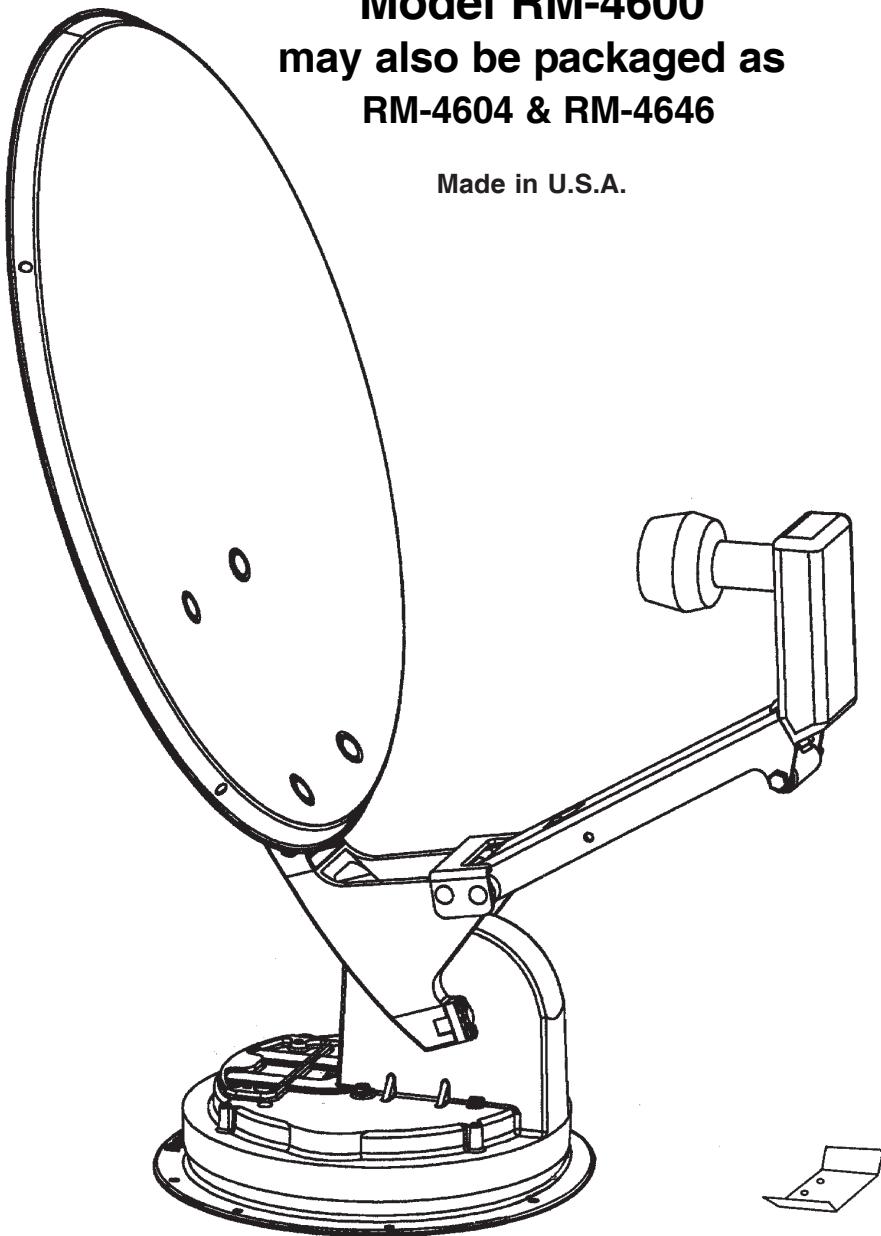


OWNER'S MANUAL
INSTALLATION INSTRUCTIONS

WINEGARD®
CRANK-UP RV DIGITAL SATELLITE
SYSTEM

Model RM-4600
may also be packaged as
RM-4604 & RM-4646

Made in U.S.A.



Operation

STEP 1. The more accurately you determine North, the easier it is to locate the satellite. Step outside and away from your vehicle. (Standing too near your vehicle can give incorrect compass readings.) It is helpful if there is a landmark on the horizon to represent North. Return to the vehicle and point the Directional Dial North, or to the landmark.

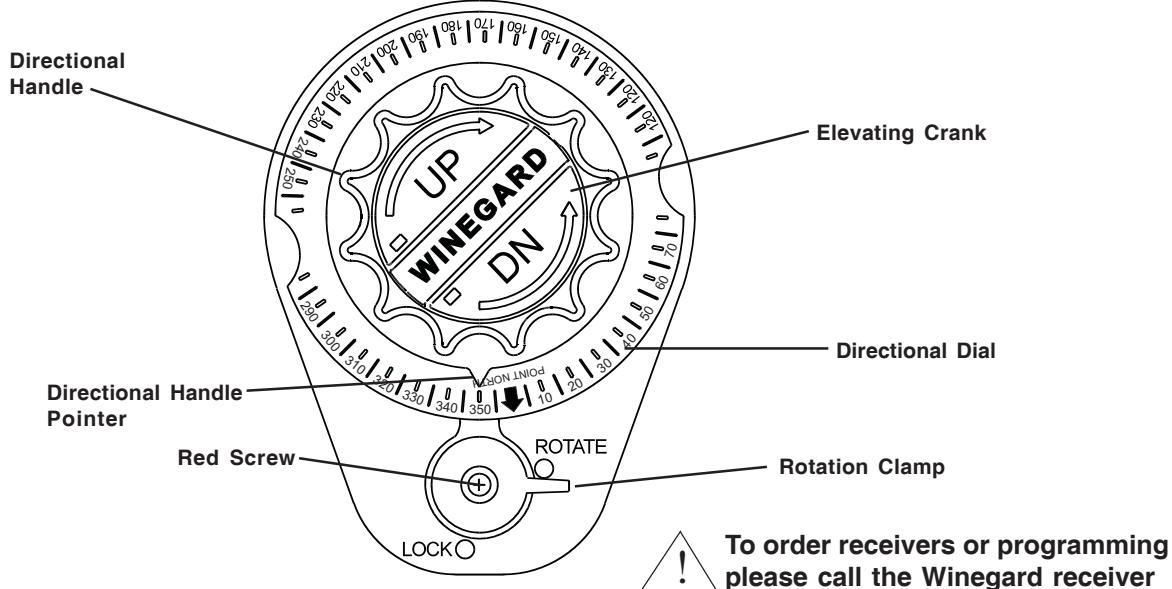


FIGURE 1

Step 2. Move ROTATION CLAMP to the LOCK position.

Step 3. Turn ON receiver and television. Tune the television to channel 3 or 4 to match setting on your receiver. Using your receiver manual for instructions, go to the Signal Meter screen. Enter nearest zip code for your location using receiver's remote control. After the zip code is entered, the receiver will indicate numbers for **Azimuth** (compass heading) and **Elevation**. See chart below to determine number of turns needed for each elevation. **Turn the elevation crank handle CLOCKWISE to RAISE the antenna; turn the elevation crank COUNTERCLOCKWISE to LOWER the antenna.**

ELEVATION	TURNS CW
14 - 16°	14
17 - 19°	14-1/2
20 - 22°	15
23 - 25°	15-1/2
26 - 29°	16
30 - 32°	16-1/2
33 - 35°	17
36 - 38°	17-1/2
39 - 42°	18
43 - 45°	18-1/2
46 - 48°	19
49 - 51°	19-1/2
52 - 54°	20
55 - 57°	20-1/2
58 - 61°	21
62 - 64°	21-1/2
65 - 67°	22
68 - 70°	22-1/2
71-73°	23

Step 4. Unlock the rotate/lock lever by moving the lever towards ROTATE position. Put your fingers in the indentations of the directional handle and move the dial until the pointer on the directional handle points toward the number given for azimuth indicated on the menu on your receiver. Example: If the receiver indicates point antenna at 145°, rotate directional handle so pointer is pointing at 145° on the directional dial.

Step 5. If you do not have a signal at the Azimuth indicated by your receiver, you may have to rotate the dish UP TO 20 degrees right or left of that Azimuth. Any mistakes made in setting the Directional Dial will be corrected by this sweep.

Winegard's "Digital Magic"™ elevation sensor, DE-4600, can be installed on Winegard crank-up systems. DE-4600 gives exact elevation of the antenna on an LCD readout inside the vehicle. Accurate to within 1°, even when vehicle is not level.

Tuning Antenna

STEP 1. Your receiver should indicate it is receiving a signal. To tune your antenna for the best signal strength. **SLOWLY** move the antenna left, then right, until you have found the position that gives the highest signal strength. **It is important to turn the antenna slowly. Because the signal is digital, the receiver takes a few seconds to lock on.**

STEP 2. Place rotation clamp in the LOCK position. This prevents antenna movement and loss of signal.

STEP 3. SLOWLY raise, then lower the antenna until you have peaked the signal. You are now ready to watch satellite TV!

Lowering Antenna to Travel Position

STEP 1. Set rotation clamp to **ROTATE** position.

STEP 2. Rotate antenna until pointer on directional handle aligns with the red screw on the rotation clamp.

STEP 3. Turn elevating crank counter clockwise **in direction of DOWN arrow until meeting resistance**. The number of turns will vary according to the elevation angle the antenna was set at.

STEP 4. Move rotation clamp to the LOCK position. Antenna is now locked in travel position.

STEP 5. Snap elevation crank in place.

CAUTION! NEVER LOWER ANTENNA IN ANY POSITION EXCEPT TRAVEL POSITION!

DO'S

1. **Do check parking location for obstructions before raising antenna.**
2. **Do** carefully raise, lower and rotate antenna. If difficult, check for cause.
3. **Do** rotate SLOWLY when searching for the satellite(s), and check fine tuning on TV set to make sure it is properly adjusted.
4. **Do lower antenna before moving vehicle!**
5. Activate programming by calling program provider for your receiver.

DON'T'S

1. **Don't move RV/coach with the antenna in the UP position. This will VOID your WARRANTY. This may also cause damage to your roof.**
2. **Don't** force elevating crank up or down. Check for cause of trouble.
3. **Don't** rotate directional handle hard against stops.
4. **Don't** apply paint over top of base plate or any where on lift.
5. **Don't** apply sealant on gear housing.

Trouble Shooting

YOU HAVE NO PICTURE

Antenna Reflector at 90°

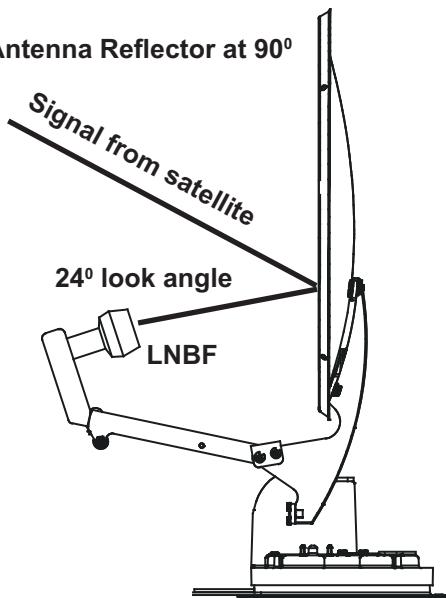


FIGURE 2

ANTENNA DOES NOT ROTATE, OR IS HARD TO ROTATE

1. Inspect antenna on roof. Make sure that mount has not been damaged.
2. Check for caulking between gear housing and baseplate.
3. Be sure cables are not binding, and that they are installed properly.
4. Contact Dealer or Winegard Service Department.

ANTENNA DOES NOT RAISE, OR IS HARD TO RAISE

1. Inspect antenna on roof. Make sure that mount has not been damaged.
2. Check for caulking on elevating shaft.
3. Contact Dealer or Winegard Service Department.

IF UNIT "WOBBLES" OR HAS "PLAY"

1. See page 7, Steps 13 and 14.

WARRANTY REPAIR WORK

Before you have warranty work done on the system, make sure the company/person performing the work has been approved by Winegard Company. If not, contact Winegard Co. (1-800-788-4417) before proceeding. The Winegard warranty covers only the mount, antenna and LNB. **For receiver warranty, refer to the manufacturer's warranty.**

ORDERING REPAIR PARTS

Repair parts are available at many RV dealers and/or service centers throughout the country. Or you can call Winegard Company 1-800-288-8094 (credit cards accepted).

Assembly & Installation

Things you need —

Screwdrivers (Phillips and slot)
1-3/4" hole saw
7/16" wrench

ABS glue
Drill with 1/8" bit
Tape measure

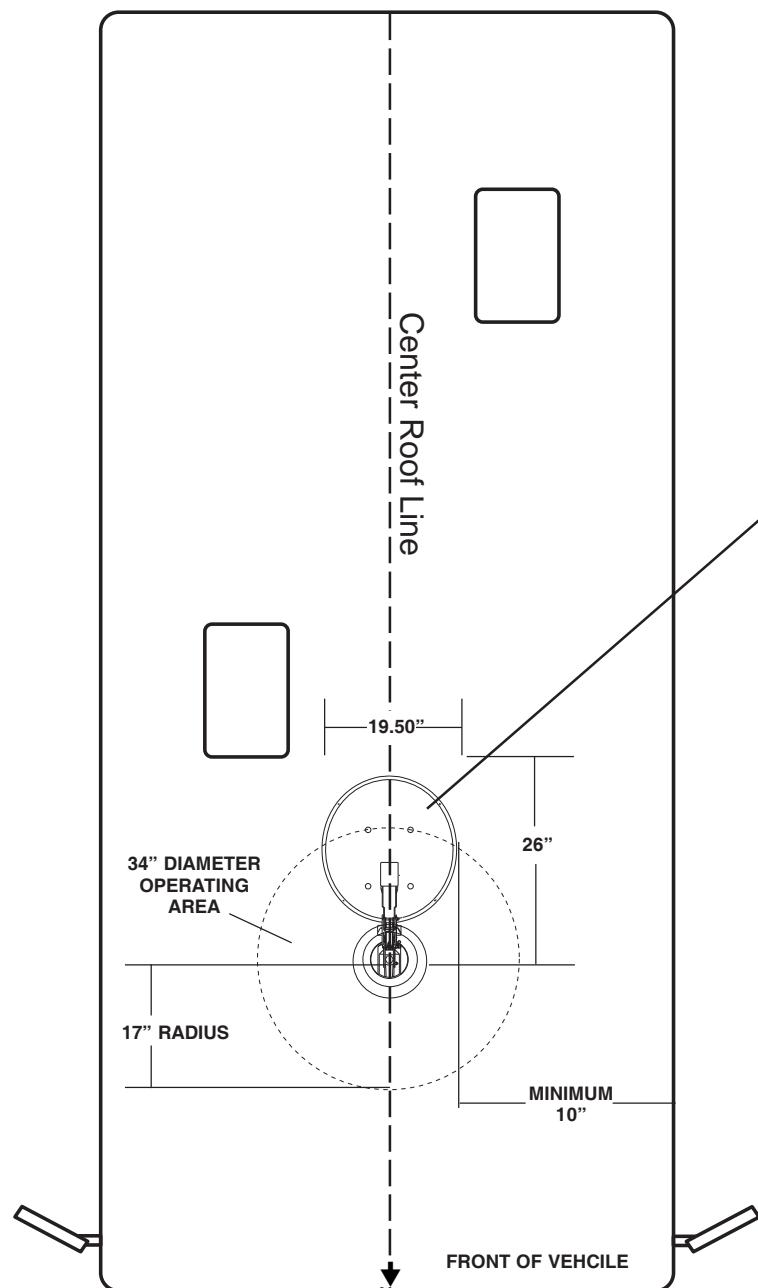
Non-hardening sealant
(Check manufacturer's specifications for compatibility with your roof material.)

STEP 1. Choose a location on the roof for dish that will allow dish to raise and rotate without interfering with other roof-mounted equipment. Make sure inside ceiling plate is easily accessible, and with no obstructions that would interfere with operation.

Figure 1 shows minimum distance (10") antenna should be located from edge of vehicle roof. It is recommended that you check with your dealer or manufacturer for provisions that may have been made in the roof for antenna mounting; a reinforced roof area or pre-wire installation from the factory.

NOTE: The system must be level for proper operation!

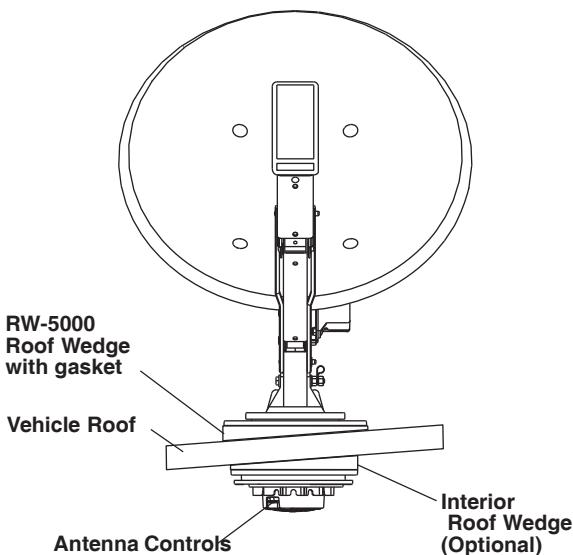
FIGURE 3 Winegard Model RW-5000 roof wedge with gasket is available. If inside roof wedge is needed, Winegard's RW-1000 can be trimmed to fit ceiling plate.



MEASURE THE THICKNESS OF THE ROOF NOW. Measure the outside roof covering through ceiling material. You will need this information when installing ceiling plate/directional handle assembly.

STEP 2. Position template on roof (see insert page of this manual). **CAUTION: DO NOT drill through wiring.** Carefully drill a 1-3/4" hole through roof and ceiling of vehicle. **Inspect hole to make sure wiring is intact.** (Roof template, see insert.)

It is highly recommended that the antenna be mounted on roof center line. Do not mount antenna closer than 10" from edge of roof.



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NOT TO SCALE

STEP 3. Attach dish to backup. Use bolts and nuts provided, Figure 4.

STEP 4. Mount dish on roof in upright position. Rotate clockwise to stop, Figure 5. Dish will be toward back of vehicle when in stowed or travel position. The word FRONT is embossed on the base and should face the front of vehicle. Secure to roof using screws (provided). The travel bracket should be mounted to roof 6-1/8" from base of dish, toward back of vehicle. See Figure 6. **NOTE: Apply non-hardening sealing compound to screw heads, coax access hole and edge of gasket under mount base.**

Install the vent tube on the back of the mount base (the is the side opposite the word FRONT). The hole for the vent tube is shown in Figure 6A. **CAUTION: DO NOT seal hole in vent tube.** Put sealant around the outside of the vent tube, approximately 1/2" from end. Push vent tube into the hole. The sealant will seal the hole as you push in vent tube. Leave approximately 2 to 2-1/2" of the vent tube extending from the hole. Put a small amount of sealant on the roof under the vent tube end to hold in place.

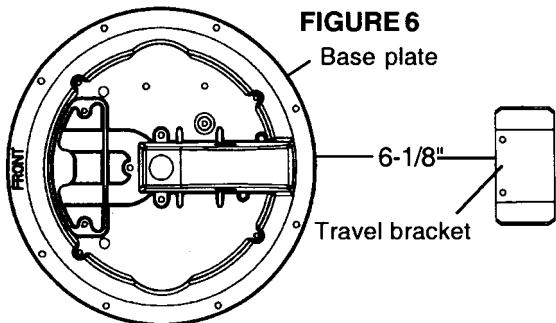
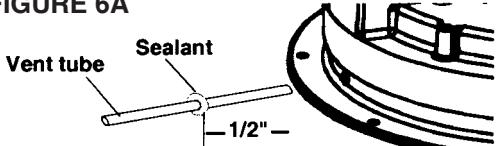


FIGURE 6A



CAUTION: DO NOT GET sealing compound between Base Plate and Rotating Gear Housing. DO NOT PAINT top of Base Plate or around Rotating Gear Housing.

STEP 5. Facing the front of the dish, note the coax attached to the side of the feed arm. Measure 24" coax from this point. **DO NOT CUT.** Put coax around mount base, Figure 5.

STEP 6. Apply approved sealing compound over mounting screw heads.

STEP 7. Feed coax through the roof using cover plate (included, w/hardware), Figure 7. **Weatherproof cable entry** by applying sealant under lip of cable entry plate and where cable enters roof. Attach plate to roof with screws provided. Apply sealant over screws and around edge of roof-thru plate, making sure cable entry is sealed. **If download connection is made on top of roof, make sure to weatherproof connection!**

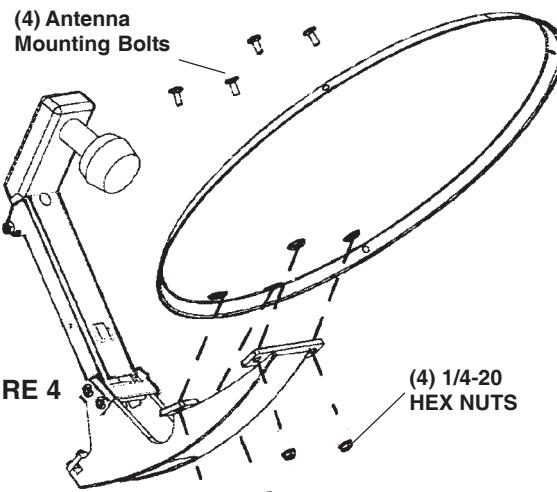
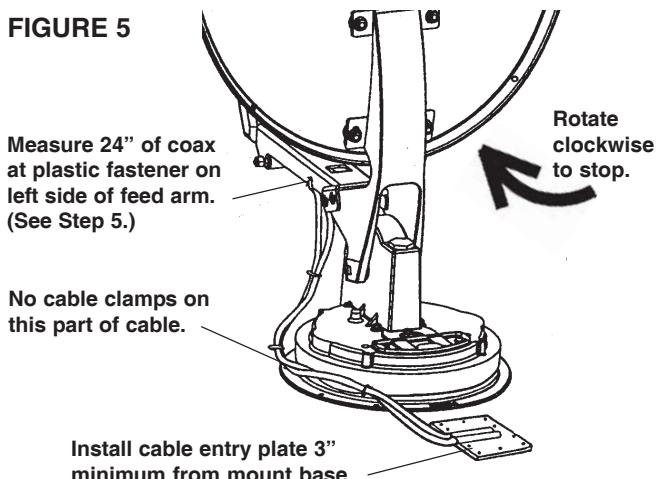


FIGURE 4

FIGURE 5



ANOTHER METHOD OF INSTALLING ROOF/CABLE ENTRY PLATE: Attach cable to roof using cable clamp. Use sealant to seal screw heads.

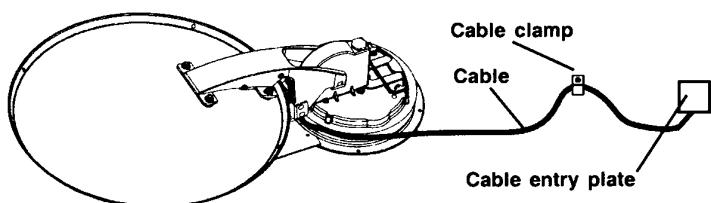
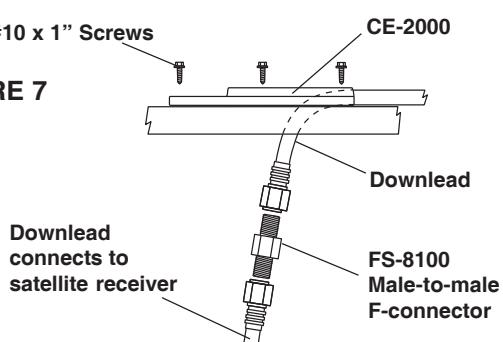


FIGURE 7



INSIDE RV

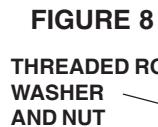
Special instructions: For roof thickness greater than 6-1/2".

Parts Needed: (not included)

RP-4400 14" worm gear for roof
3200369 Directional handle extension
2162031 Long threaded rod

Instructions:

STEP 8. Place nut on threaded rod.
See Figure 8.



STEP 9. Measure and cut the threaded rod with a hacksaw. Use the chart in Figure 9 to determine the correct length.

STEP 10. Remove the nut over the cut end of the threaded rod. This cleans the threads after cutting.

STEP 11. Thread the cut end of the rod into the hub.

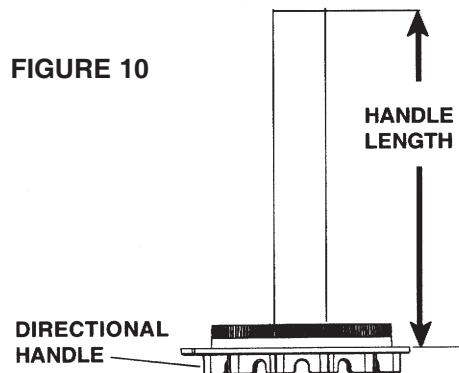
STEP 12. Install the ceiling plate. The rotate/lock lever must point toward the rear of the vehicle.

Be sure rotate/lock lever is pointing towards the rear of the vehicle and hole in ceiling plate aligns with hole in the ceiling.

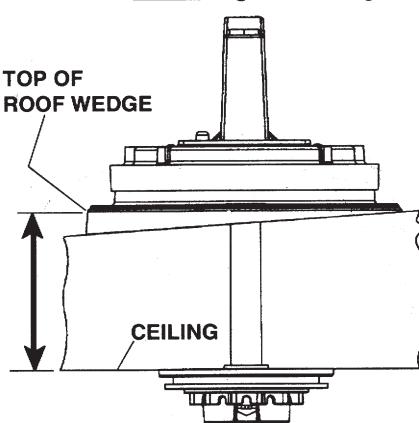
Refer to the chart to determine the correct length for the directional handle. Extensions (3200369) may be needed. Each extension adds 2-1/4" to directional handle. **DO NOT cut the extension**, if the directional handle must be extended by less than 2-1/4", cut the directional handle to fit.

NOTE: Be sure large and small keyways line up in the hub and directional handle!

FIGURE 10



WITH ROOF WEDGE
Measure from top of roof wedge to ceiling.



WITHOUT ROOF WEDGE
Measure from top of roof to ceiling.

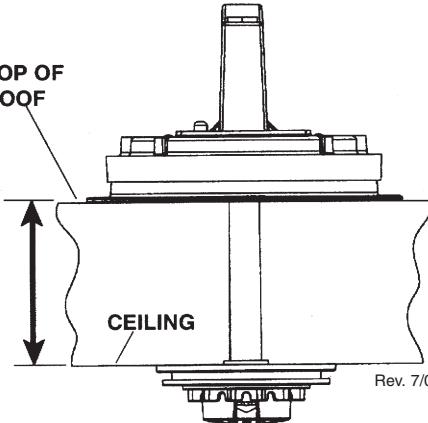
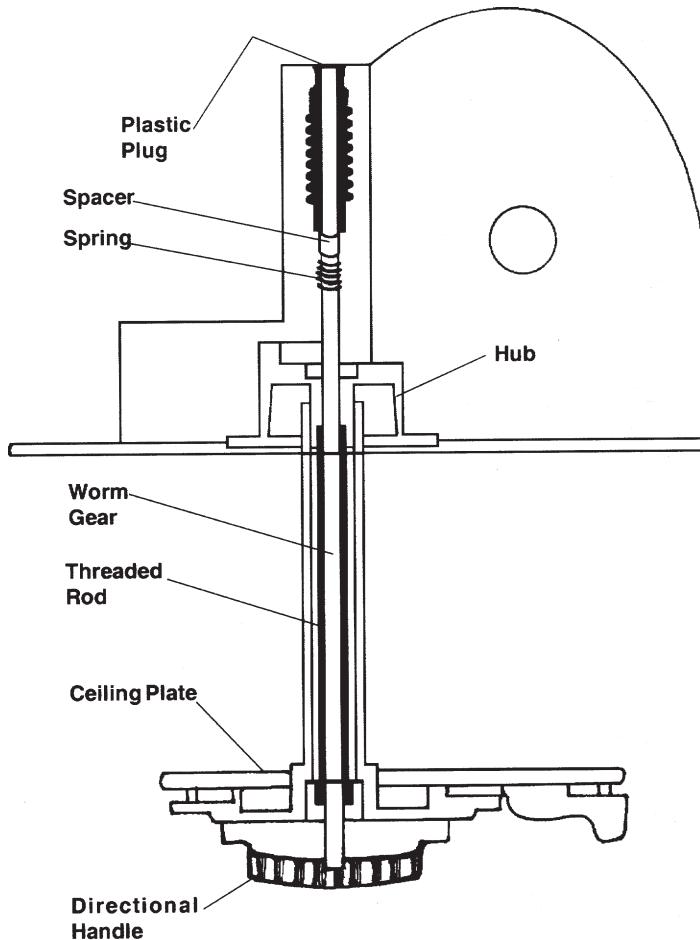


FIGURE 11

FIGURE 9

Roof Thickness	Directional Handle Length (Figure 9)	Threaded Rod Length	Worm Gear Shaft Length (Figure 11)
1-1/2"	2-7/8"	2-3/4"	2-7/8"
1-3/4"	3-1/4"	3"	3-1/8"
2"	3-1/2"	3-1/4"	3-1/2"
2-1/4"	3-7/8	3-1/2"	3-7/8"
2-1/2"	4-1/8"	3-3/4"	4-1/8"
2-3/4"	4-1/2"	4"	4-1/2"
3"	4-3/4"	4-1/4"	4-3/4"
3-1/4"	5"	4-5/8"	4-7/8"
3-1/2"	5-1/4"	4-7/8"	5-1/8"
3-3/4"	5-5/8"	5-1/4"	5-1/2"
4"	5-3/4"	5-1/2"	5-3/4"
4-1/4"	6-1/8"	5-3/4"	6-1/8"
4-1/2"	6-1/2"	6"	6-1/4"
4-3/4"	6-5/8"	6-1/8"	6-3/8"
5"	6-7/8"	6-3/8"	6-5/8"
5-1/4"	7-1/8"	6-5/8"	7"
5-1/2"	7-3/8"	6-7/8"	7-1/4"
5-3/4"	7-5/8"	7-1/4"	7-1/2"
6"	7-7/8"	7-1/2"	7-3/4"
6-1/4"	8-1/8"	7"	8"
6-1/2"	8-1/2"	7-3/4"	8-1/4"
6 3/4"	8 3/4"	8"	8 1/2"
7"	9"	8 1/4"	8 7/8"
7-1/4"	9-3/8"	8 5/8"	9 1/8"
7-1/2"	9-5/8"	8 7/8"	9 3/8"
7-3/4"	9-7/8"	9 1/8"	9 5/8"
8"	10-1/8"	9 3/8"	10
8-1/4"	10-3/8"	9 5/8"	10 1/4"
8-1/2"	10-3/4"	9 7/8"	10 3/8"
8-3/4"	11"	10"	10 5/8"
9"	11-1/4"	10-1/4"	11
9-1/4"	11-1/2"	10-5/8"	11 1/4"
9-1/2"	11-3/4"	10 7/8"	11 1/2"
9-3/4"	12"	11 1/8"	11 3/4"
10"	12-3/8"	11 3/8"	12
10-1/4"	12-5/8"	11 5/8"	12 1/4"
10-1/2"	12-7/8"	11 7/8"	12 1/2"

FIGURE 12

After adjusting parts for proper thickness, glue the extension(s) and directional handle together using ABS (plastic pipe) glue.

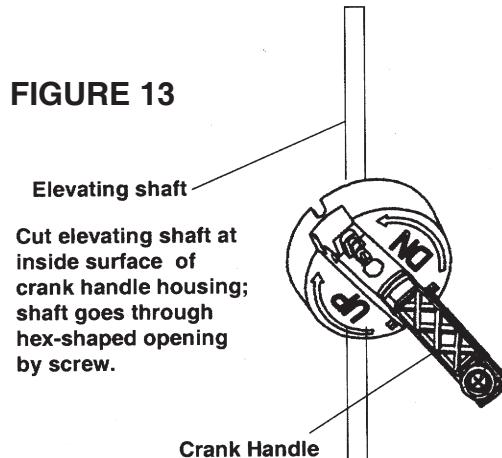
Look inside the directional handle and make sure the large and small keyways line up with the keyways in the hub.

STEP 13. Press the directional handle onto the hub. Point the arrow on the threaded rod. Tighten the nut enough to snug the directional handle to the hub.

STEP 14. Install the nut and washer on the threaded rod. Tighten the nut enough to snug the directional handle to the hub.

CUTTING SHAFT LENGTH, Figure 11:

Flip down handle on the elevating crank handle. Slide elevating crank handle up shaft until snug against directional handle. Mark the elevating shaft at inside bottom surface of crank handle housing, Figure 13. Cut shaft at mark, after removing crank handle. Reinstall crank.

FIGURE 13

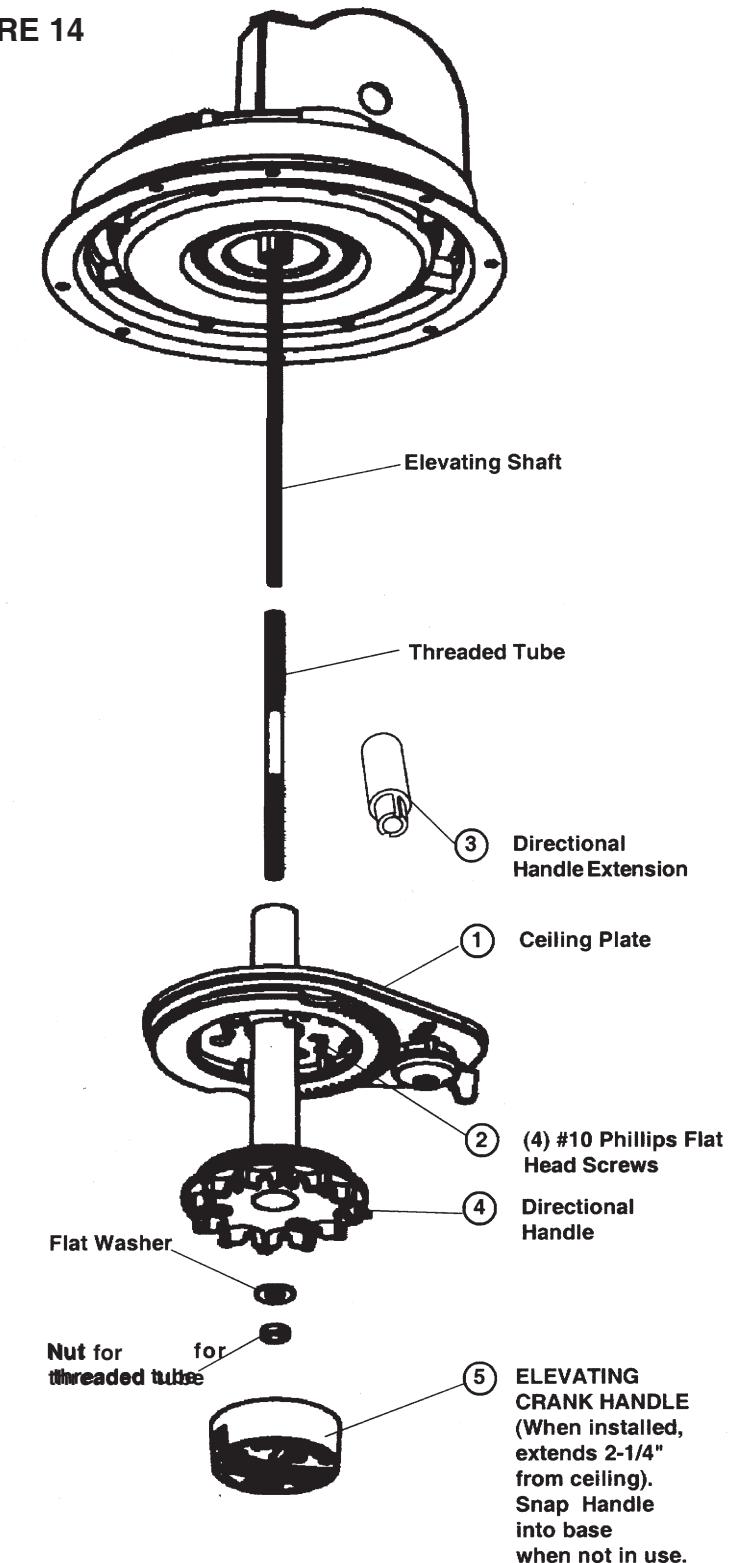
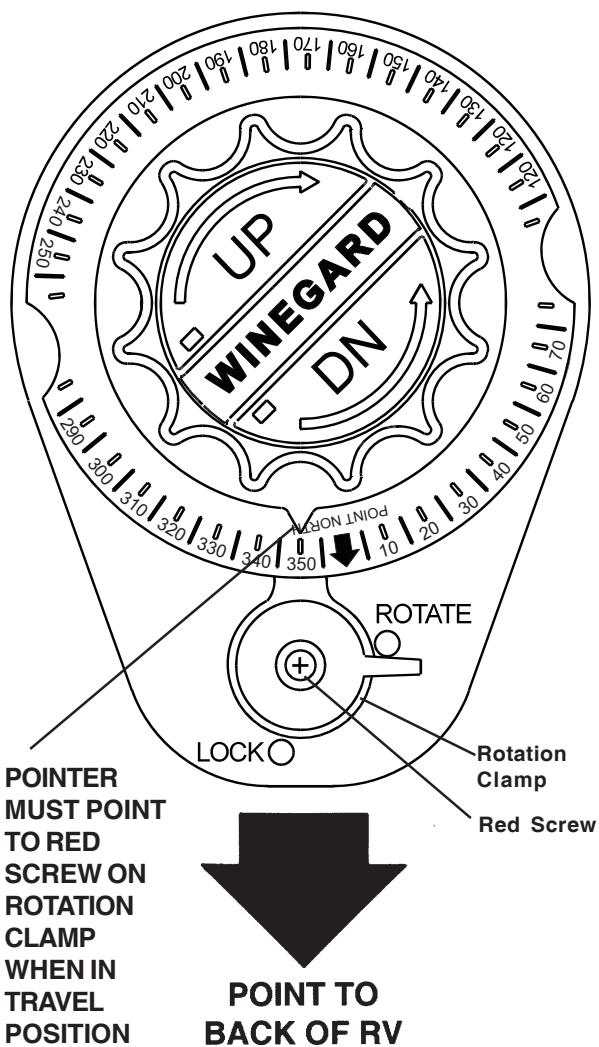
STEP 15. Check system for proper operation. Elevate dish with crank handle. A minimum of 14 turns is needed to elevate dish. Then, move directional handle with dish elevated. Directional handle should turn freely. If possible, have someone watch to make sure coax does not bind or interfere with dish movement.

STEP 15. Check system for proper operation. Elevate dish with crank handle. A minimum of 14 turns is needed to elevate dish. Then, move directional handle with dish elevated. Directional handle should turn freely. If possible, have someone watch to make sure coax does not bind or interfere with dish movement.

FIGURE 14

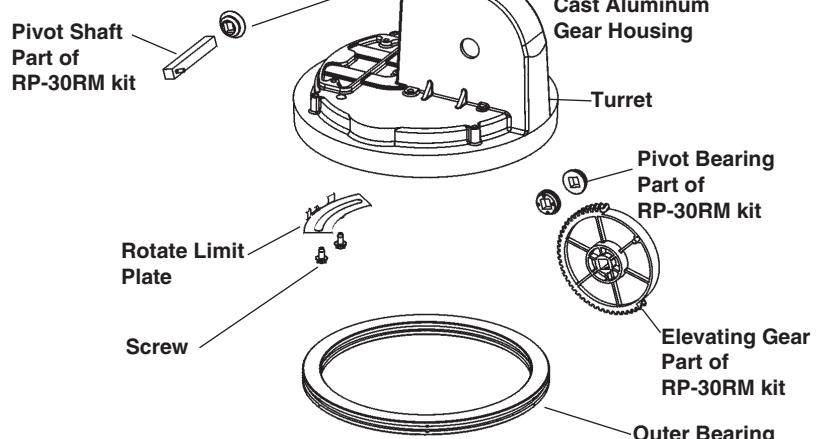
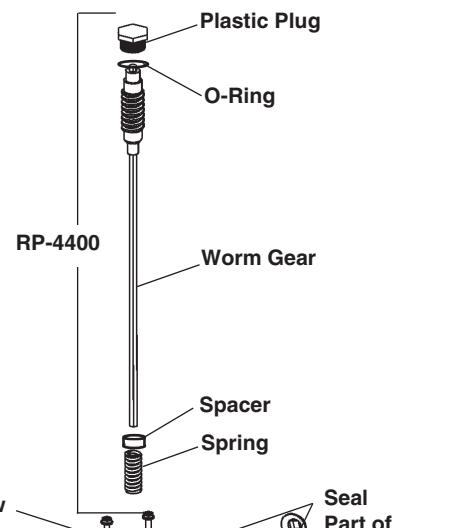
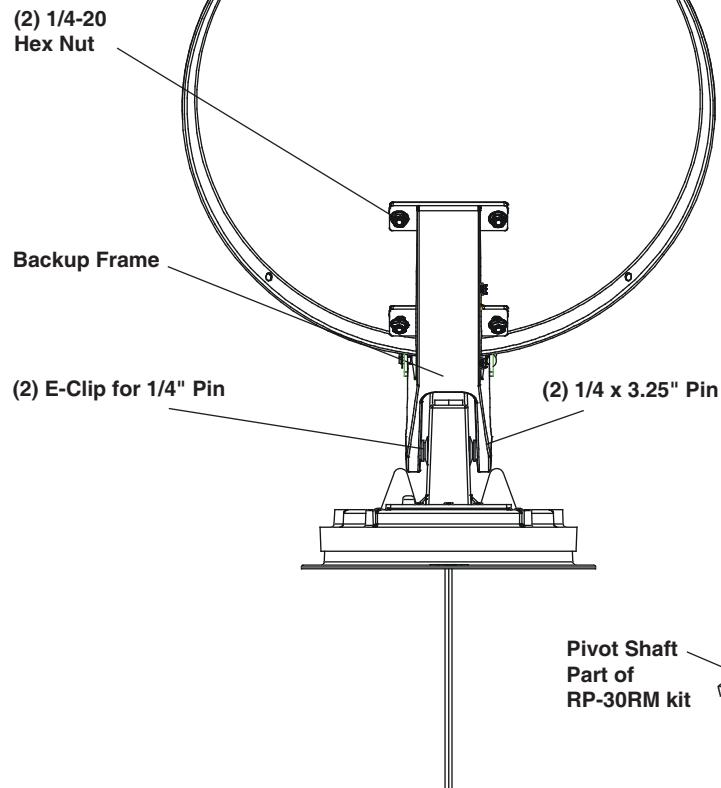
**CAUTION: After INITIAL INSTALLATION,
the antenna SHOULD ROTATE APPROXIMATELY 360 DEGREES FROM TRAVEL POSITION.**

The pointer on the DIRECTIONAL HANDLE should point towards the RED SCREW on the ROTATION CLAMP when in TRAVEL POSITION.

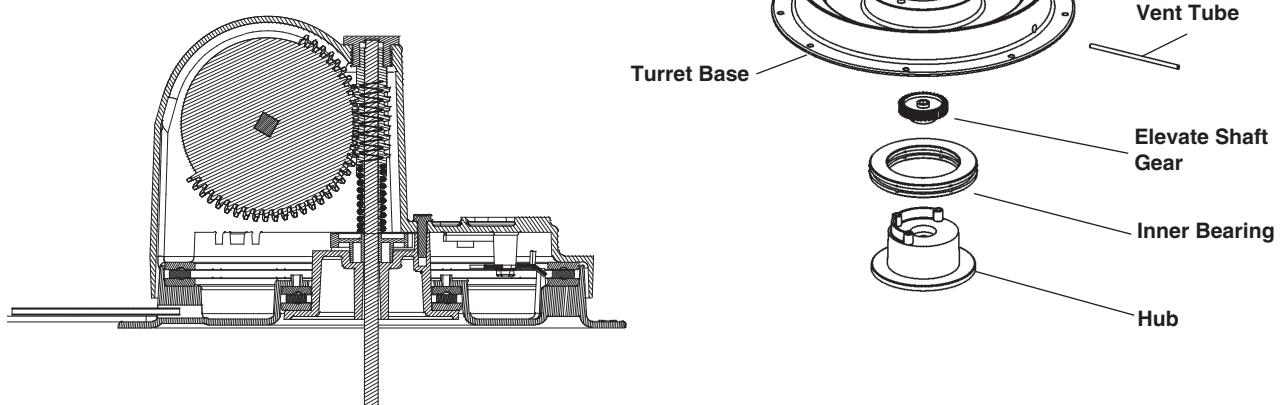


Parts List

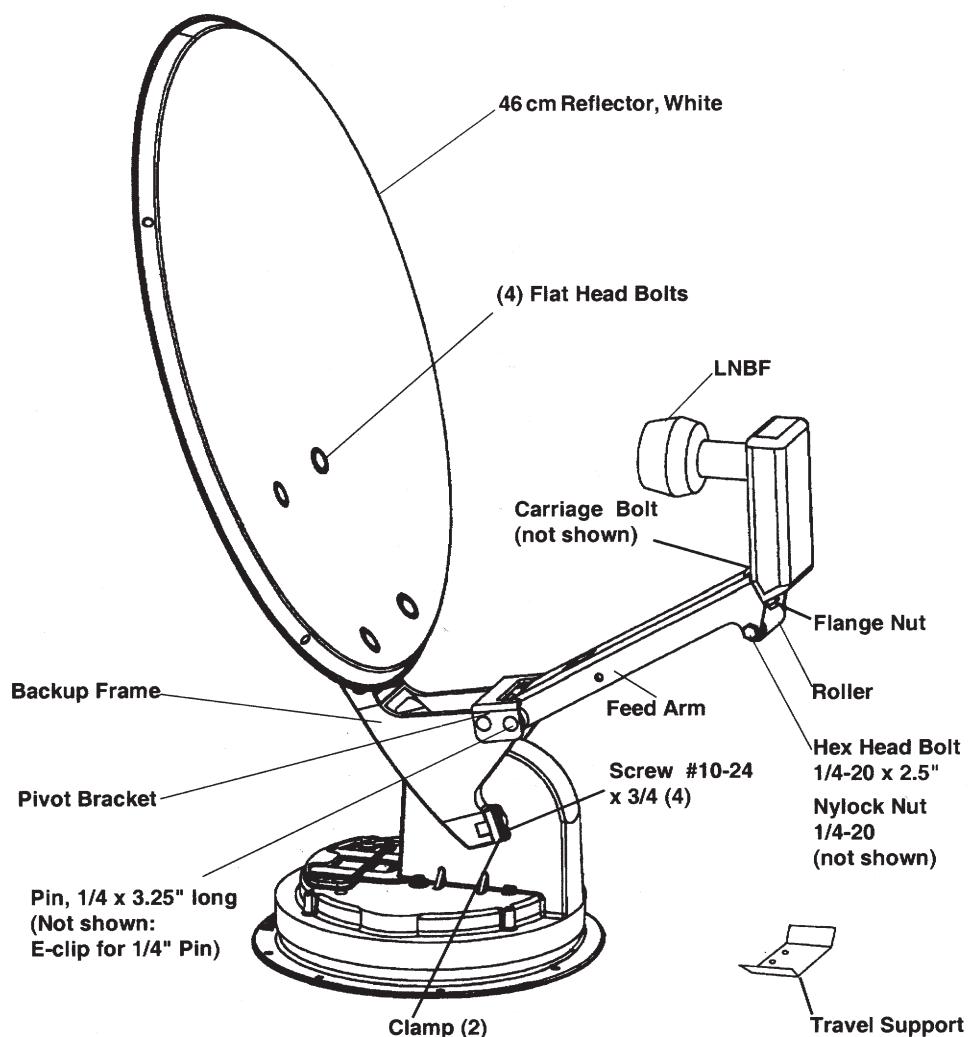
BACK VIEW



Cutaway view of mount/gear housing

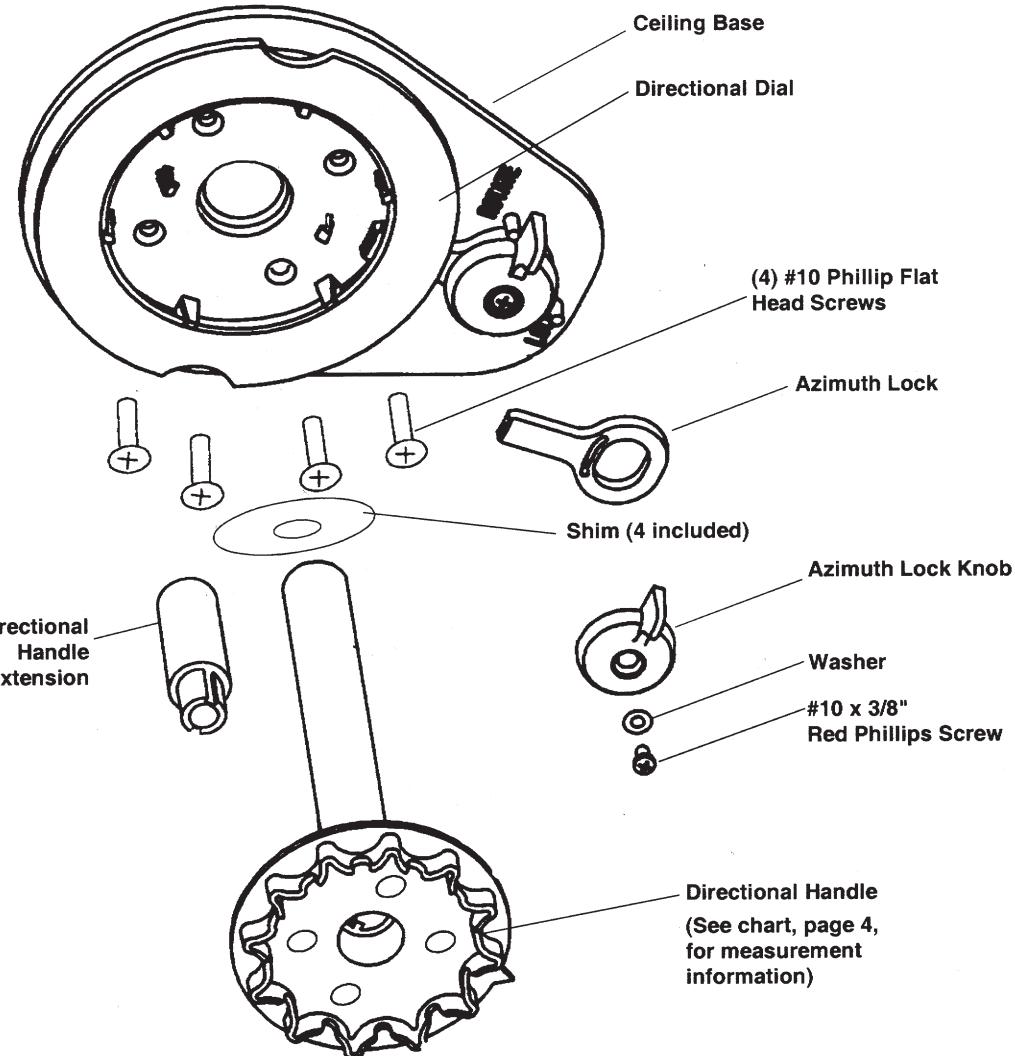


Parts List

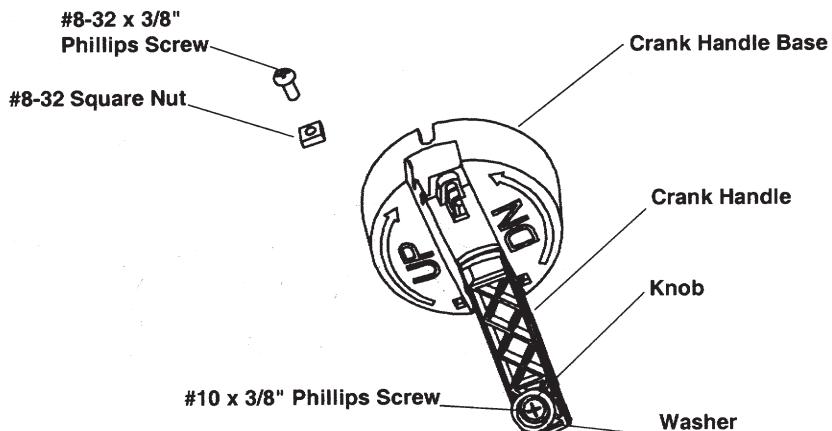


Parts List

INTERIOR
HARDWARE KIT
RK-CEIL



CRANK HANDLE KIT
RK-HAND



Notes

Specifications

ANTENNA & MOUNT

Height when raised	30" verticle max.
Height in the travel position	8" max.
Operating radius	17" (34" diameter circle)
Roof space required	26"
LNB	Compatible with DIRECTV®, DISH Network™
Weight	12 lbs.
Color	White
Antenna height	20.9"
Antenna width	19.2"
F/D	0.59
Offset angle	24°
Frequency range	10.95 - 12.75 GHz
Gain:	
11.2 GHz	33.22 dBi
12.1 GHz	33.89 dBi
12.6 GHz	34.23 dBi
Aperture efficiency	73%
Cross polarization (on axis)	-21 dB
*Beamwidth at -3 dB	3.5°
*Beamwidth at -10 dB	7.0°
Wind loading	Up to hurricane force
Ship weight:	20.6 lbs.

DIRECTV® is a registered trademark of DIRECTV, Inc., a unit of Hughes Electronics Corporation.

DISH Network™ is a trademark of EchoStar Communications Corporation.

WINEGARD MOBILE PRODUCTS LIMITED WARRANTY (2 YEARS PARTS; 1 YEAR LABOR)

Winegard Company warrants this product against defects in materials or workmanship for a period of two (2) years from the date of original purchase. During year one (1) of such warranty, Winegard Company will also pay authorized labor costs to an authorized Winegard dealer to repair or replace defective products. No warranty claim will be honored unless at the time the claim is made, Customer presents proof of purchase to an authorized Winegard dealer (to locate the nearest authorized Winegard dealer, contact Winegard Company, 3000 Kirkwood Street, Burlington, Iowa 52601, Telephone 800-288-8094 or visit www.winegard.com). Customer must provide proof of purchase with a dated sales receipt for the Winegard product to verify the product is under warranty. If the date of purchase cannot be verified, the warranty period shall be considered to begin thirty (30) days after the date of manufacture.

If a defect in material or workmanship is discovered, Customer may take the product to an authorized Winegard dealer for service. Customer must provide proof of purchase to verify the product is under warranty. If the product is brought to an authorized Winegard dealer for service prior to expiration of year one (1) of the warranty period and a defect in material or workmanship is verified by Winegard Technical Services, Winegard Company will cover the Winegard dealer's labor charges for warranty service. The Winegard dealer must contact Winegard Technical Services in advance for pre-approval of the service. Approval of the service is at the sole discretion of Winegard Company.

Alternatively, Customer may ship the product prepaid to Winegard Technical Services (located at 3111 Kirkwood Street, Burlington, Iowa 52601, Telephone 800-788-4417). Customer must return the product along with a brief description of the problem and provide Winegard Technical Services with Customer's name, address, and phone number. Customer must also provide proof of purchase to verify the product is under warranty. If the product is returned before the expiration of the warranty period, Winegard Company will (at its option) either repair or replace the product.

This Limited Warranty does not apply if the product has been damaged, deteriorates, malfunctions or fails from: improper installation, misuse, abuse, neglect, accident, tampering, modification of the product as originally manufactured by Winegard in any manner whatsoever, removing or defacing any serial number, 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.

RETURN AUTHORIZATION POLICY

A Return Material Authorization (RMA) is required prior to returning any product to Winegard Company or Winegard Warranty Services under this warranty policy. Please call our Technical Services Department at 800-788-4417 or send an e-mail to warranty@winegard.com to obtain the RMA number. Please furnish the date of purchase when requesting an RMA number. Enclose the product in a prepaid package and write the RMA number in large, clear letters on the outside of the package. To avoid confusion or misunderstanding, a shipment(s) without an RMA number(s) or an unauthorized return(s) will be refused and returned to Customer freight collect.

WINEGARD COMPANY DOES 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 WARRANTY.

In states that do not allow limitations on implied warranties, or the exclusion of limitation of incidental or consequential damages, the above limitations or exclusions do not apply.

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 Customer specific legal rights. Customer may also have other rights that may vary from state to state.

SATELLITE RECEIVER WARRANTY:

See manufacturer's limited warranty policy.

Rev. 2/08