**Read the Instructions Thoroughly Before Installation**

1. **Attach Reflector Halves Together**

Arrange four supports equally spaced to position the reflector above ground during assembly. The supports must be high enough to allow a man to crawl under the reflector. **The SUPPORTS MUST BE LEVEL** to avoid distorting the reflector assembly.

Place the reflector halves together on the supports with the concave sides facing downward as shown in Figure 1. Make sure the joint plates are clean. Use a pin to align the holes in the joint plates and insert all bolts except the two socket-head shoulder bolts. Insert all the bolts from the same direction. Add flat washers, lock washers, and nuts, but do not tighten the bolts.

Loosely install three splice-strip location bolts and lock nuts at the end of the splice strip near the antenna center. Insert the bolts from the front (concave) side of the reflector.

Insert the shoulder bolts into the end holes of the joint plates by hand - **DO NOT DRIVE THEM**. If necessary, scrape away any paint within the holes to aid insertion of the bolts. Tighten all of the joint plate bolts, starting with the shoulder bolts. Add the remaining splice-strip location bolts and nuts, but do not tighten them.

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**Figure 1. Assembly of Reflector Halves**

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**Note:** Andrew disclaims any liability or responsibility for the results of improper or unsafe installation practices.

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**Description**

Instructions given in this bulletin apply to either a standard, unshielded or high-performance, shielded antenna. The antenna consists of a two-piece reflector, braced by a back structure; feed; and an offset tower mount. Feed installation instructions are packed with the feed. The high-performance antenna includes an eight-section shield and planar radome. Four men and a crane truck are required for the installation.

The mount attaches to the antenna at three points and is designed to attach the antenna to an outriggered 4-1/2" (114-mm) diameter pipe. The bottom mounting point is supported by two elevation bolts that provide elevation adjustment of ±3-1/2°. An azimuth strut attaches to one side mounting point of the mount and provides both stability and azimuth adjustment of ±5°.

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**Notice**

The installation, maintenance, or removal of antenna systems requires qualified, experienced personnel. Andrew installation instructions are written for such personnel. Antenna systems should be inspected once a year by qualified personnel to verify proper installation, maintenance, and condition of equipment.

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Check the seam between reflector halves - it must be uniform. If not, adjust it by pulling it at the antenna center, pushing it down midway between the antenna center and rim, or other movement. Refer to Figure 2.

When the seam is uniform, tighten several bolts midway between the antenna center and rim and several bolts near the antenna center. Hold each bolt and tighten the connection by turning the nut. Do not apply more than 8 lbf-ft (10.8 N·m) of torque to the bolts. Then, move on to the other seam.

After both seams are uniform, tighten the remaining bolts in each splice. Start at the antenna center and proceed toward the antenna rim.

**Important:** DO NOT MOVE THE REFLECTOR assembly until after its back structure is attached and tightened. Otherwise the reflector will be distorted before it is braced properly.

2. Attach Reflector Back Structure

Lay the triangle assembly on the reflector so that it is centered over the feed hole and the hexagonal pivot blocks are facing upward as shown in Figure 3.

Install all angle braces with one leg facing upward and in the sequence (circled numbers) shown in Figure 3. The type number of each brace is stamped at the end that attaches to the reflector rim. Insert bolts from out-side the triangle assembly for easier installation.

All angle brace connections between the reflector and the triangle assembly require A-325 friction-type hardware: 5/8” x 1-1/2” (38 mm) bolts, flat washers, and nuts. This hardware must be properly tensioned to avoid slippage between bolted surfaces under high loads. Slippage can distort the reflector surface during hoisting or allow a slight movement of the subreflector or feed.

Insert each bolt and add a flat washer. Lubricate the bolt threads with stick wax (43198) to reduce friction, but do not allow the wax to get under the flat washer. Add the nut and finger-tighten it. Attach all of the angle braces in this way before proceeding.

**A-325 Bolt Tensioning Procedure**

First tighten bolts at the brackets around the reflector rim without standing on the reflector. Then, tighten the triangle assembly bolts, but only allow one man to stand on the triangle - DO NOT USE THE REFLECTOR FOR LEVERAGE.

1. Tighten the bolts until the surfaces are joined slightly and the nuts are snug. This means the full effort - about 20 lbf-ft (27 N·m) - of a person using a construction (spud) wrench.

2. Mark the nuts and bolt ends with a straight reference line as shown in A. Then tighten the nuts about 1/3 turn (120° ±30°) as shown in B. Use an extra long wrench or a power wrench to turn the nuts. Replace any bolts that break. Do not loosen bolts for reuse.

3. Attach Mount to Back Structure

Loosely attach the jaw-end of both elevation bolts to the mount hinges of the triangle assembly on the back structure with a bolt, lock washer, and nut. See Figure 4. Then thread a nut, adjustment nut, and flat washer on each elevation bolt.

Carefully lift-the mount and position it on the triangle assembly so that the mount brackets are over the pivot blocks of the triangle. Loosely attach the mount brackets to these blocks with bolts, lock washers, and nuts.

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Lift the lower channel of the mount and insert the elevation bolts through the large holes in the channel. Add flat washers, adjustment nuts, and palnuts to the bolts. Fasten the elevation bolts so that their ends are protected from damage by the mount channel when the reflector is turned over. Partially tighten the pivot block bolts.

4. Attach Feed
Attach the feed to the reflector according to the instructions packed with the feed.

5. Assemble and Attach Shield
Lift the reflector so that it faces upward and rest it on wooden supports in a stable position. Assemble and attach the shield according to the shield bulletin instructions.

6. Mount Antenna
Attach the support band to the antenna mounting pipe on the tower at the height required and tighten the bolts. The antenna rests on this band, as shown in Figure 5, during mounting and azimuth adjustment.

Attach hoist lines to the antenna as shown in Figure 6. Raise the antenna carefully and rest the lower channel of the antenna mount on the support band. Position the antenna as close as possible to its operating angle.

Attach both upper and lower channels of the mount with U-bolts, lock washers, and nuts, but do not fully tighten the nuts to allow for azimuth adjustment. See Figure 5. Remove the hoist lines.
Installation Instructions

Microwave Antenna

15-ft (4.6-m) Antenna Mounting Instructions

Figure 5. Mounting Antenna on Tower

Figure 6. Hoisting Antenna to Tower

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7. Attach Azimuth Strut

When attaching the azimuth strut to a tower member, position it parallel to the antenna axis. This provides maximum stability during wind loads. If the tower configuration does not permit parallel positioning, the strut can be positioned anywhere within a maximum deviation angle as shown in Figure 7.

Next, figure the pipe length. Drill a 1 5/16" (24-mm) mounting hole in the tower member. Measure the distance from this surface to the strut mounting flange of the mount as shown in Figure 8. Subtract 18" (457 mm) from this measurement to determine the length of pipe required. Cut a 2" (51-mm) nominal standard, galvanized pipe (not supplied) to this dimension and cut threads at both ends using the standard 2" nominal pipe thread (NPT).

Finally, assemble and mount the strut as shown in Figure 9. Tightly screw the pipe adapter of a turnbuckle assembly onto each end of the pipe. Coat the exposed threads of the pipe with a cold galvanizing compound.

Tightly attach one of the eyebolts of the strut assembly to the flange of the antenna mount. Adjust the length of the strut by loosening the lock nuts of the turnbuckle assemblies and rotating the pipe with a pipe wrench while holding the free eyebolt. Guide the free eyebolt into its hole in the tower member. When the eyebolt is firmly against the tower member, add the lock washer and nut, and tighten the nut.

8. Adjust Elevation and Azimuth

Adjust elevation by first loosening the all nuts on the two elevation bolts (see Figure 5). Then, position the adjustment nuts of both elevation bolts to tilt the antenna upward or downward.

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Adjust azimuth by first loosening the U-bolts of both pipe mounting channels of the mount (see Figure 5) and the lock nuts at the pipe adapters of the azimuth strut (see Figure 9). Then rotate the strut with a pipe wrench to move the antenna to the right or left.

Alternate elevation and azimuth adjustments may have to be made several times before they are satisfactory. Then carefully tighten all of the adjustment nuts without disturbing the adjustments. Also tighten the jam nuts and hinge bolts on both elevation bolt assemblies, pivot bolts at the top ends of the mount, and the U-bolts holding the antenna mount.