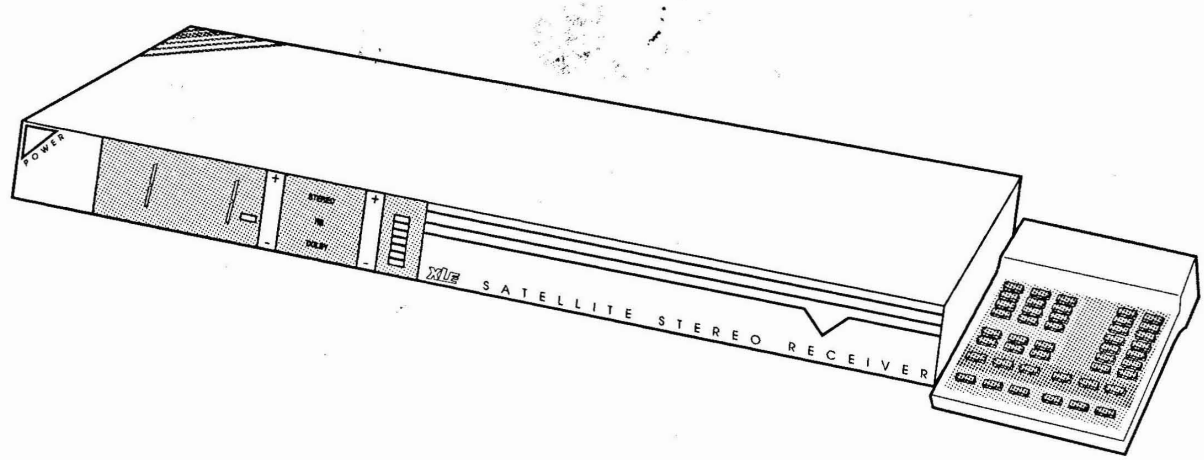
STEREO
SATELLITE RECEIVER

XLE 8901



S BRUKSANVISNING

GB OWNERS MANUAL

D BEDIENUNGSANLEITUNG

N BRUKSANVISNING

I MANUALE UTENTE

TECHNICAL SPECIFICATION

Owners Manual

GB

OWNER'S MANUAL

READ THIS FIRST!!

The owner's manual does not cover the installation of the parabolic antenna and its alignment with the satellite orbit or the satellite; it assumes that this work is complete. The owner's manual describes how to operate the satellite receiver. It is in two parts:

PART 1: INTRODUCTION - OPERATION - CONTROL FUNCTIONS
PART 2: CONNECTIONS - INSTALLATION - SETTING AND ADJUSTMENT - TROUBLE SHOOTING GUIDE - GLOSSARY

GUIDANCE HOW TO OPERATE YOUR SATELLITE RECEIVER

XLE with antenna motor control (Polar Mount).

1. Basic adjustment (at the installation site) *pages 24 - 26.*
2. Operation: "WATCHING SATELLITE TV" (normal use) *page 8.*
3. Other operation (adjustment, satellite radio, parental lock) *pages 9 - 11.*
4. Setting (reprogramming) *pages 27 - 31.*

XLE without antenna motor control (fixed antenna position)

1. Polarizer adjustments, when polarizer is included (at the installation) *page 25.*
2. Operation: " WATCHING SATELLITE TV" (normal use) *page 8.*
3. Other operation (adjustment, satellite radio, parental lock) *pages 9 - 11.*
4. Setting (reprogramming) *pages 27 - 31.*

PART 1

CONTENTS

INTRODUCTION

SATELLITE TV RECEPTION

To many people, satellite TV reception is something completely new and, in some ways, strange. Some people find it complicated, whilst other people consider it the most exiting event in television for many years. Satellite reception is not complicated, although the equipment required differs from the set you already have for the reception of ordinary TV programmes. Probably the most striking feature is the parabolic antenna or dish, which is quite different from a conventional TV antenna. Indoors there will be an extra unit (two if you have a powered antenna) alongside the video and the TV set.

General

High up in space above the equator there are many satellites orbiting the earth in what is known as the geostationary orbit: this means that they appear to hover directly above the equator over a given point. Some of these satellites retransmit TV signals for reception on earth. These signals are weak and are transmitted at a very high frequency; they need a **special parabolic antenna** to ensure that the transmitted TV signal can be converted into an acceptable picture. The antenna needs to be of a **certain size** and must be **accurately aligned on (aimed at) the satellite** to give a picture of good quality.

Each TV satellite transmits several programmes on separate **satellite channels**. To make optimum use of the available frequency spectrum without the signals interfering with each other, they are transmitted with **vertical** or **horizontal polarization**. To ensure a good picture, the **LNB** (low-noise block converter) of the satellite dish must be turned to suit the polarization of the required channel. There are two ways of switching rapidly from one TV satellite channel to another: the antenna can be fitted with two LNB's, one for each polarization, or a single LNB can be fitted with a motor-driven polarization changer known as a **polarizer**. In the latter case the polarizer is controlled by the satellite receiver to switch automatically to the correct polarization when a satellite channel is selected.
To receive TV signals from several TV satellites, the antenna will need to be re-aligned. This can be done by hand, although it is a troublesome and time-consuming operation. The preferred method is to use an **antenna motor** that turns the dish to aim it exactly at the desired satellite.

A complete installation package for satellite TV reception consists of the following:

- **satellite receiver**. This unit picks up the desired TV channel from the signal arriving at the LNB in the antenna. The unit also generates control signals to select the correct satellite and polarization.
- **antenna power drive for antenna motor and polarizer.** This is a separate unit. The antenna power drive communicates with the satellite receiver via a cable link.
- **antenna with motor** , LNB and polarizer (or a double LNB, known as an ortho mode transducer or OMT).

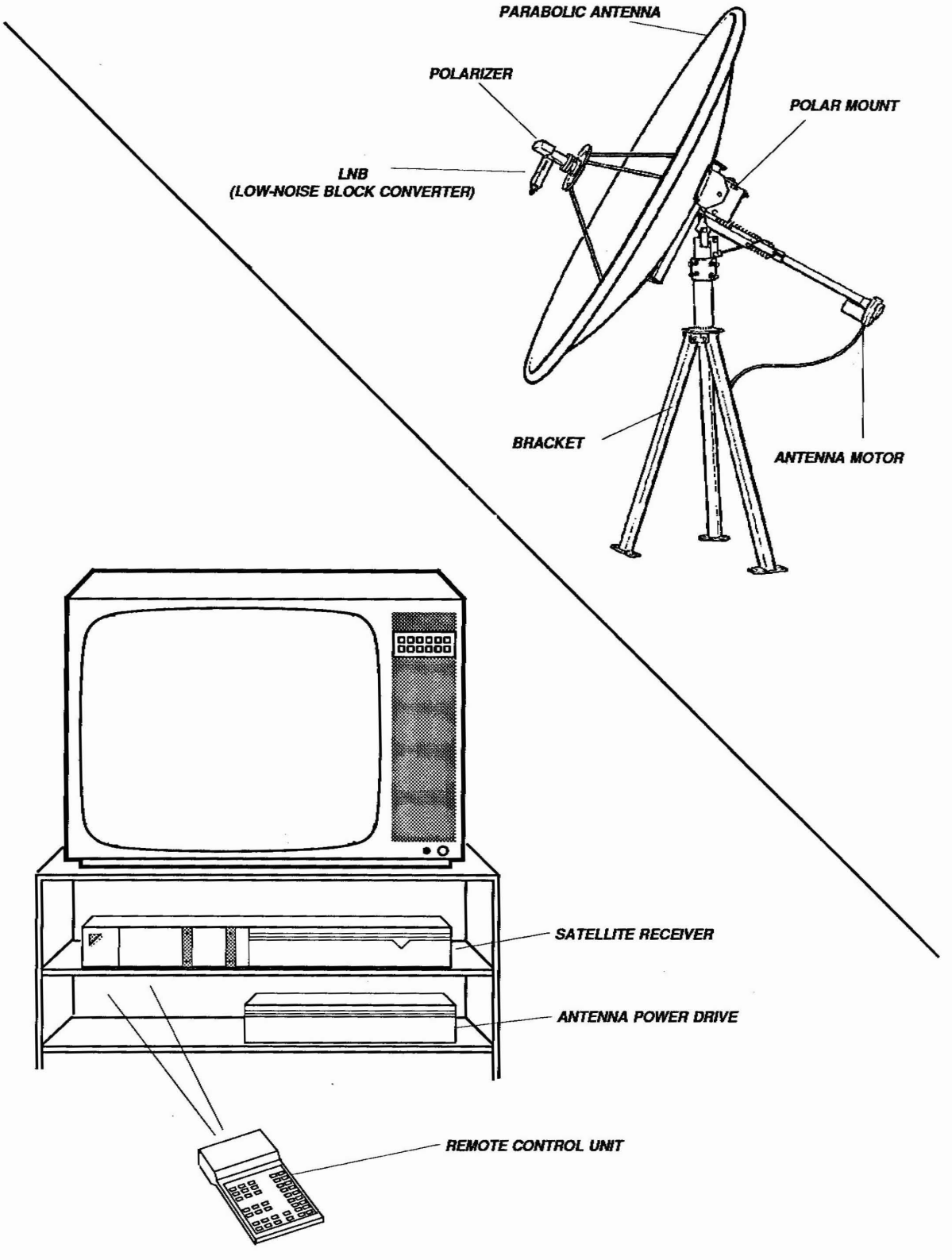
About the manual

Parabolic antenna. The assembly and alignment of the parabolic antenna are described in separate installation instructions supplied with the equipment. The manual goes to considerable lengths to point out the importance of careful assembly and alignment to ensure the best possible picture and minimize **snow**. This advice is particularly important for the installation of a dish antenna with antenna motor and a **polar mount**.

Installation. The installation of a dish antenna with motor and polarizer or ortho mode transducer involves running and connecting several cables between the antenna and the TV set. It is, in fact, a fairly complicated installation. Study the wiring diagram carefully and double-check to make sure that all the wires run to the correct connections. **We don't want to harp on the point, but if an item of equipment is incorrectly connected and receives too much power it will be damaged.**

The section entitled **SETTING AND ADJUSTMENTS** describes in detail the many steps involved in setting up adjusting the satellite receiver. There is no need to carry out all these steps when the equipment is installed; the main thing is to carry out the basic operations. The rest of the instructions in the chapter are used when the time comes to reprogram or to load new programme information into the receiver.

SATELLIT TV EQUIPMENT



INTRODUCTION

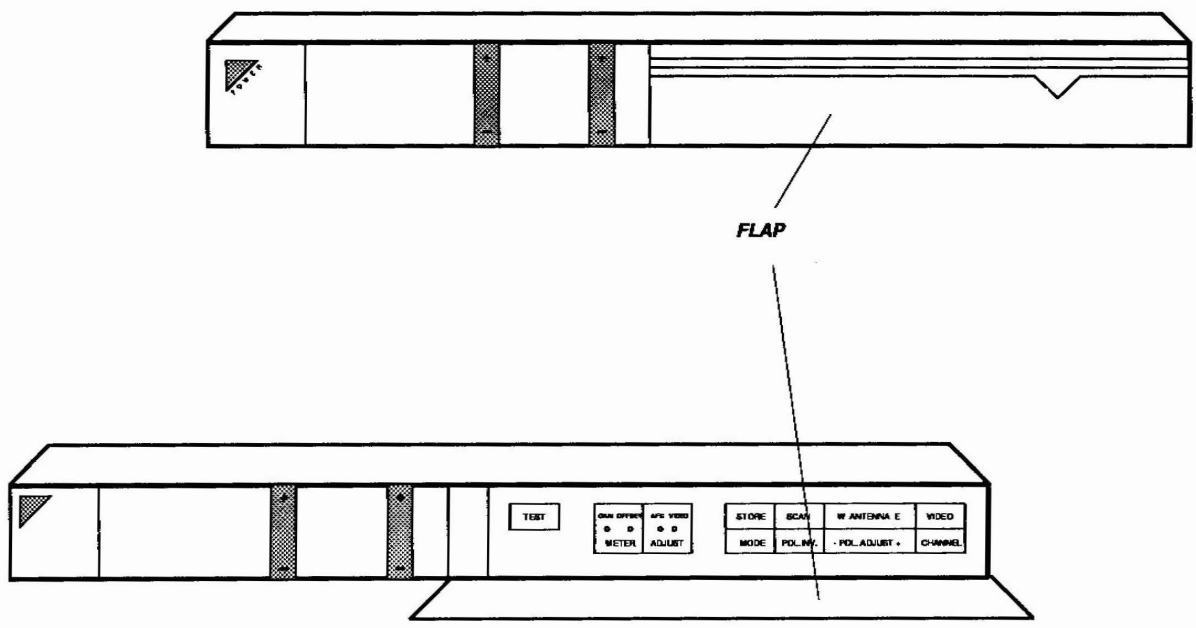
SATELLITE RECEIVER

We hope that the XLE satellite receiver will give you a new outlook on television viewing. You will have a far greater choice of TV programmes when you can scan through a generous range of programmes without stopping until you see something really interesting. It is a good idea to have a satellite programme guide handy to help you find your way around the satellite channels.

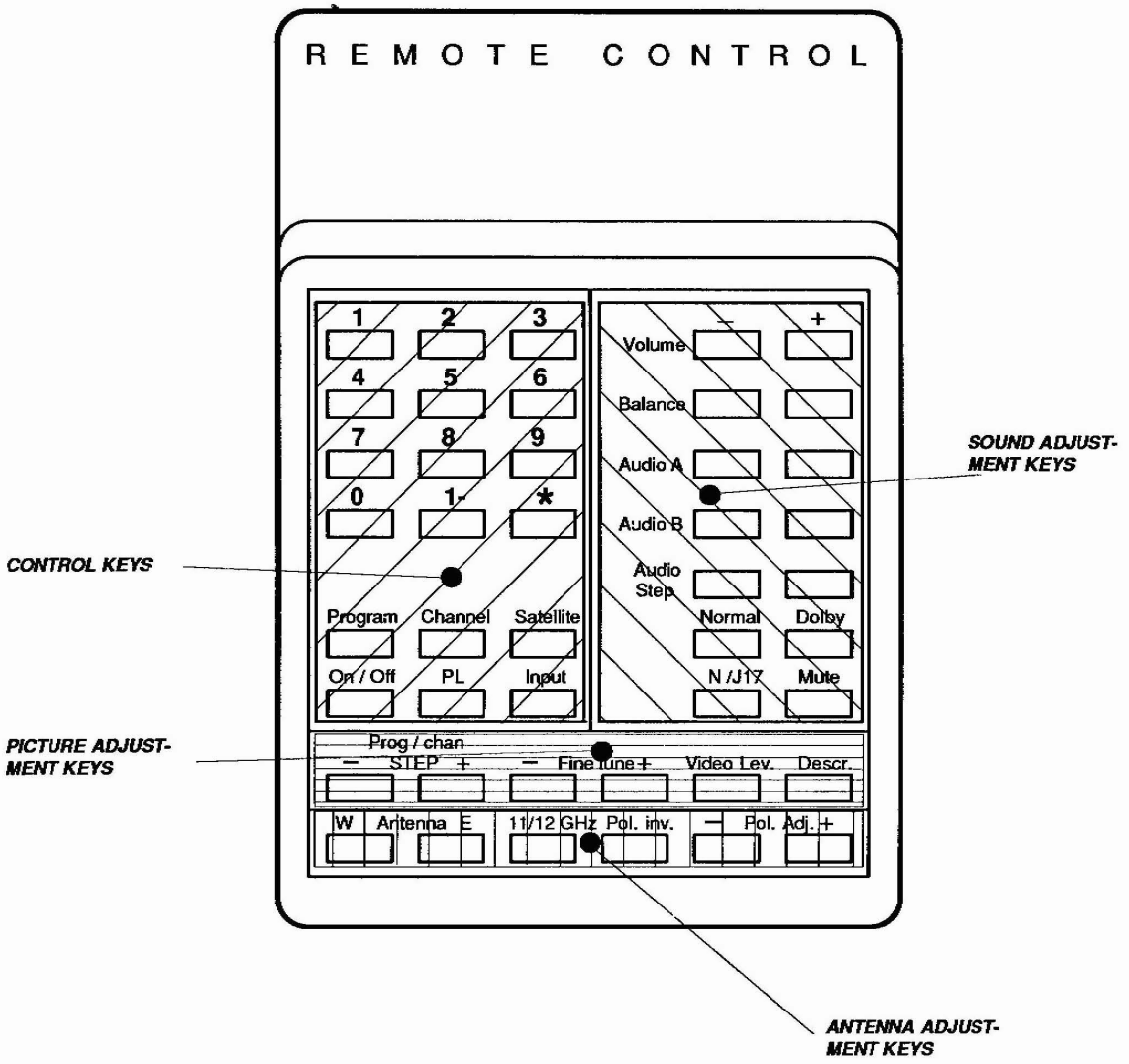
To make things as easy as possible for you, the installer and user, when you receive your XLE satellite receiver, it is already programmed for several satellite channels. What you will have to program is the alignment of the antenna on different satellites, whether it is a motor-driven antenna, and the setting of the polarizer, if there is one. If the antenna is aligned manually (to fixed positions) instead of by a motor, all you have to do is select the satellite (the one on which the antenna is aligned) and the programme as shown in the satellite programme guide supplied with the satellite receiver. If a polarizer is included, it must be set correctly first. A table in the guide shows how the receiver has been preprogrammed.

In all, some 60 satellite channels (some of which are radio channels) distributed via six satellites are preprogrammed in XLE, but the receiver has even more memory space: the positions of up to nine satellites can be programmed in, and there is a choice of 16 programmes for each satellite position (9 x 16 satellite channels). An explanatory programming model for XLE is shown on page 23.

When the satellite receiver is ready for use, i.e. when it is set up in accordance with the SETTING AND ADJUSTMENTS section in the Owners Manual, the simplest way to control it is to use the remote control unit. Many of the functions on the remote control unit are also available on the receiver itself (most of them are concealed behind the front panel); see the diagrams below and the detailed description of the receiver on page 13. The illustration on the next page shows the lauout of the function keys. There is a detailed description of the remote control unit on page 12.

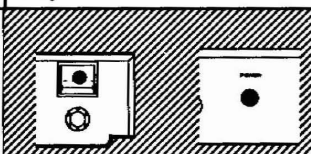
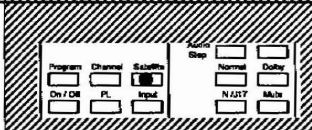
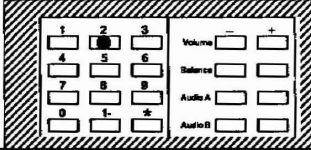
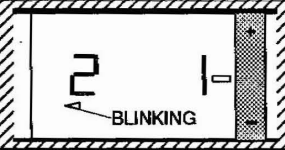
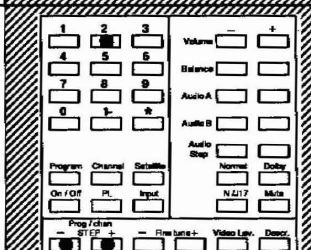
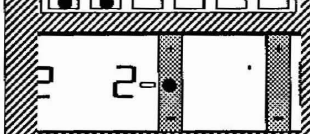
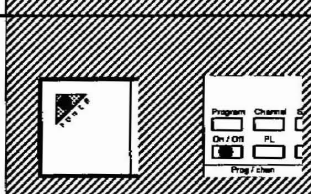
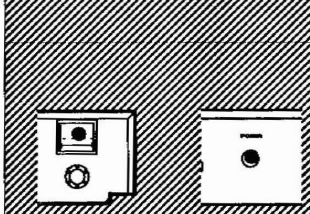


REMOTE CONTROL UNIT



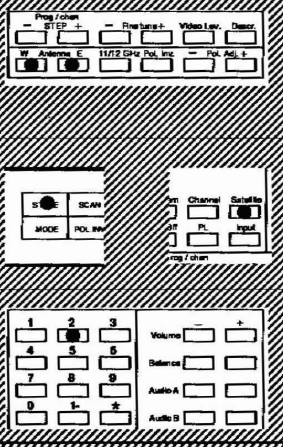
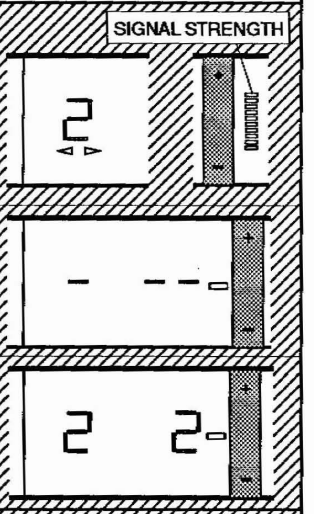
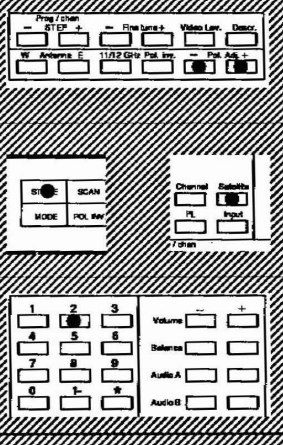
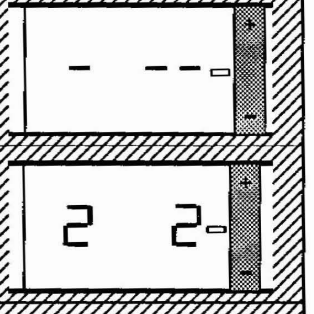
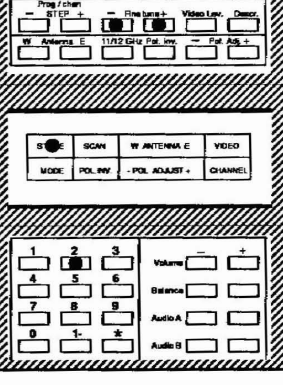
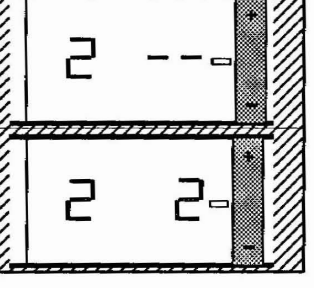
OPERATION

WATCHING SATELLITE TV

What you do	*Keys*	*Indications*
1. Starting ● Switch on the **switches** at the rear of the satellite receiver and antenna power drive.		
● Press **POWER** or **On / Off** to switch on the units.		
2. Select satellite ● Press **Satellite.**		
● Within 10 seconds, select satellite number, (e.g. **2** = Intelsat 5). *The antenna turns automatically to Intelsat 5.*		
3. Select programme ● Press the required **key** (e.g. **2**) *Check in the satellite programme guide which satellite channel is stored under the relevant programme number. For two-digit numbers, first press 1- followed by the second digit.*		
● *You can also select programmes by pressing the stepping keys.*		
4. Switching off ● If the receiver is switched off with the **POWER** or **On / Off** keys, it goes into standby mode.		
● To switch off the satellite receiver and antenna power drive completely, use the **switches** on the rear of the units.		

PICTURE ADJUSTMENT

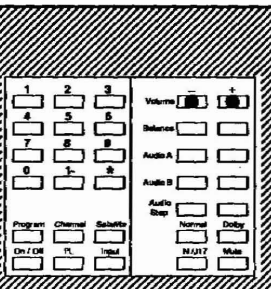
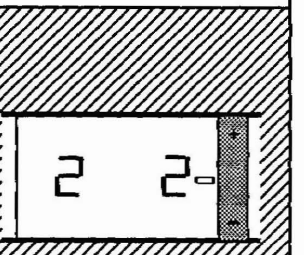
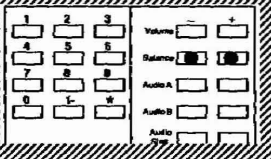
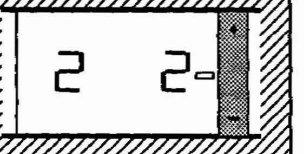
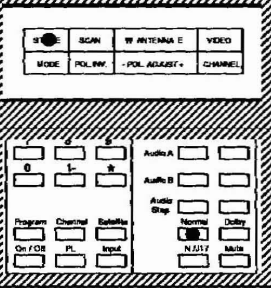
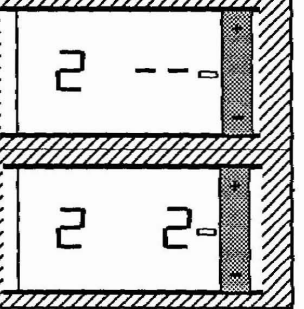
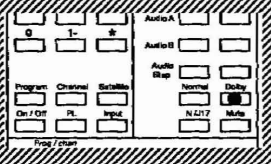
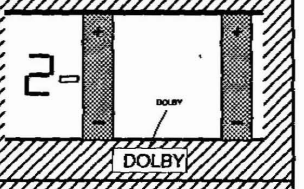
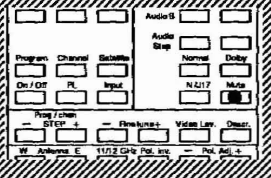
Check first in the satellite programme guide whether the channel is transmitting at the time in question and whether the channel is scrambled (encrypted). If the channel is scrambled and a descrambler is connected, check that the descrambler is switched on and correctly connected. If the picture requires fine adjustment, try the adjustments described below.

What you do	*Keys*	*Indication*
West / east adjustment ● Briefly press the **Antenna W** and **E** keys. *At the same time, check whether the picture on the TV screen improves and whether the signal strength displayed on the front panel of the receiver increases.* ● Save the settings by pressing **STORE** and *whithin 10 seconds*, **Satellite**, *and within10 seconds* ● the relevant **satellite number key** (e.g. **2**).		
Polarization adjustment ● Press the **Pol. Adj. -/+** keys for optimum TV picture. ● Save the settings by pressing **STORE** and *within 10 seconds*, **Satellite**, *and within 10 seconds* ● the relevant **satellite number key** (e.g. **2**)		
Channel adjustment ● Press the **Fine tune -/+** keys for optimum TV picture. ***Note:*** *The AFC function is disabled while the Fine tune adjustment is in use.* ● Save the setting by pressing **STORE** *and within 10 seconds* ● the relevant **satellite number key** (e.g. **2**).		

OPERATION

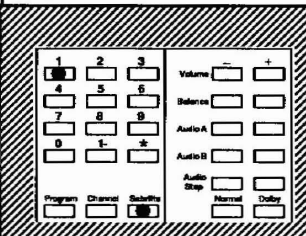
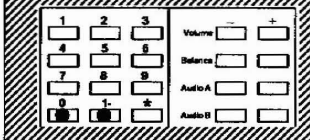
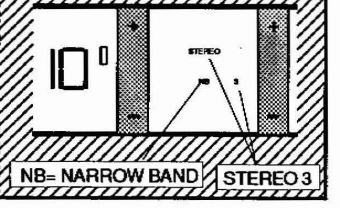
SOUND ADJUSTMENT

Volume and stereo balance can be preset to suit your preference and the settings can be saved. If you make a temporary change with the volume/balance keys, all you have to do is to press the **Normal** key to restore the original settings.

What you do	*Keys*	*Indication*
Volume (stereo) ● Set the volume with the **Volume -/+** keys. This applies only to speakers- and line outputs for stereo. **Note!** mono and RF outputs have a fixed sound level. *If the sound is connected to an amplifier, the volume may only be adjusted with the volume control of the amplifier. Otherwise, the amplifier input stage can be over-driven.*		
Balance (stereo) ● Use the **Balance** keys to set the sound balance between left and right loud-speakers.		
Save as normal settings ● Press **STORE** *and within 10 seconds,* ● press **Normal.**		
Dolby NR (Noise reduction) ● Press **Dolby** to select the Dolby function. Press again to deselect the Dolby function.		
Mute ● Press **Mute** to silence the sound. Press again to restore the sound.		

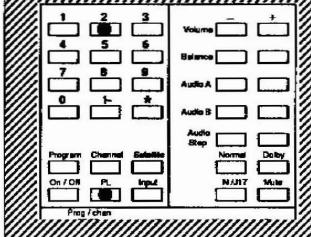
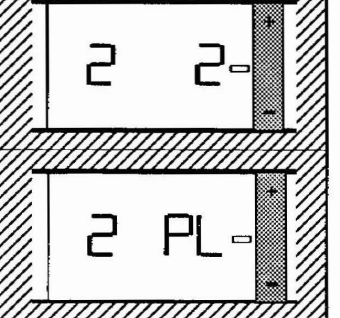
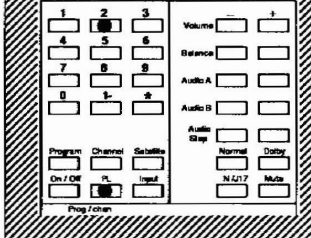
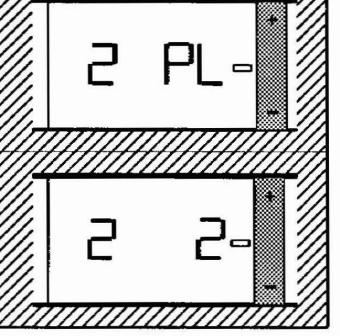
SATELLITE RADIO

The settings for several radio programmes are stored in the satellite receiver; these include Voice of America, which is transmitted via Eutelsat 1. See the satellite programme guide for other radio programmes.

What you do	*Keys*	*Indications*
Voice of America (Eutelsat 1) ● Press **Satellite** and within 10 seconds press **key 1** to select Eutelsat 1.		
● Select programme **10**.		

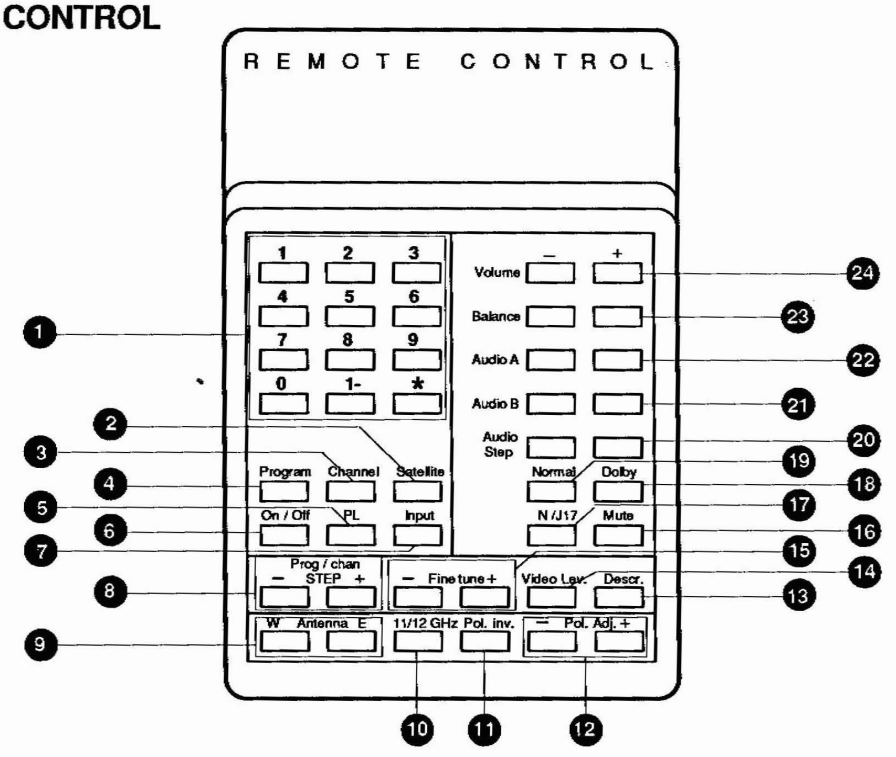
PARENTAL LOCK

One or more programme numbers can be locked with the **PL** function in the receiver. All controls on the front panel are then locked except for **programme stepping** and the **POWER** key; the receiver is also locked to one satellite. The remote control unit is the key, and must therefore be put away after programme locking.

What you do	*Keys*	*Indications*
Lock ● *Select a satellite with programmes you wish to lock.* ● Select a programme number on which you want to prevent viewing. ● Press the **PL** key. ● *Repeat the above procedure for each programme number for which you want to prevent viewing. Put away the remote control unit.*		
Unlock ● Select a locked programme number with the remote control unit. *The front panel display still shows PL.* ● Press the **PL** key. ● *Repeat the above procedure for each programme number that you want to unlock.*		

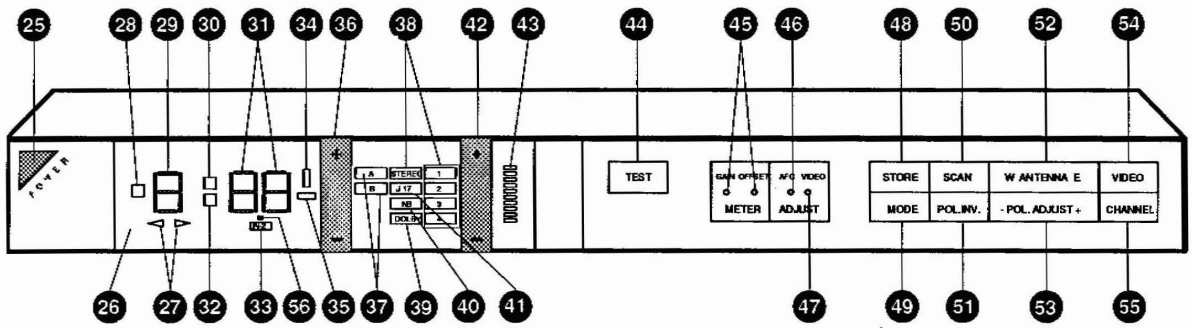
CONTROL FUNCTIONS

REMOTE CONTROL UNIT



1. **NUMBER SELECTION KEYS.** Used to select programme, channel, satellite position or mode numbers.
2. **SATELLITE.** Puts the receiver in satellite mode for programming or satellite selection.
3. **CHANNEL.** Puts the receiver in channel mode for channel selection.
4. **PROGRAM.** Puts the receiver in program mode for programme selection (normal mode).
5. **PL.** Programme lock function to prevent the selection of certain programmes. Programme lock also prevents the antenna from being turned by means of the keys on the front panel of the satellite receiver.
6. **ON / OFF.** "On" after the switch on the rear of the satellite receiver has been switched on. After "Off" the receiver goes to standby mode.
7. **INPUT.** To select RF input 1 or 2 on the receiver. If input 2 is selected, IN-2 appears on the display on the front panel.
8. **PROG / CHAN - STEP - / +.** For stepping up and down through programmes and channels.
9. **ANTENNA W / E.** Turns the antenna towards the west(W) or east(E).
10. **11 / 12 GHz.** To select a 12 GHz system, if installed.
11. **POL. INV.** Changes the setting of the polarizer from vertical to horizontal or from horizontal to vertical.
12. **POL. ADJ. - / +.** For fine adjustment of the polarizer setting.
13. **DESCR.** To select a channel that goes via a connected descrambler unit.
14. **VIDEO LEV.** Increases and decreases the video level.
15. **FINE TUNE - / +.** For fine tuning of the picture.
16. **MUTE.** Silence the sound. Pressing the key again restores the sound.
17. **N / J17.** Selects narrow-band (NB) or broad-band sound with de-emphasis J17 or 62 us.
18. **DOLBY.** Dolby NR noise reduction.
19. **NORMAL.** Restores preset sound volume and balance.
20. **AUDIO STEP.** To select audio system.
21. **AUDIO B.** Setting of sound frequency to the stereo systems (left channel). The frequency is displayed by the programme/channel display.
22. **AUDIO A.** Setting of the sound frequency for mono systems and the right channel of stereo systems. The frequency is displayed by the programme/channel display.
23. **BALANCE.** Used during stereo reception to balance the sound of the left and right channels.
24. **VOLUME.**

SATELLITE RECEIVER



25 **POWER.** On/off. "On" after the switch on the rear of the satellite receiver has been switched on. After "Off" the receiver goes to standby mode.

26 **IR SENSOR.** Infrared sensor to receive signals from the remote control unit.

27 **WEST/EAST INDICATION.** Blink when the antenna is turning towards the west (left LED) or towards the east (right LED).

28 **MODE INDICATION.** Lit when the satellite receiver is set to MODE.

29 **SATELLITE INDICATION.** A numeral (1-9) indicates which satellite the antenna is aimed at.

30 **ACTIVE.** Always blinks when a key on the front panel or on the remote control unit is pressed.

31 **PROGRAM / CHANNEL / AUDIO INDICATION.** Displays selected programme/channel number or audio frequency.

32 **CHANNEL INDICATION.** Lit when the satellite receiver is in channel mode.

33 **INPUT INDICATION.** Displays IN-2 when input 2 has been selected with the input key on the remote control unit.

34 **POLARIZATION INDICATION / VERTICAL** Lit when a vertically polarized channel has been selected.

35 **POLARIZATION INDICATION / HORIZONTAL** Lit when a horizontally polarized channel has been selected.

36 **CHANNEL STEPPING + / -.** Steps programs/ channels up (+) or down (-).

37 **AUDIO A/B.** Indicates which sound channel (A or B) has been selected.

38 **AUDIO INDICATION.** Indicates which type of audio system is in use: MONO or STEREO. When STEREO has been selected, STEREO is lit on the front panel.

39 **DOLBY.** Dolby NR noise reduction.

40 **AUDIO BANDWIDTH.** NB = narrow band; when NB is not lit, broadband.

41 **DE-EMPHASIS.** Sound correction. J17 when indicated, otherwise 62 us.

42 **AUDIO STEPPING + / -.** To select audio system.

43 **SIGNAL LEVEL.** Displays relative strength of incomming signal. Can be adjusted with 45

44 **TEST.** Test function. (See page. 32)

45 **INSTRUMENT ADJUSTMENT.** To adjust signal level indication 43 (See page 18).

46 **AFC.** AFC adjustment for optimum picture quality (see page 18).

47 **VIDEO.** Fine adjustment of the video level.

48 **STORE.** Stores the settings that have been made.

49 **MODE.** Used for preliminary settings of the antenna.

50 **SCAN.** Starts/stops automatic channel scanning.

51 **POL. INV.** Changes the setting of the polarizer from vertical to horizontal or from horizontal to vertical.

52 **ANTENNA W / E.** Turns the antenna towards the west (W) or east (E).

53 **POL. ADJUST - / +.** For fine adjustment of the polarizer setting.

54 **VIDEO.** Same function as 13 .

55 **CHANNEL.** Puts the receiver in channel mode for channel selection.

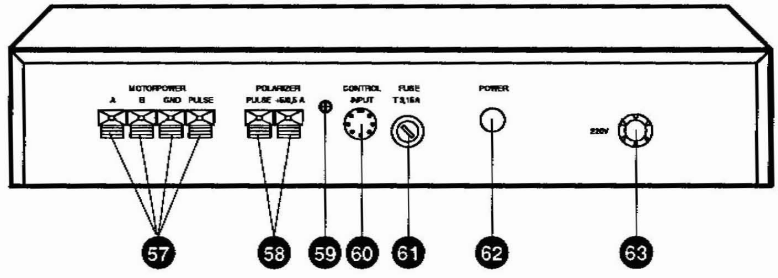
56 **VIDEO LEVEL AND 11/12 GHz INDICATION** The dot lights up for a second or so when the video level is raised with VIDEO LEV. 14 The dot also lights up on 11/12 GHz switching with key 10 when the 11 GHz system is selected. See page 21.

PART 2

CONTENTS

CONNECTIONS

ANTENNA POWER DRIVE



57 **MOTOR POWER.** Antenna motor connections.

58 **POLARIZER.** Polarizer connections.

59 **GROUND/EARTH SCREW**

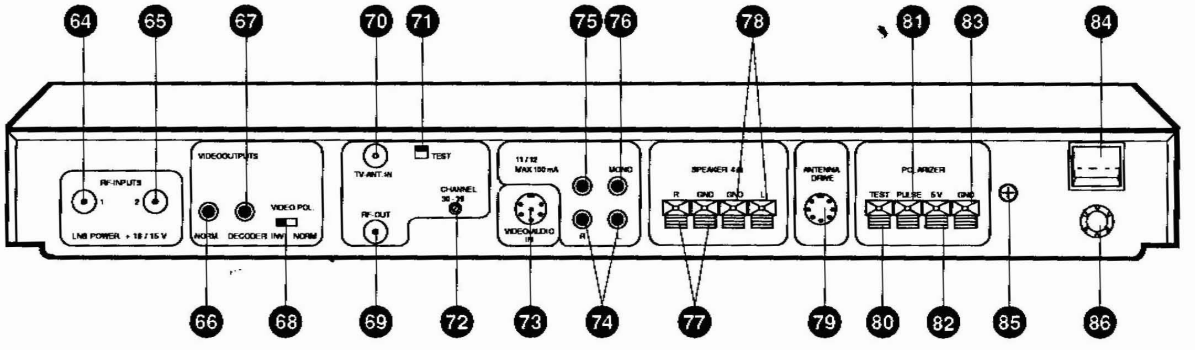
60 **CONTROL INPUT.** For connecting lead to satellite receiver.

61 **FUSE.** Antenna motor fuse, 3.15 AT.

62 **POWER.** Mains switch.

63 **220 V.** Mains connection.

SATELLITE RECEIVER



64 **RF-INPUT 1.** Connection for satellite signal cable from LNB. The same cable is also used to supply power to the LNB. The voltage can be either 18 or 15V to control the polarizer.

65 **RF-INPUT 2.** Same as 64

66 **VIDEO OUTPUT: NORM.** For connecting lead to TV monitor or video recorder.

67 **VIDEO OUTPUT: DESCRAMBLER.** For connecting lead to descrambler unit when receiving scrambled (encrypted) programmes.

68 **VIDEOPOLARITY: INV. / NORM.** Switch to invert the video signal.

69 **RF OUT.** For connection to the antenna input of the TV receiver.

70 **TV-ANT. IN.** Connection for TV antenna.

71 **TEST.** Facility to assist in setting the channel selector of the TV receiver to the output channel of the satellite receiver.

72 **CHANNEL 30 - 39.** RF channel setting. Any channel from 30 to 39 may be selected. Set to channel 33 at the factory.

73 **VIDEO / AUDIO IN.** Input for video/audio signal from descrambler, video recorder or other external video suorce and connection for fast programmer.

74 **R - L.** Stereo outputs for sound signals for connection to TV monitor, video recorder or stereo amplifier.

75 **11 / 12.** Control voltage for switching between 11 and 12 GHz systems.

76 **MONO.** Mono sound output for connection to TV monitor, video recorder or amplifier.

77 **SPEAKER: R / GND.** Loudspeaker output, right channel.

78 **SPEAKER: L / GND.** Loudspeaker output, left channel.

79 **ANTENNA DRIVE.** For connecting lead to antenna power drive.

80 **TEST.** Test output to check signal level. A voltmeter set to DC is connected to TEST and GND (ground/ earth) to measure the AGC voltage that is used when adjusting the antenna dish. For a good picture, the voltyage must be between 2.0 and 6.5 V.

81 **POLARIZER: PULSE.** To connect pulse signal lead to the polarizer.

82 **POLARIZER: 5 V.** To connect the 5 V lead to the polarizer.

83 **POLARIZER: GND.** Polarizer ground/earth connection.

84 **ON / OFF.** Mains switch.

85 **GROUND/EARTH SCREW**

86 **MAINS CONNECTION:** 220 V / 50 Hz

INSTALLATION

HINTS ON INSTALLATION

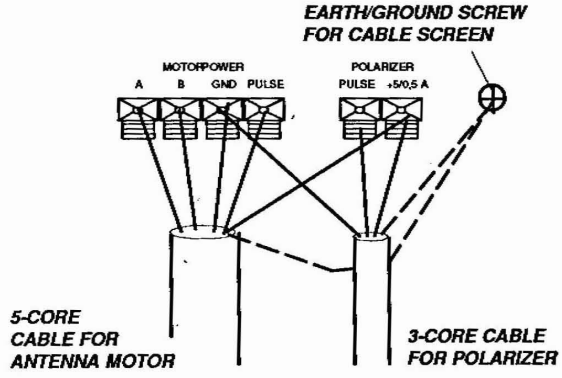
When installing the satellite receiver, refer to the connection examples on pages 19-21. Please read the following advice before starting.

Use screened cables

Use screened cables to connect the polarizer and antenna motor if the distance between the antenna and the satellite receiver are more than 50 m. Make sure that one end (not both) of the screen braid is connected to the ground/earth screw at the antenna power drive or at the satellite receiver. See basic connection diagram on next page. You do n't need to connect to a ground point at the antenna.

Connecting the motor and polarizer

If, instead of using special cables, you use separate cables for the antenna motor and polarizer, make the connections as follows:



Polarizer / antenna motor

Before fitting the polarizer and antenna motor to the antenna, check first indoors that they work properly in conjunction with the satellite receiver and antenna power drive. See the separate instructions "Installation preparations" supplied with the satellite receiver.

RF-Input (1 and 2)

Be sure to connect the cable from the LNB to the correct input. If this connection is wrongly made, the preprogramming of the receiver may turn out to be incorrect when you come to select satellite programmes. This means that you must check in the satellite programme guide that you have connected the cable from the LNB to the input that is preprogrammed for the satellite or satellites on which your antenna is aligned.

If the antenna has two LNBs with an ortho mode transducer, the LNB with vertical polarization may be connected to input 1, for example, and the horizontally polarized LNB to input 2. The receiver is not preprogrammed for this arrangement; see SETTING AND ADJUSTMENT, page 31.

Test terminal

On the rear panel of the satellite receiver there is a test terminal (TEST). A DC voltmeter can be connected between TEST and GND (ground/earth) to measure the AGC voltage when adjusting the antenna. The voltage must be between 2.0 and 6.5 V. The antenna setting is optimal when the test voltage is lowest.

Signal strength meter

On the satellite receiver there is an instrument to indicate the signal strength. The meter can be adjusted with potentiometers (45) behind the front panel of the satellite receiver.

Setting the channel selector of the TV.

If the satellite receiver is connected to the antenna input of the TV, the channel selector of the TV must be adjusted for the output channel of the satellite receiver. To make it easy to find the right channel with the channel selector the satellite receiver has a built-in TEST function, which gives a test image (black and white bars) when the channel is correctly set. Set the switch to TEST during the adjustment and to the other setting when the channel selector the TV has been set.

AFC adjustment

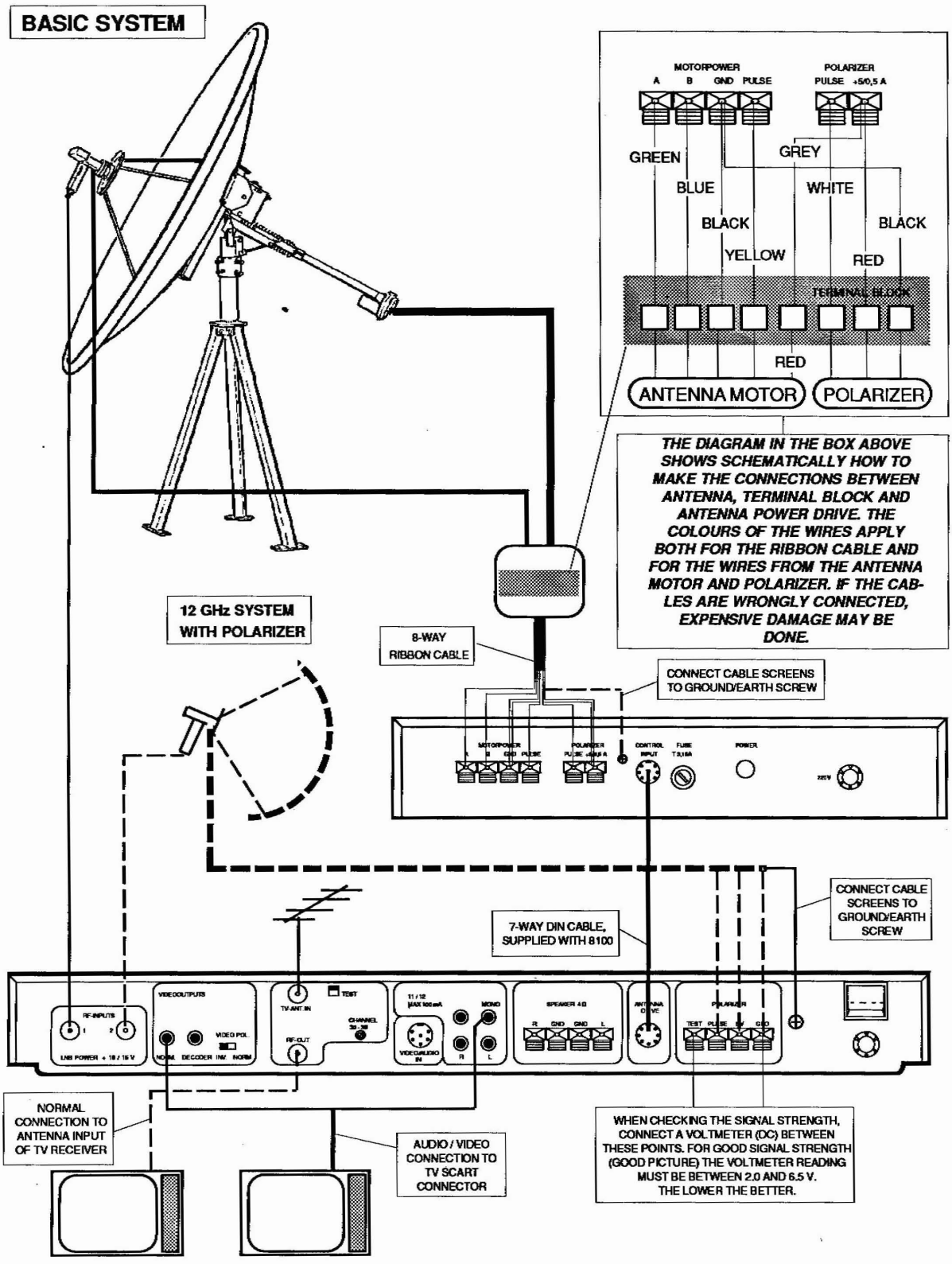
If there is a lot of black or white "snow" on the picture, the AFC may be wrongly adjusted. Check whether the picture can be improved with the Fine tune keys on the remote control unit. If so, the AFC needs adjusting; proceed as follows:

A. Select a satellite channel with a low channel number and adjust the AFC potentiometer (46) for best picture.

B. Select a satellite channel with a high channel number and check the picture.

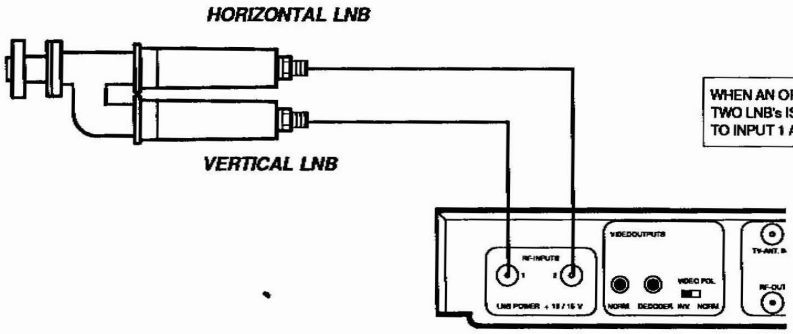
C. If you cannot get a good picture on both high and low channel numbers, check cables and connectors.

BASIC SYSTEM



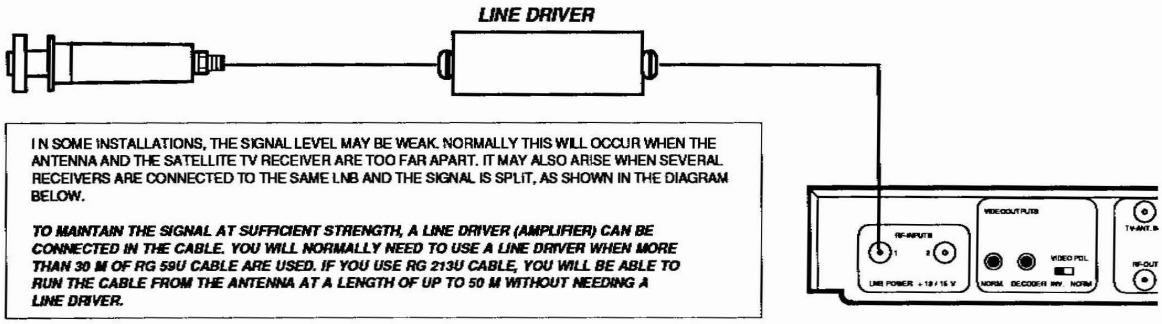
INSTALLATION

DUAL LNB (ORTHO)



WHEN AN ORTHO MODE TRANSDUCER WITH TWO LNB's IS USED, CONNECT THE VERTICAL LNB TO INPUT 1 AND THE HORIZONTAL LNB TO INPUT 2.

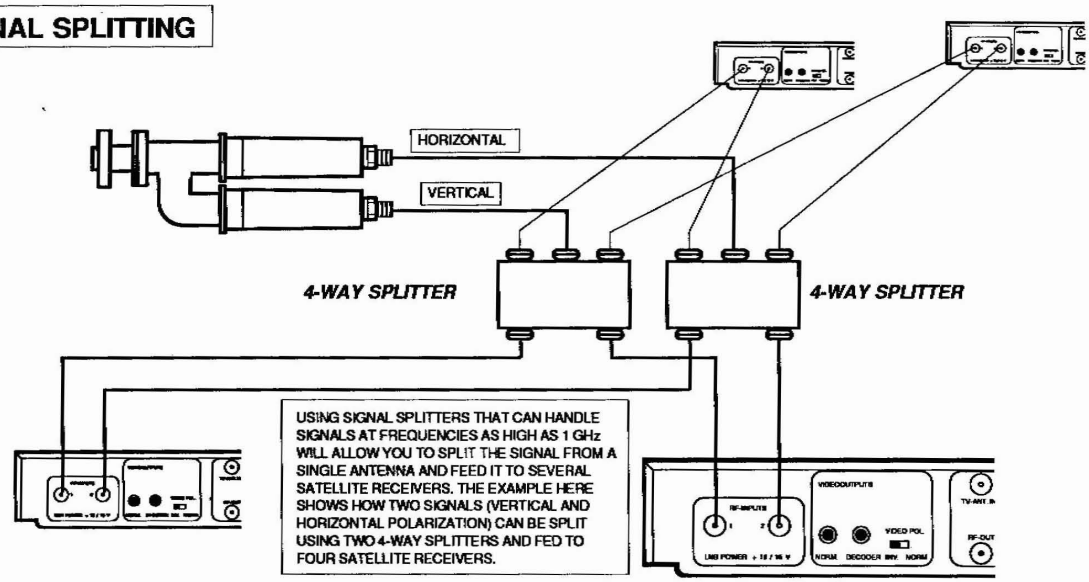
SIGNAL AMPLIFICATION



I N SOME INSTALLATIONS, THE SIGNAL LEVEL MAY BE WEAK. NORMALLY THIS WILL OCCUR WHEN THE ANTENNA AND THE SATELLITE TV RECEIVER ARE TOO FAR APART. IT MAY ALSO ARISE WHEN SEVERAL RECEIVERS ARE CONNECTED TO THE SAME LNB AND THE SIGNAL IS SPLIT, AS SHOWN IN THE DIAGRAM BELOW.

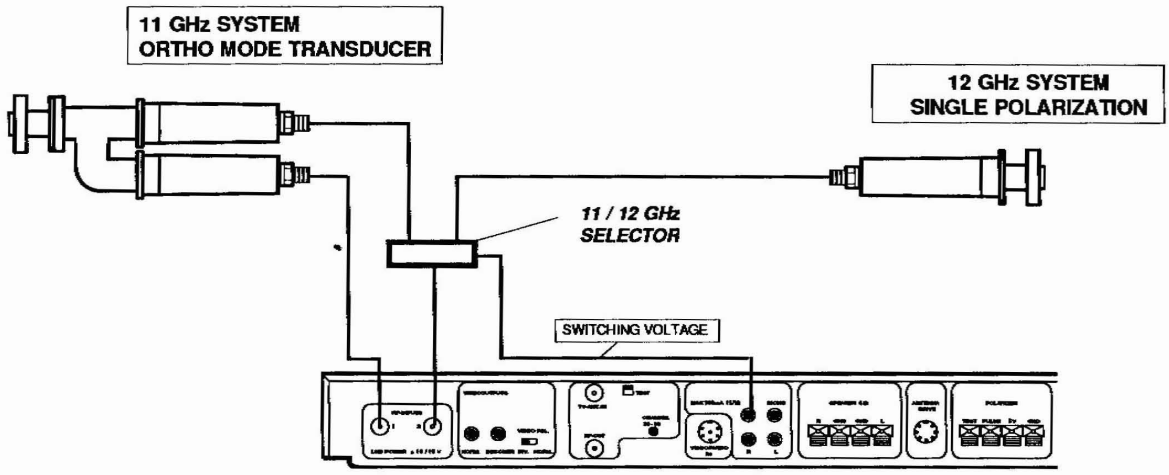
TO MAINTAIN THE SIGNAL AT SUFFICIENT STRENGTH, A LINE DRIVER (AMPLIFIER) CAN BE CONNECTED IN THE CABLE. YOU WILL NORMALLY NEED TO USE A LINE DRIVER WHEN MORE THAN 30 M OF RG 59U CABLE ARE USED. IF YOU USE RG 213U CABLE, YOU WILL BE ABLE TO RUN THE CABLE FROM THE ANTENNA AT A LENGTH OF UP TO 50 M WITHOUT NEEDING A LINE DRIVER.

SIGNAL SPLITTING

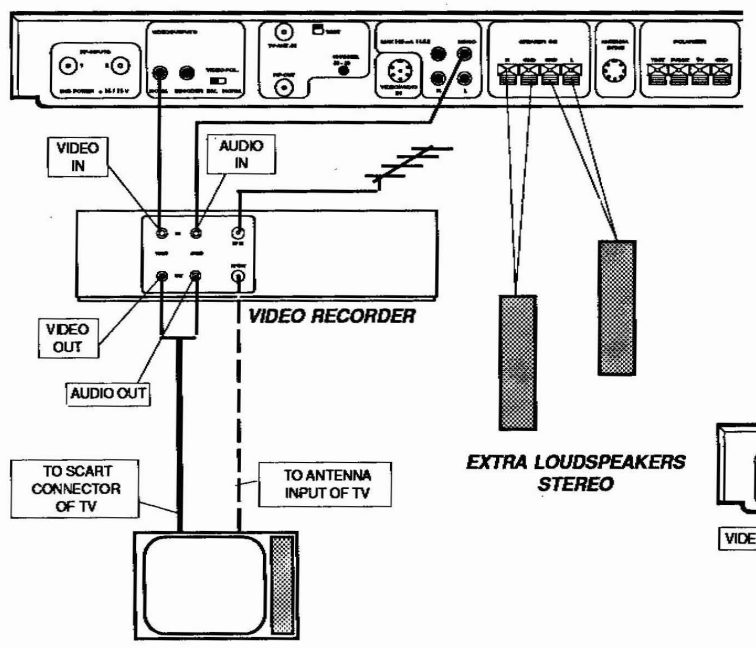


USING SIGNAL SPLITTERS THAT CAN HANDLE SIGNALS AT FREQUENCIES AS HIGH AS 1 GHz WILL ALLOW YOU TO SPLIT THE SIGNAL FROM A SINGLE ANTENNA AND FEED IT TO SEVERAL SATELLITE RECEIVERS. THE EXAMPLE HERE SHOWS HOW TWO SIGNALS (VERTICAL AND HORIZONTAL POLARIZATION) CAN BE SPLIT USING TWO 4-WAY SPLITTERS AND FED TO FOUR SATELLITE RECEIVERS.

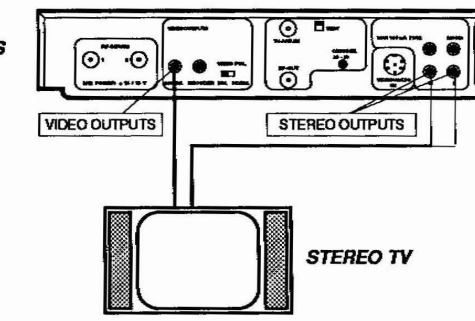
DUAL SYSTEM (FIXED)



VIDEO RECORDER / EXTRA LOUDSPEAKERS



STEREO



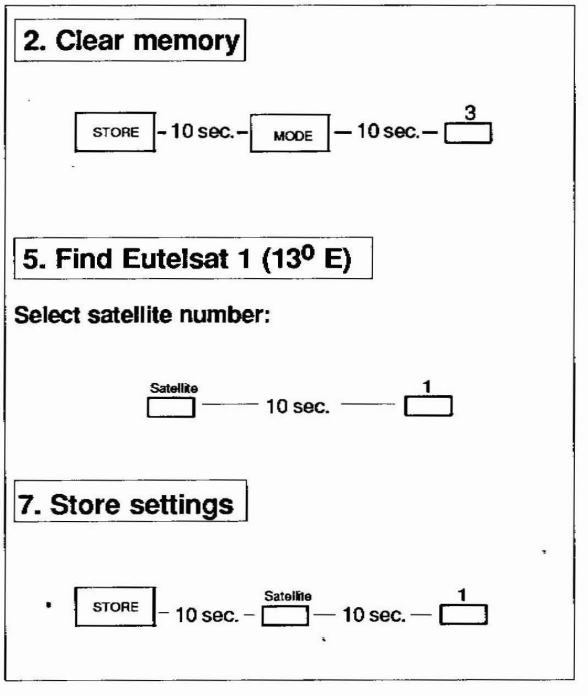
SETTING AND ADJUSTMENT

INTRODUCTION

This chapter desribes step by step the various setting and adjustment procedures of the satellite receiver. We hope that the combination of explanatory text and pictures for each command will make the adjustment procedure easy and problem-free. We have provided a trouble-shooting guide and a glossary to help you if you do get into difficulties.

Commands

You will find that you need to press more than one key when a setting is to be stored (programmed-in) or when the satellite receiver has to be set to various settings such as satellite mode etc. At such times the 10-second rule always applies; this means that you have up to 10 seconds between each keypress. If more than 10 seconds elapse, the receiver automatically returns to program mode (normal mode). See the examples below.



Programming

When the antenna dish has been installed and aligned on the satellite or satellite orbit, setting up of the satellite receiver can begin. The receiver has been preprogrammed at the factory for a number of satellite TV programs from different satellites. This is to make it easier for you to set up the system, and because these preset channels are needed during basic adjustment of the receiver, in order to find the satellites.

Basic adjustment

The first operation after a satellite system has been installed is basic adjustment. This means first clearing the satellite position memory of the satellite receiver using the **MODE 3** command. The west and east limits of the antenna are then programmed with **MODE 1** and **MODE 2** respectively. Once this has been done, the antenna cannot be driven beyond these limits; this is a safety feature to prevent damage to the equipment.

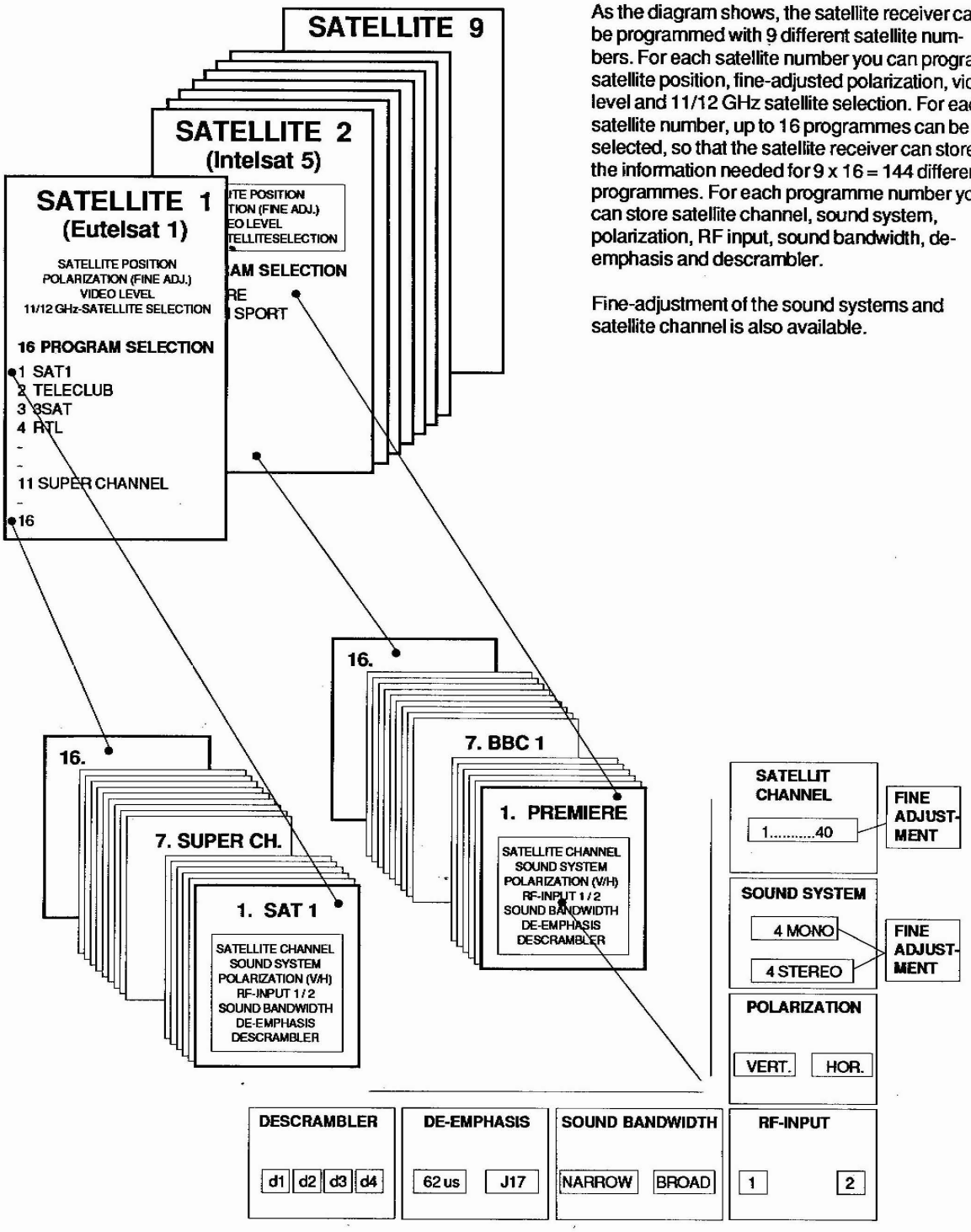
The next step in the basic adjustment sequence is **to find the satellites**; we begin with **Eutelsat 1**, followed by **Intelsat 5**. It is a good idea to double-check that the correct input has been used (RF-INPUT 1 or 2). The easiest way to align the antenna on the satellite is to select one of the preprogrammed Eutelsat channels; when a picture appears on your TV you have found the satellite. Another way is to use the **SCAN** feature of the satellite receiver, letting it scan while you operate the antenna. If you carefully observe the TV screen and the signal strength meter on the front panel, you will see when you have found a satellite by the picture flickering past on the screen or the signal strength meter giving a high indication. Press the SCAN key again to stop scanning, then try to find the channel by stepping through all 40 channels. Then fine-tune. You will find that there are more satellites when you swing the antenna between Eutelsat 1 and Intelsat 5. Programme these in the same way.

Setting the polarization may appear complicated since it is important to position the polarizer correctly if it is to work properly. It may easily be wrongly positioned even if the picture on the screen is clear. When POL. INV. is pressed it no longer works, i.e. the polarization obtained is not the opposite. The polarizer then has to be adjusted with the POL. ADJUST keys to the opposite polarization, where there will hopefully be a picture; if not, stop where there is only snow on the screen. Then return to the initial polarization by pressing the POL. INV. key and adjust the picture with POL. ADJ. if necessary. Repeat this adjustment until the polarizer switches correctly between vertical and horizontal polarization with optimum pictures in both settings.

Video level

The picture on channels from some satellites may be rather dark; this is because the video level of the transmissions is on the low side. To compensate for this, the satellite receiver can be made to raise the video level of the satellite channel; to do this, press Video Lev. on the remote control unit. Pressing the key again restores the lower video level. If you have selected high video level, this can be stored together with the satellite position. See next page.

PROGRAMMING MODEL

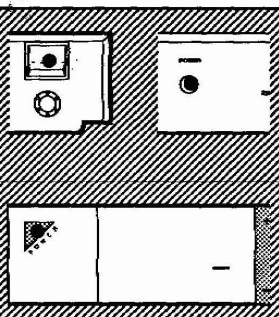
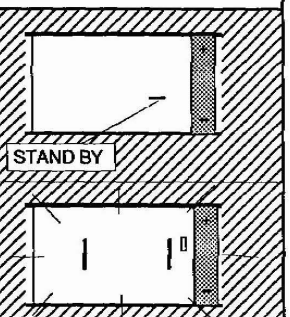
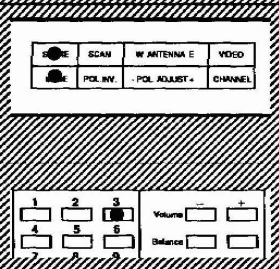
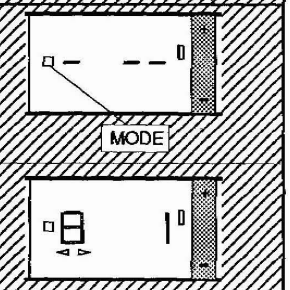
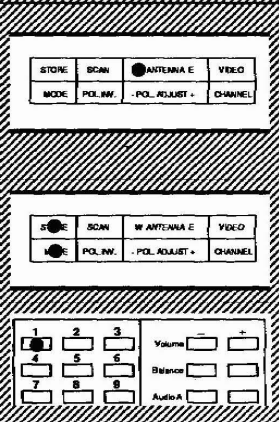
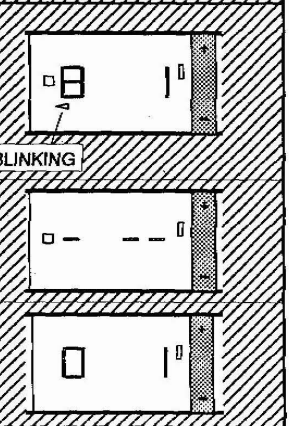
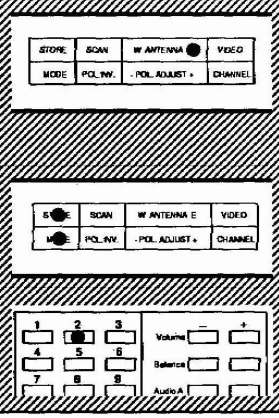
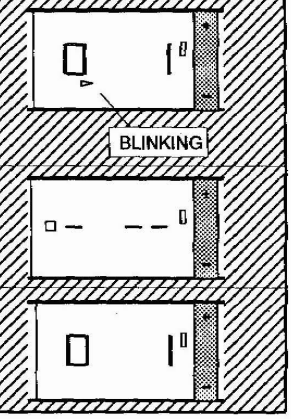


As the diagram shows, the satellite receiver can be programmed with 9 different satellite numbers. For each satellite number you can program satellite position, fine-adjusted polarization, video level and 11/12 GHz satellite selection. For each satellite number, up to 16 programmes can be selected, so that the satellite receiver can store al the information needed for 9 x 16 = 144 different programmes. For each programme number you can store satellite channel, sound system, polarization, RF input, sound bandwidth, de-emphasis and descrambler.

Fine-adjustment of the sound systems and satellite channel is also available.

SETTING AND ADJUSTMENT

BASIC ADJUSTMENT: West/east limits, satellite positions and polarization.

What you do	*Keys*	*Indications*
1. Starting ● Switch on **the switches** at the rear of the satellite receiver and antenna power drive. ● Press **POWER** to switch on the units.		
2. Clear the memory ● Press - in the order stated - **STORE** and **MODE** behind the cover on the front panel and then ● press **key 3**.		
3. Antenna west limit ● Press **ANTENNA W** and allow the antenna to turn until it has almost reach the limit position. *Observe the antenna as it turns towards the limit position.* ● Press - in the order stated - **STORE, MODE** and ● **key 1.** *West limit prevents the antenna from turning further to the west than the programmed position.*		
4. Antenna east limit ● Press **ANTENNA E** and allow the antenna to turn until it has almost reach the limit position. *Observe the antenna as it turns towards the limit position.* ● Press - in the order stated - **STORE, MODE** and ● **key 2.** *East limit prevents the antenna from turning further to the west than the programmed position.*		

5. Find Eutelsat 1(13^0 E)

Select satellite number:

- Press **Satellite**

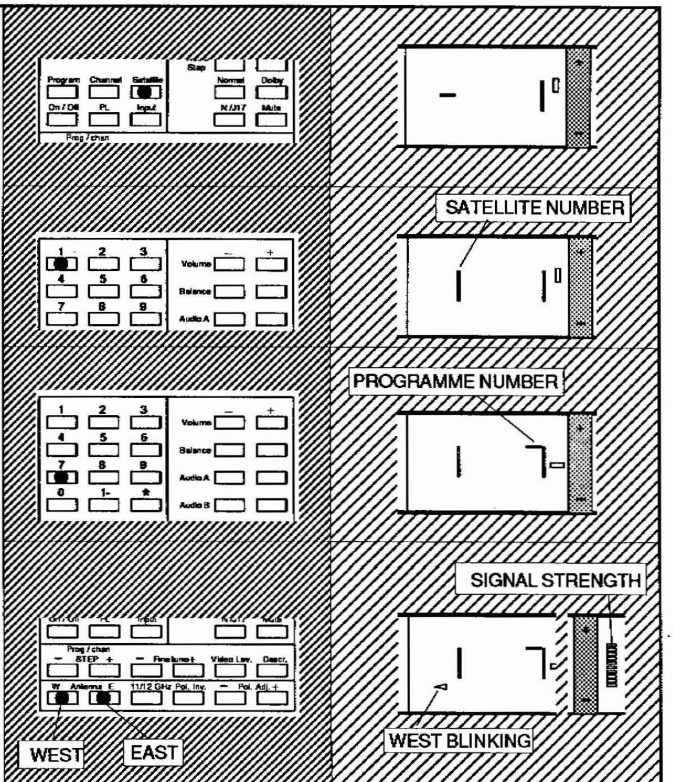
- Select Eutelsat 1with **key 1.**
  The satellite programme guide will tell you which number keys to use for each satellite.

Preset programmes:

- Press a preset program number e.g. **7.**
  The satellite programme guide will tell you which number keys to use for the various channels on Eutelsat 1.

Aligning the antenna dish:

- Turn the antenna towards Eutelsat 1 by pressing **Antenna W**. Keep the key pressed until you find the satellite, i.e. until a picture appears on the screen. Use the **Antenna W** and **E** keys to adjust for optimum picture and signal strength.



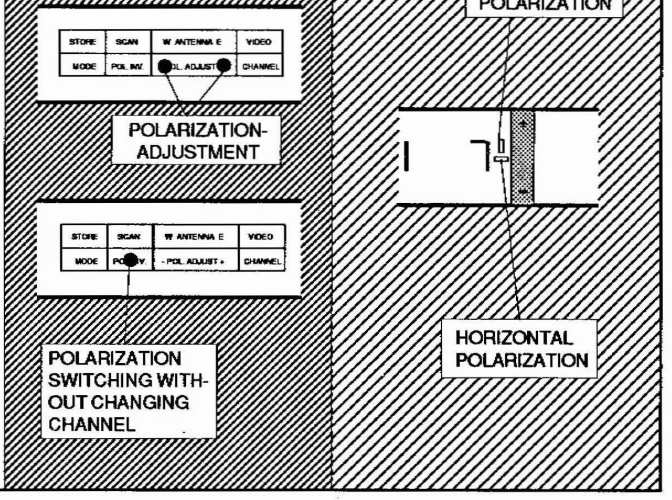
6. Polarization setting

When an odd-numbered channel is selected on the receiver, the polarization is automatically set to vertical, similarly when an even number is selected, the polarization goes automatically to horizontal. The current polarization setting is displayed on the front panel of the receiver by a vertical bar for vertical polarization and a horizontal bar for horizontal polarization. If Pol.Inv. is pressed, the reverse applies.

- Press the **POL. ADJUST - / +** keys and adjust for best picture.

- Press **POL. INV.** (once) and check that the polarization changes. (i.e. that the TV screen shows another picture or "snow").

- If the polarization does not change and the same picture remains, press one of the **POL. ADJUST -/+** keys and set the picture for the other polarization. If there is no picture, adjust for only snow on the screen. Then press **POL. INV.** This should take you back to the initial position with that picture on the screen. Repeat the setting until the switchover takes place correctly.

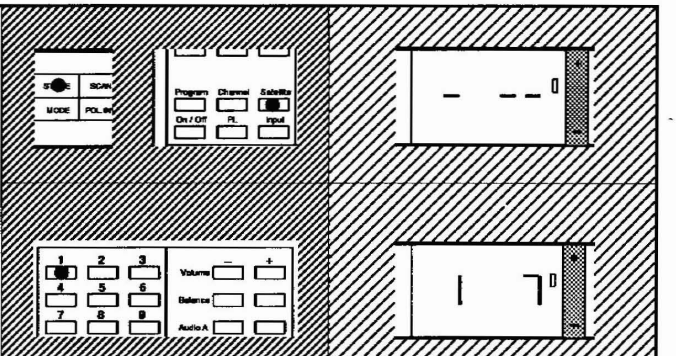


SETTING AND ADJUSTMENT

7. Store the settings

- Press **STORE** and **Satellite** in that order, then

- press **key 1.**
  *Next time you select **Satellite 1** the receiver will automatically use the position and polarization settings for Eutelsat 1 that you have just stored.*



8. Find Intelsat 5 (27.5 ⁰ W)

Select satellite number:

- Press **STORE, Satellite** in that order and then

- **key 2.** *The polarization settings that have been made are stored for Satellite no. 2.*

Preset programme:

- Press a number key for which a satellite channel has been programmed, e.g. **2**: *The satellite programme guide tells you which numbers refers to which channels on Intelsat 5.*

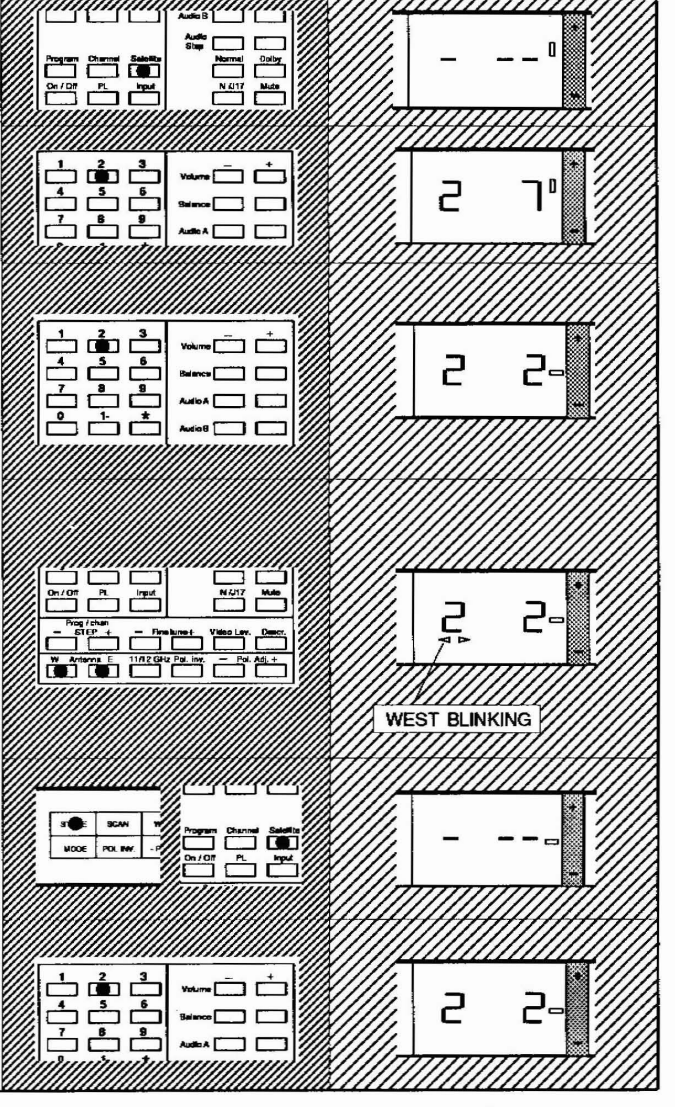
Aligning the antenna dish:

- Turn the antenna towards Intelsat 5 by pressing **Antenna W**. Keep the key pressed until you find the satellite, i.e. until a picture appears on the screen. Use the antenna **W** and **E** keys to adjust for optimum picture and maximum deflection of the signal strength meter.

Store:

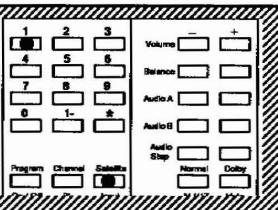
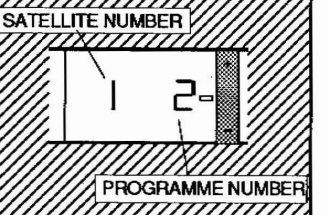
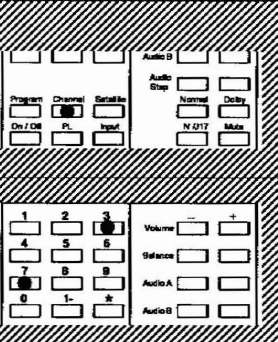
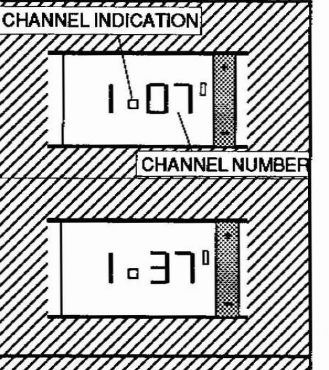
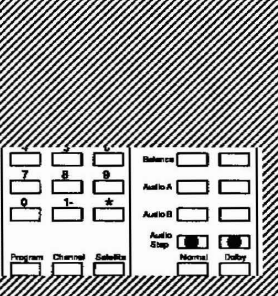
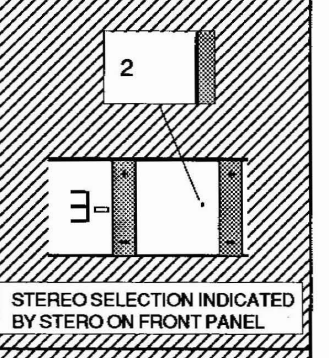
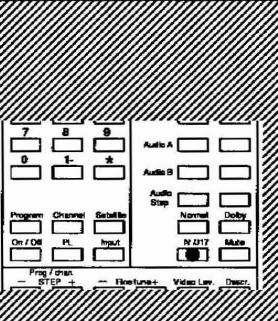
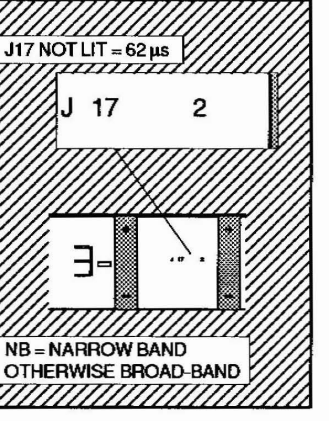
- Press **STORE** and **SATELLITE** in that order, then

- **key 2.**



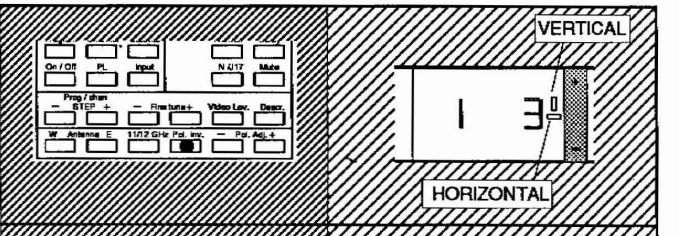
PROGRAMMES

The satellite receiver is preprogrammed for all Eutelsat 1 and Intelsat 5 channels, among others. The channels are programmed under different program numbers, together with information about sound system, sound bandwidth with de-emphasis (62 µs or J17). The satellite program guide will tell you which program number to use for which channel. ***To change the preprogrammed information, follow the instructions below.***

What you do	*Keys*	*Indications*
• Select satellite by pressing **Satellite** followed by a number key (e.g. **1**: Eutelsat 1).		
A. Channel • To change channel, press **Channel** • and the new channel number (e.g. **37**) by pressing **3** and **7**. • *Store as described under* ***E***.		
B. Sound system ***Mono*** *or* ***stereo*** *sound can be programmed for each programme number.* • To change sound system, change **Audio Step** and advance to the required system (e.g. **MONO 2**). • *Store as described under* ***E***.		
C. Sound bandwidth/ de-emphasis *For best sound quality you can store information for* ***narrow- or broadband*** *sound with de-emphasis* ***62 µs*** *or* ***J17.*** • To change sound bandwidth or de-emphasis, press **N/J17** and advance to the setting that gives best sound, e.g. **J17**. • *Store as described under* ***E***.		

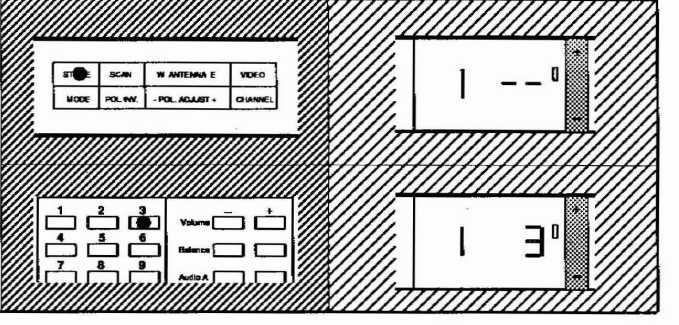
D. Polarization

- Press **Pol. inv.** to change the polarization setting (vertical or horizontal).
- *Store as described under* ***E.***



E. Store

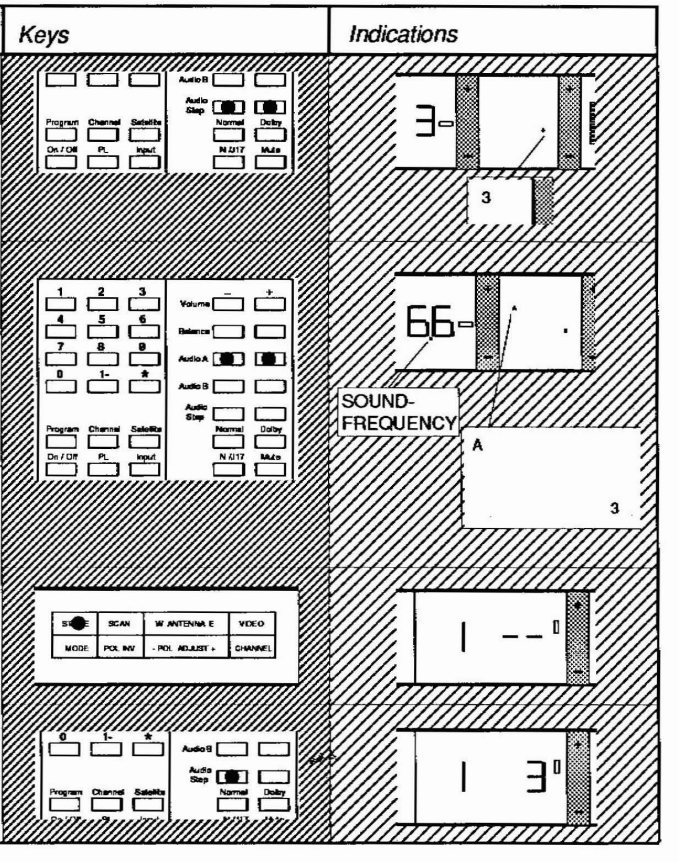
- Press **STORE,** then
- the relevant or required number key (e.g. **3**). For a 2-digit number, press **1-** followed by **the second digit**.



SOUND FREQUENCY

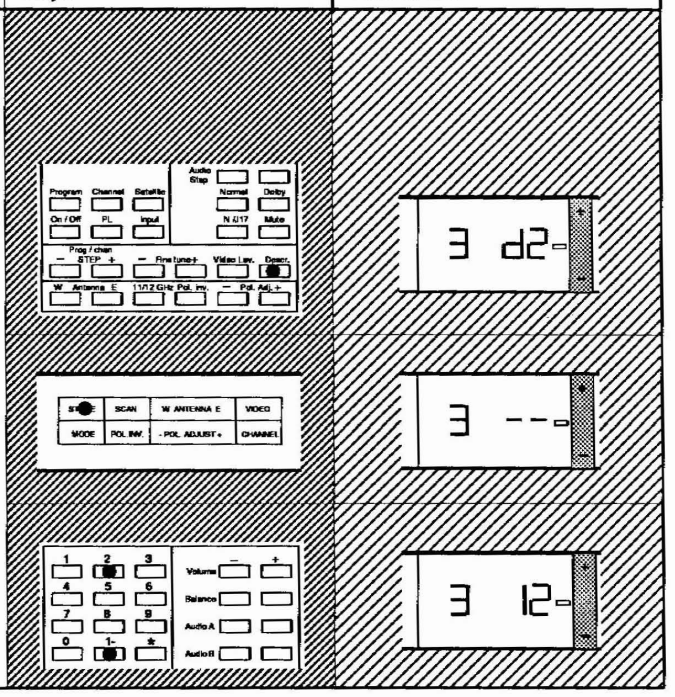
The receiver offers 8 sound systems (4 mono and 4 stereo). Any one of these sound systems can be selected to be stored in conjunction with a given programme number. The sound frequency settings for all systems have been preset, but can be altered (reprogrammed) if necessary.

What you do	*Keys*	*Indications*
● Press **Audio Step** and select the sound system you wish to alter (e.g. **MONO 3**).		
● Set the sound frequency to mono 3 with the **Audio A** keys. *When one of the keys is pressed, the frequency appears in the program/channel display.* ***The mono systems are adjusted with the Audio A keys. The stereo systems are adjusted with both the Audio A and B keys. A (right channel) and B (left channel).***		
● Store by pressing **STORE** and		
● **Audio Step.**		



SATELLITE DESCRAMBLER

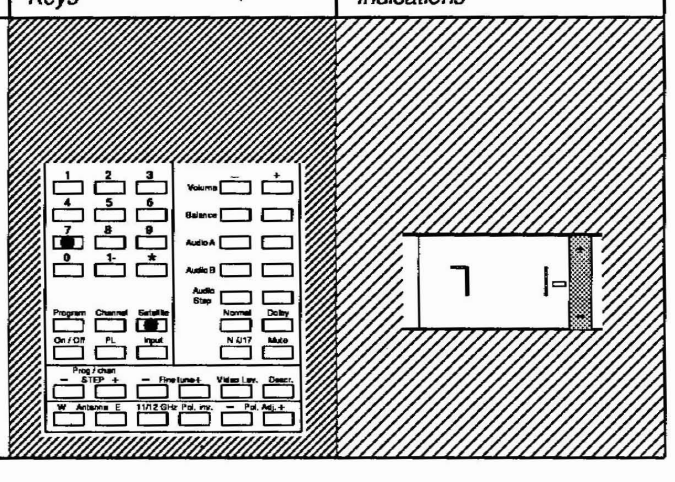
Various descramblers can be connected to the satellite receiver to receive scrambled programmes. Four different video signals can be selected, depending on the type of descrambler.

What you do	*Keys*	*Indications*
● ***Select a satellite and programme number for which a scrambled channel is programmed.***		
● Press **Descr.** and advance for best picture on the TV screen. *The channel/ audio indication displays* ***d1, d2, d3*** *or* ***d4*** *depending on which signal is selected with the descr. key.* ***d1*** *is the normal setting (normal video).* ***See the Technical Specification concerning d1, d2, d3 and d4.***		
● Store the setting by pressing **STORE** and then		
● press **the relevant program number**, e.g. **12** (**1-** and then **2**).		

DUAL-SYSTEM PROGRAMMING

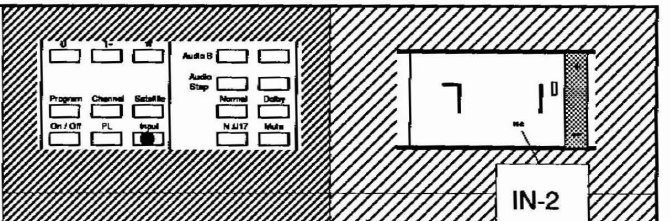
Because the satellite receiver has two RF inputs it can receive dual signals either from:

- **two antenna systems** (11 and 12 GHz) with polarizers as shown in the BASIC SYSTEM diagram under INSTALLATION or
- **one antenna system** with two LNBs (vertical/horizontal polarization) and an ortho mode transducer.

What you do	*Keys*	*Indications*
Two antenna systems **INPUT 1:** 11 GHz system with polar mount. ● For this system, use initially the basic adjustment procedure described on pages 24-26, followed by the additional settings on pages 27, 28 if required. **INPUT 2:** 12 GHz system (fixed position) ● Select satellite number e.g. 7 (not preprogrammed).		

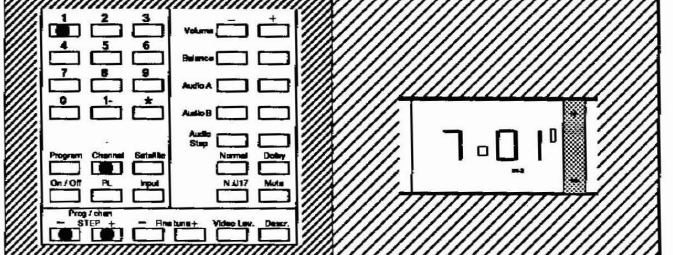
SETTING AND ADJUSTMENT

- Select input 2 with **Input**.



- Press **Channel** (channel mode). Select channel either directly with the **number keys** or with the **STEP keys**.

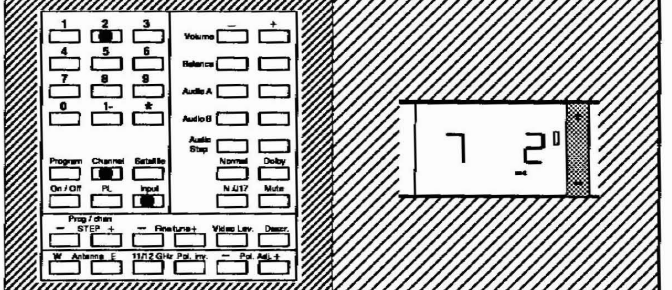
If there is a polarizer, adjust the polarization as described on page 25. If necessary, carry out the Program, Sound frequency and Descrambler settings as described above in the section headed SETTING AND ADJUSTMENT.



- Store by pressing **STORE** and then

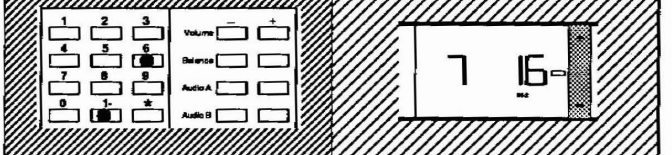
- **key 1**.

- Continue as above with the next satellite program by pressing **Channel** and then selecting the channel with the **number** or **STEP** keys. *If necessary, carry out the Programme, Sound frequency and Descrambler settings as described above in the section headed SETTING AND ADJUSTMENT.*

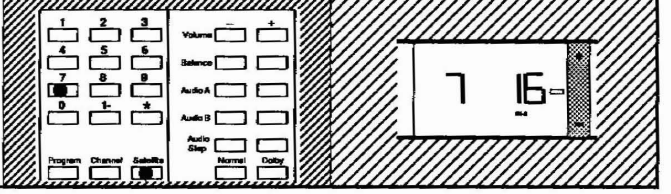


- Store by pressing **STORE** (on the front panel) and **key 2**, for example.

- Store all remaining channels from this satellite in the same way under different number keys.

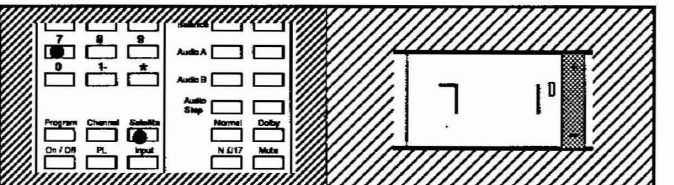


- Finally store the satellite on 7 by pressing **STORE** (on the front panel), **Satellite** and **key 7**.



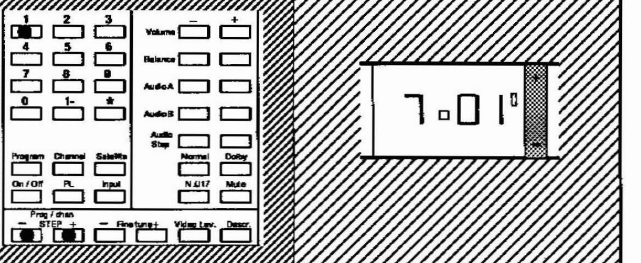
Dual LNB

- Select satellite number, e.g. 7, since this number is not preprogrammed.



Input 1 (vertical polarization)

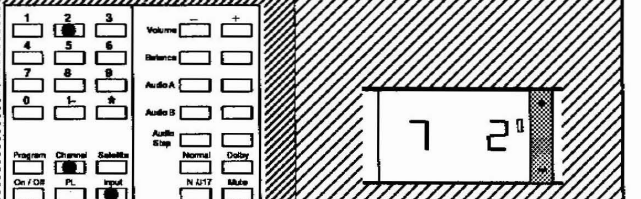
- Press **Channel**, then select channel, e.g. 1 with a **number** key or the **STEP** keys.



- If necessary, make the sound system adjustments described under **B** and **C** on page 27.

- Store by pressing **STORE** and **key 1**.

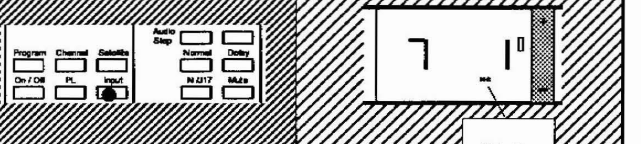
- Continue with the next satellite channel by pressing **Channel** and then selecting the channel with the **number** or **STEP** keys. *If necessary, carry out the sound system adjustments as before.* Store by pressing **STORE** and **key 2**.



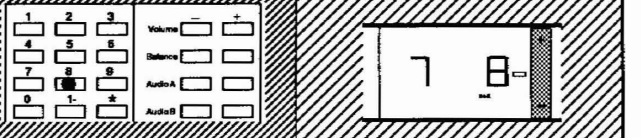
- Proceed as above for the remaining channels.

Input 2 (horizontal polarization)

- Select input 2 with **input**.

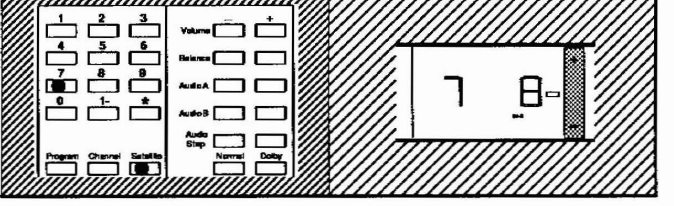


- Select a channel by pressing **Channel** followed by a **number** key or the **STEP** keys. *If necessary, make the sound system adjustments as described above.* Store by pressing **STORE** (on the front panel) and an unused programme number, e.g. **8**.



- Continue with the next satellite channel. Store on unused programmed numbers.

- Finally store the satellite on 7 by pressing **STORE** (on the front panel), **Satellite** and **7**.

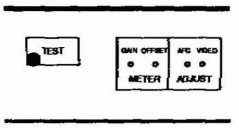


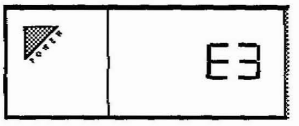
TROUBLE-SHOOTING GUIDE

TEST

The automatic test function of the satellite receiver can be used to check the digital functions of the receiver. For the test function to be used, the satellite receiver must be at standby, i.e. switched off by pressing POWER on the front panel or On/Off on the remote control unit, not by means of the mains switch on the rear of the receiver.

When TEST is pressed, all segments of the program / channel display will be stepped through first, followed by all audio indications. Finally all segments of the satellite display will be lit. If all is well, the receiver will switch off. If wrong an error code will be displayed in the programme / channel display.





Code	Error
E1	Antenna position memory
E2	Program memory
E3	Program memory
E4	Tuning

A more detailed description gives in the service manual for XLE.

TROUBLE-SHOOTING GUIDE

Trouble	*Cause*	*Remedy*
Displays on the front panel do not light up.	Receiver not switched on.	Check that the mains lead is plugged in to the power socket.
	Mains fuse blown.	Replace the fuse.
No picture or sound (only snow)	Antenna not correctly aligned.	Adjust the antenna with Antenna W and E.
or	Polarization wrongly adjusted.	Fine-adjust the polarization with POL.ADJUST -/+ and check for correct polarization: vertical/horizontal.
flickering picture.	Wrong channel.	Change channel.
	No signal or weak signal.	Check cable connections. LNB, input selector switch and other equipment connected between LNB and receiver.
	Wrong input.	
	AFC not adjusted	See AFC adjustment on page 18.
Blank screen, no snow or picture.	The program key is programmed for descrambler (d4).	Press descr. and advance.
	No voltage to LNB.	Check 18/15 V from the receiver through the cable to LNB.
	LNB faulty.	Replace LNB.

TROUBLE-SHOOTING GUIDE

Trouble	*Cause*	*Remedy*
Snowy picture (black and white dots). Check instructions for test voltage on page 18.	Test voltage above 6.5 V (signal too weak).	Connect a line driver as close to the LNB as possible.
	Test voltage below 2.0 V (signal too strong).	Connect an attenuator at the input.
	Antenna not correctly aligned. Polarization not correctly adjusted. Satellite equipment not powerful enough.	Align the antenna, check the polarization.
		Antenna too small. LNB weak.
The picture requires constant fine tuning.	AFC setting not optimal.	See AFC adjustment on page 18.
Only one polarization works.	Polarization wrongly programmed. LNB signal connected to wrong input.	See page 25 for correct polarization setting. See INSTALLATION and the satellite program guide for inputs.
	Signal from one LNB of an ortho mode transducer poor or absent.	Check cable, connections, LNB, line driver, signal splitter (if fitted) etc.
	Polarizer binding.	Check polarizer.
Satellite display blinks or does not light up at all.	Antenna power drive not working.	Antenna power drive not connected to mains or not switched on, fuse blown. Check cable between antenna power drive and receiver.
Antenna does not move. Satellite display and west/east indication blinking.	Antenna motorn not working.	Check DIN cable between power drive and receiver, and motor connections. Press the programme key on the remote control unit and try again. If the display still blinks, the antenna may have become stuck and may be drawing too much current. Disconnect the motor arm at the dish and check to see whether the motor is running properly.
The antenna goes to wrong position even though the satellite positions are programmed.	The read fork in the antenna motor does not work.	Replace the read fork.
Remote control unit does not work.	Flat battery.	Fit a new battery.
	Fluorescent lighting jamming remote control unit.	Switch off the fluorscent lighting.
Functions on satellite receiver on front panel do not work.	PL function active.	See PL operation on page 11.

GLOSSARY

AFC - Automatic frequency control (counteracts frequency drift).

AGC-voltage - This voltage controls the gain of the amplifier to suit the strength of the incomming signal. The AGC (automatic gain control) voltage is also used to measure the strength of the received satellite signal as an aid to aligning the antenna dish correctly. The lower the AGC voltage the better.

Antenna motor - This motor has an extendable/ retractable arm. The motor is fixed to the antenna mount and is used to turn the antenna.

Antenna power drive - This is a separate unit controlled by the satellite receiver. The purpose of the power drive is to control the antenna motor and the polarizer on the antenna.

De-emphasis - A function in the receiver to compensate for the frequency correction applied to the sound signal at the transmitter end.

Dolby NR - A function that reduces noise on the sound.

GHz - Abbrevation for gigahertz. Giga = million, hertz = cycles per second. Signals with frequencies in the GHz range are often referred to as microwaves.

LNB - The LNB (low-noise block converter) is an electronic component counted on the dish. It picks up the signals collected by the dish and converts them to a lower frequency for the satellite receiver indoors.

Narrow/broadband sound - Differently modulated FM signals. Normally mono is 280 kHz and stereo 150 kHz.

Ortho-mode transducer (OMT) - This is a mechanical unit that enables two LNBs to be mounted on one antenna dish so that vertically and horizontally polarized signals can be received simultaneously from the satellite.

Parabolic antenna - The dish-shaped antenna (reflector) that is used to receive signals transmitted by a satellite. It collects the signals and focuses them on the LNB.

Polar mount - This is an antenna mounting that allows the dish to be turned by an antenna motor. The polar mount makes it possible to receive signals from different satellites by rotating the antenna around one axis.

Polarization - The signals transmitted by a satellite are polarized either horizontally or vertically. This technique is used to make room for as many TV channels as possible in the frequency band. The LNB must be turned for vertical or horizontal polarization to receive the signals. See polarizer below.

Polarizer - The polarizer is used to rotate the LNB automatically to receive horizontally or vertically polarized signals. The unit is installed together with the LNB. Only one LNB is needed.

RF - Abbrevation of radio frequency.

Satellite position - Each satellite has a specific position on the orbit.

Satellite receiver - The unit that receives signals from the LNB via a cable link. The required channel can be taken from the receiver in the form of audio/video or an RF signal to the antenna socket of a TV.

Satellite orbit - The orbit is the path the satellite follows around the earth. TV satellite orbits are above the equator at a height of about 36000 km.

Scrambled satellite TV programs - Some satellite TV programmes are sent scrambled (encrypted). This means that the sound and picture signals have been deliberately distorted. A descrambler (decoder) unit is needed to view these programs.

Sound system - The sound for satellite reception is carried on different frequencies (channels) and is selected by a special audio tuner. There is a choice of eight different sound systems, four mono channels and four stereo channels.

Video level - The video signal is normally 1 Vpp. The level may vary because different satellite channels are differently modulated.

TECHNICAL SPECIFICATION

RF part (from LNB)

Input frequency	950 - 1750 MHz
Input impedance	75 ohm
Input level	-65 - -30 dBm
IF bandwidth	27 MHz
LNB power supply	18.6V / 15.6V, switchable
Video detector	Quadrature detector with treshold extension.
FM treshold	Max 8 dB

Video part

Outputs	Normal / Decoder (raw video)
Video output (normal)	75 ohm / 1.0V at 22 MHz_{pp} and 16 MHz_{pp} deviation. switchable.
Video bandwidth	50 Hz - 5 MHz, ± 1 dB
Diff. Gain / Diff. phase	5% / 5^0
Video S/N	50 dB (weighted) at 14 dB C/N input
Video de-emphasis	CCIR 625
Baseband video output	75 ohm / 1.0V at 10.7 MHz deviation. No clamping. Four different programmable modes: d1) PAL-video 50 Hz - 8.5 MHz ± 1 dB d2) MAC-video 50 Hz - 8.5 MHz ± 0.5 dB d3) PAL-video 50 Hz - 5.0 MHz ± 1dB d4) PAL or MAC-video 50 Hz - 8.5 MHz, selectable, Audio / Video input used.
Input	Decoder return, or other video source.

Audio part

Outputs	Line out: Right, Left and Mono. Speakers: Right, Left
Audio tuning	Frequency synth: 5.5 - 8.5 MHz
Sound system	Factory preprogrammed to 4 stereo and 4 mono frequencies.
Audio IF bandwidth	Narrow Band (NB) = 180 kHz Wide Band (WB) = 350 kHz
Audio output power	2 x 3 W RMS (at 4 ohm)
Audio de-emphasis	62 µs / J17, programmable.

Control part

Outputs

- Antenna drive output for connection
- Polarizer: Pulse, 5V, ground
  11 / 12 GHz-switch output: "11" = 0V, "12" = 12V

RF part (to TV-set)

RF output	PAL G (version -26: PAL 1)
RF frequency	UHF ch. 30 - 39. Factory set to ch. 33.
RF level	67 dB µV / 75 ohm

Connectors

RF inputs for LNB	IEC female for input 1, IEC male for input 2.
Video outputs	RCA phono
TV antenna input	IEC female
RF output (to TV-set)	IEC male
Video / Audio input	6-pin DIN
11/12 switch	RCA phono
Audio output	RCA phono (R + L, mono)
Speakers	Push terminals
Interface to 240 8100	7-pin DIN
Polarizer	Push terminals
Test voltage	Push terminal

Others

AC power	220V or 240V ± 10% 50 Hz
Operating temp. range	10^0 C - 40^0 C
Storage temp. range	0^0 C - 50^0 C
Size	490 x 315 x 55 mm
Weight	Approx. 4 kg