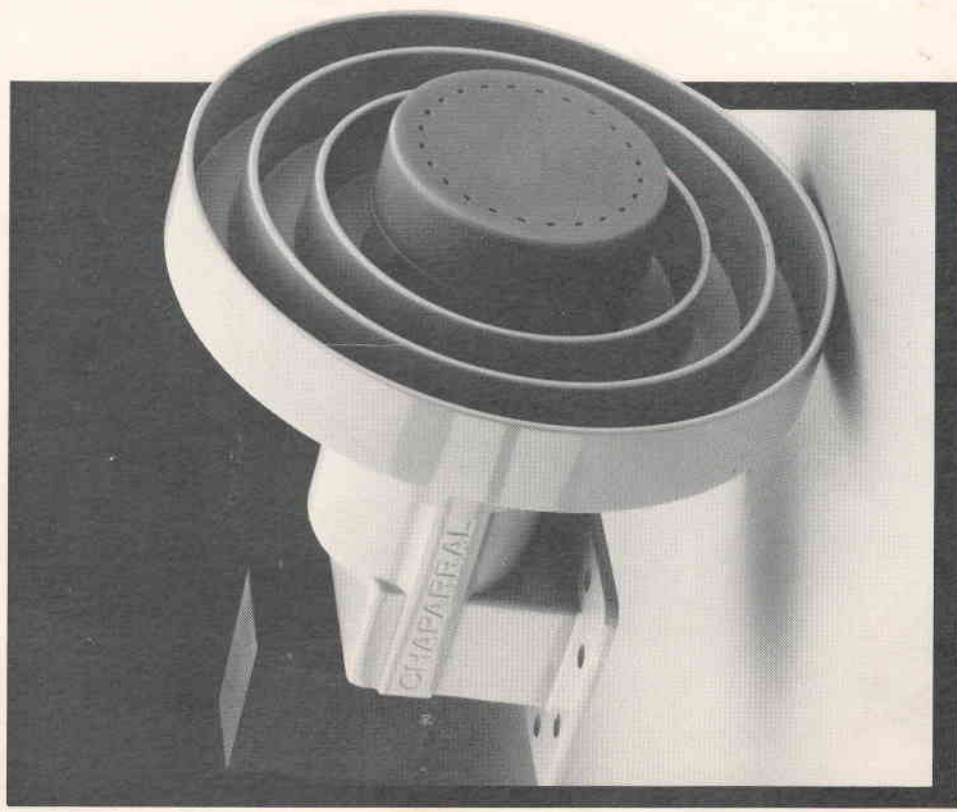


# INSTRUCTION MANUAL

## POLAROTOR® I E



# POLAROTOR IE



*Polarotor IE shown  
with all hardware*

## Parts List

Description	Part No.
Hardware Kit	59-1463-1
Manual	57-1460-1
Elbow	32-0155-1
Throat Cover	36-1464-1
Servo Kit	62-0162-1
Flange Gasket	41-0019-1
Optional	
Golden Ring™	62-0200-1
Controller	11-0177-1
Weather Cover	36-0113-1

## Specifications

Size: 6.5" Diameter x 8.13" Height

Weight: 2.7 lbs

Specs:

Frequency Range

f/D Range

VSWR

Isolation

RF Ports

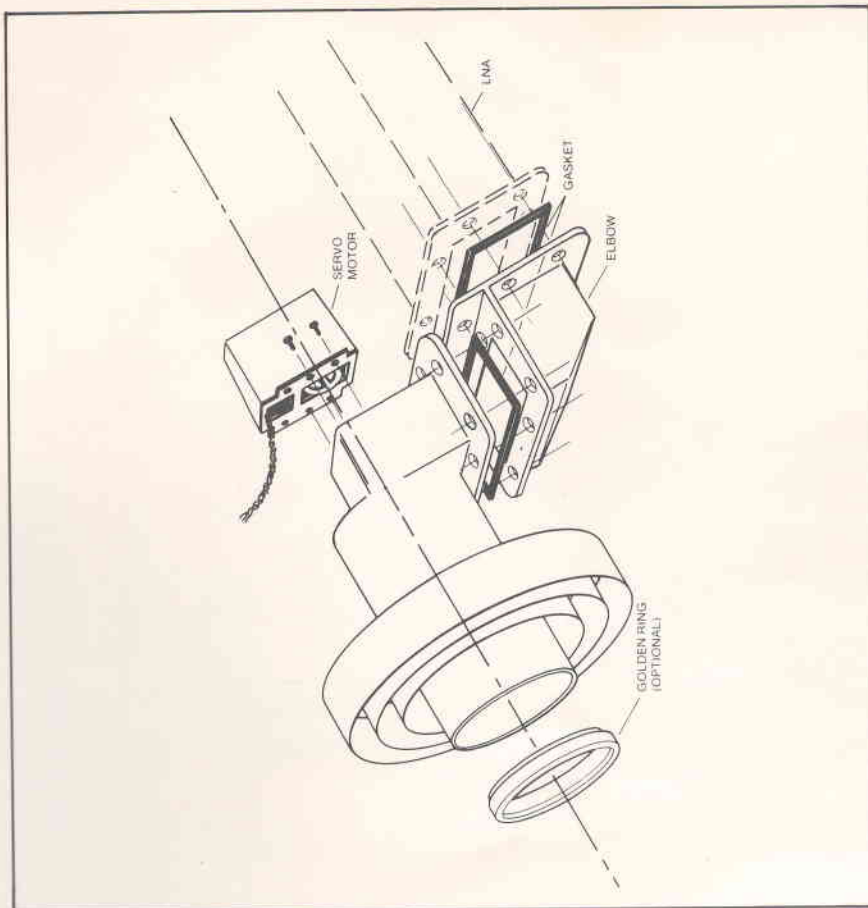
3.7 to 4.2 GHz

.33 to .45

1.25 to 1

35 dB

WR 229 compatible



## Before you install

1. Fill out warranty card.
2. Identify all enclosed parts.
3. Disconnect all system power sources.
4. Do not disassemble feedhorn. **THIS WILL VOID YOUR WARRANTY.**
5. Do not touch the probe. **ANY ALTERATION WILL DEGRADE PERFORMANCE AND VOID YOUR WARRANTY.**
6. Do not use any sealant on gaskets or flange surfaces.

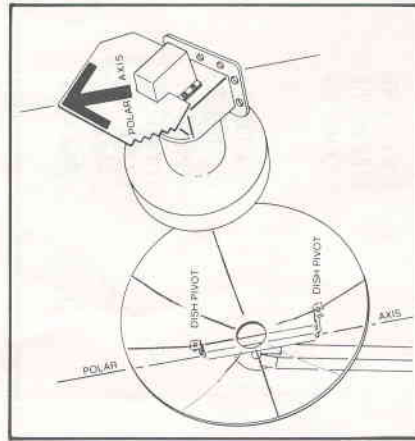
# POLAROTOR I E

## Operation

The probe in the Polarotor® I is rotated by a servo motor. This motor is controlled by a +5 volt source, ground and an electrical pulse. Most current receivers can supply these control parameters. If your receiver does not have Polarotor I controls, you may order a separate controller manufactured by Chaparral Communications.

## Installation

1. Bolt the LNA onto the Polarotor. When using the supplied elbow, insert one gasket in each flange connection. (See Assembly Drawing). When bolting the LNA directly to the Polarotor, both gaskets must be used to seal the one flange connection. Tighten all bolts evenly.



2. Attach polar axis template to the Polarotor and rotate the feed to align the arrow with polar axis of the dish. This action will align the probe so that neither the horizontal nor vertical positions are at the physical limits of the motor.

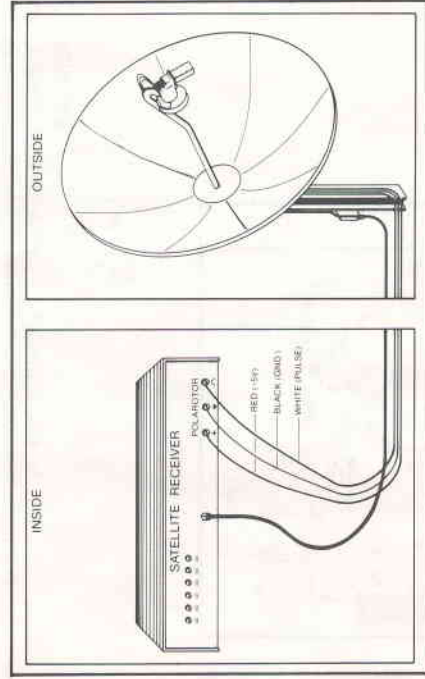
3. Loosely bolt the Polarotor to the feed support system. Drilling of additional mounting holes may be required.
4. Set focal length. This measurement is taken from the center of the dish to ¼ inch inside the throat of the feedhorn. For further information, please see the Fine Tuning section.
5. The feedhorn must be centered over the dish and pointed directly at the center of the dish surface.
6. Tighten all mounting bolts and re-check alignment.

7. Solder the Polarotor wires to their respective leads.

Color	Function	Symbol	Alt. Symbol
red	plus 5 volt	+	+5
white	pulse	⎓	control
black	ground	⏏	GND
Maximum cable length		Wire size	
80 feet		22 gauge	
130 feet		20 gauge	
200 feet		18 gauge	
325 feet		16 gauge	

8. Install throat cover.

9. Connect the Polarotor leads to their respective polarization terminals on the receiver or hand-held controller.



10. See the Fine Tuning section for more information.

# FINE TUNING

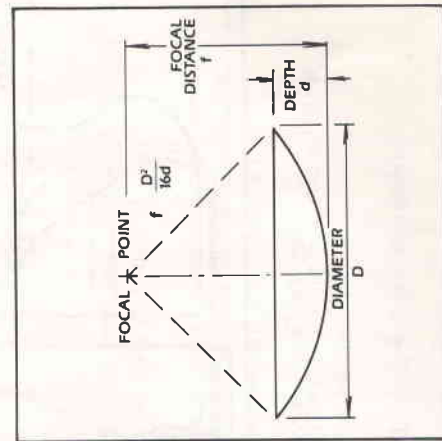
## Mechanical

Three adjustments position the feedhorn properly on the dish: the focal length, centering of the feed, and the angle of the feed to the dish.

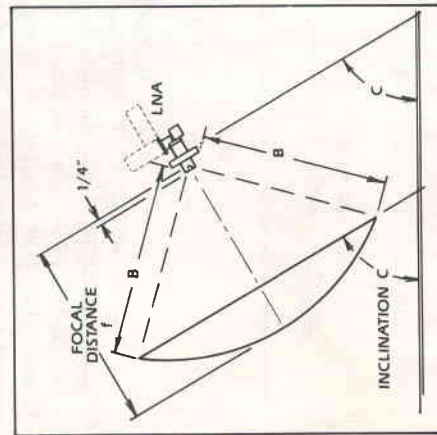
A simple method of checking these adjustments and the accuracy of the reflector is by "stringing the dish".

1. Stretch two strings across the diameter of the dish at approximately right angles to each other.
2. These strings should lightly touch at the center of the dish. If there is more than 1/4 inch separation at the intersection, make the necessary adjustments at the mount to correct the reflector.
3. Measure the dish diameter (D).
4. Measure the dish depth (d) from the string intersection to the center of the reflector surface.
5. An accurate focal distance can be determined by the following formula:

$$f = \frac{D^2}{16d}$$



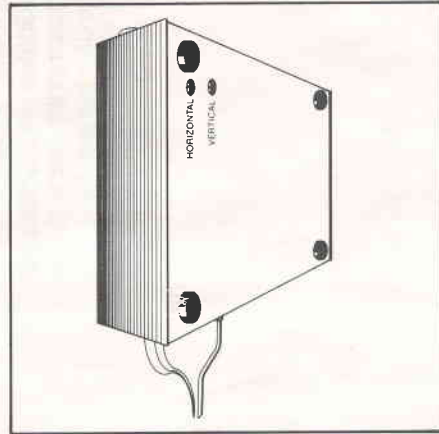
6. Once this focal distance is verified, you can now check the centering of the feed and angle of the feed to the dish face, or inclination (C).
7. To check centering of the feed, measure from the string locations on the edge of the dish to corresponding points on the scalar rings. These measurements should be equal to one another within 1/4 inch.
8. A final check of the feed angle can be accomplished with an inclinometer. This angle should equal the face angle of the reflector.
9. In order to optimize this feedhorn for certain deep dish installations, we recommend using the Golden Ring™. This optional accessory modifies the feed pattern to properly illuminate dishes with f/D ratios of .32 or lower. Be sure to reset the focal distance after installing the Golden Ring. Once again this measurement is taken from 1/4 inch inside the Golden Ring opening to the center of the dish surface.





The following instructions will fine tune most receivers' polarization controls:

1. Set the skew control in the center of its travel.
2. Set the polarity switch to the "horizontal" position.
3. Adjust the corresponding potentiometer, in the receiver to achieve the best picture quality on the chosen polarity. This control may be located on the back or bottom panel or inside the receiver itself.
4. Switch to the "vertical" polarity.
5. Adjust the opposite potentiometer to achieve best picture quality on that polarity.



**NOTE:** When using a hand-held controller or certain receivers, the horizontal and vertical potentiometers are combined into one Delta 90 pot. The performance adjustments for these installations are made on one potentiometer.

**Problem** Servo hums or black bars on screen when Polarotor controller is connected, disappear when unplugged.

**Cause/Solution**

1. Wire size too small. Check wire for proper size.
2. Probe not moving exactly 90 degrees. Readjust for 90 degrees travel (Refer to Fine Tuning Section).
3. Wire impedance too high. Insert a 1000 mF capacitor across +5 (red) wire and ground (black) wire at the Polarotor. This capacitor should be rated at 10 volts or higher.
4. Defective servo and/or control. Return units to manufacturer for inspection and/or repair.

**Problem** Unit stops working.

**Cause/Solution**

1. Loss of power. Be sure transformer for hand-held controller is receiving 110V.
2. Poor connections. If no apparent defect is found, connect Polarotor direct to controller without intermediate cables.

**Problem** One polarization good/one bad.

**Cause/Solution**

1. Skew knob not set properly. Adjust to clear picture or maximum signal strength.
2. Probe not moving exactly 90 degrees. Readjust for 90 degrees travel (Refer to Fine Tuning section).

**Problem** System performance deteriorates.

**Cause/Solution**

1. Foreign matter (bug, bird, wasp nests) in feedhorn. **WHEN REMOVING, DO NOT TOUCH PROBE!**
2. Moisture between LNA and Polarotor feedhorn. Remove LNA, clean flanges, and re-install.
3. Poor cable connections. Check all connections for quality and moisture.

**Problem** Servo hums in one polarization position – controller heats up.

**Cause/Solution**

1. Probe travel limited by stop. Readjust for proper 90 degree travel. (Refer to Fine Tuning section).
2. Defective servo control. Return unit to manufacturer for inspection and repair.