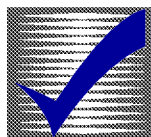




## HOW-TO BOOKLET #3108

# VIDEO HOOK-UPS

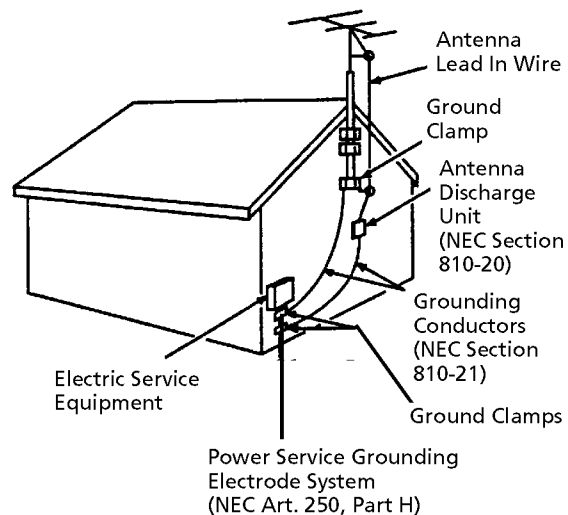


### TOOL & MATERIAL CHECKLIST

- Specific Cable/VCR Television Accessories
- Screwdriver
- Needlenose Pliers
- Utility Knife

*Read This Entire How-To Booklet for Specific Tools and Materials Not Noted in The Basics Listed Above*

### Example of Antenna Grounding



In today's world of increasing leisure time electronics, more and more home centers and electronics stores are offering television and VCR (Video Cassette Recorder) necessities and accessories designed for the do-it-yourself market. If like many of us, you are not familiar with the terminology of electronics, or with the specifics of the equipment and how to get it to do what you want, you will want to consult this guide before beginning your project.

During the past decade, cable TV (CATV) has expanded into many areas of the United States bringing a variety of television channels to areas which previously had a limited number of channels to choose from and/or poor reception. However, many locations still do not have CATV service available and are dependent on receiving television signals through an antenna.

### ANTENNA

This is the device through which the broadcast signal from the TV station is received and directed into your TV set. There are two basic types of antenna: outdoor and indoor. Both types are usually capable of receiving both VHF (Very High Frequency) and UHF (Ultra High Frequency) channels. The difference between the two is that the outdoor antenna is larger and mounted on the chimney or a separate pole structure to give added height for greater reception, while the indoor antenna is smaller and usually sits on top of the TV set.

## PLACEMENT OF OUTDOOR ANTENNAS

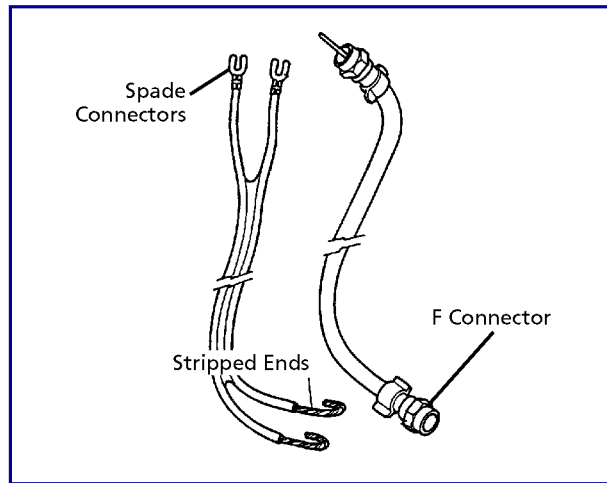
At first glance, putting up an outdoor antenna appears to be a simple matter of strapping the antenna to a chimney or pole, running the lead wire from the antenna into the house and connecting it to the TV set. However, there is more to it than that.

**CAUTION:** Your outdoor antenna should not be located in the vicinity of overhead power lines or other electric circuits whether they are main transformers on poles or electric connections from those poles to the house. Extreme caution should be taken not to come into contact with any such lines with your person or with the antenna, since these lines carry extremely high voltage and could result in a fatal accident. The placement of the antenna should be such that if the installation becomes loose or breaks, the antenna does not come into contact with any such electric lines. This contact would result in a power surge into the TV or VCR to which you have the antenna lead connected, or even cause a house fire.

**NOTE:** Gaining access to your roof or the top of a pole and working in dangerous environments is not to be taken lightly. Use utmost care and exercise all safety precautions, or hire a professional to perform this task.

## ANTENNA GROUNDING

With the sensitivity of TVs and VCRs today, it is important that an outdoor antenna be properly grounded in order to minimize the effects of a power surge or built-up static electricity. Section 810 of the National Electrical Code, ANSI/NFPA No. 70-1984, provides information with respect to proper grounding. For added protection of your video equipment, we recommend the use of a surge suppressor. This device comes in many variations, but functions are the same. The surge suppressor is plugged into the electric wall outlet and your video equipment is plugged into the



surge suppressor. If there is a power surge strong enough to damage the equipment the surge suppressor, acting like a circuit breaker, takes the damage itself and stops the power surge from reaching your more expensive equipment.

## RECEPTION

One of the accessories offered for an outdoor antenna is a motorized unit which enables you to change the direction in which the antenna faces without climbing back on the roof. The control box for the motorized unit sits on or nearby the TV and by using the controls you can change the direction of the antenna in order to receive a stronger signal for any particular channel. This is convenient since different weather, geographic and man-made interference will cause the signal strength to vary from time to time. Indoor antennas, called rabbit ears, are adjustable by changing the direction of the "ears" until the picture quality improves. Although seldom used outside of major metropolitan areas where TV signals originate, indoor antennas are still available.

## SATELLITE DISHES

One of the ways in which we benefit from technology is through communications satellites. Television broadcasts are beamed up to one of many of these satellites orbiting Earth and the signal is redirected to another area of Earth within seconds. When home satellite dishes first appeared on the market, they offered the consumer another choice as to how to receive TV signals, not only local or regional signals, but national and international signals. During the past decade, the powerful CATV industry and their lobbyists, have received approval from the FCC (Federal Communications Commission) and cooperation from many TV stations, to scramble signals before beaming them to the satellite. Because of this, even if you have a home dish, you will still need to rent or purchase a descrambler from your cable company. This process makes an already expensive alternative even more costly, and the installation of a satellite dish is not a typical do-it-yourself project. Our advice to those of you choosing to use a home dish is to have it professionally installed.

## ANTENNA LEADS

The leads (or wire) connecting the antenna to the TV or VCR for indoor and outdoor antenna are 300 OHM twin wire, flat leads. These leads may have bare wires at the ends or they may have flat spade connectors, either way they are connected to screw-type terminals at the back of the TV where it says 300 OHM ANTENNA.

## CABLE TV

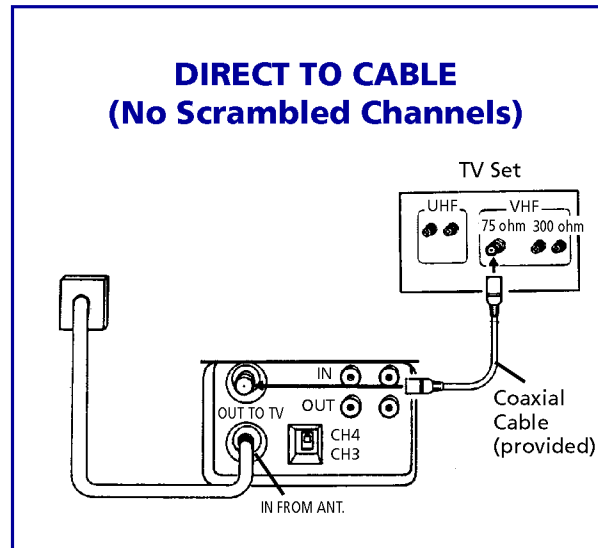
Cable TV comes to your home through a cable run by your local cable company from a pole into your home, an antenna is not needed. Cable service varies from company to company and area to area. Before deciding what accessories to purchase, a phone call to your local cable company will help in planning your needs. Some cable do not scramble any signals except for the

“premium” channels. If this is the case with your local cable company, and you do not subscribe to any of the “premium” channels, your need for accessories is limited. Once the 75 OHM coaxial cable has been brought into your home, it may be connected directly to your TV set, cable box, or VCR. If you have subscribed to one or more of the “premium” channels, or if your cable company scrambles all or some of the standard cable channels, you will require a cable box (decoder, or unscrambler) supplied by the cable company. In this case proceed as follows:

- 1 Connect the 75 OHM lead to the cable box by screwing the “F” connector at the end of the cable into the VIDEO IN port of the box.
- 2 Another 75 OHM lead is then similarly connected to the VIDEO OUT port of the box.
- 3 The other end is connected to the ANTENNA connection on the back of your TV.
- 4 The tuner on your TV will remain set on either channel 3 or 4 (whichever is specified in your area) and all tuning will be done through the cable box.

### TVs & VCRs

Today, many televisions and video tape recorders are referred to as “cable ready.” This reference indicates that the appliance is capable of tuning channels on different bands to accommodate a large number of cable channels (usually 60 to 150 or more). If your local cable company does not scramble their standard channels (normally 60 to 150 channels with the exclusion of “premium” channels) your video equipment is capable of tuning in all the channels without the use of a cable box. In this situation, simply connect the 75 OHM lead directly to the 75 OHM VIDEO INPUT port on the back of your TV. Your TV will tune any non-scrambled channel for you to view.



### Cable Reception Through The VCR

- 1 Connect the 75 OHM lead coming into the house, into the 75 OHM VIDEO INPUT port on the back of your VCR.
- 2 Then connect a separate 75 OHM lead to the VIDEO OUTPUT port on the back of the VCR.
- 3 Connect the other end to the VIDEO IN port on the back of your TV.

Your VCR will be able to tune in the same channels as your TV. All VCRs now come equipped with built-in switching which allows you to record one channel while watching another channel without any further accessories. However, if your cable company scrambles its channels, or you subscribe to one or more “premium,” channels, you will still need to have a cable box (decoder, unscrambler) in order to receive those channels (a TV or VCR does not have decoder capabilities).

### Cable Reception Through a Cable Box and VCR

- 1 Connect the cable to the VIDEO INPUT port on the back of the cable box.
- 2 Another 75 OHM cable is then connected to the VIDEO OUTPUT port on the back of the cable box the other end of which is connected to the VIDEO INPUT port on the back of the VCR.
- 3 Another cable is then attached to the VIDEO OUTPUT port of the VCR and connected to the ANTENNA or VIDEO INPUT port on the back of the TV.

Tuning will be done through the cable box with both the TV and VCR tuners permanently set on either channel 3 or 4 depending on the requirements of your area. Because of the automatic switching circuits within the VCR, you will still be able to record one channel while viewing another without any further accessories.

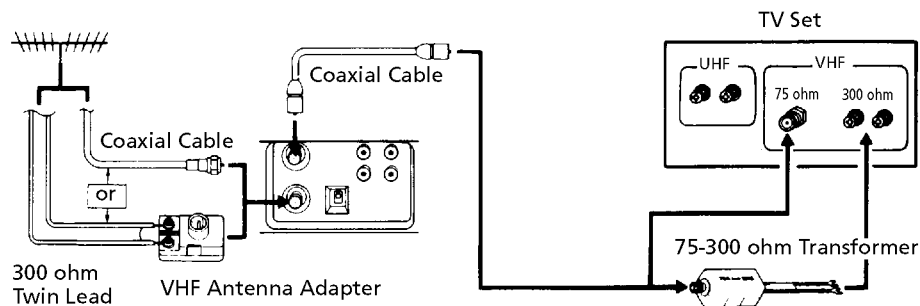
### AUDIO/VIDEO CONNECTORS

One of the advancements added to VCRs are the audio/video connections found on the back of the VCR. If your television also has A/V connections you will be able to enjoy better picture and sound quality when viewing prerecorded video tapes. Hooking-up the A/V lines is simple: Just use the two cords with “RCA” plugs at the ends and connect as follows:

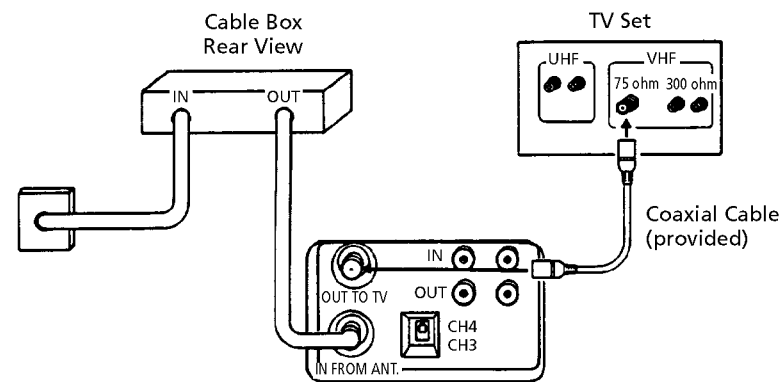
- 1 Run one line from the VIDEO OUT on the VCR to the VIDEO IN on your TV.
- 2 Run one line from the AUDIO OUT on the VCR to the AUDIO IN on the TV.

The reason the picture and sound are improved is that prerecorded tapes (the ones you rent) are recorded at a higher resolution (the number of video lines per inch making up the picture on the screen) than your 75 OHM coax cable is capable of carrying. The “RCA” lines carry a much greater resolution and give you a more clear, crisp picture and a cleaner sound.

### VHF RECEPTION AREA (TV has UHF/VHF separate antenna input)



### USING CABLE BOX ONLY (May have scrambled channels)



### VIDEO GAMES

When using your television to play video games, an A/B switch will need to be placed in the system. Since video games are a separate source of video input coming into your television, a separate circuit must be provided.

#### If the cable goes directly to the TV.

- 1 Place the A/B switch between the cable and the TV, connecting the cable from outside into the "A" VIDEO IN port.
- 2 Connect the cable from the game generator into the "B" VIDEO IN port.
- 3 The single VIDEO OUT port is then connected by another 75 OHM cable to the ANTENNA or VIDEO IN port on the back of the TV.

#### If the outside cable goes directly to your VCR:

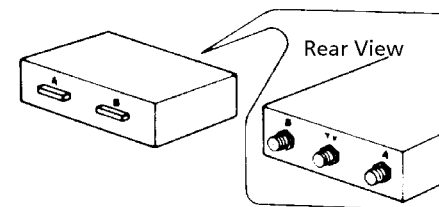
- 1 Connect the cable coming from the VIDEO OUT port on the back of the VCR to the "A" VIDEO IN port on the A/B switch.

- 2 Connect the cable from the game generator to the "B" VIDEO IN port.
- 3 Then connect the A/B switch to the TV as described above.
- 4 When you wish to play the game instead of watching cable TV, simply flip the switch from "A" to "B".

### SPLITTERS

Splitters are devices designed to split the incoming signal from one source (a 75 OHM cable) into two or more outgoing signals. Splitters can be designed to provide signals to as many as six televisions from the same input line. Very simple to connect, the incoming 75 OHM lead is connected to the one and only VIDEO IN port on the splitter, then other 75 OHM leads are connected to the VIDEO OUT ports on the splitter and connected to various televisions or VCRs throughout the house. Only high quality, low-loss splitters and switches should be used to prevent degradation of signal. Only shielded coax cable should be used to insure minimum degradation of signal.

### A/B SELECTOR SWITCH



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