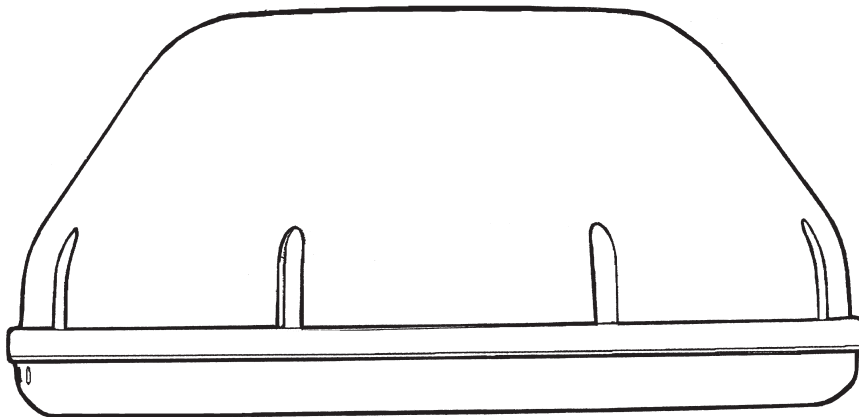
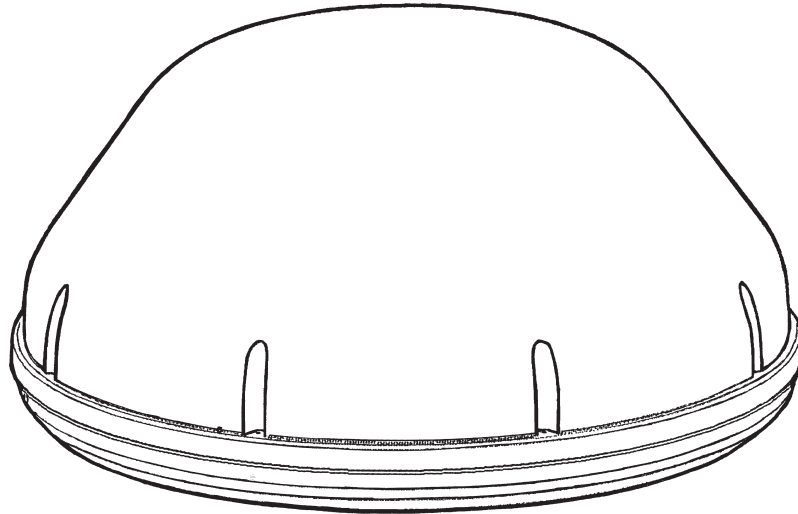


WINEGARD®

Movin' View™

Mobile Digital Satellite Antenna Model MV-3500

U.S. Patent Nos. 6,023,247; 6,188,300
Made in the U.S.A.



Winegard Company • 3000 Kirkwood St. • Burlington, IA 52601-2000
319/754-0600 • FAX 319/754-0787 • www.winegard.com
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Introduction/How Does Digital Satellite TV Work?

About this manual —We hope this manual will provide clear instructions to install and operate MV-3500. Two symbols have been used —



Indicates caution should be taken!



Indicates suggestions to make processes easier for you.

Introduction

Congratulations! You have purchased one of Winegard's latest developments in the mobile satellite reception product line —the Movin' View™. This system, used with your digital satellite receiver, will deliver the best reception possible using GPS (Global Positioning System).

How Does Digital Satellite TV Work?

Satellite programming originates from an “uplink” facility on Earth — the facility receives many signals from different sources, combines the signals digitally and transmits to the satellites. The satellites (22,300 miles above Earth) receive the uplink signal, amplify it and then transmit it back to earth in the Ku frequency band. This signal is concentrated and reflected to the LNBF* located at the “focal point” of the dish. The LNBF amplifies and converts the signal to the 950 to 1450 MHz range. The signal is then passed through a coaxial cable to the receiver where individual channel selection and processing take place.

* Low Noise Block Converter Feed

For Programming information call:

DISH NETWORK® - 1-800-333-DISH (1-800-333-3474)

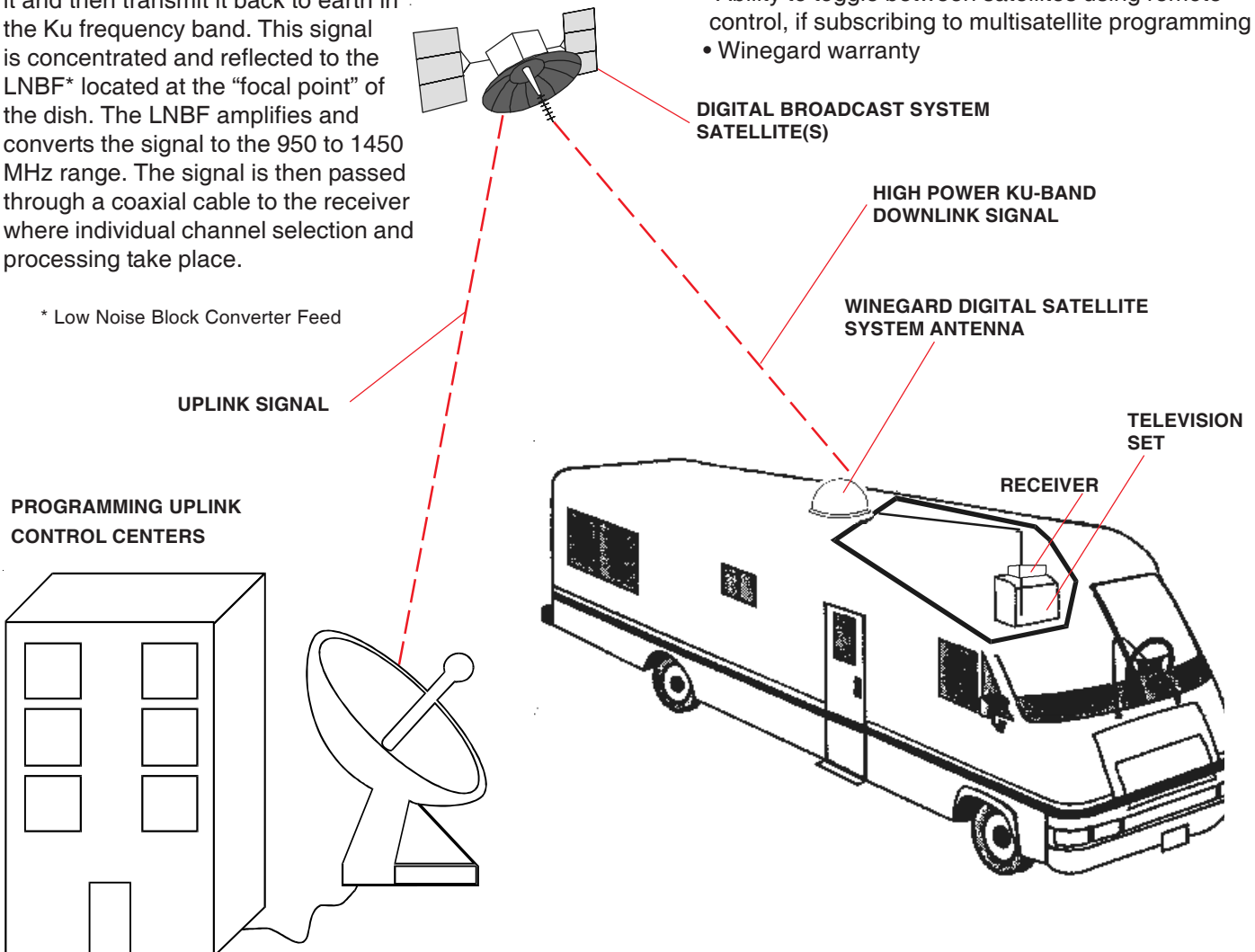
DIRECTV® - 1-800-DIRECTV (1-800-347-3288)

EXPRESSVU® - 1-888-SKYDISH (1-888-759-3474)

Your new Winegard RV Digital Satellite System is an easy-to-use satellite TV reception system. Because it mounts on the top of your recreational vehicle, it goes where you go and provides quality reception of digital satellite signals. Check with your program provider for exact coverage area.

MV-3500 features:

- GPS technology
- Easy “one-button” operation
- Compatible with most digital satellite receivers
- Ability to toggle between satellites using remote control, if subscribing to multisatellite programming
- Winegard warranty



DIRECTV® is an official trademark of DIRECTV, a unit of GM Hughes Electronics Corporation.
DISH Network® is an official trademark of EchoStar Communications Corporation.

Quick Reference Guide

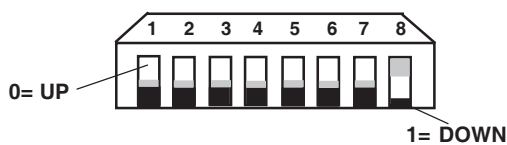
NOTICE!

This model is PRESET for DIRECTV® receivers.

If you have a DISH Network® or ExpressVu® (Canada) receiver, you must change the numbered switches inside the dome.

TO CHANGE SWITCHES INSIDE DOME —

1. Remove screws holding dome to base and remove dome. Place dome in safe spot to avoid damage. Switches will be set at 101° for DIRECTV. You will be changing these switches.

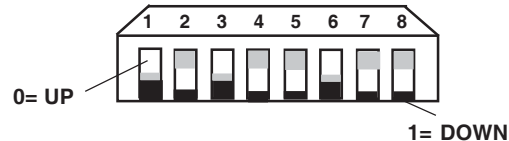
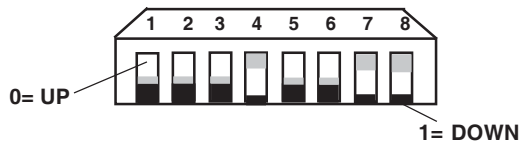


| (#1 represents Switch DOWN; #0 represents Switch up) | | | | | | | | |
|--|---------------------|---|---|---|---|---|---|---|
| Sat. Rcvr. | Switch Set Position | | | | | | | |
| | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 |
| DISH NETWORK | 0 | 0 | 0 | 1 | 0 | 0 | 1 | 1 |
| DIRECTV (FACTORY PRESET) | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 |
| ExpressVu | 0 | 1 | 0 | 1 | 1 | 0 | 1 | 1 |

2. Determine which programming you will be using. This will determine how you set your switches.

For DISH Network®, set switches to 119°.

For ExpressVu, set switches to 091°.



DIRECTV receivers must be set to the two satellite, oval dish setting. Refer to your receiver manual.

DISH Network receivers must either have the check switch set for SW42 or unknown, no satellite found. See page 4.

Operation (Vehicle MUST be stationary!!)

1. Turn on receiver and television set. **The MV-3500 must be connected to a receiver that is plugged into 120 VAC.**

2. **Verify that you are getting the receiver's** menu screens on the television. These screens are available with or without the dish finding the signal.

3. **Turn the power switch on for the MV-3500.**

The dish should start moving, making one or two revolutions before it stops to acquire GPS. This can take a few moments or up to 10 minutes. Normal operation will be less than a minute.

4. **Once the unit has acquired GPS, the dish will begin its search.**

- a. The dish will pause on the signal long enough to determine which satellite it has found.

- b. If it moves off the signal, it is in an effort to verify the signal and it should return to the signal shortly.

5. After the unit has verified that it has the correct satellite, it will move to check the alternate satellite before it completes the search routine.

6. **If you do not have signal, see *Troubleshooting*, p. 11.**

To toggle between satellites when subscribing to multi-satellite programming—

The MV-3500 will toggle between the primary and secondary satellites for either DISH Network or DIRECTV but not between DISH Network and DIRECTV. Both have programming on more than one satellite. When a channel is selected with the remote control that is not on the satellite currently selected, the dish will automatically move to the correct satellite.

DIRECTV programming

1. DIRECTV receivers must be set for oval dish 2 sat selection to enable toggling between primary 101°W satellite and alternate 119°W satellite. (Consult receiver manual for procedure.) After receiver is set for the correct dish selection, when you request a channel located on a different satellite, the unit will automatically move to that satellite.

DISH Network programming (DISH 500)

To set the receiver to “Switch Unknown”

1. Start by disconnecting the “satellite in” cable from back of your receiver.
2. With this cable disconnected, run a check switch to clear any “previous” information out of the system.
3. The check switch should read, “No switch detected” when it finishes.
4. Reconnect cable and start a new search with the dish.

If this is the first time the receiver has been used, you may need to download receiver software; best done on a home dish.

1. While vehicle is stationary, wait for unit to acquire satellite signal on satellite 119.

2. After signal is acquired, you have 6 minutes to complete Check Switch test. Consult receiver manual for instructions on running this test.

3. During the Check Switch Test, the receiver will begin checking your switch by toggling between satellites. When this is completed, SW42 will appear on the screen. It will be at the top of the screen, satellite designations will be below, showing odd and even transponders. See illustration below.

NOTE: If a switch other than SW42 appears, or you have an X in one of the boxes below the satellites, repeat Check Switch steps.

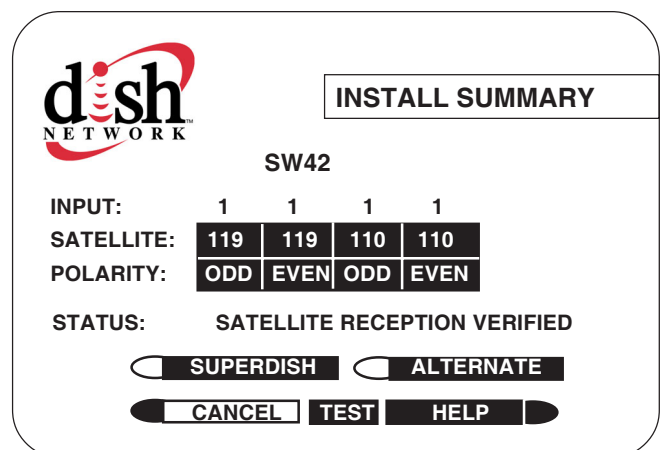
4. Your system is now set up to toggle between satellites. It will automatically move to the correct satellite when a channel is selected.

NOTE: Unless Check Switch was performed on another satellite dish, such as a home dish, you won't need to perform this test again.

Check Switch
screen display

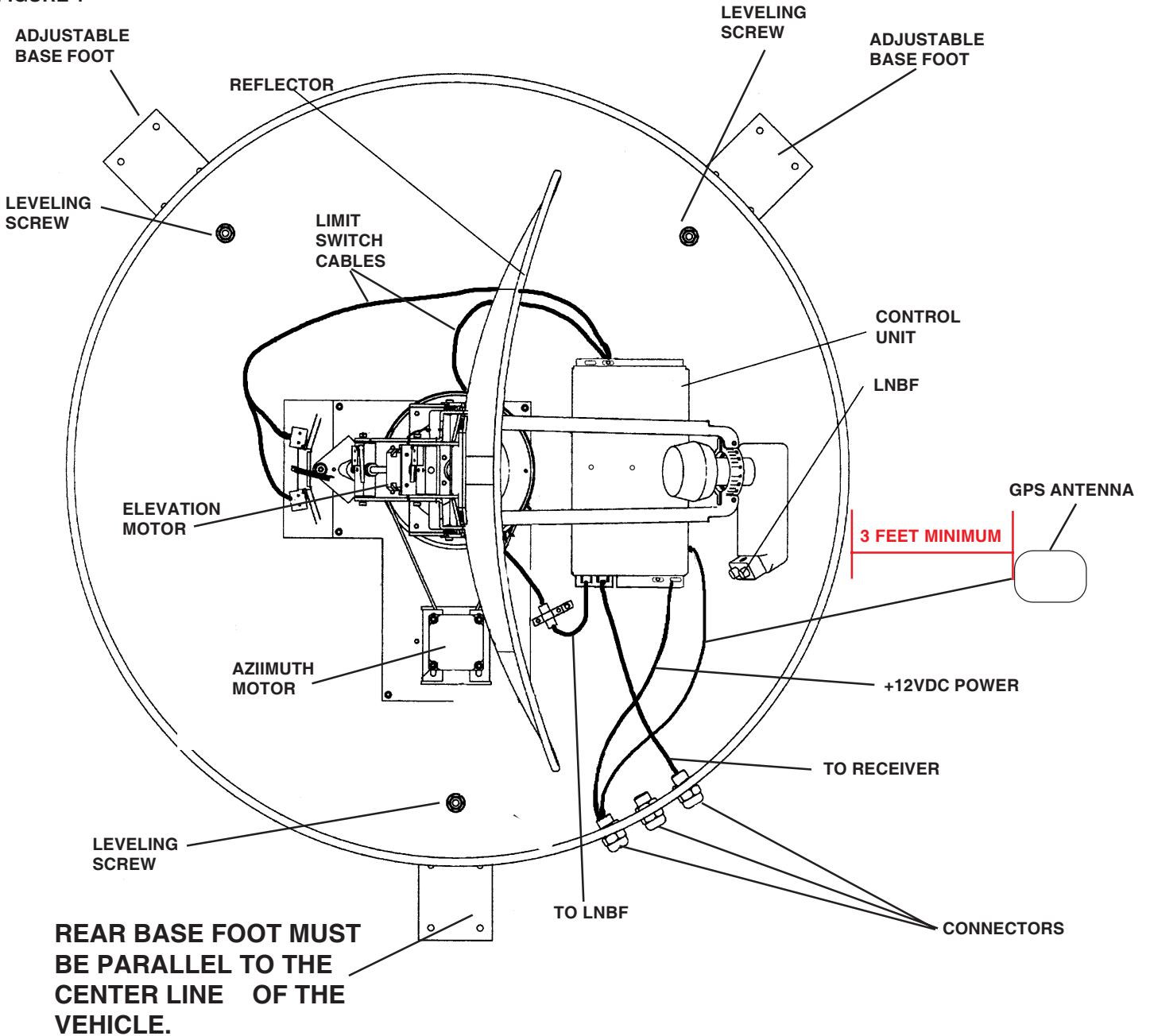


By sending in your warranty card packed with your system, you will receive updated information about DISH 500 future compatibility.

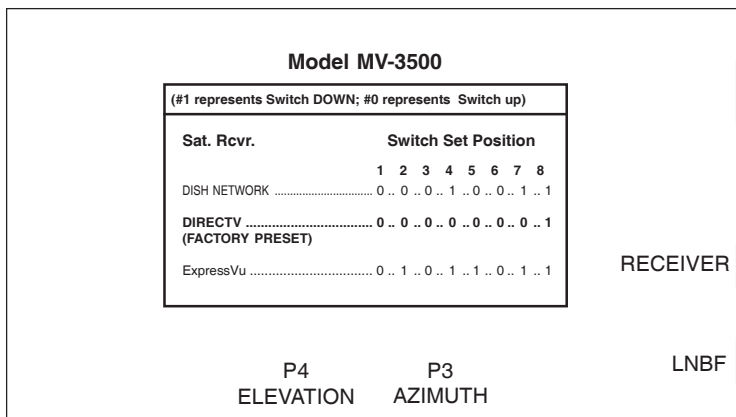


Installation Diagram

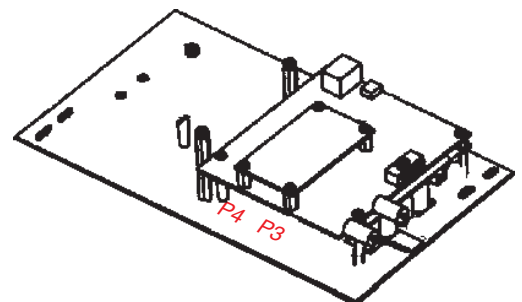
FIGURE 1



CONTROL BOX DETAIL



ELECTRONICS INTERIOR VIEW



Parts Included • Tools Needed • How to Unpack

PARTS INCLUDED:

- | | |
|-------------------------------|--|
| 1 Radome | 1 Cable entry plate |
| 3 base mounting feet | 1 large yellow spade connector |
| 1 Power switch | 2 small red spade connectors |
| 2 Wall plates (white & brown) | All required screws and washers |
| 1 Surface mount box | 1 base with electronics, dish, dual LNBF |
| 2 Cable clamps | 1 tube silicone |

TOOLS NEEDED FOR UNPACKING & INSTALLATION:

- | | |
|--|--|
| 7/16" open end wrench | 1/2" Open end wrench |
| Level | Crimping tool for coax connections |
| Drill w/3/4" bit | Crimping tool for electrical connections |
| 1-1/4" hole saw (if mounting switch in wall) | Small blade screw driver |
| 5/16" Socket for roof screws | Pliers |
| 1/8" Allen wrench | Sealant (consult RV manufacturer for proper type for your roof material) |

UNPACKING THE UNIT

1. Open box and remove packing material.



If using knife to open carton, **BE CAREFUL.** Do not cut the dome on the unit.

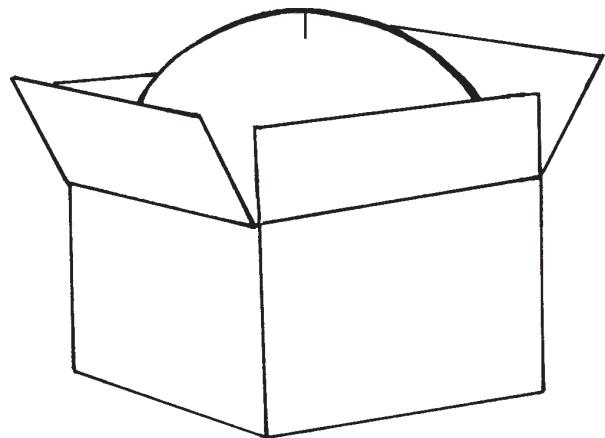
LIFT UNIT STRAIGHT UP



2. Lift unit out of box vertically. **Do not turn box and "roll" out, or turn upside down to remove.**



USE 2 PEOPLE when removing the unit from the carton.



Installing unit on roof of vehicle —

Install in DRY conditions only!



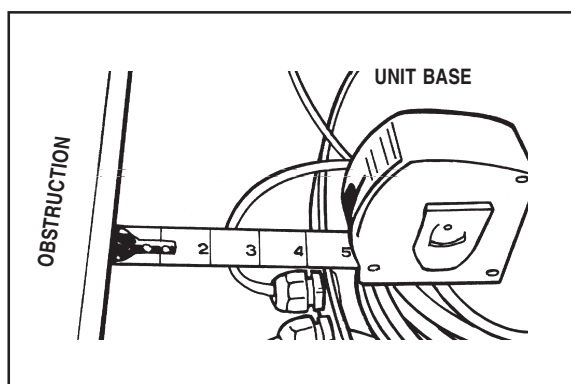
IMPORTANT! Do not install this system in the rain, or under any wet conditions. Moisture may affect electronics and void your warranty!

1. For best performance and to reduce signal acquisition time, park vehicle on a level surface; level the RV.
2. Select a level spot on your roof for installation.

Using the chart, determine the **minimum** distances to other equipment.

| Obstruction Ht. | Unit Clearance |
|-----------------|----------------|
| 8" | 4" |
| 10" | 11.5" |
| 12" | 19" |
| 15" | 32" |

FIGURE 3



- The unit should be no more than $\pm 1^\circ$ off level.
- Be sure no roof-mounted equipment is blocking the satellite "line of sight", Fig. 3
- You will need to decide where the wires will enter the vehicle. A coax and a power wire (minimum 16 gauge) will need to be run into the vehicle. The power wire will go to the nearest *filtered* +12 VDC power source; the coax will be routed to your satellite receiver.

3. Remove screws holding dome to base and remove dome. Place dome in safe spot to avoid damage. Place base on vehicle roof in the location selected.

REMEMBER:

REAR MOUNTING FOOT MUST BE PARALLEL TO THE CENTER LINE OF VEHICLE.

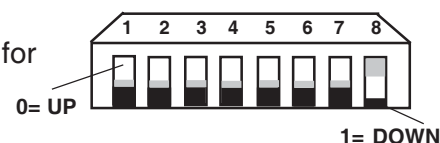
4. Determine which programming you will be using. The switches for this model are preset for DIRECTV® programming. To set the switches for DISH Network®, or EXPRESSVU, see the illustration below.

tion below.

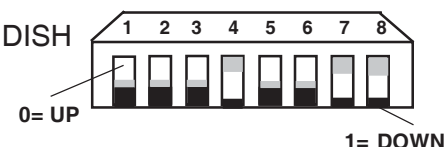
(#1 represents Switch DOWN; #0 represents Switch UP)

| Sat. Rcvr. | Switch Set Position | | | | | | | |
|--------------------------------|---------------------|---|---|---|---|---|---|---|
| | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 |
| DIRECTV (FACTORY PRESET) | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 |
| DISH NETWORK | 0 | 0 | 0 | 1 | 0 | 0 | 1 | 1 |
| EXPRESSVU | 0 | 1 | 0 | 1 | 1 | 0 | 1 | 1 |

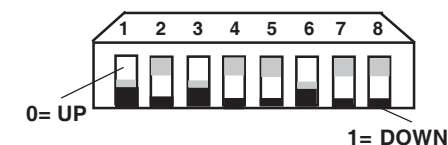
Switches preset for DIRECTV



Switches set for DISH Network

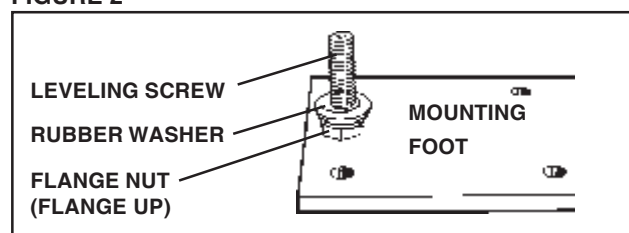


Switches set for EXPRESSVU



5. On each foot, screw the flange nut to the base of the leveling screw on the mounting foot, flange up. Place rubber washer, with the rubber side up, on the nut, Figure 2. Push mounting foot under base. Push foot screw through the base and tighten lock nut to secure foot to base. Be sure the base feet are pointing away from the base. Base feet will be removed later during install.

FIGURE 2

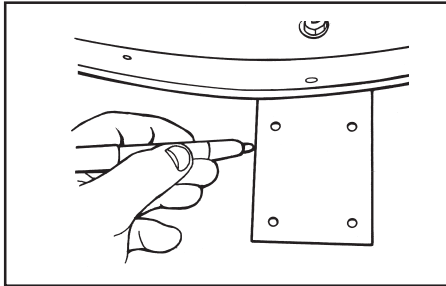


Installation

ROOF INSTALLATION, continued

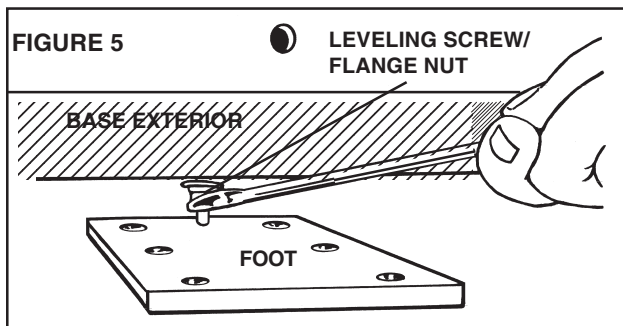
6. Place the unit on the roof in its permanent location and mark around each base foot, Figure 4. (Make sure the **rear adjustable base foot is parallel to the center line of the coach.**)

FIGURE 4



7. Clean roof area where the base feet will be attached to the roof. Do not erase your marks!
8. Put approved sealant in the areas marked for the base feet. Place base feet on top of the sealant and screw down using (2) of the #10 screws (provided) for each foot.
9. Unscrew the locknuts in the base and remove the base from feet. Secure feet by installing four more #10 screws in each base foot.

10. After all base feet are secured to roof, put sealant around edge of feet and over screws. Replace base on leveling screws and reinstall nut and rubber washer on leveling screw. Do not secure until after leveling (next step).



11. Leveling the base is done by tightening or loosening the flange nut under the base, Figure 5.

Using an electronic level is recommended to adjust base so there is **no more than +/- 1°** off level in all directions. Place level on base of unit if possible. (If your level will not fit inside the base plate, place on outside edge.) Level front to back and side to side. Raise and lower by adjusting flange nut under base. After leveling base, secure inside base with rubber washer, rubber side down toward base, and lock nut.

GPS installation —

The GPS antenna is pre-wired and has a 3 foot cable running through one of the connectors.

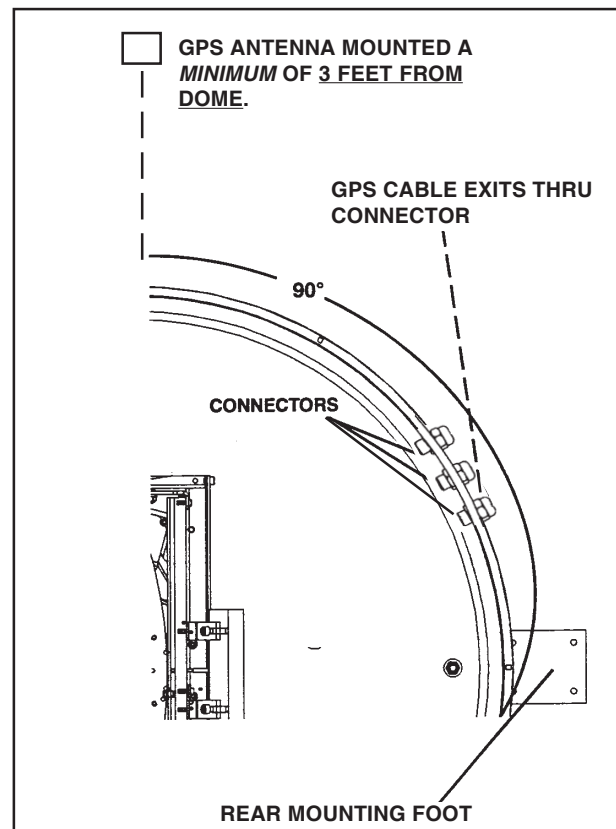
When deciding where to place GPS antenna, DO NOT SECURE! After wiring the receiver and initializing your system, you will need to test the system.

Determine location for GPS antenna. It is recommended you place the GPS antenna between unit base and side edge of vehicle, 90° from rear mounting bracket, **at least 3 feet from dome!** Figure 6.

The recommended location for the GPS antenna is based on having a level location and a clear view of the sky. If another location, further from the base, is desired, loosen the connector and pull out additional wire in the base. **You must re-wrap and re-tie the GPS cable inside the dome** to prevent interference with the LNBF. **Failure to do so will result in malfunction!** Tighten connectors when done.

IMPORTANT! The GPS must be located away from obstructions on roof of vehicle. **You must have a clear view of the sky for proper operation.**

FIGURE 6

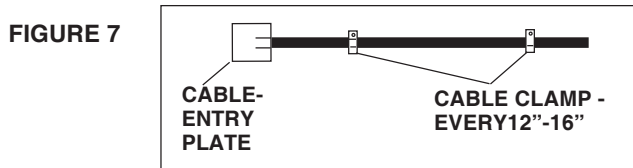


Cable entry installation —

1. Decide the best **location for the cables** to enter the vehicle, *keeping in mind* the **desired location for the switch and receiver**.

Drill a 3/4" hole in the roof, push wires inside. Make proper connections (**remember you must have filtered +12 VDC power source**).

2. Place cable-entry plate over hole and cables. Screw in place. Seal plate and screw holes with approved sealant (not included).



3. Depending on the length of the cable on the roof, you may need to use cable clamps or wire ties (not provided) between the unit and your cable-entry plate. Clamping the cable every 12"-16" should eliminate any unnecessary cable movement, Figure 7, see above.

INSTALLING THE POWER SWITCH

1. Decide the location of the power on/off switch. **Be sure the switch is turned off before you begin!**

See diagram below.

Wall or panel mount: Drill 1-1/4" hole, pull wires through wall or panel.

Surface mount: Determine location and direction of box. Mount box feed wire into one of the box openings.

Select plate cover (brown or white provided) and snap the rocker switch into the switch plate. Be sure switch is off!

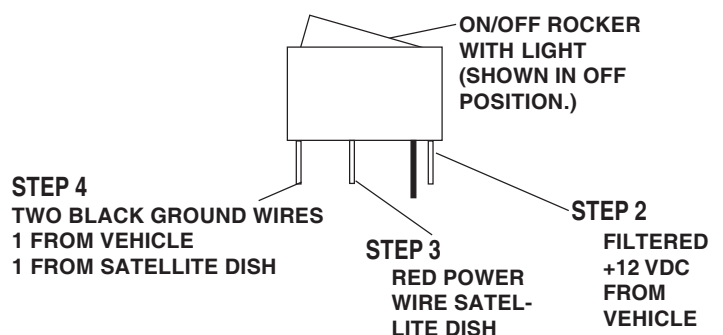
2. Connect **filtered +12 VDC** power from vehicle, using red spade connector, to isolated spade on switch.

3. Connect red power wire from MV-3500 using red spade connector to center spade on switch.

4. Connect vehicle ground and black ground wire, using yellow spade connector, to silver spade on switch.

FIGURE 8

INSTALLING THE POWER SWITCH DIAGRAM



Installation • Wiring

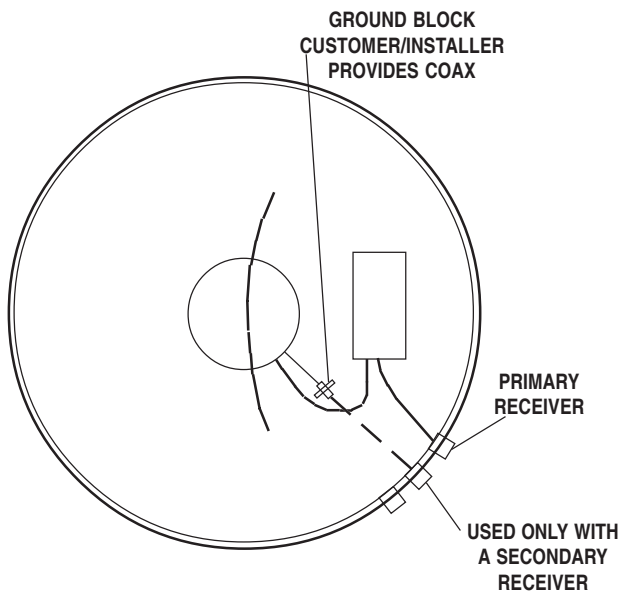
Connecting the receiver —

Connecting one receiver

1. Connect the coax cable from the MV-3500 to the "SATELLITE IN" on the receiver.

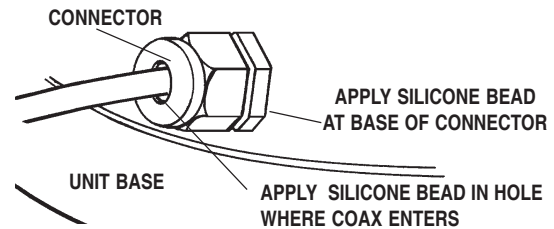
Connecting two receivers

1. Connect the coax cable coming from the MV-3500 to the "SATELLITE IN" input on the primary receiver. The primary receiver is the receiver used most often.
2. Run a second cable through the empty Heyco opening and connect to the ground block-type feed through and connect the other end of this cable to "Satellite IN" input on the second receiver.



Initializing & replacing the dome after connecting the receiver(s) —

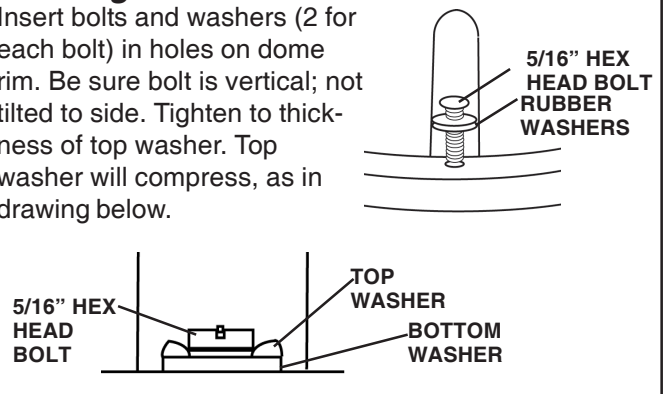
1. Be sure vehicle is in a location free of all obstructions and with a clear view of the satellite.
2. Power up unit, turn on receiver. **The unit may take up to 10 minutes to initially find the satellite signal.** The GPS is also initializing at this time. After the GPS initializes, the unit will begin searching for the correct satellite.
3. **If the GPS does not initialize at this time**, turn off the unit. You may need to move the GPS antenna to a different location on your roof. After you move the GPS, **DO NOT SECURE TO ROOF.**
4. **TEST YOUR SYSTEM BEFORE SECURING THE GPS ANTENNA.** Make sure the TV/receiver have the correct satellite.
5. After the correct satellite has been found, secure GPS antenna by removing adhesive backing and securing to roof.
6. Install dome. **NOTE:** After connectors are tightened, **apply bead of silicone around the connector** where the exterior hex nut touches the base and **around the cables** where they enter the connector on the exterior of the unit. See drawing below. **If second receiver is not used**, apply silicone to seal center hole of third connector. See drawing below.



7. Insert bolts and washers in holes on dome rim. **SEE "INSTALLING DOME" below.**

Installing Dome —

Insert bolts and washers (2 for each bolt) in holes on dome rim. Be sure bolt is vertical; not tilted to side. Tighten to thickness of top washer. Top washer will compress, as in drawing below.



PROBLEM

SOLUTION

The MV-3500 does not attempt to find a satellite or it never moves.

1. Check your Power switch to verify that it is in the **ON** position.
2. Make sure that the receiver is plugged in and the satellite in jack is connected to MV-3500.

The MV-3500 turns on and moves for a few seconds then stops and never moves again.

1. Wait 10 minutes. The unit can take up to 10 minutes to acquire GPS. If it normally takes 10 minutes to acquire GPS, contact Winegard.
2. If you feel comfortable doing so, look on the roof of the vehicle to verify that the GPS antenna is at least 3 feet from the dome and other objects on roof. Failure to have the GPS antenna at least 3 feet away can cause the dome to interfere with GPS acquisition. If antenna is too close, move it.
3. Check the GPS antenna cable for damage. If there is a pinched or damaged section, contact Winegard.

The dish never stops on any of the signals that it sees.

1. Make sure that your receiver is set up correctly.
For DISH Network, the check switch should read either "**Unknown**" or "**SW42**".
For DirecTV the receiver should be set for a **Two Satellite Oval Dish**.
2. Make sure the receiver has power and the satellite dish is connected to the "Sat In".

With DirecTV, the dish will find the alternate Satellite but it never finds the primary satellite.

Make sure that the Switches on the Electronics Control Box are set for DirecTV. See page 3. These switches are found under the dome, inside the Electronics Control Box.

The dish stopped searching but I don't have a signal.

1. Most likely the dish has locked on the satellite. Sometimes the receiver refuses to show it until its ready. To help it get ready, turn the receiver, **not the dish**, OFF. Wait a few minutes and turn it back on.
2. For DISH Network users, the dish might be set to find DirecTV. See page 3 for instructions on setting it for DISH Network.

I am not getting all the DISH Network channels I subscribed to.

1. Go to the check switch menu in receiver. Make sure that it's set for SW42 and lists both even and odd transponders on satellites 110 and 119.

The MV-3500 never sees any signals, it just keeps searching.

1. Rain, Snow or excessive Dew on the dome can interrupt the signal. Snow and Dew can be brushed off the dome. If Heavy rain or Snow fall is blocking the signal, it may be necessary to wait until the weather clears.
2. Check to see if the Southern sky is clear. Trees, Buildings, Large signs or an Overpass can block the signal. Find an area where you can be sure that this is not the problem and try again.
3. Make sure the receiver has power and the satellite dish is connected to the "Sat In".

Specifications & Warranty

Features and specifications

- One button operation.
- GPS satellite signal acquisition.
- Depending on receiver type, access satellites 119°, 110°, 101° or 92°.
- No user input required.
- No data port required for any receiver.
- Elevation range 17° to 75°; azimuth +360°. (0 - 720°)
- 30' power cable and 30' coaxial cable included.
- Dome is UV protected.
- Off-white color compatible with all vehicles.
- Compact size —
32" diameter, 15" height
Weight of unit - 43 lbs.
Shipping weight - 59 lbs.
- Functional in temperatures ranging from -13° to +140° F.

TWO YEAR LIMITED WARRANTY

Winegard Company warrants this Winegard product (excluding receiver) against any defects in materials or workmanship within two (2) years from date of purchase. No warranty claim will be honored unless at the time the claim is made, you present proof of purchase to an authorized Winegard dealer (if unknown, please contact Winegard Company, 3000 Kirkwood Street, Burlington, Iowa 52601-2000, telephone 319-754-0600).

Winegard Company (at its option) will either repair or replace the defective product at no charge to you. This warranty covers parts, but does not cover any costs incurred in removal, shipping or reinstallation of the product. This limited warranty does not apply if the product is damaged, deteriorates, malfunctions or fails from: misuse, improper installation, abuse, neglect, accident, tampering, modification of the product as originally manufactured by Winegard, usage not in accordance with product instructions or acts of nature such as damage caused by wind, lightning, ice or corrosive environments such as salt spray and acid rain.

The Two Year Warranty is provided on the condition that the equipment is properly delivered with all handling and freight charges prepaid to your Winegard dealer for repair or return to our factory at the above address. Winegard dealers will arrange for the replacement or repair and return to you, without charge, the product which failed due to defective material or workmanship.

WINEGARD COMPANY WILL NOT ASSUME ANY LIABILITIES FOR ANY OTHER WARRANTIES, EXPRESS OR IMPLIED, MADE BY ANY OTHER PERSON.

ALL OTHER WARRANTIES WHETHER EXPRESS, IMPLIED OR STATUTORY INCLUDING WARRANTIES OF FITNESS FOR A PARTICULAR PURPOSE AND MERCHANTABILITY ARE LIMITED TO THE TWO YEAR PERIOD OF THIS WRITTEN WARRANTY.

The foregoing shall be the sole and exclusive remedy of any person whether in contract, tort or otherwise, and Winegard shall not be liable for incidental or consequential damage or commercial loss, or from any other loss or damage except as set forth above.

Some states do not allow limitations on how long an implied warranty lasts, or the exclusion of limitation of incidental or consequential damages, so the above limitations or exclusions may not apply to you.

This warranty gives you specific legal rights and you may also have other rights which vary from state to state.



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