

TRACVISION[®]
BY KVH INDUSTRIES

TracVision[®] R1st
with 12V DIRECTV[®] Mobile Receiver



TracVision R1st Installation Guide

TracVision R1st Installation Guide

DIRECTV® Mobile Receiver Configuration

These instructions explain how to install the TracVision R1ST satellite TV antenna system on a vehicle. Complete instructions on how to use the system are provided in the *User's Guide*.

Installation Steps

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Who Should Install the System?

To ensure a safe and effective installation, KVH recommends that a KVH-authorized technician install the TracVision R1ST antenna. To find a technician near you, please visit www.kvh.com/wheretogetservice.

Related Documentation

The following additional documents are provided with the TracVision R1ST system:

<u>Document</u>	<u>Description</u>
User's Guide	Complete operation, setup, and troubleshooting information
Quick Start Guide	Handy quick reference to basic operation and troubleshooting information
Product Registration Form	Details on registering the product with KVH
Warranty Statement	Warranty terms and conditions
Contents List	List of every part supplied in the kit

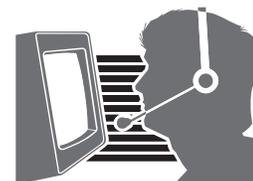
Technical Support

If you need technical assistance, please contact KVH Technical Support:

Phone: +1 401 847-3327

E-mail: techs@kvh.com

(Mon.-Fri., 9 am-6 pm ET; Sat. 9 am-2 pm ET)



1 Inspect Parts and Get Tools

Before you begin, follow these steps to make sure you have everything you need to complete the installation.

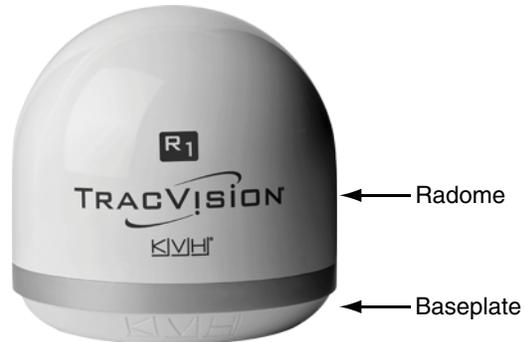
IMPORTANT!

Always lift the antenna by the baseplate and never by the radome or any portion of the internal antenna assembly (see Figure 1).

- a. Unpack the box and ensure it contains everything shown on the *Kitpack Contents List*. Save the packaging for future use.
- b. Carefully examine all of the supplied parts to ensure nothing was damaged in shipment.
- c. Gather all of the tools and materials listed below. You will need these items to complete the installation.
 - #2 Phillips screwdriver
 - 7/16" open-end wrench
 - Cutting pliers
 - Silicone sealant, RTV, or equivalent
 - Construction adhesive suitable for the roof
 - Fasteners suitable for mounting the antenna to the roof
 - 5/8"- diameter hole saw
 - Augat IT1000 connector installation tool (KVH part #19-0242)
 - Eight 1/4" fasteners (see "Mount the Receiver" on page 10)
 - RF modulator (if necessary, see "Wire the Receiver" on page 8)
- d. Peel off the extra serial number label (taped to the antenna) and affix it in the appropriate box on the red Activation Card (see Figure 2).

Figure 1: TracVision R1ST System Components

Antenna



Mobile Receiver/Controller



Figure 2: Activation Card

TracVision® Activation

Before you can start enjoying satellite TV, the TracVision receiver **must be activated**. To activate, please follow the steps below.

- Call KVH's Activation Department at:
1-866-551-8004 (24 hours a day, 7 days a week)
 You will need to provide the Activation Department with a credit card number and the following KVH serial numbers:
 Receiver Serial Number Antenna Serial Number
(If purchased as part of a complete antenna system)

R	A
<input style="width: 80px; height: 20px;" type="text" value="XXXXXXXX"/>	<input style="width: 80px; height: 20px;" type="text" value="XXXXXXXX"/>

Installer: Please place antenna serial # in box above.
- The KVH representative will provide you with five ID numbers necessary for activation. Enter these in the boxes below. **You will need these numbers whenever you call DIRECTV.**

Access Card Number	Receiver ID Number
<input style="width: 100%; height: 20px;" type="text"/>	<input style="width: 100%; height: 20px;" type="text"/>
DIRECTV® Serial Number	Model Number
<input style="width: 100%; height: 20px;" type="text"/>	<input style="width: 100%; height: 20px;" type="text"/>
DIRECTV® Account Number	
<input style="width: 100%; height: 20px;" type="text"/>	
- If you have a TracVision M1, M3ST, or R1ST, the KVH representative will also give you a Location ID. Enter this number here and follow the instructions provided by the KVH representative.

	Location ID <small>(M1, M3ST, or R1ST only)</small>
	<input style="width: 50px; height: 20px;" type="text"/>

Please **save** this card for future reference.

64-0208-04, rev. K

2 Plan the Installation

Before you begin, consider the following installation guidelines:

- Minimize blockage. The antenna requires a clear view of the southern sky to receive satellite TV. Using the guidelines in Figure 3 as a guide, mount the antenna a suitable distance away from obstructions on the roof, such as air conditioners.
- Ensure the mounting surface is flat and strong enough to support the antenna's weight (7.5 lbs).

IMPORTANT!

When placed on the mounting surface, all four mounting plates must lay flat against the roof (within 7/16") to avoid warping the base and damaging the antenna.

- Select an antenna mounting location on the centerline of the vehicle with the antenna's cable connector facing the rear of the vehicle (see Figure 4).

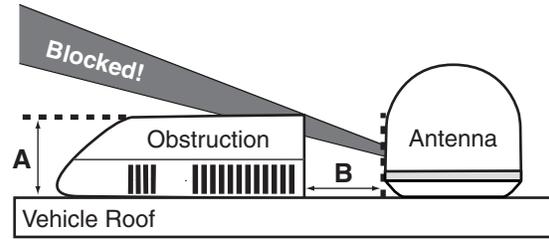
NOTE: A template showing the exact locations of the antenna mounting holes and the dimensions between them is provided in the Welcome Kit.

- Be sure to mount the antenna near enough to the receiver to allow you to connect the 50-ft. coax cable between them, while still maintaining sufficient slack in the cable.

NOTE: If you need to use a longer cable, use an RG6 (75 ohms) cable that does not exceed 80 feet in length.

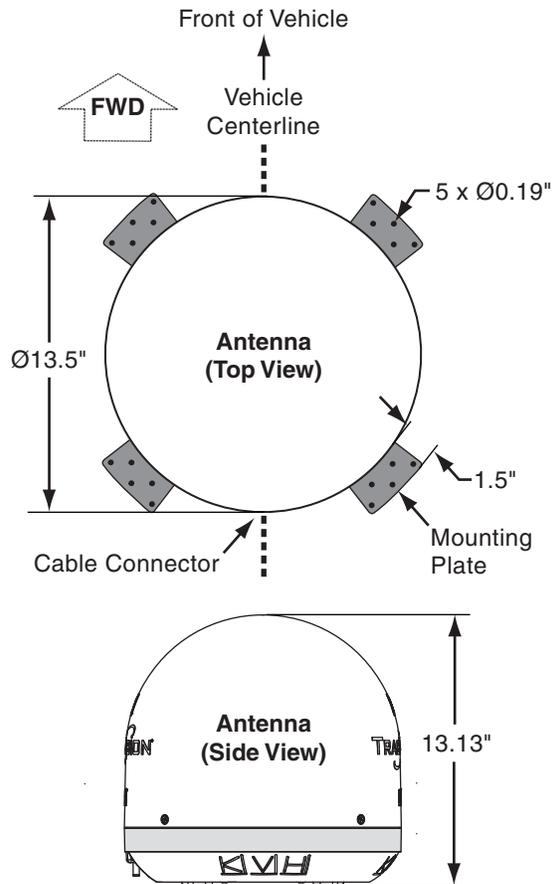
- Once you've chosen a location for the antenna, identify a safe location nearby for the 5/8" cable access hole in the roof. It should be located at least 6" away from the connector. Make sure you will not drill into any existing wires or aesthetic structures inside the vehicle.
- When choosing a location for the receiver, find a dry, well-ventilated area inside the vehicle away from any heat sources. Also be sure the front panel of the receiver will be easily accessible to the user.

Figure 3: Blockage from Obstruction



Obstruction Height (A)	Min. Distance from Antenna (B)
8"	19.5"
10"	26"
12"	32.5"
14"	39"
16"	45.5"

Figure 4: Antenna Dimensions

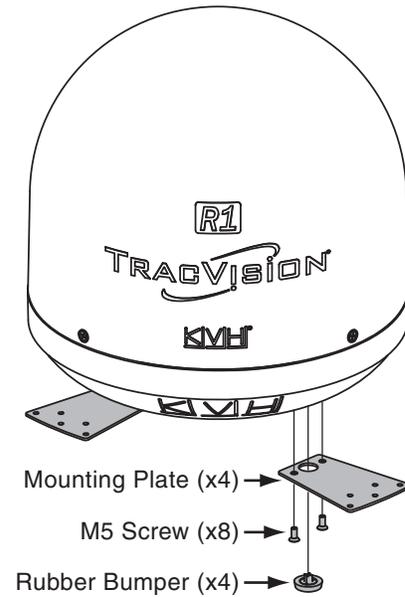


3 Prepare the Antenna

Follow these steps to attach the four mounting plates to the antenna's baseplate.

- a. Attach the four supplied metal mounting plates to the bottom of the antenna using the eight M5 screws supplied in the kitpack (see Figure 5).
- b. Over each mounting plate, fit a supplied rubber bumper into the hole in the antenna's baseplate (see Figure 5).
- c. Carefully carry the antenna to the roof of the vehicle.

Figure 5: Attaching the Mounting Plates



4 Wire the Antenna

Follow these steps to connect the antenna cable to the antenna.

- a. At the location you chose in Step 2 on page 4, use a 5/8" hole saw to cut out a cable access hole in the vehicle's roof. Smooth the edges of the hole to protect the cable.
- b. Route the RG6 antenna cable (the end with the straight connector) down through the cable access hole and into the vehicle. You may remove the straight rubber boot for easier cable routing. Later, you will connect this end of the cable to the receiver.

IMPORTANT!

Do not kink the cable. Maintain a bend radius of at least 3 inches.

- c. Connect the RG6 antenna cable (the end with the right-angle connector and rubber sealing boot) to the antenna. Hand-tighten, then tighten with a 7/16" wrench for 1/4 turn to ensure an electrical and weather-proof connection (see Figure 6).
- d. Position the rubber boot over the connector to help protect the connector from the elements.
- e. Leave an adequate service loop, approximately 8" of slack, in the antenna cable for easy serviceability.
- f. Seal the cable access hole with a liberal amount of silicone sealant (or equivalent) to protect against leakage.
- g. Install the supplied clamshell ventilator over the cable access hole. The clamshell's opening should face the rear of the vehicle. Secure in place with the three #6 screws supplied in the kitpack (see Figure 7). Then seal the screws with silicone sealant (or equivalent).

Figure 6: Connecting the Antenna Cable

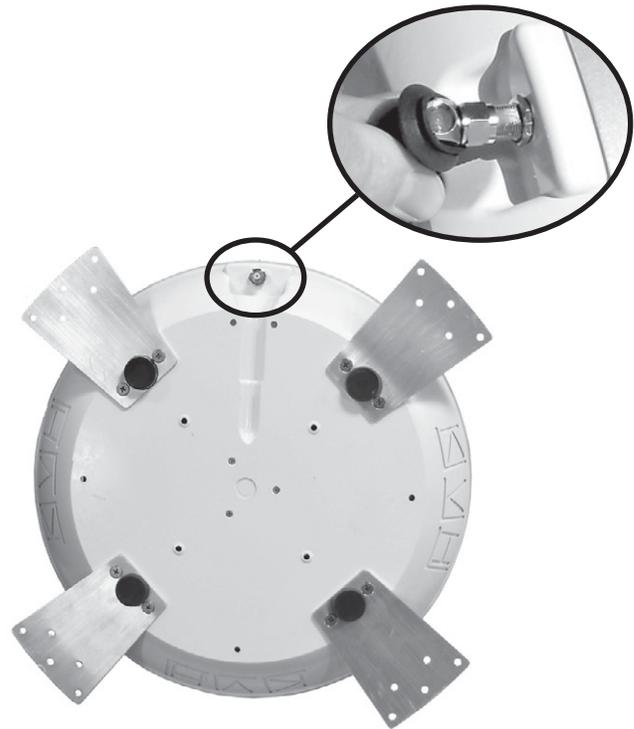
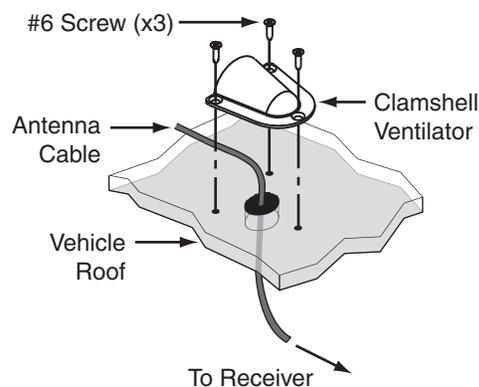


Figure 7: Mounting the Clamshell Ventilator



5 Mount the Antenna

Follow these steps to mount the antenna to the roof.

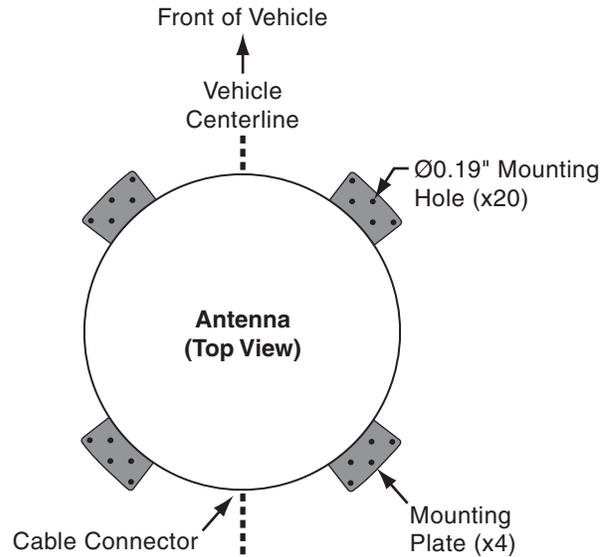
- a. Apply appropriate construction adhesive to the bottom of the antenna's four mounting plates across all of the holes.
- b. At the mounting location you chose in Step 2 on page 4, place the antenna on the centerline of the roof so that the cable connector faces the rear of the vehicle (see Figure 8).
- c. Attach the four antenna mounting plates to the roof using 20 fasteners appropriate for the roof's construction (see Figure 8).

IMPORTANT!

Due to the variation in RV roof construction, consult with the RV manufacturer to determine the safest fastening method.

- d. Seal all fasteners with silicone sealant (or equivalent).

Figure 8: Mounting the Antenna



6 Wire the Receiver

Follow these steps to connect system cables to the receiver.

IMPORTANT!

If you cut the antenna cable, terminate the cable with a Snap-N-Seal® F-connector using an Augat IT1000 tool. Low-quality connectors will degrade system performance and KVH's warranty does not cover repairs resulting from the use of such connectors.

- Connect the antenna cable (A) to the "To KVH Antenna" jack (see Figure 9).
- Connect the RF converter cable (B) to the "RF Remote Input" jack.
- Connect the receiver to the TV's video input. Choose one of the following options:

Option 1 - RCA-type jack (cable included)
Option 2 - S-Video jack

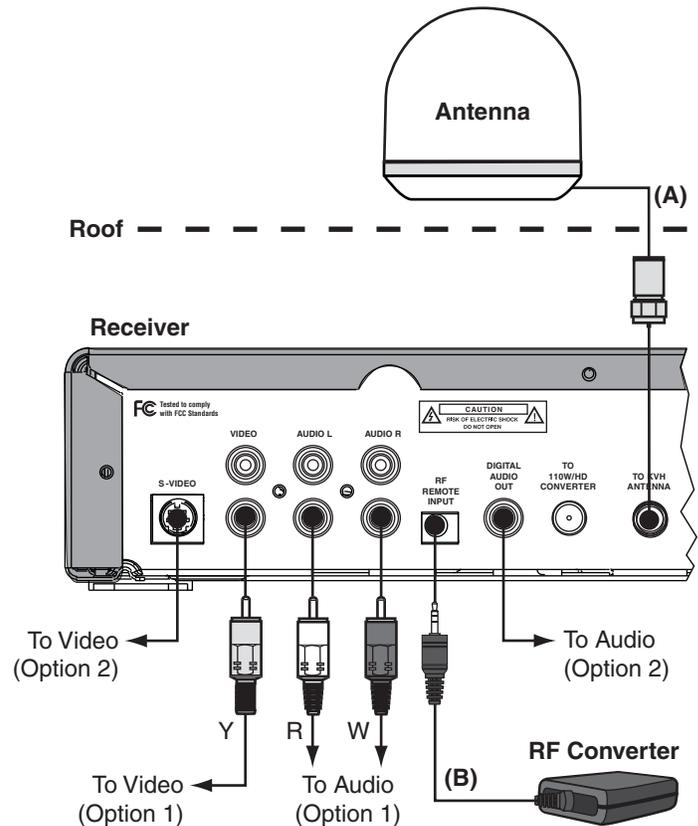
NOTE: If the TV has only a coaxial input, you will need an RF modulator (KVH part #72-0292).

- Connect the receiver to the TV's audio input. Choose one of the following options:

Option 1 - RCA-type jacks (cables included)
Option 2 - Digital audio jack

NOTE: For details on connecting additional receivers, refer to Appendix A of the User's Guide.

Figure 9: Wiring the Receiver



7 Connect Power

The receiver requires 10-16 VDC power input supporting 50 watts (4.2 amps @ 12 VDC). Follow these steps to connect power to the receiver.

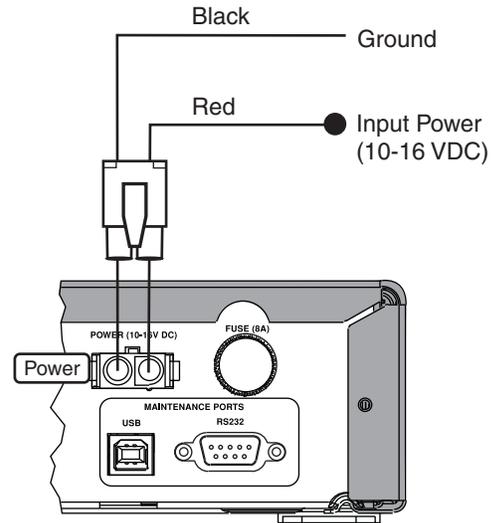
	CAUTION
For your own safety, shut down vehicle power before you connect the wires.	

- a. Before you connect the power wires, turn off vehicle power and test the circuit to ensure no power is present.
- b. Connect the individual power wires to a dedicated 12 VDC circuit. Connect the negative (black) wire to ground (power return), and connect the positive (red) wire to clean +12 VDC vehicle power.

NOTE: If vehicle power fluctuates or is noisy, KVH recommends that you use an AC/DC power supply (KVH part #72-0206-01) to provide stable power to the receiver.

- c. Plug the other end of the wires into the “Power” jack on the rear panel of the receiver (see Figure 10).

Figure 10: Receiver Power Wiring



8 Mount the Receiver

Once all cables are connected, follow these steps to install the receiver inside the vehicle.

- a. Attach the two mounting brackets to the sides of the unit using three #2-56 screws. Simply screw these fasteners into the vent slots (see Figure 11).

IMPORTANT!

To avoid overheating, do not block the upper vents of the receiver.

- b. Secure the brackets to the mounting surface using appropriate 1/4" fasteners (not supplied).

NOTE: Be sure to leave enough slack in the connecting cables (service loop) for easy serviceability.

- c. Place the RF converter at least 3 feet away from the receiver (see Figure 12). If it is too close to the receiver, the remote control might not operate properly. Also avoid placing the RF converter behind a metal surface or in an area surrounded by metal.
- d. If desired, mount the RF converter using the supplied Velcro fasteners.
- e. Insert two AAA batteries (supplied in the kitpack) in the remote control's battery compartment (see Figure 13).

Figure 11: Receiver Mounting

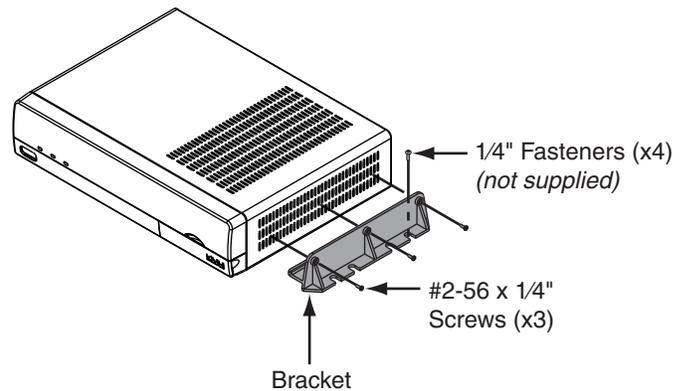
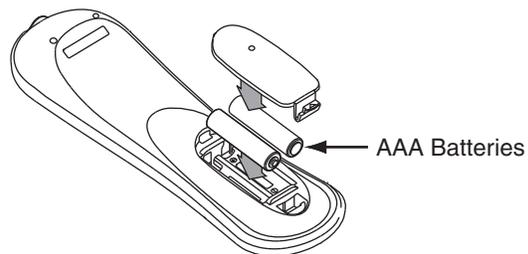


Figure 12: RF Converter



Figure 13: Remote Control Batteries



9 Test the System

Now that you have installed the system, follow these steps to turn the system on and verify that the antenna works properly.

- a. Ensure the antenna has a clear view of the sky.
- b. Apply power to the TV and the TracVision system.
- c. Turn on the power switch on the front of the receiver (see Figure 14).
- d. Wait while the antenna searches the sky for the DIRECTV satellite. Within a few minutes, all three status lights on the front of the receiver should be lit green (see Figure 14). If all three status lights are not lit green, refer to the *User's Guide* for troubleshooting information.
- e. Wait one minute for the receiver to download the program guide. A progress bar will appear on the TV (see Figure 15).
- f. Once the program guide is loaded, verify that you can view the DIRECTV preview channel (100).

Figure 14: Receiver Power Switch and Status Lights

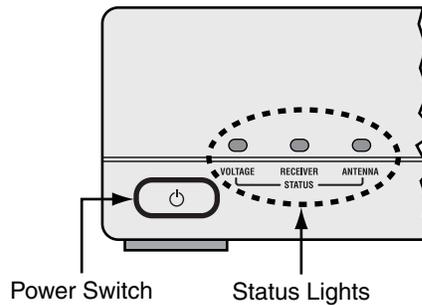


Figure 15: Program Guide Progress Bar



10 Educate the Customer

Before you leave the vehicle, give the Customer Welcome Kit, the red Activation Card, and all manuals to the customer and explain how to use the system. Also be sure the customer understands the following:

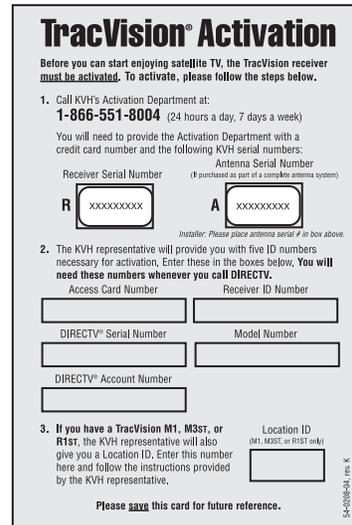
- Keep the radome installed on the antenna at all times. The radome protects the antenna's moving parts from wind, rain, and debris.

 CAUTION
In the unlikely event that you need to remove the radome, remove power from the antenna first because the antenna's moving parts can cause injury.

 WARNING
It is dangerous to watch TV while driving a vehicle. While the vehicle is in motion, the system is intended for passenger use only.

- The receiver must be activated first before it can decode satellite TV signals. Refer to the red Activation Card for details (see Figure 16).
- The antenna must have a clear view of the sky to receive satellite TV. Common causes of blockage include trees, buildings, bridges, and mountains (see Figure 17). The TracVision system will not work inside a garage. Heavy rain or snow might also temporarily interrupt reception.
- Clean the antenna regularly. Dirt buildup on the radome can affect satellite TV reception.
- Please register the system with KVH. The registration process is quick, easy, online, and ensures the best possible service from KVH. Visit www.kvh.com/register or refer to the Product Registration Form for details.
- The vehicle must be located within the selected satellite's coverage area. To view satellite coverage maps, visit: www.kvh.com/footprint.

Figure 16: Activation Card



TracVision® Activation

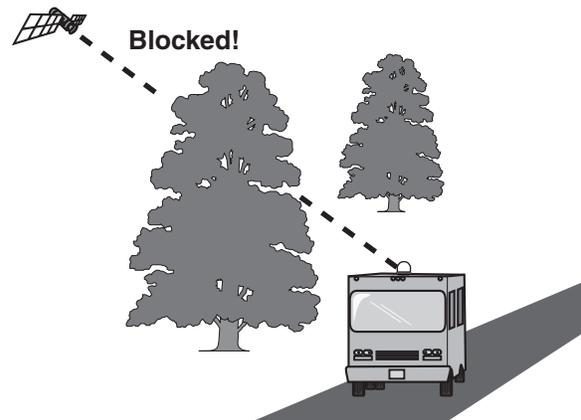
Before you can start enjoying satellite TV, the TracVision receiver **must be activated**. To activate, please follow the steps below.

1. Call KVH's Activation Department at:
1-866-551-8004 (24 hours a day, 7 days a week)
You will need to provide the Activation Department with a credit card number and the following KVH serial numbers:
Receiver Serial Number (R) Antenna Serial Number (A)
(R purchased as part of a complete antenna system)
Installer: Please place antenna serial # in box above.
2. The KVH representative will provide you with five ID numbers necessary for activation. Enter these in the boxes below. **You will need these numbers whenever you call DIRECTV.**
Access Card Number Receiver ID Number
DIRECTV® Serial Number Model Number
DIRECTV® Account Number
3. If you have a TracVision M1, M3ST, or R1st, the KVH representative will also give you a Location ID. Enter this number here and follow the instructions provided by the KVH representative.
Location ID (M1, M3ST, or R1ST only)

Please **save** this card for future reference.

5-4000-04, Rev. K

Figure 17: Blockage Example





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