DVB® Upgrade Instructions

The following instructions explain how to upgrade a TracVision® LM/SA/L2/S2/LF/SF for DVB operation. Following this upgrade, the TracVision system will positively identify any DVB-compatible satellite, ensuring you are always tracking the correct satellite. With DVB technology, you get automatic and foolproof satellite acquisition.

During the upgrade process, you will make the following changes to the TracVision system:

1. Replace the main PCB (printed circuit board)
2. Install the DVB RF board
3. Replace the switchplate (L2/S2/LF/SF Only)
4. Configure the system
5. Select the active satellite

When the upgrade is completed, the TracVision system will have all of the capabilities of a TracVision R5/R4.

Tools Required

- PC with the KVH Flash Update Wizard installed
- PC serial data cable
- Electric drill
- #2 Phillips screwdriver
- ⅜” wrench
- ⅜” wrench
- Needle-nose pliers
- Scissors

Please contact KVH if you have one of the following systems:

TracVision LM or SA having a serial number within any of the following ranges:
- 00070095 or earlier
- 00070196 - 00070266
- 00100270 - 00100350

TracVision LF or SF having a serial number within the following range:
- 03060028 or earlier

Systems with these serial numbers are not upgradeable as described in these instructions.

Warranty Note

After the upgrade is completed, the TracVision system will still be covered by its original warranty and remaining warranty period. For technical support purposes, the serial number for the original TracVision system will also apply to the upgraded unit.
Materials Provided

Table 1 lists all of the materials provided with the upgrade kit.

**Table 1 Materials Provided**

<table>
<thead>
<tr>
<th>Part</th>
<th>Part #</th>
<th>Quantity</th>
</tr>
</thead>
<tbody>
<tr>
<td>Main PCB</td>
<td>02-1208</td>
<td>1</td>
</tr>
<tr>
<td>DVB RF Board</td>
<td>02-1524</td>
<td>1</td>
</tr>
<tr>
<td>RF Board Cable</td>
<td>32-0629-11</td>
<td>1</td>
</tr>
<tr>
<td>RF Board Cover</td>
<td>20-0693</td>
<td>1</td>
</tr>
<tr>
<td>Switchplate</td>
<td>02-1023-01</td>
<td>1</td>
</tr>
<tr>
<td>#6-32 Standoff</td>
<td>14-0193-17</td>
<td>4</td>
</tr>
<tr>
<td>#6 Flat Washer</td>
<td>14-0024</td>
<td>4</td>
</tr>
<tr>
<td>#6-32 Pan-head Phillips Screw</td>
<td>14-0029-04</td>
<td>4</td>
</tr>
<tr>
<td>¼&quot; Cable Clamp</td>
<td>22-0021-04</td>
<td>1</td>
</tr>
<tr>
<td>Tie-wraps</td>
<td>22-0013</td>
<td>4</td>
</tr>
<tr>
<td>Threadlocker</td>
<td>60-0083</td>
<td>1</td>
</tr>
<tr>
<td>RF Flash Cable</td>
<td>32-0728</td>
<td>1</td>
</tr>
</tbody>
</table>
1 **Replace the Main PCB**

1. Turn off the antenna and remove the appropriate vehicle fuse to disconnect power. Ensure power is removed from both the antenna and the receiver(s) or multiswitch.

2. Remove the eight screws securing the radome (see Figure 1). Remove the radome and set it aside in a safe place.

---

*Figure 1* Radome Screws

---

Before servicing the antenna unit, remove the appropriate vehicle fuse to disconnect power. Ensure power is removed from both the antenna and the receiver(s) or multiswitch.

Be careful not to drop any of the small screws inside the mechanism. If a screw is lost within the baseplate, it **must** be retrieved to avoid causing any damage when the unit rotates.
3a. **If the antenna has a bracket as shown in Figure 2,** remove the quick release pin from the pivot bracket.

![Figure 2 Elevation Axis Motor Shaft](image)

3b. **If the antenna has a bracket as shown in Figure 3,** use needle-nose pliers to remove and save the E-ring from one end of the connecting rod. Then remove the connecting rod by sliding it off the bracket.

![Figure 3 Close-up of Connecting Rod and E-ring](image)
4. Fully retract the elevation axis motor shaft (see Figure 4).

**Figure 4 Elevation Axis Motor Shaft**

5. Remove the six screws from the main PCB cover flanges and remove the main PCB cover. To get the necessary clearance, rotate the linear actuator up 90° while lifting the main PCB cover (see Figures 4 and 5).

**Figure 5 Removing the Main PCB**

---

- **Warning:** The main PCB and RF board are static-sensitive. Ensure you take the necessary grounding precautions before handling these boards.

- **Warning:** The antenna reflector is not shown in several figures for clarity purposes only. Do not remove the antenna reflector!
6. Use a \( \frac{7}{16} \) " open end wrench to remove the two RF connectors from the main PCB. **Tag the RF cables first to ensure that they are returned to the correct connectors on the new board.** Remove all the remaining cable connectors from the main PCB. Figure 6 illustrates connector locations.

![Figure 6 Old Main PCB Connectors](image)

7. The main PCB is mounted to the rotating plate with nine pan-head screws. Remove the screws and main PCB (see Figure 5).

8. Apply a small amount of the supplied thread-locking compound to the threads of the nine pan-head screws removed in Step 7. Mount the new main PCB to the rotating plate with these nine screws.

9. Reconnect the cables to the new main PCB’s connectors as shown in Figure 7. The RF board cable will be connected in the next section. **Note that the two RF cables will no longer be connected to the main PCB.**

![Figure 7 New Main PCB Connectors](image)
Steps 10-14 apply only to TracVision LM/L2/LF

10. Disconnect the cable clamp securing the antenna gyro cable to the rotating plate (see Figure 8).

11. Cut the tie-wraps securing the ferrite coil to the antenna gyro cable (see Figure 8).

12. Move the ferrite coil along the cable until it is positioned 6 1/2” away from the main PCB. Secure in place with two supplied tie-wraps (see Figure 9).
13. Secure the antenna gyro cable to the rotating plate with the cable clamp removed in Step 10 (see Figure 9).

14. Using a supplied tie-wrap, secure the opposite end of the antenna gyro cable to the reflector bracket as shown in Figure 10.

**Figure 10** Securing the Antenna Gyro Cable
2 **Install the DVB RF Board**

1. Position the RF board onto the four screw mounts on the rotating plate, as shown in Figure 11. Ensure the board’s two RF connectors point toward the antenna reflector.

---

**Figure 11 Installing the New Main PCB and RF Board**

2. Secure the RF board in place with the four supplied standoffs (see Figure 11). Be sure to first apply a small amount of the supplied thread-locking compound to the threads of the standoffs.
3. Connect the two RF cables (removed previously from the old main PCB) to the RF board connectors (see Figure 12).

**Figure 12 RF Board Connectors**

4. Gently pull the excess RF cable through the first cable clamp, leaving a 1” bend radius as shown in Figure 13.

**Figure 13 RF Cables and Cable Clamp**

5. Disconnect and discard the second cable clamp securing the RF cables to the rotating plate.
6. Make a single loop of the excess RF cable, allowing at least a 1” bend radius. Secure the looped cable to the rotating plate with the supplied $\frac{1}{4}$” cable clamp (see Figure 14).

Figure 14 Cable Clamps for RF Cables

Do not pinch the RF cables under the cable clamp arms.

7. Connect the supplied RF board cable from the RF board’s two Molex connectors to connector J9 on the main PCB (see Figures 15 and 16).

Figure 15 RF Board Wiring
8. Position the RF board cover over the RF board. Secure the cover in place with the four supplied screws and washers (see Figure 11 on page 9). Ensure that no cables get pinched beneath the cover (see Figure 17 for cable routing).
9. (SA/S2/SF Only) At the main PCB, tie-wrap the limit switch cables to the RF board cable, as shown in Figure 18. Ensure that the wires are not pulled too tautly.

**Figure 18** Securing Cables at the Main PCB (SA/S2/SF Only)

10. Position the main PCB cover over the main PCB. Ensure that all cables are centered under the cover’s access holes.
11. Position the corrugated sleeve protecting the antenna gyro cable and/or limit switch cables so that the sleeve is centered under the main PCB cover’s access hole (see Figure 19).

**Figure 19** Securing Cables at the Main PCB (SA/S2/SF Only)

12. Secure the main PCB cover in place with the six pan head screws removed previously. Ensure that no cables get pinched beneath the main PCB cover.

13. Secure the elevation axis motor shaft to the antenna bracket using the quick release pin or connecting rod/E-ring that you removed in Step 3 of Section 1, “Replacing the Main PCB” on page 4.

14. Carefully move the reflector through its range of motion to ensure that no cables get pinched or sharply bent. Adjust the cables as necessary.

15. Replace the radome you removed in Step 2 of Section 1, “Replace the Main PCB” on page 3.

Ensure that all cables are clear of any moving parts that could cause damage to the unit.
3 Replace the Switchplate

This section does NOT apply to TracVision LM/SA models. If you have a TracVision LM/SA, skip to Section 4 on page 17.

1. Detach the existing switchplate from its mounting location and disconnect all wires that are connected to it.

![Figure 20 Switchplate Wiring](image)

2. Discard the old switchplate.

3. Connect the wires that you disconnected in Step 1 to the back of the new switchplate, as shown above. If an RJ11 cable was connected to the old switchplate, disconnect and discard the cable; do not connect it to the new switchplate. With DVB technology, the antenna system no longer needs a low-speed data port connection.

Do not connect anything to the RJ11 jack on the new switchplate. This jack is the flash port for the RF board.
4. The new switchplate is slightly larger than the old switchplate. Modify the mounting surface to fit the new switchplate. Figure 21 illustrates the new switchplate’s mounting dimensions. A full-size template has been provided in Appendix A.

![Figure 21 Switchplate Panel Cutout Dimensions](image)

5. Fit the switchplate assembly and support frame into the panel cutout made in Step 4 and flush to the mounting surface.

6. Drill out four \( \frac{5}{32} \)" (4 mm) holes in the countersunk settings in the switchplate support frame.

7. Drill four \( \frac{3}{32} \)" (2.5 mm) holes in the mounting surface using the countersunk holes in the support frame as the template. Secure the support frame and switchplate assembly to the mounting surface using four #6 self-cutting screws (see Figure 22). Snap the front cover into place.

![Figure 22 Mounting the Switchplate Support Frame and Cover](image)

Before securing the switchplate to the mounting surface, be sure to strain-relieve the wires connecting to the switchplate connectors.
4 Configure the System

To configure the system, first connect a PC to the antenna’s maintenance port. You will need a PC with Windows HyperTerminal installed, or if you are a KVH-authorized dealer, download the KVH Flash Update Wizard through the KVH Partner Portal.

TracVision LM/SA:

1. The antenna system’s data cable has two connectors, one (male) connecting to the receiver, the other (female) free to connect to a PC (see Figure 23). Disconnect this data cable from the receiver. The system will no longer work with this cable connected.

2. Connect the data cable’s female DB9 connector to the serial port on your PC (a 9-pin/25-pin connector adapter may be needed for some PCs).

You must disconnect the antenna system’s data cable from the receiver. The upgraded system will NOT function if you leave this cable connected!

If your computer does not have a DB9 serial COM port, you can use the following USB-to-RS232 adapter:

IOGear part number GUC232A (visit www.iogear.com)
TracVision LF/SF/L2/S2 with New Switchplate:

1. Connect one end of a DB9 (male-to-female) PC data cable to the maintenance port connector located on the front of the switchplate (see Figure 24).

![New Switchplate Maintenance Port](image)

2. Connect the other end of the PC data cable to the serial port on your PC (a 9-pin/25-pin connector adapter may be needed for some PCs).

Configuration Instructions

3. Double-click the “KVH Flash Update Wizard” shortcut on your computer’s desktop to start the wizard. You do not need to flash the antenna to configure the system; simply enter commands in the “TracVision Antenna Comms” window.

![TracVision Antenna Comms Window](image)

4. Apply power to the TracVision system and the receiver(s). Allow the system to complete full initialization (about 1 minute). Data should be scrolling on the PC display. If no data is seen, recheck your connections and setup.
5. Type **HALT** then press Enter to place the antenna in Idle Mode.

6. Type **DEBUGON** then press Enter.

7. Type **=LSTEST** then press Enter.

8. (LM/L2/LF Only) Type **=CALGYRO** then press Enter. Verify that the Antenna Gyro Azimuth scale factor is between -0.00060 and -0.00150 and the Antenna Gyro Elevation scale factor is between 0.00060 and 0.00150. If the scale factors are outside these ranges, contact KVH Technical Support.

   *If “Unknown Command” appears, type **=CALAZ** then press Enter. Verify that the Antenna Gyro Azimuth scale factor is between -0.00060 and -0.00150. Wait for Azimuth Calibration to complete, then type **=CALEL** then press Enter. Verify that the Antenna Gyro Elevation scale factor is between 0.00060 and 0.00150.*

9a. **If your antenna was a TracVision SA, S2, or SF:**
   Type **=TVR4** then press Enter.

9b. **If your antenna was a TracVision LM, L2, or LF:**
   Type **=TVR5** then press Enter.

10. Type **=SERNUM,<serial number>,** (where `<serial number>` represents the system serial number for the TracVision system), then press Enter.

11. Type **ZAP** then press Enter to restart the system.

   **The TracVision system has now been fully upgraded to a TracVision R5/R4!**
5 Select the Active Satellite

The TracVision R5/R4 can track a variety of DVB-compatible and DSS (DIRECTV) satellites. The system contains a preprogrammed library of North American and European satellites. The satellites listed in the TracVision satellite library will be sufficient for most users. However, you can install up to two user-defined satellites. To install a user-defined satellite, proceed to Section 5.2, “Programming User-defined Satellites” on page 22.

Available Satellite Pairs

North America

Any two of the North American satellites listed below can be paired together, as long as the satellites are within range of the antenna (U.S.-style LNB required):

- DSS_72
- DSS_101
- DSS_119
- Echo_61
- Echo_110
- Echo_119
- Echo_148
- ExpressVu (82)
- ExpressTV (91)

Europe

Any two of the European satellites listed below can be paired together, as long as the satellites are within range of the antenna (European-style LNB required):

- Arabsat
- Astra1
- Astra2N
- Astra2S
- Eutel_W3A
- Hispasat
- Hotbird
- Nilesat
- Sirius
- Thor
- Turksat1C

You can also receive and decode signals from the DSS_110 satellite if a KVH HDTV converter (KVH Part #01-0260-05) is installed.

The satellite configuration on the receiver must match the satellite setting on the TracVision system.

Satellite A on the TracVision system must be the same satellite as Receiver Alternative 1 (or A, based on the receiver) and must be assigned the Receiver DiSEqC 1 setting.*

Satellite B on the TracVision system must be the same satellite as Receiver Alternative 2 (or B, based on the receiver) and must be assigned the Receiver DiSEqC 2 setting.*

Refer to the receiver’s User’s Manual for complete instructions.

* DiSEqC applies to European systems only
5.1 Installing Your Selected Satellites

Using a PC connected to the baseplate (see the previous section), enter the following commands to install your desired satellites into the antenna.

1. Type **HALT** then press Enter to place the antenna in Idle Mode.

2. Select which preprogrammed satellites you wish to assign. Table 2 lists the satellite names that are in the preprogrammed North American and European satellite library.

3. Type the following command (see the Key below) then press Enter.

   **SATINSTALL, <sat_a_name>, <sat_b_name>**

   **Key:**
   
   - `<sat_a_name>` = the name of your choice for Satellite A
   - `<sat_b_name>` = the name of your choice for Satellite B (type **None** as the name of Satellite B if you wish to install only one satellite)

4. Type **ZAP** then press Enter to restart the system. Wait for the antenna to initialize (about 1 minute). Be sure the receiver’s satellite configuration matches your chosen TracVision system settings.

**Example:**

To assign Astra 2S and Hotbird for your satellite pair, *(where Astra2S is designated as Satellite A and Hotbird is designated as Satellite B)*:

Type **HALT** then press Enter.
Type **SATINSTALL,Astra2S,Hotbird** then press Enter. 
Type **ZAP** then press Enter.

**Table 2**

<table>
<thead>
<tr>
<th>Satellite Installation Names</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>North American Satellites</strong></td>
</tr>
<tr>
<td>DSS 72°W</td>
</tr>
<tr>
<td>DSS 101°W</td>
</tr>
<tr>
<td>DSS 119°W</td>
</tr>
<tr>
<td>EchoStar 61°W</td>
</tr>
<tr>
<td>EchoStar 110°W</td>
</tr>
<tr>
<td>EchoStar 119°W</td>
</tr>
<tr>
<td>EchoStar 148°W</td>
</tr>
<tr>
<td>ExpressVu (82)</td>
</tr>
<tr>
<td>ExpressTV (91)</td>
</tr>
<tr>
<td><strong>European Satellites</strong></td>
</tr>
<tr>
<td>ARABSAT 26°E</td>
</tr>
<tr>
<td>ASTRA1 A19.2°E</td>
</tr>
<tr>
<td>ASTRA2N 28.2°E</td>
</tr>
<tr>
<td>ASTRA2S 28.2°E</td>
</tr>
<tr>
<td>Eutel_W3A 7°E</td>
</tr>
<tr>
<td>Hispasat 30.0°W</td>
</tr>
<tr>
<td>Hotbird 13.0°E</td>
</tr>
<tr>
<td>Nilesat 101 7°W</td>
</tr>
<tr>
<td>Sirius 5.0°E</td>
</tr>
<tr>
<td>Thor 0.8°W</td>
</tr>
<tr>
<td>Turksat1C 40°E</td>
</tr>
<tr>
<td><strong>Other Installation Designations</strong></td>
</tr>
<tr>
<td>User-defined 1</td>
</tr>
<tr>
<td>User-defined 2</td>
</tr>
<tr>
<td>None</td>
</tr>
</tbody>
</table>

* USER1 and USER2 will only be available if one or two user-defined satellites have been added to the library.
5.2 Programming User-defined Satellites

The TracVision system’s satellite library has two open slots that you may use to program two user-defined satellites, in case you want to install/watch a satellite that is not in the KVH predefined satellite library. To configure a user-defined satellite, you will need to obtain the following satellite information from your satellite service provider or from sites on the Internet, such as www.satcodx.com:

- Satellite name
- Satellite position (longitude)
- Transponder information for each of the following polarizations/frequencies:
  - vertical high & vertical low
  - horizontal high & horizontal low
  *or*
  - right
  - left
- Transponder information includes:
  - frequency
  - symbol rate
  - FEC code, and
  - network ID (in hexadecimal format)
- Decoder type
**Entering User-defined Satellite Data**

Once the link between the PC and the TracVision system is established (as described in Section 4, “Configure the System” on page 17), follow the steps below to begin entering the data for your user-defined satellite.

1. Type **HALT** then press Enter.

2. Type the following command (see the Key below) then press Enter.

   **SATCONFIG,**USERX,**YYY,**Z,**D,**L**

   **Key:**
   - **X** = 1 or 2 (This represents the first or second user-defined satellite. The TracVision system allows up to two user-defined satellites.)
   - **YYY** = longitude (0-180)
   - **Z** = E (East) or W (West)
   - **D** = decoding type (0 = test, 1 = DSS-A, 2 = DSS-B, 3 = DVB)
   - **L** = LNB polarization (C = circular, L = linear)

   The main board has now been configured to recognize the user-defined satellite. Next, the RF board must be configured.

3. Type **@DEBUGON** then press Enter.

4. Type the following command (see the Key below) then press Enter.

   **@SATCONFIG,**X,**N,**F,**S,**C,**ID,**P,**B,**D**

   **Key:**
   - **@SATCONFIG** = directs data to the RF board
   - **X** = satellite location A or B
   - **N** = satellite table # (98 & 99 are slots for user-configured satellites)
   - **F** = frequency in MHz (either 00000 or a range from 10700 - 12700)
   - **S** = the satellite transponder symbol rate in Mbit/second (01000 - 29999)
   - **C** = the FEC code (e.g., 12, 23, 34, 56, 67, 78)
   - **ID** = the satellite network ID in hexadecimal format (0x####)
   - **P** = the LNB polarization (v = vertical, h = horizontal, r = right, l = left)
   - **B** = the LNB down conversion frequency (l = low, h = high, u = USA)
   - **D** = decoding type (1 = DSS-A, 2 = DSS-B, 3 = DVB)
This information must be entered for each of the following polarizations:

- vertical high
- vertical low
- horizontal high
- horizontal low
- right
- left

The TracVision system requires that the data fields for all transponder categories be filled in. If the selected satellite does not have information for one or more of the transponder categories, default information should be entered in the fields as follows:

<table>
<thead>
<tr>
<th>Transponder Data</th>
<th>Default Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Frequency</td>
<td>00000</td>
</tr>
<tr>
<td>Symbol Rate</td>
<td>27500</td>
</tr>
<tr>
<td>FEC Code</td>
<td>the same value as provided for those transponders with data</td>
</tr>
<tr>
<td>Network ID</td>
<td>0x0000</td>
</tr>
<tr>
<td>Polarity and Band</td>
<td>whichever combinations are not already provided</td>
</tr>
</tbody>
</table>

5. Type `@SAVE,A` then press Enter to save your settings (or `@SAVE,B` if data is for the User2 satellite.)

6. Type `@DEBUGOFF` then press Enter.

7. Type `ZAP` then press Enter to restart the system.

One of your user-defined satellites has now been added to the TracVision system’s satellite library. This satellite will now be available the next time you use the SATINSTALL command.
An Example of Configuring a User-defined Satellite (Europe)

The following is an example of configuring the fictional YOURSAT 101 as the USER1 configured satellite. Prior to configuring this satellite or any others, be certain to get the most up-to-date information from one of the sources previously mentioned.

Table 4 Sample User-defined Satellite Configuration (Europe)

<table>
<thead>
<tr>
<th>YOURSAT 101 at 71 West, DVB Decoder, Circular Polarization LNB</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Horizontal High</strong></td>
</tr>
<tr>
<td>Frequency</td>
</tr>
<tr>
<td>Symbol Rate</td>
</tr>
<tr>
<td>FEC Code</td>
</tr>
<tr>
<td>Network ID</td>
</tr>
<tr>
<td><strong>Vertical High</strong></td>
</tr>
<tr>
<td>Frequency</td>
</tr>
<tr>
<td>Symbol Rate</td>
</tr>
<tr>
<td>FEC Code</td>
</tr>
<tr>
<td>Network ID</td>
</tr>
<tr>
<td><strong>Vertical Low</strong></td>
</tr>
<tr>
<td>Data Listed</td>
</tr>
<tr>
<td><strong>Horizontal Low</strong></td>
</tr>
<tr>
<td>No Data Listed</td>
</tr>
</tbody>
</table>

Example:

Based on this information, the data entered via the PC would look like this, assuming YOURSAT 101 would be Satellite A:

```
HALT
SATCONFIG,USER1,7,W,3,L
@DEBUGON
@SATCONFIG,A,98,11966,27500,34,0x0800,H,H,3
@SATCONFIG,A,98,11823,27500,34,0x0800,V,H,3
@SATCONFIG,A,98,00000,27500,34,0x0000,V,L,3
@SATCONFIG,A,98,00000,27500,34,0x0000,H,L,3
@SAVE,A
@DEBUGOFF
ZAP
```
An Example of Configuring a User-defined Satellite (N. America)

The following is an example of configuring the fictional YOURSAT 101 as the USER1 configured satellite. Prior to configuring this satellite or any others, be certain to get the most up-to-date information from one of the sources previously mentioned.

Table 5  Sample User-defined Satellite Configuration (North America)

<table>
<thead>
<tr>
<th>YOURSAT 101 at 71 West, DVB Decoder, Circular Polarization LNB</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Right</strong></td>
</tr>
<tr>
<td>Frequency</td>
</tr>
<tr>
<td>Symbol Rate</td>
</tr>
<tr>
<td>FEC Code</td>
</tr>
<tr>
<td>Network ID</td>
</tr>
<tr>
<td><strong>Left</strong></td>
</tr>
<tr>
<td>Frequency</td>
</tr>
<tr>
<td>Symbol Rate</td>
</tr>
<tr>
<td>FEC Code</td>
</tr>
<tr>
<td>Network ID</td>
</tr>
</tbody>
</table>

**Example:**

Based on this information, the data entered via the PC would look like this, assuming YOURSAT 101 would be Satellite A:

```
HALT
SATCONFIG,USER1,71,W,3,C
@DEBUGON
@SATCONFIG,A,98,11966,27500,34,0x0800,R,U,3
@SATCONFIG,A,98,11823,27500,34,0x0800,L,U,3
@SAVE,A
@DEBUGOFF
ZAP
```
6 Switching Between Satellites

The TracVision system is programmed to track either of two satellites, stored in memory as Satellite A and Satellite B. You can use the receiver remote control or the optional TV/SAT Switch*, to select between the two satellites.

Europe

When the TracVision system and the receiver have matching configurations, switching from one satellite to the other is as easy as changing the channel using the remote control. The TracVision system will automatically switch from Satellite A to B and back again as necessary to receive your selected channel.

North America

DIRECTV Subscribers

DIRECTV subscribers in certain regions of the United States will require a DSS Plus receiver to receive broadcasts from multiple satellites. If connected to the antenna’s RF1 connector, the DSS Plus receiver allows you to switch channels using the remote control. All receivers currently offered by DIRECTV are DSS Plus receivers. However, if you are a DIRECTV subscriber, but do not have a DSS Plus receiver, or you are using a multiswitch, use the optional TV/SAT Switch*.

DISH Network Subscribers

Some DISH Network customers will need to manually switch satellites using the optional TV/SAT Switch*.

DISH Network customers with DISH 500 service and a DishPro 301 receiver may configure the TracVision system to use DISH 500 mode. See Section 6.1 “Configuring the Antenna for Dish 500 Mode” on page 28 for details.

ExpressVu Subscribers

ExpressVu customers need to use the optional TV/SAT Switch*.

* To order a TV/SAT Switch (KVH Part Number 01-0245), please call +1 401 847-3327.
6.1 Configuring the Antenna for DISH 500 Mode

DISH 500 mode automatically switches between the 119 and 110 satellites when you change channels using the receiver’s remote control. To configure the TracVision antenna for DISH 500 mode, you will need to run the receiver’s Check Switch function twice. You do **not** need a laptop computer.

To configure the TracVision antenna for DISH 500 mode, follow the steps below.

1. Park your vehicle in a blockage-free area and do not move the vehicle until you have completed the entire configuration process.

2. Turn on the master receiver *(the receiver that is connected to the antenna’s RF1 connector)* and the television.

3. Turn on the TracVision antenna using the switchplate’s power switch.

4. Wait one minute for the antenna to initialize.

5. Using the receiver’s remote control, go to the “Point Dish/Signal Strength” screen *(press MENU, 6, 1, 1 (on most models))*.

6. Using the remote control’s arrow buttons, highlight “Check Switch” then press the SELECT button.

7. Highlight “Test” then press SELECT to run the Check Switch function.

8. Wait a minimum of **15 minutes** for the Check Switch function to complete and for the antenna to restart and configure itself for DISH 500 mode.

   *If the receiver locks up (does not respond to commands from the remote control), disconnect power from the receiver, restart the antenna, then restore power to the receiver and try the Check Switch function again.*

9. Choose “Test” then press SELECT to run the Check Switch function a second time.
10. Wait until the Check Switch function is complete (it will take a couple minutes).

11. Ensure that the TV display matches Figure 27:

**Figure 27 Check Switch Screen**

<table>
<thead>
<tr>
<th>Installed Switch:</th>
<th>SW42</th>
</tr>
</thead>
<tbody>
<tr>
<td>Input:</td>
<td>1 1 2 2</td>
</tr>
<tr>
<td>Satellite:</td>
<td>119 119 110 110</td>
</tr>
<tr>
<td>Polarity:</td>
<td>Odd Even Odd Even</td>
</tr>
<tr>
<td>Status:</td>
<td>Satellite reception verified</td>
</tr>
</tbody>
</table>

This indicates that the receiver is configured properly. If this information is not displayed **exactly** as shown above, run the Check Switch function again.

12. Exit the menu and allow the receiver to download the program guide.

13. Once the program guide has loaded, you can start enjoying satellite TV. The antenna will now switch between satellites automatically as you change channels using the receiver’s remote control.
Appendix A

Switchplate Template

Panel Cutout

3/32" (2.5 mm) dia

2.05" (52 mm)

3.82" (97 mm)

.32" (8 mm)

2.36" (60 mm)

.16" (4 mm)

3.19" (81 mm)