

HARDWARE

CONVERTING A TV TO A MONITOR

A professional studio monitor (e.g. Conrac or Tektronix) is an instrument of far greater precision, quality and cost than the average home TV receiver. Yet most receivers can easily be converted for use as an acceptable monitor when big studio standards are not demanded or within the budget.

With a bit of looking and asking, workable old black and white TVs can be scavenged for free or maybe \$10.00 from individuals or repair shops. If you have the money and don't want the hassle of old equipment, decent quality new receivers can be found at discount houses for at least \$100 less than an equivalent monitor. For example, Sony model 110 receiver sells for about \$125 while the same TV factory equipped as a monitor (model CVM-110U) lists for \$230.

Because of lower market demand, monitor prices are inflated well beyond their technical advantages. The only difference between these two Sony models is the input and output jacks and a buffer circuit card. The buffer circuit card provides several features not really essential for monitor operation, such as input and output buffer amplifiers and an automatic mode switching feature. A good 11 inch monitor can be made from the model 110 receiver by the simple addition of input jacks plus a TV-external switch and output jacks (if you also want the machine as a receiver or to record from broadcasts).

To convert the model 110 receiver to monitor use, open the case and locate the video and signal circuit

board. This board is on the same side of the set as the channel selector switch. It is about two inches by three inches in area, has a large area covered by a metal box which serves as an RF shield and is not loaded with components in one section. Also locate the deflection circuit board. This board is larger than the video board and has several power transistors with small heat sinks and some small iron core transformers. Between the video board and the deflection board are several shielded cables. One of these cables carries the composite video signal. Another cable from the video board to the volume control carries the audio signal.

Attach output jacks to the points on the video board from which the audio and video signals originate. Attach input jacks to the lines which had been going from these points to the deflection circuit and audio circuit boards. Attach a double pole single throw switch between these sets of connectors so that the unit may be used either as a monitor or a receiver.

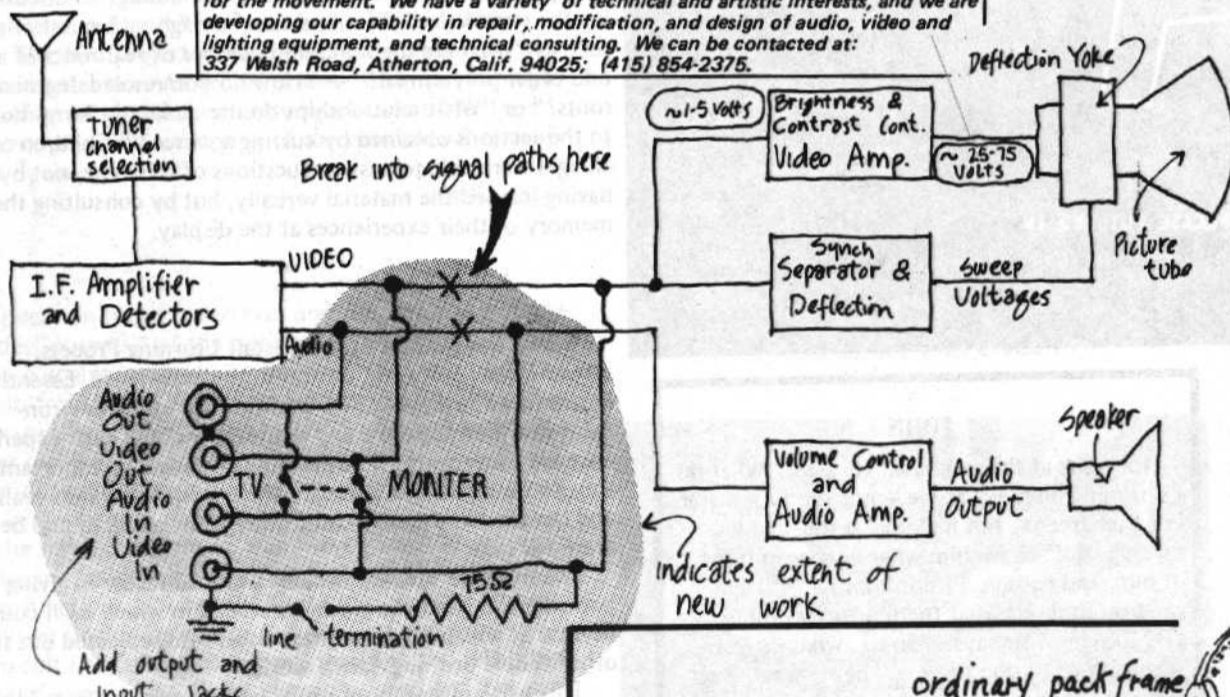
To verify that the cable which you are about to disconnect from the video board is the correct line, observe the input to this line from the video board. If you have an oscilloscope, it should show a composite video signal of amplitude 1 volt p-p when attached to this point. If you have another monitor, use it for this test by attaching its input to this point and verify that a decent signal results when the model 110 is tuned to a good station. A similar test can be done on the audio line with an oscilloscope or an external amplifier and speaker.

To convert other receivers, the following should be kept in mind:

1. Type and quality of synch circuit.
2. Gain of Video amplifier after the detector circuit.
3. Power line isolation transformer.
4. Type of connector to use for input and output.
5. Video signal voltage level, polarity and impedance available in existing circuit.

Dick Van Brunt

Apple Further Systems (including Dick Van Brunt) is a group providing technical support for alternative media, and working on communications/information tools for the movement. We have a variety of technical and artistic interests, and we are developing our capability in repair, modification, and design of audio, video and lighting equipment, and technical consulting. We can be contacted at: 337 Welsh Road, Atherton, Calif. 94025; (415) 854-2375.



The following list contains several books which may be useful in gaining and expanding knowledge of television equipment, applications and theory. It is by no means complete, especially in the area of video recording equipment. We would appreciate hearing other opinions on any of these books and learning of any other useful books, especially about half-inch recorders.

1. Introduction to Solid-State Television Systems. Color and Black & White. by Gerald L. Hansen. Prentice-Hall, Inc., Englewood Cliffs, New Jersey. 1969. \$15.00.

2. Closed Circuit TV for Engineers and Technicians. by Leonard C. Showalter, Howard W. Sams and Co., Inc. The Bobbs-Merrill Co., Inc. 1969. \$8.95.

Understandable and comprehensive like #1 above, but oriented more towards industrial than entertainment TV.

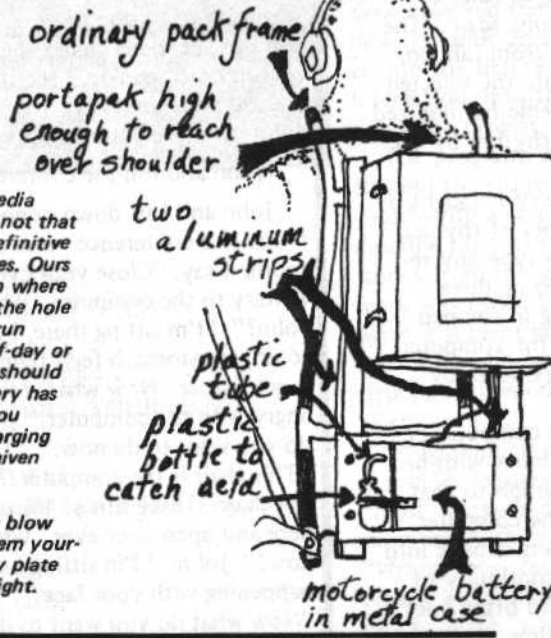
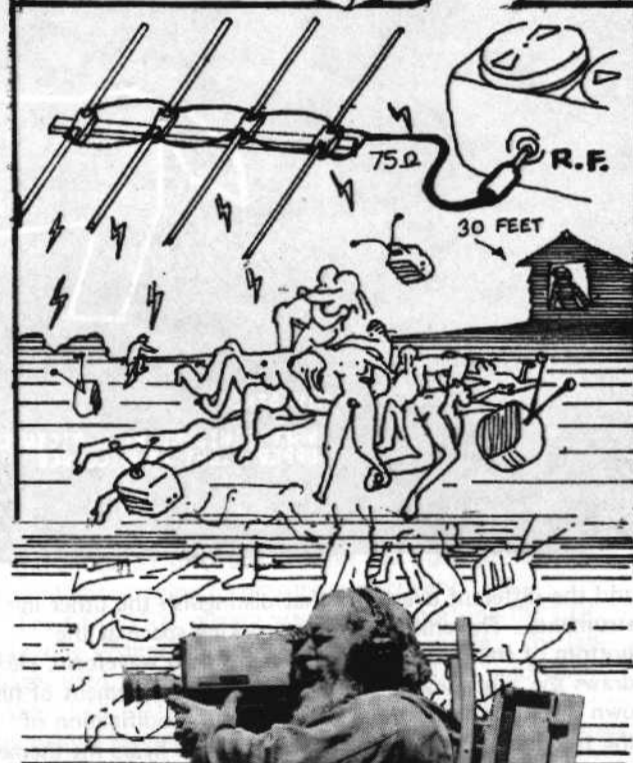
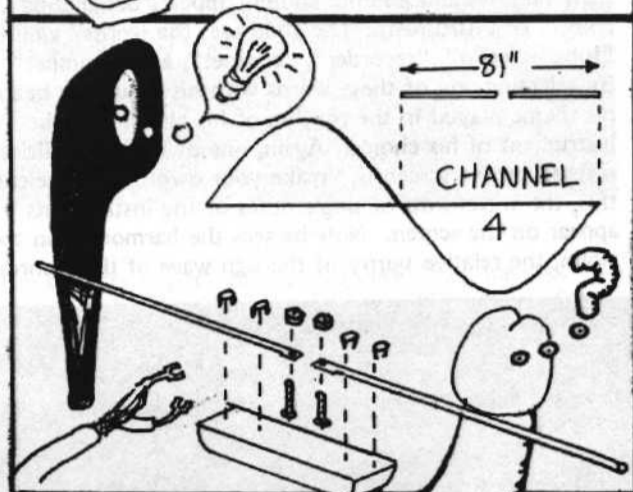
3. Servicing Closed Circuit Television. by Melvin Whitmer, Howard Sams & Co., Inc., The Bobbs-Merrill Co., Inc. 1967.

Mainly a troubleshooting guide for repairing cameras, amplifiers, synch generators, etc. Many schematics. No treatment of recording equipment.

4. Television Systems Maintenance. by Harold E. Ennes. Howard Sams & Co., Inc., 1964. \$5.95.



by Frigid Digit



We have used this rig at Media Access fairly successfully but not that often, so we don't have the definitive answer on motorcycle batteries. Ours is a 12 volt Yuasa and plugs in where the batteries plug in through the hole for the RF unit. It seems to run about 4 hours and takes a half-day or overnight to recharge. Water should be added only when the battery has at least a partial charge and you shouldn't smoke around a charging battery as hydrogen is being given off.

When your portapak fuses blow out (and they will) change them yourself. Just remove the top grey plate and the fuse will be in plain sight.