

DRAKE

*ESR 1824/1724
Earth Station Receiver
VideoCipher[®] RS Descrambler With
VIDEOpal[®] Order Recorder Capable*

Owner's Manual

1 Important Safeguards

WARNING: TO PREVENT FIRE OR ELECTRICAL SHOCK DO NOT EXPOSE TO RAIN OR MOISTURE

	CAUTION! RISK OF ELECTRIC SHOCK DO NOT OPEN	
CAUTION: TO REDUCE THE RISK OF ELECTRIC SHOCK, DO NOT REMOVE COVER (OR BACK) NO USER-SERVICABLE PARTS INSIDE REFER SERVICING TO QUALIFIED PERSONNEL		



An appliance and cart combination should be moved with care. Quick stops, excessive force and uneven surfaces may cause the appliance and cart combination to overturn.



The lightning flash with arrow head symbol, within an equilateral triangle, is intended to alert the user to the presence of uninsulated "dangerous voltage" within the product's enclosure that may be of sufficient magnitude to constitute a risk of electric shock to persons.



The exclamation point within an equilateral triangle is intended to alert the user to the presence of important operating and maintenance (servicing) instructions in the literature accompanying the appliance.

**WARNING: TO REDUCE THE RISK OF FIRE OR ELECTRIC SHOCK, DO NOT EXPOSE THIS APPLIANCE TO RAIN OR MOISTURE.
DO NOT OPEN THE CABINET, REFER SERVICING TO QUALIFIED PERSONNEL ONLY.**

CAUTION: TO PREVENT ELECTRIC SHOCK, DO NOT USE THIS (POLARIZED) PLUG WITH AN EXTENSION CORD RECEPTACLE OR OTHER OUTLET UNLESS THE BLADES CAN BE FULLY INSERTED TO PREVENT BLADE EXPOSURE.

ATTENTION: POUR PREVENIR LES CHOCS ELECTRIQUES, NE PAS UTILISER CETTE FICHE POLARISEE AVEC UN PROLONGATEUR, UNE PRISE DE COURANT OU UNE AUTRE SORTIE DE COURANT, SAUF SI LES LAMES PEUVENT ETRE INSEREES A FOND SANS EN LAISSER AUCUNE PARTIE A DECOUVERT.

- 1. Read Instructions**—All the safety and operating instructions should be read before the appliance is operated.
- 2. Retain Instructions**—The safety and operating instructions should be retained for future reference.
- 3. Heed Warnings**—All warnings on the appliance should be adhered to.
- 4. Follow Instructions**—All operating and use instructions should be followed.
- 5. Cleaning**—Unplug this appliance from the wall outlet before cleaning. Do not use liquid cleaners or aerosol cleansers. Use a damp cloth for cleaning.
- 6. Do Not Use Attachments**—not recommended by the manufacturer or they may cause hazards.
- 7. Water and Moisture**—Do not use this product near water—for example, near a bathtub, wash bowl, kitchen sink, laundry tub, in a wet basement, or near a swimming pool—and the like.
- 8. Accessories**—Do not place this product on an unstable cart, stand, tripod, bracket, or table. The product may fall, causing serious injury to a child or adult, and serious damage to the appliance.
- 9. Ventilation**—This video product should never be placed near or over a radiator or heat register. This video product should not be placed in a built-in installation such as a bookcase or rack unless proper ventilation is provided or the manufacturer's instructions have been adhered to. Any slots or openings in the cabinet are provided for ventilation. To ensure reliable operation of the video product and to protect it from overheating, these openings must not be blocked or covered. The openings should never be blocked by placing the product on a bed, sofa, rug, or other similar surface.

- 10. Grounding or Polarization**—This video product is equipped with a polarized alternating-current line plug (a plug having one blade wider than the other). This plug will fit into the power socket only one way. This is a safety feature. If you are unable to insert the plug full into the outlet, try reversing the plug. If the plug should still fail to fit, contact your electrician to replace your obsolete outlet. Do not defeat the safety purpose of the polarized plug.
- 11. Power Sources**—This product should be operated only from the type of power source indicated on the marking label. If you are not sure of the type of power supplied to your home, consult your appliance dealer or local power company.
- 12. Power-cord Protection**—Power-supply cords should be routed so they are not likely to be walked on or pinched by items placed upon or against them. Pay particular attention to cords at plugs, convenience receptacles, and the point where they exit from the appliance.
- 13. Lightning**—For added protection for this product during a lightning storm, or when it is left unattended and unused for long periods of time, unplug it from the wall outlet.
- 14. Power Lines**—An outside antenna system should not be located in the vicinity of overhead power lines, other electric light or power circuits, where it can fall into such power lines or circuits. When installing an outside antenna system, extreme care should be taken to keep from touching such power lines or circuits as contact with them may be fatal.
- 15. Overloading**—Do not overload wall outlets and extension cords as this can result in a risk of fire or electric shock.

16. Object and Liquid Entry—Never push objects of any kind into this product through openings as they may touch dangerous voltage points or short-out parts that could result in a fire or electric shock. Never spill liquid of any kind on the product.

17. Servicing—Do not attempt to service this product yourself as opening or removing covers may expose you to dangerous voltage or other hazards. Refer all servicing to qualified service personnel.

18. Damage Requiring Service—Unplug this product from the wall outlet and refer servicing to qualified service personnel under the following conditions:

- a. When the power-supply cord or plug is damaged.
- b. If liquid has been spilled, or objects have fallen into the product.
- c. If the product has been exposed to rain or water.
- d. If the product does not operate normally by following the operating instructions. Adjust only those controls that are covered by the operating instructions. An improper adjustment may result in damage and will often require extensive work by a qualified technician to restore the product to its normal operation.
- e. If the product has been dropped or the cabinet has been damaged.
- f. When the product exhibits a distinct change in performance—this indicates a need for service.

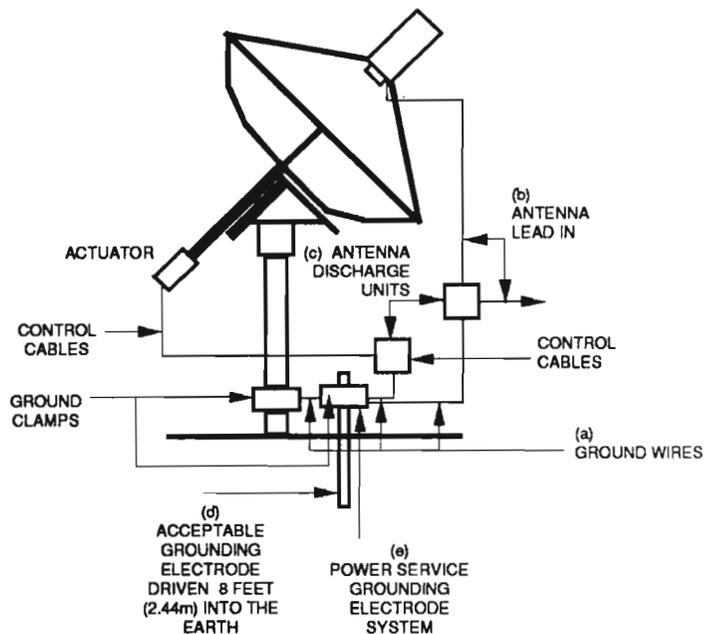
19. Replacement Parts—When replacement parts are required, be sure the service technician has used replacement parts specified by the manufacturer or have the same characteristics as the original parts. Unauthorized substitutes may result in fire, electric shock or other hazards.

20. Safety Check—Upon completion of any service or repairs to this product, ask the service technician to perform safety checks to determine that the product is in proper operating condition.

21. Outdoor Antenna Grounding—Before attempting to install this product, be sure the antenna or cable system is grounded so as to provide some protection against voltage surges and built-up static charges.

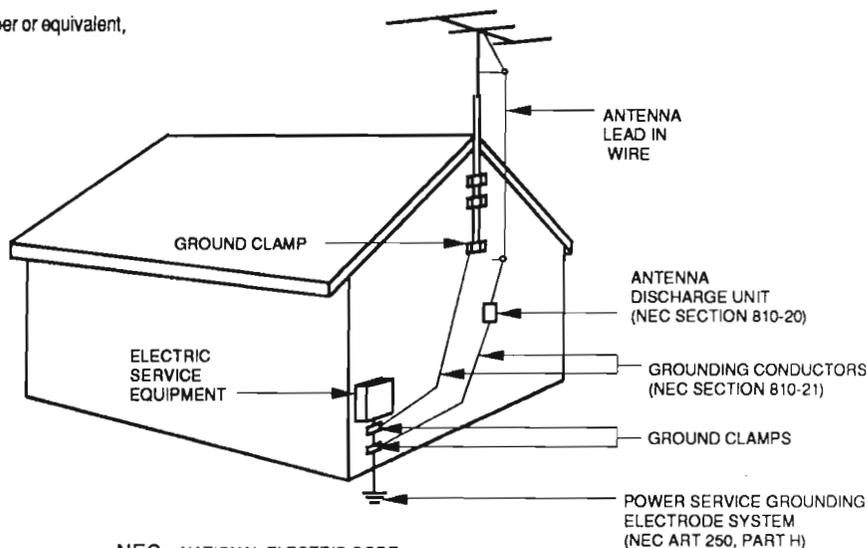
- a. Use No.10 AWG (5.3mm²) copper, No.8 AWG (8.4mm²) aluminum, No.17 AWG (1.0mm²) copper-clad steel or bronze wire or larger, as ground wire.
- b. Secure antenna lead-in and ground wires to house with stand-off insulators spaced from 4 feet (1.22m) to 6 feet (1.83m) apart.
- c. Mount antenna discharge unit as close as possible to where lead-in enters house.
- d. A driven rod may be used as the grounding electrode where other types of electrode systems do not exist. Refer to the National Electrical Code, ANSI/NFPA 70-1990 for information.
- e. Use jumper wire not smaller than No.6 AWG 13.3mm² copper or equivalent, when a separate antenna grounding electrode is used.

NOTE TO CATV SYSTEM INSTALLERS:
THIS REMINDER IS PROVIDED TO CALL THE CATV SYSTEM INSTALLER'S ATTENTION TO ARTICLE 820 - 40 OF THE NEC THAT PROVIDES GUIDELINES FOR PROPER GROUNDING AND, IN PARTICULAR, SPECIFIES THAT THE CABLE GROUND SHALL BE CONNECTED TO THE GROUNDING SYSTEM OF THE BUILDING, AS CLOSE TO THE POINT OF CABLE ENTRY AS PRACTICAL.



* INSTALL WIRING ACCORDING TO THE CANADIAN ELECTRICAL CODE*
EFFECTUER LE CABLAGE CONFORMEMENT AU CODE CANADIEN DE L' ELECTRICITE

EXAMPLE OF ANTENNA GROUNDING



NEC - NATIONAL ELECTRIC CODE

3 Table of Contents

Important Safeguards	1	Daily Use of the Receiver	
Table of Contents	3	Selecting a Video Channel	31
Introduction	4	Manual Antenna Movement, To Select Band ----	31
Specifications	6	Automatic Satellite Peaking	31
Remote Control	7	Selecting Different Audio Settings	32
1824 Front Panel Controls	9	Selecting a Priority View Channel	32
1824 Front Panel Display and Indicators	10	Selecting An Audio Priority (ESR 1824 Only)	32
1724 Front Panel Controls	11	All Priorities (ESR 1824 Only)	33
1724 Front Panel Display and Indicators	12	The 'Source' Button, The 'Filter' Button	33
Rear Panel Connections	13	The 'Mute' Button	33
Installation		Lock / Unlock Parental Lock	33
Single C Band With Servo Polarizer	15	The Main Menu	34
Dual C Band	15	To Select Format	34
Single C and Single Ku Band	16	To Adjust Skew	34
Dual C and Single Ku Band	16	Audio Functions (ESR 1824 Only)	34
Single C Band LNBF	17	Audio Functions (ESR 1724 Only)	35
Dual Band LNBF	17	Adding A Priority View Channel (ESR 1824 Only) -	35
Connecting Other Components	18	Adding A Priority View Channel (ESR 1724 Only) -	35
Programming the Receiver		Adding A Video Priority View Channel	35
Getting Started	19	Adding An Audio Priority (ESR 1824 Only)	36
To Program The 'LNB' Inputs	19	Modify User Lists (ESR 1824 Only)	36
Initial Setup	20	Deleting A Priority View or Audio Priority	36
Setting Antenna Limits	20	Other Settings	37
To Program Satellites	20	To Access Programmed Channels	37
Add A Satellite To The Receiver's Memory	21	To Select Skip Tune	37
Add A Satellite With Special Designator	21	To Select Video Invert	37
Delete A Satellite From Receiver's Memory	22	To Select Video Level	37
Automatic Satellite Programming	22	Filter	37
Recal Satellites	23	Program Mode Access	38
Display Signal	24	Using The Event Timer	38
To Program A Parental Lock Channel	24	Setting Time And Day	38
To Lock / Unlock Parental Lock	24	Setting An Event	39
To Clear Or Reset Memory Functions	24	Single Event	39
Reset Channel Memory to Factory Values ----	25	Daily Event	39
Reset Priority Views to Factory Values	25	Weekly Event	40
Clear Priority Views	25	Deactivating the Timer	40
To Clear Parental Locks	26	To Review or Delete Events	40
To Clear SAT Memory	26	Event Timer Tips	41
To Clear All Memory	26	Replacing Memory Backup Batteries	
Programming Channels (including name)	27	(ESR 1824 only)	41
Add / Modify Channel	27	Special Use Features And Functions	42
Return Channel To Factory Preset Values	28	Parental Lock	42
Remove Channel	28	Auto Mute on Unnamed Channels	42
Move Channel	28	Troubleshooting Guide	43
Language Selection	29	Service	45
VCR PLUS+™ Operation	29	Warranty	46

Congratulations and thank you for choosing the R.L. Drake ESR 1824 or ESR 1724 Earth Station Receiver. It is designed to provide you with superior performance and many years of reliable, trouble-free operation.

The receivers are equipped with many advanced features that will bring you the very best in satellite viewing. These features include:

- Exceptional audio and video quality.
- A special low threshold IF system that produces superior quality performance even on small antennas and weak signals.
- Compatibility with both C-band and Ku-band satellite broadcasts.
- Complete satellite programming with position, format, polarity skew and name. Up to 50 satellites may be stored in permanent memory.
- Programmable LNB supply voltage to allow H/V polarity switching of dual-polarity, voltage switched LNB's (LNBF).
- 100 video Priority View channels for immediate access to the correct satellite, format, skew, all audio settings, fine tune setting, volume level and program name. The ESR 1824 also provides 100 audio priorities with all the above settings and a Terrestrial Interference filter (if needed).
- The ESR 1824 provides three User List Priority files to permit custom programming of favorite channels by different viewers.
- Program Names for most channels with regularly scheduled video and audio. This allows the user to immediately determine if he or she is tuned to the desired program. Names may be added or changed as required.
- Automatic Satellite Peaking to assure optimal video reception. The user may automatically retune antenna position to compensate for misalignment due to positioner or antenna slippage or wear.
- Full subcarrier reception of two audio channels is provided by the ESR 1824 to permit discrete stereo reception of audio programs. Full stereo outputs for digital stereo reception of VideoCipher[®] encrypted programs is provided by both the ESR 1824 and ESR 1724 receivers.
- Parental Lock feature that allows you to "lockout" up to 16 channels (on both C Band and Ku Band) of undesirable program material. The remote control unit is the "key" to parental supervision; the user may either use a four digit entry code to lock or unlock the Parental control or merely secure the remote control to prevent unauthorized viewing.
- When installed, the VideoCipher[®]RS Descrambler will decode such premium services as HBO[®], Cinemax[®], Showtime[®], The Movie Channel[®], CNN Headline News[®] and many more. You must contract separately with the various program suppliers to receive these broadcasts. Many programmers provide program packages that consist of several programs. Program packages are available in many price ranges.
- A four program event timer in the ESR 1824 allows recording of up to four of your favorite Priority View programs. The ESR 1724 permits programming two events. On Screen Menus help you program all times and events quickly and without confusion.
- Automatic Satellite Locator and Programming is also provided to minimize installation time and provide other programming assistance. This feature is normally used by the installer but may be used if the system is upgraded with other antenna equipment or if the system requires periodic maintenance.
- A Decoder Video output is available for interconnecting to other video processing or descrambling equipment.
- A convenient UHF remote control is provided to allow receiver operation in any room of the house. Also provided with the ESR 1824 is a simple to operate 14 button "EZ VIEW II"[®] UHF remote control. The ESR 1724 is provided with an infrared version "EZ VIEW II"[®] remote control for local in room receiver operation.
- A 42 button infrared Remote control is an available option. Consult your dealer for more details.
- The receivers provide a large On-Screen Display having a contrasting background to enhance readability. The background is blue for the ESR 1824 and black for the ESR 1724. Normal operating menus provide clear, concise instruction for simple, error free operation. Menus are provided with straightforward, step-by-step procedures for error free programming.
- Bilingual English/Español On-Screen Displays are provided.
- An easy to read green LED (light emitting diode) front panel display provides channel and satellite information at a glance.
- A built-in channel 3 or 4 modulator allows simple, convenient connection to your television. In addition, two sets of phono connector output jacks allow connection of the baseband left and right audio and video to a monitor television or high fidelity audio system and VCR.
- A "VCR" video output provides a signal without on-screen menus and messages. Separate audio outputs are also provided for connection to a VCR.
- IF loopthrough circuitry and switching control outputs permit easy connection to external filters for special reception or for terrestrial interference filters. The ESR 1824 also has an internal TI filter that performs exceptionally well for all but the most severe interference.
- Either receiver is capable of responding to VCR PLUS+[™] codes to permit instant selection of a particular premium satellite service.

We know that you are anxious to begin enjoying your new Earth Station Receiver, but please take a few minutes to study this manual and familiarize yourself with the controls and other features. A small investment in time will help you to enjoy all its capabilities to the fullest.

Thanks again for choosing the R.L. Drake Earth Station Receiver. It's the very best choice you could have made.

RF INPUT

Input Frequency	950-1450 MHz
Input Impedance	75 ohms
Noise Figure	12 dB max.
Image Rejection	Greater than 30 dB
Input Signal Level	-60 to -25 dBm
L.O. Radiation (input)	Below -60 dBm
2nd IF Frequency	140 MHz
2nd IF Bandwidth	27 MHz
	('FIL' OFF/WIDE)
	16 MHz (ESR 1824)
	('FIL' ON/NAR)
Threshold	7 dB C/N maximum
	6 dB C/N typical

VIDEO SECTION

Video Output (Filtered and clamped)

Format	NTSC
De-emphasis	CCIR Rec 405-1, 525 lines
Output Impedance	75 ohms
Output level	1 Vp-p (adjustable)
Frequency Response	50 Hz to 4.2 MHz
Dispersion Removal	40 dB typical
Differential Gain	5% max.
Differential Phase	5 deg. max

Decoder Output (Unclamped, Unfiltered, De-emphasized)

Format	NTSC
De-emphasis	CCIR Rec 405-1, 525 lines
Output Impedance	75 ohms
Output level	1 Vp-p (adjustable)
Frequency Response	15 Hz to 9 MHz
Chrom/Lum Delay Ineq.	± 25 nSec maximum
Differential Gain	5% max.
Differential Phase	5 deg. max
Chrom/Lum IMD	± 2 IRE maximum

AUDIO SECTION

Subcarrier Tuning Range	5.0 to 9.0MHz
Deviation Bandwidth	
Narrow	120 KHz
Normal	300 KHz
Wide	600 KHz
Frequency Response	
Subcarrier mode	20 Hz to 15 KHz ± 1dB
Digital mode	20 Hz to 18 KHz ± 1dB
Distortion (subcarrier mode)	Less than 1.5% THD
Distortion (digital mode)	Less than 1% THD
Signal to Noise Ratio	
(subcarrier)	More than 50 dB
De-emphasis (subcarrier)	75 μSec
Output Level	0 dBm nominal
Output Impedance	600 ohms nominal

ACTUATOR

Motor Supply	30-36 VDC, 3A max., 1.8A nominal. Not to exceed 100 VA
Pulse Type	Reed, Hall, Optical or Mechanical Switch
Min. Pulse Width	10 milliseconds

RF MODULATOR

Output Frequency	VHF U.S. CH 3/4 Selectable
Output Level	3,000 μV Nom. at 75 ohms
Modulator Switch Isolation	60 dB min @ 70 MHz
Mod Switch Insertion Loss	Less than 2 dB, 50-500 Mhz

LNB POWER

'C/Ku' or 'H/V' System	16 VDC nominal @ 500 mA (total current for both coax and rear panel terminal combined)
Dual -Polarity LNBF	Nominal 13-15 VDC for one polarity Nominal 16-18 VDC for other polarity 250 mA max current

POLARIZER OUTPUT

Servo	5 VDC @ 500 mA/10 Sec.
-------	------------------------

POWER REQUIREMENTS

Primary Power	115 VAC nom. @ 1.5 amps. 60 Hz
---------------	-----------------------------------

MECHANICAL

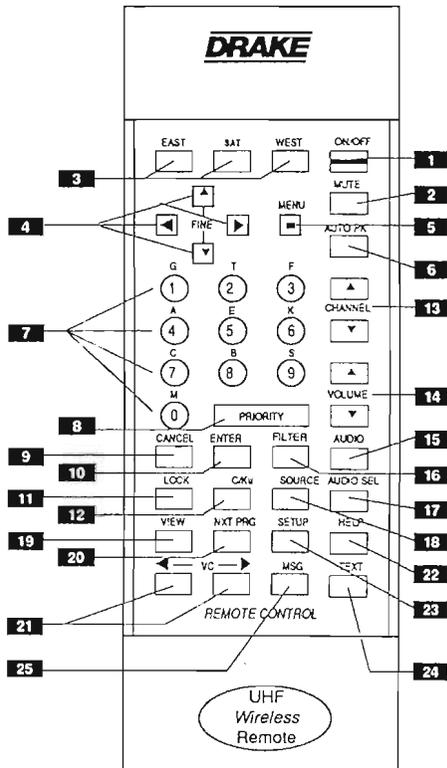
Height	4-3/8"
Width	17-1/8"
Depth	14-1/2"
Weight	23 lbs.

APPROVALS

FCC
U.L.
C.S.A.

7 Remote Control

The 42 Key remote control is a UHF transmitter that allows extended operating range up to 200 feet. Line of sight operation is not required. Complete operation of the receiver is possible from any room in the house.



1 ON / OFF

Press this button to turn the receiver 'on' or 'off.'

2 MUTE

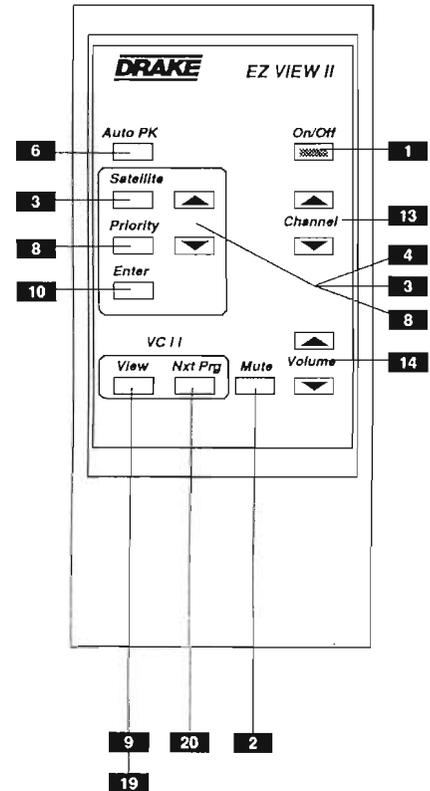
Press this button to turn the sound 'on' or 'off.'

3 Satellite selection buttons

42 Key Remote- Press EAST button to move dish east, or press WEST to move dish west. The SAT button is used with the numeric buttons to allow direct access to any satellite. Note that all numeric buttons have a second function when the SAT button is pressed. For example, number 1 has a second function of 'G' for Galaxy. If G3 is to be selected, press SAT, G, 3. The SAT button may also be used to step sequentially through the satellites either east or west. First press SAT then EAST or WEST. The front panel and On Screen Display will show the satellite designators in their actual order across the satellite belt. After pressing SAT, EAST or WEST may be pressed repeatedly or held to scroll through list until the desired satellite is displayed. After a short delay, the antenna will move it if necessary. Press the VIEW button to stop or cancel antenna movement if desired.

EZ VIEW II® Remote- The SATELLITE button is used with the '▲' and '▼' buttons to allow direct access to any satellite. To select a given satellite, first press the SATELLITE button, then '▲' or '▼'. The front panel On-Screen Display will show the satellite designators in their actual order across the satellite belt. After pressing SATELLITE, '▲' or '▼' may be pressed repeatedly or held to scroll through the list until the desired satellite is displayed. After a short delay, the antenna will move if necessary. Press the VIEW button to stop or cancel antenna movement if desired.

The 14 key EZ VIEW II® remote control supplied with the ESR 1824 is a UHF type. The ESR 1724 is supplied with an infrared type EZ VIEW II® remote control. Only the most used operational function keys are provided on both EZ VIEW II® remote control types.



4 FINE TUNE ▼▲ / ◀▶▼▲

CURSOR buttons

42 Key Remote- These are used to fine tune each channel for best reception. (Settings are stored for all channels that have been assigned names.) The ▼ ▲ buttons also function to adjust and change settings in various programming and operational menus. The ◀ ▶ buttons are used to move the cursor (or flashing box) and make certain choices in the programming of Parental Lock, Program Channel names, Video/Audio Priorities and Event Timer Menus.

EZ VIEW II® Remote- While viewing satellite video, pressing the '▲' or '▼' buttons will fine tune a channel for best reception. Note that these '▲' and '▼' buttons also function as 'East / West' buttons in conjunction with the SATELLITE button (see item 3) and as cursor keys in conjunction with the PRIORITY button (see item 8).

5 MENU

Press this button to view the Main Menu. This menu is used to Add/Delete Priority View channels, select Event Timer functions, select Audio functions and select Auxiliary functions. The main menu is described in more detail in other sections.

6 AUTO PK

This button is pressed to automatically fine tune the antenna and polarity (skew) in case the picture is weak due to inaccurate antenna positioning.

7 Numeric key pad

These buttons are used for direct selection of channel, satellite, Priority View, or VideoCipher® text. They are also used in the programming of the receiver for audio, video, etc. These sections will be described elsewhere in this owner's manual.

8 PRIORITY

42 Key Remote- This button is pressed to select a Priority View channel that is stored in memory. When this button is pressed, the On Screen Display will show the first seven of your favorite programs or an entry point to select various categories. The Priority number may also be directly entered on the numeric buttons (0-9). The name of each Priority View will be shown to assist in selection of the desired program.

EZ VIEW II® Remote- This button is pressed to select a Priority View channel that is stored in memory. When this button is pressed, the On-Screen display will show your favorite programs or an entry point to select various categories. Use the '▲' and '▼' buttons to move the cursor to the desired category or priority program. Press the VIEW button to exit the Priority View menu.

9 CANCEL

42 Key Remote- This button is used to cancel selections or passwords that may have been incorrectly entered into the VideoCipher® RS descrambler. It is also used to access previous menus while in the normal operate and program menus. It is sometimes used to cancel certain operations. Its actions will be fully described in the appropriate section.

EZ VIEW II® Remote- Use the VIEW button to exit or cancel selections that may have been accidentally chosen.

10 ENTER

This button is used to confirm a selection or password when in the VideoCipher® RS mode. It is also used to confirm selections for Video and Audio Priorities, Parental Lock programming, Programming Channel names, etc. These functions will be completely described in other sections of the manual.

11 LOCK

This button is used to enable or disable the "Parental Lock" function. An on-screen display menu will prompt for a four digit code to Lock or Unlock.

12 C/Ku

Press this button to switch between C and Ku bands. This button duplicates the C/Ku control on the receiver's front panel.

13 CHANNEL ▼▲

These buttons are used to change channels up or down. They duplicate the receiver's front panel controls.

14 VOLUME ▼▲

Press and hold the Volume ▼▲ buttons as required to select desired volume level.

15 AUDIO

This button is pressed to access the AUDIO FUNCTIONS menu. Audio settings may then be adjusted as desired while the AUDIO FUNCTIONS menu is showing.

16 FILTER

ESR 1824- This button is pressed to disable the receiver AFC (automatic frequency control) and to select the TI (terrestrial interference) filter if interference is causing poor video quality. FILTER/W only disables AFC. FILTER/N disables the AFC and switches in the narrow T. I. filter.

ESR 1724- FILTER/W disables the AFC. FILTER/N disables the AFC and switches the rear panel 'FILT' terminal to a logic low state.

17 AUDIO SEL

This button is pressed to select the desired audio service from a sequential listing of the most common monaural and stereo services.

18 SOURCE

Press this button to view TVRO programs or conventional TV programs. It may also be used to select an external video source such as a decoder or other video device. See section on "Connecting Other Components."

19 — 25 VideoCipher® RS descrambler controls

All of these controls are used to communicate with the VideoCipher® RS descrambler. Several of the buttons are also used to control settings or functions within the receiver's menus. Additional information concerning VCRS® operation is presented in the supplied separate instruction manual on 'VCRS Operating Instructions'.

19 VIEW

This is used to exit from various VCRS® menus and various other programming and operating menus of the receiver. It also shows messages regarding the present program.

20 NXT PRG

This button displays on-screen messages about the next scheduled program. It also permits Review and Delete Next Events in the receiver Event Timer programming menu and is used to view the Parental Lock list.

21 ◀-VC-▶

These two buttons are used to select additional message screens or to change program rating limits. Also used in Satellite Channel programming, Parental Lock programming and Video/Audio programming.

22 HELP

This button displays on-screen messages to assist in using the descrambler features. It can be used with a special code to unlock the system in the event that the password is forgotten.

23 SET UP

This button is used to access stored VCRS® data and to change certain descrambler operations.

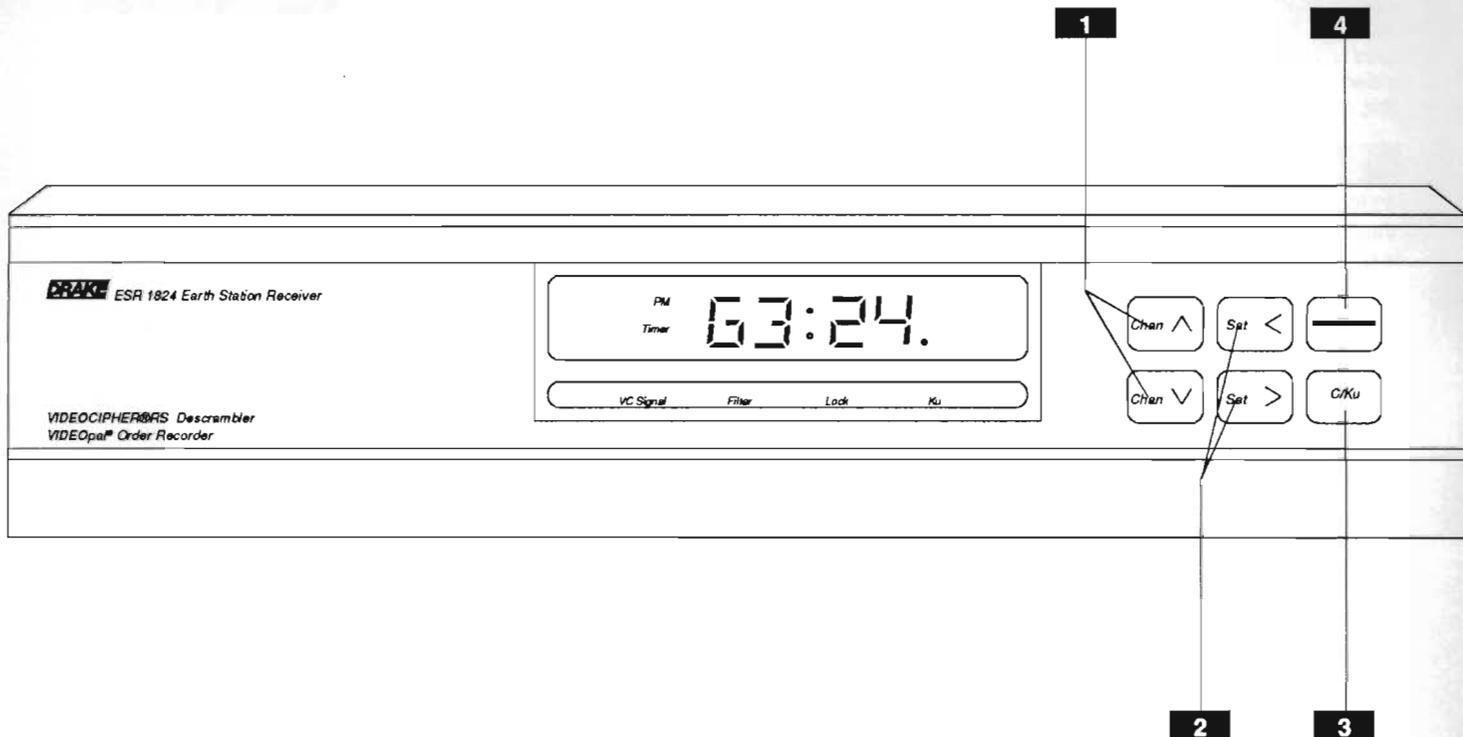
24 TEXT

This button is used to receive text information, news bulletins, programming promotions and other notices.

25 MSG

This button displays the most recently received personal message addressed to your descrambler. May not be used by some programmers.

9 ESR 1824 Front Panel Controls



1 CHANNEL ▼ ▲ buttons

Press either the down or the up arrow to change TVRO channels. C-Band channels 1-24 or Ku-Band channels from 1-32 may be selected. (Refer also to Numeric Keypad Functions under 'Remote Control'.)

2 SAT ◀ ▶ buttons

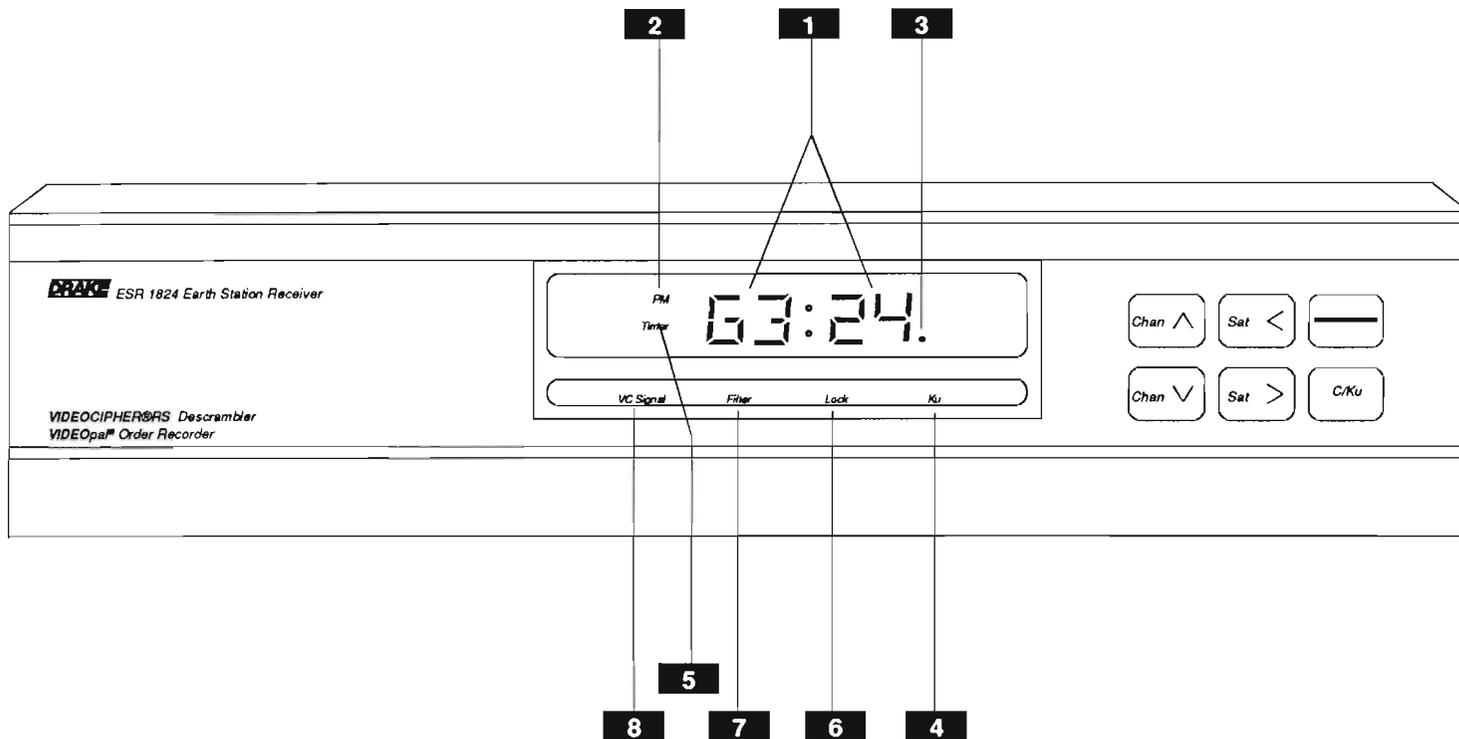
These buttons are used to select a satellite EAST (◀) or WEST (▶) of the current location. First depression of either button causes an on-screen display of the current satellite position.

3 C / Ku button

Use this button to switch between C-Band and Ku-Band operation if your system is so equipped.

4 (—) button

Use this button to turn the receiver 'on' or 'off'.



1 Digital display

This display normally indicates current satellite name (two-digit designator, i.e. 'G3', 'F4') and channel number ('24'). It will also indicate time of day, 'TV' mode, 'EXT' mode, LOG when manual antenna move (normal mode only), and antenna direction during antenna limit programming. 'ET 01 - ET 04' will show one minute before programmed event and also during entire event. 'NP' will show to indicate actuator is not moving. 'MF' indicates Memory Full. In the Program mode, the display blinks slowly to indicate that program instructions are expected by the receiver.

2 PM

If this indicator lights, time is PM. When this indicator is not on, time is AM.

3 Decimal point

The decimal point is used to indicate satellite/channel combinations that are in the Parental Lock memory. During Parental Programming, the decimal point lights when adding a channel to the Parental Lock memory.

4 Ku

This indicator lights if Ku-band operation has been selected.

5 TIMER

This indicator lights to show that Event Timer is activated for recording of selected programs.

6 LOCK

This LED indicates that the receiver has been placed in the Parental Lock mode, restricting access to locked satellite/channel combinations.

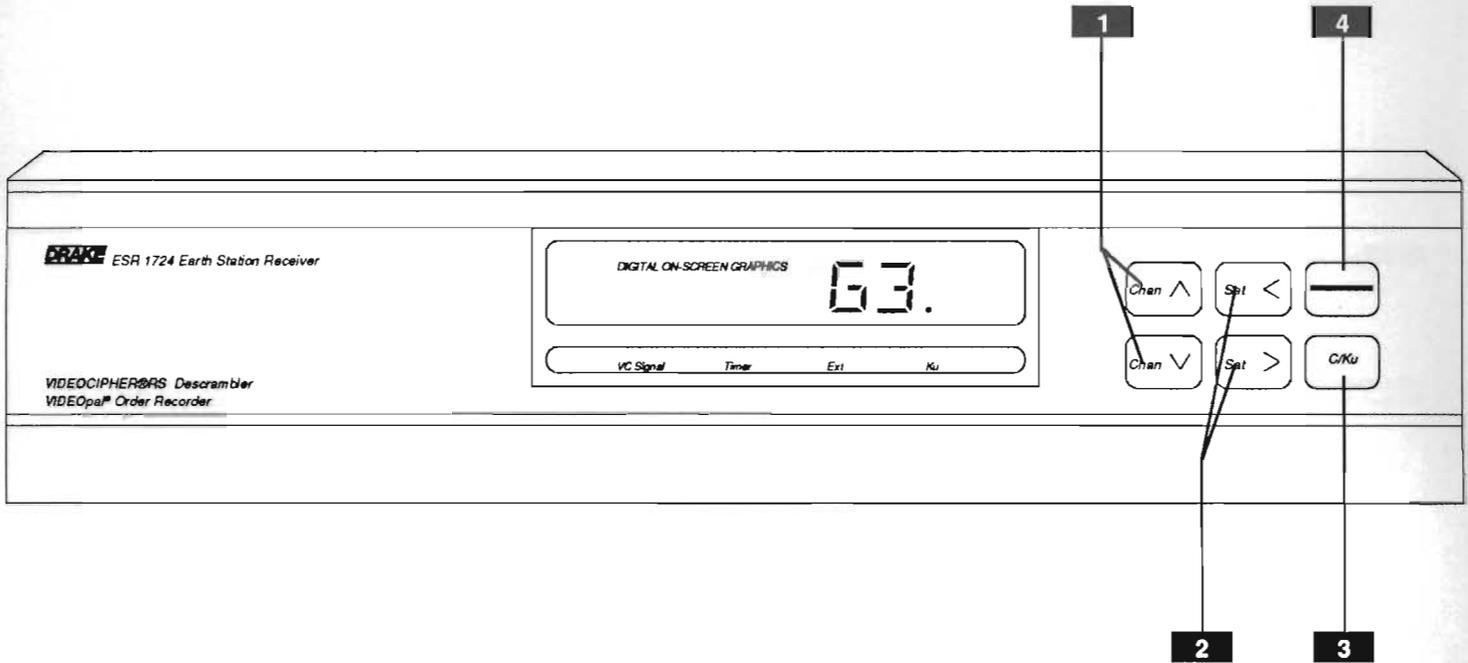
7 FILTER

This LED indicates that the TI (terrestrial interference) filter has been selected to reduce or eliminate interference.

8 VC SIGNAL

If the descrambler module is installed, this indicates that a VideoCipher® RS scrambled signal is being received. It does not indicate that the encrypted signal will be decoded.

11 ESR 1724 Front Panel Controls



1 CHANNEL ▼ ▲ buttons

Press either the down or the up arrow to change TVRO channels. C-Band channels 1-24 or Ku-Band channels from 1-32 may be selected. (Refer also to Numeric Keypad Functions under 'Remote Control'.)

2 SAT ◀ ▶ buttons

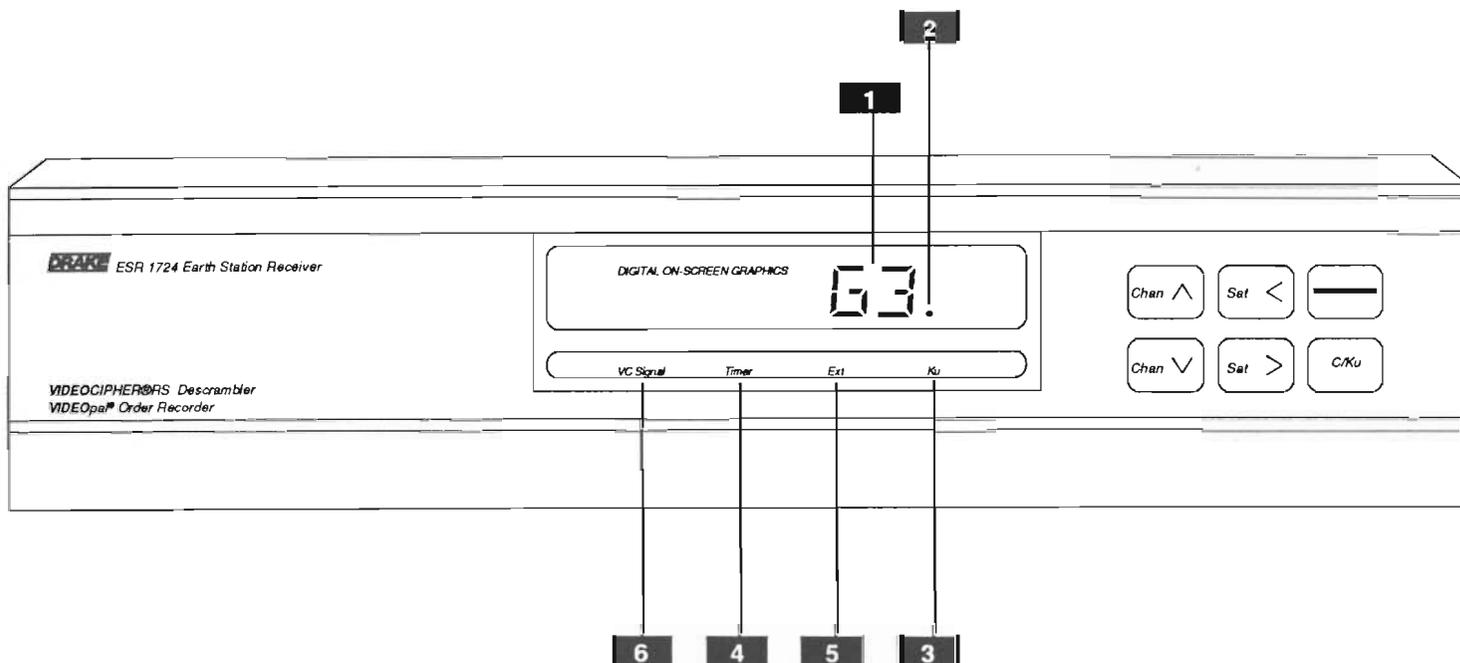
These buttons are used to select a satellite EAST (◀) or WEST (▶) of the current location. First depression of either button causes an on-screen display of the current satellite position.

3 C / Ku button

Use this button to switch between C-Band and Ku-Band operation if your system is so equipped.

4 (—) button

Use this button to turn the receiver 'on' or 'off'.



1 Digital display

This display normally indicates current channel number ('24'), and when selected, indicates the current satellite name (two-digit designator, i.e. 'G3', 'F4'). It will also indicate the log count during a manual antenna move (normal mode only), and antenna direction during antenna limit programming. The event number '1' or '2' (no leading zero) will flash slowly one minute before programmed event and also during entire event. 'NP' will show to indicate actuator is not moving. 'MF' indicates Memory Full. In the Program mode, the display blinks slowly to indicate that program instructions are expected by the receiver.

2 Decimal point

The decimal point is used to indicate satellite/channel combinations that are in the Parental Lock memory. During Parental Programming, the decimal point lights when adding a channel to the Parental Lock memory.

3 Ku

This indicator lights if Ku-band operation has been selected.

4 TIMER

This indicator lights to show that Event Timer is activated for recording of selected programs.

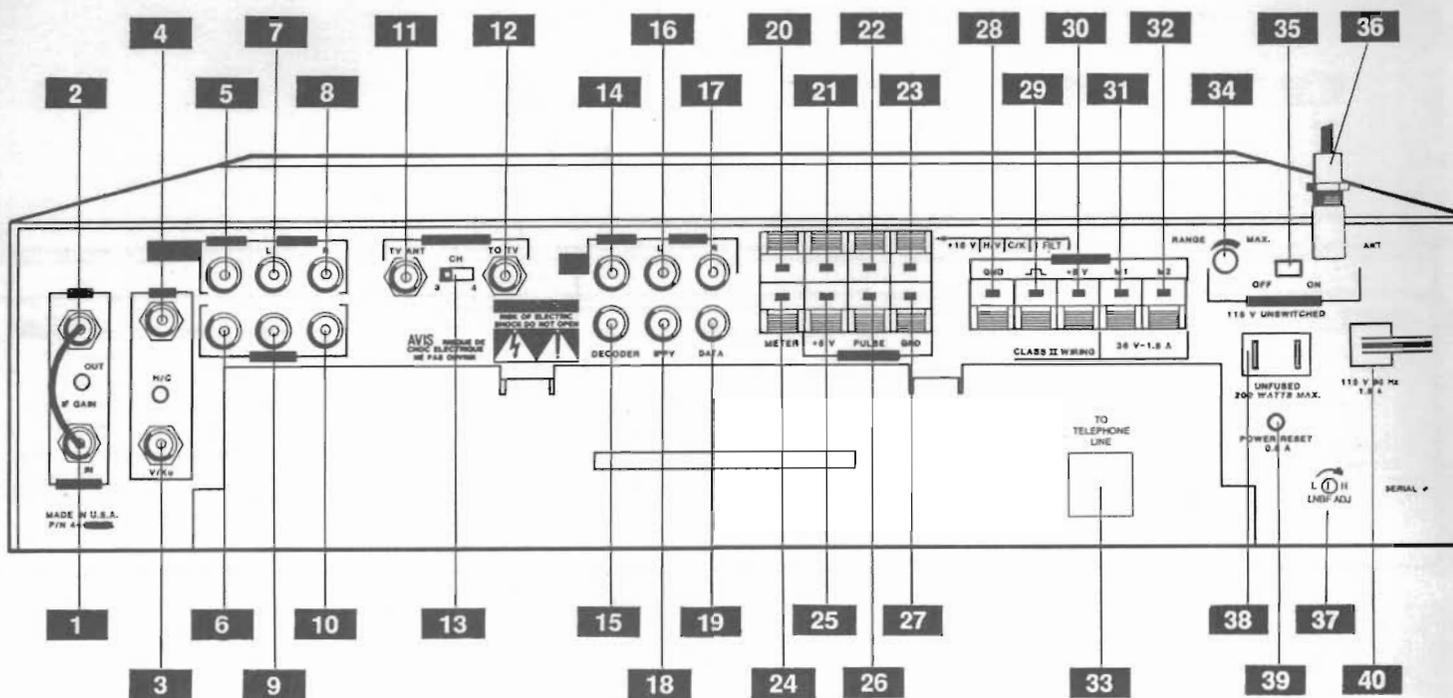
5 EXT

Indicates that externally sourced audio and video, supplied through the rear panel 'EXT IN' phono connectors, has been selected by the 'SOURCE' button.

6 VC SIGNAL

If the descrambler module is installed, this indicates that a VideoCipher® RS scrambled signal is being received. It does not indicate that the encrypted signal will be decoded.

13 Rear Panel Connections



1 140 MHz IF IN

This 'F' connector is the input to the 140 MHz IF (intermediate frequency) amplifier. It must be connected to (2) via a jumper coax cable (supplied). A terrestrial interference (TI) filter or other filter may be connected to this loop if necessary.

2 140 MHz IF OUT

This 'F' connector is used with (1) to provide interconnection to filters as described above.

3 V/Ku

This 'F' connector is one of two 'Block' inputs for the range of 950-1450 MHz. It may be used as the 'V' (vertical) input in a dual C-band system or as the Ku input in a C/Ku dual band system.

4 H/C

This 'F' connector functions as above, except it is used as the input if only a single C-band LNB is used. It may also be used as the 'H' input in a dual C-band system.

5 VIDEO OUT (TO MONITOR)

Filtered baseband video output containing On Screen Display information. Connects to TV/Monitor video input.

6 VIDEO OUT (TO VCR)

Filtered baseband video output not containing on-screen display information. Connects to VCR video input.

7 AUDIO OUT L

This phono connector provides the left audio output of the receiver. The output level may be adjusted by the remote control.

8 AUDIO OUT R

This phono connector provides the right audio output of the receiver. The output level may be adjusted by the remote control.

9 AUDIO OUT L (TO VCR)

This phono connector provides the left audio output of the receiver. The output level is not adjustable by the remote control.

10 AUDIO OUT R (TO VCR)

This phono connector provides the right audio output of the receiver. The output level is not adjustable by the remote control.

11 TV ANT

This 'F' connector is the antenna input for local TV reception (usually VHF). TV antenna is connected to (12) when the receiver is off or has 'TV' selected (by source button).

12 TO TV

This 'F' connector provides a TV compatible signal of the video source selected by the 'Source' button on the remote control. For TVRO, the output is either on channel 3 or 4 as selected by switch (13). When the receiver is off or 'TV' is selected (by the 'Source' button) the television antenna (connected to 11) is switched to this output to allow conventional television reception.

13 Channel 3/4

The output (12) of the remodulator is controlled by this switch. TV reception on channels 3 or 4 is possible.

14 VIDEO IN (EXT IN)

A baseband video input for other video sources, such as VCRs or descramblers. This input is selected by the 'Source' button on the remote control. 'EXT' will show on the front panel display to indicate that the external video source is selected.

15 DECODER

This output is unfiltered, unclamped baseband video with no On Screen Display information. An internal jumper, (see dealer or installer), permits selection of non-de-emphasized or de-emphasized video. Used for MAC or other descramblers or for other accessories requiring a composite output.

16 AUDIO IN L

This phono connector provides an audio input (left channel) from an external audio/video source.

17 AUDIO IN R

This phono connector provides an audio input (right channel) from an external audio/video source.

18 IPPV

This phono connector provides output data from the VideoCipher® RS module.

19 DATA

This phono connector provides output data from the VideoCipher® RS module.

20 +16 V

This is a power supply connection to power other accessories. The output is a nominal +16 VDC at 500 mA maximum, less the power supplied to LNB feeds (3) and (4) if receiver is programmed as either a 'C/Ku' or 'H/V' system. The output will switch between nominal values of +14 and +18 VDC (adjustable by 'LNBF ADJ' pot on rear panel) at 250 mA maximum, less the power supplied to the LNB feeds (3) and (4) if the receiver is programmed for an 'LNBF'.

21 H/V

This connection goes low if 'H' format is selected, and is open circuit if the 'V' format is selected. Max. rating is +18 volts (open circuit) and 100 mA max sink current.

22 C/Ku

This connection goes low if 'Ku' band is selected or open circuit if 'C' band is selected. Max. rating is +18 volts (open circuit) and 100 mA max. sink current.

23 FILT

This output is used to control an external device such as additional TI filter or other filter. This output is low when the 'FIL/N' is selected. Max. rating is +18 volts (open circuit) or 100 mA max. sink current.

24 METER

This connector provides an output for connection to a tuning meter used for aligning the antenna. Maximum signal strength is indicated by a *minimum* reading on either a signal meter or a VTVM.

25 +5 V

This connector is the output of the polarizer power supply.

26 PULSE

This terminal connects to the polarizer control lead (usually white) if a servo type polarizer is used.

27 GND

Ground for polarizer.

28 GND

This is the ground connection for the actuator position sensor.

29 

This is the connection for the actuator position sensor circuitry. This pulse may be a switch closure or pulse from an opto-electronic sensor or Hall effect sensor. This connection is used in conjunction with connectors (28) and (30).

30 +5 V

Supplies +5 volts to the actuator position sensor circuitry if using an optoelectronic or hall-effect sensor. Max. current is 50 mA.

31 M1

This is the supply voltage for the actuator motor. Used with (32).

32 M2

This is the second connection for the actuator power supply. Used with (31) as mentioned above.

33 TO TELEPHONE LINE

This is a connector that accepts a modular telephone jack (wall receptacle to telephone type cable) used by the VIDEOpal® Order Recorder type VC II module.

34 UHF REMOTE RANGE

This screwdriver adjustment is used to control the sensitivity of the UHF receiver and thereby adjust its range from a minimum of 30 feet to a maximum of 200 feet. In areas of high interference, this control should be adjusted toward the minimum until the receiver functions reliably.

35 UHF REMOTE ON/OFF SWITCH

This recessed switch turns the UHF Remote Receiver ON and OFF. When in the 'OFF' position, the receiver will not respond to the UHF remote. The receiver is always enabled to respond to infrared remote commands.

36 UHF REMOTE ANT

This 'F' connector is the input for the UHF Remote Receiver. The provided antenna should be connected to this input.

37 LNBF ADJ

This control permits the adjustment of the supply voltage to a dual-polarity, voltage switched LNB (LNBF). It is intended to compensate for DC cable losses for different coaxial cable lengths. The voltage difference between the low and high voltage settings is 4 volts.

38 115 V UNSWITCHED

This is a power receptacle for other equipment and is rated at 200 watts, unfused, unswitched.

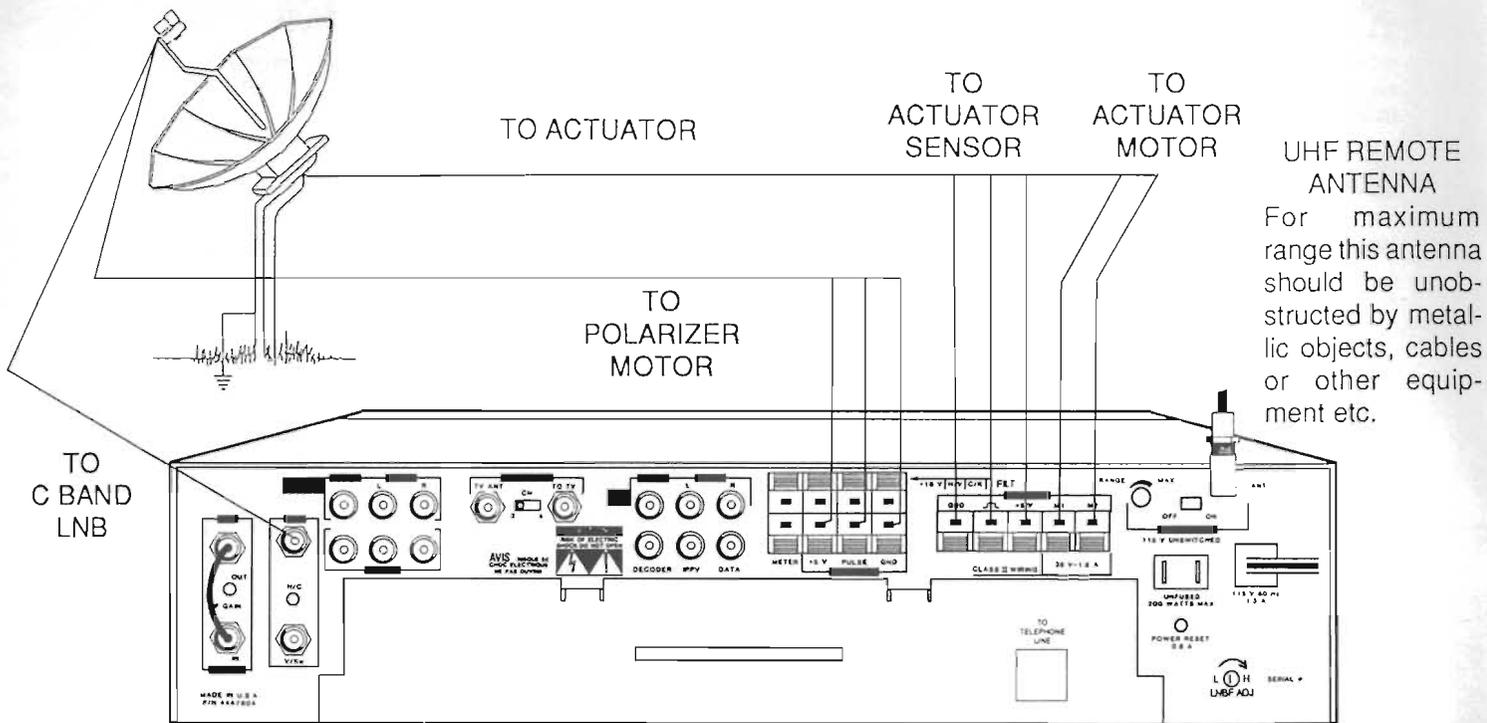
39 POWER RESET

A circuit breaker switch used to reset power to the receiver.

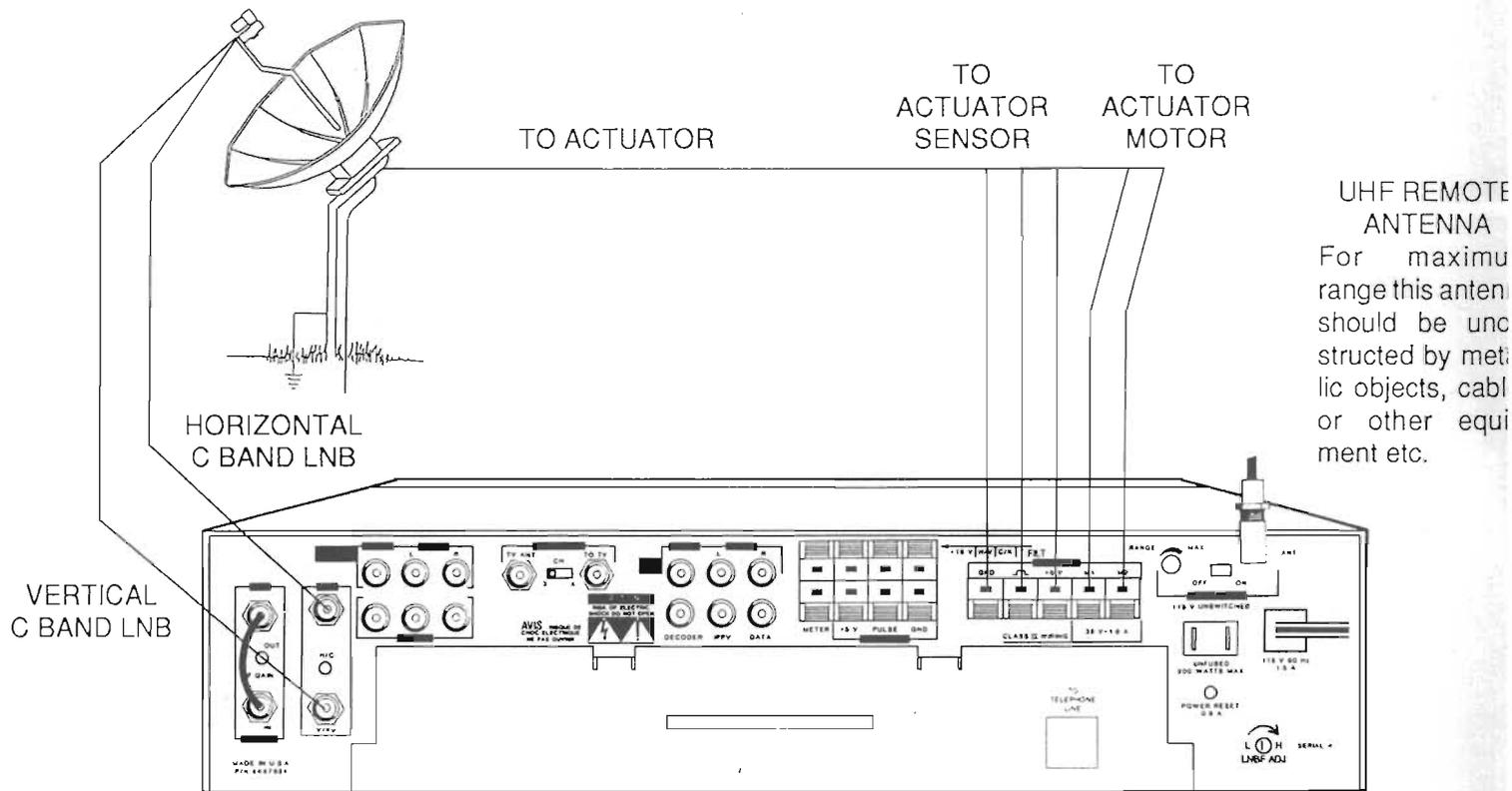
40 LINE CORD

115 Volts (nominal) at 60 Hz input.

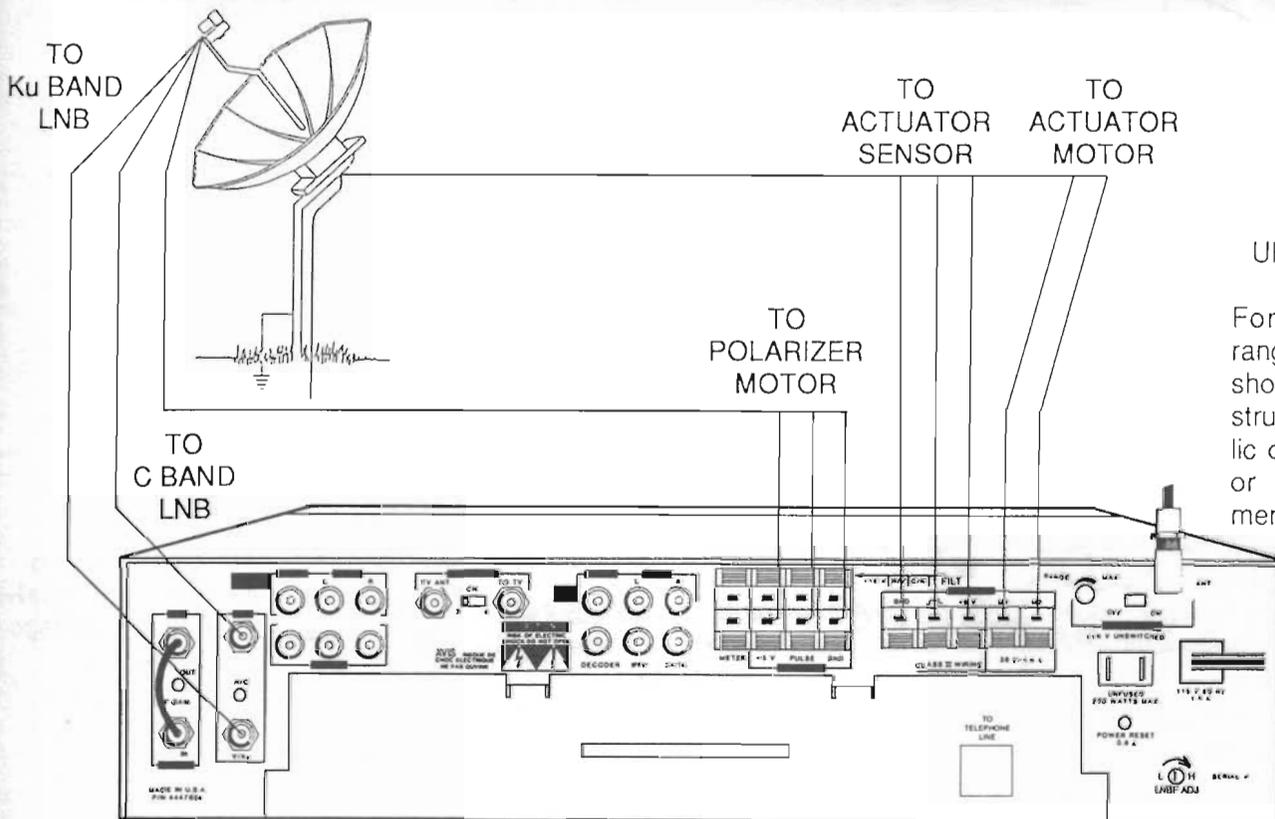
15 Installation- Single C Band With Servo Polarizer



Installation- Dual C Band

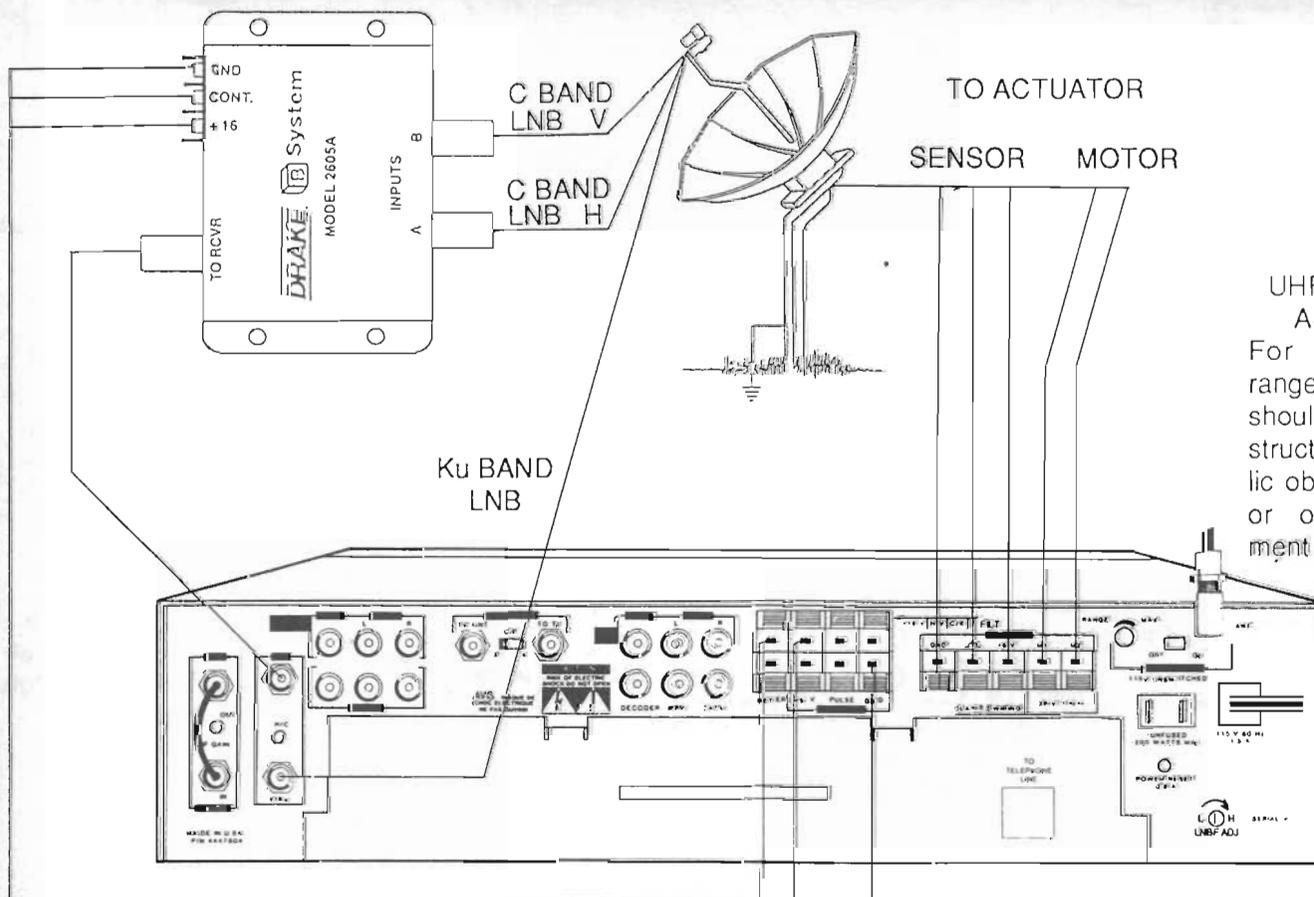


Installation- Single C Band and Single Ku Band 16



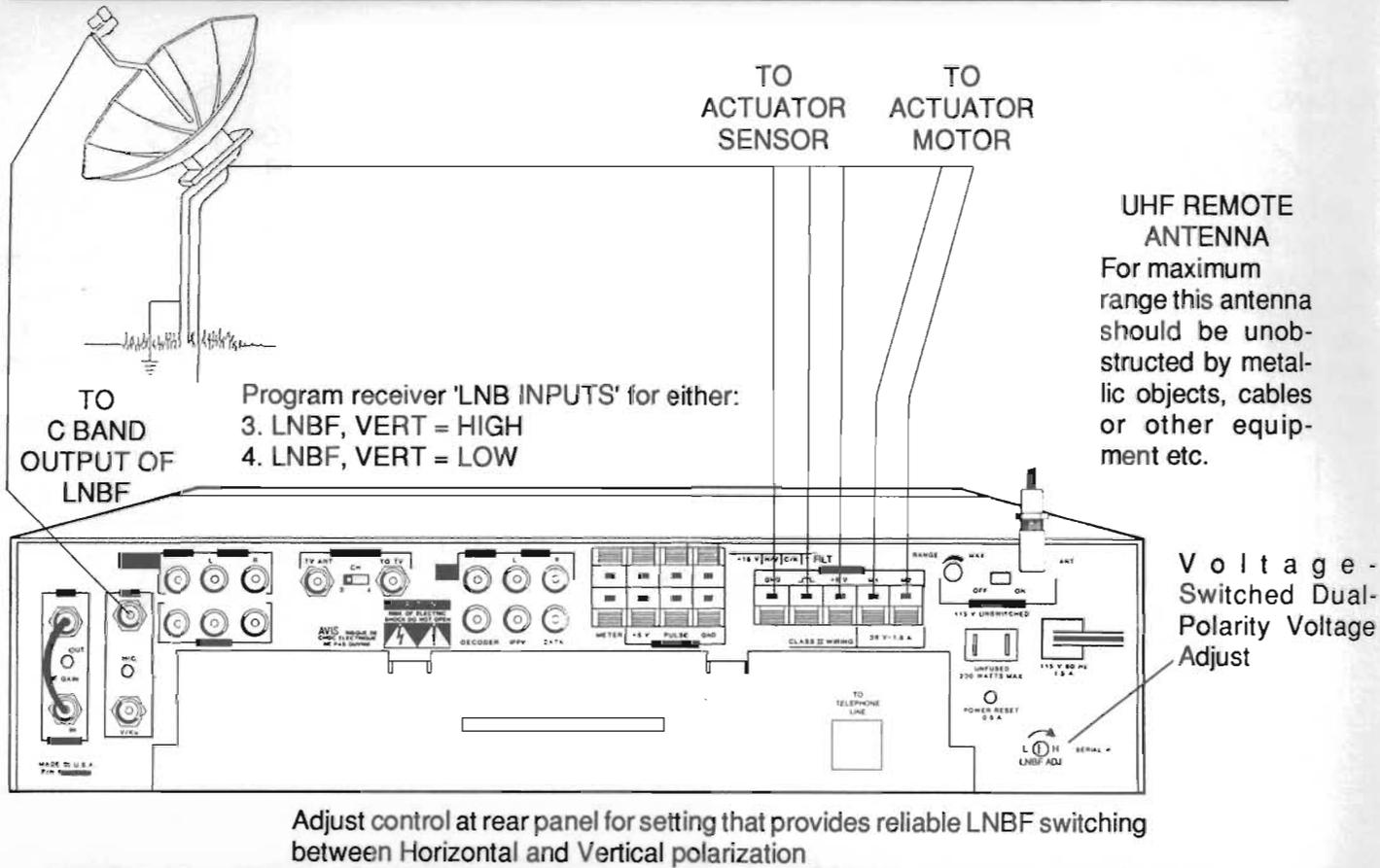
UHF REMOTE ANTENNA
 For maximum range this antenna should be unobstructed by metallic objects, cables or other equipment etc.

Installation- Dual C Band and Single Ku Band

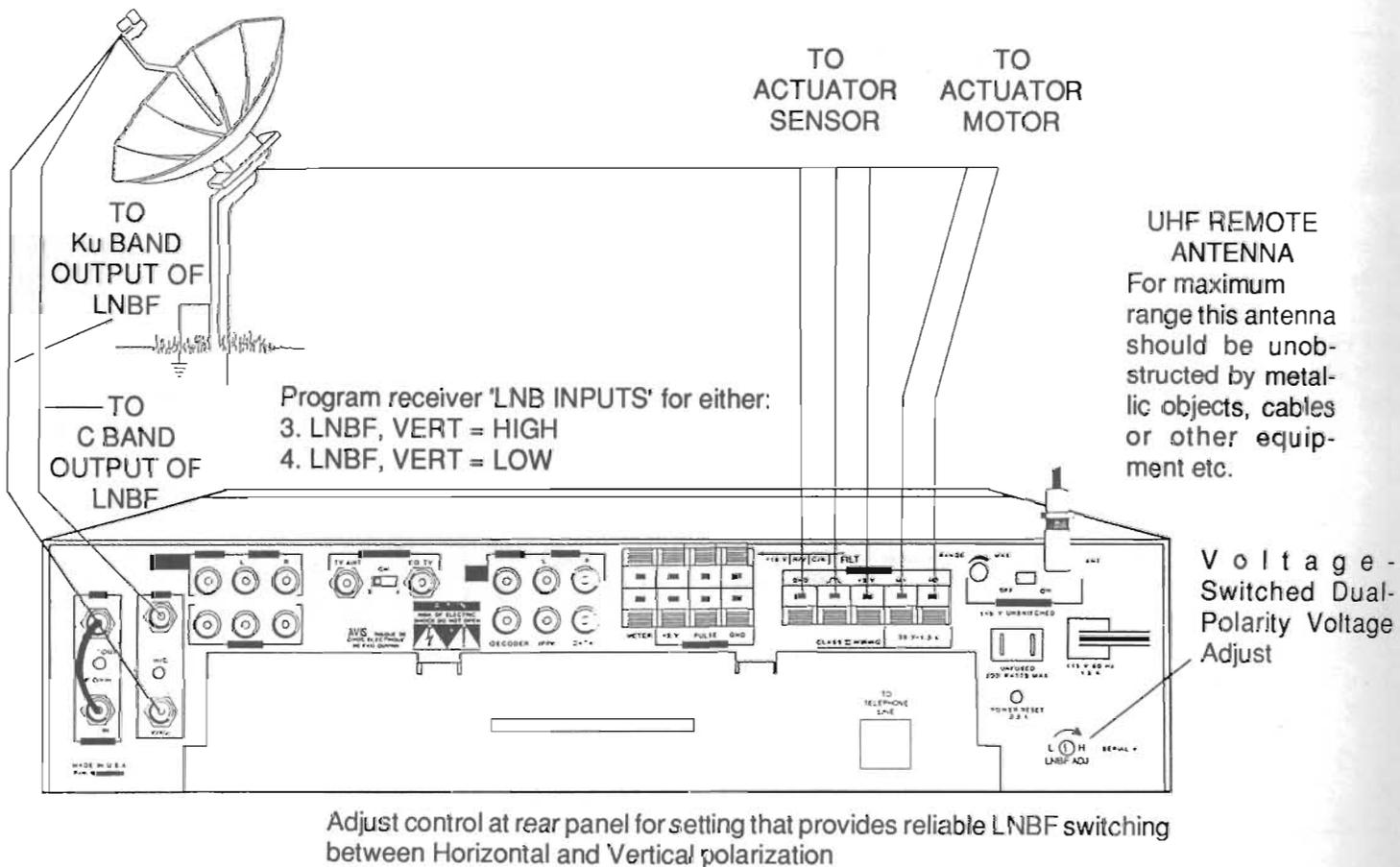


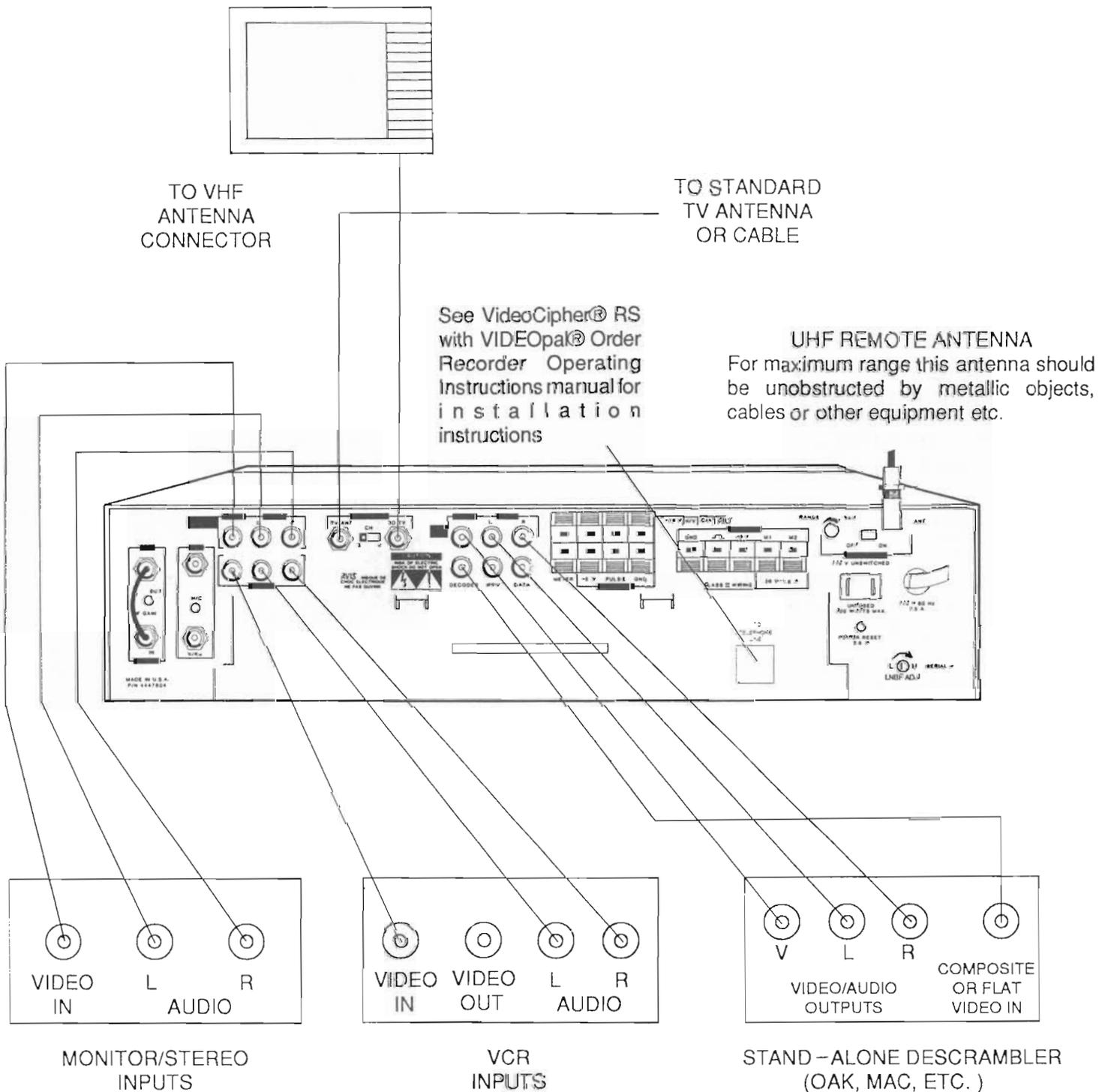
UHF REMOTE ANTENNA
 For maximum range this antenna should be unobstructed by metallic objects, cables or other equipment etc.

17 Installation- Single C Band LNB



Installation- Dual Band LNB





NOTE

If the video/audio inputs (EXT SOURCE) are not used for an outboard second descrambler, these inputs may be used for connection to the VCR audio/video outputs to allow selection of the VCR with the remote control 'SOURCE' button.

GETTING STARTED

Before the receiver can be used, there are several settings that must be programmed into the receiver in order for it to operate properly. These settings are the East and West limits of antenna (dish) travel and the type of LNB inputs to be used with the receiver. The LNB inputs can be programmed to control systems configured with a single C-Band LNB, both C and Ku-Band LNB's, a single C-Band or Ku-Band LNB requiring H/V control, or voltage-switched dual-polarity LNB's (LNBF).

Make sure the receiver is properly connected to a television or monitor TV as described in the installation section. The receiver must also be properly connected to the antenna actuator (motor drive or motor jack) and must be connected to the LNB (or LNBs).

Permanent data, such as antenna limits, satellite locations, program channel names, parental lockout channels, etc., are stored in the receiver by placing the receiver in the PROGRAM MODE. This is done by using the Program Modes Access feature:

Program Mode Access

The 'PROGRAM MODE ACCESS' feature permits convenient remote control access to the 'PROGRAM/INSTALL' menu.

Press 'MENU' to view the MAIN MENU. Then press '6' to view the 'PROGRAM MODE ACCESS' menu.

Press '1', '8', '2', '4' to access the 'PROGRAM/INSTALL' menu for the ESR 1824.

Press '1', '7', '2', '4' to access the 'PROGRAM/INSTALL' menu for the ESR 1724.

The front panel display will flash slowly. This is the indication that the unit is in the PROGRAM MODE. Data that is not permanent, such as Events and Priority View channels, may be stored when the receiver is in its Normal mode of operation.

There are many screens or menus to assist in programming both permanent and non-permanent information. If there are doubts about the procedures that are required to perform any programming steps, please refer to this manual. In most instances, the screens and menus will be sufficient.

When the programming procedure is complete, the program mode is discontinued by pressing the ON / OFF button. This will store information in the receiver's memory and turn the unit off. When the receiver is turned on again, it will be in the Normal operating mode. The receiver is turned on by pressing only the ON / OFF button.

To Program The 'LNB Inputs'

Go to the PROGRAM/INSTALL menu. The PROGRAM/INSTALL menu will show:

```
PROGRAM / INSTALL
1 LNB INPUTS
2 SET ANTENNA LIMITS
3 PROGRAM SATELLITES
4 PARENTAL LOCK LIST
5 MEMORY CLEAR
6 PROGRAM CHANNELS
7 ENGLISH / ESPANOL
8 USE VCR PLUS [TM]
USE 1 - 8
USE 'ON / OFF' TO EXIT
```

Press '1' on remote control. LNB Inputs menu will show:

```
LNB INPUTS
>1 ONE C-BAND AND / OR
   ONE KU-BAND LNB
2 H/V
3 LNBF, VERT = HIGH
4 LNBF, VERT = LOW
USE 1 - 4
'CANCEL' FOR LAST MENU
```

Most earth station installations use only a single C band LNB for reception of both H and V signals. This type of installation is known as a 'C/Ku' system. If the installation has both a C band and Ku band LNB, it is also known as a 'C/Ku' system. If the installation has an 'H' and 'V' LNB for C band, it is known as an 'H/V' system.

Press the '2' button on the remote control to select 'H/V'. The rear panel terminal marked 'H/V' will control an external polarity switch.

The receiver can also be programmed to control a Voltage-Switched, Dual-Polarity LNB (LNBF). There is no skew control required for an LNBF. The polarity is switched by the High/Low power supply voltage supplied to the LNBF by the 'LNB H/C' coax connector.

Press either the '3' or '4' button on the remote control to program the proper logic sense for the Voltage-Switched LNBF type.

For LNBF units that switch polarity with the pulse control, press the '1' button to program the receiver for 'ONE C-BAND AND/OR ONE KU-BAND LNB' and make certain that the factory default skew settings are programmed to '+45' and '-45'.

Make the necessary entry, if required, and press 'CANCEL' to return to the PROGRAM/INSTALL menu or press ON / OFF to leave the program mode.

INITIAL SETUP

Setting Antenna Limits

Go to the 'PROGRAM/INSTALL' menu. Press the '2' button on the remote control to program antenna limits.

The SET ANTENNA LIMITS menu will then be shown. This screen is shown below.

Both the EAST and WEST limits will show a number that will change as each limit is set or stored into memory.

```

SET ANTENNA LIMITS CH:11
1 WEST LIMIT      9000
2 EAST LIMIT      11000
ANTENNA NOW AT 10000
"EAST/WEST" TO MOVE ANT

▲, ▼ = SKEW, "<>" = FMT
PRESS '1' FOR WEST LIMIT
OR '2' FOR EAST LIMIT
FOR 2 SEC TO STORE
'CANCEL' FOR LAST MENU
    
```

When the 'SET ANTENNA LIMITS' menu is displayed, the antenna may be moved to any position. Use caution not to exceed mechanical constraints. The East and West limits should be set just beyond the most Eastern and most Western satellites to be viewed. As an aid in locating these satellites, a smaller screen is presented over video during East and West antenna movement or polarity format and skew adjustment.

```

SIG : 122 ANTENNA - 10052
    
```

The 'CHANNEL ▼', or 'CHANNEL ▲' buttons may be used to select a specific channel or the channel scan feature may be used by pressing number '99' on the remote control. Use the ▲, and ◀ ▶ buttons to adjust polarity format and skew if required.

To set the West antenna limit use the 'WEST' (and 'EAST') buttons on the remote control. Move the antenna just beyond or slightly West of the satellite that is farthest to the West. When the desired limit is reached, press the '1' button and hold for 2 seconds to store this position in the receiver's memory. At this time the screen will show 'LIMIT STORED' for a few seconds.

To set the East antenna limit use the 'EAST' (and 'WEST') buttons on the remote control. This time, move the antenna to a point just slightly East of the most Eastern satellite to be received. This may require selecting a different channel that has video material, or the SCAN mode may be used again (press '99' on the remote control). When the desired East limit is reached, press '2' and hold for 2 seconds to store this position in the receiver's memory. This time the screen will show 'LIMIT STORED' for a few seconds.

After both the WEST and EAST limits are stored, press 'CANCEL' to return to the PROGRAM/INSTALL menu. At this time the installation process may be continued by making another selection, or the programming may be discontinued by pressing the 'ON / OFF' button on the remote control.

TO PROGRAM SATELLITES (ADD OR DELETE SATELLITES FROM MEMORY)

Go to PROGRAM/INSTALL menu and press '3' on the remote control. The PROGRAM SATELLITES menu will show on television screen:

```

PROGRAM SATELLITES

1 ADD SATELLITE
2 DELETE SATELLITE
3 AUTO SAT PROGRAMMING
4 RECAL SATELLITES
5 DISPLAY SIGNAL

USE 1 - 5

'CANCEL' FOR LAST MENU
    
```

The receiver comes from the factory with all the present satellite names and formats already stored in its memory. If new satellites are placed in orbit which have programming you wish to receive, the following procedure is used to store the new satellite's name, format, skew, band and position in the receiver's memory.

To Add A Satellite To The Receiver's Memory

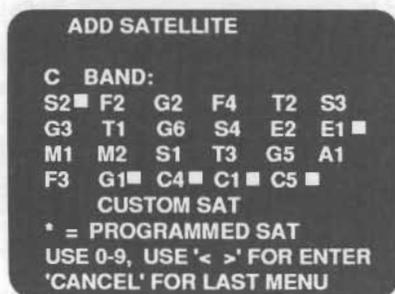
This procedure is used to store a satellite location for initial setup or to add an additional satellite.

Press 'C/Ku' button to select desired band.

Select a known channel where video material is available using 'CHANNEL ▲' or 'CHANNEL ▼'.

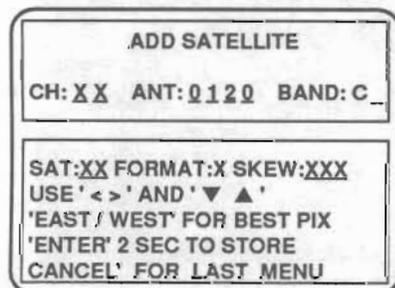
Go into the PROGRAM MODE, select the PROGRAM SATELLITES menu and then select the ADD SATELLITES menu by pressing '1' on remote control.

The ADD SATELLITE menu will show all satellites that are operational at the time of receiver manufacture.



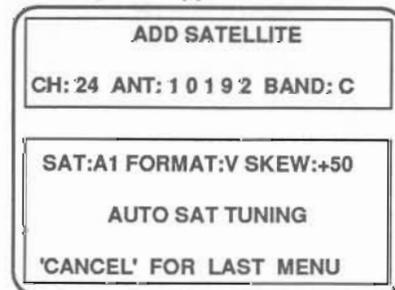
Press '◀ ▶' buttons to move cursor to select from list of displayed satellite names or enter letter and number from keypad.

Press the 'ENTER' button momentarily to display the 'ADD SATELLITE' menu with partial screen video.



Cursor blinks at FORMAT. Press '▲' or '▼' button to select H or V. (Required whenever new satellite is not in memory.)

Press 'EAST/WEST' buttons for best picture (or use 'AUTO PK' if antenna is already located close to desired satellite position). If 'AUTO PK' is used, the 'AUTO SAT TUNING' message will appear as follows:



Press '▶' to move to SKEW.

Press '▲/▼' to adjust skew for best picture, if necessary.

Press 'EAST/WEST' for best picture.

Note: Select opposite polarity (FORMAT) channel and adjust polarity skew for best picture.

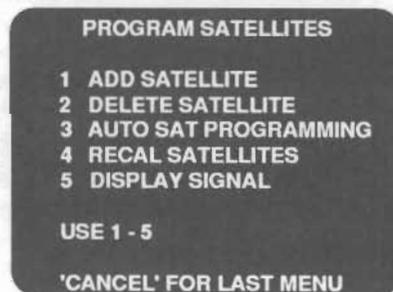
Press and hold 'ENTER' for 2 seconds to store all satellite information in memory.

Other satellites may be added at this time by moving the antenna to a new satellite and repeating the above steps, or the ADD SATELLITE screen may be exited by pressing 'CANCEL' until the PROGRAM/INSTALL menu is shown. Press 'ON / OFF' to leave the program mode.

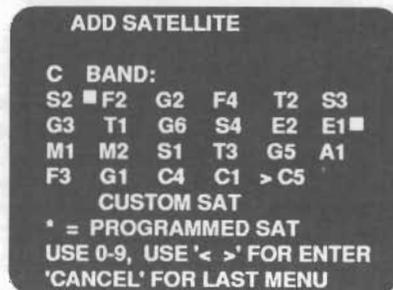
To Add A Satellite With A Special SAT / ALPHA Designator

This procedure permits the generation of an odd named or Special SAT / ALPHA designator which will be used to store a satellite location for initial setup or to add on an additional satellite.

Go to PROGRAM / INSTALL menu and press '3' on the remote control. The PROGRAM SATELLITES menu will show on the television screen:



Select the ADD SATELLITE menu by pressing '1' on the remote control.



With the ADD SATELLITE menu selected, enter a 'CUSTOM SAT' Alpha/Numeric designator using the Numeric buttons. Press 'ENTER' to move to the 'ADD SATELLITE' menu with partial screen video.

To access alpha characters that are not available on the remote control, press the '< >' buttons as required to move to 'CUSTOM SAT' position.

Press the 'ENTER' button momentarily to display:



Cursor is in the SAT:XX position waiting for a Letter and Number designator to be selected. Enter any letter available from the remote control Keypad or press '▼, ▲' buttons to select any of the 26 letters of the alphabet. Press '◀, ▶' to move the cursor to permit selection of the designator. Press '▼, ▲' buttons to select either '0-9' or '-'.

Press 'ENTER' momentarily to return to the ADD SATELLITE menu with partial screen video. Antenna position, Format and Skew can be adjusted for the best picture. Press 'ENTER' for 2 seconds to store the satellite. Press 'CANCEL' to return to PROGRAM SATELLITES menu.

To Delete A Satellite From The Receiver's Memory

Press '2' while viewing the PROGRAM SATELLITES menu or begin by entering the PROGRAM/INSTALL menu.

From the 'PROGRAM/INSTALL' menu, press '2' on the remote control.

DELETE SATELLITE menu will show as below:



Use '▲ / ▼' until desired satellite designator is shown. Press 'ENTER' and hold for 2 seconds to delete the selected satellite. Continue as above to delete other satellites or press 'CANCEL' for previous menus or leave program mode by pressing 'ON / OFF.'

Use 'C/Ku' to select Ku band for deleting Ku satellites, (same procedure as on C band).

Automatic Satellite Programming

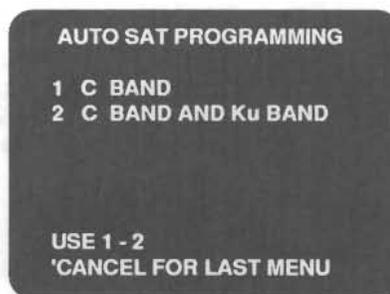
Satellite locations may be automatically located and stored in the receiver memory by using the AUTO SAT PROGRAMMING menu.

Before using the AUTO SAT PROGRAMMING menu, it is necessary to have both the East and West limits stored. It is also necessary to locate and store the positions and polarity skew of **three** C Band satellites (take care to adjust polarity skew very accurately, since this value will be used later). **It is important** to program both a vertical polarity skew channel and a horizontal polarity skew channel on each of the **three** C Band satellites being used for AUTO SAT PROGRAMMING to insure the most reliable operation of the AUTO SAT PROGRAMMING feature. One should be the East most satellite to be viewed, one should be the West most satellite to be viewed, and one should be near the center of the satellite belt. The receiver then uses these three satellites as reference points for locating all of the remaining satellites. The AUTO SAT PROGRAMMING **will not locate satellites beyond the East and West most satellites stored.** If Ku Band satellites are to be located, three C Band satellites must be stored along with one Ku Band satellite. Use the 'Set Antenna Limits' and 'Add Satellites' menus for adding these satellites.

When the reference satellites are stored in memory (along with both limits), enter the PROGRAM/INSTALL menu.

Press '3' for the PROGRAM SATELLITES menu.

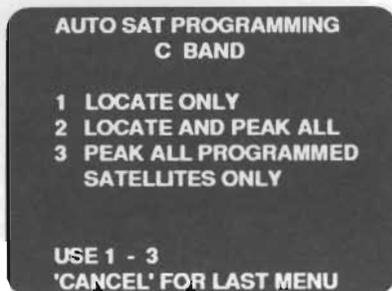
Press '3' for the AUTO SAT PROGRAMMING menu as shown below:



Press '1' for a C Band only system, or press '2' for a C and Ku Band system.

23 Programming cont'd.

The following menu will show (it will be slightly different if a 'C and Ku Band' system was chosen):



Choice '1' will locate satellite positions only. Polarity skew is not automatically optimized but will be adequate if polarity skew was manually stored when three reference satellites were programmed. This selection should be used with small antennas (less than 8 feet diameter).

Choice '2' will locate satellite positions and adjust polarity skew for best picture quality. May not operate correctly for antennas of less than 8 feet diameter.

Choice '3' is used if one or more satellites do not appear to be properly located and require frequent adjustment for best picture. This choice operates similarly to the 'Auto Pk' function but peaks all satellites instead of just one. This choice will not add satellites.

After one of the above choices is made (choice will flash as AUTO SAT PROGRAMMING is being performed, front panel display will indicate antenna log position), the receiver will begin the process of locating satellite positions and storing them in memory. This process takes about five-ten minutes for C - Band and five-ten additional minutes for Ku - Band. During the Locating process, the message 'LOCATING C BAND: (or Ku BAND:) XX' is displayed. When the AUTO SAT LOCATE process is complete, the screen heading 'AUTO SAT PROGRAMMING COMPLETE', and all located satellites are listed by designator.



During the Locate and Peak All and Peak All Programmed Satellites Only process, the message 'PEAKING C BAND: (or Ku BAND:) XX' is displayed.

If for some reason, the locate or peaking process encounters a problem, the message 'AUTO SAT TERMINATED PREMATURELY' is displayed.

Press 'CANCEL' until PROGRAM/INSTALL menu shows, then press ON / OFF to leave the program mode.

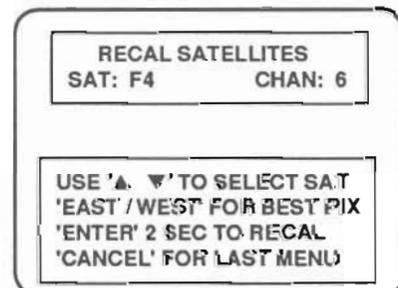
Recal Satellites

If all satellites require frequent antenna adjustment for optimum video quality, the RECAL SATELLITES menu should be used to correctly reposition the satellite locations. All satellite locations will be corrected.

Go to PROGRAM/INSTALL menu.

Press '3' for the PROGRAM SATELLITES menu.

Press '4' for the RECAL SATELLITES menu as shown below:



This menu shows video material to help in the exact positioning of the antenna for best video quality.

Use 'EAST' and 'WEST' buttons for best picture quality.

Press 'ENTER' for 2 seconds to store new position.

Use 'CANCEL' to return to PROGRAM SATELLITES and PROGRAM/INSTALL menu.

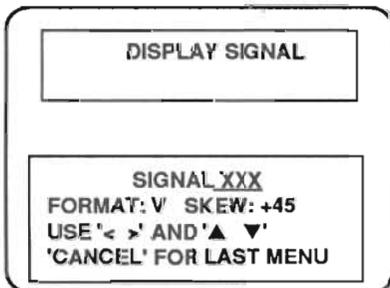
Press 'ON / OFF' to leave program mode or make other selection from PROGRAM/INSTALL menu.

If this procedure did not correct satellite locations, use the 'AUTO SATELLITE PROGRAMMING' menu, choice number 3. This program should re-peak all satellite locations.

Display Signal

Prior to leaving the PROGRAM/INSTALL mode, the signal strength can be displayed for the purpose of adjusting the format and polarity skew. The optimization of polarity might be required if satellite positions were located only. Note that 'FORMAT' and 'SKEW' can only be viewed and adjusted in this menu, but not stored. To store the adjusted values, press 'CANCEL' followed by '1' to select 'ADD SATELLITE' menu. To display signal strength:

With the PROGRAM/INSTALL menu displayed, press '3' for the PROGRAM SATELLITES menu. Press '5' for the DISPLAY SIGNAL menu.



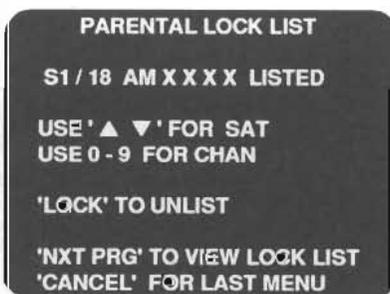
This menu shows video material to help in the exact adjustment of the polarity for best video quality. Either the manual adjustments illustrated by the menu or the AUTO PK function can be used at this point to optimize polarity skew.

Use 'CANCEL' to return to PROGRAM SATELLITES and PROGRAM/INSTALL menu.

Press 'ON/OFF' to leave program mode or make other selection from PROGRAM/INSTALL menu.

TO PROGRAM A PARENTAL LOCK CHANNEL

Go to the 'PROGRAM/INSTALL' menu. Press '4' for the PARENTAL LOCK LIST menu.



Select desired satellite name by pressing '^' or 'v' button. Select desired channel by pressing '0' through '9' on keypad. Satellite name, channel and program name will be shown on screen. If the desired program is not in

the lockout list, it will be shown as an 'UNLISTED' channel. Press 'LOCK' to add the program to the list. It will now be "locked out" when the receiver is in the 'Parental Lockout' mode of operation. A decimal point is displayed on the front panel to indicate that program is in the lock list.

Follow the same procedure to "unlist" a channel and remove it from the lockout list. When the desired satellite, channel and program name are shown, press 'LOCK' to "unlist" a listed program. This program will now be available when the receiver is in the 'Parental Lockout' mode.

Press 'NXT PRG' to view the list of all channels that will be locked out in the 'Parental Lockout' mode.

Press 'CANCEL' to leave this menu.

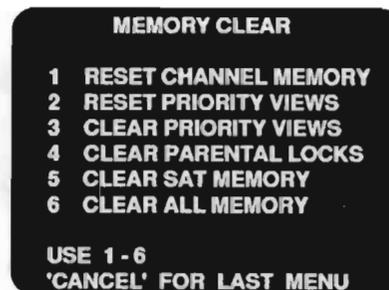
Up to 16 channels may be locked out on C - Band and 16 more may be locked out on Ku Band.

To LOCK or UNLOCK ALL channels programmed into the Parental Lock list, Press the 'LOCK' button, followed by your choice of a four digit password. It is important to note that this procedure locks or unlocks ALL channels that are programmed into the LOCK list, regardless of your present satellite and channel location. All programming modes are locked out when the Parental Lock is active.

TO CLEAR OR RESET MEMORY FUNCTIONS

The receiver uses different types of memory for storage of channel names, Priority View channels, Parental Lock channels and satellite locations. This section describes the procedure for clearing or resetting (to factory preset values) the different memories.

Go into the 'PROGRAM/INSTALL' menu. Then press '5.' The MEMORY CLEAR menu will be shown on the television screen:



It is extremely important that each MEMORY CLEAR function be completely understood; otherwise, the wrong program information will be lost and re-programming will be necessary. EXERCISE EXTREME CAUTION when working from the MEMORY CLEAR menu.

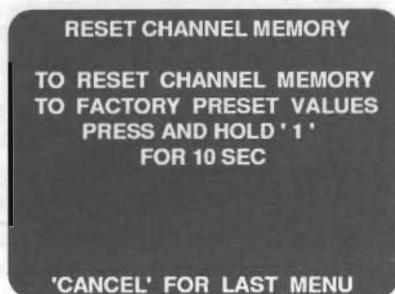
Select the desired MEMORY CLEAR function by pressing '1,' '2,' '3,' '4' '5', or '6.'

To Reset Channel Memory To Factory Values

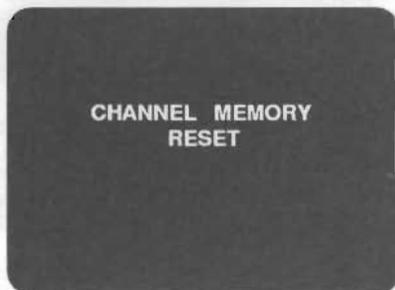
This function is used to remove any new channel names that have replaced the original program names. For example, G1/09 was originally ESPN® but was changed to another name. The original name (ESPN®) can be reactivated by using the RESET CHANNEL MEMORY function.

ALL NEW NAMES WILL BE REPLACED WITH THE ORIGINAL NAMES FOR ALL CHANNELS.

Using the MEMORY CLEAR menu (number 5 from PROGRAM/INSTALL menu) press '1' on remote control. RESET CHANNEL MEMORY menu will show:



If the new channel names are to be replaced with original factory names, press '1' and hold for 10 seconds. Screen will show a countdown to zero seconds and then show:



Press 'CANCEL' to return to the MEMORY CLEAR menu. Then press 'CANCEL' again to return to the PROGRAM/INSTALL menu and then press ON / OFF' to leave the PROGRAM MODE.

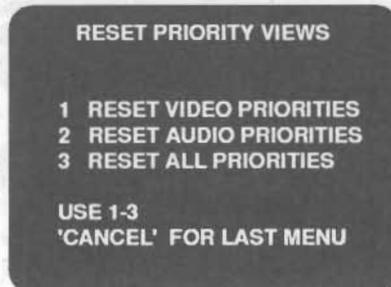
To Reset Priority Views to Factory Values

The ESR 1824 receiver is preprogrammed with Priority View Channels and Audio Priorities. Both Video and Audio priorities may be changed, deleted or new priorities may be added. The original priorities are retained in permanent memory and may be reactivated if desired.

The ESR 1724 receiver is programmed with Priority View channels.

To reset priority views to factory values, enter 'PROGRAM/INSTALL' menu.

Press '5' to enter 'MEMORY CLEAR' menu. Then press '2' to enter the 'RESET PRIORITY VIEWS' menu. A menu will appear on the ESR 1824 that allows memory clearing of VIDEO priorities only, AUDIO priorities only or ALL priorities. The ESR 1724 will display the 'RESET ALL VIDEO PRIORITIES' menu at this point.



For the ESR 1824, select the desired priorities to reset by pressing '1', '2', or '3' (hold appropriate number button for ten seconds to clear memory). For example, if video priorities are to be reset:



For the ESR 1724, press and hold '2' for ten seconds.

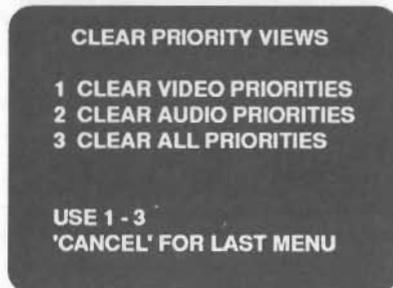
Screen will show countdown to zero seconds and then show 'PRIORITY VIEWS RESET'.

Press 'CANCEL' until 'PROGRAM/INSTALL' menu is shown, then press 'ON / OFF' to leave program mode and turn off power.

To Clear Priority Views

This menu is used to erase all PRIORITY VIEW channels from the receiver's memory. Priority View channels may then be selected and numbered as desired.

From the 'PROGRAM/INSTALL' menu, press '5' for the 'MEMORY CLEAR' menu. Press '3' on the remote control. The ESR 1824 CLEAR PRIORITY VIEWS menu will show as below:



The ESR 1724 menu will display a 'TO CLEAR ALL PRIORITY VIEWS' menu at this point.

For the ESR 1824, select the desired priorities to clear from memory by pressing '1', '2', or '3' (hold appropriate number button for 10 seconds to clear memory). For example, if ALL priorities are to be cleared:

CLEAR PRIORITY VIEWS
 TO CLEAR ALL PRIORITY VIEWS,
 PRESS AND HOLD '3'
 FOR 10 SEC
 'CANCEL' FOR LAST MENU

For the ESR 1724, press and hold '3' for ten seconds.

Screen will show countdown to zero seconds. 'PRIORITY VIEWS CLEARED' will then show on screen. Press 'CANCEL' to return to MEMORY CLEAR menu. Then press 'CANCEL' again to return to the PROGRAM/INSTALL menu. Finally, press 'ON / OFF' to leave PROGRAM MODE.

To Clear Parental Locks

This menu is used to erase all PARENTAL LOCKS from the receiver's memory. Be certain that all Parental Lock channels are to be erased. From the 'PROGRAM/INSTALL' menu, press '5' for the 'MEMORY CLEAR' menu. Press '4' for 'CLEAR PARENTAL LOCKS' menu.

CLEAR PARENTAL LOCKS
 TO CLEAR PARENTAL LOCKS
 PRESS AND HOLD '4'
 FOR 10 SEC
 'CANCEL' FOR LAST MENU

If all Parental Lock channels are to be cleared from memory, press '4' and hold for 10 seconds. Screen will show countdown to zero seconds. 'PARENTAL LOCKS CLEARED' will then show on screen. Press 'CANCEL' to return to MEMORY CLEAR menu. Then press 'CANCEL' again to return to PROGRAM/INSTALL menu. Then press 'ON / OFF' to leave PROGRAM MODE.

To Clear SAT Memory

This menu is used to erase all satellite locations from the receiver's memory. Extreme care should be exercised when using this menu, since valuable information may be lost. From the 'PROGRAM/INSTALL' menu, press '5' for the 'MEMORY CLEAR' menu. Press '5' for the 'CLEAR SAT MEMORY' menu.

CLEAR SAT MEMORY
 TO CLEAR SAT MEMORY
 PRESS AND HOLD '5'
 FOR 10 SEC
 'CANCEL' FOR LAST MENU

If all satellite locations are to be erased from memory, press '5' and hold for 10 seconds. Screen will show countdown to zero seconds. 'SAT MEMORY CLEARED' will then show on screen. Press 'CANCEL' to return to the MEMORY CLEAR menu. Press 'CANCEL' again to return to the PROGRAM/INSTALL menu; then press 'ON / OFF' to leave the PROGRAM MODE.

To Clear All Memory

The memory of the receiver may be cleared and reset to factory values by using the 'CLEAR ALL MEMORY' menu.

From the 'PROGRAM/INSTALL' menu, press '5' for the 'CLEAR MEMORY' menu. Press '6' for the 'CLEAR ALL MEMORY' option.

CLEAR ALL MEMORY
 TO CLEAR ALL MEMORY
 PRESS AND HOLD '6'
 FOR 10 SEC
 'CANCEL' FOR LAST MENU

If all memory is to be cleared, press and hold '6' for ten seconds. Screen will show countdown to zero, then will show 'ALL MEMORY CLEARED.' Press 'CANCEL' until PROGRAM/INSTALL menu appears. Then press ON / OFF to leave Program mode. This action essentially combines all of the Memory Clear functions. Original factory values are reset for channel name and Priority Views. Antenna limits, satellite locations and Parental Locks are removed. Antenna limits must be reprogrammed before any new programming can be accomplished.

PROGRAMMING CHANNELS

The receiver has the various settings and adjustments for each channel stored in its memory. These memory values are the FACTORY PRESET VALUES and are stored in permanent memory. If new programs become available, it will be necessary to store all settings for the new channel in memory. This section describes the procedure for setting all adjustments and storing them in memory so the receiver will perform these settings automatically for the new channels. Several adjustments are necessary to receive a new channel properly. Please pay careful attention to the following instructions.

Add / Modify Channel

Go to the 'PROGRAM/INSTALL' menu.

```

PROGRAM / INSTALL
1 LNB INPUTS
2 SET ANTENNA LIMITS
3 PROGRAM SATELLITES
4 PARENTAL LOCK LIST
5 MEMORY CLEAR
6 PROGRAM CHANNELS
7 ENGLISH / ESPANOL
8 USE VCR PLUS [TM]
USE 1 - 8
USE 'ON / OFF' TO EXIT
    
```

Press '6' to view the PROGRAM CHANNELS menu.

Note: Tune to an active satellite prior to making adjustments.

```

PROGRAM CHANNELS
1 ADD / MODIFY CHANNEL
2 RETURN CHANNEL TO
  FACTORY PRESET VALUES
3 REMOVE CHANNEL
4 MOVE CHANNEL
CURRENT LOCATION X X / X X
USE 1 - 4, < > FOR SAT
'CANCEL' FOR LAST MENU
    
```

Press '1' to select the ADD / MODIFY CHANNEL menu.

```

ADD / MODIFY CHANNEL
F4 / 6 MSG _ _ _ _ _
FINE TUNE : 0 VOL : 15
OTHER AUD PRIORITIES
AUDIO MODE : MONO
FREQ : 6.80 BW : NOR
FIL : OFF VIDEO : NORMAL
VIDEO LEVEL : 3
USE '< >', '▼ ▲', 'NXT PRG'
'ENTER' 2 SEC TO STORE
'CANCEL' FOR LAST MENU
    
```

This menu allows for the selection of a satellite, channel, program name, fine tune adjustment (if necessary), volume level, audio mode, left and right audio frequencies (ESR 1824 only), audio bandwidth, terrestrial interference filter, video mode or video level.

Select channel (use 'CHANNEL ▲ / CHANNEL ▼').

Use '◀ and ▶' to move cursor (flashing box) if mistakes occur.

Move cursor to NAME position (use '◀ and ▶').

Use '▲ and ▼' to select alphabet characters for name of program: Example- 'HBO/E'.

Move cursor to FINE TUNE position (use '◀ and ▶').

Use 'FINE ▲ and ▼' on remote control to obtain best picture quality.

Move cursor to VOLUME position (use '◀ and ▶').

Use 'VOLUME ▲ and ▼' on remote control to adjust for desired audio volume level. This setting can be adjusted for some of the channel to channel variations in volume. This volume setting will be used for this channel, unless overridden by 'VOLUME ▲ ▼' or when the Event Timer is activated. The Event Timer uses a fixed volume level which is approximately 75% of maximum output. Neither the channel volume level nor the Event Timer activation affects the level to the VCR audio jacks.

Move cursor to OTHER AUD PRIORITIES ('◀ and ▶').

ESR 1824- Pressing the '▲' button will cause Factory pre-programmed Audio Priorities for the particular satellite and channel listed at the top of this menu to be called up on screen. As one or more of the priorities are selected, all operating parameters and the channel name are updated in the on-screen menu.

Pressing the '▼' button will cause the most common audio frequencies to be called up on screen. If an authorized VCI signal is being received, then VCRS® audio is one of the selections available.

Move cursor to AUDIO MODE position (use '◀ and ▶'). Use '▲ and ▼' to step through audio modes (VCRS®, Discrete, Mono). The ESR 1724 permits VCRS® and mono operation only.

Discrete (ESR 1824 only) and Mono audio modes may be used on VideoCipher®RS channels if you wish to receive audio subcarriers that are separate from the video (like a music or news subcarrier audio program. Consult program guide for subcarrier frequencies).

ESR 1824- If audio subcarriers are to be selected, move cursor to the L: __ position (use '◀ and ▶' buttons).

Use '▲ and ▼' to adjust LEFT audio subcarrier frequency. Move cursor to R: __ position (use '◀ and ▶' buttons). Use '▲ and ▼' to adjust RIGHT audio subcarrier frequency.

ESR 1724- If audio subcarriers are to be selected, move cursor to the 'FREQ' position (use '▲ and ▼' buttons) then use '▲ and ▼' to adjust the audio subcarrier frequency.

Move cursor (◀ and ▶ buttons) to 'BW: WIDE' position. Use '▼' and '▲' to select, WIDE, NORMAL, or NARROW audio bandwidth as required for best audio quality.

Move cursor to FIL: OFF position. Use '▲ or ▼' to select FIL / W : ON or FIL / N : ON if required for this channel; otherwise, move cursor to VID: NORMAL to select VID: INVERT if required.

Move cursor to VIDEO LEVEL: 3. Use '▼' or '▲' to select one of four (1 - 4) video levels (brightness or picture). The normal condition is '3' for C-Band and '2' for Ku-Band except for some special channels that are programmed at different levels. Select a setting that produces a picture brightness level that is the same as the level obtained from cable or broadcast TV signals. When all settings are correct, press 'ENTER' and hold for 2 seconds to store into permanent memory. Screen will then show CHANNEL STORED.

Press 'NXT PRG' to move cursor to next line. Press 'CANCEL' to return to PROGRAM CHANNELS. Press 'ON / OFF' to leave the PROGRAM MODE.

RETURN CHANNEL TO FACTORY PRESET VALUES.

This function will return all settings for a desired channel to the factory default values.

To return to Factory Channel Settings:

Go to the 'PROGRAM / INSTALL' menu.

Press '6' to display PROGRAM CHANNELS menu.

Press '2' to select RETURN CHANNEL TO FACTORY PRESET VALUES.



Pressing and holding the 'ENTER' button for three seconds will return all settings for selected channel to their nominal factory pre-programmed values.

Press 'CANCEL' button to return to PROGRAM CHANNELS menu.

Press 'CANCEL' to return to PROGRAM/INSTALL menu.

Press 'ON / OFF' to Exit.

Remove Channel

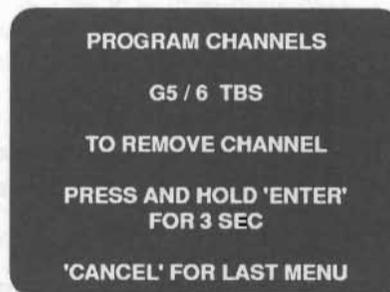
The following method describes the method to remove a channel from program memory.

Go to the 'PROGRAM/INSTALL' menu.

Press '6' to view the PROGRAM CHANNELS menu.



Press '3' to select the REMOVE CHANNEL menu. The menu will appear as follows:



Press and hold 'ENTER' for 3 seconds to remove the channel from programming.

Move Channel

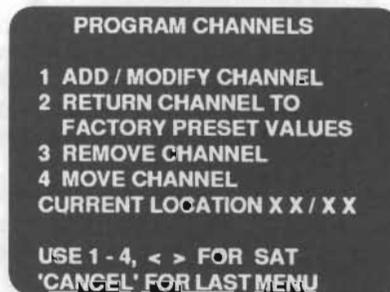
The following procedure permits moving a channel from an old satellite to a new (current) satellite. Actually, this is useful in cases where satellites are moved out of orbit and a new one is put in its place. It also permits reassignment of a particular service or network that moves to a new channel on the same satellite or to a new channel and/or satellite.

All priorities are moved with the New Channel Service information.

Locate The New Channel Service

Go to the 'PROGRAM/INSTALL' menu.

Press '6' to view the PROGRAM CHANNELS menu.



Use '◀ ▶' to select a different satellite and wait until antenna has moved to the selected satellite. Press '4' to select the MOVE CHANNEL menu. The menu will appear as follows:

```

MOVE CHANNEL

CURRENT LOCATION : G5 / 6
SELECT OLD SAT : G1
SELECT OLD CHANNEL : 18
MOVE NAME : NBC
SELECT OTHER NAME

USE '▲▼' AND '<>' SAT
'ENTER' TO CONTINUE
'CANCEL' FOR LAST MENU
    
```

The cursor will flash to prompt selection of the old satellite designator.

Use '◀ ▶' to select the old satellite.

Use '▼' to access the old channel.

Use '◀ ▶' to select the old channel.

If the old channel was previously modified and you desire to access the original name, move the cursor to the 'SELECT OTHER NAME' line and press '▶'.

Verify that the 'OLD SAT' and 'OLD CHANNEL' entry in the above MOVE CHANNEL is correct, then,

Press 'ENTER' to continue.
The following menu is displayed:

```

MOVE CHANNEL
G5 / 6 TBS
FINE TUNE : 0 VOL : 15
OTHER AUD PRIORITIES
AUDIO MODE : DIS
FREQ : 6.80 BW : NOR
FIL : OFF VIDEO : NORMAL
VIDEO LEVEL : 3
USE '<>' AND '▲▼'
'ENTER' 2 SEC TO STORE
'CANCEL' FOR LAST MENU
    
```

Use '◀ ▶' for cursor control and '▼ ▲' for changing and adjusting the desired settings. Remember, in this menu, you are verifying and changing if necessary, the setting for the new channel and/or satellite/channel combination of the service that moved location. Once you have determined that all settings are correct,

Press 'ENTER' and hold for 2 seconds to store settings. The message 'CHANNEL STORED' will be displayed. Press 'CANCEL' (3 times) to return to the PROGRAM / INSTALL menu.

Note: The old channel will be deleted once this function is completed (CHANNEL STORED).

Press 'ON / OFF' to exit.

Language Selection

The 'LANGUAGE SELECTION' menu permits programming the language which will be utilized in the On-Screen display menus and screen messages. Go to the 'PROGRAM/INSTALL' menu.

```

PROGRAM / INSTALL
1 LNB INPUTS
2 SET ANTENNA LIMITS
3 PROGRAM SATELLITES
4 PARENTAL LOCK LIST
5 MEMORY CLEAR
6 PROGRAM CHANNELS
7 ENGLISH / ESPANOL MENU
8 USE VCR PLUS [TM]
USE 1 - 8
USE 'ON / OFF' TO EXIT
    
```

Press '7' on the remote control. Language Selection menu will show:

```

ENGLISH / ESPANOL MENU

>1 ENGLISH
2 ESPANOL

USE 1 - 2
'CANCEL' FOR LAST MENU
    
```

Press '1' on the remote control to select English. Press '2' on the remote control to select Spanish. Press 'CANCEL' to return to PROGRAM/INSTALL menu.

VCR PLUS+™ Operation*

The receiver is capable of responding to VCR PLUS+™ codes to permit instant selection of a particular satellite service.

Go to the 'PROGRAM/INSTALL' menu. Use VCR PLUS [TM] menu.

Press 'ENTER' to Enable or Disable the VCR PLUS+™ code recognition by a VCR PLUS+™ type control unit.

```

USE VCR PLUS [TM]

VCR PLUS [TM] IS NOW
DISABLED

PRESS "ENTER" TO
ENABLE

'CANCEL' FOR LAST MENU
    
```

* VCR PLUS+™ is a trademark of Gemstar Development Corporation.

Operation of VCR Plus+™ with the Satellite Receiver

The following is intended to explain the pertinent programming procedures of the VCR Plus+™ Instant Programmer™ to permit selection of satellite services using the ESR1824 or ESR1724 receiver.

Refer to the Operational Manual that is supplied with your VCR Plus+™ remote control unit. It will explain that the VCR Plus+™ unit assigns a number to each channel you receive in your home. These assigned channel numbers (or guide channel numbers) are usually listed in your TV Book or TV GUIDE®. Most TV books will have a chart indicating the channel number that has been assigned, for purposes of VCR Plus+™, to each cable and broadcast channel (for example: HBO®, CNN®, ABC®, CBS®, NBC®, etc.). If the assigned channel number is different from the priority channel number programmed in your receiver, see the 'Programming' section below.

Your ESR1824 or ESR1724 satellite receiver will recognize infrared remote control codes sent from the VCR Plus+™ unit when the VCR Plus+™ is programmed for the "CABLE" mode and the "USE VCR PLUS+™" mode is enabled in the satellite receiver.

Programming

To permit the ESR1824 or ESR1724 receiver to recognize the VCR Plus+™ codes, program the VCR Plus+™ in the "CABLE" mode to be compatible with a "TOSHIBA" cable box. The Priority Channel numbers that are factory assigned for premium services or network services within the ESR1824 or ESR1724 satellite receiver are identical with those numbers assigned for the corresponding service for cable channels. This should promote easier programming. If a different number must be assigned within the VCR Plus+™ for a particular satellite service, follow the programming procedure for assignment of a different channel number as explained in the VCR Plus+™ operational manual. As an alternative, you can assign the Priority Channel number of the satellite receiver to match that number assigned to the cable channel for a given service. Use caution when reassigning one of the satellite receiver's Priority Channel numbers to avoid elimination of a previously assigned service at that same receiver Priority Channel number.

Operation

When the VCR Plus+™ remote control unit is properly programmed, simply aim the VCR Plus+™ remote control unit in the direction of the satellite receiver and enter the "Plus Code"™ for the service you want to view or record. The satellite receiver will have its power turned on and will be automatically tuned to the required satellite position and channel. If you are recording, also make certain that your VCR unit has a blank tape inserted and is tuned to TV channel 3 or 4 (or set in the 'Line' position to record video and audio signals sent from the satellite receiver). Unattended recording from the satellite receiver requires that the VCR Plus+™ remote control be situated to permit reception of its infrared codes by both the satellite receiver and VCR. The VCR Plus+™ remote unit's internal timer allows an approximate 30 second safety margin before and after scheduled program start/stop.

VCR Plus+™, Plus Code™ and Instant Programmer TV™ are trademarks of Gemstar Development Corporation.

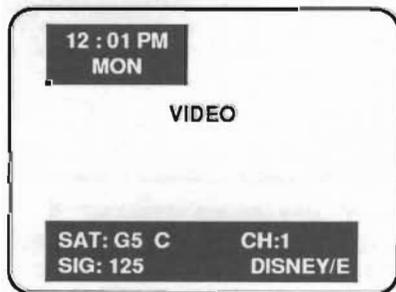
INTRODUCTION

Once the receiver is programmed with the information described in the installation section, it is simple and easy to operate. The common operational modes have menus or 'help' screens to assist in performing most of the everyday adjustments. Selecting channels, satellites, Priority View channels or setting the Event Timer is a straightforward, simple process. The normal operating modes to be described in this section are:

- Selecting a video channel,
- Moving the antenna to a different satellite (automatically or manually),
- Programming, selecting, or deleting a Priority View channel,
- Programming, selecting, or deleting an Audio Priority (ESR 1824 only),
- Setting and using the Event Timer,
- Using the Automatic Satellite Peaking function,
- Changing bands, format and skew,
- Using the 'Source' and 'FILTER' button on the remote control,
- Locking and unlocking channels programmed in the Parental Lock list.

SELECTING A VIDEO CHANNEL

The receiver comes from the factory with approximately 195 channels pre-programmed with name, satellite, band, format, skew and all audio settings. The 'CH ▲' and 'CH ▼' buttons are used to select a different channel (on the same satellite). The following screen is shown on the television when a channel change is made:

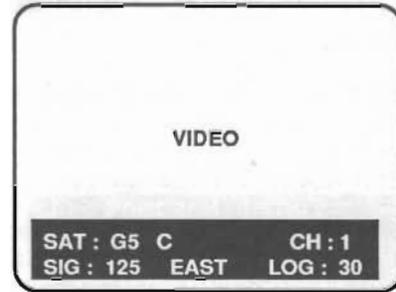


This screen shows the new channel and the name of the new program being viewed. The front panel 'VC Signal' indicator lamp will light if this channel has VideoCipher® RS scrambled material.

MANUAL ANTENNA MOVEMENTS

There may be occasions when you wish to view or listen to programs that are not on a stored satellite (perhaps a new satellite has been placed in orbit). The antenna may be moved to unprogrammed satellites by using the 'EAST' and 'WEST' buttons of the remote control. In this situation, the antenna is moving only while a button is being pressed.

During that time, the following screen will be shown:



This screen gives the position of the antenna (LOG), antenna direction, channel number, band and the signal strength of the received signal. The antenna is moved East and West (using the 'EAST' and 'WEST' buttons) until the desired signal is received and the signal strength is at its maximum value.

Sometimes the signal quality being received from a programmed satellite may not be at its highest. The antenna may be fine tuned for best quality by using the 'EAST' and 'WEST' buttons (or use 'AUTO PK' button for Automatic Satellite Peaking).

TO SELECT BAND

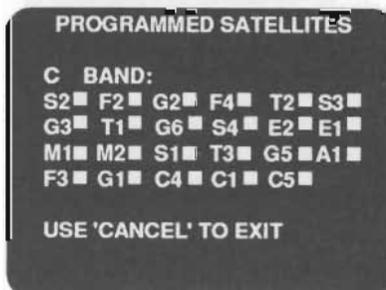
Press the 'C/Ku' button on the remote control for desired band.

AUTOMATIC SATELLITE PEAKING

Press the 'AUTO PK' button on the remote control if video quality is poor. Many times poor reception is the result of inaccurate antenna or polarizer settings. The AUTOMATIC SATELLITE PEAKING function will automatically readjust the antenna setting and polarizer settings for optimum picture and sound quality.

Auto Sat Peaking may not function correctly on all channels on small (less than 8 feet) diameter antennas. If 'AUTO SAT PEAKING' does not work, simply re-enter desired antenna position using the 'SAT'-'EAST' or 'SAT'-'WEST' button sequence or by direct satellite entry such as 'SAT'-'G'-'5'. Then use the 'EAST' and 'WEST' buttons to peak antenna for best pictures. Pressing the 'SAT' button causes a PROGRAMMED SATELLITE screen to appear on-screen. Pressing the 'EAST', 'WEST' or

'◀ ▶', positions arrow at desired satellite.



SELECTING DIFFERENT AUDIO SETTINGS

Most channels that have frequent or full time video material are pre-programmed with the correct audio settings. However, there are many programs that have additional audio subcarriers of interest. On occasion, the video program suppliers may change to different audio frequencies. If different audio settings are desired, they may be accomplished as follows:

Press 'AUDIO' on the remote control. The AUDIO FUNCTIONS menu will show as follows:

```

AUDIO FUNCTIONS
G5 / 1 DISNEY / E
> 1 OTHER AUDIO PRIORITIES
  2 MODE : MONO
  3 BANDWIDTH : NORMAL
  4 AUDIO : 6.80 MHZ

USE '▲' FOR AUDIO PROGRAMS
'▼' FOR STANDARD PRESETS
'CANCEL' TO LEAVE MENU
  
```

If '1' is selected, the '▼' button will sequence through the commonly used audio subcarrier frequencies. The '▲' button may be used to sequence through any other audio frequency combinations that may be stored in memory for this channel.

The Audio Mode, Bandwidth and Frequency (for left and right audio if program has stereo audio) may be adjusted from this menu. Select the desired adjustment to be made, by pressing '2,' '3' or '4.' The cursor will indicate the selection. Use the '▼' and '▲' buttons to adjust mode (discrete, mono-ESR 1824), (mono only-ESR 1724), bandwidth (wide, normal, narrow), and audio frequency (5.00 to 9.00 MHz) as desired. If you are receiving an authorized VC II signal, the mode will indicate 'VC II'. The Bandwidth and Audio frequency will not be displayed if VC II audio is present. Press 'Cancel' to return to video programming when adjustments are completed.

SELECTING A PRIORITY VIEW CHANNEL

The receiver comes from the factory with many pre-programmed Priority View channels stored in memory. These channels provide immediate access to a specific program (such as CNN® or HBO®) simply by pressing the 'PRIORITY' button and one to three number buttons instead of changing channel and satellite and setting the audio adjustments. Several time-consuming adjustments are thereby avoided and you may immediately enjoy the selected programs.

Priority View channels may be added, deleted or changed as desired. Refer to the 'ADD/DELETE PRIORITY' Programming section of this manual for that information, if desired to change priorities.

USER PRIORITY LISTS (1824 only) The receiver features three user Priority lists. A total of 200 different audio or video priority view entries are possible among the three lists. Entries can be duplicated among the lists.

To select a Priority View channel, press the 'PRIORITY' button on the remote control. The PRIORITIES menu will be shown as follows:

```

PRIORITIES

USER LIST A
> USER LIST B
  USER LIST C
  VIDEO CATEGORIES
  AUDIO
  ALL PRIORITIES

USE 0 - 9, '▲' '▼': 'PRIORITY'
'CANCEL' TO LEAVE MENU
  
```

When the arrow points to the desired program category, press 'ENTER'. The next screen will show programs stored in that category. Use the '▼' and '▲' buttons to select the desired program. Press 'ENTER' to view the selected program.

If 'VIDEO CATEGORIES' is selected, the 'VIDEO PRIORITIES' menu will be shown as follows:

```

VIDEO PRIORITIES
MOVIES          MISC
>SPORTS         MUSIC
  SUPERSTATIONS
  NETWORKS / NEWS
  VARIETY / SHOP / RELIGION

ENTER PRIORITY # OR
USE '▲' '▼': 'PRIORITY'
'CANCEL' FOR LAST MENU
  
```

Notice that there are seven categories of programming priorities listed on the menu. Use the '▼' and '▲' buttons to select the desired category.

SELECTING AN AUDIO PRIORITY (ESR 1824 ONLY)

The receiver comes from the factory with numerous pre-programmed audio priorities stored in memory. Audio priorities are selected much the same way as Priority View.

Press the 'PRIORITY' button. 'PRIORITIES' menu will show. Use the '▲', '▼' buttons to position cursor at 'AUDIO'. Press 'ENTER' to display 'AUDIO PRIORITIES' menu.

If you know the priority number of the audio program you wish to hear, enter the three digit number (101-200) at any time after the first depression of the 'PRIORITY' button.

```

AUDIO PRIORITIES

101 C C5 / 24 ARIES
102 C C5 / 24 KSKA / FM
103 C C1 / 20 IBN
104 C G1 / 15 WQXR - FM
>105 C F3 / 15 CRN

USE 0 - 9, '▲' '▼': 'PRIORITY'
'<' '>' FOR LAST/ NEXT PAGE
'CANCEL' FOR LAST MENU
  
```

ALL PRIORITIES (ESR 1824 ONLY)

A complete listing of all priorities is available by selecting the 'ALL PRIORITIES' menu option.

Press 'PRIORITY' button to display PRIORITIES menu. Select 'ALL PRIORITIES' option. Press 'ENTER' to display listing:

ALL PRIORITIES			
27	C	G5 / 9	ESPN
33	C	G5 / 15	HBO / E
>19	C	G5 / 8	HBO / W
89	C	C1 / 10	HSC 1
25	C	C1 / 10	HSE
USE 0-9 OR '▲' '▼', 'ENTER'			
'<' '>' FOR LAST/NEXT PAGE			
'CANCEL' FOR LAST MENU			

THE 'SOURCE' BUTTON

The receiver has been designed to be compatible with a wide range of other video components, such as, VCRs, monitors, videodiscs, etc. The 'SOURCE' button, on the remote control, allows you to control some of the many possible operating modes that can exist when several different pieces of video equipment are interconnected.

There are three different source modes that may be selected. The normal operating mode is 'TVRO' (for regular satellite reception). In this mode, you may watch any available satellite video or audio programming. There is no front panel display of this mode. Front panel displays satellite designator and channel number.

The 'SOURCE' button may also be used to select an external descrambler (as might be required for descrambling non VideoCipher® video programming). In this case, press the 'SOURCE' button until the front panel display shows 'EXT.' In this mode of operation, the descrambled video (from external descrambler) is fed back into the receiver (the descrambler video and audio is fed to the internal modulator; audio channels are combined into a monaural audio channel).

The descrambler video and audio are also switched to the receiver 'baseband' video and audio outputs, denoted 'MONITOR' and 'VCR' Video Out on rear panel.

The third 'SOURCE' function is the 'TV' mode. The 'SOURCE' button is used to select 'TV' when you wish to watch regular television and record a satellite program. For this type of operation, the television antenna is connected to the 'TO ANT' (on the rear panel) terminal and the television is connected to the 'TO TV' (on the rear panel) as in most installations. The VCR, however, must use the audio and video or VCR outputs.

The front panel display will show 'TV'. (The On Screen Display is not visible since the television is tuned to regular television and the On Screen menus are not shown on the 'VCR' output of the satellite receiver; video output will show on-screen menus and displays).

THE 'FILTER' BUTTON

For the ESR 1824, the 'FILTER' button allows the built-in TI (terrestrial interference) filter to be selected if interference is present. The first depression of the button disables the AFC (automatic frequency control) of the receiver and the display shows 'FIL/W' (for wide filter) on the SAT/CH menu. This position is used if interference is not severe. The actual TI filter does not operate in this position, but fine tuning is possible and many times, mild interference may be tuned out of the video display by 'fine tuning.'

SAT G1 C FIL/W CH 18
SIG : 175 TBS

The second depression of the 'FILTER' button actually turns on the TI filter. This action is shown on the SAT/CH menu by 'FIL/N' (for narrow filter). This position is used for more severe interference and, again, fine tuning may be performed to optimize reception (AFC is disabled).

A third depression of the 'FILTER' button turns off the filter and restores the AFC. Use this position for normal reception if no interference is present.

Sometimes it is possible to improve reception of weak satellite transponders by selecting 'FIL/N.' This effectively reduces the video bandwidth and also reduces video noise.

The ESR 1724 does not have a narrow filter. The 'FIL/W' selection turns off the AFC. Selection of 'FIL/N' switches the rear panel 'FILT' terminal to the logic low state.

THE MUTE BUTTON

Press this button to turn the receiver audio ON or OFF.

PARENTAL LOCK

To LOCK or UNLOCK ALL channels programmed into the Parental Lock list, Press the 'LOCK' button, followed by your choice of a four digit password. It is important to note that this procedure locks or unlocks ALL channels that are programmed into the LOCK list, regardless of your present satellite and channel location. All programming modes are locked out when the Parental Lock is active.

THE MAIN MENU

The MAIN MENU may be viewed during normal operation by pressing the 'MENU' button. The 'MAIN' menu is used for:

- adding or deleting Priority Views or Audio Priorities,
- setting the EVENT TIMER and Date/Time Clock,
- adjusting Audio Settings,
- selecting Programmed or All Channel tuning,
- selecting Skip Tune on/off,
- adjusting FORMAT,
- adjusting SKEW,
- selecting Video Invert or Normal,
- selecting FILTER operation, and providing remote control access to the 'PROGRAM/INSTALL' menu.

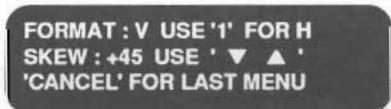
The 'MAIN MENU' appears as follows:



To Select Format

Press 'MENU' and then press '1'.

The following menu is displayed over video:



Press '1' to toggle format from V to H or H to V.

Press 'CANCEL' to return to last menu.

To Adjust Skew

Press 'MENU' and then press '1'.

The menu will be displayed as above.

Press '▼' or '▲' to adjust skew for best video quality.

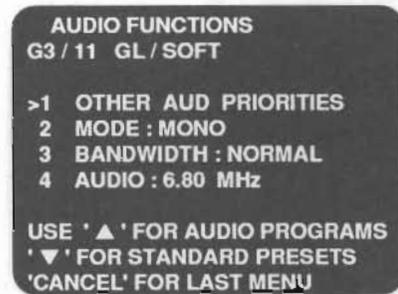
Press 'CANCEL' to return to last menu.

Audio Functions (ESR 1824 only)

Most channels that have frequent or full time video material are pre-programmed with the correct audio settings. However, there are many programs that have additional audio subcarriers of interest. On occasion, the video program suppliers may change to different audio frequencies. If different audio settings are desired, they may be accomplished through the MAIN MENU as follows:

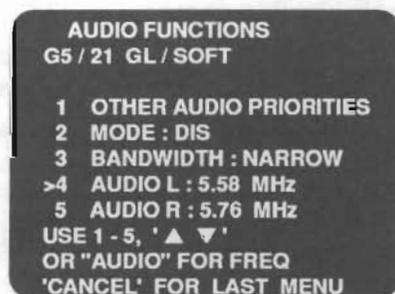
Press 'MENU' on the remote control and the MAIN MENU screen will appear.

Press '2' on the remote control to select the Audio Functions menu.



If '1' is selected, the '▼' button will sequence through the commonly used audio subcarrier frequencies. The '▲' button may be used to sequence through any other audio frequency combinations that may be stored in memory for this channel.

For the particular channel chosen for illustration in this example, G3 / 11, several stereo audio services are already factory programmed into memory. Pressing the '▲' button will select various audio services. The AUDIO FUNCTIONS screen will appear as follows after selecting a stereo service.



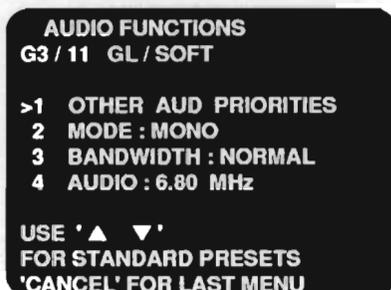
The Audio Mode, Bandwidth and Frequency (for left and right audio if program has stereo audio) may be adjusted from this menu. Select the desired adjustment to be made, by pressing '2', '3', '4' or '5.' The cursor will indicate the selection. Use the '▼' and '▲' buttons to adjust mode (discrete, mono), bandwidth (wide, normal, narrow), and audio frequency (5.00 to 9.00 MHz) as desired. With the cursor at either menu selection '4' or '5', press 'AUDIO' to select frequency menu. If you are receiving an authorized VCRS® signal, the mode will indicate VCRS®. The Bandwidth and Audio frequency will not be displayed if VC II audio is present. Press 'Cancel' to return to video programming when adjustments are completed.

Audio Functions (ESR 1724 only)

Most channels that have frequent or full time video material are pre-programmed with the correct audio settings. However, there are many programs that have additional audio subcarriers of interest. On occasion, the video program suppliers may change to different audio frequencies. If different audio settings are desired, they may be accomplished through the MAIN MENU as follows:

Press 'MENU' on the remote control and the MAIN MENU screen will appear.

Press '2' on the remote control to select the Audio Functions menu.



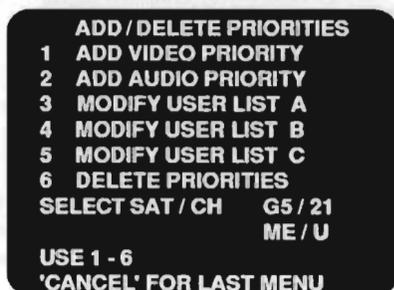
If '1' is selected, the '▲ ▼' button will sequence through the commonly used audio subcarrier frequencies.

ADDING A PRIORITY VIEW CHANNEL (ESR 1824 ONLY)

The receiver has Priority View channels and Audio Priorities stored in its internal memory. Additional Priority Views or Audio Priorities may be added as desired or they may be deleted if desired. Any of the three User Lists of Priorities may be modified as desired. The MAIN MENU allows access to the ADD/DELETE PRIORITIES menu which is then used for adding or deleting priorities.

Press 'MENU' to view the MAIN MENU. Then press '3' to view the ADD/DELETE PRIORITIES menu.

The ADD/DELETE PRIORITIES menu will appear:

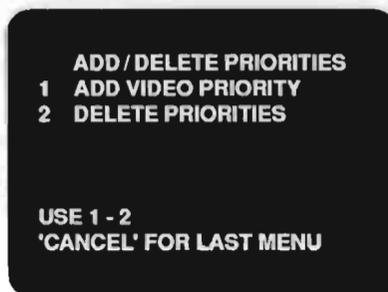


ADDING A PRIORITY VIEW CHANNEL (ESR 1724 ONLY)

The receiver has Video Priority View channels stored in its internal memory. Additional Priorities may be added or deleted if desired.

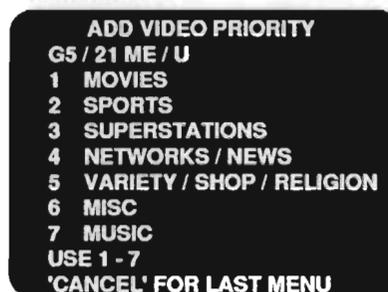
Press 'MENU' to view the MAIN MENU. Then press '3' to view the ADD/DELETE PRIORITIES menu.

The ESR 1724 ADD/DELETE PRIORITIES menu will appear:



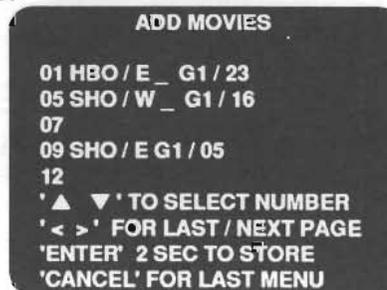
Adding a Video Priority View Channel

To add a Priority View channel or Audio Priority (ESR 1824), the receiver must be tuned to the desired satellite and channel. When the receiver is tuned properly, select the desired number ('1-6') from the ADD/DELETE PRIORITY menu. Press '1' to add a Video Priority. If the particular satellite and channel to which you are tuned has not been programmed as a priority, the ADD VIDEO PRIORITY menu will then show:



This menu displays the current satellite and channel and the various categories where a Priority View may be stored. Select the desired category by pressing '1' through '7.'

For example, choose number '1' for the MOVIES category. Other selections result in screens that operate in a similar fashion. The following screen will show if '1' is selected:



Choose an unused number for the Priority View to be added by using '▲' or '▼' to move to the desired number.

Use '◀' or '▶' to go to other pages of Movies priorities.

Then hold 'ENTER' for 2 seconds to store.

Pressing 'ENTER' will store the new program in the MOVIES category and will return you to the ADD/DELETE PRIORITIES menu for additional entries. When finished, press 'CANCEL' to return to video programming.

ADDING AN AUDIO PRIORITY (ESR 1824 only)

Go to desired satellite and channel.

Press 'MENU' to view the MAIN MENU.

Then press '3' to view the ADD/DELETE PRIORITY menu.

Press '2' to add Audio Priority. The ADD AUDIO PRIORITY menu will show:

```

ADD AUDIO PRIORITY
G5 / 21
>1 NAME
2 OTHER AUD PRIORITIES
3 MODE : MONO
4 BANDWIDTH : NORMAL
5 AUDIO : 6.80 MHZ

USE 1 - 5
'ENTER' TO CONTINUE
'CANCEL' FOR LAST MENU
  
```

Press '1' to enter program name. Use '▲ ▼' to select alphabet characters, use '▶' to move to next position of name. Continue until name is entered.

Press '2' to see other audio priorities that may be previously stored for this channel. Use '▲ ▼' to see other audio priorities.

Press '3' to select mode. Use '▲ ▼' to select 'DIS' or 'MON.'

Press '4' to set bandwidth. Use '▲ ▼' to select WIDE, NORMAL or NARROW.

Press '5' to set AUDIO L.

Use '▲ or ▼' to select desired left audio frequency.

Press '6' to set AUDIO R.

Use '▲ or ▼' to select desired right audio channel frequency.

Press 'ENTER' when all settings are correct. 'ENTER' will take you to the SELECT AUDIO PRIORITY menu:

```

SELECT AUDIO PRIORITY #

181 C S2 / 3 VOA
182 C S2 / 9 HRBN
> 183
184
185

'▲ ▼' TO SELECT NUMBER
'<>' FOR LAST / NEXT PAGE
'ENTER' 2 SEC TO STORE
'CANCEL' FOR LAST MENU
  
```

Use '▲ or ▼' to select any unused number.

Use '◀ or ▶' to view last or next page of AUDIO PRIORITIES.

Hold 'ENTER' for 2 seconds to store.

'ENTER' will take you to ADD/DELETE PRIORITY menu or 'CANCEL' will return you to last menu.

MODIFY USER LISTS (ESR 1824 ONLY)

The receiver has three separate USER Priority Lists available for a total memory capacity of 100 different priority channels. Priority channels can be shared among the 'A', 'B' or 'C' USER PRIORITY LISTS.

Press 'MENU' to view the MAIN MENU. Then press '3', '4' or '5' as appropriate to select 'USER LIST A', 'USER LIST B' or 'USER LIST C' respectively.

The 'MODIFY USER LIST' menu will appear as follows:

```

MODIFY USER LIST A
G5 / 21 ME / U
> 9
10 * C G5 / 14 TMC / W
11 C F3 / 24 BRAVO
12 C F3 / 15 E
13
'▲ ▼' TO SELECT NUMBER
'<>' FOR LAST / NEXT PAGE
'ENTER' 2 SEC TO ADD
'CANCEL' FOR LAST MENU
  
```

Use '▲ or ▼' buttons to select the priority number to be assigned to the satellite and channel to which the receiver is tuned.

Press 'ENTER' for 2 seconds to store the priority.

Press 'CANCEL' to return to the 'ADD/DELETE PRIORITY' menu.

Deleting A Priority View or Audio Priority (ESR 1824 only)

Priority View channels and Audio Priorities (ESR 1824 only) may be deleted by using the MAIN MENU and the ADD/DELETE PRIORITIES menu. Press 'MENU' and then '3'. Then press '6' for the DELETE PRIORITIES menu (ESR 1824). Press '2' for the ESR 1724 DELETE PRIORITIES menu.

The DELETE PRIORITIES menu will show all Priority View and Audio Priority channels stored in memory. Priorities numbered 1 - 100 are Video priorities. Priorities numbered 101 - 200 are Audio priorities (ESR 1824 only).

```

DELETE PRIORITIES
162 C A1/22 CBU/JZ
163 C S1/17 K/SN
1 C G1/23 HBO/E
2 C F3/13 HBO/W
3 C G1/19 MAX/E
4 C F3/23 MAX/W
USE '<>' AND '▲ ▼'

'ENTER' 2 SEC TO DELETE
'CANCEL' FOR LAST MENU
  
```

Use '▲ or ▼' buttons to move the cursor to the Priority to be deleted. Press 'ENTER' for 2 seconds to delete the program from the Priority memory.

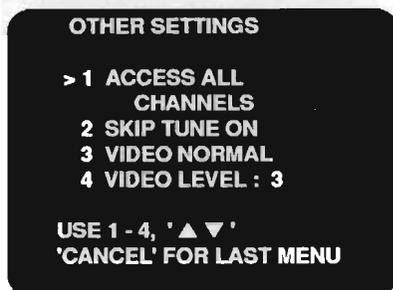
Press 'CANCEL' to return to the previous menu for other Priority selections or press 'CANCEL' repeatedly to return to regular viewing.

OTHER SETTINGS

To Access Programmed Channels

This feature allows the receiver to tune only to channels that have been programmed in the receiver's memory. Normally, all channels are tuned regardless of whether there is video material or not. Some users find it more convenient to tune only to the channels that have video programming (with name). In order to use this feature:

Press 'MENU' to view the MAIN MENU. Then press '4' to view the OTHER SETTINGS menu.



Press '1' to select Access All Channels or Access Programmed Channels only. Use '▼▲' to make choice.

Press 'Cancel' to return to last menu.

Note: When channel selections are being made, a message of 'NO CHANNELS PROGRAMMED' indicates that an attempt was made by the user to access an unprogrammed channel (no name assigned). It is possible for the message to appear on all channels of a particular satellite if no channels were programmed with an assigned name on that satellite. No message will appear if the antenna is not aimed at an active satellite (out of satellite 'window').

To Select Skip Tune

Skip Tune is a feature that tunes to all even numbered channels and then tunes all odd numbered channels. Normal tuning tunes all channels in a consecutive manner, as follows: 1,2,3,4, etc. Consecutive tuning changes the polarity and therefore causes the polarizer motor (located at the antenna) to operate for every channel change. This action results in a large amount of wear and tear on the polarizer motor.

The SKIP TUNE mode can reduce much of the wear since the polarizer motor operates much less frequently. 'Skip Tune On' is recommended. The SKIP TUNE mode may be selected by using the OTHER SETTINGS menu to select SKIP TUNE ON.

Go to the OTHER SETTINGS menu by pressing 'MENU' on the remote control. Then press '4' to view the OTHER SETTINGS menu.

Press '2.' Use '▲▼' to select either SKIP TUNE ON or SKIP TUNE OFF as desired.

Press 'CANCEL' to return to last menu.

To Select Video Invert

The receiver normally receives video programming which has standard 'non inverted' video material. Occasionally, a program will be received that is transmitting with 'inverted' video material. The OTHER SETTINGS menu may be used to adjust the receiver to allow reception of these video programs.

Press 'MENU'

Press '4'

Press '3'

Use '▼, ▲' to select Video Normal or Video Invert.

Press 'CANCEL' to return to last menu.

To Select Video Level

Most of the video material received by the satellite receiver is of a normal or standard level. The receiver can compensate for non-standard video levels by selecting one of four video level settings. The level increases from 1 - 4. The normal setting for C - Band satellites is 3. The normal setting for Ku -Band satellites is 2.

Go to the OTHER SETTINGS menu by pressing 'MENU' on the remote control. Then press '4' to view the OTHER SETTINGS menu.

Press '4'. Use '▼, ▲' to select one of four video levels. Choose the setting that produces a picture brightness and appearance that most closely matches the pictures obtained from broadcast TV or VCR sources.

Press 'CANCEL' to return to last menu.

'FILTER'

For the ESR 1824, the 'FILTER' button allows the built-in TI (terrestrial interference) filter to be selected if interference is present. The first depression of the button disables the AFC (automatic frequency control) of the receiver and the display shows 'FIL/W' (for wide filter) on the SAT/CH menu. This position is used if interference is not severe. The actual TI filter does not operate in this position, but fine tuning is possible and many times, mild interference may be tuned out of the video display by 'fine tuning.'

SAT G5 C FIL/W CH6
SIG : 175 TBS

The second depression of the 'FILTER' button actually turns on the TI filter. This action is shown on the SAT/CH menu by 'FIL/N' (for narrow filter). This position is used for more severe interference and, again, fine tuning may be performed to optimize reception (AFC is disabled).

A third depression of the 'FILTER' button turns off the filter and restores the AFC. Use this position for normal reception if no interference is present.

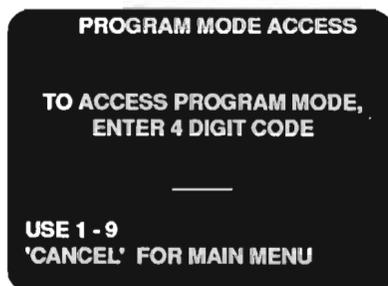
Sometimes it is possible to improve reception of weak satellite transponders by selecting 'FILTER/N.' This effectively reduces the video bandwidth and also reduces video noise.

The ESR 1724 does not have a narrow filter. The 'FIL/W' selection turns off the AFC. Selection of 'FIL/N' switches the rear panel 'FILT' terminal to the logic low state.

PROGRAM MODE ACCESS

The 'PROGRAM MODE ACCESS' feature permits convenient remote control access to the 'PROGRAM/INSTALL' menu.

Press 'MENU' to view the MAIN MENU. Then press '6' to view the 'PROGRAM MODE ACCESS' menu.



Press '1', '8', '2', '4' to access the 'PROGRAM/INSTALL' menu for the ESR 1824.

Press '1', '7', '2', '4' to access the 'PROGRAM/INSTALL' menu for the ESR 1724.

USING THE EVENT TIMER

The EVENT TIMER allows time and priority view number to be stored in the receiver memory so that video programs may be recorded at night or while you are watching regular television. The EVENT TIMER operates much the same as a timer in a VCR. In order to operate properly and record the programs you desire, it must be told exactly what to do and when to do it. This section describes the procedure for programming the receiver memory so it will send the desired video programs to a VCR for recording. Don't forget, the VCR timer must also be programmed so that both the satellite receiver and VCR operate during the same time intervals.

The ESR 1824 has the capability of four event timers.

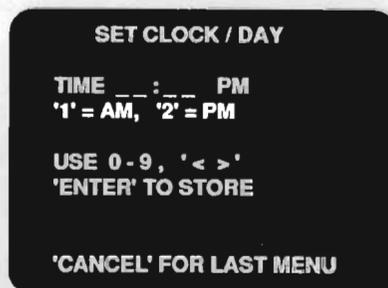
The ESR 1724 permits two events to be programmed

The Event Timer menu may be viewed by first pressing 'MENU' and then pressing '7' :



Setting Time and Day

In order for the receiver to receive video programs at the right time and on the right day, it must have its clock and day of the week correctly set. If time and day have not been programmed into the EVENT TIMER, you may do so at this time by pressing '4'. The following screen will be displayed:



Enter the time by using '0-9.' Select AM or PM. Use '1' or '2.'

Then use '▲ ▼' to enter the day of the week.

When time and day are correctly set, press 'ENTER' to store into memory. Now press 'CANCEL' to return to 'EVENT TIMER' menu.

Setting an Event

Go to EVENT TIMER menu by pressing 'Menu' and by pressing '7'. Event Timer menu will show:

```

EVENT TIMER
1 SET SINGLE EVENT
2 SET DAILY EVENT
3 SET WEEKLY EVENT
4 SET CLOCK / DAY
5 TIMER INACTIVE
  (SETTINGS SAVED)
6 REVIEW / DELETE EVENTS
  USE 1 - 6
'CANCEL' FOR MAIN MENU
    
```

The receiver EVENT TIMER can be programmed to activate on a single, daily or weekly basis. A total of four events (any combination of SINGLE, DAILY or WEEKLY) can be programmed. The receiver automatically assigns the next available Event number.

Single Event

To program a single event, press '1' to view the following menu:

```

EVENT 1 SINGLE
TODAY IS SUN 12 : 01 PM
'1' = PRIORITY
'2' = CUSTOM SAT / CH
'CANCEL' FOR LAST MENU
    
```

The programmed event can be chosen from the PRIORITY VIEW list of programs ('1') or an active satellite and channel of your choice ('2').

If '1' is chosen, the menu will prompt with:

'PRIORITY # ' (flashing cursor)

Enter the priority number of the program you wish to record using the EVENT TIMER.

Press the '▶' button. The menu will display the following with a flashing cursor for time entry.

'TIME ON 00 : 00 AM / PM

Enter the time using the '0 - 9' buttons.

Enter AM or PM by pressing '1' or '2'.

Menu will then display the following with a flashing cursor for time entry:

'TIME OFF 00 : 00 AM / PM'

Enter the time and AM or PM

Menu will display:

'EVENT DAY : MON THIS WEEK'

Use the '▼ ▲' buttons to select the day of the week.

Press the '▶' button to display:

'1' = THIS WK , '2' = NEXT WK

Press '1' or '2' as desired.

Note that at any time, the '◀ ▶' buttons permit reverse or forward movement of the cursor respectively within the 'EVENT # SINGLE' menu.

When all settings are stored as desired, the menu will appear similar to following example:

```

EVENT 1 SINGLE
TODAY IS MON 12 : 01 PM
PRIORITY # 11
C G1 / 23
TIME ON 1 : 00 PM
TIME OFF 2 : 00 PM
EVENT DAY : MON THIS WEEK
'ENTER' TO STORE
'CANCEL' FOR LAST MENU
    
```

Press 'ENTER' to store settings.

Press 'CANCEL' to return to EVENT TIMER menu.

Daily Event

The programming of a DAILY EVENT is performed similarly to that procedure used for SINGLE EVENT programming:

Press 'MENU' to view MAIN MENU.

Press '7' to display EVENT TIMER menu.

Press '2' to display DAILY EVENT menu.

Press '1' to select a PRIORITY channel for EVENT programming.

Press '2' to program a custom SAT / CHANNEL into the EVENT TIMER.

You must enter:

1) Either the priority number or the custom SAT / CHANNEL

2) The TIME ON : 00 : 00 AM or PM

3) The TIME OFF 00 : 00 AM or PM

Use '0 - 9' to enter numeric information.

Use '◀ ▶' to move cursor reverse or forward respectively within the 'EVENT # DAILY' menu.

When all settings are stored as desired, the menu will appear similar to the following example:

```

EVENT 1 SINGLE
TODAY IS MON    12 :01 PM
PRIORITY # 11
C G1 / 23
TIME ON 1 : 00 PM
TIME OFF 2 : 00 PM

'ENTER' TO STORE
'CANCEL' FOR LAST MENU
  
```

Press 'ENTER' to store settings.
Press 'CANCEL' to return to EVENT TIMER menu.

Weekly Event

The programming of a WEEKLY EVENT is performed similarly to that procedure used for SINGLE or DAILY EVENT programming:

Press 'MENU' to view MAIN MENU.
Press '7' to display EVENT TIMER menu.
Press '3' to display WEEKLY EVENT menu.

Press '1' to select a PRIORITY channel for EVENT programming.
Press '2' to program a custom SAT / CHANNEL into the EVENT TIMER.

You must enter:

- 1) Either the priority number or the custom SAT / CHANNEL
- 2) The TIME ON : 00 : 00 AM or PM
- 3) The TIME OFF : 00 : 00 AM or PM
- 4) The EVENT DAY : DAY EACH WEEK

Use '0 - 9' to enter numeric information.
Use '◀ ▶' to move cursor reverse or forward respectively within the 'EVENT # WEEKLY' menu.

When all settings are stored as desired, the menu will appear similar to the following example:

```

EVENT 1 WEEKLY
TODAY IS MON    12 :01 PM
PRIORITY # 11
C G1 / 23
TIME ON 1 : 00 PM
TIME OFF 2 : 00 PM
EVENT DAY : MON EACH WEEK

USE '< >' AND '▼ ▲'
'CANCEL' FOR LAST MENU
  
```

Press 'ENTER' to store settings.
Press 'CANCEL' to return to EVENT TIMER menu.

Deactivating The Timer

Repeat events are stored in the memory of the receiver until they are erased (otherwise they wouldn't repeat). However, there may be days (or weeks) when the programs are not to be recorded (such as when you are on vacation). In cases such as this, the EVENT TIMER may be placed in the INACTIVE mode so that recording does not take place (but you wish to save the settings).

To place the EVENT TIMER in the INACTIVE mode, press 'MENU' to view the MAIN MENU. Then press '7' to view the EVENT TIMER. Place the timer in the ACTIVE or INACTIVE mode by pressing '5.' This screen will show if timer is active (recording will take place) or inactive (no recording will take place).

To Review or Delete Events

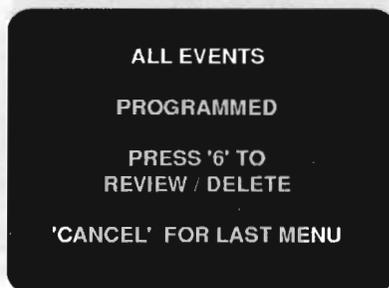
Press 'MENU' to view MAIN MENU.
Press '7' to view EVENT TIMER MENU.
Press '6' to view REVIEW/DELETE EVENTS MENU.
Example menu:

```

EVENT 1 SINGLE
TODAY IS MON    12 :01 PM
C G5 / 6 TBS
TIME ON 10 : 00 PM
TIME OFF 11 : 00 PM
EVENT DAY : MON THIS WEEK
USE 'NXT PRG' TO
REVIEW NEXT EVENT
'ENTER' 2 SEC TO DELETE
'CANCEL' FOR LAST MENU
  
```

41 Daily Use cont'd.

This menu shows the time the event begins, the length of the event, the date the event is to be recorded and the Priority View Channel number. If any information is incorrect, or four events are programmed, the Event must be deleted before entering new information. If four events are already programmed on the ESR 1824 or two events programmed on the ESR 1724, the following message is displayed when attempting to add additional events:



If information is correct when reviewing an event, press 'CANCEL' to leave this menu.

To delete (erase) a program from the EVENT TIMER, press 'ENTER' and hold for 2 seconds. Then press 'CANCEL' to leave this menu.

Event Timer Tips

When programming 'ON' times for events, remember to allow an extra minute or so if the antenna must move to a new satellite.

If you are watching a program just prior to a programmed event, a one minute warning will appear on the screen to allow time to 'suspend' the programmed event if desired.

After a timed event has started, normal remote control functions will be inoperative until the end of the event. An event in progress may be suspended at any time by pressing the 'CANCEL' button and following the on-screen instructions.

When an event is in progress, 'ET1', 'ET2', etc., will be displayed on the front panel LED display of the ESR 1824. The ESR 1724 will display the event number '1' or '2', with no leading zero.

Replacing Memory Backup Batteries

(ESR 1824 only)

The ESR 1824 stores time, Event timer settings, and Fine Tune settings in a memory device that is 'kept alive' with two 'AA' Alkaline batteries. These batteries will eventually weaken and will need to be replaced about every two years. The ESR 1824 On Screen Display will show a message, 'Power Loss' about 3 months before the batteries become too weak to maintain memory contents. Replace the batteries only with ALKALINE batteries. Other types of batteries will not last as long and may leak and cause damage to the receiver (THIS TYPE OF DAMAGE IS NOT COVERED BY WARRANTY).

1) To replace the batteries, locate battery compartment on bottom panel of receiver. Unit must remain connected to active power line. Memory contents will be lost if unit is unplugged from power line.

2) Use a phillips screwdriver to remove two screws holding the battery compartment cover to the bottom panel. Remove the battery compartment cover. Observe direction and placement of old batteries.

3) Remove old batteries and replace with two new ALKALINE batteries. Make sure direction and placement are the same as original batteries. The flat end of the battery should contact the springs.

4) Replace battery compartment cover. Turn unit on and observe On Screen Display. If 'Power Loss' message is still shown, then batteries were installed incorrectly or batteries are discharged. Correct battery placement and direction if necessary.

Parental Lock

To 'Lock' or 'Unlock' the Parental Lock function, a four digit password must be entered. If this password is forgotten, the system can be unlocked using the following button sequence:

Press 'LOCK' to enter the PARENTAL LOCK menu screen.

Press 'HELP' followed by '0', '0', '0', '0', (four digit entry '0000').

To insure that the Parental Lock function is not bypassed by unauthorized viewers, the remote control can be secured. In that case, the satellite receiver's front panel 'SAT' and CHANNEL '▲ ▼' buttons permit authorized program viewing.

'Auto Muting on Unnamed Channels' Feature:

The software included in your receiver will allow you to set automatic muting of the receiver's audio on channels that do not have an assigned name. This automatic muting feature is helpful to eliminate listening to annoying audio noise when tuning through channels that have not been programmed ('Unnamed' channels). To set your receiver to automatically mute the audio on 'Unnamed' channels, proceed as follows:

With the receiver tuned to either a 'Named' or 'Unnamed' channel,

Press the 'MUTE' button and hold for approximately 4-5 seconds until the mute status changes from its previous state. Note that this "state" change following an extended (4-5 seconds) hold of the 'MUTE' button is the only acknowledgement that the auto mute is set.

Example:

Tune the receiver to an 'Unnamed' channel. Audio is heard.

Press and hold the 'MUTE' button. Audio will immediately mute but will return after holding the 'MUTE' button for 4-5 seconds. The receiver is now set for 'Auto Muting on Unnamed channels'. Tune to a 'Named' channel; audio is heard.

Tune to an 'Unnamed' channel; the On-Screen display briefly shows 'MUTE' and no audio (noise) is heard.

The normal operation of the 'MUTE' button is unchanged. Momentarily pressing the 'MUTE' button toggles the audio on and off as desired.

43 Troubleshooting Guide

Problem	What to check
No picture, sound or front panel lights.	Check the AC power cord connection and press the ON/OFF button to be sure the receiver has been turned on. Unplug unit and check breaker.
Front panel display lights, but no picture or sound.	Be sure antenna is pointing to an active satellite, the TV is turned on and is set to channel 3 or 4 as selected on rear panel. C- or Ku-band selection is correct. Check all cables including power line to LNB. Change channels to be sure an active transponder is selected. Be sure that Parental Lock function is turned off. Check source switch for operation in TVRO mode.
Unusual or random display, certain function buttons not operational.	Unplug AC line cord for 15 seconds and then reconnect.
Sound is okay, but no picture.	Check cable connections to the video monitor or TV. Make sure there is video by changing to another channel.
Snowy or sparkly picture.	Check antenna alignment, polarity fine tuning, and all interconnect cables. On some weak transponders, some snow in the picture may be normal.
Picture is okay, but no sound or noisy sound.	Check Volume and Mute controls on the remote. Readjust audio tuning controls. Switch between narrow and wide bandwidth. Check all interconnect cables for worn insulation or shorts.
Antenna won't move.	Be sure Parental Lock feature has been turned off by the Remote Control. Check control cables and connections.
'EAST LIMIT' or 'WEST LIMIT' is displayed.	The antenna has reached the East or West limit programmed into the receiver.
'NO PULSE' is displayed.	Something is preventing the antenna from moving. Be sure actuator is not binding and is functioning properly. Check for physical obstructions at the antenna site. Check the actuator motor control wires, including the pulse sensor wires.
No picture no sound.	Check source switch setting.
All VC II® functions inoperable.	No module installed or defective module.

Problem	What to check
UHF Remote Control	
Does not operate or not enough range	Check batteries. Make sure that the UHF receiver slide switch on the rear panel of the receiver is in the "ON" position and the "Range" control (sensitivity) is set to an adequate level. Make sure the UHF antenna is installed. If the UHF Remote Control does not operate the receiver at any range, perform the following operation: Enter the 'PROGRAM/INSTALL' mode by simultaneously pressing the 'ON/OFF' and 'CHANNEL ▲' button on the front panel of the receiver until the display flashes. Exit the 'PROGRAM/INSTALL' mode by pressing the 'ON/OFF' button on the remote control. The UHF remote control included with your new IRD has a range of at least 200 feet in an open environment. There are, however, a number of factors that can reduce this range. Some of these factors are as follows:
	<ul style="list-style-type: none"> • Close proximity of the UHF antenna on your IRD to nearby wiring. This wiring can be in the wall of your house within a few feet of the IRD, or it can be external wiring connected with the rest of your home entertainment installation. • Metal foil insulation in the walls of your house which may act as a shield between rooms. • Interference from other sources of RF energy such as garage door opener receivers, home computers, security systems, fluorescent lights, microwave ovens, TV sets or other electronic equipment. • If you find the UHF remote control range inadequate for your needs, these factors must be identified until the range is increased as needed.

VideoCipher® RS Functions

- | | |
|---|--|
| TV screen displays "NO SUBSCRIPTION." | You have not subscribed to receive this channel or program. Contact the program distributor for subscription information. Your descrambler is working properly. |
| "NEEDS AUTHORIZATION" appears on the installation screen. | Your descrambler has not received one of the periodic authorization messages sent from the program supplier. This may happen if your receiver was not tuned to a subscription channel when the message was sent or is the signal quality is less than '6' on the installation display. Call your program distributor for new authorization messages. |
| Signal quality is less than '6' on installation display. | Antenna is not aimed properly or the signal into the satellite receiver is inadequate. |
| TV screen displays "PROGRAM BLACKED-OUT." | The current program is blacked out in your area. Press SETUP then 1. If the display reads "LOCATION: NOT SET," call your program supplier. If the display reads "LOCATION: SET," your descrambler is working properly. |
| An asterisk (*) blinks in the corner of your TV screen. | Your descrambler has received a personal message. Press the MESSAGE button on your remote control. The asterisk will disappear when you have read the message. |
| You forgot your rating or purchase password. | Call your program distributor to have your old passwords cancelled. Establish new passwords with a new installation. |

VIDEOpa!® Troubleshooting

Operation of the VIDEOpa!® system is almost totally automatic and there are no adjustments necessary. If you should ever experience any difficulty using the VIDEOpa!® system, please refer to the troubleshooting suggestions listed below.

PROBLEM:

Cannot receive channel.

SOLUTION:

Check all connections between the VIDEOpa!® Order Recorder and your telephone system. (Check the phone jack itself by plugging in a telephone.)

Re-check your connections and make sure that the power is ON to all components.

Make certain that your satellite system is tuned to the correct satellite and channel. (Note: Weather conditions and your geographical location may affect signal quality.)

Check a program guide to make certain that the program you're interested in is available for pay-per-view and can be ordered with the VIDEOpa!® system.

Make certain your account is current (press [SETUP], [1], [7]). Contact the Satellite Video Center if assistance is required.

Please write your IRD serial number and your VideoCipher® RS Descrambler unit address number in the spaces below. You will need this and the other information shown below if you call General Instrument for service or the Satellite Video Center® (or your billing center) for programming authorization.

Important Telephone Numbers

The Satellite Video Center®
800-54-VIDEO
(800-548-4336)

General Instrument
Consumer Hotline
(704) 327-2026 (Technical Assistance)

Installing Dealer

IRD Serial Number

VideoCipher® RS Unit Address Number

The model and serial number of this receiver is located on the rear panel. The VideoCipher® address number can be seen through the slot on the rear panel. Please record these numbers below:

IRD Model - - - -, Serial No. _____

VideoCipher® Address Number _____

You will need to refer to the serial number when contacting R. L. Drake Company for service or information about this unit. You will need to refer to the VideoCipher® address number when you arrange for subscription programming. (This is the same number that appears in the on-screen display when you push SETUP 1 as described in the separate "VCRS™" Operating Instructions.

Your IRD receiver is warranted as described on the back cover of this manual. Should a problem arise, please consult the Trouble Shooting Guide in this manual for possible corrective action. Most problems are easily solved. See enclosed letter describing VideoCipher® Warranty.

Service

You may contact the R. L. Drake Service Department for additional information or assistance by calling (513) 746-6990 or TELEFAX (513) 743-4576, Monday through Friday, 8:00 A.M. - 5:00 P.M. EST, except on holidays.

Should you want to return your unit for service, package the receiver carefully using the original carton or other suitable container. Write your return address clearly on the shipping carton and on an enclosed cover letter describing the service required, symptoms or problems. Also include your daytime telephone number and a copy of your proof of purchase.

The receiver will be serviced under the terms of the R. L. Drake Company Limited Warranty and returned to you.

NOTE: VideoCipher® RS module should not be returned without the satellite receiver unless prior authorization is obtained from the R. L. Drake Service Department. Warranty on the VideoCipher® module is void if warranty seals are broken. It is the customer's responsibility to contact all program suppliers for possible credit if unit is inoperable.

Two Year Limited Warranty (ESR 1824)/One Year Limited Warranty (ESR 1724)

R.L.DRAKE COMPANY warrants to the original purchaser this ESR 1824 product shall be free from defects in material or workmanship for two years from the date of original purchase.

R.L.DRAKE COMPANY warrants to the original purchaser this ESR 1724 product shall be free from defects in material or workmanship for one year from the date of original purchase.

During the warranty period the R.L.DRAKE COMPANY or an authorized Drake service facility will provide, free of charge, both parts and labor necessary to correct defects in material and workmanship. At its option R.L.DRAKE COMPANY may replace a defective unit.

To obtain such warranty service, the original purchaser must:

- (1) Complete and send in the Warranty Registration Card within ten (10) days of purchase.
- (2) Notify the R.L.DRAKE COMPANY or the nearest authorized service facility, as soon as possible after discovery of a possible defect, of:
 - (a) the model and serial number,
 - (b) the identity of the seller and the approximate date of purchase,
 - (c) A detailed description of the problem, including details on the electrical connection to associated equipment and the list of such equipment.
- (3) Deliver the product to the R.L.DRAKE COMPANY or the nearest authorized service facility, or ship the same in its original container or equivalent, fully insured and shipping charges prepaid.

Correct maintenance, repair, and use are necessary to obtain proper performance from this product. Therefore carefully read the Instruction Manual. This warranty does not apply to any defect that R.L.DRAKE COMPANY determines is due to:

- (1) Improper maintenance or repair, including the installation of parts or accessories that do not conform to the quality and specifications of the original parts.
- (2) Misuse, abuse, neglect or improper installation.
- (3) Accidental or intentional damage.

All implied warranties, if any, for the ESR 1824, including warranties of merchantability and fitness for a particular purpose, terminate two (2) years from the date of the original purchase.

All implied warranties, if any, for the ESR 1724, including warranties of merchantability and fitness for a particular purpose, terminate one (1) year from the date of the original purchase.

The foregoing constitutes R.L.DRAKE COMPANY'S entire obligation with respect to this product, and the original purchaser shall have no other remedy and no claim for incidental or consequential damages, losses or expenses. Some states do not allow limitations on how long an implied warranty lasts or do not allow the exclusions or limitation of incidental or consequential damages, so the above limitation and exclusion may not apply to you.

This warranty gives you specific legal rights and you may also have other rights which vary from state to state. This warranty shall be construed under the laws of Ohio.

For service information contact:

R.L. DRAKE COMPANY
230 Industrial Drive
Franklin, Ohio 45005
Customer Service Center Phone: (513) 746-6990 TELEFAX: (513) 743-4576

DRAKE

R. L. Drake Company
230 Industrial Drive
Franklin, Ohio 45005 U.S.A