Mark Data Products

UNIVERSAL VIDEO DRIVER

The Mark Data Products Universal Video Driver (U.V.D.) allows any Radio Shack Color Computer to be used with a monochrome or color video monitor. The U.V.D. intercepts the video signal your computer normally directs to a T.V. set and converts it to a form a video monitor can use. Your video display will be crisp and clean and free from the objectionable R.F. interference you experienced with a T.V. set. The U.V.D. also has provision for sound and will adapt your computer audio to most monitors equipped with speakers. Installation of the the U.V.D is very simple and does not require any cutting, drilling or soldering. Please note that installation involves removing the cover from your computer which will void any remaining Radio Shack warranty.

HOW CAN THE U.V.D. WORK WITH ALL COCO MODELS?

The U.V.D. has five colored wire clips which are attached to specific points in your computer. The location of these connection points varies with each Color Computer model, but the enclosed diagrams make them easy to find, regardless of which model you have. A table lists the number assigned to each colored clip along with a brief description of its purpose.

The colored plastic clips supplied with the U.V.D. are called Miniature Test Clips and are widely used in the electronics industry. Depressing the larger, cylinder shaped end of a test clip exposes a tiny metal hook at the pointed end. Slip the hook over the intended connection point and release the spring loaded plunger. Make sure the metal hook does not touch any connection other than the intended circuit point and cause a short circuit.

ARE YOU USING A MONOCHROME OR COLOR MONITOR?

If you are using a color monitor, skip this paragraph. If you are

using a monochrome monitor, connect clip #5 to the point on the U.V.D. designated by the arrow to set up for monochrome operation. Disregard connection point #5 referenced in the clip identification table.

DO YOU HAVE A COCO II OR AN OLDER MODEL?

If you have a COCO II, continue here; otherwise proceed to the "INSTALLATION IN 'D', 'E', AND 'F' MODELS" section.

Unplug your computer and remove all of the screws from the bottom. Remove the top cover and refer to figure 1 which shows the area adjacent to the 6847 video display chip. Observe that the rectangular metal modulator can has covers that snap on the left and right sides. Snap the left side cover off and carefully remove it to expose the components shown in figure 1. The cover will not be used with the U.V.D.

With the COCO II, it is convenient to mount the U.V.D. on top of the 6847, 6822 and 74LS273 chips. Position the U.V.D. so the video and audio wires will extend out the rear of the computer through the same notch in the top cover used for the present T.V. connector. When you are satisfied with the location, remove the paper from the foam tape and mount the U.V.D. in position. Now connect each of the colored clips from the U.V.D. to its proper numbered point in the computer. Position the clips so the top cover of the computer can be replaced without interference. Proceed to the "CHECKOUT" section.

INSTALLATION IN 'D', 'E', AND 'F' MODELS

Unplug your computer, turn it upside down and loosen the seven screws securing the upper case half. One of these screws is found under the warranty sticker. Place a piece of tape over each hole to prevent the screw from falling out. These screws are not all the same length and should not be mixed.

Now turn the computer right side up again and remove the top cover. The next step is to identify which printed circuit board is in your computer. Examine the right side just in front of the cartridge port. If you find a series of numbers on the circuit board suffixed with a letter, the letter designates the board type and will be a 'D' or 'E'. If you do not find any numbers in this area, you have the newer 'ET' or 'F' type board. You may also refer to figures 2 & 3 to help you determine your board type.

If you have a 'D' or 'E' board, remove the cover from the shielded enclosure directly forward of the rectangular modulator can. This cover may be secured with some nylon ties that must be removed before the cover can be snapped off. The cover will not be used with the U.V.D.

With any of these computer models, it is convenient to mount the U.V.D. on top of the rectangular metal modulator can. Position the U.V.D. so the video and audio wires will exit through the same notch in the top cover used by the present T.V. connector. When you are satisfied with the location, remove the paper from the foam tape and mount the U.V.D. in position. Now connect each of the colored clips from the U.V.D. to its proper numbered point in the computer. Position the clips so the top cover of the computer can be replaced without interference.

CHECKOUT

Replace the top cover of your computer, checking that none of the clips is pulled from its connection point. Dress the video and audio wires so they exit through the rear of the computer without interfering with the top cover. Now plug the video and audio (if your monitor has sound) connectors from your monitor into the proper U.V.D. connectors. Apply power to your system and check that you have a sharp, clean video display. If you experience any difficulty, remove power and double check each step of the installation. Make sure that each clip is properly connected and that your video monitor is plugged into the correct U.V.D. connector.

If you are using a monochrome monitor and find that the display is too bright and has too much contrast, disconnect clip #5 from the U.V.D. and connect it to ground in the same manner as clip #2.

If you are using a color monitor, you may want to adjust the computer clock frequency trimmer. Trimming the clock frequency may improve the artifact colors produced in the hi-res graphics mode. This trimmer has a very limited effect on the clock frequency of your computer, so you do not have to worry about misadjustments that will cause your computer to stop working.

ADDITIONAL COMMENTS

We do not recommend a color monitor for text oriented monochrome applications. A color monitor does not offer the same

resolution as a monochrome monitor and may show some artifact colors when displaying hi-res character sets used with programs like SUPER SCREEN, TELEWRITER, and VIP WRITER. The artifact colors can be minimized by turning the color control all the way down, but a better way is to connect the U.V.D. for monochrome operation.

Owners of 'F' boards will notice that some components appear to have been haphazardly added to their computer in the area of the 1372 chip. In fact, a resistor has been soldered directly to the chip. Other components are contained in a piece of plastic tubing. These parts were added when it was discovered that 'F' boards would not generate artifact colors due to a weak color burst signal.

There are many different monitors available with wide variations in performance and price. The video bandwidth of one well known color monitor is very limited and has an audio system with such a low input impedance, it will load down the audio signal the U.V.D. delivers from your color computer. Additional audio amplification is needed with these monitors. We strongly suggest you compare specifications before you buy!

If your new monitor is not equipped for sound, you can add a simple amplifier and speaker to your COCO. You might consider the Radio Shack battery operated speaker/amplifier, Part #277-1008, selling for just $11.95. Also, check the November 1983 issue of Rainbow Magazine for an excellent article on building a speaker/amplifier for your computer.

CLIP IDENTIFICATION TABLE

NUMBER	COLOR	DESCRIPTION
1	RED	+5V. POWER
2	SILVER	GROUND
3	YELLOW	LUMINANCE
4	BLACK	AUDIO
5	GREEN	CHROMA

MONITOR CONNECTION JACKS

RED — VIDEO
BLACK — AUDIO

COCO II

VIEW WITH LEFT COVER REMOVED
FROM MODULATOR HOUSING

FIG. 1

② CLIP ANYWHERE
ON METAL HOUSING

⑤ R6

6847

③ ④

6822

74LS273

C32

FREQUENCY
TRIMMER

FRAGILE ADJUST CAREFULLY

ALTERNATE
CONNECTION

C29

①

FIG. 2

'D' AND 'E'
BOARDS

ASTEC
MODULATOR   ①

④

1372

6847

8 th PIN

⑤

C34
R5
R7

②   ①

③

VIEW WITH SHIELD
COVER REMOVED

FREQUENCY TRIMMER
FRAGILE ADJUST CAREFULLY

CARTRIDGE PORT
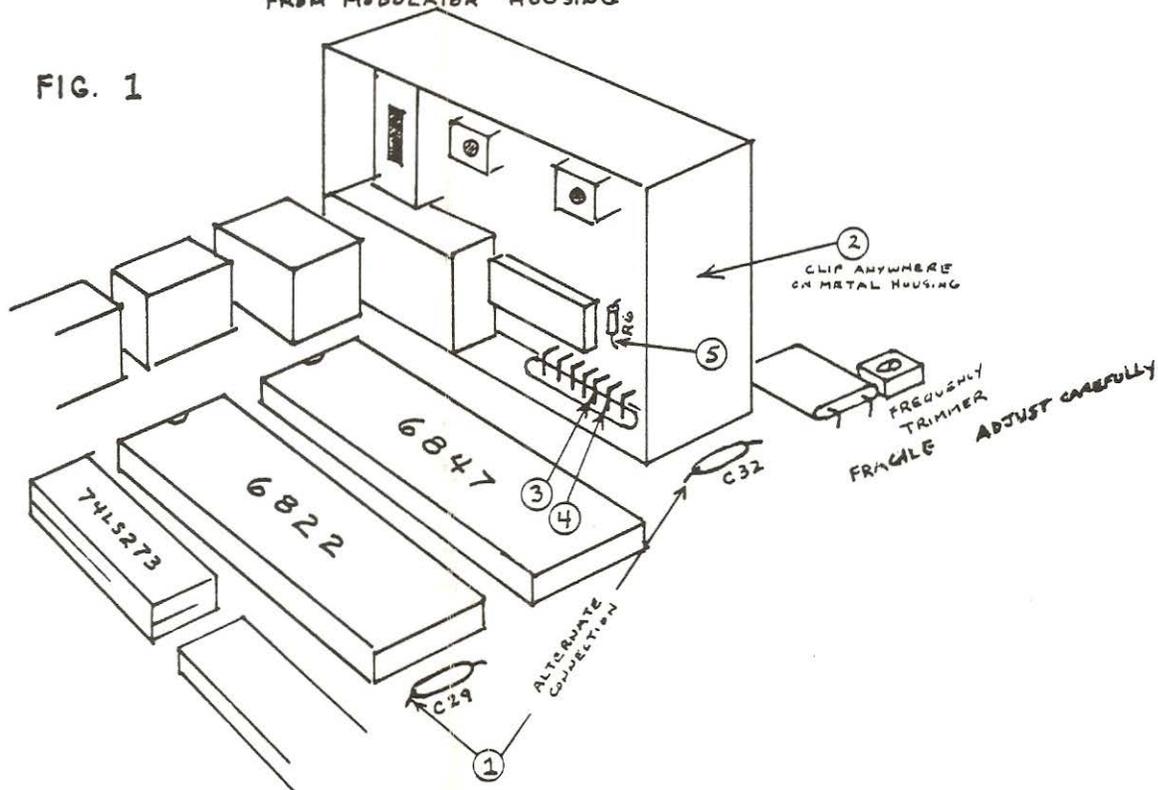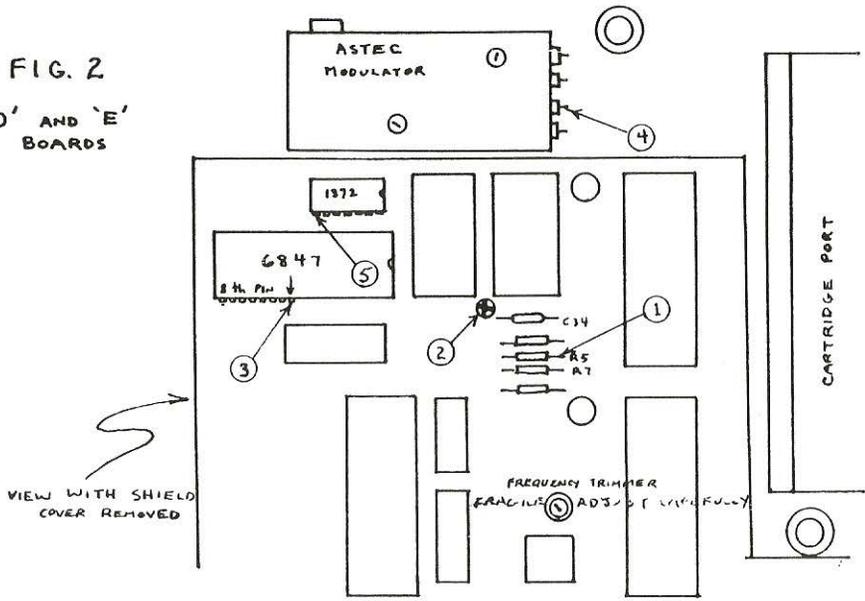
'ET' BOARD
ALSO CALLED
'F' BOARD

FIG. 3

ASTEC
MODULATOR   ①

R36   C11   1372

④   ①   ⑤   ②

6847

8 th PIN

③

FREQUENCY TRIMMER

FRAGILE- ADJUST CAREFULLY

CARTRIDGE PORT
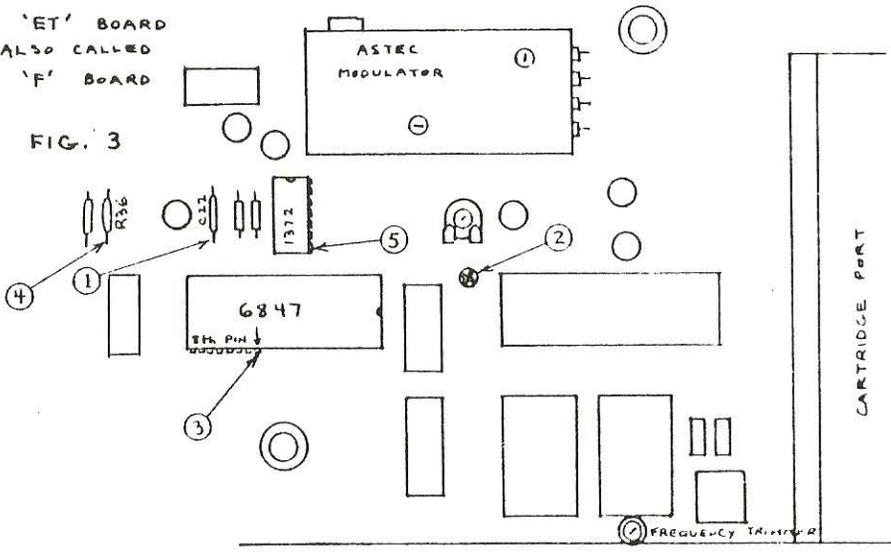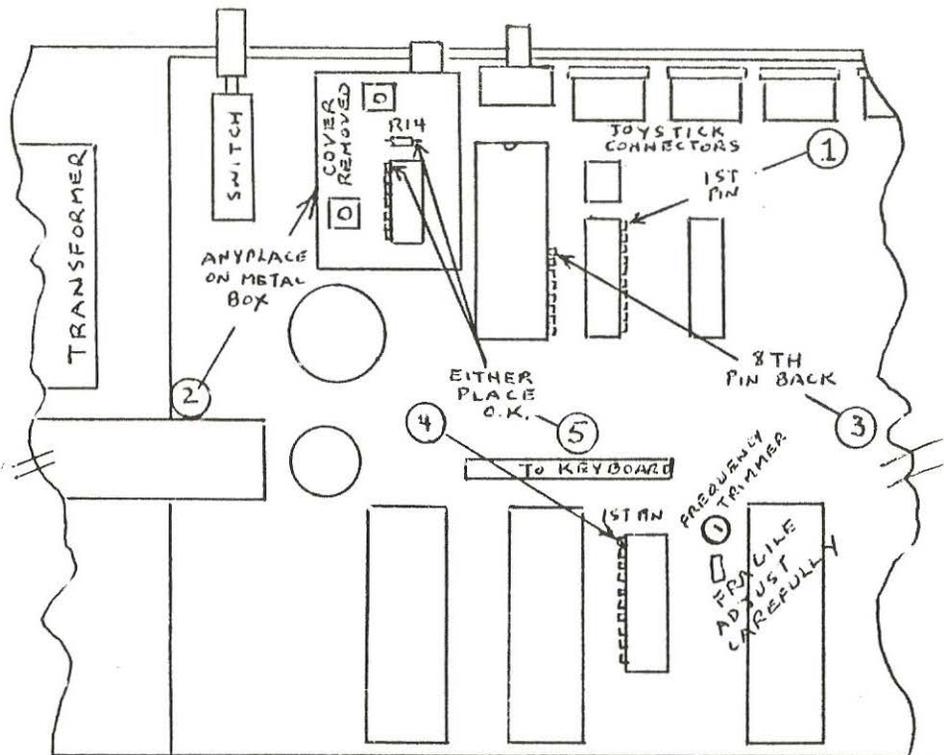
After approximately June 1984, Radio
Shack introduced a revised version
of the COCO II. This new version
is identified by Model #26-3134, or
#26-3136. If you have one of these
newer models, connect your U.V.D.
as shown at the left. Mount the
U.V.D. on top of the joystick con-
nectors. Lift the keyboard out of
the way to connect the black audio
clip #5. Proceed to the checkout
section of the regular instructions.

SWITCH

TRANSFORMER

COVER REMOVED

R14

O

JOYSTICK CONNECTORS

1ST PIN

①

ANYPLACE ON METAL BOX

EITHER PLACE O.K.

8TH PIN BACK

②

⑤

③

TO KEYBOARD

1ST PIN

④
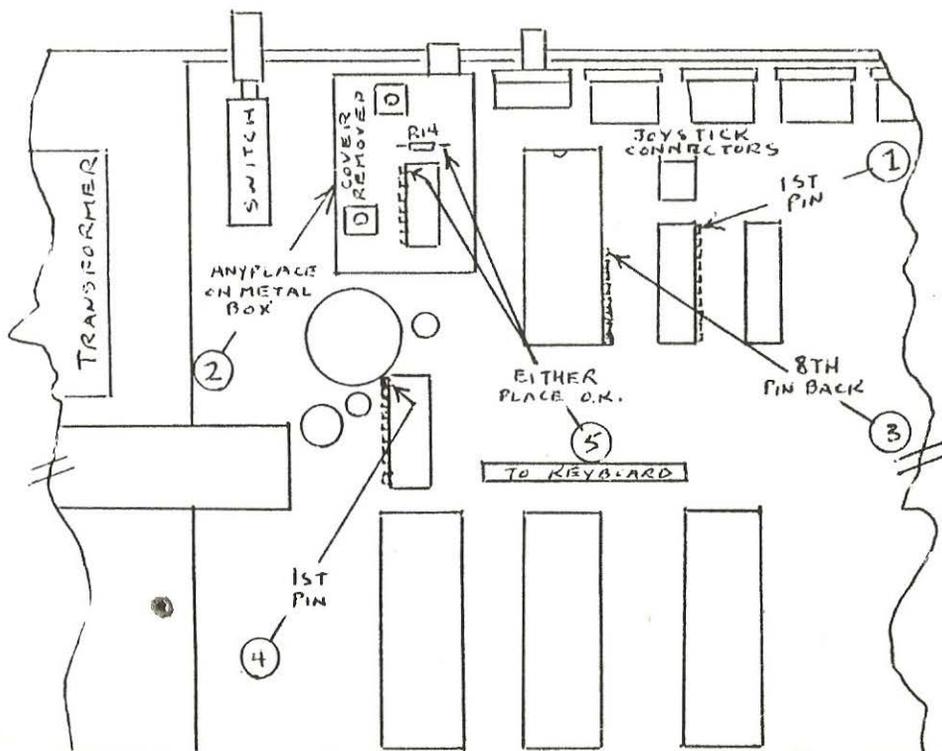
After approximately <u>October 1984</u>, Radio Shack introduced another revision of the COCO II. This version is identified by Model #26-3134A or #26-3136A. If you have one of these, connect your U.V.D. as shown at the left and peoceed to the checkout section of the regular instructions.