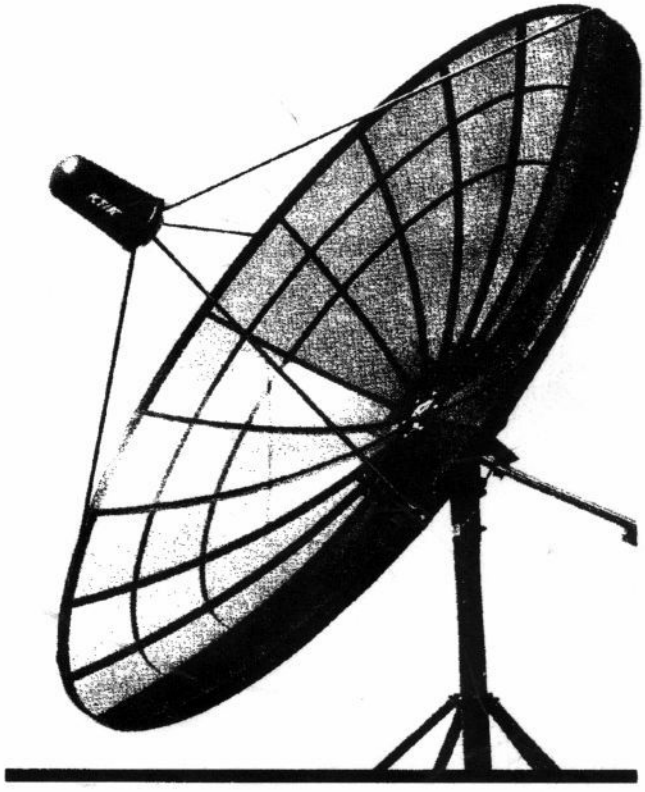
CKD ANTENNA ASSEMBLY MANUAL



	CKD 8.5	CKD 10	CKD 12
Diameter	102" (2.59m)	120" (3.05m)	144" (3.66m)
F/D Ratio	0.40	.40	.40
Focal Distance	40 1/8" (101.9cm)	47 1/2" (120.6cm)	56 1/8" (142.6cm)
Gain @ 4.2 Ghz	39.3 dbi	40.3 dbi	41.7 dbi
Gain @ 12.2 Ghz	47.3 dbi	47.7 dbi	49.2 dbi
Weight	121 1/2 lbs. (50kg)	160 lbs. (73kg)	200 lbs. (91kg)

PARTS IN BOXES:

CKD 8.5	CKD 10	CKD 12
BOX #1:	**BOX #1:**	**BOX #1:**
12 RIBS	18 RIBS	18 RIBS
6 PERIMETERS	6 PERIMETERS	6 PERIMETERS
12 INTERMEDIATE RING SEGMENTS	18 INTERMEDIATE RING SEGMENTS	36 INTERMEDIATE RING SEGMENTS
BOX #2	18 MESH PANELS	**BOX #2:**
12 MESH PANELS	**BOX #2:**	4 FEED SUPPORT STRUTS
BOX #3	4 FEED SUPPORT STRUTS	**BOX #3:**
1 MOUNT RING	**BOX #3:**	18 MESH PANELS
1 HARDWARE BAG	1 MOUNT RING	**BOX #4:**
BOX #4	1 HARDWARE BAG	1 MOUNT RING
1 MOUNT	**BOX #4:**	1 HARDWARE BAG
BOX #5	1 MOUNT	**BOX #5:**
4 FEED SUPPORT STRUTS		1 MOUNT

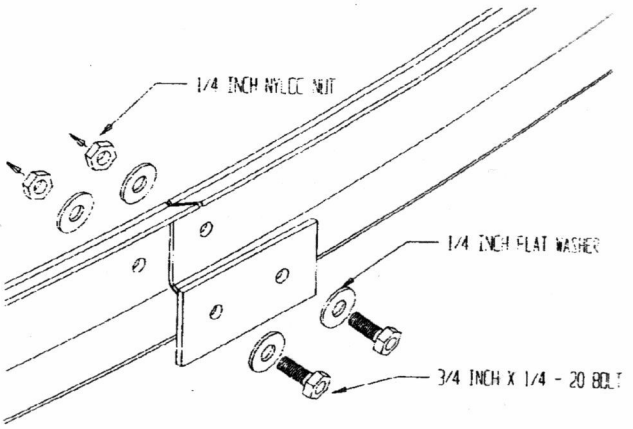


ILLUSTRATION # 1

RECOMMENDED ASSEMBLY WRENCHES:
7/16"(11mm)
9/16"(14mm)
3/4"(19mm)
15/16"(24mm)
1-1/8"(29mm)

TRACKING TOOLS:
Angle finder
Tape measure
Boresight tool

SITE SELECTION: The location of the antenna must have an unobstructed view of all the desired satellites.

POLE: The pole should be anchored in concrete. The amount of concrete will vary with soil conditions. Our recommendations should be adequate for most cases. In a location where frost is a problem the hole should be wider at the bottom to keep frost from lifting the concrete.

The pole for the CKD 8.5 should be 3-1/2"(90mm) outside diameter and 8'(2.44M) long with the top 4'6"(1.37M) above the ground. The hole should be15"(225cm) in diameter and 48"(1.22M) deep to hold 620 lb(282 KG) or 5 cubic feet (.14 cubic meters) of concrete.

The pole for the CKD10 should be 3-1/2" outside diameter and 9'(2.75M) long with the top 5'(1.5M) above the ground. The hole should be 18"(46cm) in diameter and 48"(122cm) deep for 7 cubic feet (.20 cubic meters) or 1060 lb (482 KG) of concrete.

The CKD12 should have a 4-1/2"(115mm) outside diameter pole 10-1/2'(3.13M) long with the top 6'(1.8M) above the ground. The 3000 lb(1364KG) or 20 cubic feet(.57 cubic meters) of concrete will need a hole 27"(46cm) in diameter and 60"(1.22M) deep.

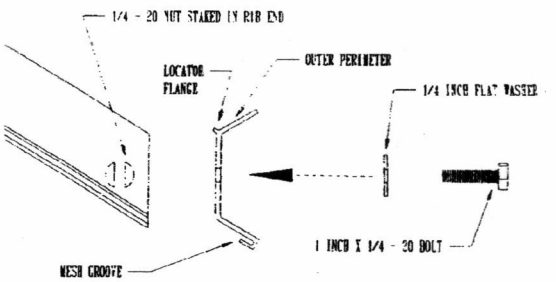


ILLUSTRATION # 2

ANTENNA ASSEMBLY: The antenna should be assembled face down in the folowing sequence. If possible, assemble the reflector on a flat surface larger than the diameter of the antenna. Use some cardboard or other material to protect the perimeter from scratching.

Assembly of the CKD 8.5, CKD10, and CKD12 Antennas are very similar. Any differences will be explained in the proper steps.

STEP 1 - PERIMETER: Use the 1/8" x 1-1/2" x 3" (.32cm x 3.8cm x 7.6cm) Splice Plates to attach the perimeter channel extrusions together (Illustration #1). One flange of the perimeter channel has a groove which will hold the mesh. As you assemble the antenna this groove should be down (Illustration #2). The splice plates go on the outside of the perimeter channel and will self center between the flanges of the channel. The spacing of the holes is very precise so insert both 1/4" x 3/4" bolts before tightening either, otherwise they will be difficult to install. Tighten them before proceeding to Step 2.

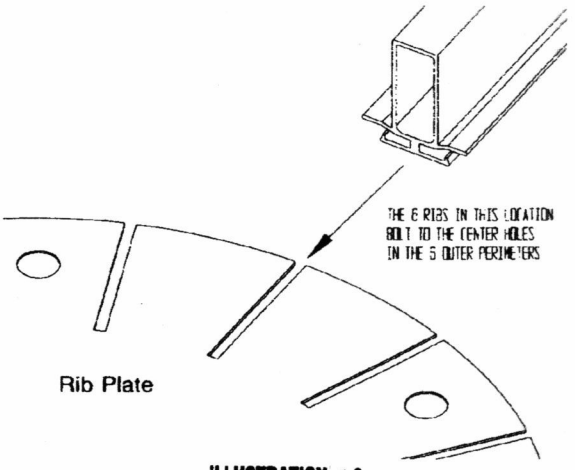


ILLUSTRATION # 3

STEP 2 - RIBS: The ribs have one end that is cut almost square while the other end is cut at an angle. The square end goes to the center of the antenna and the angled end attaches to the perimeter (Illustration #2).

RIB PLATE: The rib plate is the thin 10-1/2"(26.7cm) diameter disk with slots around the edge that locate the inner ends of the ribs.

On the CKD10 and CKD12 the rib plate has to be oriented properly so the feed support legs will be positioned as shown in Illustration #6. The six ribs that are centered between the holes in the rib plate (Illustration #3) need to be bolted to the center holes of the six perimeter channel segments. Install one rib in a slot that is centered between two of the six holes. Install two more ribs, six slots on either side of the first. They will also be centered between holes in the rib plate and spaced evenly around the plate.

Locate the outer ends of the ribs at the center holes of three perimeter segments, but do not bolt them in place. This will form a tripod that will support itself while the remainder of the ribs are installed.

The CKD 8.5 rib plate can be assembled in any relationship to the perimeter. When the first three ribs are installed, space them evenly at every fourth slot in the rib plate and every fourth hole in the perimeter.

Install three more ribs centered between the first three. Push the perimeter out enough that the outer ends can be positioned inside the perimeter. Use the same technique to install the remaining ribs. DO NOT BOLT THEM TO THE PERIMETER UNTIL STEP 4.

STEP 3 - MOUNT RING AND CENTER PLATE: Check that all the ribs are fully engaged in the rib plate and then position the mount ring to be bolted on. Line up the six holes in the ring center plate with the six holes in the rib plate and as you lower the ring make sure that all the rib brackets fit over the ribs.

The mount ring has braces between the center angles and the ring. When the ring is in place, one single brace on the CKD12 or the space between the two closest braces on the CKD10 will be directly over one rib (Illustration #4). With the STANDARD POLAR MOUNT this rib will be the bottom rib when the antenna is on the pole. The rib opposite it will be the top rib. With the optional HORIZON TO HORIZON MOUNT the ribs identified above will be reversed. The rib or space below the single brace will be at the top when the antenna is on the pole.

When the CKD 8.5 ring is in place the two closest braces will be directly above the space between two ribs. With the STANDARD POLAR MOUNT this space will be at the bottom of the antenna, when the antenna is on the pole. With the optional HORIZON TO HORIZON MOUNT it will be at the top.

The front plate is 12"(30.5cm) diameter with six square holes. Locate the top of the antenna and rotate the front plate so the logo will be properly positioned on the assembled antenna. It is attached with six 3/8" x 2-1/2" Carriage bolts. A wrench will not work on the round bolt heads. hold them tight against the plate the square shanks of the bolts will be held by the square holes in the plate.

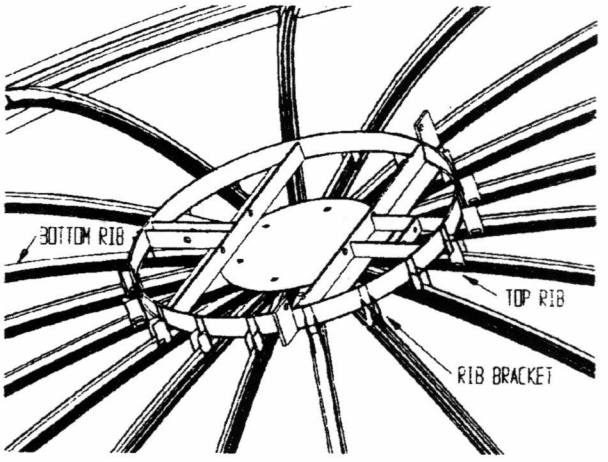
As you tighten the nuts push each rib toward the center to VERIFY THAT IT IS COMPLETELY ENGAGED in the rib plate.

STEP 4 - BOLTING RIBS: Bolt all the ribs into the rib brackets using 1/4' x 1-1/4" bolts. Use a flat washer under the bolt head and nut and tighten each bolt enough to squeeze the bracket to the rib but NO enough to crush the rib.

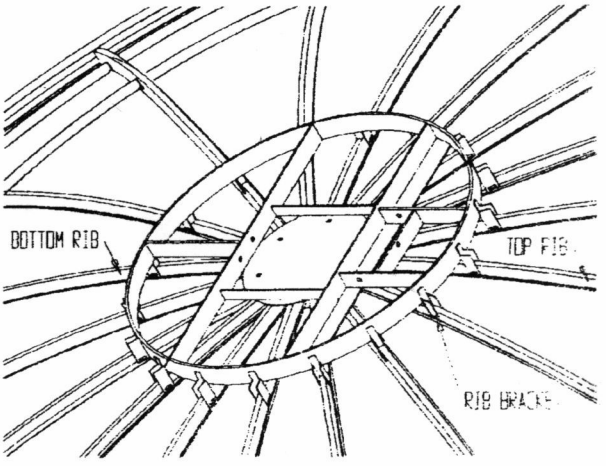
Raise the end of each rib and bolt it to the perimeter channel using a 1/4" x 1" bolt with flat washer (Illustration #2). The top surface of the rib should be tight against the locator flange on the upper edge of the perimeter.

Go completely around the antenna and hand tighten the bolts before using a wrench. Be careful that you DO NOT OVER TIGHTEN the bolts or you may pull the nuts from the rib ends.

BE AWARE that the CKD 10 and CKD 12 perimeters have holes for the feed support struts as well as for the ribs. Do not force a rib to line up with the wrong hole.



CKD10



CKD12

ILLUSTRATION # 4

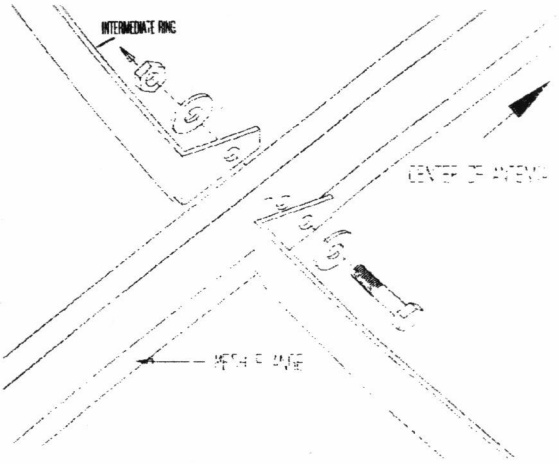


ILLUSTRATION # 5

STEP 5 - The INTERMEDIATE RINGS give the mesh an accurate shape and stabilize it in windy conditions. Each ring is made up of segments bolted between the ribs.

The CKD10 and the CKD 8.5 each have one INTERMEDIATE RING and the CKD12 has two.

The individual pieces are straight between the bends at both ends but they will curve correctly when bolted in place. The bent ends point to the center of the antenna and the angled cuts rest on the the mesh flanges (Illustration #5).

Hold one ring segment in place and insert a 1/4" x 1-1/4" bolt, with flat washer, through it and the rib. Place the next segment over the bolt. Add a flat washer and hand tighten the nut. Line up the hole in the free end with the hole in the next rib, insert the next bolt and proceed around the antenna installing the remaining segments.

Tighten all the bolts using CAUTION NOT TO OVERTIGHTEN and crush the ribs.

INVERT: Turn the antenna over so it is resting on the back of the mount ring. You may want to use some cardboard from the packaging to protect the finish of the ring.

STEP 6 - MESH AND MESH CLIPS: Install the mesh while standing outside the antenna. Hold each piece of mesh so the narrow inner end is resting on the center plate and the sides are resting on top of the ribs. Slowly pull it towards the perimeter until it drops between the rib tops onto the wider flanges below. It may help to have someone near the center of the antenna to keep the mesh centered.

Carefully push the mesh toward the center of the antenna while checking that it slides into the mesh grooves on both sides. Push it in past the perimeter mesh groove and then pull it back into the perimeter groove. Make sure the mesh is all the way in the groove and then install mesh clips to hold it in place.

The CKD12 has nine clips for attaching each mesh panel to the ring segment, five on the outer ring and four on the inner(Illustration #9).

The CKD10 has five mesh clips for each panel. Position them as indicated in Illustration #9 for the outer intermediate ring on the CKD12.

The CKD 8.5 has seven clips for attaching each mesh panel to the intermediate ring. They should be installed about 3"(7.6cm) apart.

The clips close to the ends of each ring keep the mesh engaged in the perimeter groove so it is VERY IMPORTANT that they be placed within 1"(25mm) of the ribs.

To determine where to install a clip, push the mesh down to contact the ring and look at the mesh from directly above the ring. Locate a spot where two adjacent mesh holes are on either side of the ring and the web between the holes is over the ring.

Insert the long leg of the mesh clip through one of the holes and move the top of the clip around to work the sharp bends through the mesh. Insert the short end through the hole on the other side of the intermediate ring and push the clip all the way down. If it does not snap over the bottom of the ring reach under the mesh and push it into place.

STEP 7 - MOUNT: The standard polar mount will track 120 degrees of the satellite belt. Determine the latitude of your site and compare it to the longitude designations of the satellites you wish to view. If the satellites you wish to track span more than 120 degrees you should use the optional Horizon to Horizon Mount.

If the standard polar mount is being used follow STEP 7A. If the optional HORIZON TO HORIZON MOUNT is being used follow STEP 7B.

STEP 7A - STANDARD POLAR MOUNT: Remove the mount from the box and loosen the bolt that fastens the elevation rod to the mount tube. If the

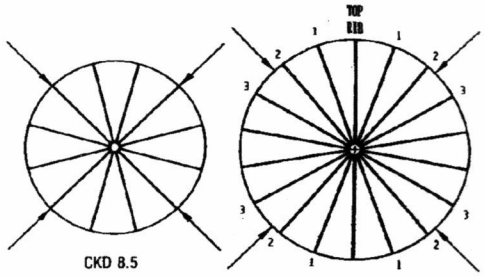


ILLUSTRATION # 6

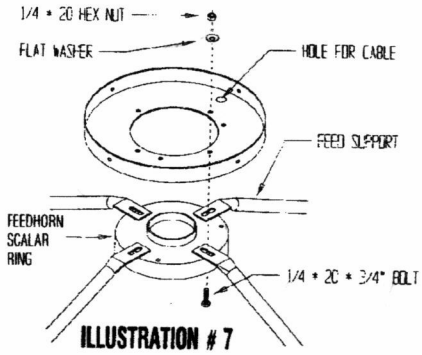


ILLUSTRATION # 7

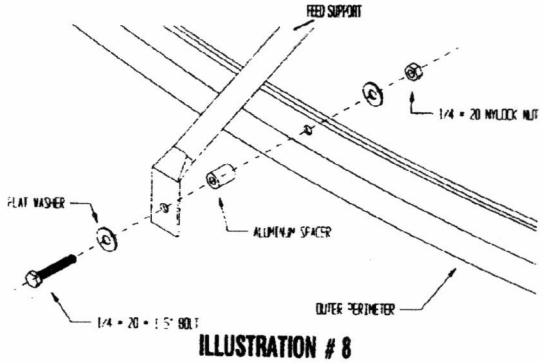


ILLUSTRATION # 8

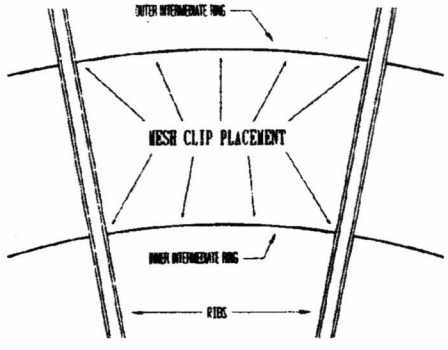


ILLUSTRATION # 9

latitude of your site is more than 60 degrees move the rod to the upper hole otherwise leave it at the bottom hole.

On the CKD12, remove one nut and washer from the elevation rod. Rotate the rod, insert the threaded end through the hole in the top plate of the mount, and replace the flat washer and nut.

Adjust the elevation rod to it's maximum length so the antenna requires minimum lifting when you attach it to the mount.

The CKD 8.5 and CKD10 polar mounts have a 6"(15.3cm) wide mount bracket on top, and a 3"(7.6cm) angle for one declination adjustment rod located on the bottom.

The CKD12 mount has the mount bracket on the bottom with a 9"(22.9cm) angle for two declination adjusters on top.

For ease of packaging, both mounts are assembled with the brackets and angles rotated from the position needed for setting the antenna. Turn them to the positions shown in Illustration #10.

Install the declination rod(s) but DO NOT tighten the nut(s). This will allow easier alignment with the holes in the mount ring.

Lift the mount on to the pole, rotate it to a position convenient for setting the antenna, and tighten the set bolts enough to keep it from turning.

ACTUATOR: A linear actuator with 18"(45.7cm) of extension will rotate the antenna to track 120 degrees of the satellite belt. A 24"(61cm) actuator can be used, but it cannot be extended more than 18" without RISK OF CONTACTING THE MOUNT AND BENDING.

Bolting the actuator directly to the mount, with the actuator clamp 6"(152mm) from the end that bolts to the mount ring, allows the antenna to track 120 degrees up from the horizon, on the side to which the actuator is attached. Using the Actuator bar between the actuator and the mount, with the actuator clamp 8"(203mm) from the actuator end, allows the antenna to track the same amount but starting about 30 degrees farther up the satellite belt.

Refer to diagragms A and B illustrating the variations in actuator mounting. Mount the actuator on the side that has satellites closest to the horizon and use the actuator bar if all of the satellite longitudes are within 60 degrees of your site longitude.

Install the actuator on the mount so it will be ready to bolt to the ring when the antenna is set.

STEP 7B - HORIZON TO HORIZON MOUNT. Follow the instructions packed with the mount.

STEP 8 - SET ANTENNA: It will take two or more people to set the antenna on the mount and then one or more to stabilize the antenna while it is bolted to the mount.

Refer back to STEP # 3 and to Illustration #10 to identify the top of the antenna, for the mount being used, and lift the antenna so the top will be up. Use the wide mount bracket to support the antenna while you line up the bolt holes.

With the POLAR MOUNT, bolt the bracket to the angle in the mount ring with 1/2" x 1-1/2" bolts and then bolt the declination rod(s) to the braces with 1/2" x 2" bolts (Illustration #10). Bolts should be supplied with the actuator to attach it to the upper cross angle.

With the HORIZON TO HORIZON MOUNT, the wide top bracket bolts to the upper angle in the mount ring and the smaller bottom bracket bolts to a cross brace. Skip Step 11 and go to Step 12. Refer to the instructions with the mount for setting the elevation and declination.

STEP 9 - FEED SUPPORT STRUTS, FEED, AND FEED COVER BASE: Use the instructions below to determine where the feed struts attach to the perimeter. Use the actuator to move the antenna so the attachment points

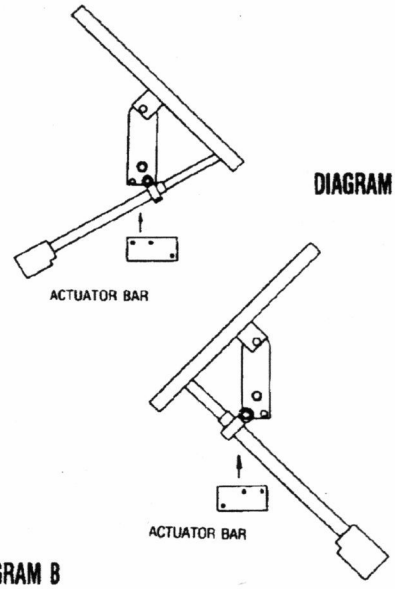
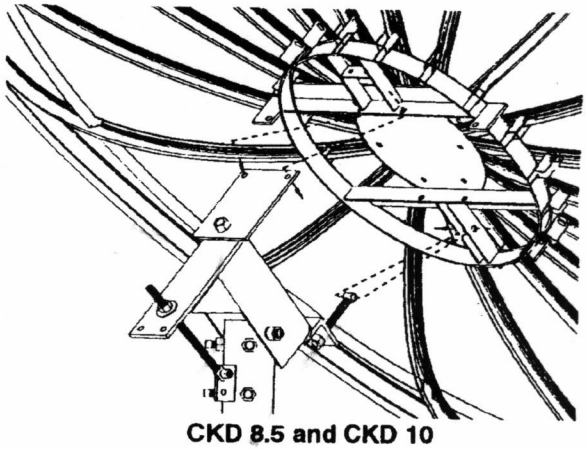
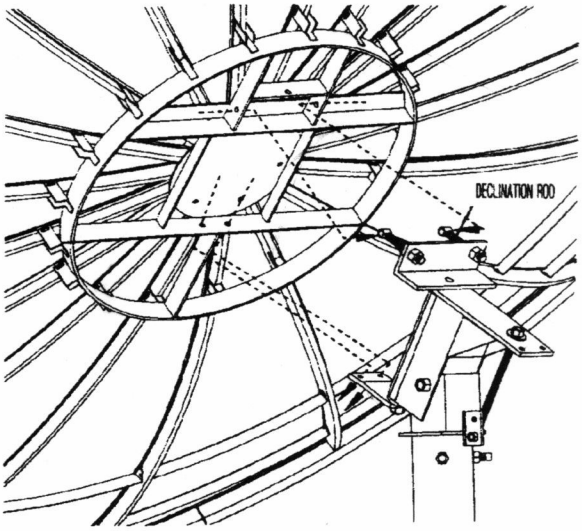


DIAGRAM A

DIAGRAM B



CKD 8.5 and CKD 10



CKD12

ILLUSTRATION # 10

are accessaable. Attach the top two struts first so they will hang down. Bolt the feed scalar ring to them and then attach the bottom two struts to the perimeter and scalar.

The slotted ends of the feed supports attach to the feed for adjusting the focal distance. Insert the four 1/4" X 3/4" bolts through the feed scalar rings, the inner ends of the feed supports, and also the base of the feed cover (Illustration #7). The large cable hole at the edge of the feed cover base should be next to one of the support legs close to the bottom rib.

STEP 9A - CKD 10 and CKD 12: Recall, from Step #3, how the top and bottom ribs of the antenna attach at the centers of perimeter segments. The feed struts use the holes between the second and third ribs on both sides of the top and bottom ribs (Illustration #6).

At the perimeter use 1/4" x 1-1/2" bolts with flat washers and place the tubular aluminum spacers between the perimeter and the flattened end of the leg (Illustration #8).

STEP 9B - CKD 8.5: The four feed support struts attach to the perimeter at the same locations as four of the ribs. Recall from STEP #3 how you identified the top and bottom of the antenna. The two top ribs will be between two struts and the two bottom ribs will be between the other two struts (Illustration #6).

At each strut location remove the 1/4" x 1" bolt that holds the perimeter to the rib end and replace it with a 1/4" x 1-1/2" bolt. Use a flat washer under the head of the bolt, insert the bolt through the flattened end of the strut and the tubular aluminum spacer before tightening it through the perimeter into the rib end.

STEP 10 - FOCAL DISTANCE: If the feed is bolted at the center of the support leg slots, the focal distance will be close to correct. It should be measured from the antenna front plate to the front of the feed wave guide, and can be adjusted by moving the feed bolts evenly in the support leg slots.

The focal distance for the CKD 8.5 is 40-1/8"(101.9cm), for the CKD10 is 47-1/2"(120.6cm), and for the CKD12 is 56-1/8"(142.6cm).

After setting the focal distance and tightening all the bolts, use a boresight tool to check that the feed points to the center of the front plate. If it does not, leave the bolts tight and tilt the the feed as needed. The inner ends of the struts will bend to hold the feed in position.

STEP 11 - ELEVATION/DECLINATION: Use the actuator to rotate the antenna until the ring is perpendicular with the top mount bracket (the antenna pointed as high as possible). Leave it in that position while setting the elevation and declination.

Determine the latitude of your location. This can usually be found on the edges of maps. Refer to the Elevation/Declination chart to get the settings for your site latitude. Set the Elevation first and then the Declination by measuring the angles as shown in Illustration #11. Adjust the declination bolts evenly.

STEP 12 - WIRING TO FEEDHORN: Pass the cable to the feedhorn through the hole in the feedhorn cover base. Allow enough slack to make all the connections and secure the cable to the feedhorn support with wire ties. Also secure it, as needed, to the intermediate rings or mount on the back of the antenna.

STEP 13 - FEEDHORN COVER: After all the connections are made install the feedhorn cover. Place it over the feedhorn cover base and turn it so the top of the logo is up and the holes around the bottom line up with those in the base. Insert the expanding connectors and tighten the screws to hold them in place.

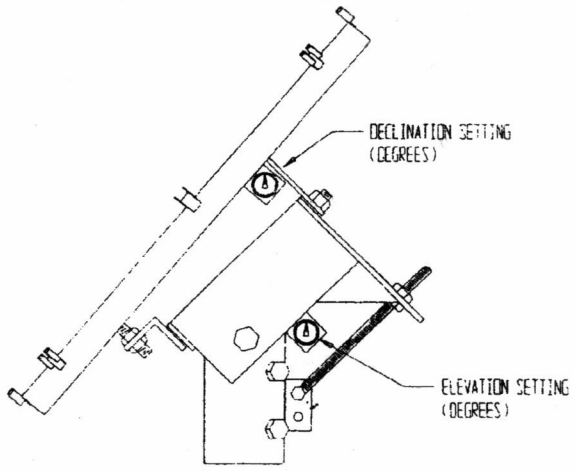


ILLUSTRATION # 11

ELEVATION/DECLINATION CHART

Latitude Degrees	(A) Elevation U-Bracket Degrees	Declination Offset Angle Degrees	(B) Zenith Setting (Declination + Elevation)
1	1.02	.15	1.17
3	3.07	.46	3.53
5	5.12	.76	5.88
7	7.17	1.06	8.23
9	9.22	1.36	10.58
11	11.27	1.66	12.93
13	13.31	1.96	15.27
15	15.36	2.26	17.62
17	17.40	2.55	19.95
19	19.44	2.84	22.28
21	21.47	3.12	24.59
23	23.51	3.40	26.91
25	25.57	3.66	29.23
27	27.59	3.94	31.53
29	29.62	4.20	33.82
31	31.64	4.47	36.11
33	33.67	4.71	38.38
35	35.68	4.97	40.65
37	37.69	5.21	42.90
39	39.70	5.45	45.15
41	41.71	5.67	47.38
43	43.72	5.89	49.61
45	45.71	6.11	51.82
47	47.70	6.32	54.02
49	49.70	6.51	56.21
51	51.69	6.70	58.39
53	53.67	6.89	60.56
55	55.66	7.06	62.72
57	57.64	7.22	64.86
59	59.61	7.39	67.00
61	61.57	7.52	69.09
63	63.54	7.66	71.06
65	65.51	7.78	73.29
67	67.48	7.90	75.38
69	69.44	8.01	77.45
71	71.41	8.11	79.52
73	73.37	8.20	81.57
75	75.33	8.28	83.61

Information courtesy of Gourmet Entertaining - 213-666-2728

42.2

HOW TO SET THE ANTENNA TO TRACK:

Make sure the declination is set as explained in Step #11. This is a very important adjustment in getting the antenna to track properly.

Determine the longitude of your site location, again from a map, and then refer to a satellite chart to identify the satellite that has the longitude location that is closest to yours.

Rotate the mount on the pole to point toward the equator. Use the actuator to move the antenna to point in the same direction as the mount. If you are in the Northern hemisphere this will be straight south. If you are in the Southern hemisphere it will be straight north.

Calculate the difference between your longitude and that of the satellite you want to locate, and use the actuator to point the antenna in that direction. For example, if the closest satellite is ten degrees to the east, use the actuator to move the antenna ten degrees east of where the mount is pointed.

Identify an active unscrambled transponder on the satellite and set the receiver to that channel. Rotate the antenna and mount, on the pole, until the satellite is located and tighten the mount to the pole. Once a picture is obtained, fine tune the polarity for best picture. Then adjust the elevation for the highest signal strength

Using the actuator, begin moving the antenna towards the satellite closest to the horizon. This will be the satellite with a longitude location the farthest from your site longitude. Use active transponders to identify the satellites you encounter. If you find a satellite with poor video, adjust the actuator for best video then check the elevation. DO NOT PERMANENTLY CHANGE THE ELEVATION, but adjust it to check signal strength and then return to the original setting. If raising the elevation increases signal strength rotate the mount toward the horizon. If lowering the elevation increases signal strength rotate the mount away from the horizon.

Once the farthest satellite is located, fine tune as above and then move the antenna toward the satellite at the other end of the satellite belt. Stop at the first satellite you located and fine tune the elevation if needed.

When you have reached the end of the satellite belt, use the elevation as described above to check for maximum signal. If the declination is correct no adjustment should be needed. If you do not have maximum signal recheck signal strength at both ends of the satellite belt. If signal strength improves at one end of the satellite belt by lowering the elevation and at the other end by raising the elevation you need to rotate the mount slightly on the pole.

If you improve signal by raising the elevation at both ends, the declination has to be increased. If signal improves at both ends by lowering the elevation, declination should be decreased.

WARRANTY: Your CKD antenna is covered by a 5 year limited warranty. To establish this coverage, please fill out and return the form below.

OWNER INFORMATION

Retain this information for your records.

Antenna Model _____

Purchase Date _____

Dealer Name _____

Dealer Phone Number ( ) _____

ANTENNA WARRANTY APPLICATION

COMPLETED FORM MUST BE RETURNED WITHIN 10 DAYS.

Antenna Model **CKD-**_____ Mount Serial #_____

Date Purchased _____

Purchaser's Name _____

Address _____ Phone _____

City _____ State _____ Zip _____

Dealer's Name _____

Salesperson _____

Address _____ Phone _____

City _____ State _____ Zip _____

Distributor _____

How did you learn about this product? _____

	Excellent	Good	Adequate	Poor
Packaging	☐	☐	☐	☐
Instructions	☐	☐	☐	☐
Ease of Assembly	☐	☐	☐	☐
Performance	☐	☐	☐	☐
Customer Satisfaction	☐	☐	☐	☐

Comments: _____

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FOCAL DISTANCE MEASURED FROM ANTENNA FRONT PLATE TO FRONT OF WAVE GUIDE ON FEED SCALAR RINGS;

CKD 8.5	**40-1/8" (101.9CM)**
CKD 10	**47-1/2" (120.6CM)**
CKD 12	**56-1/8" (142.6CM)**

IF YOU HAVE ANY PROBLEMS OR QUESTIONS PLEASE CALL OUR CUSTOMER SERVICE AT ~~608-647-8902~~
501-729-3103
sales@samidish.com

FIVE YEAR LIMITED WARRANTY

The manufacturer warrants the aluminum dish to be free of defects in material and workmanship for a period of five (5) years from the date of purchase. This warranty is effective only if:

1. The aluminum dish is returned, "prepaid" to the factory in Richland Center, Wisconsin.
2. Proof of the date of purchase is supplied with the return of the dish.
3. The manufacturer, at its option, reserves the right to either repair or replace a dish which it deems to be defective.
4. Product must be returned under a "**Warranty Authorization**" number that can be obtained by calling **1-608-647-8902.** All returned products must have a "**Warranty Authorization**" number attached on **ALL** returned merchandise.

THIS LIMITED WARRANTY DOES NOT APPLY IF THE DISH IS DAMAGED, DETERIORATES OR FAILS BECAUSE OF:

1. Improper or inadequate installation or failure of supporting hardware not supplied by the manufacturer;
2. Neglect, accident or misuse;
3. Modifications of the product as originally manufactured;
4. Any act of nature, including, but not limited to wind damage.
5. This limited warranty does not apply to the paint and the finish upon the metal portion of the product, labor necessary to package, prepare and ship said dish, freight to and from the factory, and is applicable only to the original purchaser.

The repair or replacement of the dish, at the option of the manufacturer, is your exclusive remedy under this limited warranty the manufacturer will not be liable for incidental or consequential damages, so the above limitations or exclusions may not apply to you. Further, this warranty gives you specific legal rights, and you may also have other rights which vary from state to state.

NO POSTAGE
NECESSARY
IF MAILED
IN THE
UNITED STATES

BUSINESS REPLY MAIL
FIRST CLASS MAIL PERMIT NO. 1 RICHLAND CENTER, WI

POSTAGE WILL BE PAID BY ADDRESSEE

ANTENNA WARRANTY
1140 SEXTONVILLE RD
RICHLAND CENTER WI 53581-9976