

**TRACVISION**<sup>®</sup>  
BY KVH INDUSTRIES



**TracVision A5  
Installation Guide**

# TracVision A5 Installation Guide Addendum



## **ECO #7411, 7625**

The following information applies to Revision E of the *TracVision A5 Installation Guide* (KVH Part Number 54-0208-01).

## **TORX® Hardware Replaced with Standard Hex Socket Hardware**

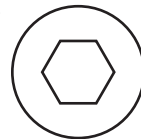
The installation kitpacks now include standard hex socket hardware instead of special TORX-head hardware. A special TORX bit is no longer required for installation. You can use a standard hex socket driver to attach the antenna mounting brackets and to attach the brackets to the vehicle.

<b>Old Hardware</b>	<b>New Hardware</b>
¼"-20 x 1" TORX screws (14-0361-16)	<b>8</b> ¼"-20 x ¾" hex socket screws (14-0420-12)* <b>4</b> ¼"-20 x 1" hex socket screws (14-0420-16)*
<b>Rack Mount only</b>	
¼"-20 x 1¾" TORX screws (14-0414-28)	¼"-20 x 1¾" hex socket screws (14-0422-28)
¼"-20 x 2" TORX screws (14-0414-32)	¼"-20 x 2" hex socket screws (14-0422-32)
<b>Roof Mount only</b>	
¼"-20 x 3½" TORX screws (14-0362-56)	¼"-20 x 3½" hex socket screws (14-0421-56)

**TORX Head Screws**



**Hex Socket Screws**

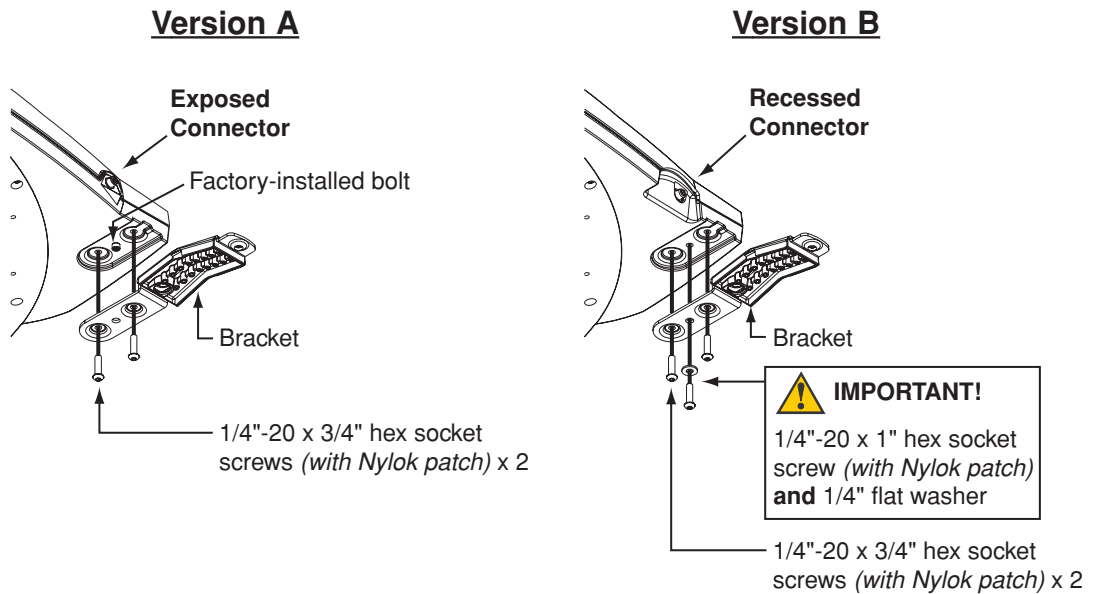


\* See reverse for details about the change in screw lengths.

## Change in Screw Lengths for Attaching the Mounting Brackets to the Antenna

The installation kitpacks now include eight  $\frac{3}{4}$ "-long  $\frac{1}{4}$ "-20 hex socket screws and four 1"-long  $\frac{1}{4}$ "-20 hex socket screws.

Use two  $\frac{3}{4}$ " screws to attach each mounting bracket to the antenna base. If you are installing an older Version B antenna, also be sure to use a 1" screw and washer in the center of each bracket.



# TracVision A5 Installation Guide Addendum



## ECO #7253

The following information applies to Revision E of the *TracVision A5 Installation Guide* (KVH Part Number 54-0208-01). **This addendum concerns the rack mount kit only. It does not apply to the roof mount kit.**

## Kitpack Contents - Rack Mount Kit Only

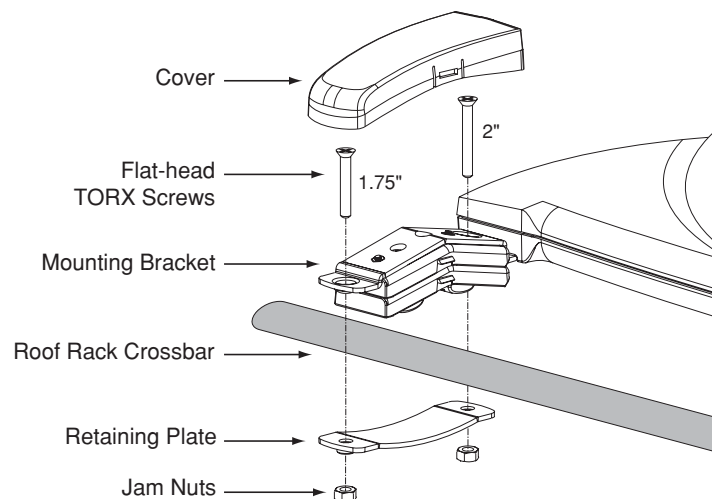
The retaining blocks have been replaced by new steel retaining plates, which make the antenna much easier to install. Therefore, the rack mount kit contents listed on page 1.7 have been replaced by the following parts:

Part	Part #	Qty.
Retaining plates	02-1441	4
¼"-20 x 1¼" TORX screws	14-0414-28	4
¼"-20 x 2" TORX screws	14-0414-32	4
¼"-20 jam nuts	14-0415	8
Rubber cushions	24-0173	8

## Mounting the Antenna - Rack Mount Kit

Steps 5 through 7 on pages 2.8 and 2.9 have been replaced by the step below.

- Using a ¼" driver and the supplied T27 TORX bit, secure each mounting bracket to the roof rack with a retaining plate, two flat-head TORX screws, and two jam nuts, as shown in the figure. Use a 1¼" TORX screw at the end of each bracket and use a 2" TORX screw at the base of each bracket. After securing all four brackets to the crossbars, verify that all cushions (*two within each bracket*) are pressed firmly against the crossbars providing a solid grip.



*Note: This figure shows the optional second spacer.*

# TracVision A5

## Installation Guide

The TracVision A5 is a state-of-the-art, actively stabilized antenna system that delivers *live* satellite TV to a vehicle, even while the vehicle is moving.



This manual provides detailed instructions on the proper installation of the TracVision A5 system. Complete instructions on how to use the system are provided in the *User's Guide*.



*This product must **NOT** be connected to any active monitor that is visible to the vehicle's driver while the vehicle is in motion. This product is intended for rear-seat entertainment only.*



KVH Part # 54-0208-01 Rev. E

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EU Design #000050877-0001, US Patents D493,164 & 6,856,300, Other Patents Pending



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### Note on recording programming

Most television programs and films are copyrighted. This means that someone has legal rights governing the reproduction and distribution of this material. In certain circumstances, copyright law may apply to private taping of copyrighted materials. In most cases, it is permissible to record for your personal use, as long as you do not sell the material. You must act responsibly in this area—check into the matter if you are unsure.

Some pay-per-view programs may be licensed from producers as “view-only” programs. These are copyrighted programs, and may not be copied or reproduced for any purpose without the express written permission of the copyright owner.

## Important Safety Instructions - Please Read

For your safety and protection, please read this entire Installation Guide before you install the TracVision system.

**Heed Cautions** – Be sure to follow all cautions on the product and in the installation instructions. Cautions are indicated by a  or  icon.

**Follow Instructions** – Be sure to follow all installation instructions as detailed in this manual.

The following caution appears on the back of the receiver:



Do not open the receiver's cover. Opening or removing the cover may expose you to dangerous voltage.



### Avoid Driver Distraction

**WARNING!** It is dangerous to watch television or operate the remote control while you are driving a vehicle. The TracVision A5 is designed specifically to provide entertainment to vehicle passengers and should never be connected to active video screens visible to the vehicle driver while the vehicle is in motion. Failure by the driver of a vehicle equipped with a TracVision A5 to pay full attention to traffic and road conditions could result in an accident or collision with personal injury or death resulting.



### CAUTION

To reduce the risk of fire or electrical shock, do **NOT** expose the receiver to rain or moisture and do **NOT** insert any objects into the receiver's ventilation openings.

### **Send Us Your Comments About This Manual**

If you have any comments regarding this manual, please e-mail them to [manuals@kvh.com](mailto:manuals@kvh.com). Your feedback is greatly appreciated!

### **Technical Support**

If you need technical assistance when installing the TracVision A5, please call KVH Technical Support:

Phone: **1-401-847-3327**

E-mail: [techs@kvh.com](mailto:techs@kvh.com)

Internet: [www.kvh.com/help](http://www.kvh.com/help)

### **Activation Department**

Once the TracVision A5 system is installed, the user needs to activate the receiver by calling KVH's Activation Department:

Phone: **1-866-551-8004**

(24 hours a day, 7 days a week)

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## **Federal Communications Commission (FCC) Regulatory Information**

**Declaration of Conformity** – Standards to which Conformity is declared:  
FCC Part 15

**This device complies with Part 15 of the FCC Rules.** Operation is subject to the following two conditions: (1) this device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

Responsible Party's Name: KVH Industries, Inc.

Address: 50 Enterprise Center, Middletown, RI 02842

Telephone: 1-401-847-3327

Trade Name: KVH

Type of Equipment: Satellite Receiver

Model Number: TracVision A5

**Federal Communications Commission (FCC)** –This equipment complies with Part 15 of the FCC rules.

**Part 15 Compliance** – This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to Part 15 of the FCC rules. These limits are designed to provide reasonable protection against harmful interference in a vehicle installation. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications.

However there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by removing and applying power to the equipment, the user is encouraged to try to correct the interference by one or more of the following measures:

- Increase the separation between the equipment and the receiver.
- Connect the equipment on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced auto electronics technician for help.

The user may find the following booklet, prepared by the Federal Communications Commission, helpful: "How to Identify and Resolve Radio and TV Interference Problems." This booklet is available from the U.S. Government Printing Office, Washington, DC.

To meet FCC requirements, only components certified to comply with Class B limits may be attached to this device. Operation with noncertified peripherals is likely to result in interference to radio and TV reception.

To meet FCC requirements, shielded cables are required to connect the device to another Class B certified device.

# 1 Getting Started

This section provides a basic overview of this manual and the TracVision A5 system. It also lists the components supplied with the system and the items you will need to complete the installation.

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## 1-1 Using this Manual

This manual provides complete instructions for installing the TracVision A5 system. Throughout this manual, important information is marked for your attention by the following icons:



A helpful tip that either directs you to a related area within the manual or offers suggestions on getting the highest quality out of your system.



An alert to important information regarding procedures, product specifications, or product use.



Information about installation, maintenance, troubleshooting, or other mechanical issues.



An electrical safety warning to help identify electrical issues that can be a hazard to either this KVH product or a user.

## Who Should Install the TracVision A5 System

KVH strongly recommends that a KVH-authorized technician and an assistant install the TracVision A5 system. Installers should have experience installing electronic equipment on a vehicle and have knowledge about satellite television.



*Do **NOT** attempt to install the antenna by yourself. Two people are needed to lift the antenna onto the vehicle's roof.*

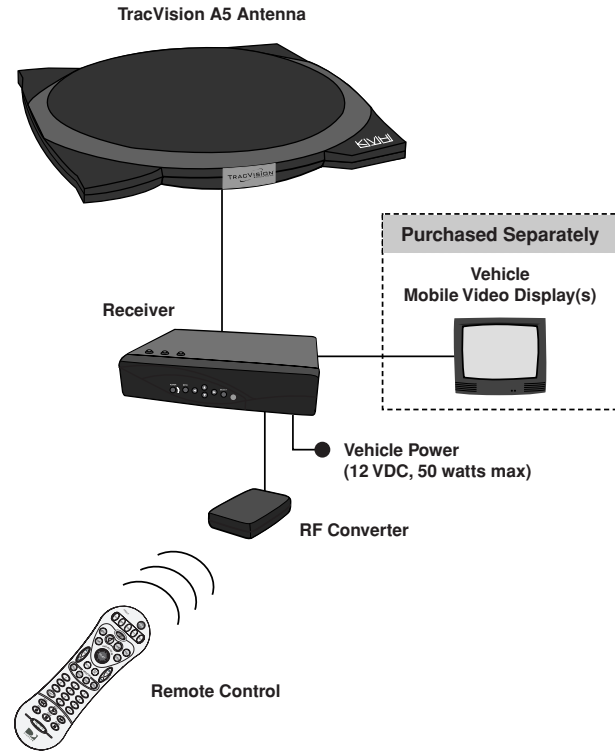


*KVH is not liable for damage (or related expenses) caused by improper installation.*

## 1-2 System Overview

A complete satellite TV system includes the TracVision A5 antenna and receiver connected to the vehicle's audio/video entertainment system. The remote control and RF (radio frequency) converter allow the user to operate the system from anywhere in the vehicle.

*TracVision A5 System Diagram (Typical Installation)*



## System Components

The TracVision A5 includes the following components:

### Antenna Unit

The antenna unit, mounted on the vehicle's roof, houses the phased array, positioning mechanisms, low noise block (LNB), and control elements within a weathertight radome. A single cable connects the antenna to the receiver inside the vehicle.



### Receiver

The receiver, mounted inside the vehicle, decodes satellite signals from the antenna unit and sends the signals to the vehicle's audio/video system. It also supplies power to the TracVision antenna.



### Remote Control

The backlit wireless RF remote control allows the user to operate the system from anywhere in the vehicle. The remote does not need to be pointed directly at the receiver for the signal to be received.



### RF Converter

The RF converter receives RF commands from the remote control, converts them to digital signals, and sends them to the receiver for processing.



## 1-3 Materials Provided

The following components are provided with the TracVision A5 system.

Component	KVH Part #
Antenna unit	02-1289-01
Receiver	02-1287-01
RF converter	02-1344
Remote control	19-0335
Kitpack (Rack mount only)	72-0149, 72-0134
Kitpack (Roof mount only)	72-0149, 72-0151
<i>Receiver User's Guide</i>	54-0287
<i>TracVision A5 Installation Guide</i>	54-0208-01
<i>TracVision A5 Quick Start Guide</i>	54-0208-03

Be sure to examine all materials to ensure that nothing was damaged in shipment. *Save the packaging in case you need to reship the system.*

## Kitpack Contents

The kitpack packaged with your system contains various hardware and other materials that you will need to install the TracVision A5. The kitpack contains either a rack-mount kit or a roof-mount kit, depending on the option purchased. Ensure that the kitpack contains all of the items listed below.

### ***Kitpack Contents***

Part	Part #	Qty.
Antenna brackets	02-1347	4
Plastic clamp spacers	30-0180	4
Clamp covers (front)	30-0190	2
Clamp covers (rear)	30-0191	2
#8-32 x 1" screws	14-0041-08	8
Tamper-proof TORX® T27 bit	14-0378	1
¼"-20 x 1" TORX screws	14-0361-16	12
Receiver brackets	30-0217	2
#2-56 x ¼" screws	14-0005-04	6

**Kitpack Contents (continued)**

Part	Part #	Qty.
DC power cable	32-0760	1
Antenna cable, 20 ft.	32-0778-20	1
Snap-N-Seal F-connector	23-0170	1
Audio/video cables	32-0763	1
Backing plate	20-0983	1
#6-32 x 5/8" screws	14-0224-10	4
Tie-wraps	22-0041	9
AAA batteries	15-0015	2
Small protective caps	24-0128	2
Large protective caps	24-0177	2
Velcro washer	19-0147	1
Velcro fabric	19-0146	1
#4 thread-forming screw	14-0022-06	1

**Kitpack Contents - Rack Mount Kit Only**

Part	Part #	Qty.
Retaining blocks	30-0181	4
Swivel nuts	20-0980	16
Hex lock nuts	14-0065-25	8
1/4" flat washers	14-0132-08	8
Rubber cushions	24-0173	16
1/4"-20 x 2" TORX screws	14-0363-32	8
1/4"-20 x 2 1/2" TORX screws	14-0363-40	8

**Kitpack Contents - Roof Mount Kit Only**

Part	Part #	Qty.
Rubber mounting blocks	24-0180	4
Rubber spacers	24-0181	4
Jack nuts	14-0384-25	8
Friction wrenches	14-0387	4
1/4"-20 x 3 1/2" TORX screws	14-0362-56	8
1/4"-20 x 1" hex head bolt	14-0250-16	1

## 1-4 Materials You Will Need

To install the TracVision system, you will need the following tools and materials:

- ¼" driver
- Phillips and flat-head screwdrivers
- Stepladder
- ⅝" open-end wrench
- Torque wrench
- Wire cutters
- Silicone sealant or RTV

*If you use the roof mount kit:*

- Light hammer and transfer punch or <sup>21</sup>/<sub>64</sub>" bit
- Drill and ⅝" bit
- ⅝" socket wrench

*If you route the antenna cable through the roof:*

- Light hammer and center punch
- Drill and ⅝" bit
- ½" hole saw

*If you cut the antenna cable to length:*

- LRC/Augat T1000 crimp tool (*available from KVH; call (401) 847-3327 to order*)



### **Hummer® H2 Installations**

*If you are mounting the antenna on a Hummer H2, you will need to use KVH's special Hummer mounting kit (the roof rack crossbars that are factory-installed on Hummer H2s are too thick for the standard brackets). To order a kit, please call KVH at (401) 847-3327.*

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## 1-5 Preparing the Activation Card

Before you install the antenna, peel off the extra serial number label (taped to the antenna) and affix it in the appropriate box on the red Activation Card.



*Be sure to affix the extra antenna serial number label to the red Activation Card. The user will need this number to activate the receiver, and the receiver must be activated in order to watch satellite TV via the TracVision A5 system. See Section 4-6, "Activating the Receiver" on page 4.12 for details.*

### Activation Card

## TracVision® Activation

Before you can start enjoying satellite TV in your vehicle, the TracVision A5 receiver **must be activated**.

To activate your receiver, 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 KVH Activation Department representative with a credit card number and the following KVH serial numbers:

Receiver Serial Number	Antenna Serial Number
R <input type="text"/>	A <input type="text"/>
	<small>Installer: Please place antenna serial number in box above.</small>

2. The KVH representative will provide you with 4 ID numbers necessary for activation. Enter these in the boxes below:

Access Card Number	Receiver ID Number
<input type="text"/>	<input type="text"/>
Hughes Serial Number	Model Number
<input type="text"/>	<input type="text"/>

Please save this card for future reference.  
You will need these numbers whenever you call DIRECTV.

54-0208-01, rev. B

# 2 Installing the Antenna

This section explains how to mount the antenna to the vehicle and how to connect and route the antenna cable.

## Contents

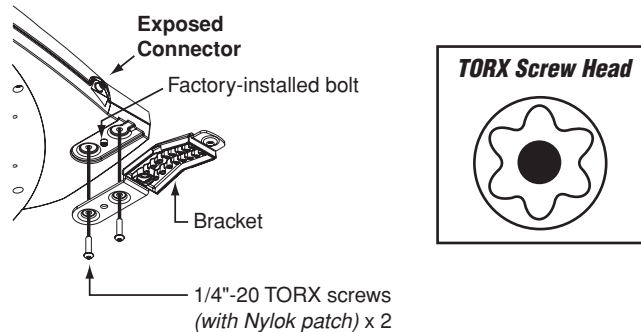
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## 2-1 Attaching the Mounting Brackets

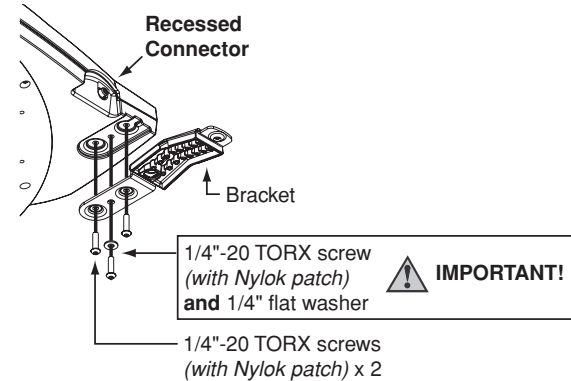
The antenna has either an exposed cable connector (Version A) or a recessed connector (Version B). Follow the instructions for the antenna version you are installing to attach a supplied mounting bracket underneath each of the antenna's four corners. Use a  $\frac{1}{4}$ " driver and the supplied T27 TORX bit to tighten the screws.

### Version A



Use **two**  $\frac{1}{4}$ "-20 x 1" TORX screws to attach each mounting bracket to the antenna base. (A bolt is factory-installed in the base between the bracket holes.)

### Version B



Use **three**  $\frac{1}{4}$ "-20 x 1" TORX screws and one  $\frac{1}{4}$ " flat washer to attach each mounting bracket to the antenna base.

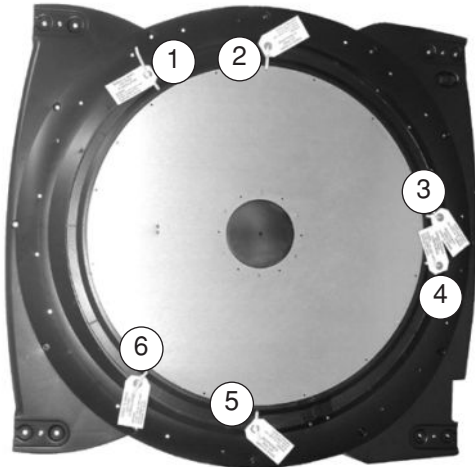


***The center screw and washer are critical for a safe installation!*** If the kitpack is missing any hardware, please call KVH Technical Support at 401-847-3327. The screws are treated with a thread-locking Nylok patch; do not use any substitutes.

## 2-2 Removing the Shipping Restraints

Cut and remove all of the shipping restraints from underneath the antenna. To remove the wire restraints, you will need to use heavy-duty wire cutters.

**Shipping Restraint Locations**



**Removing the Shipping Restraints**

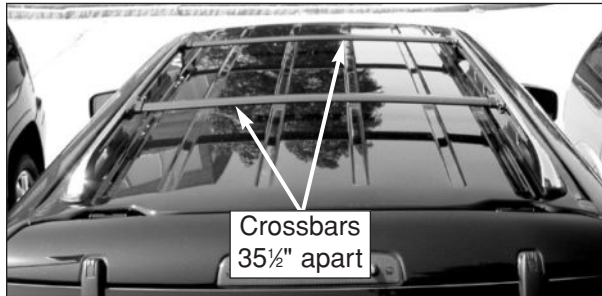


## 2-3 Mounting the Antenna - Rack Mount Kit

If you are mounting the antenna to the vehicle's **roof rack**, follow the steps below. If you are mounting the antenna directly to the **roof**, skip to page 2.10.

1. Position the roof rack's crossbars 35½" apart, measured center-to-center. Ensure that the crossbars are securely fastened to the vehicle.

**Roof Rack Crossbars**



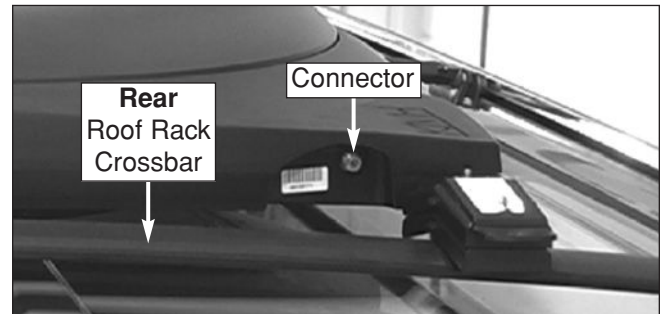
*Be sure the roof rack's crossbars are secured in place and are sturdy enough to support the 48 lb antenna.*

2. With an assistant's help, gently place the antenna onto the roof rack with the connector facing the rear of the vehicle. All four brackets should rest on top of the roof rack's crossbars.

**Placing the Antenna on the Crossbars**

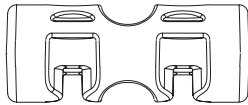


**Antenna Connector Facing Rear of Vehicle**



3. Each bracket and retaining block (*which you will attach to the bracket later*) contains several pairs of pegs. These pegs allow you to place four rubber cushions in different positions to best fit the vehicle's style of crossbars. Sixteen cushions are supplied in the kitpack, two for each bracket and two for each retaining block.

**Rubber Cushion**

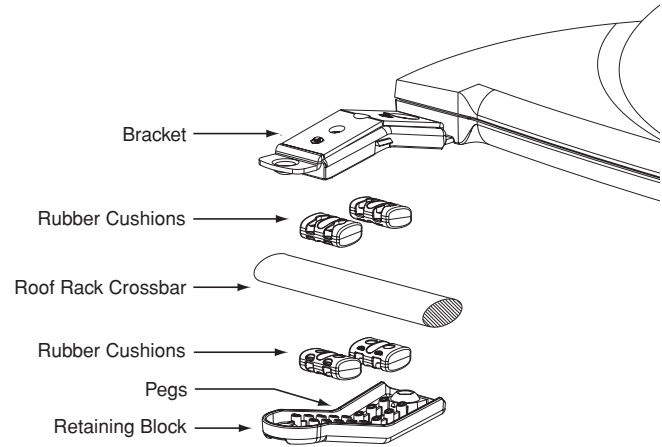


Try out the various cushion positions until you find the best fit for your installation.



*The more surface area of the cushions pressing against the top and bottom of the crossbar, the better the fit.*

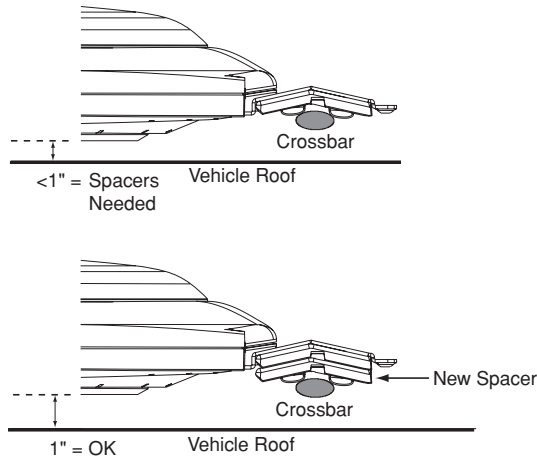
**Positioning Rubber Cushions for Best Fit**



4. With the cushions installed in the brackets, the bottom of the antenna should rest a minimum of 1" above the vehicle's roof. If the antenna's base is less than 1" from the roof, you will need to add a spacer under each bracket to raise the antenna higher off the crossbars.

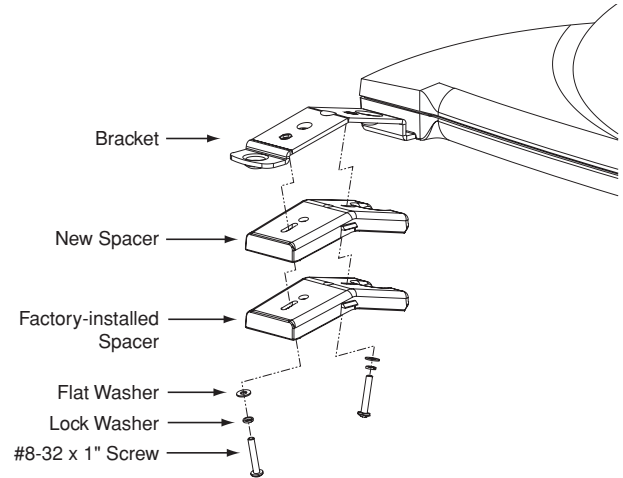
If spacers are needed, follow Steps a and b on this page to install a spacer under each bracket.

**Using Spacers to Raise the Antenna Higher Above the Roof**



- a. Remove the #8-32 x  $\frac{3}{8}$ " screws and washers securing the factory-installed plastic spacer to the metal bracket.
- b. Insert a second spacer from the kitpack between the original spacer (which holds the rubber cushions) and the bracket. Secure both spacers to the bracket using the #8-32 x 1" screws supplied in the kitpack and the original washers that you removed in Step a.

**Adding a Second Spacer to the Bracket (If Needed)**





If you installed extra spacers in Step 4, and there is still less than 1" of space between the antenna and the roof, KVH recommends that you either use the roof mount option or replace the roof rack with an aftermarket model that offers greater clearance. If the antenna is mounted too low, it may strike the roof when the vehicle is in motion.

- At each bracket, insert two swivel nuts into the captive holes from above.
- Insert the appropriate TORX flat-head screws into each bracket's swivel nuts:

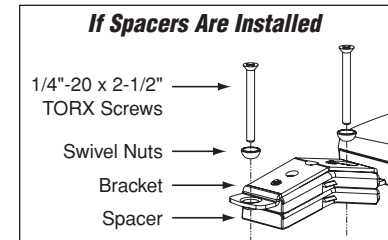
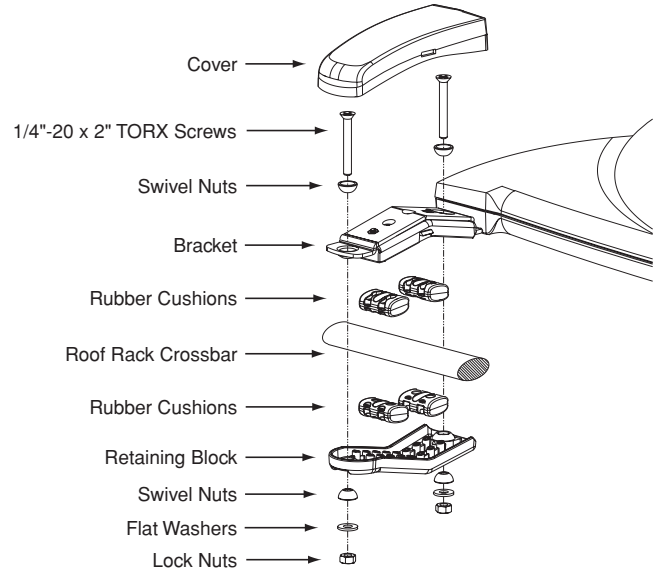
**If you DID NOT install spacers in Step 4:**

Insert 1/4"-20 x 2" TORX screws into the bracket's swivel nuts.

**If you DID install spacers in Step 4:**

Insert 1/4"-20 x 2 1/2" TORX screws into the bracket's swivel nuts.

**Securing the Brackets to the Crossbars**

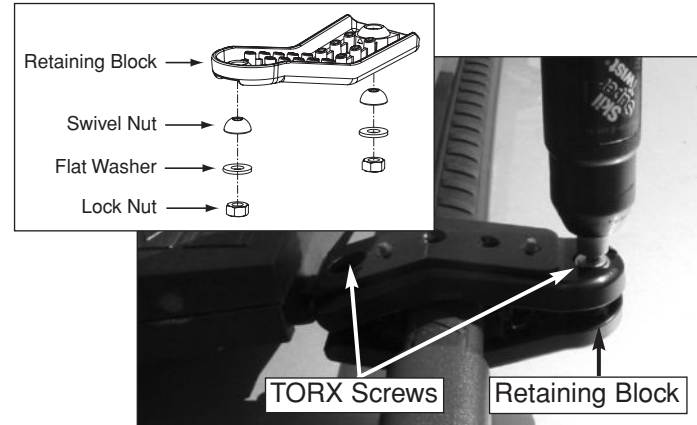


7. At each bracket, position a retaining block underneath the crossbar and insert two swivel nuts,  $\frac{1}{4}$ " flat washers, and lock nuts into the captive holes from below. While holding this hardware in place, screw the bracket's screws into the retaining block's swivel nuts, washers, and lock nuts using a  $\frac{1}{4}$ " driver and the supplied T27 TORX bit. After securing all four brackets to the crossbar, verify that all cushions are pressed firmly against the crossbar, providing a solid grip. Also check to make sure that all eight screws have engaged the nylon inserts in the lock nuts.
8. Attach a protective cover onto each clamp. The covers simply snap into place at the sides of the brackets.



*Two different sizes of covers are provided in the kitpack. Install the two larger covers on the rear brackets and the smaller covers on the front brackets.*

### Securing the TORX Screws



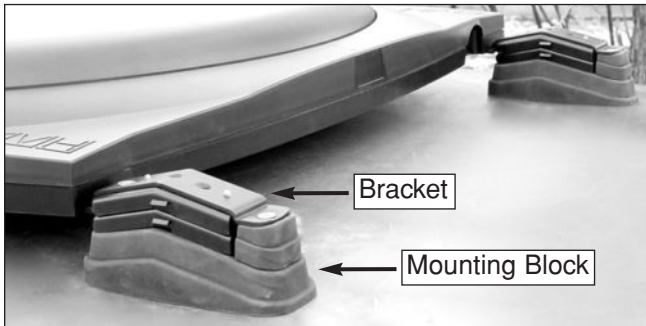
### Attaching the Cover



## 2-4 Mounting the Antenna - Roof Mount Kit

If you are mounting the antenna directly to the roof, follow the steps below. If you mounted the antenna to the vehicle's roof rack, skip to page 2.16.

### ***Roof Mount Option***



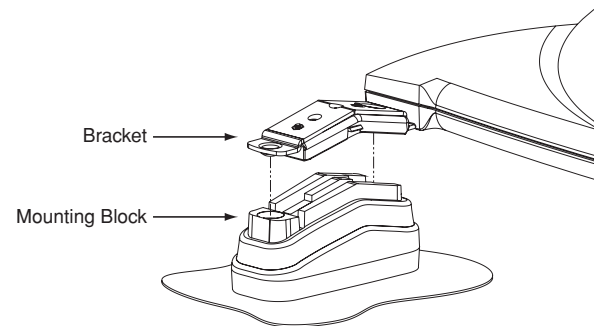
### **WARNING!**

### **PLEASE READ - IMPORTANT!**

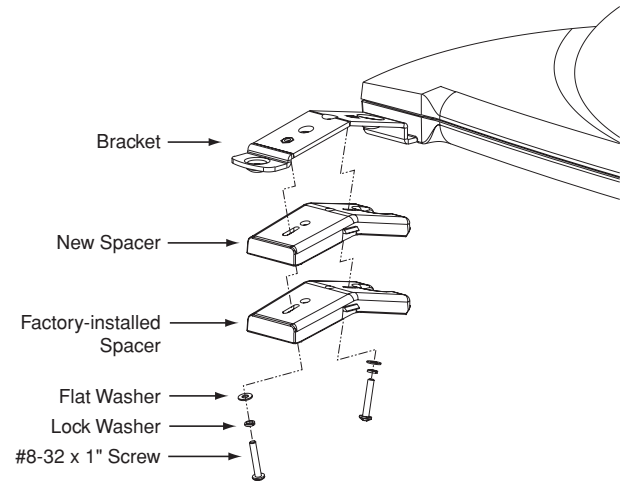
*The roof mount kit is designed for mounting the antenna to a flat metal roof up to  $\frac{3}{16}$ " thick. It is not intended to be a universal solution for all vehicles. Improper use of this kit, or the use of any other installation technique, could result in an unsafe installation and is not supported by KVH.*

1. With an assistant's help, position the antenna onto the center of the vehicle's roof with a rubber mounting block under each bracket.

### ***Positioning an Antenna Bracket Onto a Mounting Block***

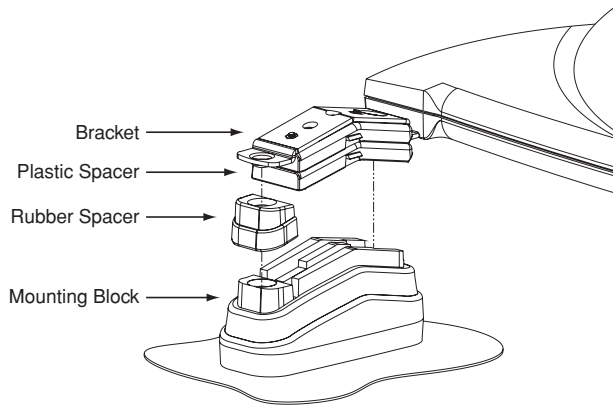


2. The bottom of the antenna should rest a minimum of 1" above the vehicle's roof. If the antenna's base is less than 1" from the roof, you will need to add a spacer under each bracket to raise the antenna higher. If spacers are needed, follow the steps below to install a spacer under each bracket:
  - a. Remove the #8-32 x  $\frac{3}{8}$ " screws and washers securing the factory-installed plastic spacer to the metal bracket.
  - b. Insert a second spacer from the kitpack between the original spacer and the bracket. Secure both spacers to the bracket using the #8-32 x 1" screws supplied in the kitpack and the original washers that you removed in Step a.

**Adding a Second Spacer to the Bracket (If Needed)**

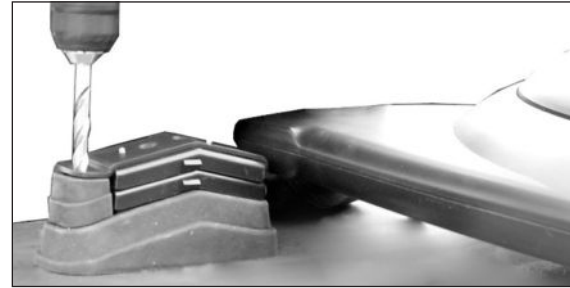
- c. Place a rubber spacer onto the end of each rubber mounting block.

***Adding a Rubber Spacer to the Mounting Block (If Needed)***



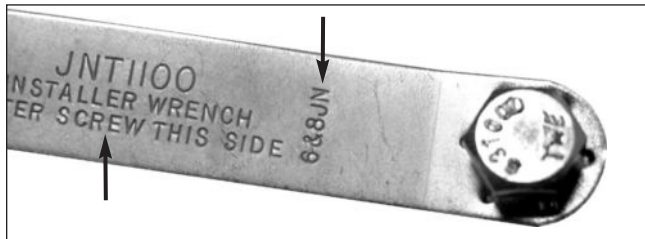
3. With the antenna centered on the vehicle's roof and resting on the four mounting blocks, mark the eight mounting hole locations. To mark the holes, you can use either a transfer punch or a  $\frac{2}{64}$ " drill bit as shown below.

***Marking the Mounting Holes Using a  $\frac{2}{64}$ " Bit***

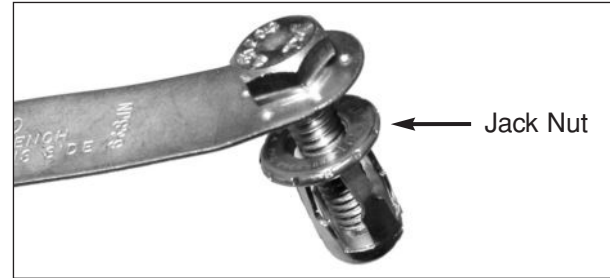


4. Keeping the antenna level at all times, carefully remove the antenna and mounting blocks from the vehicle's roof and set them aside in a safe place.
5. Using a  $\frac{7}{16}$ " drill bit, drill the eight mounting holes in the vehicle's roof. Be careful to drill through just the metal roof, and not through the headliner beneath it.

6. At each of the eight mounting holes in the roof, follow the steps below to install a jack nut.
- Insert the supplied  $\frac{1}{4}$ "-20 x 1" hex head bolt into a friction wrench, using the large hole marked "6&8JN." Be sure to insert the bolt into the correct side of the wrench (marked "Enter Screw This Side"). *Four friction wrenches are provided in the kitpack.*

**Friction Wrench**

- Screw the bolt into a jack nut.

**Screwing the Bolt into a Jack Nut**

- Apply silicone sealant or RTV along the edges of the mounting hole in the roof.



*If the vehicle's roof has a thick vinyl covering, trim the vinyl around each mounting hole to allow the head of the jack nut to fully contact the metal roof.*

- Insert the jack nut into the mounting hole.

- e. While holding the friction wrench in place, tighten the bolt with a  $\frac{7}{16}$ " nut driver or socket. This forces the side tabs of the jack nut to compress against the underside of the roof. **Do not use an air wrench – it might strip the jack nut.**
- f. Loosen and remove the bolt, leaving the jack nut secured to the roof.

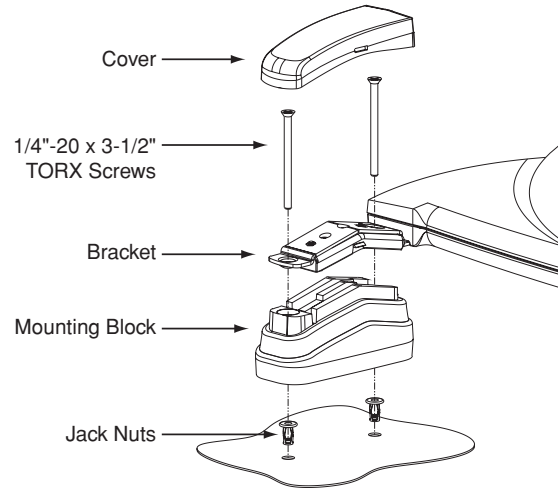
**Jack Nut Secured to Roof**

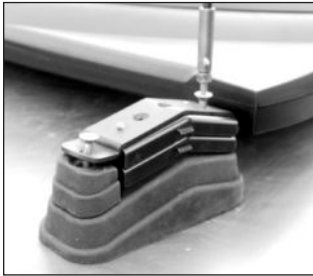


7. Position the mounting blocks back onto the roof, aligning their holes with the jack nuts.
8. Place the antenna onto the mounting blocks, aligning the bracket holes with the mounting block holes.

9. At each mounting hole, insert a  $\frac{1}{4}$ "-20 x  $3\frac{1}{2}$ " TORX screw through the antenna bracket and mounting block and into the jack nut. Tighten to secure in place.

**Securing the Antenna to the Roof**



**Securing Brackets to the Roof (Additional Spacers Shown)****WARNING!**

The TORX mounting screws are prepared with a thread-locking patch. If these screws are removed after their initial installation, the patch's locking capacity will be degraded. Therefore, before reusing the mounting screws, you **MUST** apply threadlocker (Loctite 425) to the screw threads to avoid a potentially dangerous condition. Failure to apply threadlocker to the screw threads can result in unsecure mounting.

10. Attach a protective cover onto each bracket. The covers simply snap into place at the sides of the brackets.

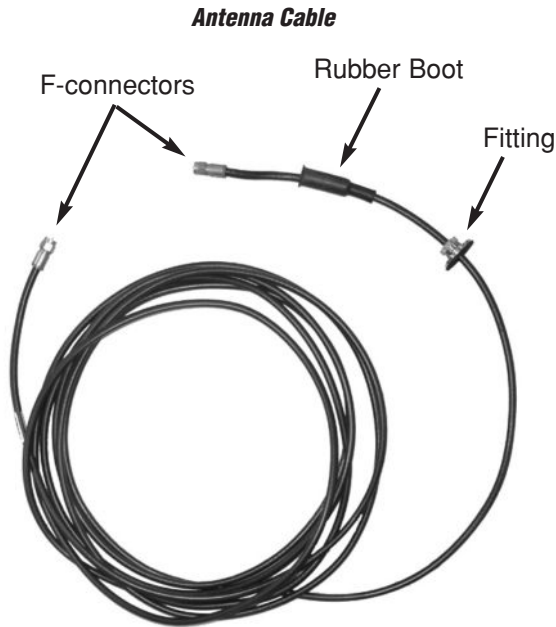


*Two different sizes of covers are provided in the kitpack. Install the two larger covers on the rear brackets and the smaller covers on the front brackets.*

**Attaching the Cover**

## 2-5 Connecting the Antenna Cable

After mounting the antenna to the vehicle's roof, you need to connect the supplied antenna cable (see below) to the antenna and route the cable inside the vehicle.



There are two options for passing the cable into the vehicle:

Option 1 - Through the roof

Option 2 - Behind the hatch (SUVs and minivans)

If the gap in the vehicle's hatch hinge is wide enough when closed to allow the antenna cable to pass without pinching it, you can insert the antenna cable through the gap and into the vehicle. If the gap is too narrow, you will need to use the roof drill-through option. *Installers often prefer the professional appearance of the drill-through option.*

Follow the instructions for your selected option:

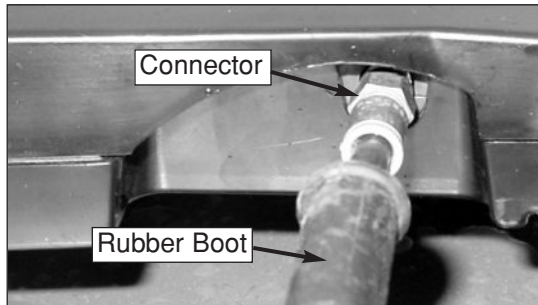
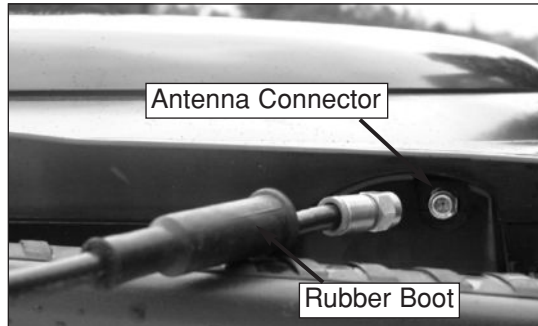
**Through the Roof** .....Page 2.17

**Behind the Hatch** .....Page 2.21

### Option 1 - Routing the Cable Through the Roof

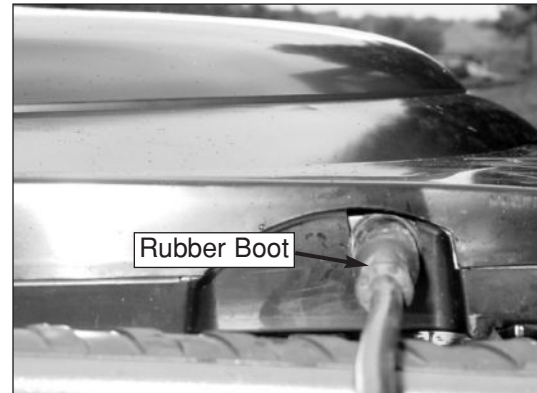
1. Using a  $\frac{3}{16}$ " wrench, connect the end of the cable with the rubber boot to the antenna's connector.

#### *Connecting the Antenna Cable to the Antenna*



2. Slide the rubber sealing boot up the cable until it covers the antenna connector. This boot will protect the connector from the elements.

#### *Rubber Boot, Installed*



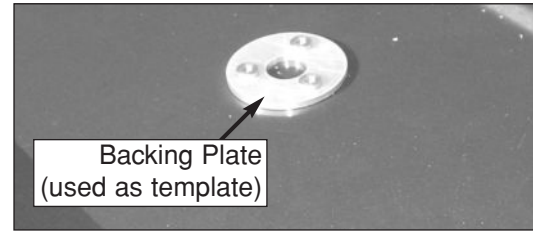
3. Choose a location on the roof for the  $\frac{1}{2}$ "-diameter cable access hole. Inside the vehicle, remove the headliner to access the underside of the roof where you will be cutting out the hole.



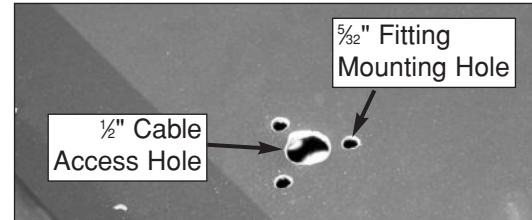
*Techniques for removing the headliner vary from vehicle to vehicle. Only a trained automotive installer should remove the headliner. KVH is not liable for damage caused by improper headliner removal.*

4. Using a  $\frac{1}{2}$ " hole saw, cut out the cable access hole in the vehicle's roof and smooth the edges of the hole to protect the cable.
5. Center the backing plate over the cable access hole to locate the three fitting mounting holes. Use a center punch to mark the hole locations.
6. Set aside the backing plate, then use a  $\frac{5}{32}$ " drill bit to drill the three fitting mounting holes.

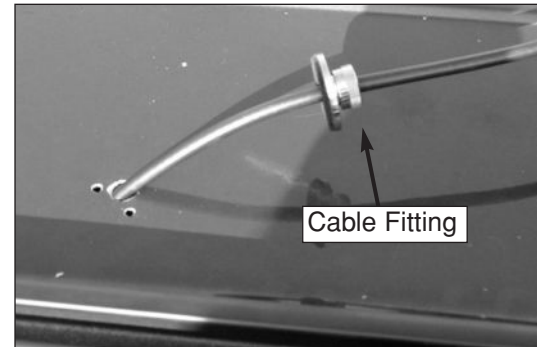
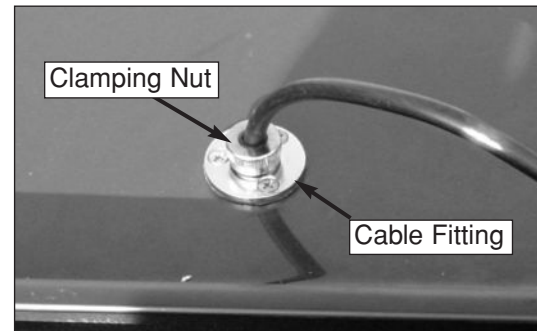
### **Locating the Fitting Mounting Holes**



### **Cable Access Hole and Fitting Mounting Holes**



7. Insert the antenna cable into the access hole. Inside the vehicle, pass the cable through the backing plate and route the cable to the receiver.
8. Move the fitting down the cable until it covers the cable access hole, flush to the vehicle's roof. Line up the fitting's three mounting holes with the three  $\frac{5}{32}$ " holes drilled in the roof. Apply silicone sealant or RTV to the holes and insert the #6-32 x  $\frac{3}{8}$ " screws supplied in the kitpack.

***Cable Routed Into Vehicle Through Access Hole******Fitting Mounted to Roof***

9. Secure the #6-32 x 5/8" screws to the backing plate inside the vehicle.
10. Hand-tighten the fitting's clamping nut onto the cable until you're unable to move the cable back and forth, ensuring a watertight seal.
11. Using the supplied tie-wraps (or equivalent), secure the antenna cable to the roof rack, if necessary.

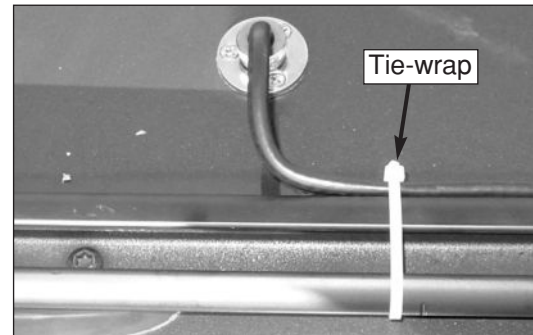


*Do not kink the cable. Maintain a bend radius of at least three inches. A tighter bend may disrupt the TV signal and degrade performance.*

**Backing Plate (Inside Vehicle)**



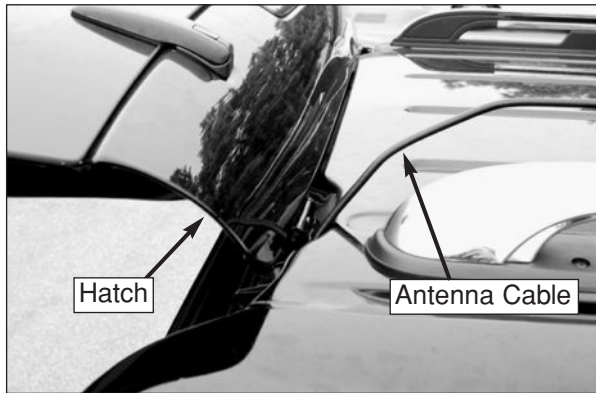
**Securing the Cable to the Roof Rack**



## Option 2 - Routing the Cable Behind the Hatch

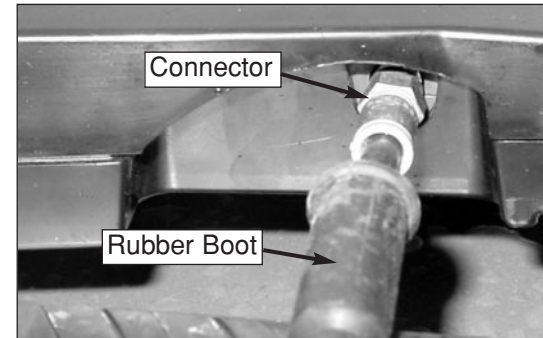
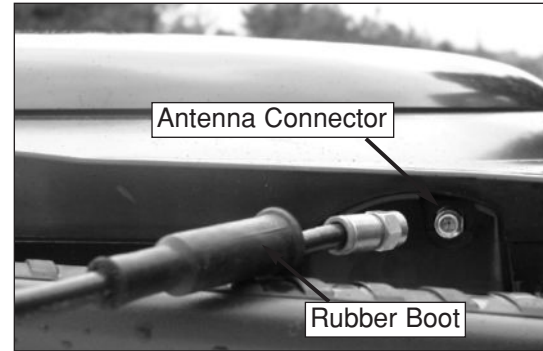
1. Move the steel fitting down the length of the antenna cable to the end opposite the rubber boot. You'll need to connect the end of the cable with the rubber boot to the antenna. *You will not need to use the fitting; simply keep it attached to the end of the cable inside the vehicle.*
2. Starting from inside the vehicle, pass the antenna cable through the gap in the hatch hinge.

### ***Cable Routed Behind Rear Hatch***



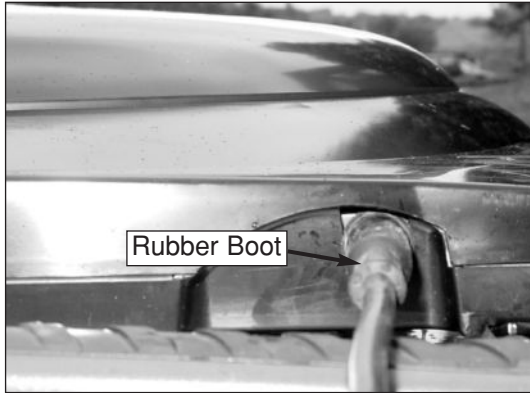
3. Using a  $\frac{7}{16}$ " wrench, connect the cable to the antenna's connector.

### ***Connecting the Antenna Cable to the Antenna***



- Slide the rubber sealing boot up the cable until it covers the antenna connector. This boot will protect the connector from the elements.

**Rubber Boot, Installed**



- Using the supplied tie-wraps (or equivalent), secure the antenna cable to the roof rack, if necessary.



*Do not kink the cable. Maintain a bend radius of at least three inches. A tighter bend may disrupt the TV signal and degrade performance.*

## 2-6 Measuring the Vehicle's Height

Now that you've mounted the antenna to the vehicle's roof, it is important that you record the new height of the vehicle, measured from the road to the top of the antenna. Please be sure the user understands the new height of his/her vehicle.



*The user must be made aware of the vehicle's new height with the TracVision antenna installed so that he/she can avoid parking garages and overpasses that are too low.*

# 3 Installing the Receiver

This section explains how to connect all system cables to the receiver and how to mount the receiver inside the vehicle.

## Contents

---

3-1	Choosing the Receiver Location . . . . .	3.3
3-2	Wiring the Receiver . . . . .	3.3
3-3	Mounting the Receiver . . . . .	3.14

### 3-1 Choosing the Receiver Location

Now that you've installed the antenna, you need to find a suitable location inside the vehicle for installing the receiver. The receiver should be installed in an area that meets the following requirements:

- Dry
- Well-ventilated
- Away from heat sources
- Allows enough open space (at least 2" around) for ventilation and cable connections.

### 3-2 Wiring the Receiver

For the TracVision system to work, you will need to connect the following cables to the receiver:

- Antenna cable
- RF converter cable
- Audio/video (A/V) cables
- DC power cable



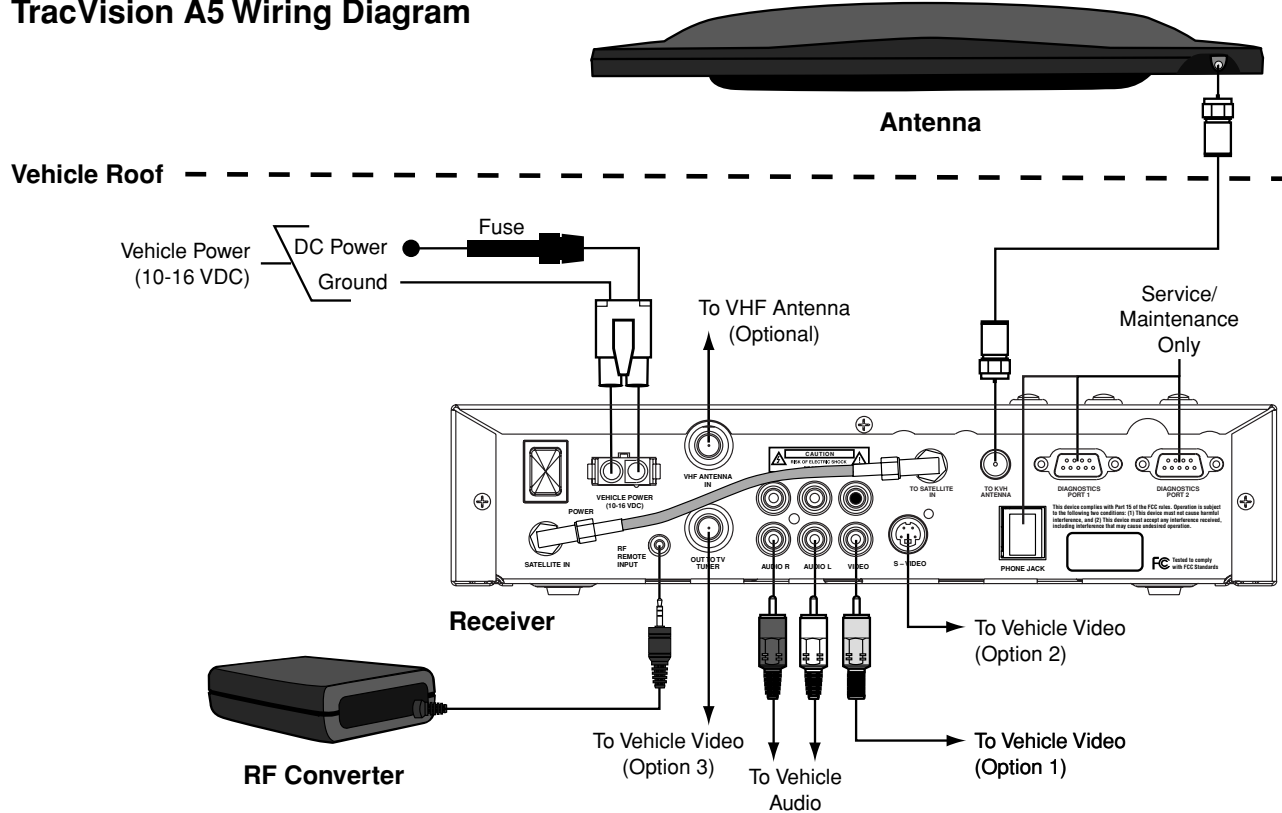
*The procedures in this section are intended for a basic wiring configuration. If the vehicle's entertainment system is wired differently, use these procedures as a guide and connect the cables as needed to suit the vehicle's particular configuration.*



**DO NOT** disconnect the short cable that connects from one jack to another on the receiver's rear panel. The system will not work if this cable is removed.

---

## TracVision A5 Wiring Diagram



## Preparing the Antenna Cable

At this point, the antenna cable should already be connected to the antenna and routed to the receiver. If you **DO NOT** need to cut the end of the antenna cable, and you wish to simply coil the excess cable inside the vehicle, skip to “Connecting the Antenna Cable” on page 3.8.

If you **DO** need to cut the antenna cable to the desired length, follow the steps below.

Since the antenna cable carries data, power, and communications, the integrity of this cable and its connections is very important. To ensure a proper connection, please use an LRC/Augat T1000 crimp/strip tool to attach the supplied Snap-N-Seal® F-connector to the end of the cable.

**Augat Tool**

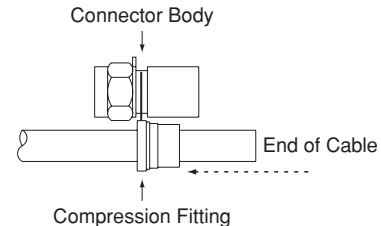


If you do not have an LRC/Augat T1000 tool, please order one from KVH at 401-847-3327.

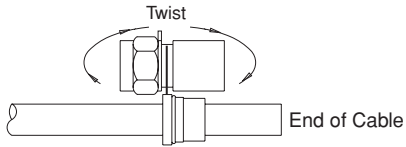


**Do not** use a screw-on, push-on, twist-on, or any other over-the-counter connector. Such low-quality connectors **WILL** degrade system performance and KVH does not warrant their use.

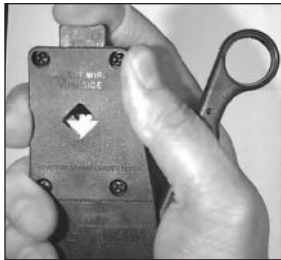
1. Cut the antenna cable to the desired length. Be sure the cable will reach the receiver rear panel while allowing plenty of slack.
2. Slide the F-connector assembly's compression fitting onto the raw cable before beginning connector termination.



3. Twist and break off the connector body.



4. Push down the wire-stripping blade on the Augat tool so that you can insert the antenna cable.



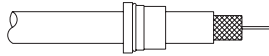
5. Insert the antenna cable into the tool. Be sure to insert the cable in the correct side, as noted on the tool. Let the blade clamp down on the cable.



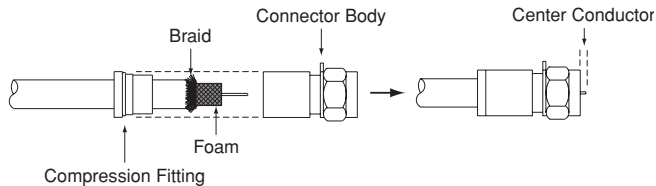
6. The cable should extend just slightly beyond the tool body. Twist the tool around the cable for 6 to 8 complete turns.



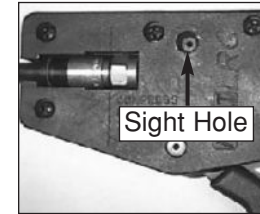
7. Hold the cable while pulling the tool so that it strips off the cable jacket. The end of the cable should now look like the figure below.



8. Slide the connector body, wide end first, onto the prepared cable until the edge of the cable's foam is flush with the bottom of the connector body (inside its threaded end). The cable's center conductor should extend  $\frac{1}{16}$ " beyond the end of the connector body.



9. Slide the compression fitting up into the connector body. Then place the cable with the connector into the tool cavity. Be sure the cable's center conductor is straight and fits into the tool's center hole.

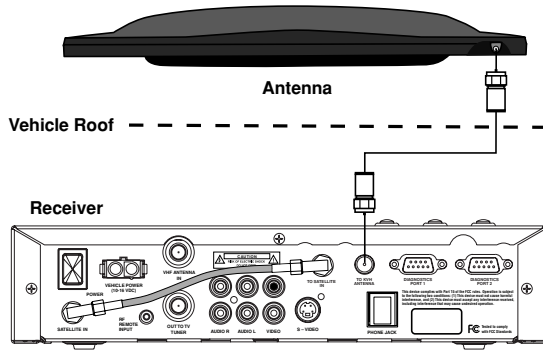


10. Squeeze the lever toward the tool until you feel it "snap" as the fitting is forced into the connector, making a weather-tight seal. A white indicator will appear in the sight hole (shown in the previous figure) when the seal is achieved. **The F-connector is now ready for use!**



## Connecting the Antenna Cable

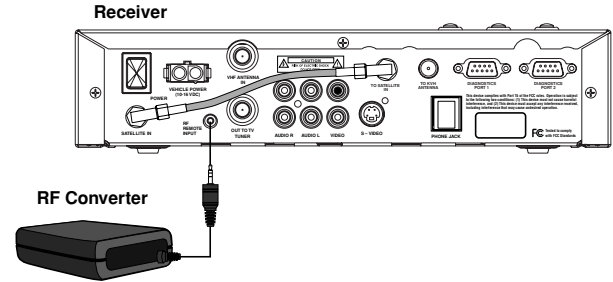
Connect the antenna cable to the “To KVH Antenna” jack on the receiver’s rear panel. Screw the connector down securely.



## Connecting the RF Converter Cable

To connect the RF converter cable, follow the steps below.

1. Connect the RF converter cable to the “RF Remote Input” jack on the receiver’s rear panel.



2. Place the RF converter at least three feet away from the receiver and other electronic devices. *If the RF converter is placed too close to the receiver, the remote control might not operate properly due to interference.* A Velcro washer and fabric are provided in the kitpack to mount the RF converter to a structure inside the vehicle.

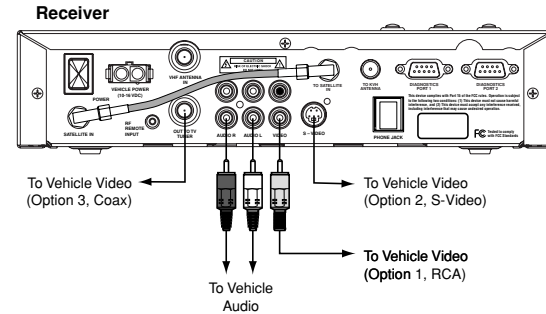
## Connecting the Audio/Video Cables

The TracVision A5 kitpack includes standard audio/video (A/V) cables with RCA-type connectors for connecting the receiver to the vehicle's entertainment system. However, the receiver's rear panel also offers an S-video jack and an RF coaxial video jack, if needed. Follow the procedure below for your particular installation. If you need to connect a VCR to the vehicle's entertainment system, see the alternate wiring instructions in the next section, "Connecting a VCR."

Option 1 - RCA-type A/V Jacks (*very good picture quality*)

Option 2 - S-Video Jack (*best picture quality*)

Option 3 - RF Coaxial Connector (*good picture quality*)



### Option 1 - RCA-type A/V Jacks (*very good picture quality*)

If the vehicle's entertainment system has standard RCA-type A/V jacks, follow the steps below.

1. Connect the supplied audio/video cables to the lower "Audio R," "Audio L," and "Video" jacks on the receiver's rear panel.
2. Connect the other ends of the audio/video cables to the entertainment system's audio and video inputs. *If the system has only one audio input jack, connect the audio cable that is connected to the receiver's "Audio L" jack.*

**Option 2 - S-Video Jack** *(best picture quality)*

If the vehicle's entertainment system has a high-quality S-Video jack, follow the steps below.

1. Connect an S-Video cable (*not supplied*) to the "S-Video" jack on the receiver's rear panel.
2. Connect the other end of the S-Video cable to the entertainment system's S-Video input.
3. Connect two of the supplied audio/video cables (with the red and white connectors) to the "Audio R" and "Audio L" jacks on the receiver's rear panel.
4. Connect the other ends of the audio cables to the entertainment system's audio inputs. *If the system has only one audio input jack, connect the audio cable that is connected to the receiver's "Audio L" jack.*

**Option 3 - RF Coaxial Connector** *(good picture quality)*

If the entertainment system has just an RF (coaxial) connector and is equipped with a built-in TV tuner, follow the steps below.

1. Connect an RF cable (*not supplied*) to the "Out to TV Tuner" jack on the receiver's rear panel.
2. Connect the other end of the RF cable to the entertainment system's VHF/UHF or RF input.

## Connecting a VCR (Optional)

To connect a VCR to the vehicle's TracVision-equipped entertainment system, follow the steps below.

1. Connect the VCR to the TracVision A5 receiver:

*If the VCR has RCA-type A/V connectors:*

- a. Connect the supplied audio/video cables to the lower "Audio R," "Audio L," and "Video" jacks on the receiver's rear panel.
- b. Connect the other ends of the audio/video cables to the VCR's audio and video inputs. *If the VCR has only one audio input jack, connect the audio cable that is connected to the receiver's "Audio L" jack.*

*If the VCR only has an RF (coaxial) connector:*

- a. Connect an RF cable (*not supplied*) to the "Out to TV Tuner" jack on the receiver's rear panel.
- b. Connect the other end of the RF cable to the VCR's VHF/UHF or RF input.

2. Connect the VCR to the vehicle's entertainment system:

*If the entertainment system and VCR have RCA-type A/V connectors:*

Connect a set of audio/video cables from the VCR's audio and video output jacks to the entertainment system's audio and video inputs.

*If the entertainment system or VCR only has an RF (coaxial) connector:*

Connect an RF cable from the VCR's VHF/UHF or RF output jack to the entertainment system's VHF/UHF or RF input.

## Connecting a VHF Antenna (Optional)

If you need to connect an existing VHF antenna to the vehicle's TracVision-equipped entertainment system, simply connect the cable to the receiver's "VHF Antenna In" jack.

## Connecting the Power Cable

Now that you've connected all other cables to the receiver, follow the steps below to connect the power cable.

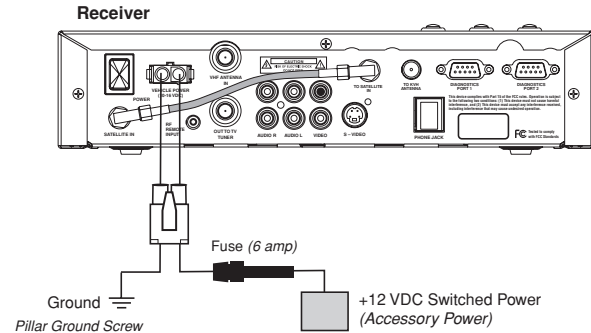
1. Remove the key from the ignition and remove the negative lead from the vehicle's battery.



*Before connecting the receiver power cable, be sure that vehicle power is turned off and power is disconnected from the circuit.*

2. Connect the receiver power cable's red (positive) wire to +12 VDC switched (accessory) power. *With the vehicle running and the receiver turned on, power at the receiver must measure at least 11 VDC.*
3. Connect the receiver power cable's black (negative) wire to its own dedicated chassis ground (such as a pillar ground screw) within 18" of the receiver. The black wire must make contact between the metal of the ground screw and the metal of the vehicle frame.

### Power Wiring (Preferred)



4. Plug the other end of the power cable into the "Vehicle Power" jack on the receiver's rear panel.
5. Reconnect vehicle power.



*Do not connect the receiver power cable directly to the vehicle's battery without following the special instructions on the following page.*

## Connecting the Power Cable to the Battery (Alternative Wiring Option, Only If Necessary)

If you are unable to connect the receiver power cable to switched (accessory) power as described on the previous page, you may wire the receiver to battery power if you follow the minimum requirements listed below.

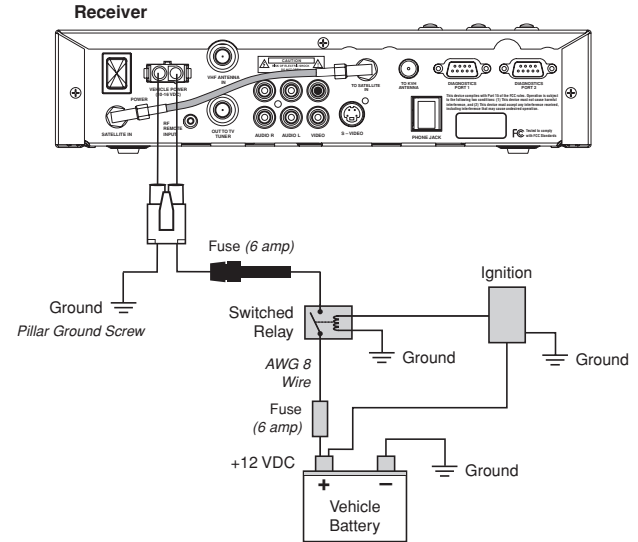
- Install a protective fuse (6 amps) within 18" of the battery.
- Install a relay, switched from the ignition, between the battery and the receiver.
- Use fire-resistant AWG 8 wire from the relay to the battery.



### **Bus, Limo, and RV Installations**

*Due to the unstable power found on buses, limos, and RVs, KVH recommends that you use an AC/DC converter to connect the receiver power cable to the vehicle's AC power supply.*

### **Power Wiring (Alternative Option)**



### 3-3 Mounting the Receiver

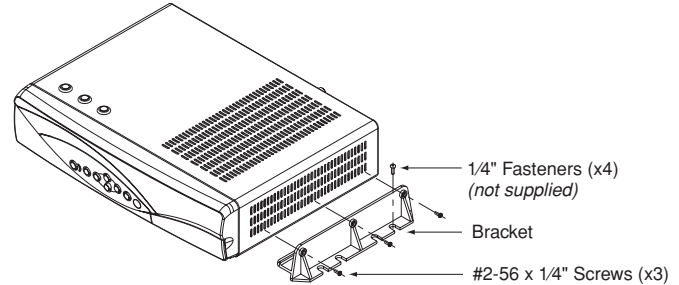
Once all cables are connected, mount the receiver inside the vehicle.



*Do not block the receiver's ventilation openings. These openings ensure reliable operation of the receiver and protect it from overheating.*

1. Using the supplied #2-56 x 1/4" screws, attach the two L-shaped brackets to the sides of the receiver.
2. Using appropriate 1/4" fasteners for your installation, secure the receiver brackets to the mounting surface.

#### ***Mounting the Receiver***



# 4 Completing the Installation

This section explains how to turn on and test the TracVision A5 system. It also explains how to activate the receiver for DIRECTV® programming and how to program the remote control.

## Contents

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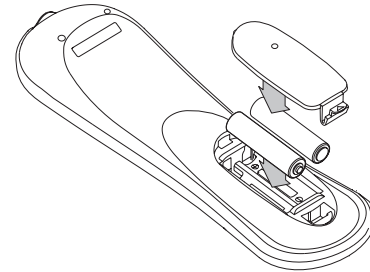
4-1	Installing the Remote Control Batteries . . . . .	4.3
4-2	Post-installation Checklist . . . . .	4.4
4-3	Testing the System . . . . .	4.6
4-4	Selecting the Proper Time Zone . . . . .	4.8
4-5	Programming the Remote Control to Operate Other Components . . . . .	4.9
4-6	Activating the Receiver . . . . .	4.12

## 4-1 Installing the Remote Control Batteries

To install the remote control's batteries, follow the steps below.

1. Remove the battery compartment cover, located on the back of the remote control.
2. Insert two "AAA" batteries as shown, observing the correct polarity.
3. Replace the battery compartment cover.

**Remote Control Batteries**



## 4-2 Post-installation Checklist

Congratulations! You've completed the TracVision A5 installation. Before you turn on and test the system, please make certain that you have completed the following important steps:

Step	Page #	Done?
You affixed the antenna serial number label to the red Activation Card.	1.9	<input type="checkbox"/>
You attached the mounting brackets using the supplied TORX screws.	2.3	<input type="checkbox"/>
You removed the antenna's shipping restraints from below.	2.4	<input type="checkbox"/>
<b>Rack Mount:</b> You verified the vehicle's roof rack crossbars are securely fastened to the vehicle and are sturdy enough to support the antenna.	2.5	<input type="checkbox"/>
<b>Rack Mount:</b> You positioned the rubber cushions within the antenna mounting brackets/retaining blocks to best fit the vehicle's crossbars.	2.6	<input type="checkbox"/>
<b>Roof Mount:</b> You installed and sealed eight jack nuts in the vehicle's roof to mount the antenna.	2.13	<input type="checkbox"/>
You allowed enough clearance between the antenna and the roof.	2.7, 2.11	<input type="checkbox"/>
You secured the antenna to the vehicle using the TORX hardware.	2.8, 2.14	<input type="checkbox"/>
After connecting the antenna cable to the antenna, you installed the rubber boot over the connector.	2.17, 2.21	<input type="checkbox"/>

Step	Page #	Done?
If you routed the antenna cable through the roof, you used the supplied fitting and backing plate and sealed the holes.	2.19	<input type="checkbox"/>
You recorded the new height of the vehicle and informed the user.	2.22	<input type="checkbox"/>
You did <b>not</b> disconnect the short cable pre-connected on the receiver's rear panel.	3.3	<input type="checkbox"/>
If you cut the antenna cable, you used an LRC/Augat T1000 tool to attach the supplied F-connector to the end of the cable.	3.5	<input type="checkbox"/>
You connected the antenna cable to the receiver.	3.8	<input type="checkbox"/>
You connected the RF converter to the receiver and placed it 3 feet away from the receiver and other electronic devices.	3.8	<input type="checkbox"/>
You connected high-quality audio/video cables from the receiver to the vehicle's entertainment system.	3.9	<input type="checkbox"/>
You connected the receiver's power cable to +12 VDC switched (accessory) power and did not connect other devices to the same circuit.	3.12	<input type="checkbox"/>
You mounted the receiver in a dry location away from any heat sources and allowed plenty of room for ventilation.  <div data-bbox="147 822 922 907" style="border: 1px solid black; padding: 5px;"> <b>Receiver Location:</b>   </div>	3.14	<input type="checkbox"/>
You installed two "AAA" batteries in the remote control.	4.3	<input type="checkbox"/>

## 4-3 Testing the System

Now all you need to do is turn the system on and ensure everything works properly. Follow the steps below to turn on the TracVision A5 system and verify proper operation.

1. Ensure that the antenna has a clear view of the satellite. The antenna requires an unobstructed view of the southern sky to receive satellite TV signals. Trees, buildings, highway overpasses, etc., can block satellite signals. Heavy rain or snow might also interrupt satellite signals. For complete details about satellite reception requirements, refer to *Section 1-3, "Receiving Satellite TV Signals,"* in the *User's Guide*.

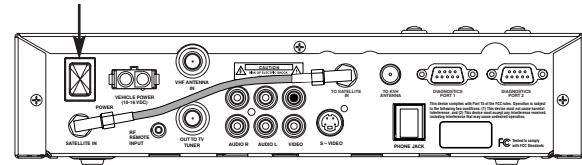


*Since the TracVision antenna requires an unobstructed view of the southern sky to receive satellite signals, the system will not work when the vehicle is in a garage.*

2. Apply vehicle power and turn on the vehicle's entertainment system.
3. Turn on the TracVision A5 receiver's rear panel power switch. The switch's light illuminates and the receiver beeps two or three times.

### Receiver Rear Panel Power Switch

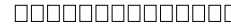
Power Switch



4. The TracVision antenna searches for and locks onto the satellite. Verify that the following appears on the TV(s):

If your satellite dish is ready for DIRECTV® service, please wait until your Advanced Program Guide™ is prepared.

Installation



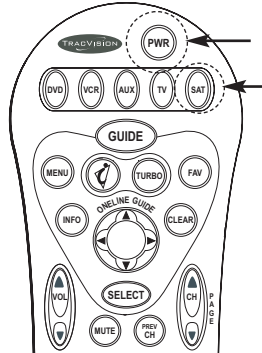
Searching for satellite signal...

The receiver then starts downloading the program guide and the following message appears:



This process may take up to 60 seconds. Once the program guide has loaded, a DIRECTV programming channel appears.

5. If you don't see the messages shown in Step 4 after 30 seconds, press the remote control's SAT button. Then press the PWR button. The receiver beeps twice to indicate that power is applied to the antenna.



Only the DIRECTV® preview channels (such as channels 100 and 201) are viewable until the user activates the receiver.

6. Check the three system status lights on the top of the receiver. All three lights should be illuminated green, indicating normal operation. If any of these lights are not green, refer to Section 9-3, "System Status Lights," in the User's Guide for troubleshooting details.

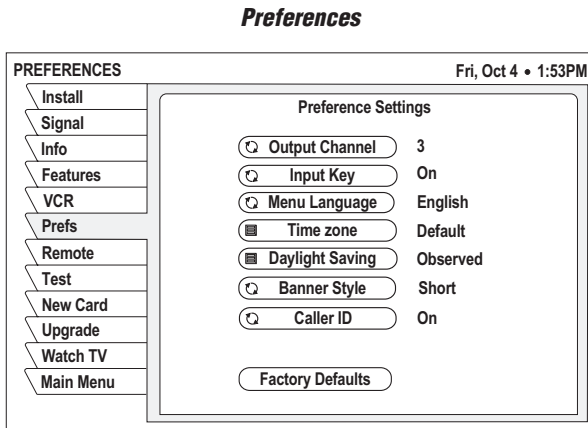
### System Status Lights



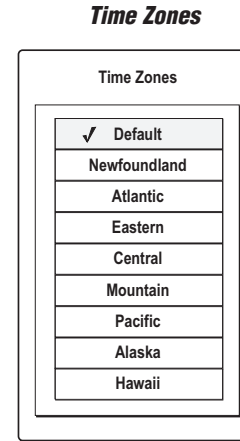
## 4-4 Selecting the Proper Time Zone

If the program guide does not indicate the correct time, you will need to select the appropriate time zone for your region. To select a time zone, follow the steps below:

1. Press the MENU button to access the main menu.
2. Highlight the **System Setup** tab and press SELECT.
3. Highlight the **Prefs** tab.



4. Highlight the **Time Zone** button and press SELECT to bring up the time zone pop-up menu.



5. Highlight your time zone and press SELECT. The program guide will show programming times based on this time zone.

## 4-5 Programming the Remote Control to Operate Other Components (Optional)

In addition to controlling the TracVision A5 receiver, the remote control may be programmed to operate other vehicle components, such as the TV or VCR. To program the remote control, choose either of the following programming options:

Option 1 - Code Scanning (*see page 4.10*)

Option 2 - Code Entry (*see page 4.11*)



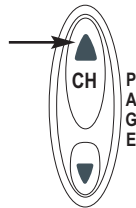
*To use the code entry method, you'll need to know the correct manufacturer's device codes for each component you want to operate. Code scanning may be more time-consuming, but you don't need to know manufacturer's control codes.*

## Option 1 - Code Scanning

1. Keep the remote control aimed at the IR input (or “eye”) for the component you want to control. For example, if you want to program the remote control to operate the TV, keep the remote aimed at the TV’s IR input (many in-vehicle TVs come with an IR eye built into the screen).
2. Press and hold the remote control’s component button (for example, TV).
3. At the same time, press the MUTE button for two seconds.
4. Release both buttons.

The component button should light and remain lit. If it doesn’t remain lit, repeat Steps 1 through 4 above.

5. Repeatedly press the upper part of the CHANNEL (CH) button.



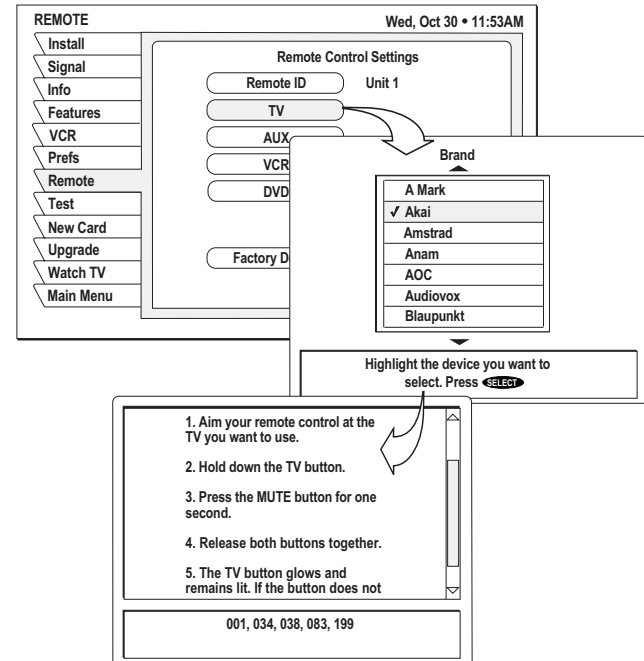
6. Continue pressing the CHANNEL (CH) button to step through the codes until the component turns off, indicating that you have found the correct device code. *If you accidentally pass a code that responds or realize you may not have been aiming the remote control at the component, repeatedly press the lower part of the CHANNEL (CH) button to step backward through the codes.*
7. Press the remote control’s PWR button to verify that you have found the proper code. The correct code will turn the component on and off.
8. Press the component button again to lock in the code (in this example, the TV button).

## Option 2 - Code Entry

1. Find the device code(s) for the component. You can find this code either by looking in *Appendix B on page A.5* or by following the steps below to check the receiver's database:
  - a. Press the MENU button to access the main menu.
  - b. From the main menu, highlight the **System Setup** tab and press SELECT.
  - c. Highlight the **Remote** tab to access Remote Control Settings.
  - d. Highlight the desired type of component (**TV**, **AUX**, **VCR**, or **DVD**) and press SELECT.
  - e. Highlight the component's manufacturer from the brand name list and press SELECT.

A list of codes for the selected component appears along with step-by-step programming instructions.

### Finding the Component's Device Code



Keep your remote control aimed at the component you want to control throughout the remainder of this procedure.

2. Press and hold the remote control's component button (for example, TV).
3. At the same time, press the MUTE button for two seconds.
4. Release both buttons.

The component button should light and remain lit. If it doesn't remain lit, follow Steps 2 through 4 above.

5. Using the remote control's numeric keypad, enter a device code.
6. After entering a code, press the remote control's PWR button to test it. The correct code will turn the component on and off. If several codes are listed for the component's type and brand, try each of them until you find the code that turns the component on/off. If none of these codes work, try the code scanning method described on page 4.10.
7. Press the component button again to lock in the code (in this example, the TV button).

## **4-6 Activating the Receiver**

Before the user can start watching satellite TV via the TracVision A5, the receiver must be activated. To activate the receiver, the user needs to follow the steps below:

1. Call KVH's Activation Department at:  
**1-866-551-8004**  
(24 hours a day, 7 days a week)



*The user must have the system serial numbers handy when calling to activate. The serial numbers are noted on the red Activation Card. The receiver cannot be activated without these numbers.*

---

2. After activation is complete, KVH's Activation Department will provide an access card number, receiver ID number, Hughes serial number, and model number. Enter these numbers in the associated boxes on the red Activation Card.

# Appendices

This section provides a list of system specifications and a list of device codes for programming the remote control.

## Contents

---

A	System Specifications .....	A.3
B	Manufacturer Device Codes .....	A.5
	Warranty .....	A.17

# Appendix A

## System Specifications

### Physical Characteristics

Power	10-16 volts DC, 50 watts
Antenna Dimensions	30.5" wide x 5.3" high
Antenna Weight	48 lbs
Receiver Dimensions	11" wide x 9" long x 2.6" high
Receiver Weight	4.3 lbs

### Pointing System

Elevation Range	31° to 57°
Azimuth Range	Unlimited
Turn/Track Rate	45° per second
Wind Force	100 mph
Stabilization	2-axis, actively gyro-stabilized

### Environmental

Operating Temperature	-13°F to +131°F (-25°C to +55°C)
Storage Temperature	-20°F to +140°F (-29°C to +60°C)
Humidity	to 100 percent

# Appendix B

## Manufacturer Device Codes

Use the following codes to program the TracVision A5 remote control to operate other in-vehicle components. See *Section 4-5, "Programming the Remote Control to Operate Other Components," on page 4.9* for details.

### VCR Brands and Remote Control Codes

VCR Brand	Code Number(s)
Admiral	025 053
Adventura	034
Aiko	117
Aiwa	034 101
Akai	016 043 046 124 125 146
American Action	117
American High	031
Ampro	072

VCR Brand	Code Number(s)
Anam	031
Asha	040
Audio Dynamics	012 023 039 043
Audiovox	101
Beaumarck	040
Broksonic	025 035 037 044 129 152
Calix	101
Canon	028 031
Capehart	108
CCE	024 117
Cineral	117
Citizen	101 117
Colt	024
Craig	003 024 040 101 135
Curtis Mathes	031 041 156
Cybernex	040
Daewoo	005 007 010 065 108 110 112 116 117 119
Daytron	108
DBX	012 023 039 043

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VCR Brand	Code Number(s)
Dimensia	156
Dynatech	034 053
Electrohome	059 101
Electroponic	101
Emerson	006 017 025 027 029 031 034 035 036 037 044 046 101 117 129 131 138 152 153 157
Fisher	003 008 009 010
Fuji	031
Funai	034
Garrard	034
GE	031 040 053 063 072 107 109 126 144 147 151 156
GO Video	040 132 136
Goldstar/LG	001 012 101 114 123
Harley Davidson	034
Harman Kardon	012 045
Harwood	024
Hitachi	001 026 034 063 137 150 156
Hughes	001
HQ	034

VCR Brand	Code Number(s)
Instantreplay	031
JCL	031
JCPenney	001 012 031 040 066 101 156
Jensen	043
JVC	012 031 043 048 050 055 060 130 150 158
KEC	101 117
Kenwood	014 023 034 047 048
KLH	024
Kodak	031 101
Lloyd	034
Logik	024
LXI	003 009 017 034 101
Magin	040
Magnasonic	117
Magnavox	031 034 041 064 067 068 154 160
Marantz	012 023 031 067 069
Marta	101
Matsui	027 030
Matsushita	031

VCR Brand	Code Number(s)
MEI	031
Memorex	003 010 014 025 031 034 040 053 072 101 102 134 139
MGA	045 046 059
MGN Technology	040
Minolta	001 156
Mitsubishi	001 045 046 053 059 061 162
Motorola	031 053
MTC	034 040
Multitech	024 034
NEC	012 023 039 043 048
Nikko	101
Noblex	040
Nordmende	043
Olympus	031
Optimus	053 101
Optonica	053 054
Orion	025
Panasonic	031 066 070 133 160 161

VCR Brand	Code Number(s)
Pentax	001 031 063 156
Philco	025 031 034 067
Philips	031 034 054 067 071 101
Pilot	101
Pioneer	001 021 048
Portland	108
Profitronic	040
Protec	024
Quartz	002 014
Quasar	031 066 070 133 160 161
Radio Shack	034 123
Radix	101
Randex	101
RCA	001 031 034 040 041 053 107 109 140 144 147 151 156
Realistic	003 008 010 014 031 034 040 053 054 101
Rico	058 078
Salora	014
Samsung	032 040 102 104 107 109 112 113 115 120 122 125 159

## TracVision A5 Installation Guide

VCR Brand	Code Number(s)
Sanky	053
Sansui	022 025 034 043 048 135
Sanyo	003 007 010 014 040 102 134
Scott	017 037 044 112 129 131 159
Sears	001 003 008 009 010 014 017 031 034 081 101
Sharp	031 053 054 143
Shintom	024
Shogun	040
Signature	034
Singer	024
Sony	003 031 032 034 052 056 057 058 155
Soundesign	034
STS	001
Sylvania	031 034 059 067
Symphonic	034
Tandy	010 034
Tatung	023 039 043
Teac	023 034 039 043
Technics	031 070

VCR Brand	Code Number(s)
Teknica	019 031 034 101
Thomas	034
TMK	040
Toshiba	001 008 042 047 059 082 112 131
Totevision	040 101
Unitech	040
Vector Research	012
Video Concepts	012 034 046
Videosonic	040
Wards	001 003 017 024 031 034 040 053 054 131
Westinghouse	024 025
XR-1000	024 031 034
Yamaha	012 034 039 043
Zenith	025 034 048 056 058 072 080 101

***TV Brands and Remote Control Codes***

<b>TV Brand</b>	<b>Code Number(s)</b>
Admiral	072 081 096 160 161
Aiko	103
Akai	070 146
Alaron	028
A Mark	112 143
America Action	043
Amstrad	052
Anam	043 054 056 080 112
AOC	004 058 070 112
Audiovox	043 076 103 120
Baysonic	043
Bell&Howell	072
Blaupunkt	088
Bradford	043
Brooksonic	096
Cairn	206
Candle	002 003 004 070
Capehart	058

<b>TV Brand</b>	<b>Code Number(s)</b>
Carver	164
CCE	001 004 024
Celebrity	001
Cetronic	043
Cineral	103 120
Citizen	002 003 004 043 070 101 103 143
Classic	043
Concerto	004
Contec	043 050 051
Coronado	143
Craig	043 054 191
Crosley	164
Crown	043 143
Curtis Mathes	004 011 070 072 081 101 120 143 164
CXC	043
Daewoo	004 016 043 044 076 103 114 120 127 128 136 143 192
Daytron	004 143
Denon	011

## TracVision A5 Installation Guide

TV Brand	Code Number(s)
Dumont	004 073
Dynasty	043
Dynatech	062
Electroband	001
Electrohome	024 076 120 143
Emerson	004 005 028 043 047 048 050 051 070 076 096 120 143 151 153 154 155 191
Fisher	007 057
Fujitsu	028 198 210 211
Funai	028 043 052
Futuretech	043
GE	004 008 009 034 056 070 073 074 081 120 130 145 155 160 161 165 167
Gibraltar	004 073
Goldstar/LG	004 106 110 112 119 127 143 193
Gradiente	004 038 106
Grunpy	028 043
Hall Mark	004
Harley Davidson	028
Harvard	043

TV Brand	Code Number(s)
Hitachi	004 007 009 010 011 012 023 072 075 143 158
Harman Kardon	164
Infinity	164
Inteq	073
JBL	164
JCB	001
JCPenney	004 008 009 024 030 065 070 101 143 156 160
Jensen	013
JVC	001 034 038 083 199 208
KEC	043
Kenwood	001 070
Kloss	002 059
KMC	143
KTV	043 070 143 154
Lodgenet	072
Loewe	209 211
Logik	072
Luxman	004
LXI	007 015 052 081 160 164

TV Brand	Code Number(s)
Magnavox	003 004 022 059 060 061 063 064 070 094 127 160 164
Majestic	072
Marantz	070 164
Matsui	164
Matsushita	080
Megatron	-
Memorex	004 007 028 072 096
Metz	088
MGA	004 024 028 042 070
Midland	073
Minerva	088
Minutz	008
Mitsubishi	004 024 028 040 042 081 146 214
Motorola	081
MTC	004 062 070 101
Multitech	043
NAD	015 025
NEC	004 016 019 024 040 056 070 130 134

TV Brand	Code Number(s)
Nikei	043
Nikko	103
NTC	103
Onking	043
Onwa	043
Optimus	080
Optonica	019 081
Orion	028 096 201 202 203 204 205
Panasonic	034 056 080 164 212
Philco	003 004 024 056 059 060 063 064 070 164
Philips	003 004 005 038 059 070 093 127 164 213
Pioneer	070 004 018 023 025 190
Portland	004 065 103 143
Prism	034
Proscan	065 145 160 161 167
Proton	004 058 112 143 171 173
Quasar	034 056 080 164
Radio Shack	004 019 043 127 143

## TracVision A5 Installation Guide

TV Brand	Code Number(s)
RCA	004 023 024 056 065 070 074 081 145 152 156 160 161 165 167
Realistic	007 019 043 047
Runco	073 130
Sampo	004 058 070 207
Samsung	004 050 089 101 105 127 133 143 160 215
Sansei	120
Sansui	096
Sanyo	007 020 053 057 082
Scotch	004
Scott	004 028 043 048 143
Sears	004 007 015 028 030 052 057 082 094 143 160 164 167
Seleco	200
Semivox	043
Semp	015
Sharp	004 014 019 022 028 081 143
Siemens	088
Signature	072
Sony	001 079 126

TV Brand	Code Number(s)
Soundesign	003 004 028 043
Spectricon	112
Squareview	052
SSS	004 043
Starlight	043
Supre Macy	002
Supreme	001
Sylvania	003 044 059 060 063 064 070 127 160 164
Symphonics	052 194
Tandy	081
Tatung	056 062
Technics	034 080
Technol Ace	028
Techwood	004
Teknika	002 003 004 024 028 043 072 101 103 143 164
Telerent	072
Tera	173
TMK	004
TNCI	073

<b>TV Brand</b>	<b>Code Number(s)</b>
Toshiba	007 015 030 040 062 101
Universal	008 009
Video Concepts	146
Vidikron	164
Vidtech	004
Wards	004 008 009 019 028 060 061 063 064 072 074 143 164 165
Westinghouse	076 120
Yamaha	004 070
York	004
Yupiteru	043
Zenith	011 072 073 095 096 103
Zonda	112

***AUX Brands and Remote Control Codes***

<b>AUX Brand</b>	<b>Code Number(s)</b>
Adcom	146 149 227 244
AMC	083 084
Arcam	100
Audio File	093 098
Audio Technica	221
Aiwa	111 114 117 156 170 199 203 219 231 241 254
Akal	181 233
Anam	180
Bose	064 137 219
B & K	150 152
Carver	013 098 107 126 129 160 163 220 245 249
Clarion	151 169
Denon	101 133 191 202 208 246 247
Englightened Audio	078 153
Fisher	107 129 157 163 176
Fosgate Audionics	228 248
GE	123 216
Harmon Kardon	073 195 248 249

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AUX Brand	Code Number(s)
Haitai	119
Hitachi	088
JCPenney	109 154 178
Jensen	099
Jerrold	141
JVC	112 198 252
Kenwood	096 104 119 125 148 151 163 171 173 242
Krell	223
Lexicon	215 250
Luxman	066 120 205 229
LXI	123 177
Magnavox	126 162 185 186 224 228
Marantz	074 105 126 128 139 155 162 186 232
McIntosh	251
Mondial	069 225
MCS	178
Mitsubishi	253
Meridian	013 067
NAD	128

AUX Brand	Code Number(s)
Nakamichi	072 212 234 235
Niles	236
Onkyo	094 115 116 209 211 255
Optimus	121 125 140 181
Panasonic	131 144 187 200
Parasound	085 086 090
Philips	126 136 186 197
Pioneer	081 093 138 165 189 195 230 243
Quasar	131 187
RCA	109 166 213
Realistic	103 122 123 124 172 174 177 179 180 194
Rotel	204 218 239
Sansui	075 126 139 196 197 214
Sanyo	129 157
Samsung	068
Scott	180 190
Sharp	096 125 151 161 169 182 193
Sherwood	089 127
Sony	097 117 147 183 188 192 200 237 238 253

<b>AUX Brand</b>	<b>Code Number(s)</b>
Soundstream	197
Starcom	141
Symphonic	124
Teac	062 102 159 180
Technics	131 165 184 187 200 202 208
Toshiba	175
Wards	163
Yamaha	092 120 125 166 169 216 240
Zenith	061 222

***DVD Brands and Remote Control Codes***

<b>DVD Brand</b>	<b>Code Number(s)</b>
Alpine	009
Apex Digital	075 076
Arcam	065
Cyberhome	087
Daewoo	087
Denon	030 226
GE	035 036
Goldstar/LG	028 041
Harmon Kardon	217
Hitachi	011
Hiteker	076
JVC	031
Kenwood	070
Magnavox	008 038 042
Marantz	006 007
McIntosh	071
Mitsubishi	032
NAD	077

DVD Brand	Code Number(s)
Onkyo	207
Optimus	034
Panasonic	003 039
Philips	006 007 038 042 063
Pioneer	005 010 034
Proceed	002
Proscan	035 036
RCA	035 036
Samsung	029 040 095
Sharp	004
Sony	037 080
Technics	003
Theta Digital	034
Toshiba	001 038 082 091 206
Yamaha	039 079
Zenith	028 041

***DVD-Laser Disc Brands and Remote Control Codes***

DVD-Laser Disc Brand	Code Number(s)
California Audio	047
Denon	043 044
Fisher	047
Kenwood	060
Magnavox	048 057
Mitsubishi	057
NAD	057
Panasonic	047 051 054
Philips	048
Pioneer	055 057
Quasar	047
RCA	046
Sanyo	052
Sharp	060
Sony	050 053
Technics	047 051 054
Toshiba	060
Yamaha	045 059

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