctions or if you have any doubts about its condition, now is the time to have it repaired or trade it in to the Texas Instruments Customer Service Center.

At this time the AVPC cannot be installed in a "QI" version of the TI-99/4A. The QI model may be recognized by looking at the side I/O port. If the shielding is silver you have a QI model; all other consoles have gold shielding.

TOOLS REQUIRED

- Small Phillips-head screwdriver
- Needle-nosed pliers or tweezers
- Xacto knife or single edged razor
- Magnifying glass
- Scotch tape or masking tape

DISASSEMBLY

Place the computer in the normal position, keyboard toward you and unplug everything. If you have a black and aluminum console, pry out the thumb slide of the ON-OFF switch. Turn the computer over, remove 7 small self-tapping Phillips head screws and lift off the bottom. Take a good look, this is the way everything must be to fit back into the box. Note that there are three major assemblies: the power supply, the keyboard assembly and the big tin box containing the computer. Also note that the line from the power receptacle passes over the tin box to the power supply. Lift it out of the way.

Remove the 3 small self-tapping Phillips head screws that hold the computer assembly to the top of the case. For greater maneuverability, it may also be necessary to remove the 2 screws that hold the power supply. It isn't necessary to remove the power supply, just loosen it. Then gently unplug the keyboard cable connector from the computer and lift the computer free. At this time the cartridge port connector may pop loose; that's OK, it has to be removed anyhow.

Two tin plated shields cover the computer printed circuit board and are fastened by 3-#6 machine screws and nuts, loosen and remove them. Also remove the two metal clips that slide over the shields. Some computers may also have a small bead of solder that electrically grounds the shields to the computer board. If so, it will be necessary to heat up your soldering iron and melt this bond being careful not to allow molten solder to flow into the computer. Remove both shields.

MODIFYING THE CONSOLE

CUTTING THE TRACE

The TI-99/4A was designed in such a manner that the video control data generated by the CPU was not multiplexed onto the main system bus but went directly to the VDP. In order to control the AVPC in the P-Box, it is necessary that the VDP and the CPU have free access to data via the main bus. To do this the multiplex control gate must be disconnected from the video block decoder. There is no way of doing this without cutting a lead or trace on the printed circuit board.

Take the computer printed circuit board with component side up and the I/O port to the right. Refer to diagram "Trace Cut Location" which is a simplified drawing of the lower right hand corner of the printed circuit board. Locate the trace pattern between IC 74LS03 and IC 74LS32. Note that it consists of a 4 dot hole pattern. It is necessary to cut only the lead from the topmost dot. The cut should be made with an Xacto knife or single edged razor blade. Carefully cut a piece the width of the trace, out of the trace. Inspect the area with a magnifying glass and verify that only this trace is cut and that the trace is completely severed.

VIDEO PROCESSOR JUMPER

Congratulations, the messy work is done. Now we shall install the Jumper on the Video Display Processor. Note that it is one of the few socketed integrated circuits on the board. Also note the index on the chip points toward the center of the printed circuit board. The index is the "U" shaped indentation on the top of the IC that guides automatic insertion machines involved in mass production.

Refer to the diagram "VDP Jumper Detail". Pry the IC gently out of its socket with a flat blade or screwdriver by alternately inserting it under each end. The pin to the left of the index is pin #1 and pins are numbered CCW from this point. Count down to pin # 14 and gripping it firmly with a pair of needle-nosed pliers or tweezers, bend the pin out 90 degrees. Reinsert the VDP into its socket by carefully engaging one row of pins in its respective side of the socket. Press gently and rotate the IC until the other row of pins engages. Be sure all pins are engaged and that the index is pointing toward the center of the board. Then press the IC uniformly and firmly into the socket until it is seated.

Now remove the Jumper from its plastic bag and note that it has three legs; A Red hook-clip, a Black hook-clip and a leg with a tiny one pin socket. Slide the socket over pin #14 of the VDP. Clip the Black hook onto pin #15 of the VDP making sure that the shank of the clip is in the pin #14 space and the hook is away from pin #14. Clip the Red hook on the capacitor lead on the opposite side of the VDP as shown. The use of clip hooks eliminates the need for soldering and is quite reliable. Dress the Jumper wires so that they do not interfere with the replacement of the computer shields and secure them with a little scotch tape or masking tape to prevent them from moving around when you replace the shielding.

REASSEMBLY

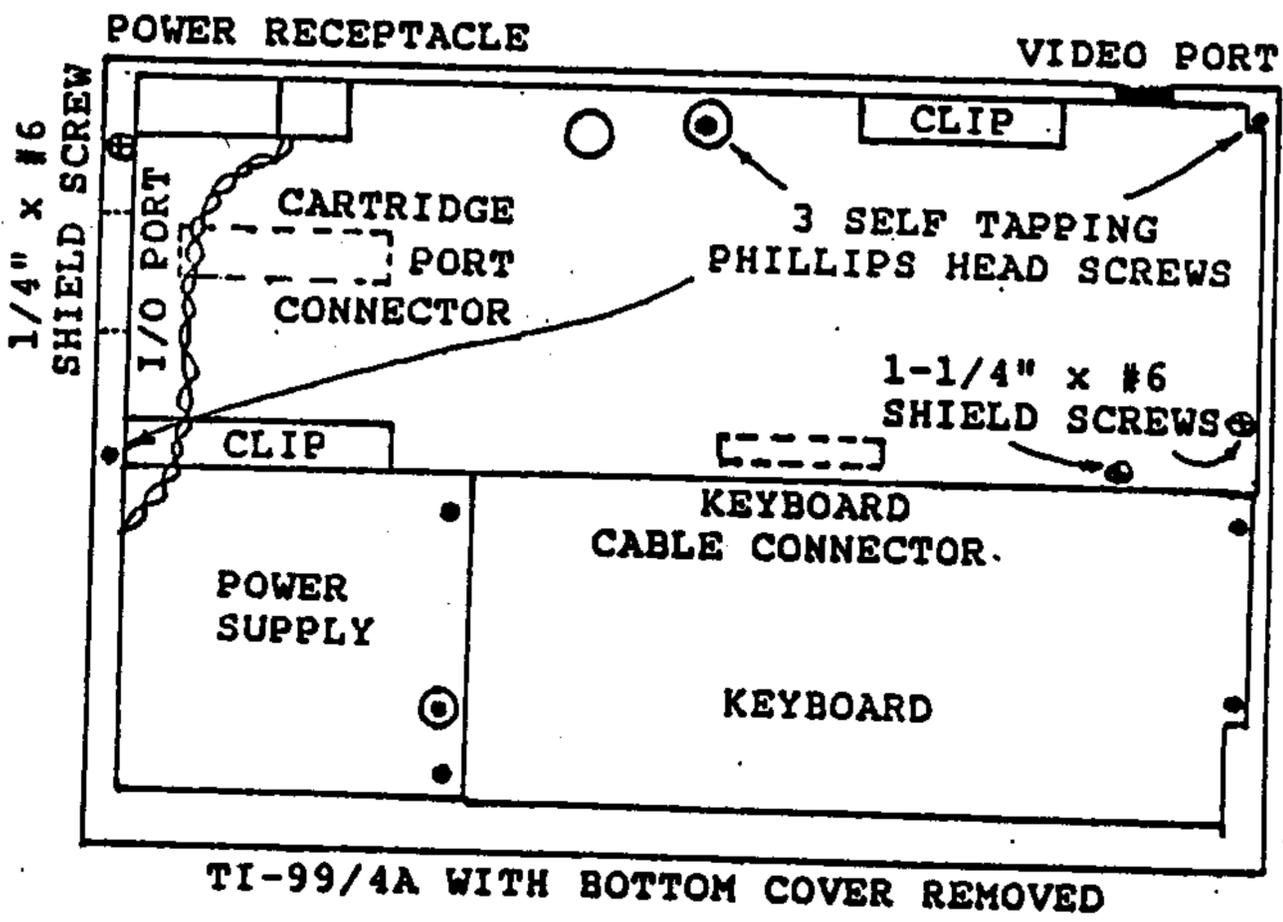
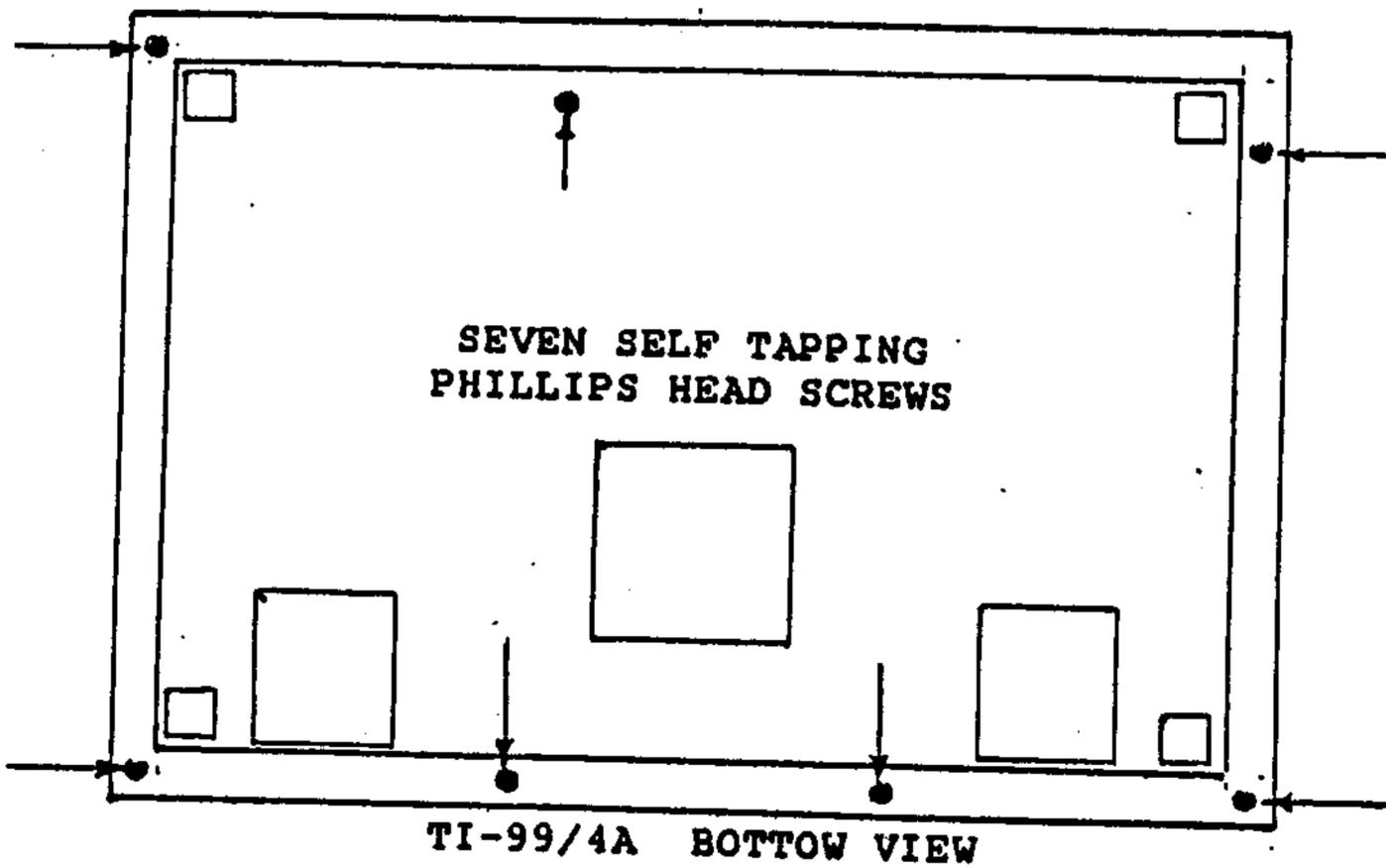
Now you have to put everything back the way you found it. Fit the two shields around the computer board. Be careful that the sides of the shields only contact the ground path around the perimeter, that is, they are not bent inward, touching any active traces. Use the clips to hold them in place while you fasten them with the machine screws and nuts. Remember the screws were not really tight - only snug. Bond the shield to the printed circuit board with a small bead of solder as you found it originally.

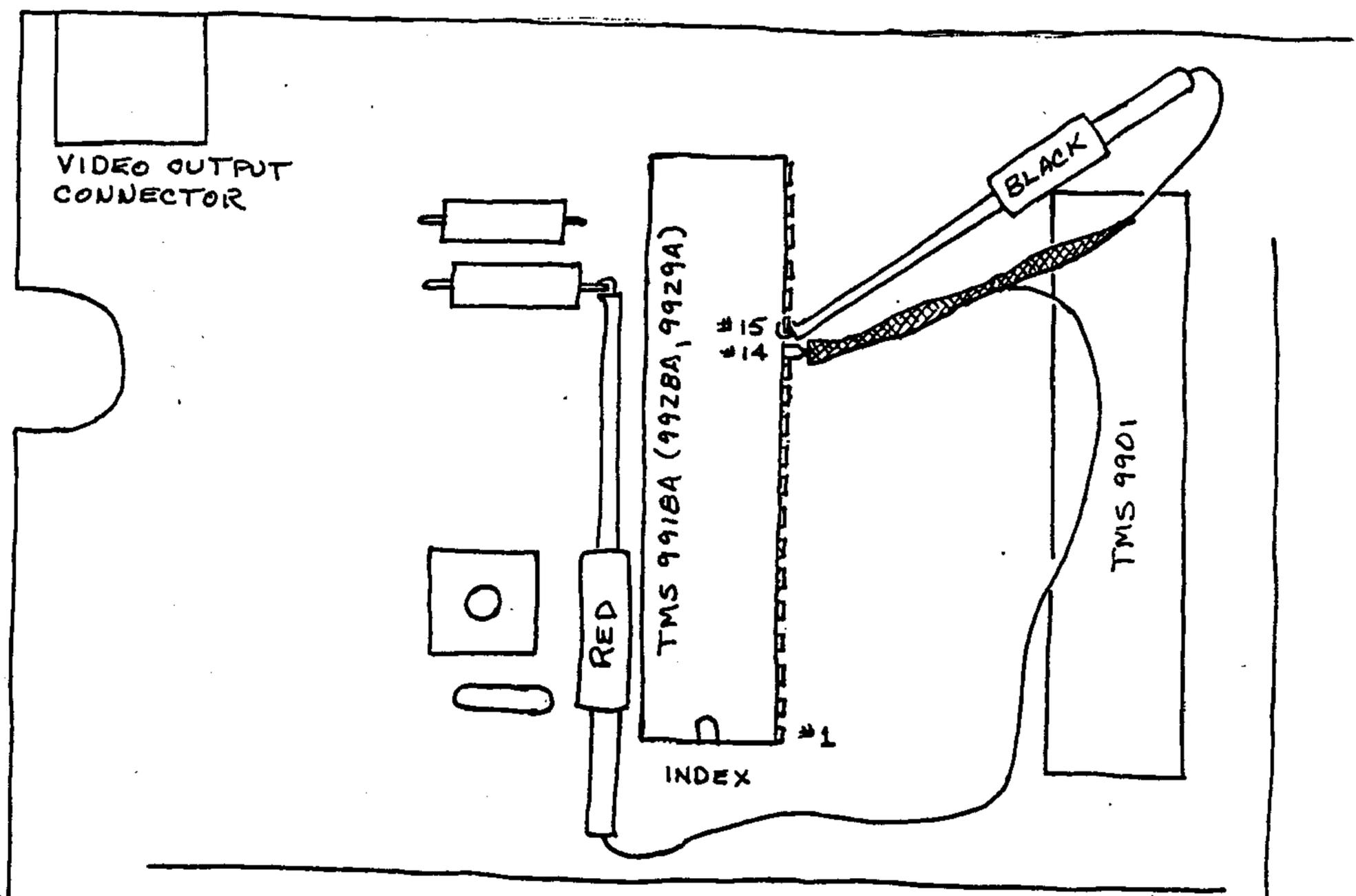
If you've had any problems with a dirty game port connector, now's the time to clean it with a "Q-TIP" and denatured alcohol. Then face the connector in the forward direction and plug it into the computer through the shield.

Plug the keyboard cable connector into the computer and fit the assembly back into the case. Fasten it with 3 self-tapping Phillips head screws. Also secure the power supply with two screws.

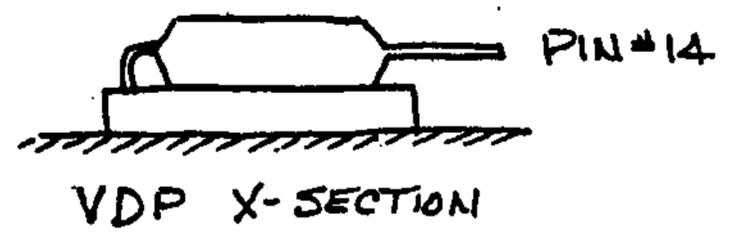
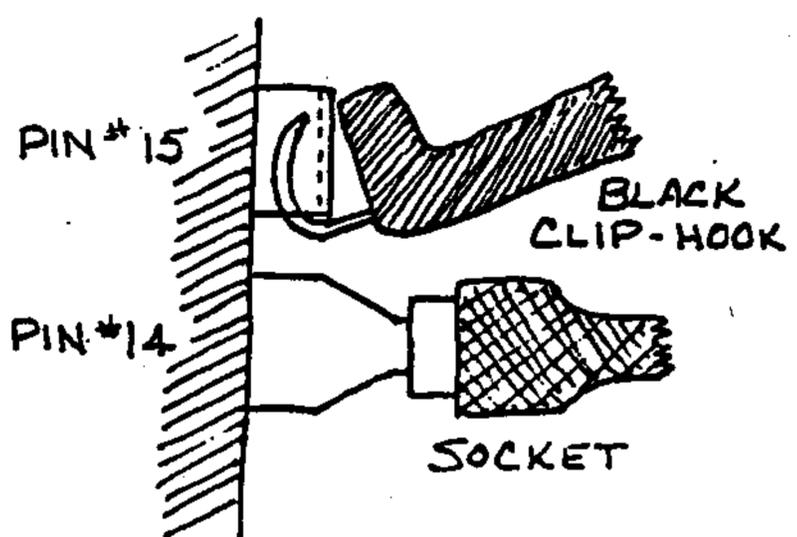
Replace the power line over the computer assembly, in its proper position. Finish by putting the bottom on the case and securing with the 7 small Phillips head screws.

Those of you with the black and aluminum consoles will have to pay special attention to the ON-OFF switch, making sure that the plastic slide engages the switch on the power supply board. The thumb slide snaps in after the case is together. Those of you with the beige consoles have it made, no fancy ON-OFF switch and no I/O port door.

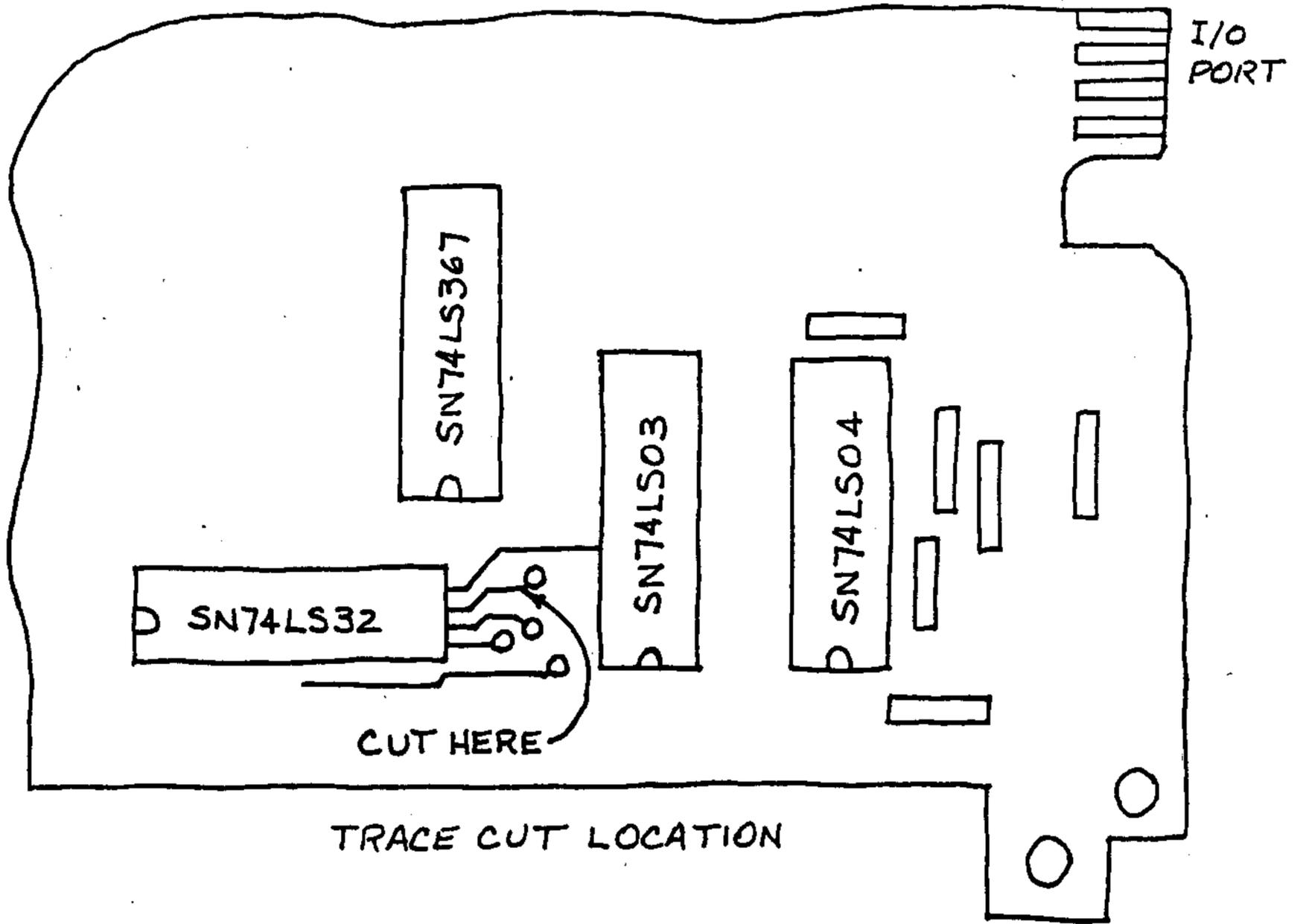




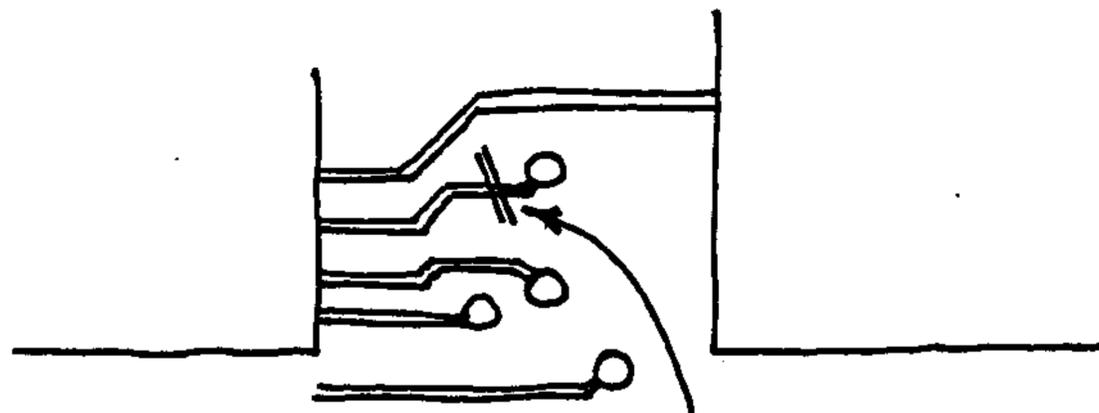
VDP JUMPER DETAIL



PIN #14 + #15 DETAIL



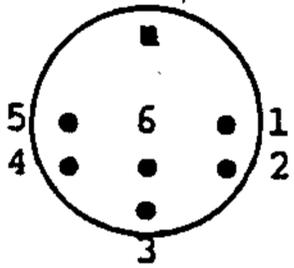
TRACE CUT LOCATION



CUT A PIECE OUT OF THE
TRACE EQUAL TO ITS THICKNESS
SEVER ONLY THIS TRACE

TRACE DETAIL

AVPC PINOUT

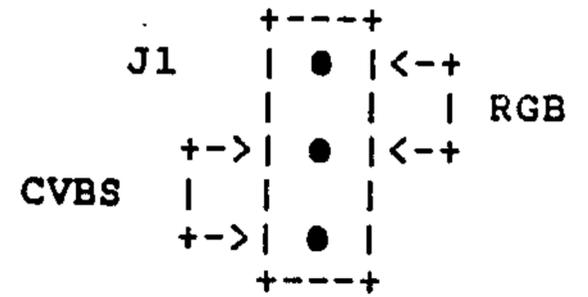


DIN 6

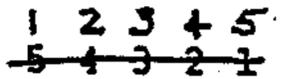
VIDEO PORT

- 1. BLUE VIDEO
- 2. RED VIDEO
- 3. GROUND
- 4. GREEN VIDEO (CVBS)*
- 5. CSYNC
- 6. +5 VOLTS

NOTE: Move Jumper J1 on AVI for RGB or Composite Video



*CVBS-Composite Video, Blanking & SYNC

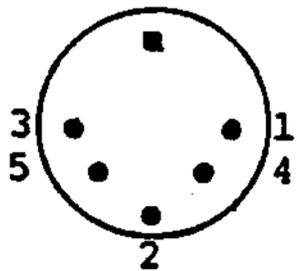


DB-9

LIGHT PEN - MOUSE PORT

- 5. 1. YA Row count
- 4. 2. XA Column count
- 3. 3. YB Row direction
- 2. 4. XB Column direction
- 1. 5. No Connection
- 6. Light Pen Detect or Mouse Switch
- 7. GROUND
- 8. +5 VOLTS
- 9. Light Pen Switch or Mouse Switch

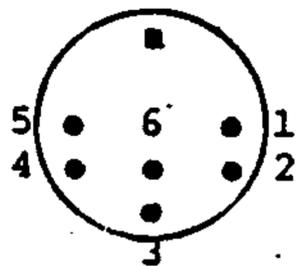
TI-99/4A VIDEO PORT PINOUT



DIN 5

DOMESTIC MODEL

- 1. +12 VOLTS
- 2. SHIELD
- 3. AUDIO
- 4. VIDEO
- 5. GROUND



DIN 6

EXPORT MODEL

- 1. +12 VOLTS
- 2. Y
- 3. (R-Y)
- 4. (B-Y)
- 5. AUDIO
- 6. GROUND

TYPICAL MONITOR CONNECTIONS

AVPC

- 1. Blue -----
- 2. Red -----
- 3. GND -----
- 4. G -----
- 5. CSYNC -----
- 6. +5 V -----

MAGNAVOX 8CM515

DIN 6

- 5 Audio in through RCA jack
- 4
- 3
- 1
- 2
- N.C.

AMIGA 1080 / THOMSON 4120

DB-9

- 1. Blue -----
- 2. Red -----
- 3. GND ^{Grey} -----
- 4. Green -----
- 5. CSYNC -----
- 6. +5 V -----

Purple

- 5 Audio in through RCA jack
- 3
- 1 & 2
- 4
- 7
- N.C.

SONY XBR SERIES / KV1311CR

34 Pin A/V connector

- 1. B -----
- 2. R -----
- 3. GND -----
- 4. G -----
- 5. CSYNC -----
- 6. +5 V -----

- 27 24 Audio input
- 25
- 6 - 16
- 26
- 30
- 33 & 34

COMPOSITE OR MONOCHROME MONITORS

- 1. B -----
- 2. R -----
- 3. GND -----
- 4. CVBS (G) -----
- 5. CSYNC -----
- 6. +5 V -----

- RCA jack
- Shield
- Pin

AVPC INSTALLATION

Now that the TI-99/4A console is modified, the AVPC card may be installed in any vacant slot of the Peripheral Expansion Box. Be sure that power is turned off before installing or removing the AVPC or any card in the P-Box. Connect the video cable between the AVPC and the monitor also the audio cable between the console and the monitor.

OPERATION

For best results first turn on the monitor, next turn on the P-Box, turn on the console last. The TI opening screen should appear and the computer should run most popular 99/4A programs normally. At this point we must again mention that there are some commercial programs, including some written by Texas Instruments which are incompatible with the AVPC in their present form.

SOFTWARE RESET

Many people found the original RESET function, "[FCTN] =", to be disconcerting especially when the computer was accidentally reset when keying in a long program. This is no longer the case. It is now required to press "[FCTN] [CTRL] =" to reset the computer.

THIRD PARTY PERIPHERALS

The AVPC was designed to be compatible with Texas Instruments TI-99/4A computer peripherals. It will also work with other third party peripherals inasmuch as they duplicate those made by TI. Some manufacturers may have deviated slightly from TI design in order to attain certain benefits. Such peripherals may not be compatible with the AVPC. The V9938 VDP used in the AVPC is significantly more complex than the TMS 9918A VDP and so is much less tolerant of deviations from Texas Instruments protocol and poor programming practices.

CRU BASE

The CRU Base of the AVPC is mapped at <1400 to avoid the CRU Base of other recognized peripherals. The user should avoid using <1400 for ramdisks or other peripherals.

JUMPERS AND PLUGS

295
14
J1 is located on the AVPC board in the upper right-hand corner of the board by the video output connector. It allows the sharing of pin #4 of the video output connector with either GREEN video or the Composite Video, Blanking and Sync signal. The upper position is used when RGB is desired, the lower position is used when the CVBS signal is desired. An analog RGB monitor is strongly recommended for use with the AVPC and so the jumper should be left in the upper position. The CVBS signal line is available however for use with a high resolution monochrome monitor. A COLOR COMPOSITE MONITOR IS NOT RECOMMENDED.

J2 located just above the EPROM is used to accommodate various size EPROMS from 2K bytes to 8K bytes. At present the

AVPC uses a 2716 EPROM and so the jumper should remain to the right.

P1 is located at the middle left-hand side of the card. These pins are for future expansion and are mapped at CRU 1404 and 1406. Do not jumper these pins.

P2 is the AVPC video expansion port. It will be used to accomodate various "piggy-back" expansion cards planned.

RS-232 CARD

The AVPC was designed to work within the constraints of the TI-99/4A hardware design. TI provided only one interrupt line from the P-Box to the console which must be shared by all peripherals in the box. Until now, the RS-232 Card was the only peripheral which made use of the line and so the error in the Texas Instruments Interrupt Service Routine in the RS-232 Card went unnoticed. This error is manifest as an apparent screen lock-up when using the AVPC with interrupt driven terminal programs such as TE II, Mass Tranfer or Fast Term. Non-interrupt driven programs such as OMEGA are not affected. For a nominal cost, DIJIT Systems can provide an EPROM kit with corrected software for the TI RS-232 card.

DISCLAIMER

The DIJIT Systems Advanced Video Processor Card (AVPC) for the Texas Instruments 99/4A Home Computer requires an internal hardware modification to the computer console. It is presumed that the purchaser has some technical skill, normal dexterity and a willingness to complete the project. We have included all the necessary data and procedural steps to guide the purchaser. DIJIT Systems assumes no liability for unsuccessful project completion or damage to any equipment. Modification of the TI-99/4A will probably void any remaining warranty. The DIJIT Systems AVPC for the TI 99/4A is offered "as is", and the purchaser should proceed at his own risk.

WARRANTY

The DIJIT Systems Advanced Video Processor Card (AVPC) is warranted against defective materials or workmanship for a period of Ninety (90) Days from the date of the original purchase by the consumer. This warranty is void if the kit components have been damaged by accident, unreasonable use, neglect, improper service or other causes not arising out of defects in materials or workmanship.

Any implied warranties arising out of this sale, including but not limited to the implied warranties of mercantibility and fitness for a particular purpose, are limited in duration to the above Ninety (90) Day period. DIJIT Systems shall not be liable for loss of use of the hardware or other incidental or consequential costs, expenses, or damages incurred by the consumer or any other user.

Some states do not allow the exclusion or limitation of implied warranties or consequential damages, so the above limitations or exclusions may not apply to you in those states. This warranty gives you specific legal rights, and you may have other rights that vary from state to state.

WARRANTY PERFORMANCE

During the above Ninety (90) Day warranty period, the Advanced Video Processor Card (AVPC) or any component supplied with this kit will be repaired or replaced with a new or reconditioned unit of the same or equivalent model (at DIJIT Systems' option) when the unit is returned by prepaid shipment to DIJIT Systems. The repaired or replacement unit will be warranted for Ninety (90) Days from the date of repair or replacement. Other than the postage requirement, no charge will be made for the repair or replacement of in-warranty units. NOTE, DIJIT SYSTEMS DOES NOT REPAIR COMPUTERS.

THE RS-232 EPROM

The following questions and answers were taken from our Bulletin Board file. For those of you who haven't read the files, they explain why it is necessary to replace the EPROM in your RS-232 card.

WHY DOES THE AVPC HAVE PROBLEMS WITH SOME TERMINAL PROGRAMS?

The AVPC only has problems with interrupt driven terminal programs such as TE II, Fast-Term, Mass Transfer etc. Non-interrupt driven programs such as OMEGA work fine.

After a month of self doubt, we discovered the problem wasn't our doing after all, but that there was a "bug" in the RS-232 card. If the EPROM in the RS-232 card is replaced, the AVPC works with all terminal programs that we are aware of.

WHY DOES THE AVPC HAVE PROBLEMS WITH THE RS-232 CARD?

The AVPC was designed to work within the hardware and software constraints of the TI-99/4A. To do so required sharing the external interrupt bus between the P-Box and the console. The RS-232 card was the only card made by TI or third party vendors that made use of this external interrupt bus until the AVPC came along.

A "bug" in the TI RS-232 Card's Interrupt Service Routine, which is part of the code in the DSR ROM, causes the card to shut down when an interrupt is sensed but there is no data in the incoming buffer. There is an apparent "lock-up" after one or two screens of incoming data are displayed. The computer remains active and in fact, the RS232 card may be reset by blindly reconfiguring the terminal program.

CorComp and Myarc copied the ISR and the "bug" with the same results. If TI remained in the Home Computer business and had brought out any more interrupt driven peripheral cards, they would have had to contend with the ISR "bug". DIJIT sells code correction EPROMs for the TI, CorComp and Myarc RS-232 cards.

REPLACING THE EPROM

Replacing the EPROM in the Myarc and Corcomp RS-232 Cards is straight forward since these companies were good enough to provide a socket for their DSR ROMs. It is only necessary to remove the covers from the cards and pry the existing EPROM out with a flat blade by alternately lifting each end. Before you do, however, note the direction of the small "U" shaped indentation on the IC. Insert the new EPROM in the socket in the same direction.

CorComp has 2 different size sockets, depending on when the card was manufactured. They are for a 28 pin EPROM (2764) or a 24 pin EPROM (2732). The code is the same in either EPROM and in the case of the card with the 28 pin socket, either EPROM may be accommodated. The 24 pin EPROM is bottom justified in the socket, that is, with the "U" shaped index pointing upward, the IC is inserted all the way down in the socket such that there are 4 empty socket holes left at the top end of the IC.

Replacing the EPROM in the TI RS-232 card is a different story because it is soldered in. Do NOT attempt to desolder the IC from the printed circuit board. Since the board is far more valuable than the IC, you must avoid damaging it. It is best, therefore, to cut the leads of the IC close to the board with a small diagonal cutter, then use a solder sucker to clear the holes. Solder in the enclosed socket and insert the new EPROM with the "U" shaped index facing in the same direction as the original.

DIJIT SYSTEMS
4345 Hortensia St.
San Diego, CA 92103-
(619)295-3301

SOLD TO: MR. DAVID A. SZIPPL

DATE 03/13/91

4 Poulston Place
Lima, OH 45805-

INVOICE 22
COPY 1

ORDER DATE : / /
YOUR ORDER No.

TERMS: Paid

DESCRIPTION	TXBLE	QTY	COST	TOTAL
CCRS232D EPROM	N	1	20.00	20.00
Shipping & Handling	N	1	5.00	5.00

PAY INVOICE TOTAL ----->

25.00

AVPC EPROM "PWRUP2A()"

"PWRUP2A()" replaces the powerup EPROM on the AVPC card. Although the previous version has served us well for the last two years, routines have been rewritten to smooth the operation of the AVPC and to extend its compatibility with existing programs. For example, the P-Code editor now works and the annoying little screen "artifact" in TELCO has disappeared. Moreover, other TI programs such as COPY-C, COMPANION word processor and PAGE-PRO now appear to be running satisfactorily.

Basically, "POWRUP2A()" improves interrupt handling and the disk buffering problems that existed with some programs. This does not mean that all previous TI software will now run. There are still some "incorrigible" programs out there which are fundamentally incompatible with the Yamaha V9938 and nothing can be done about them. We recommend that you try new programs before you buy them and find substitutes for the older incompatible programs.

"PWRUP2A()" is made in two versions, (N) for NTSC video used in domestic computers and (P) for PAL which is used overseas.

The AVPC can now be booted up either of two modes. The default mode is "AVPC MODE" which appears in the color bar of the opening screen. This mode is required to run advanced programs. It will however, also run most existing well written programs.

The secondary mode of operation is the "TI-99/4A MODE", it is entered by holding down the CTRL and SHIFT keys during either a hardware reset or a software reset. Notice of this mode will appear in the color bar of the opening screen. Experimentation may be required to determine which TI programs require this mode in order to run. Beta testing has determined that programs such as COPY-C, COMPANION and PAGE-PRO require this mode. CAUTION - don't use this mode for 80 column or advanced graphics features of the AVPC or a lock-up will occur.

Since the "TI-99/4A MODE" of "PWRUP2A()" serves the same purpose as SET99/4A, used with the older EPROM, discard that program. Using SET99/4A with "PWRUP2A()" will result in a lock-up.

J2 • A • B •

		JUMPER J2 SETTINGS
	U7 EPROM	2716 EPROM - B
D	Bottom justified in the socket	2732 EPROM - A
	----->	2764 EPROM - A

To install the EPROM, gently pry EPROM U7 from its socket with a flat blade or small screwdriver by alternately inserting under each end. Face the IC index to the left and the bottom of the IC all the way to the right in the socket. Engage one set of pins in its respective side of the socket, press gently and rotate until the other set of pins engages. Be sure all pins are engaged and none are bent, then press the IC uniformly and firmly into the socket until it is seated. Set J2 according to the EPROM type marked above.

DIJIT Systems AVPC
Software Starter Disk

Welcome to the AVPC. The disks include programs and utilities to help acquaint you with the AVPC and demonstrate its potential. The files are compressed and archived (INT/FIX 128) whenever the process saves disk space. The exceptions are picture files (DIS/FIX 128), small files and of course, Barry Boone's Archiver 3, which may be loaded from Extended Basic or Editor/Assembler. So format some blank disks, boot up Archiver, and enjoy.

On this disk are:

1. Funnelweb 4.13 with 80 column Editor, Show Directory & QDAV
 - a) Editor files are 80 column versions of ED and EE.
 - b) CHARA1 is identical to CHARA2 for better legibility.
 - c) Option 3 of the TI-Writer menu has been changed from DISK UTILS to QDAV, a new utility from Funnelweb Farms intended for the AVPC with full 192K RAM. File DS which contained DISK UTILS menu has been deleted. All other menu options remain unchanged.
2. BB/RDS - RDS Patch to use the Horizon RAMDISK with AVPC
If you have a Horizon Ram Disk, you must substitute this RDS for your existing RDS.

PLEASE NOTE: Many of the programs distributed by DIJIT Systems are "Fairware". DIJIT Systems distributes these programs with the full knowledge and permission of their respective authors. The purchase of a DIJIT Systems product does NOT include the "right" to use these programs as part of the purchase price. We ask you to be fair in your support of program authors and we're sure that all contributions, both monetary and commentary will be most graciously welcomed.

Due to our limited resources, DIJIT Systems cannot provide disk copies of new programs or updates. However, as more programs, demos and utilities become available we will post them on our bulletin board, so check in with us periodically. The BBS number is (619) 278-8155, 8N1 parity. New programs and updates are also available from selected BBS's and User Groups around the country and of course, from the authors.

ADDENDUM (September 1989)

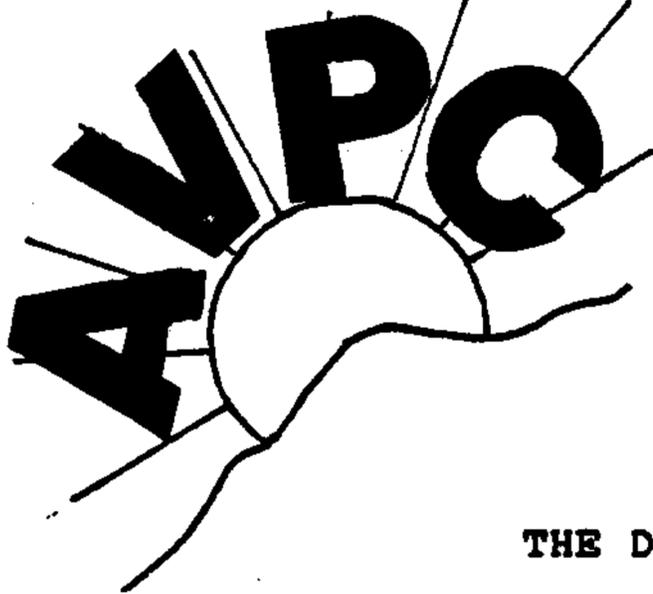
As a result of our continuing efforts to improve the AVPC, we now include our new POWER-UP 2 EPROM. Basically, POWER-UP 2 allows the AVPC to boot up in either of two modes. The default mode is "AVPC MODE" which appears in the color bar of the opening screen. This mode is required for all advanced programs, but most existing TI programs will also run satisfactorily.

The secondary mode of operation is the "TI-99/4A MODE". It is entered by holding down [CTRL]+[SHIFT] keys during either a hardware or software reset. Notice of entering this mode is indicated in the color bar of the opening screen. Beta testing has indicated that many older TI programs, which do not run in the "AVPC MODE", benefit by the use of the "TI-99/4A MODE". Experimentation may be necessary to determine which existing TI programs require this mode in order to run satisfactorily. CAUTION: Don't use this mode for 80 column or advanced graphics features of the AVPC or a lock-up will occur. Also please discard the utility, SET99/4A, as it conflicts with POWER-UP 2.

The incorporation of POWER-UP 2 does not mean that all TI software will now run. There are still some "incurable" programs that are fundamentally incompatible with the Yamaha V9938 and very little can be done about them. Our advice is to find newer substitutes for the older incompatible programs and to try out new programs before you buy them.

AVPC PROGRAM DISK 2

- XHI and X80 - An outstanding program by Alexander Hulpke of West Germany. These programs allow programming the advanced modes of the AVPC from Extended Basic.
- ART2ART - An assembler program by David Allen converts TI- Artist picture files to Myart format. Loads from Editor/Assembler #5.
- MYART1 - Myart picture file viewer by Barry Boone. Loads from Editor/Assembler #5.
- HHORSE - An excellent Myart picture file example by Cynthia Becker.
- MOUSE - Mouse demos and TI-Artist mouse driver.



DIJIT SYSTEMS

THE DAWN OF A NEW ERA FOR THE TI-99/4A

The DIJIT Systems **ADVANCED VIDEO PROCESSOR CARD** gives the TI-99/4A graphics power comparable to today's advanced Personal Computers. The AVPC graphics card conveniently fits into the Peripheral Expansion box with only a minor modification to the computer console. Your favorite TI-99/4A programs are displayed in crisp vivid RGB video. Word processing in 80 columns eliminates windowing, "What You See Is What You Get". The potential of the AVPC along with the forthcoming **DIJIT-EYE-ZER** is limited only by your imagination.

- . Installs in the Peripheral Expansion Box
- . 99% Compatible with Existing TI-99/4A Programs
- . 80 Column Word Processing
- . 192K of Video RAM
- . Crisp Vivid RGB Video
- . 512 Color Palette
- . High Resolution Bit-Mapped Graphics
- . Up to 8 Sprites Per Line
- . Mouse and Light Pen Port
- . Supports Video Overlay
- . Supports Video Digitizing

Programmers Note: The AVPC screen access is by X and Y coordinates. Fundamental screen commands such as AREA MOVE, SEARCH, LOGICAL MOVES, LINE etc., are direct hardware implementations. DIJIT Systems will have available a Software Developers Support Package.

SALES PRICE
\$220.00

CONTACT: DIJIT SYSTEMS
4345 HORTENSIA ST.
SAN DIEGO, CA 92103
(619)295-3301

Price subject to change without notice.

DIJIT SYSTEMS ADVANCED VIDEO PROCESSOR CARD PRICE SHEET

ADVANCED VIDEO PROCESSOR CARD	\$220.00	_____
CABLE FOR MAGNAVOX 8CM515	\$ 25.00	_____
OTHERS AVAILABLE - INQUIRE		

PLEASE NOTE:

Video output 1 volt p-p @ 75 ohms analog RGB.
 AVPC is NOT compatible with SEARS/SANYO, ZENITH OR OTHER 5 VOLT MONITORS including TTL type made for the IBM-PC.

At this time we cannot offer the AVPC for "QI" model consoles.
 (You can tell if you have a "QI" model by looking at the side I/O port of your console. If the shielding is silver you have a "QI" model. All others are gold).

	SUB TOTAL	\$ _____
S&H: Continental USA-\$4; AK,HI,CANADA-\$8	S/H	\$ _____
Overseas - Inquire		
California Residents add 6% Sales Tax	SALES TAX	\$ _____
SEND CHECK OR MONEY ORDER ONLY		
Must be in U.S. funds drawn on a U.S. bank	TOTAL	\$ _____

NAME _____

ADDRESS _____

CITY _____

STATE _____ **ZIP** _____

MAKE AND MODEL OF MONITOR _____

SEND TO: DIJIT SYSTEMS

4345 HORTENSIA ST.
SAN DIEGO, CA 921
(619)295-3301



Southern California Computer Group

ADVANCED VIDEO PROCESSOR CARD PROGRAM LIBRARY CATALOG

As of December 10, 1989

Disk No.: AVPC-1 (DSDD)
AVPC Palette Demo
Graphics Demos - Jeff Kittka
Fractal Demo
Mouse Routines - J.P. Hoddie
Mouse Routines - Mike Dodd
TI-Artist to G7 Conversion - D. Allen
XHI/X80 - Alexander Hulpke
(Access to G6, G7 & T2 from XB)
Disk Mgr/Fixer (80-col) - Germany
Horizon ROS fix - Barry Boone
Archiver 3.03 - Barry Boone
SC-DOS - Barry Boone
AVPC Text and Info files

Disk No.: AVPC-2 (DSDD)
MyArt Picture Loader - Barry Boone
26 MyArt Picture Files

Disk No.: AVPC-3 (DSDD)
Fast-Term (80-col)
Mass-Transfer (80-col)
Sector One (editor) - R. Moore
MULTIplan 80
TI-MAX (req. GRAM card)
INFOCOM Loader
DRAW (like Myart)

Disk No: AVPC-4 (DSDD)
G99 - GIF Viewer - Germany
Selection of GIF pictures

AVPC-Forth
Two SSSD disks (system and
data) with full-screen editor,
access to G6 and G7 mode and
graphics utilities (line, dot, etc)

Also available: FUNNELWEB Vn 4.20 with 80-col. editor and Disk Review (new). One DSDD disk (or three SSSD needed).

When ordering, if you use a different format than the one indicated, send a sufficient number of pre-formatted disks in your format. Since DSDD and DSSD disks may not break down evenly to fit SSSD, include an extra disk if SSSD is your format. (It will be returned if not needed.) Sorry, but we can not accept orders for individual programs from these disks. Send your request, including a re-usable mailer and return postage, to:

Southern California Computer Group
AVPC Librarian
1540 Corsica Street
San Diego, CA 92111

P.S. Donations to keep our group's library going will be appreciated (our members contribute \$2.00 per library disk.)

For updates of this catalog call our BBS (619) 278-8155, 300/1200/2400 Baud, 8N1, 24 hours. Select T)ext Files(AVPC) from main menu.