

TRACVISION®
BY KVH INDUSTRIES

TracVision M2



TracVision M2 Installation Guide

TracVision® M2 Installation Guide

With Integrated 12V Mobile DIRECTV® Receiver

These instructions explain how to install the TracVision M2 satellite TV antenna system on a vessel. Complete instructions on how to use the system are provided in the Quick Start Guide and Receiver User's Guide.

Installation Steps

- | | |
|--------------------------------|-------------------------------------|
| 1. Inspect parts and get tools | 7. Wire the receiver |
| 2. Plan the installation | 8. Connect power |
| 3. Prepare the mounting site | 9. Install the receiver |
| 4. Wire the antenna | 10. Install batteries in the remote |
| 5. Remove the restraint | 11. Test the system |
| 6. Mount the antenna | 12. Educate the customer |

Who Should Install the System?

To ensure a safe and effective installation, KVH recommends that a KVH-authorized marine technician install the TracVision M2 system. To find a technician near you, go to www.kvh.com/wheretogetservice. If you purchased the product and decide to install it yourself, please see the enclosed warranty statement for warranty implications.

Important Safety Precaution



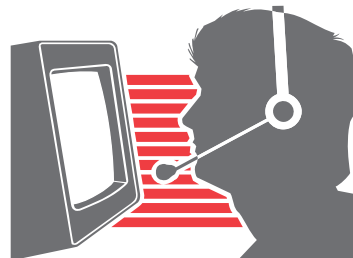
CAUTION

DO NOT apply power to the TracVision antenna with the radome removed because the antenna has moving parts that can cause injury.

Technical Support

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

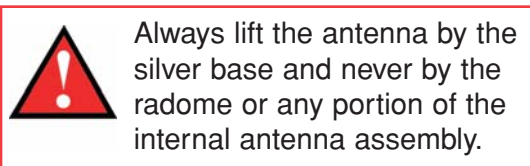
Phone: 1-401-847-3327
E-mail: techs@kvh.com



KVH and TracVision are registered trademarks of KVH Industries, Inc.; DIRECTV is a registered trademark of DIRECTV, Inc. The unique light-colored dome with dark contrasting baseplate is a registered trademark of KVH Industries, Inc. U.S. patents pending. The information in this document is subject to change without notice. No company shall be liable for errors contained herein.

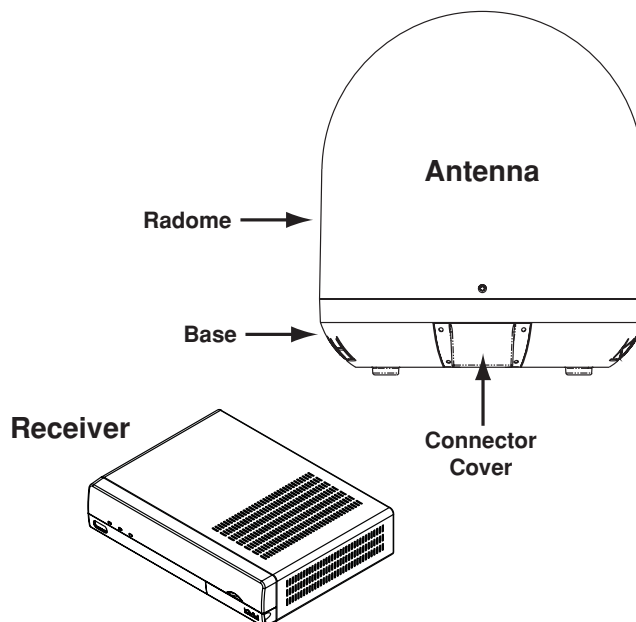
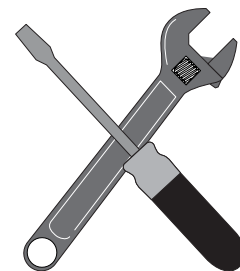
1 Inspect Parts and Get Tools

1. Unpack the box and ensure it contains everything shown on the Contents List. *Save the packaging in case you need to reship the system.*



2. Carefully examine all of the supplied parts to ensure nothing was damaged in shipment.
3. Gather all of the tools and materials listed below. You will need these items to complete the installation.

- #2 Phillips-head screwdriver
- 7/16" open-end wrench
- 7/16" socket wrench
- 1/2" socket or open-end wrench
- Electric drill
- 5/16" (8 mm) drill bit
- Silicone sealant or equivalent
- Hole saw of desired diameter (for cable access hole, see page 4)
- Adhesive tape
- Light hammer
- Center punch
- Eight (8) 1/4" fasteners (optional for mounting the receiver, see page 10)



4. Peel off the extra serial number label (taped to the antenna) and affix it in the appropriate box on the red Activation Card.

TracVision® Activation

Before you can start enjoying satellite TV, the TracVision 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 (If purchased as part of a complete antenna system)
R 051099999	A

Installer: Please place antenna serial number in box above.

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
Hughes Serial Number	Model Number

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

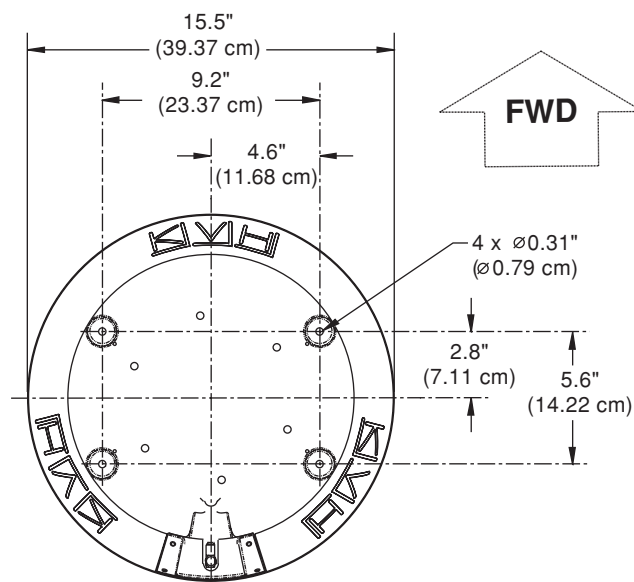
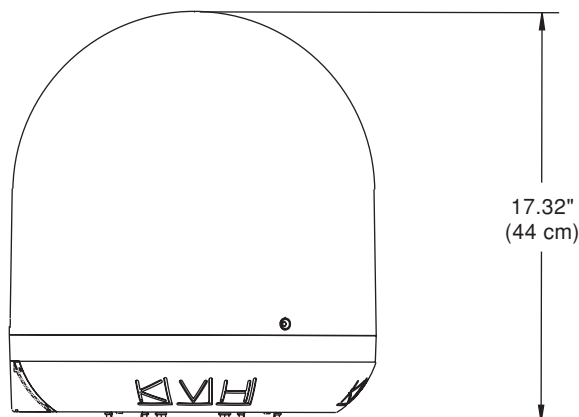
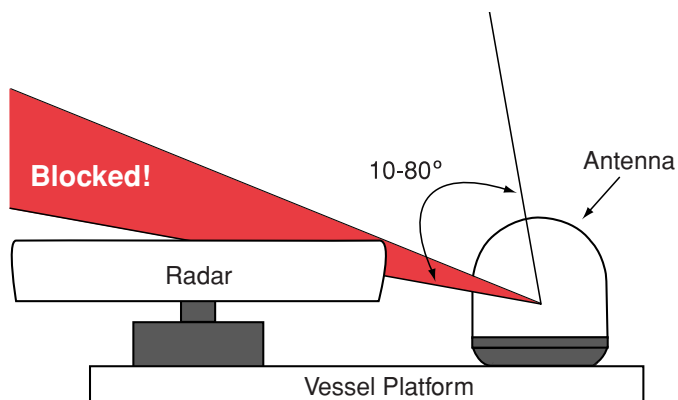
54-0430 Rev. A

Affix Serial Number

2 Plan the Installation

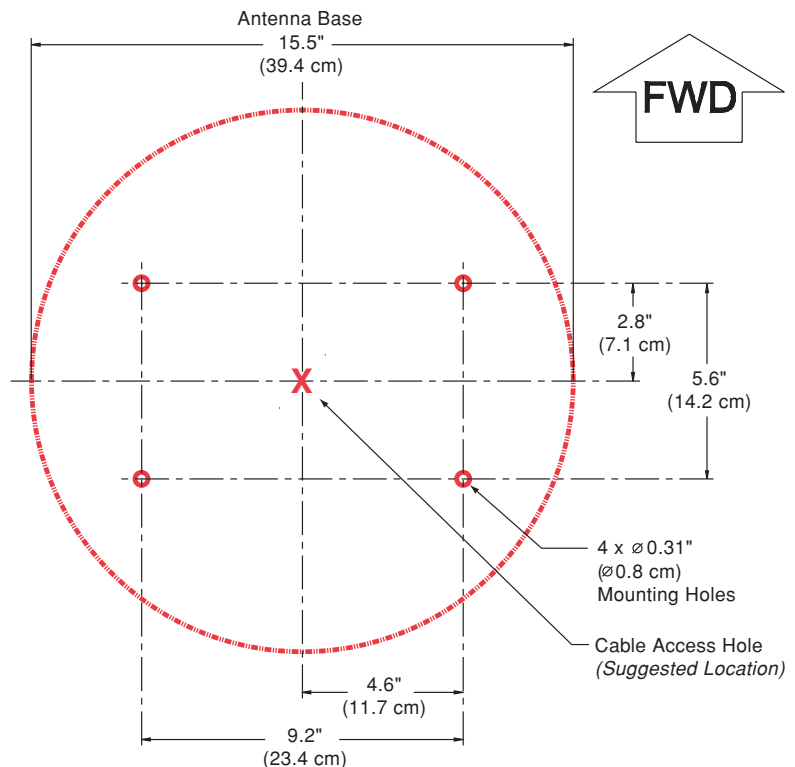
Before you begin, consider the following installation guidelines:

- Minimize blockage. The antenna requires a clear view of the sky to receive satellite TV. The fewer obstructions above decks, the better the system will perform.
- When choosing a mounting surface, ensure it is wide enough to accommodate the antenna's base. *See illustrations for antenna dimensions.*
- Ensure the mounting surface is flat, level (within $\pm 2^\circ$), and strong enough to support the 18-pound antenna. Use a separate mounting plate, if necessary.
- Custom mounting solutions, including struts and masts, are available from several third-party manufacturers. Contact your local KVH dealer for details.
- KVH recommends that you do not mount the antenna on the same level as the radar, because the radar's energy might overload the antenna.
- Be sure to mount the antenna near enough to the supplied belowdecks receiver to allow you to connect the 50-ft. (15 m) coax cable between the antenna and the receiver, while still maintaining sufficient slack in the cable. **The antenna cable CANNOT be extended.**
- When choosing a location for the receiver, find a dry, well-ventilated area belowdecks away from any heat sources or salt spray. Also be sure the receiver's front panel will be easily accessible to the user.



3 Prepare the Mounting Site

1. Unfold the supplied template and place it onto the mounting surface. Make sure the "FWD" (forward) arrow points toward the bow and is parallel to the vessel's centerline. *You do not need to mount the antenna exactly on the vessel's centerline, but the antenna's forward arrow must be parallel to it.*
2. Use the template to mark the four hole locations on the mounting surface.
3. Drill a $\frac{5}{16}$ " (8 mm) hole at the four locations you marked in Step 2. *Later, you will insert four $\frac{1}{4}$ "-20 bolts from above to secure the antenna to the mounting surface.*
4. Mark a location for the cable access hole, either in the center of the antenna mounting hole pattern or in an area aft of the antenna. *Later, you will route the antenna cable through this hole and into the vessel.*
5. Drill the cable access hole in the location you marked in Step 4. Be sure to size the hole appropriately to maintain a cable bend radius of at least 3" (75 mm). *If the hole location is in the center of the antenna mounting hole pattern, the diameter of the cable access hole must not exceed 3.5" (88 mm).* Smooth the edges of the hole to protect the cable.



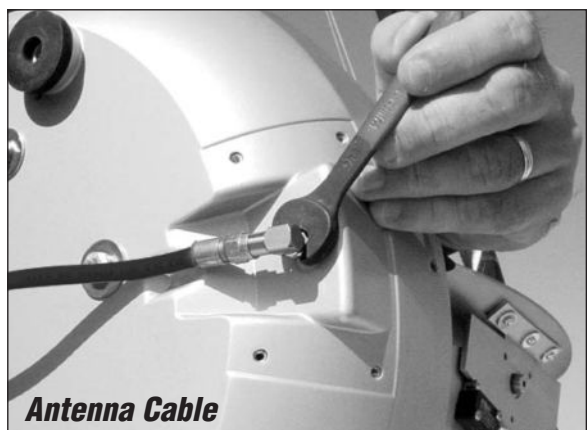
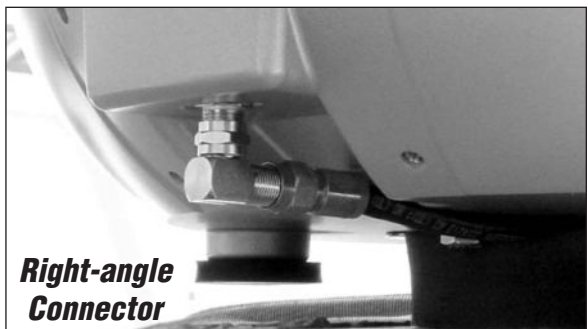
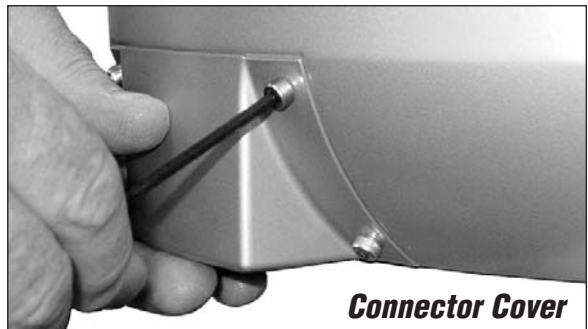
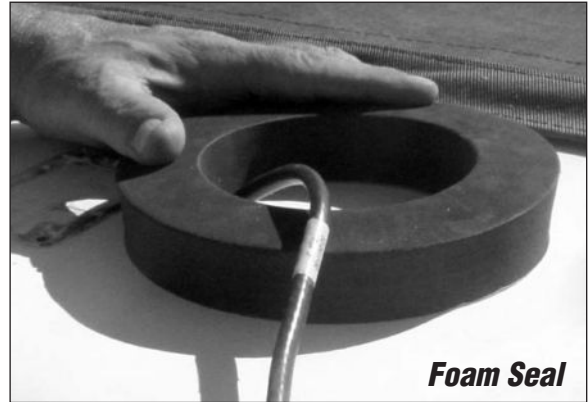
Be sure the mounting surface is flat and level. Use a separate mounting plate, if necessary.



4

Wire the Antenna

1. Clean and dry the antenna mounting surface.
2. Peel off the paper backing from the donut-shaped foam seal to expose the adhesive. Then press the foam seal down firmly onto the mounting surface, centered between the antenna mounting holes.
3. Using the supplied 3 mm Allen hex key, remove the connector cover from the antenna's base. Save the cover and the four M4 cap screws for later use.
4. Route either end of the antenna cable into the vessel. *Later, you will connect this end of the cable to the belowdecks receiver. You will connect the other end to the antenna.*
5. If you wish to route the cable beneath the antenna, attach the right-angle connector to the end of the cable. Hand-tighten, then tighten with a $\frac{7}{16}$ " wrench for $\frac{1}{4}$ turn to ensure an electrical and weather-proof connection.
6. Connect the cable to the antenna. Hand-tighten, then tighten with a $\frac{7}{16}$ " wrench for $\frac{1}{4}$ turn. *Rigging tape is recommended to protect the connection.*
7. Reattach the cover over the connector. Secure in place with the M4 cap screws you removed in Step 3. The cover must be attached **before** you mount the antenna.
8. Leave an adequate service loop, approximately 8" (20 cm) of slack, in the antenna cable for easy serviceability.
9. Weatherproof and seal the cable access hole as needed.



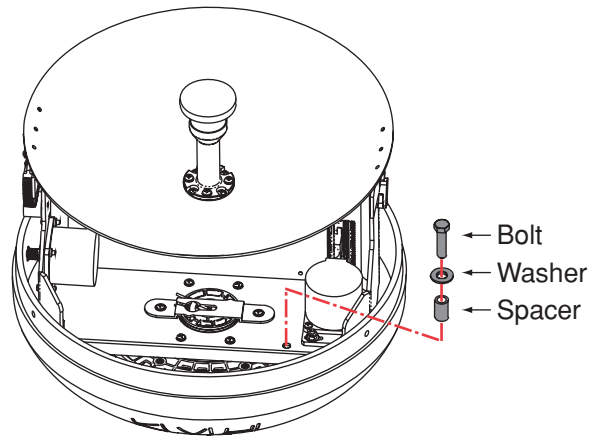
5

Remove the Restraint

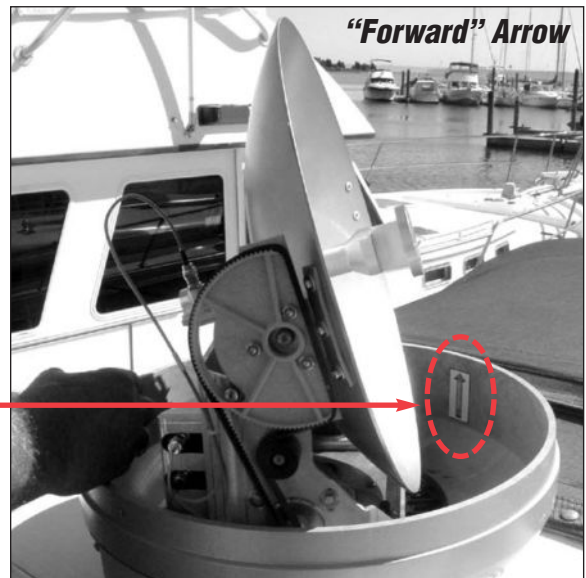
1. Remove the three #10-32 screws securing the radome to the antenna. Carefully remove the radome and set it aside in a safe place. *Due to the snug fit, some contact between the radome's sealing gasket and the antenna mechanism is normal.*
2. Using a $\frac{7}{16}$ " socket wrench, remove the shipping restraint bolt, washer, and spacer securing the antenna assembly to the base. *Save the restraint for future use.*



Be sure to remove the shipping restraint bolt, washer, and spacer. The antenna will not work with this hardware still installed.

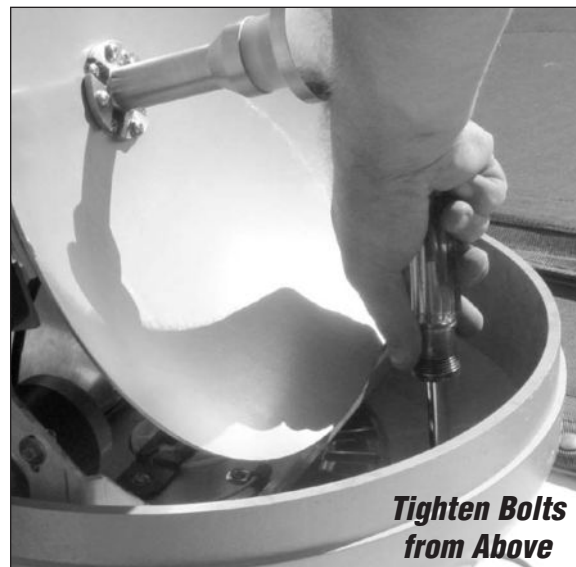


3. Position the antenna onto the mounting surface. The antenna's base should rest squarely atop the foam seal.
4. Align the four holes in the antenna's base with the four holes in the mounting surface. **Be sure that the antenna's "Forward" arrow points toward the bow and is parallel to the vessel's centerline.**

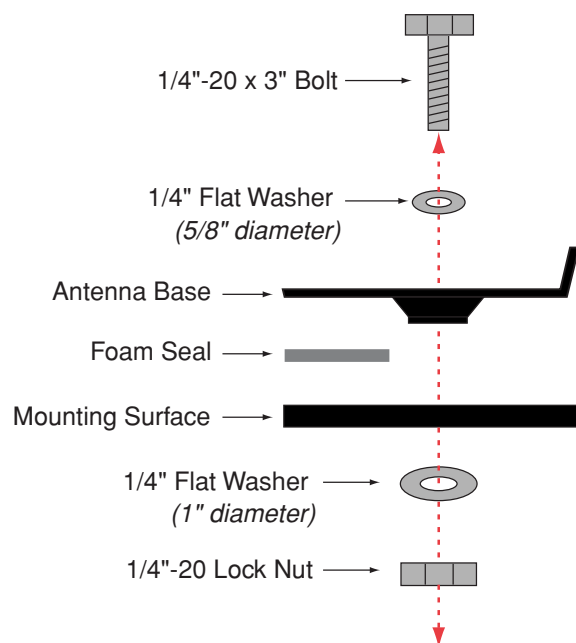


6 Mount the Antenna

1. Secure the antenna's base to the mounting surface using four 1/4"-20 bolts, 5/8" washers, 1" washers, and lock nuts, as shown in the illustration. Be sure to insert the bolts from above and use the supplied hardware for a secure installation.
2. Tighten the bolts until the foam seal is fully compressed and the antenna's four rubber feet are bottomed against the mounting surface.
3. Reinstall the antenna radome. *The radome's "TracVision" labels should face fore and aft.* While pressing the radome down onto the base, secure the radome to the base using the three #10-32 screws you removed earlier.
4. Install a protective plastic screw cap (supplied in the kit) over each radome screw.



Insert the mounting bolts into the antenna's base from above, not below.



7 Wire the Receiver

1. Connect the antenna cable (A) to the "To KVH Antenna" jack. **Do not kink/stress the cable.**
2. Connect the RF converter cable (B) to the "RF Remote Input" jack.
3. Connect the receiver to the TV's video input. Choose one of the following options:

Option 1 - RCA-type A/V jack (*cable included*)
 Option 2 - S-Video jack

If the TV has only a coaxial input, you will need an RF modulator (Radio Shack model 15-2526 or equivalent).

4. Connect the receiver to the TV's audio input. Choose one of the following options:
- Option 1 - RCA-type A/V jacks (*cables included*)
 Option 2 - Digital audio jack
5. Tighten all connections and leave enough slack in the cables (service loop) for easy serviceability, allowing you to access the receiver's rear panel.

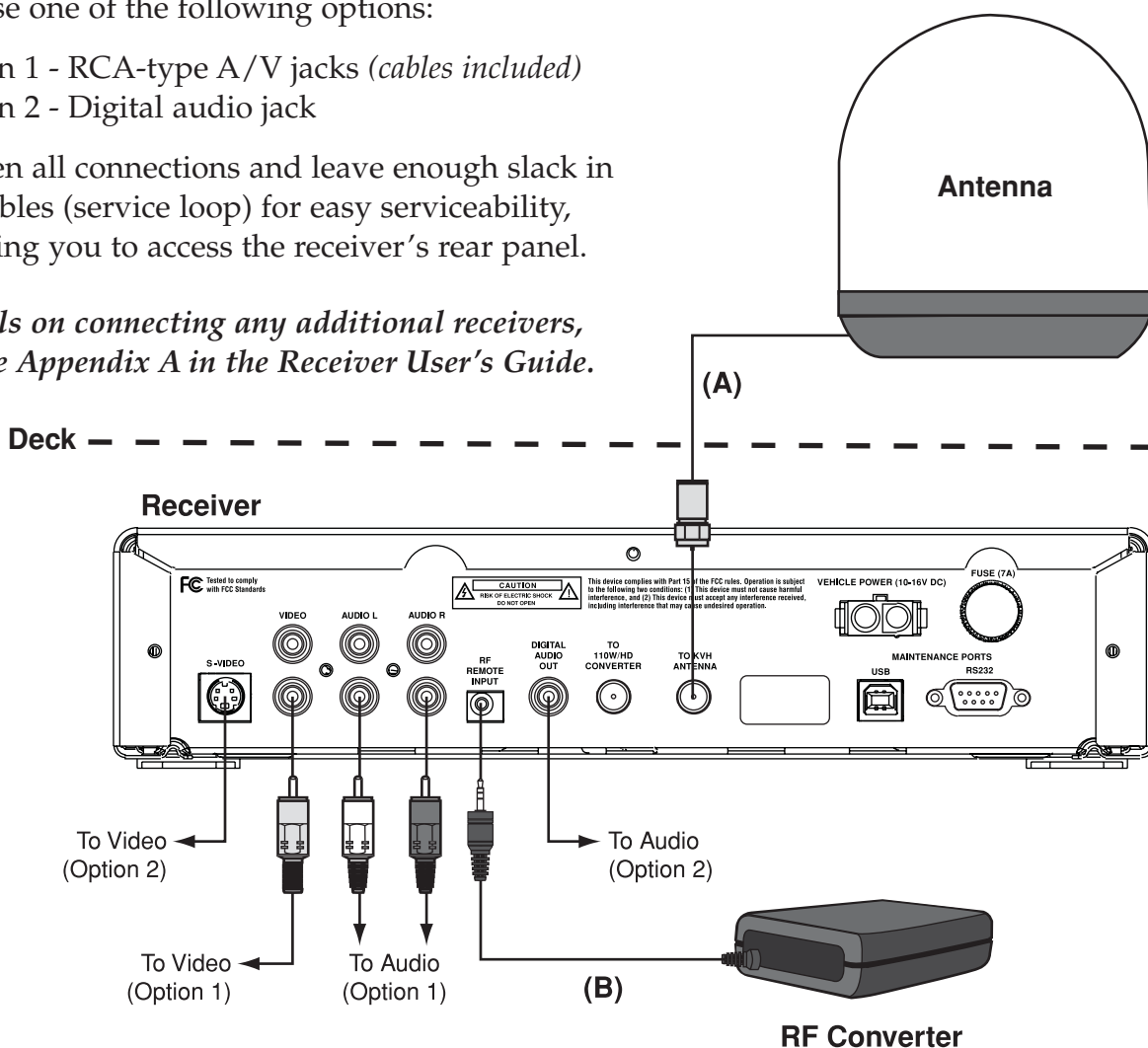
For details on connecting any additional receivers, please see Appendix A in the Receiver User's Guide.



Do not shorten or extend the antenna cable. Since the antenna cable carries data, power, and communications, the integrity of this cable and its connections is very important.



Be sure to route cables within the vessel appropriately to avoid damage. For example, do not route any cables through wet areas (bilges) or near hot exhaust pipes.



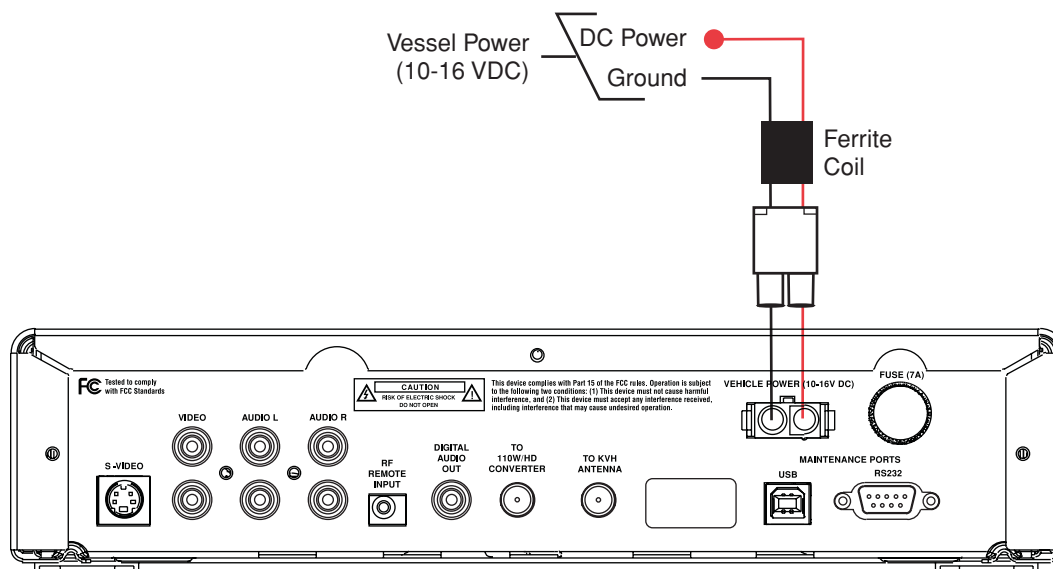
8 Connect Power

The receiver requires a 10-16 volts DC (VDC) power input supporting 50 watts (4.2 amps @ 12 VDC).

1. Before you connect the receiver's power wires, turn off vessel power and test the circuit to ensure no power is present.
2. Connect the receiver's individual power wires to a dedicated 10-amp or 15-amp circuit breaker. Connect the negative (black) wire to ground (power return), and connect the positive (red) wire to +12 VDC vessel power.
3. Plug the other end of the power wires into the "Vehicle Power" jack on the receiver's rear panel. *Do not remove the small ferrite coil that is clamped onto the power wires. This coil suppresses EMI (electromagnetic interference) from the receiver.*



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



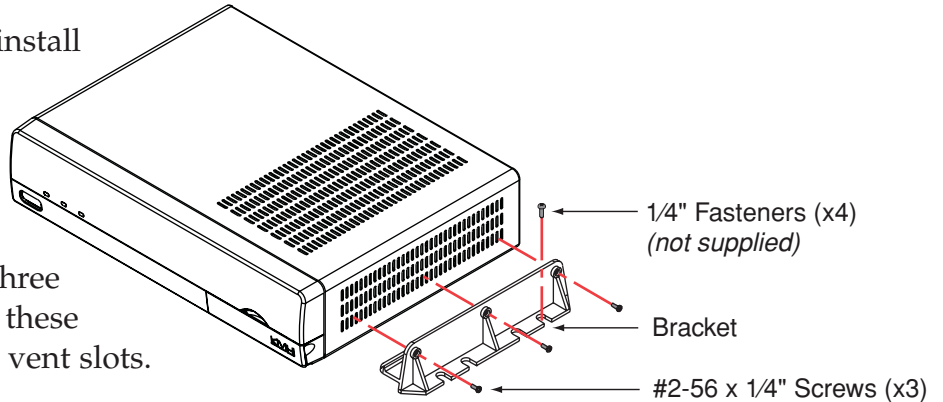
Receiver

9

Install the Receiver

Once all cables are connected, install the receiver inside the vessel.

1. If you wish to mount the receiver, attach the two mounting brackets to the sides of the receiver using three #2-56 screws. Simply screw these fasteners into the receiver's vent slots.



2. If you are using the mounting brackets, secure the brackets to the mounting surface using appropriate 1/4" fasteners (*not supplied*).



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

3. Place the RF converter at least 3 feet (1 meter) away from the receiver. 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.



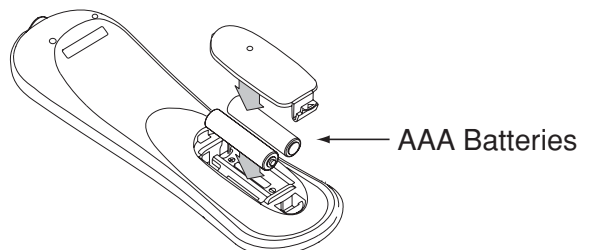
RF Converter

4. If desired, mount the RF converter using the supplied Velcro fasteners.

10

Install Batteries in Remote

1. Remove the battery compartment cover from the back of the remote control.
2. Insert two AAA batteries (*supplied in the kit*).
3. Replace the battery compartment cover.



11 Test the System

Now that you have installed the TracVision system, you need to turn the system ON and verify that the antenna works properly.

1. Make sure the vessel is moored, either at the dock or at anchor, and the antenna has a clear view of the southern sky.
2. Apply power to both the TV and the TracVision system.
3. Turn on the power switch on the front of the receiver.
4. Wait while the antenna searches the sky for the DIRECTV satellite. Once the antenna finds the satellite, the receiver downloads the program guide. A progress bar should display on your TV. *It could take 60 seconds to load the guide.*
5. Once a DIRECTV picture appears on the TV, verify that the 3 status lights on the front of the receiver are lit green.

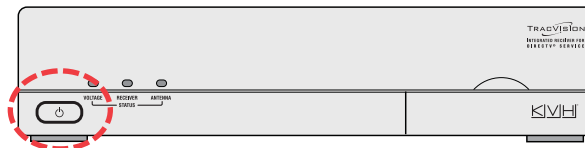
A - VOLTAGE Light

B - RECEIVER Light

C - ANTENNA Light

Refer to the Quick Start Guide and Receiver User's Guide for complete operation instructions and troubleshooting information.

Power Switch



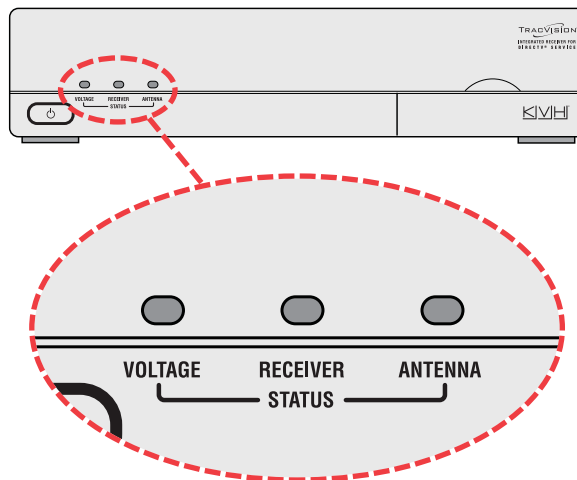
If your satellite dish is ready for DIRECTV® service, please wait until your Advanced Program Guide™ is prepared.

Installation



Acquiring guide data...

Status Lights



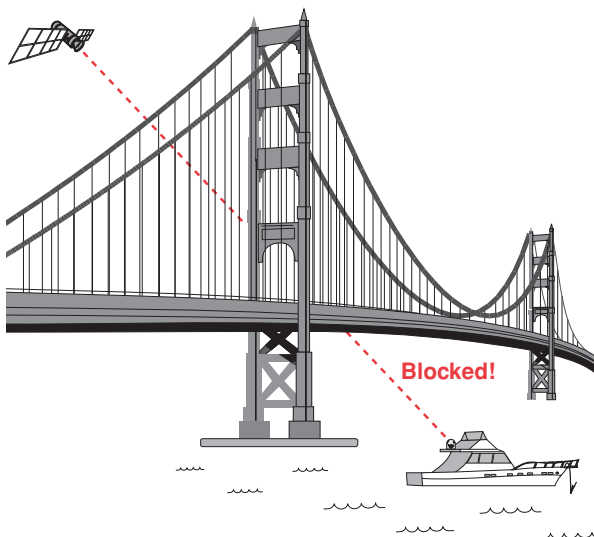
12 Educate the Customer

- Keep the radome installed on the antenna at all times. The radome protects the antenna's internal 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.

- The TracVision M2 is designed for use while **at anchor only**. It will acquire and track the satellite while the vessel is moored, either at the dock or at anchor, but not while it is underway.
- The antenna must have a clear view of the southern sky to receive satellite TV. Common causes of blockage include trees, buildings, bridges, and equipment on the vessel itself.



- Heavy rain or snow may also temporarily interrupt reception.

Receiver Activation

Once the system is fully installed, the owner needs to activate the receiver for DIRECTV® service.

To activate, call KVH's Activation Department toll-free at **1-866-551-8004**.

The owner will need the red Activation Card to activate the receiver and set it up for local channels.

TracVision® Activation

Before you can start enjoying satellite TV, the TracVision 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 (if purchased as part of a complete receiver system)	Antenna Serial Number
R 051099999	A 051077777

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
Hughes Serial Number	Model Number

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

5/2005/24 10.0

- The antenna should be cleaned regularly. Dirt buildup on the radome can affect satellite TV reception.
- The owner needs to 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 vessel must be located within the selected satellite's coverage area in order to receive its satellite TV signals. To view satellite coverage maps, visit: **www.kvh.com/footprint**.
- Refer to the Quick Start Guide and the Receiver User's Guide for complete operation instructions.



KVH Industries, Inc.

50 Enterprise Center Middletown, RI 02842-5279 U.S.A.
Phone: +1 401 847-3327 Fax: +1 401 849-0045
E-mail: info@kvh.com Internet: www.kvh.com

KVH Europe A/S

Kokkedal Industripark 2B 2980 Kokkedal Denmark
Phone: +45 45 160 180 Fax: +45 45 160 181
E-mail: info@kvh.dk Internet: www.kvh.com