

USER'S MANUAL

STAR TRAK **EIGHT** *Plus*

First Class Performance

COMPUTER SYNTHESIZED SATELLITE RECEIVER DESCRAMBLER

STAR TRAK EIGHT PLUS

FEATURES AT A GLANCE

- Integrated receiver and descrambler
- VideoCipher II Plus™ descrambler equipped
- Multi-function UHF remote
- Advanced on-screen display
- Quartz synthesized for drift-free video and audio reception
- Full C Band and Ku Band compatibility
- 10 event - 1 year timer
- Automatic peaking
- Automatic seeking
- 1000+ pre-programmed channels
- 100 Favorite channel memory
- Parental lockout
- Built-in antenna positioner
- Built-in TI filter
- 70 MHz IF Loop
- Constant memory
- Accessory output for dual-band or dual-polarity feeds
- Discrete and Matrix stereo
- Scan tuning in programming mode
- UL and CSA approved

Please write the serial number of your **STAR TRAK EIGHT PLUS** (found on the bottom of the unit) in the space below.

Serial Number _____

VideoCipher II PLUS™ Authorization Number _____

You will need it to receive authorization for viewing VideoCipher II PLUS™ channels. Your Authorization Number can be read on your TV using the on-screen display of the **STAR TRAK EIGHT PLUS**.

ID Number _____

Programming Copyright Notice

Satellite signals originate from a variety of sources and program suppliers. Some of these signals may be proprietary and intended for reception only by authorized parties, subscribers or subscription services. HTVRO (Home TV receive only) users should verify their compliance with all existing local statutes and regulations. The manufacturer assumes no responsibility for the use of this, or any other portion of a HTVRO system, for the reception of satellite signals by the purchasers.

VideoCipher® and Videopal® are registered trademarks, and VideoCipher II Plus™ and VC II Plus™ are trademarks of General Instrument Corporation.

OPERATION PRECAUTIONS

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 prévenir les chocs électriques ne pas utiliser cette fiche polarisée avec un prolongateur, une prise de courant ou une autre sortie de courant, sauf si les lames peuvent être insérées à fond sans en laisser aucune partie à découvert.



The lightning flash with arrowhead 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 (including instructions in the literature accompanying the appliance).



CAUTION
RISK OF ELECTRIC SHOCK
DO NOT OPEN



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

IMPORTANT SAFEGUARDS

- 1. Instructions** - Read all safety and operating instructions before the unit is operated. All instructions should be followed. Retain this manual for future reference.
- 2. Warnings** - All warnings on the equipment and in the operating instructions should be adhered to.
- 3. Power Sources** - This equipment should be operated only on standard 110 - 120 Vac and is equipped with a polarized line plug. If your outlet will not accept this plug, replace the outlet with a properly grounded one. Make sure all wiring is clear of obstruction and are not likely to be walked on or pinched by items placed upon or against them. As with all advanced electronics, a surge protector is recommended.
- 4. Overloading** - Do not overload power outlets and extension cords as this can result in a risk of fire or electrical shock.
- 5. Ventilation** - Slots and openings in the cabinet are provided for ventilation and to protect it from overheating. These openings should not be blocked or covered. This equipment should never be placed near a heat radiator or in a built-in installation such as a rack unless adequate ventilation is provided.
- 6. Water and Moisture** - Do not use this product near water, for example near a bath tub, sink, in a wet basement or near a swimming pool.
- 7. Cleaning** - Do not use liquid cleaners or aerosol cleaners. Use a damp cloth for cleaning the unit.
- 8. 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.

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

10. Outdoor Antenna Grounding - Be sure the satellite antenna is grounded to provide some protection against voltage surges and built-up static charges.

Section 810 of the National Electrical Code, ANSI/NFPA No. 70-1984, provides information with respect to:

(i) Proper grounding of the mast and supporting structure.

(ii) Grounding of the lead-in wire to the antenna discharge unit.

(iii) Size of grounding conductors.

(iv) Location of the antenna-discharge unit.

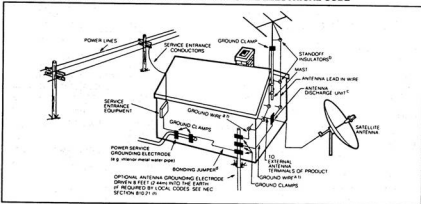
(v) Connection to grounding electrode.

For example of antenna grounding, see diagram below.

11. For added protection for this video product receiver during a lightning storm, or when it is left unattended and unused for long periods of time, unplug it from the wall outlet and disconnect the antenna or cable system. This will prevent damage to the video product due to lightning and power-line surges.

NOTE TO CATV SYSTEM INSTALLER: THIS REMINDER IS PROVIDED TO CALL THE CATV SYSTEM INSTALLER'S ATTENTION TO ARTICLE 820-22 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.

EXAMPLE OF ANTENNA GROUNDING AS PER NATIONAL ELECTRICAL CODE



INTRODUCTION

Welcome to the world of superb satellite viewing with the **STAR TRAK EIGHT PLUS** Computer Synthesized Satellite Receiver Descrambler.

Your **STAR TRAK EIGHT PLUS** is equipped with a Videocipher II Plus™ descrambler. Not only do you have access to the marvellous array of viewing on unscrambled channels, once your descrambler is authorized, you will have access to some of the finest TV programming available.

This User's Manual is designed for easy, step-by-step installation, by either a seasoned professional or an experienced do-it-yourselfer.

The advanced on-board microcomputer and continuous memory deliver drift-free, high-quality video and audio reception.

Once your **STAR TRAK EIGHT PLUS** system is operational you will discover how easy it is to use. It is recommended that you read this manual thoroughly to be sure that your **STAR TRAK EIGHT PLUS** system will give you maximum enjoyment.

Then relax and enjoy complete control of your entire satellite TV system - from dish movement to selecting your movie rating ceiling - with the comfortable and sleek **STAR TRAK EIGHT PLUS UHF Remote Control**.

Happy viewing and thank you for choosing the **STAR TRAK EIGHT PLUS** IR/D.

TABLE OF CONTENTS

CONTROLS, INDICATORS & CONNECTIONS

Front Panel Functions	1
Remote Control Functions	2
Back Panel Connections	3

INSTALLATION

Pre-installation Checklist	4
Indoor Connection Procedure	4
Satellite Antenna Connections	5
Audio Video Connections	6

PROGRAMMING

Initial Programming	7
Entering New Password	7
Erasing All Memory	7
Re-Entering Password	7
Setting Limits	8
Storing Satellite Positions	9
Auto Locating Satellites	10
Erasing a Satellite	11
Changing Limits	11
Channel Sequence	11

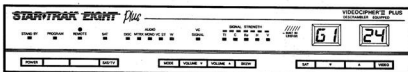
DAILY OPERATIONS

Selecting a Satellite	12
Selecting a Channel	12
Fine Tuning Video	13
Adjusting the dish position	13
Fine tuning the video	13

TI Filter	13
Video Plus	13
Skew adjustment	14
Global Shift Function	14
Changing Audio Settings	14
Using Password Selected Features	15
Locking Channel	15
Unlocking Channel	16
Locking Store	16
Unlocking Store	16
Aligning Dish	16
Timer Operations	16
Setting Clock	16
Setting Timer Event	17
Skipping Channel	18
Using Favorite Channel	18
Storing a Favorite Satellite Channel	18
Retrieving a Favorite Satellite Channel	18
DESCRAMBLER OPERATIONS	19
TROUBLE SHOOTING GUIDE	22
SATELLITE AND CHANNEL LOG	23
SUBSCRIPTION	24
GLOSSARY OF COMMON TERMS	25
SPECIFICATIONS	26

CONTROLS, INDICATORS & CONNECTIONS

FRONT PANEL FUNCTIONS



CONTROL KEYS

POWER key - Turns the receiver off and on. When power is restored the receiver returns to the last watched satellite, channel and settings.

SAT/TV key - Lets you switch back and forth from satellite television viewing to regular or cable TV watching. (This functions only when built-in channel 3/4 modulator is used.)

MODE key - Used to select audio subcarriers A or B, and either matrix or discrete stereo. Frequencies are displayed in MHz.

STEP UP and STEP DOWN keys - Multi-function keys used for dish positioning, skew, audio and video tuning and channel selection.

VOLUME UP and VOLUME DOWN keys - Adjust audio volume up or down. Also used as <- -> keys for Videocipher II Plus™, clock functions.

SKEW key - Use to adjust servo type polarator.

SAT key - Use to select satellite. Also used to align satellite position.

VIDEO key - Used with [STEP UP] or [STEP DOWN] for video fine tuning, selecting T1 filter, Video Plus, and the alternate video input.

LED INDICATORS

STAND BY - shows the receiver is plugged in
PROGRAM - lights when in Program ("PROG") mode
REMOTE - target point for infrared remote signal. LED flashes when UHF or IR remote signal is received.

SAT - LED illuminated when viewing satellite TV

DISC - indicates reception of Discrete stereo

MTRX - indicates reception of Matrix stereo

MONO - indicates reception of Mono

VC ST - indicates reception of VideoCipher stereo

W - lights up when Wide bandwidth AUDIO is selected

VC - lights with reception of VideoCipher signal

Signal Strength - bar graph of relative signal strength

T1 - lights when T1 filter is ON

C - lights when tuned to a C-band satellite

Ku - lights when tuned to a Ku-band satellite

H - lights on Horizontal polarity

V - lights on Vertical polarity

Satellite Identification -

A 2-digit display of the satellite being viewed, for example, "G1" = the "GALAXY 1" satellite.

Channel display -

A 2-digit display of the channel number being viewed, for example, "G1 23" is channel 23 on the Galaxy 1 satellite.

REMOTE CONTROL FUNCTIONS



****POWER key** - Turns the receiver off and on. When the unit is off, the **STANDBY** LED tells you it is still plugged in. Push **[POWER]** and the receiver restores the last watched satellite and channel and settings.

DESCRAMBLER FUNCTION KEYS

These 8 keys control the Videocipher II Plus™ functions of your **STAR TRAK EIGHT PLUS**. Your receiver must be authorized and tuned to a VideoCipher scrambled channel for descrambling operations.

TEXT - Press for a display of information bulletins and special notices from program suppliers.

MSG - Press to view personal message sent by a program supplier. A flashing asterisk (*) on your TV screen indicates that a message has been received.

HELP - Press for help with descrambler operation.

VIEW - Press to get the time and the name and channel of the satellite you are viewing. If information about the program is available it will also be shown. **[VIEW]** can also be used to return you from most setup functions, to viewing the program in progress.

CNCL - Functions like a backspace key. Press to delete any digit(s) entered incorrectly. Also used for skip-channel function (See page 17).

ENTER - Press to confirm selections or password entries. It is also used for automatic peaking. (See page 7)

SETUP - Press for an on-screen menu of descrambler features, including your descrambler authorization number. Use **[SETUP]** with numeric keys 0-9 to select and customize features.

NEXT - Press to display information about the next scheduled program on that channel.

RECEIVER FUNCTION KEYS NUMBER KEYS 0 TO 9

These are dual function keys. (For example **[GALAXY]**, **[2]** is used for either the **GALAXY** satellite or the number 2). They are used for direct entry of channels, audio frequency information or satellites.

MUTE key - Turns audio on and off. The audio will return to the previous setting if the channel is changed or volume control is used. Also used to "SCAN" in "PROG" mode.

****SAT/TV key** - Lets you switch back and forth from satellite television viewing to regular or cable TV watching. This functions when built in channel 3/4 modulator is used.

FAV key - Lets you memorize or retrieve favorite satellite channels.

****SAT** key - Use to select satellite and used to trim dish position.

PS key - Use to access all Password Selected (PS) functions; Set clock, align dish, set timers and lock store.

****MODE** key - Use to select audio subcarriers A or B, and either matrix or discrete stereo. Frequencies are displayed in MHz.

B/W key - Toggles between wide and narrow audio bandwidth.

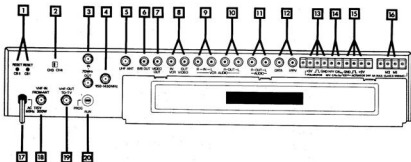
****VIDEO** key - Use with **[STEP UP]** or **[STEP DOWN]** for video line tuning, selecting the TI filters, Video Plus, and the alternate video input.

****SKEW** key - Use to adjust servo type polarator.

****VOL UP & VOL DOWN** keys - Adjust audio volume up or down. Also used as <- >- keys.

****STEP UP & STEP DOWN** keys - Multi-function keys used for dish positioning, skew, audio and video tuning and channel selection.

****These key functions are also available on the receiver front panel and can be used if the remote control is not available.**

BACK PANEL CONNECTIONS**BACK PANEL DESCRIPTION**

1. CB1 - main drive circuit breaker
2. CB2 - motor drive circuit breaker
3. IF INPUT - attach your LNB here
- 4.. 70 MHz In and Out - these are the IF Loop connections. These connections are for connecting an external IF filter. If an external filter is not used, they are connected together with the 3" long IF loop cable provided with the STAR TRAK EIGHT PLUS.
5. VHF IN - connect your VHF antenna or cable from antenna system feed through here.
6. VHF OUT TO TV - connect your television's VHF Input to this jack.
7. CH3/4 selector - used to select the channel on the "VHF OUT TO TV" connector.
8. Power Cord - 115 vac, 60 HZ, 300W AC power cord. Use only with an outlet that accepts a polarized plug.
9. Programming Key - this key-operated switch is used to select program, "PROG" or "RUN" mode. The key may be removed to protect the programmed settings.
10. UHF ANT - input for UHF remote control signal. Attach whip antenna provided with your STAR TRAK EIGHT PLUS.
11. B/B OUT - unclamped unfiltered base band signal. Connect descrambler, SuperGuide or other accessory that requires unprocessed signal here.
12. VIDEO OUT - connect your video monitor here.
13. VCR VIDEO IN - connect the video output of your VCR, external decoder, or other accessory video component here. Signal from this jack is routed to the "VIDEO OUT" and "VHF OUT TO TV" when "EXTERNAL VIDEO" feature is selected.
14. VCR VIDEO OUT - satellite signal with no on-screen display. Connect this jack to "VIDEO IN" on VCR.
15. VCR AUDIO IN - connect the audio outputs of your VCR, external decoder or other accessory video component here. Signals from these jacks pre-routed to the "AUDIO OUT" and "VHF OUT TO TV" when "EXTERNAL VIDEO" feature is selected.
16. VCR AUDIO OUTPUT - satellite signal with no volume control. Connect these jacks to "AUDIO IN" on VCR.
17. DATA - connect this to VideoCipher II Plus™ accessory, such as the INFOCIPHER® 1500 data receiver.
18. IPPV - connect this jack to impulse pay-per-view order recorder such as VIDEOPAL™.
19. Polarotor - used if you have servo type polarotor.
20. +5 - 5V 500 MA power - switches off after 5 seconds if polarotor settings not changed.
21. - pulse control signal always active.
22. GND - ground
23. H/V - horizontal/vertical control signal, +5V for horizontal, ground for vertical. Connect to control terminal of Tee-Comm T-H/V switch.
24. C/Ku - C Band/Ku Band control signal. +5V for C Band, ground for Ku Band signal. Connect to T-H/V switch.

Motor Drive Sensor Terminal

- GND - ground for sensor
 - sensor signal input - reed and switch type sensors. Connect from to GND.
 +5 - power for opto and hall effect sensors. Not used for reed and switch sensors.
 M1-M2 - main actuator terminals. Wiring connected to these terminals should be Class II.

REPLACE TERMINAL COVER

INSTALLATION

PRE-INSTALLATION CHECKLIST

SATELLITE ANTENNA CONNECTIONS

Check that all the following items have been packed with the receiver. If any of the items are missing or appear damaged, contact your dealer.

- 70 MHz Loop Cable
- Remote Control Unit
- 9 Volt Battery
- Whip Antenna
- User's Manual

Table 1- Cable Recommendations



Connection	Length		
	up to 125 ft.	to 200 ft.	to 325 ft.
LNB to Receiver	RG-59	RG-6	RG-6
Actuator Motor wires	16 ga.	16 ga.	14 ga.
Actuator Sensor wires	24 ga.	24 ga.	22 ga.
Polarotor	20 ga	18 ga.	16 ga.

CABLES AND TOOLS REQUIRED

Use only quality cables and connectors. (For distances over 125 ft., see the Table 1) One-run cable is recommended. Add approximately 10% to the calculated distance for detours and drain loops. Always test cables for continuity or short circuits prior to installation.

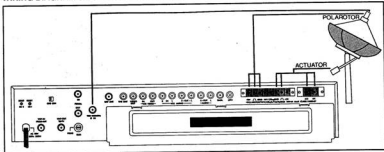
- RG-6 coaxial cable for IF connection
- 3 x 18 gauge polarotor wires
- 2 x 14 gauge actuator motor wires
- 3 x 24 gauge sensor wires
- F connectors
- Crimper
- Wire strippers
- #2 Phillips screwdriver

INDOOR CONNECTION PROCEDURE

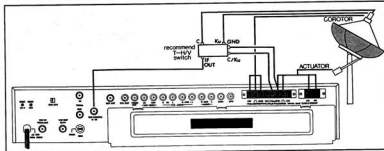
1. Check to make sure that your receiver is not connected to any AC power source. There should not be any LED's lit.
2. Place the receiver on a secure, flat surface. Be sure that there is proper ventilation and it is not near any heat source.
3. Connect the 70 MHz IF loop (the short coaxial cable provided with the receiver) to the 70 MHz INPUT and 70 MHz OUTPUT terminals. (Do not add attachments to these terminals until the receiver is fully installed and tested)
4. Turn the keyswitch on the back panel of the receiver to the "PROG" position.
5. Separate the individual wires of the one-run cable to ensure that each set of wires can easily reach the terminals. Install an F-type connector to the coaxial cable of the multi-run cable. Connect the coaxial cable to the IF IN terminal.
6. Polarotor Connection. Insert the 3 x 18 gauge polarotor wires into quick connector terminals. Normally: Red to +5, Black to GND, White to .
7. Motor Connections. Remove the terminal cover and insert the 2 x 16 gauge wires into the MOTOR terminals. REPLACE THE TERMINAL COVER.
8. Install the 2 x 24 gauge wires to the sensor terminal marked  and GND.
9. With the sensor and actuator motor now properly wired, connect the video and audio components. Suggestions are shown in the following diagrams for different options.
10. Plug the receiver in to 115 VAC power.

SATELLITE ANTENNA CONNECTIONS

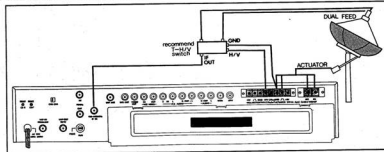
1. WIRING DIAGRAM SINGLE C-BAND SYSTEM



2. WIRING DIAGRAM - C/KU BAND (COROTOR™) SYSTEM

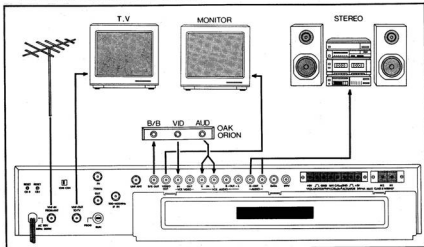


3. WIRING DIAGRAM - DUAL C-BAND

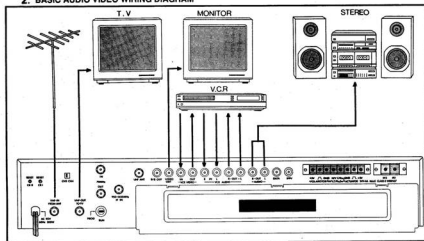


AUDIO VIDEO CONNECTIONS

1. EXTERNAL DECODER WIRING DIAGRAM



2. BASIC AUDIO VIDEO WIRING DIAGRAM



PROGRAMMING (PROG MODE)

Programming involves 'teaching' your receiver to remember your satellite and channel selections. Use the control keys on the remote control to enter information into the receiver's memory. Most popular satellites and channels have been pre-programmed for your convenience. Once the proper satellite has been located and entered into memory, all adjustments for each channel on that satellite are done automatically. (These settings may be over-riden if you should so desire.) To program your receiver, the key on the back panel must be in the "PROG" position. To prevent anyone from tampering with your programmed positions, remove the key and store in a secure place.

"PROGRAM MODE"

Fig. 1

INITIAL PROGRAMMING

This applies to new installations or after the location of the system has been changed. A current satellite program guide will be useful to help you identify specific satellites and channels.

Turn the back panel keyswitch to the "PROG" position. The On Screen Display will show "PROGRAM MODE" at the top of the screen (Fig. 1). The line will remain on the screen as long as the keyswitch is in the "PROG" position. Initial programming consists of the following steps:

1. Entering a new password
2. Erasing all memory
3. Re-entering password
4. Setting the limits
5. Storing satellite positions

ENTERING NEW PASSWORD

Press [PS] to display the "PS" functions available (Fig. 2).

Press [PS] repeatedly to move the arrow to "CHANGE PASSWORD" then enter a 4 digit password of your choice (Fig. 3).

: "PROGRAM MODE"
LOCATE SATELLITES
>CHANGE PASSWORD
ERASE SAT (G1)
ERASE ALL

PRESS PS TO SELECT
ENTER PASSWORD TO
EXECUTE

"PROGRAM MODE"
PASSWORD HAS
BEEN
CHANGED TO:

Fig. 2

Fig. 3

ERASING ALL MEMORY

To clear all satellite positions stored in memory and to reset all other settings to the factory default values.

Press [PS] until the arrow is on the 'ERASE ALL' (Fig. 4). Enter your 4-digit password. A warning screen will appear (Fig. 5). Entering your code a second time will erase all stored information, (pressing any other key will cancel the command). After the memory has been erased, the screen will show the same screen as when you first powered up the new unit: 'SET LOWER LIMIT'.

: "PROGRAM MODE"
LOCATE SATELLITES
CHANGE PASSWORD
ERASE SAT (G1)
>ERASE ALL

PRESS PS TO SELECT
ENTER PASSWORD TO
EXECUTE

"PROGRAM MODE"
****CAUTION****
ERASE ALL WILL
DESTROY ALL STORED
INFORMATION!
TO CONTINUE ENTER
PASSWORD. ANY
OTHER KEY TO EXIT.

Fig. 4

Fig. 5

RE-ENTERING PASSWORD

Erasing the memory will also erase your password. The password then becomes "0000". If you want another password, repeat ENTER PASSWORD above.

SETTING LIMITS

This establishes the limits of antenna travel. There are two extreme limits, the lower one when the jack is fully retracted and the upper one, when it is fully extended. If you cannot see your dish while setting the extreme limits, have an assistant observe its movement to make certain that it does not travel too far (if your actuator jack does not have a physical stop) or strike an object.

In "PROG" mode, when the receiver is turned on for the first time, or after Erase All has been used, the display reads: (Fig. 6)

The present dish position is indicated by a four-digit number, eg. 5000. When you move the dish the number will go down as the jack is retracted and go up as the jack is extended. If the number does not change as you try to move the dish, the display will show "JACK ERROR" (Fig. 7). You may have reached the end of travel or there may be a loose or broken wire or other problem with the jack installation or in the wiring from the antenna jack to the receiver. If the numbers move the wrong way, disconnect the AC power source to your receiver and reverse the wires connected to the actuator motor terminal. When the number changes, it confirms that the motor is turning and the dish is moving. The front panel will display "SL", a prompt to set the lower limit (jack retracted).

Press [SAT] then [STEP UP] or [STEP DOWN] to move the jack to the fully retracted position. Then go back and extend the jack for a few counts. You have now located the lower limit. Press [SAT] 3 times to store the limit in memory. Once stored, the receiver front panel display will flash 'LS' 3 times to indicate the limit is set and the screen display will read "LOWER LIMIT STORED", then after 5 seconds the display will change to "SET UPPER LIMIT" (Fig. 8). The receiver front panel will display 'SU', a prompt to set the Upper Limit.

Press [STEP UP] or [STEP DOWN] to move the jack to the fully extended position, then go back and retract it for a few counts. Press [SAT] 3 times to store the limit in memory. Once stored, the receiver front panel display will flash 'LS' 3 times to indicate the limit is set and the screen display will read "UPPER LIMITS SET" and after 5 seconds the display will change to: (Fig. 9).

"PROGRAM MODE"

SET LOWER LIMIT!
PRESS SAT AND USE
▲ AND ▼ TO MOVE DISH
TO LIMIT.
PRESS SAT 3 TIMES TO
STORE LIMIT. 5000

Fig. 6

PROGRAM MODE"

JACK ERROR!!!
NO RETURN PULSE

Fig. 7

"PROGRAM MODE"

SET UPPER LIMIT!
USE ▲ AND ▼ TO MOVE
DISH TO LIMIT.
PRESS SAT 3 TIMES TO
STORE LIMIT. 5885

Fig. 8

"PROGRAM MODE"

NO SATELLITES STORED
PRESS SAT, NAME, NUM
THEN
▲ OR ▼ TO MOVE DISH

Fig. 9

STORING SATELLITE POSITIONS

Now you must program the satellite positions. The first step is to call the name of the first satellite you wish to program. There are two methods available to call the satellite. One method is choosing from a pre-stored list of satellite names and using the other method, you must specify the satellite.

1. To use the pre-stored list, press [SAT] twice. The display will change to: (Fig. 10)
Press [STEP UP] or [STEP DOWN] to scroll through the list and press [SAT] (Fig. 11) to select a satellite from the list.
OR
2. Press [SAT] the display will change to: (Fig. 12)
Press name and number of satellite that you wish to set. For example, press [SPACENET] then the [2] key. The display will change to: (Fig. 13)

Now press the channel number of an active channel on the selected satellite. Find an active channel from your TV programming guide.

NOTE: If you do not know which channel may be active, you can use "SCAN", which continuously sweeps all frequencies. To "SCAN", press [MUTE] to activate, enter a channel or press [MUTE] again to deactivate, once you have located an active channel.

Now use [STEP UP] or [STEP DOWN] to move the dish till the picture of the selected satellite channel appears on your screen. Now press [SKEW] twice, the display will change to: (Fig. 14)

The two numbers shown are between 0 and 253 and represent the relative skew positions. One number will change when tuning an even-numbered channel, the other when tuning an odd-numbered channel.

Use [STEP UP] or [STEP DOWN] to get the best picture, or [ENTER] to auto-skew then select another active channel on the same satellite. Not just any channel will do; if the first channel was even-numbered then select an odd-numbered active channel as the second channel. Similarly, if the first channel was odd, use an even channel as the second channel. Press [SKEW] and then use [STEP UP] or [STEP DOWN] or [ENTER] to get the best picture on the second channel.

Now call the next satellite that you want, and program it the same way as the first one. That means:

- a) select a satellite
- b) set it to an active channel, one you can identify when it shows on the screen.
- c) move the dish till the picture of the selected satellite channel appears on the screen.
- d) when the selected satellite channel first becomes visible, you may want to do an AUTOMATIC PEAK by pressing [ENTER]. (The skew setting should not need to be re-set.)

Continue this way until you have set all the satellites that you want programmed and that are visible at your location or after you have programmed two satellites you can use the AUTO-LOCATOR feature.

PROGRAM MODE
GALAXY G1

USE ▲ OR ▼ FOR
SATELLITE LIST
USE SAT THEN OR
TO PROGRAM POSITION

Fig. 10

PROGRAM MODE
SPACENET S2

5008

Fig. 11

PROGRAM MODE
SATELLITE?

Fig. 12

PROGRAM MODE
SPACENET S2

5008

Fig. 13

PROGRAM MODE

SKEW
>HORIZ. 180
VERT. 090

Fig. 14

AUTO-LOCATING SATELLITES

The AUTO-LOCATOR makes full and efficient use of the information about all the satellites which have been put into the memory when your receiver was built. It will speed up your programming and when the programming has been done, the satellite position will be stored in memory in the same sequence as the satellites are in the sky. This method works something like an auto-pilot. It will use the pre-stored information like a map (or look-up table).

1. Program two satellites using the method described earlier. It is best if you chose two satellites which are close together. With two satellites set, the starting point and direction of tracking has been defined.

2. Make a list of all the satellites that you want to program. Do not include any that cannot be seen in your location or those that are extremely weak. Do this, press [PS] (Fig. 15) and select LOCATE SATELLITES. Enter your password. The screen will change to: (Fig. 16)

Use [STEP UP] or [STEP DOWN] to step through the satellite names in the prestored table. When you see one of the satellites you want to program, press [VOL UP] to select the satellite. The screen will change to: (Fig. 17)

Continue until the list is complete. If you missed a satellite or want to remove one from the list, step through your list again. Use [VOL UP] to add a satellite and [VOL DOWN] to delete one. When you have completed your list press [ENTER]. The screen will change to: (Fig. 18)

Press [ENTER] again, the screen will change to: (Fig. 19)

After each satellite is peaked you will be prompted on the screen: (Fig. 20)

After all satellites are peaked, the screen will read (Fig. 21)

Typically this is the end of operations in "PROG" mode. Turn the keyswitch on the back of the receiver to "RUN" mode for Daily Operations.

```

: "PROGRAM MODE"
> LOCATE SATELLITES
CHANGE PASSWORD
ERASE SAT (G1)
ERASE ALL
  
```

```

PRESS PS TO SELECT
ENTER PASSWORD TO
EXECUTE
  
```

Fig. 15

```

"PROGRAM MODE"
AUTO LOCATION
C-BAND      LNG
SPACENET S2 69.0W
NO
PRESS ▲ ▼ TO NEXT
PRESS L R TO SELECT
PRESS ENTER TO START
  
```

Fig. 16

```

"PROGRAM MODE"
AUTO LOCATION
C-BAND      LNG
SPACENET S2 69.0W
YES
PRESS ▲ ▼ TO NEXT
PRESS L R TO SELECT
PRESS ENTER TO START
  
```

Fig. 17

```

"AUTO SEEK & PEAK"
THIS PROCEDURE
WILL AUTOMATICALLY
SEEK DISH POSITION
FOR THE SELECTED
10 SATELLITES
PRESS ENTER TO START
  
```

Fig. 18

```

"AUTO SEEK & PEAK"
SPACENET S2 01
SEARCH DISH XXXX
  
```

Fig. 19

```

SATELLITE PEAKED
ENTER TO CONTINUE
CANCEL TO STOP
  
```

Fig. 20

```

SATELLITE PEAKED
PEAKING END
  
```

Fig. 21

ERASING A SATELLITE

To erase a satellite that you have programmed, press [PS] (Fig. 22) to move the arrow to ERASE SATELLITE, then enter your password. The receiver will erase all stored information for that current satellite, including satellite position information used for direct access.

The on-screen display will read: (Fig. 23)

CHANGING LIMITS

Move the dish to either the Upper or Lower limit set for the jack. Press [PS]. The on-screen display will read 'CHANGE LIMIT' in place of 'ERASE SATELLITE' (Fig. 24). Move the arrow to 'CHANGE LIMIT', then enter your 4-digit password. Entering the password will erase the current limit and the receiver will prompt you to reset that limit (Fig. 25).

Where "*****" is either the UPPER or LOWER limit that the dish is against. Proceed now as if this limit will be set for the first time. (See SETTING LIMITS.)

CHANNEL SEQUENCE

If your installation is using a servo type polarotor, you can greatly reduce the wear and tear on the servo motor by setting the channel sequence to "SKIP" from "STEP". It is recommended that the setting should be "STEP" if your system uses a V/H switch and "SKIP" if your system uses a servo type polarotor.

1) Press [VIDEO] until the arrow points to "CH TUNE" (Fig. 26)

2) Press [STEP UP] or [STEP DOWN] select desired mode.

"PROGRAM MODE"
LOCATE SATELLITES
CHANGE PASSWORD
>ERASE SAT (G1)
ERASE ALL

PRESS PS TO SELECT
ENTER PASSWORD TO
EXECUTE

Fig. 22

"PROGRAM MODE"
GALAXY G1
ERASED

Fig. 23

"PROGRAM MODE"
CHANGE PASSWORD
>CHANGE LIMIT
ERASE ALL

PRESS PS TO SELECT
ENTER PASSWORD TO
EXECUTE.

Fig. 24

"PROGRAM MODE"
SET "*****" LIMIT1
PRESS SAT AND USE
▲ OR ▼ TO MOVE DISH
PRESS SAT 3 TIMES TO
STORE LIMIT.

Fig. 25

"PROGRAM MODE"

FINE TUNE	0.00 MHZ
TI FILTER	ON
VIDEO PLUS	OFF
> CH TUNE =	STEP

Fig. 26

WARNING

Once initial programming has been done,
NEVER disconnect the receiver from AC
power source while receiver is in
"PROG MODE".

DAILY OPERATIONS (RUN MODE)

The key switch on the STAR TRAK EIGHT PLUS must be in the "RUN" position for daily operation.

SELECTING A SATELLITE

There are two methods to select a satellite:

Method 1 is to enter the satellite name, then number.

Method 2 is to select a satellite from the list of programmed satellites.

METHOD 1 (only from remote control)

Push [SAT], the receiver front panel shows "— —"

The display will ask you to specify the satellite you want to receive (Fig. 27). Next, push the dual function keys for the desired satellite. For example, for GALAXY 1, push [GALAXY] (Fig. 28) then [1]. If your receiver has been programmed for the position for GALAXY 1, (see Programming the STAR TRAK EIGHT PLUS) the receiver will automatically adjust the antenna position for reception of GALAXY 1.

SATELLITE ?

Fig. 27

SATELLITE ?
GALAXY

Fig. 28

METHOD 2 (from remote control or front panel keys)

When [SAT] is pushed twice the receiver will enter the NEXT SAT Mode (Fig. 29).

FROM: This is the current satellite and channel that you are presently viewing.

TO: As you use [STEP UP] or [STEP DOWN] (Fig. 30), the display will scroll through all programmed satellites in the order they are in the satellite arc.

Pressing [SAT] within 5 seconds will cause the receiver to move to the satellite shown next to "TO." For example, if you selected Galaxy 1: (Fig. 31)

FROM: WESTAR 5
TO:

USE ▲ OR ▼
TO VIEW.
PRESS SAT TO MOVE.

Fig. 29

FROM: WESTAR 5.
TO: GALAXY 1

USE ▲ OR ▼
TO VIEW.
PRESS SAT TO MOVE.

Fig. 30

When the dish starts to move the display will show two numbers. The first number is the present dish position and it will change as the dish moves. The second number is the target position. The dish will move till the target (programmed) position has been reached. When the antenna reaches the programmed position, the receiver will switch to the last channel you viewed on that satellite. The receiver front panel displays the satellite name and channel number being received, "G1 23".

GALAXY G1 23

MOVING DISH TO
GALAXY G1 23

4034 5000

Fig. 31

If you are a subscriber on VideoCipher II Plus™ channels, the on-screen display will show the title, rating and time left of the current program.

SELECTING A CHANNEL

There are two methods of channel selection: either by entering the channel number or by stepping channels.

Direct Entry - Enter a two-digit number, for example for channel 3, push the [0] and [3]. Two digits must always be entered.

Stepping - Use [STEP UP] or [STEP DOWN] to move through the channels in sequence. If you have a servo type polarotor, then the channels should step in the sequence 2-4-6-8...up to 24. When you reach 24 the next channel will be 1 and the sequence will now be 1-3-5...till you reach 23 and the sequence will go to 2-4...again. If you have a dual feed horn, the channel sequence should be 1-2-3-...23-24-1-2....

FINE TUNING VIDEO RECEPTION

Your STAR TRAK EIGHT PLUS receiver is designed to provide the best audio and video quality from the signals it receives. The quality of those signals is determined by the strength of the signals received from the satellites, your antenna location, and the quality of your outdoor equipment and their installation.

You can maximize the video signals received by following these simple steps.

1. ADJUSTING THE DISH POSITION

Though you have programmed each satellite's position into memory, reception may be affected by the weather (snow on the dish, wind pushing the dish, or other interference.) A slight adjustment of the dish position may improve the picture. There are two methods to adjust the dish position; manual and automatic.

- Manual: - press [SAT], then [STEP UP] or [STEP DOWN] (Fig. 32) to change the position until the picture improves.
- Automatic: - press [SAT], then [ENTER] (Fig. 33). The receiver will then automatically peak the dish for best reception (Fig. 34).

This new position is not stored. To store, use the Align Dish function, see Page 16. If the new position does not improve the video, return to the original position by pressing [SAT] three times.

2. FINE TUNING THE VIDEO

After maximizing signal reception by adjusting the dish position you may still have to fine tune the channel frequency because of interference—as you would a conventional television receiver.

Press [VIDEO] repeatedly and the arrow will move through the various tuning selections. Use [STEP UP] or [STEP DOWN] to change the frequency. If the frequency goes below 00.00 the number will be preceded by a '-' and if the value goes above 0.0 the number will be preceded by a '+'. Press [STEP UP] or [STEP DOWN] to find the clearest reception.

3. TI FILTER

Press [VIDEO] twice to allow the TI filter to be toggled on and off (Fig. 35). Then use [STEP UP] or [STEP DOWN] to toggle on or off. The new TI setting will be memorized for this channel only. It is recommended to repeat Step 2 after turning the TI filter ON. If the picture does not improve, return it to the OFF position.

4. VIDEO PLUS

The VIDEO PLUS feature will reduce sparklies on channels with very high colour level. Press [VIDEO] repeatedly until the arrow points to Video Plus (Fig. 36). Use [STEP UP] or [STEP DOWN] to turn it ON/OFF.



TRIMMING DISH
GALAXY G1 24
5012 5008

Fig. 32



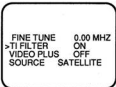
PEAKING POSITION
GALAXY G1 5008

Fig. 33



GALAXY G1
POSITION PEAKED

Fig. 34



FINE TUNE 0.00 MHZ
>TI FILTER ON
VIDEO PLUS OFF
SOURCE SATELLITE

Fig. 35



FINE TUNE 0.00 MHZ
>TI FILTER OFF
VIDEO PLUS ON
SOURCE SATELLITE

Fig. 36

5. SKEW ADJUSTMENT

Adjust the polarotor skew. Press **[SKEW]** to get a reading of the skew (position of the polarotor). Display will show: (Fig. 37)

The arrow is pointing at the current polarity setting. The other polarity is shown only for convenience and can not be changed unless the channel is changed to one on the other polarity. Use **[STEP UP]** or **[STEP DOWN]** or a three digit number to change the setting until the picture improves. If it does not, return to the original setting. You can also press **[ENTER]** to activate AUTO-SKEW. This new setting will be memorized for all the channels on this polarity and on this particular satellite only.

SKEW
>HORIZ. 180
VERT. 090

Fig. 37

GLOBAL SHIFT FUNCTION

This function allows you to compensate for an LNB or block downconverter that is off frequency due to manufacturing variances or weather conditions. Use this adjustment if you have found it necessary to offset the video frequency on more than two channels on a satellite, by the same amount.

- 1) Go to a channel which is being received by the LNB that is off frequency.
- 2) Press and hold **[VIDEO]** until the display reads: (Fig. 38) (about 4 seconds.) This tells you the band and polarity of the LNB that the compensation is for.
- 3) Use **[STEP UP]** or **[STEP DOWN]** to fine tune.

If you have a single LNB with a skewable feed, you must repeat steps 1, 2, and 3 on a channel of the opposite polarity.

GALAXY G1 23
THIS IS A C BAND
HORIZONTAL CHANNEL
0.00MHZ
USE ▲ OR ▼
TO RETUNE LNB.

Fig. 38

CHANGING AUDIO SETTINGS

Although most audio subcarrier frequencies have been pre-programmed in the STAR TRAK EIGHT PLUS's memory (according to programming information at the time of manufacture), you may want to adjust the settings as audio frequencies are sometimes changed and new programs are added. Refer to your satellite program guide to find the correct audio settings.

Press **[MODE]** and the display reads: (Fig. 39)

Press **[MODE]** repeatedly and the arrow will move through the various audio modes indicating the one selected. Selecting any mode other than VC STEREO overrides the Videocipher sound.

MONO A 6.80
MONO B 6.80
>DISCRETE 6.80 6.80
MATRIX 6.80 6.80
VC STEREO
NARROW

Fig. 39

MONAURAL MODES

MONO A and MONO B are either a monaural audio or of a subcarrier stereo pair, Discrete or Matrix. The receiver front panel displays the frequency in MHz, for example, "A6.80". To adjust the frequency, use **[STEP UP]** or **[STEP DOWN]** until the desired subcarrier is tuned. Alternatively you can enter the first three digits of the frequency, for example, to tune 6.20 MHz, enter **[6]**, **[2]**, **[0]** (Fig. 40).

>MONO A 6.2
MONO B 6.80
DISCRETE 6.80 6.80
MATRIX 6.80 6.80
VC STEREO
NARROW

Fig. 40

STEREO MODES

Discrete Stereo is a combination of MONO A and MONO B. Frequencies must be changed in MONO A and/or MONO B modes. "DISC" indicator on the receiver front panel lights up.

Matrix Stereo is a combination of MONO A and MONO B. Frequencies must be changed in MONO A and/or MONO B mode. "MATRIX" indicator on the receiver front panel lights up.

VC Stereo is only available when tuned to a stereo broadcast on a VideoCipher channel. "VC ST" indicator on the receiver front panel lights up in this mode.

AUDIO BANDWIDTH

Although most stereo broadcasts are in wide bandwidth, some audio is broadcast in narrow bandwidth. Narrow/Wide bandwidth setting is changed with [BW] (Fig. 41). Select for best sound quality.

NOTE: The STAR TRAK EIGHT PLUS TV modulator is monoaural. For the true enjoyment of stereo audio you must use a stereo audio reproduction system and a stereo VCR for recording.

VOLUME SETTINGS

Use [VOL UP] (Fig. 42) or [VOL DOWN] to raise or lower the volume. Each press on the key will increase or reduce the volume in steps.

[MUTE] turns audio on and off (Fig. 43). Mute is automatically cancelled if channel is changed or volume control is used.

USING PASSWORD SELECTED FEATURES

The [PS], Password Select, lets you keep exclusive control of many settings as well as preventing access to specific channels. To use this feature, you must have already programmed your 4-digit password.

Press [PS] (Fig. 44) to display "PS" functions available. Press [PS] repeatedly and the arrow points to individual features. Entering your 4 digit password will execute the function indicated. If the wrong password is entered the display will show: (Fig. 45)

LOCKING CHANNEL

Press [PS] until the arrow is on "LOCK CHANNEL" (Fig. 46). The receiver's LED display shows "LC" for lock channel.

Enter your 4-digit password to execute the lockout of that channel. The receiver will jump to the next available channel.

The locked channel will now be skipped during channel step. If you direct access the channel number, no picture or sound will be available, and a "L" will appear after the channel indicator on the front panel to show that the channel is locked out.

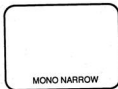


Fig. 41



Fig. 42

Fig. 43

(NB - These functions are only available in RUN Mode)



Fig. 44

Fig. 45



Fig. 46

UNLOCKING CHANNEL

Press [PS]. If you are on a channel which is already locked out, the line will be replaced by 'UNLOCK CHANNEL' (Fig. 47) and the receiver panel displays 'UC' for 'UNLOCK CHANNEL'. With the arrow on 'UNLOCK CHANNEL', enter your password.

LOCKING STORE

This function allows you to lock out the following from automatic memorizing: video fine tune, skew, audio mode, B/W. You will still be able to execute these functions but the previous settings stored in memory will not be affected. Push [PS] until the arrow is on "LOCK STORE" (Fig. 48). The receiver front panel display shows 'LS' for lock store. Enter your 4-digit password to complete the lock out. The receiver front panel display returns to SATCHAN (normal display). This function applies to all channels on all satellites.

UNLOCKING STORE

If memory is already locked, the second line will be replaced by 'UNLOCK STORE' (Fig. 49). Move the arrow to 'UNLOCK STORE', enter your password.

ALIGNING DISH

Use this function periodically to correct for wind or other weather conditions that can cause slight distortions in antenna positioning. Fine tune dish position manually (see page 13), then press [PS] until the arrow points to "ALIGN DISH" (Fig. 50). Enter your password and the display will show: (Fig. 51). Press [0] to move all satellite positions. Press [1] to correct programming error of satellite indicated.

TIMER OPERATIONS

Before you can program TIMER EVENTS the clock must be set. If the clock is already set, go directly to setting a timer event.

SETTING CLOCK

1) To set the clock, press [PS]. When the timer menu appears, continue pressing [PS] till the arrow points to "SET CLOCK" (Fig. 52). Then enter your password. Use [VOL UP] or [VOL DOWN] to select the item you want to change, then use [STEP UP] or [STEP DOWN] to make the change. When everything has been set correctly, press [ENTER]. NOTE: AM and PM cannot be set directly, but they will change as you change the hours.

SET TIMERS
>UNLOCK CHANNEL
LOCK STORE
ALIGN DISH
SET CLOCK

PRESS PS TO SELECT
ENTER PASSWORD TO
EXECUTE

Fig. 47

SET TIMERS
LOCK CHANNEL
>LOCK STORE
ALIGN DISH
SET CLOCK

PRESS PS TO SELECT
ENTER PASSWORD TO
EXECUTE

Fig. 48

SET TIMERS
LOCK CHANNEL
>UNLOCK STORE
ALIGN DISH
SET CLOCK

PRESS PS TO SELECT
ENTER PASSWORD TO
EXECUTE

Fig. 49

SET TIMERS
UNLOCK CHANNEL
LOCK STORE
>ALIGN DISH
SET CLOCK

PRESS PS TO SELECT
ENTER PASSWORD TO
EXECUTE

Fig. 50

"POSITION SHIFT"
0-ALL SAT SHIFT
1-GALAXY G1 SHIFT
SELECT ONE [1]/[0]

Fig. 51

SET CLOCK
8:28 PM APR-05-1990
A
THURSDAY

USE ▲ ▼ ► ◀
PRESS ENTER

Fig. 52

SETTING TIMER EVENT

2) To set a **TIMER EVENT**, press **[PS]** until the arrow points to "SET TIMERS", then enter your password. The screen will display: (Fig. 53)
Press a number key from [0] to [9] to select a free timer event. If [3] is pressed, the screen will display: (Fig. 54).

Use **[VOL UP]** or **[VOL DOWN]** to select the item to be changed. To select the satellite and channel you can use either the number/satellite keys or **[STEP UP]** or **[STEP DOWN]**. For all other selections you must use **[STEP UP]** or **[STEP DOWN]**.

The "TYPE" selection gives you four choices:

1. "ONE TIME", the timer event will be executed one time only.
2. "EVERY DAY", the timer event will be executed every day until the "UNTIL" date.
3. "WEEKDAY", the timer event will be on every Monday, Tuesday, Wednesday, Thursday and Friday until the "UNTIL" date. It will not be executed on weekends and the "UNTIL" date must be a weekday.
4. "WEEKLY", the timer event will be executed every week on the same day until the "UNTIL" date. The "UNTIL" must be the same day of the week as the "START" day.

When the selections have been completed (Fig. 55), press **[VOL UP]** until the "PRESS ENTER TO STORE" is displayed, then press **[ENTER]**.

If you are using your **STARTRAK EIGHT PLUS** when the timer is programmed for an event, the screen will display this message: (Fig. 56)

If you press **[CANCEL]** within 10 seconds after the warning has appeared, then the event will be cancelled for that day.

If the event has already started, you will not be able to change any settings on the **STAR TRAK EIGHT PLUS**.

To cancel a **TIMER EVENT** after it has already started, press **[POWER]**. The Screen will display: (Fig. 57)

Enter your password and the receiver will return to the satellite and the channel on which it had been before the **TIMER EVENT** started. This means that the dish may begin to move and the channel may change when you cancel a **TIMER EVENT**.



```

TIMER EVENTS
8:30 PM APR-05-1990.
THURSDAY

0 FREE 1 USED
2 USED 3 FREE
4 FREE 5 FREE
  
```

Fig. 53



```

TIMER EVENT 3 FREE
>GALAXY G1 23
START 01:59 PM
TUE APR10
LENGTH 01:30
TYPE ONETIME
UNTIL
  
```

Fig. 54



```

TIMER EVENT 3 FREE
>GALAXY G1 23
START 08:58 AM
MON APR16
LENGTH 00:64
TYPE WEEKLY
UNTIL MON DEC 31
  
```

Fig. 55



```

TIMER EVENT
WILL OCCUR IN
10 SECONDS PRESS
  
```

Fig. 56



```

TIMER EVENT
IS RUNNING
ENTER PASSWORD
  
```

Fig. 57

SKIP CHANNEL

For your convenience, you may skip over a seldom watched channel.

Enter the channel number using the number keys, then press [CNCL] within 5 seconds. For example, press [1], then [2], then [CNCL] to skip channel 12. This channel will then be skipped (on the current satellite only) when stepping up or down. To regain access to that channel, simply enter the channel number directly. For example, push [1], then [2].

USING FAVORITE CHANNEL

Favorite channel lets you store and retrieve up to 100 of your favorite satellite channels. Once saved, you will have easy access to your favorite satellite video and audio channels. You can store the same channel as several different favorite channels. This is useful for fast recall of radio sub-carrier audio programs.

STORING A FAVORITE SATELLITE CHANNEL

Go to the satellite and channel you want to store. Press and hold [FAV] until the display changes to: (Fig. 58).

The receiver front panel shows "SF—" for store favorite.

If a two-digit number is entered within 5 seconds, the present satellite, channel, fine tune, and audio information will be stored as the favorite indicated by the number just entered. For example, when the first digit of the favorite code is entered the display will change to show all the favorites stored in that 10's group. If "6" is entered first, the display will change to: (Fig. 59).

When the second digit is entered, for example a [5], the display will confirm that favorite #65 has been successfully stored (Fig. 60).

RETRIEVING A FAVORITE SATELLITE CHANNEL

If [FAV] is pressed once, followed (within 5 seconds) by a two-digit number, the receiver will recall the information including satellite, channel, audio and video settings stored at that number.

If [FAV] is immediately followed by a number, [6] for example, the display shows the following: (Fig. 61)

Enter [0] for example, and the display will change as follows: (Fig. 62)

If the favorite channel has not yet been assigned, the display will show: (Fig. 63)

STORE FAVORITE

STORE FAVORITE 6*

60-G1 23 65-***
61-G1 19 66-***
62-G2 10 67-***
63-F4 24 68-***
64-S1 18 69-***

Fig. 58

Fig. 59

GALAXY 1 14
STORED AS FAV 65

Fig. 60

RECALL FAVORITE
6*

60-G1 23 65-G1 14
61-G1 19 66-***
62-G2 10 67-***
63-F4 24 68-***

Fig. 61

GALAXY G1 23

MOVING DISH TO
GALAXY G1 23

Fig. 62

NO FAVORITE 67
STORED

Fig. 63

DESCRAMBLER OPERATIONS

Here's how the VideoCipher® II Plus (VCIIPlus™) system works. A program supplier (premium movies, superstations, sports, news, pay per view) sends a scrambled signal from their uplink transmitter to the satellite. This same signal will contain coded authorization messages that are addressed to individual receivers. These messages will allow your VideoCipher II Plus Integrated Receiver Descrambler (IRD) or to receive the VC II Plus programming and descramble it.

When you subscribe to VCII Plus programming, your supplier sends authorization messages over VCII Plus channels to your IRD. If you discontinue a VCII Plus service, the messages will not be sent, and you will not be able to view the programming.

The presence of a VCII Plus descrambler module in your IRD is not sufficient for program viewing. You will need to receive authorization from your local program supplier or contact the program distributors directly. They will set up an account

for you and authorize your unit to descramble selected VCII Plus channels.

One way to find the program distributor's telephone number is by tuning your IRD or to the channel which you want authorization. Most services broadcast subscription information to potential subscribers. Your IRD will need to be tuned to the 6.8 MHz audio subcarrier on a VCII Plus channel so that you may hear this subscription information if you are not already a subscriber.

WHEN YOU ARE NOT WATCHING

If you subscribe to a VCII Plus service, we recommend that you position your dish on a satellite that carries VCII Plus channel when you are not watching satellite TV. Your IRD will automatically tune to a VCII Plus channel to receive Authorization updates when your unit is in the Stand By mode (turned off).

VIDEOCIPHER II PLUS TUNING

1. Turn your satellite system and TV on.
2. Move the dish to a satellite that has VCII Plus programming and select a VCII Plus channel.
3. The VideoCipher Signal LED on the front of your unit will light, but you may see a message on a black background on your screen, as displayed, until you subscribe to the channel and receive authorization.

No subscription for this channel.

AUTHORIZATION

The program distributor will need your Unit ID, which can be read off your TV screen by pressing a few

keys on your remote control or front panel keyboard.

1. Press [SET UP], [1], [1]. Your Unit ID number will be displayed on the screen. The first 8 digits of this number should be the same as those in the window on the back of your unit. The last 4 digits on the screen are for Program Distributor use. Write all 12 numbers in the front of this manual.

VIDEOCIPHER II PLUS INSTALLATION DATA

Unit ID: 0090 8083 0003
Provider ID: 83
Location: Not Set
Category: C0
Quality: 10.0

2-Oct-89 8:30am
(Press ENTER)

SETUP 1 1

This screen also displays a signal quality number between 1 and 10 which measures VCII Plus message reception (NOT picture quality). For proper operation, this number should be at least 6.0. Dish alignment,

video fine tuning and weather conditions can affect VCII Plus signal quality.

2. Call the program supplier for VCII Plus service to which you wish to subscribe. The Customer Service Representative will ask for your Unit ID Number and other billing information.
3. Leave your unit tuned to a VCII Plus channel until you receive authorization. This may take a few minutes, depending upon the service.

VIDEOCIPHER II PLUS FEATURES

Once you have received authorization, you can view VCII Plus channels just as you would unscrambled channels. However, VCII Plus channels provide additional features and services. The following features can be used only on VCII Plus channels. Here's how to use them:

VIEW KEY

Press the [VIEW] key to view information about the current program being broadcast on the channel. This includes program title, running time, and rating.

DESCRAMBLER OPERATIONS...

After 3 seconds, this program information will disappear from the screen. The [VIEW] key is also used when you want to return to program viewing from a VCII Plus setup screen.

NEXT KEY

Press the [NEXT] key to view information about the next program to be broadcast on the channel. This may include program title, start time and rating.

After 3 seconds, this program information will disappear from the screen.

HELP KEY

Press the [HELP] key to receive instructions for many of the VCII Plus operations features. Press the [HELP] key again to exit from the Help screen.

MSG KEY

VCII Plus channels have the ability to broadcast messages addressed to individual users. Press the [MSG] key to view these personal messages. Press the [LEFT] or [RIGHT] arrow key to erase the message after you read it. If message prompting is enabled, a star [*] will appear on your screen when a personal message is received. See "Unit Settings" for message prompting description.

TEXT KEY

Some VCII Plus channels may broadcast information service text messages over the channel (e.g. news bulletins, program information, etc.). The [TEXT] key allows direct access to the two types of information services - channel based, and system wide. To view information service text:

1. Press the [TEXT] key.
2. Press [1] to access the Channel Information Service text which pertains to the current channel only.
3. Press [2] to access the System Information Service text (for information on the entire system).

SETUP KEY

Press the [SETUP] key to view the Available Services Menu. This

menu provides access to the Unit Setup submenu and lists the services on this channel (Audio, Video, Data, Channel Information, or System Information). On any given channel, the number of available services will vary, but there will always be Personal Messages and the program video/audio. A small arrow will point to the service currently selected.

AVAILABLE SERVICES MENU

- > 1. Unit Setup
- 2. Personal Messages
- 3. Program Name (line 1)
- 4. Data Service A
- 5. Channel Information Service
- 6. System Information Service

(Press 1 - 6, or VIEW)

SETUP

1. Unit Setup

The Unit Setup submenu is used to customize other VCII Plus features. Press [1] to access the Unit Setup submenu.

2. Personal Messages

VCII Plus offers access to personal messages through both the [MSG] key and the AVAILABLE SERVICE menu. See "MSG KEY" for details. Press [2] to read any personal messages.

3. Program Name

This is the name of the current audio/video program. Press [3] to select the current program.

4. Data Services

Some VCII Plus channels may broadcast up to three data services (stocks, news) along with the current audio/video program. You can receive only one data service at a time. To receive a data service:

(a) Connect your data receiver equipment (computer) to the "auxiliary data out" port of your IRD. NOTE: You will need a specialized data receiver device for this connection.

(b) Press the appropriate number key to select the desired data service.

5-6. Channel/System Information Service

VCII Plus offers access to information service messages through both the [TEXT] Key and the AVAILABLE SERVICES menu. See "TEXT KEY" for details. Press the appropriate number key to access either Channel or System Information Service.

UNIT SETUP

Press [SETUP], [1] to access the Unit Setup submenu as shown. You can then choose any one of these VCII Plus setup screens by pressing the appropriate number key on your remote control.

VIDEOCIPHER UNIT SETUP

- 1. Installation Data
- 2. Unit Settings
- 3. Rating Coding
- 4. Rating Password
- 5. Purchase Password
- 6. Purchase History
- 7. Credit Information
- 8. Consumer Key Entry

(Press 1 - 8, or VIEW)

SETUP 1

The following VCII Plus features can be accessed through the Unit Setup menu:

1. Installation Data

This screen displays your Unit ID number, signal quality and other unit status information. See "Authorization" for details.

2. Unit Settings

This screen allows you to enable/disable message prompting and to select primary/alternate audio.

(a) AUDIO SELECTION

Some VCII Plus channels offer second languages on their programs.

Press [1] to switch between the PRIMARY (usually English) and the ALTERNATE (second language) audio selection.

(b) MESSAGE PROMPTING

When message prompting is enabled, a [*] will appear on your TV screen when a personal message is received. Press [2] to enable/disable message prompting.

UNIT SETTINGS

Current Audio Selection is

"Primary"

Press 1 for Alternate Audio

Personal Message Prompting is

"Disabled"

Press 2 to Enable Prompting

(Press 1,2, or ENTER)

[SETUP] [1] [2]

3. Rating Ceiling (Parental Lockout)

Rating ceilings are used to control the types of VCI Plus programs you wish other family members to view. Rating ceilings are based on those used by the motion picture industry to rate their films according to age groups.

By setting Rating Levels, you can prevent viewing all VCI Plus programs that have been rated above the level that you set. For example, if you set the level at PG-13, your system will allow only NR, G, PG, and PG-13 rated programs. Both R and X-rated programs will be locked out. (NOTE: Not all VCI Plus channels use rating levels so you may want to consult a satellite guide for details on a particular program.)

To set your Rating Ceiling:

- Tune to any VCI Plus channel.
- Press [SETUP], [1] and then [3].
- Enter your password if one has been set.
- Use the [LEFT/RIGHT] keys to lower/raise the Rating Ceiling.

SET RATING CEILING

Program Rating: NR
Rating Ceiling: X

(Press <, >, or ENTER)

[SETUP] [1] [3]

4. Rating Password

The Rating Password is used to control access to the Rating Ceiling screen. We suggest that you pick as a password a number that is easy to remember: your zip code, date of birth, phone number, street address, etc. If you forget your password, you will need to contact your program distributor to have it reprogrammed. To set or change a rating password:

- Press [SETUP], [1], [4].
- If your system already has a password stored, you will need to enter it and press [ENTER] before the system will accept a new one.
- Enter your new password (up to 8 digits), then press [ENTER].
- Repeat the new password a second time and press [ENTER] to confirm.

SET RATING PASSWORD

Enter the new Program
Rating Password (0 to 8
digits, followed by ENTER)

Password:

[SETUP] [1] [4] [ENTR] [ENTR]

If you don't want rating password control:

Press [SETUP], [1], [4] and then press the [ENTER] key twice when prompted to enter a password.

5. Purchase Password

The Purchase Password controls access to program purchases. See Rating Password for instruction on setting and using the Purchase Password.

6. Purchase History

The Purchase History screen displays information about the last 15 pay-per-view programs purchased. This information includes, date/time of purchase, program name and cost. Use the [LEFT/RIGHT] keys to view

all programs in the list. NOTE: Your unit must be equipped with General Instrument VIDEOplus® Order Recorder to receive pay-per-view programming.

7. Credit Information

The Pay-Per-View Credit Information screen may display your credit limit and credit verification. This screen is for informational use only.

8. Consumer Key Entry

VCI Plus is designed to accept secondary authorization in the form of a Consumer Key. The Consumer Key Entry screen allows for entry of this key. If the Consumer Key is not needed, this entry will not appear in the Setup Menu.

PROGRAM MESSAGES

VCI Plus program suppliers offer a wide variety of services, some of which may require pay-per-view or other restrictions on viewing. If this occurs, you will see one of the following messages on your TV screen when you are tuned to that channel:

A. "No subscription for this channel."

This indicates that your unit has not been authorized to receive this channel. Contact the program supplier to receive authorization.

B. "Blocked out."

The program is not available in your geographical area.

C. "Program locked out."

The rating of the program currently being broadcast exceeds your Rating Ceiling. If this happens, you will be prompted to override the rating lockout. If you have set a Rating Password (see "Rating Password"), you will be prompted to enter it.

NOTE: The rating override is in effect for the duration of the program (even if you change channels and then tune back to the overridden channel). To cancel rating overrides, you must turn your unit off.

TROUBLE SHOOTING GUIDE

Problem: Unit does not light up.

Solution:

1. Check A/C power supply
2. Reset (push) CB1 circuit breaker located on backpanel
3. Pull plug, wait 1 minute, then reconnect AC power source

Problem: Remote Control not functioning.

Solution:

1. Weak battery. Replace
2. Remote too far from receiver. Move closer
3. Verify front panel keys are functioning, if not see below

Problem: Unit will not respond to commands from front panel or remote control.

Solution:

1. Check for "SAT" LED on front panel is lit up. If not, the press [SAT/TV].
2. Press [POWER] to check if timer event is in process. See page 17.

Problem: Sound does not match picture.

Solution:

1. Check if audio sub-carrier is set correctly for that channel.

Problem: No sound and no satellite picture, but on-screen display is working.

Solution:

1. Check 70MHz loop (missing or faulty)
2. Check cable from dish.
3. Dish not aimed at a satellite. Re-aim the antenna.

Problem: Audio level changes from channel to channel.

Solution: Normal channel variations.

1. Adjust audio level with remote control
2. Change audio bandwidth to Narrow

Problem: Snowy picture.

Solution:

1. See Fine tuning Video, see Page 13
2. Activate built-in TI filter
3. May be solar outage (in Spring & Autumn) wait for 15 - 30 minutes.
4. Poor connections. Check all cables
5. Signal loss from LNB, install better cable or line amplifier.

Problem: No audio but video is good.

Solution:

1. Volume off or too low. Check volume controls on amplifier.
2. Check audio connections
3. Check audio settings, See Page XX

Problem: Dish will not move.

Solution:

1. Check and test actuator motor and sensor wires.

Problem: Display reads "JACK ERROR".

Solution:

1. Outside components are frozen or bound.
2. Jack misconnected or cables are faulty
3. Breaker tripped, Reset CBII on receiver back panel

Problem: Channel missing when using [STEP UP] or [STEP DOWN].

Solution:

1. Channel may be skipped. See page 18.
2. Channel may be locked out. See page 15.

Problem: You loose or forget your password.

Solution:

1. See CHANGE PASSWORD on page 7.

If you still cannot solve your problem, try one more thing before you call for service.

1. Pull the Power Plug from the AC source
2. Wait 5 minutes
3. Plug the receiver back in and try your procedure again

If you still can't correct your problem, contact your dealer. If your dealer is unable to solve your problem, contact Tee-Comm Customer Service.

DO NOT OPEN THE CABINET AND ATTEMPT TO REPAIR THE UNIT, AS THIS WILL VOID YOUR WARRANTY.

Tee-Comm Customer Service may be reached in :

Canada - at (514) 342-3550

USA - at (305) 477-3298

SATELLITE AND CHANNEL LOG

Satellites In Memory	Access By Key Stroke	Your Dish Position	Sat/Channel To Be Locked	Satellites In Memory	Access By Key Stroke	Your Dish Position	Sat/Channel To Be Locked
ACS	1 C Band	01		INTELSAT	1C	81	
SATCOM	1	11			2KU	87	
	2	12		SBS	1	91	
	3	13			2	92	
	4	14			3	93	
	6	16			4	94	
	K1	17			5	95	
	K2	18		SPARE	1 C	VID1	
	K3	19			2 C	VID2	
GALAXY	1	21			3 C	VID3	
	2	22			6 KU	VID6	
	3	23			7 KU	VID7	
	4	24			8 KU	VID8	
WESTAR	3	33		GSTAR	1	BW1	
	4	34		MORELOS	1 C	MODE1	
	5	35			1 KU	MODE7	
	6	36		ANIK	D1	SKEW1	
COMSTAR	3	43			D2	SKEW2	
TELSTAR	1	51			C1	SKEW7	
	2	52			C2	SKEW8	
	3	53			C3	SKEW9	
AURORA	1	61					
SPACENET	1C	71					
	2C	72					
	3C	73					
	1KU	77					
	2KU	78					
	3KU	79					

SUBSCRIPTION

Descrambler Subscription Information

Program Supplier: _____

Phone Number: _____

Subscription Info: _____

Descrambler Subscription Information

Program Supplier: _____

Phone Number: _____

Subscription Info: _____

Descrambler Subscription Information

Program Supplier: _____

Phone Number: _____

Subscription Info: _____

GLOSSARY OF COMMON TERMS

TVRO (HTVRO) - Television receive only refers to a home satellite TV system.

C-Band Satellites - Satellites that broadcast to earth signals in the 3.7 to 4.2 GHz band.

Ku-Band Satellites - Satellites that broadcast to earth signals in the 11.7 to 12.2 GHz band.

Transponder - Another name for a satellite channel. On the satellite, transponders receive, amplify and transmit the signal received from earth.

Polarity - The vertical and horizontal polarization overlapping adjacent channel signals, so they can be transmitted with minimum interference.

Subcarrier - Encoding or encrypting the satellite signals so they are too garbled for ordinary reception and can only be viewed with the use of authorized decoders.

Scrambling - Encoding or encrypting the satellite signals so they are too garbled for ordinary reception and can only be viewed with the use of decoders.

Descrambler - A device which decodes encoded or encrypted TV signals, once authorized.

Dish - the parabolic reflector of a microwave antenna used to concentrate and focus satellite signals to the antenna's feedhorn.

Antenna - consists of dish, feedhorn and polarizer.

Actuator - The motor and drive system attached to the dish. It points the dish to the satellite belt.

Polar Mount - An antenna mount and drive system that allows the dish to track satellites across the satellite belt.

Focal point - That point on the dish where the received signals are concentrated.

LNA - A device that mounts on the feedhorn and amplifies the microwave signals from the satellite.

Downconverter - This unit takes the 3.7 - 4.2 GHz signal from the LNA and converts it to a lower frequency, which the TV receiver can then use.

Block Downconverter - Allows the conversion of multiple microwave signals so many channels may be viewed from the same dish.

LNB - (low noise block downconverter) - Combines the functions of an LNA and block downconverter.

Feedhorn - The device that sits at the focal point of the dish and collects the focused signals from the satellite; also selects the polarity for the LNA or LNB.

SPECIFICATIONS

RF Input Frequency	950 to 1450 MHz
RF Input Impedance	75 Ohm
RF Input level	-70 dBm to -20 dBm
RF Noise Figure	15 dB maximum
Second IF Frequency	70 MHz
IF Bandwidth	27 MHz at 3 dB point
Threshold (static)	Typical 7.0 dB C/N maximum
Local Oscillator Radiator	Less than -60 dBm
Demodulator	Phase locked loop with threshold extension
Video De-emphasis	525 line CCIR/ Rec. 405-1

VIDEO

Frequency Response	10 Hz to 4.2 MHz \pm 0.7 dB max.
C/L Gain Inequality	7 IRE max.
Differential Gain	5% maximum
Differential Phase	5% maximum
C/L Delay Inequality	50 n sec. max.
Output Impedance	75 Ohm
Clamping	Better than 40 dB
SN Ratio (at 18 dB C/N)	52 dB min. weighted (10.7 MHz peak dev.)
Output Level	1 V p-p

VHF OUTPUT

Impedance	75 Ohm
Channel	CH 3 or 4
Level	6.5 dBmV \pm 3 dB from VHF modulator

AUDIO

Subcarrier Frequency	5.0 to 8.5 MHz
Bandwidth	150 KHz narrow at 3 dB 330 KHz wide at 3 dB
Modes	Mono/Discrete or Matrix Stereo
Frequency Response	\pm 1.0 dB, 30 Hz to 15 KHz in VC mode \pm 1.0 dB, 30 Hz to 15 KHz in non-VC mode
De-emphasis	75 micro sec.
Harmonic Distortion	0.2% maximum in VC mode 1.0% maximum in non-VC mode
S/N	80 dB minimum in VC mode 50 dB minimum in non-VC mode at 9 dB C/N

SUBCARRIER OUTPUT

Frequency Response	10 Hz to 8 MHz \pm 1 dB
Output Impedance	75 Ohm
Output Level	1 V p-p

PHYSICAL/ENVIRONMENT

Temperature	0° to 40°C normal
Humidity	95% relative
Weight	21 lbs.
Dimension	17-1/16" W x 3-7/8" H x 13-7/8" D
Power Input	115V \pm 10% AC 60W Nominal, 300W Maximum



LIMITED WARRANTY

(A) Subject to the provisions of paragraph (B) below, Tee-Comm warrants to the purchaser that, under normal use and service, the STAR TRAK EIGHT PLUS sold hereunder shall be free of defects in design, materials and workmanship, ordinary wear and tear excepted, for a period of one (1) year after delivery to the purchaser, provided that the STAR TRAK EIGHT PLUS is installed, maintained and operated in compliance with Tee-Comm's written specifications and recommendations. Should any STAR TRAK EIGHT PLUS covered by this Warranty prove defective during the warranty period, purchaser shall notify Tee-Comm in writing of such defect and must provide Tee-Comm with the original proof of purchase no later than thirty (30) days after discovery or ten (10) days after the expiration of the warranty period, whichever is the first to occur. Tee-Comm's sole obligation, and the purchaser's exclusive remedy, under this warranty shall be limited to the repair or replacement, at Tee-Comm's option, of any STAR TRAK EIGHT PLUS or component thereof covered by this warranty which proves defective in design, materials or workmanship during the warranty period; provided, however, that Tee-Comm shall have no obligation with respect to any such defect unless Tee-Comm is given written notice of the defect in the manner and within the time provided above. If any defective STAR TRAK EIGHT PLUS or component covered by this warranty requires repair or replacement, purchaser shall, at their expense, deliver the defective STAR TRAK EIGHT PLUS or component to their nearest STAR TRAK dealer for repair. EXCEPT AS EXPRESSLY PROVIDED IN THIS PARAGRAPH, TEE-COMM MAKES NO REPRESENTATIONS OR WARRANTIES OF ANY KIND, NATURE, OR DESCRIPTION, EXPRESS OR IMPLIED, INCLUDING WITHOUT LIMITATION, ANY WARRANTY OF MERCHANTABILITY OR FITNESS OF ANY OF THE PRODUCTS FOR ANY PARTICULAR PURPOSE, AND HEREBY DISCLAIMS THE SAME.

(B) The limited warranty provided in paragraph (A) above shall not apply to (i) normal deterioration due to wear and tear; (ii) alterations or modification in a manner not authorized by Tee-Comm in writing; (iii) defects in the system or application in which the STAR TRAK EIGHT PLUS is installed; or (iv) any damage to or any failure of any STAR TRAK EIGHT PLUS resulting from acts of God or conditions beyond the reasonable control of Tee-Comm, including, but not limited to, accidents, fire, misuse, abuse, negligence, improper installation, modifications, alterations, tampering, vandalism, or failure to properly maintain or service the STAR TRAK EIGHT PLUS.

ATTENTION

This consumer unit is intended for the authorized descrambling for personal use of those satellite television signals which have been scrambled using the VideoCipher® II and VideoCipher® II Plus scrambling formats. Ownership or possession of this Satellite Descrambler does not entitle (nor enable) the owner or possessor hereof to receive descrambled VideoCipher® II or VideoCipher® II Plus television signals. To enable your Satellite Descrambler and obtain proper authorization for descrambling, you must separately contract with the appropriate programming providers or their agents.

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