

## Broadband Antennas DB264



### PRODUCT DESCRIPTION

The DB264 is a high gain, lightweight antenna designed for use in the 150-285 MHz band. It features a 10 MHz bandwidth and an enclosed feed system. It can be mounted on the top or side of a tower or mast.

To create an omni pattern, the DB264 has four elements that are evenly positioned around the mast at 90° offsets. To create a directional pattern, the DB264E has four elements that are aligned in a straight line on the same side of the mast. If desired, the omni model can be field adjusted to achieve a directional pattern; likewise, the directional model can be field adjusted to achieve an omni pattern.

For ease of shipment and handling, the mast is made in two sections and the antenna is folded in half during shipment. A center splice ensures proper alignment of the mast sections during assembly. The cable harness self-aligns when the mast sections are joined.

### INSTALLATION

This procedure applies to both the omni and the directional models.

1. To avoid damaging the cable harness, be careful to lift both mast halves at the same time when removing the antenna from the shipping box. Once removed, inspect the antenna to be sure there is no shipping damage.

#### NOTICE

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

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

2. Carefully unfold the two halves, rotating them until the painted sides of the coupling are aligned.
3. Remove the sack containing the bolts and the tie wrap attached to the coupling, then bolt the two halves together. On the omni model, the four elements will be positioned around the assembled mast at 90° angles from each other; this will produce a circular pattern (see Figure 2). On the directional model, the four elements will be lined up in a straight line down the mast; this will produce a directional pattern (see Figure 3).
4. Attach the mounting clamps to the mast at the locations indicated by the "Attach Mounting Clamps Here" labels — they should be spaced 22 inches apart. The clamps should be positioned on the mast so that when the antenna is attached to the tower, the *bottom element* will face away from the tower — this is true for both the omni and directional models.
5. Mount the antenna to the tower, making sure it is vertical and that the mounting clamps are tightened evenly and securely.
6. A check of the antenna VSWR as measured at the antenna is recommended at this point. Note this measurement carefully and record it for future reference.
7. After checking the VSWR at the antenna, connect the station transmission line to the antenna. Make the connection snug but do not apply heavy force with pliers.

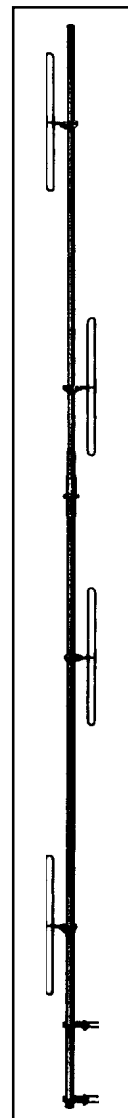
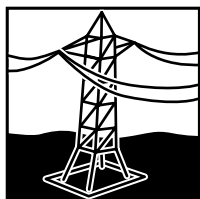


Figure 1.  
DB264

(continued on page 2)



Do not install near power lines. Power lines, telephone lines, and guy wires look the same. Assume any wire or line can electrocute you.



Do not install on a wet or windy day or when lightning or thunder is in the area. Do not use metal ladder.



Wear shoes with rubber soles and heels. Wear protective clothing including a long-sleeved shirt and rubber gloves.

To prevent moisture problems, carefully wrap Vapor-Wrap (part no. 11317 or 11316) around the connection; work the compound into all cracks and smooth it over the outer jackets of the transmission line. Failure to waterproof the cable connection will result in improper operation of the antenna.

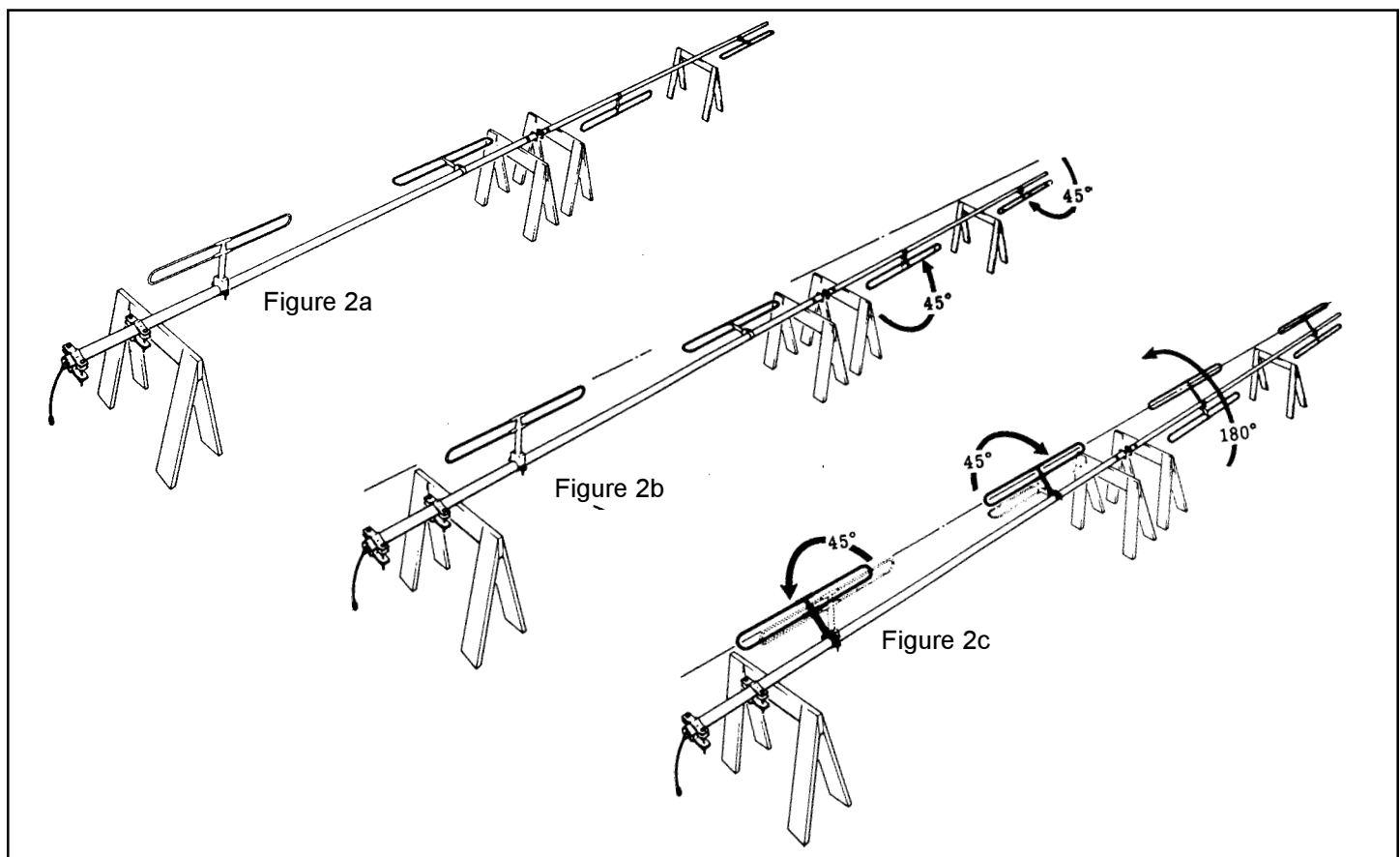
8. Secure the feeder cable and antenna transmission line to the tower in the best position to avoid physical damage to the cable.
9. After the antenna and transmission line installation has been completed, a careful visual check should be made to ensure that:
  - All mechanical connections have been securely made.
  - All connections have been securely wrapped with Vapor-Wrap to prevent moisture problems.

### CHANGING THE RADIATION PATTERN

As stated above, the DB264 has all elements positioned evenly, every 90°, around the mast for an omni pattern while the DB264E has all elements aligned in a straight line on the same side of the mast for a directional pattern. If desired, the omni model can be field adjusted to achieve a directional pattern and the directional model can be field adjusted to achieve an omni pattern.

### Changing an Omni Pattern to a Directional Pattern

1. If the antenna is currently mounted to a tower, remove it from the tower and place it onto four supports as shown in Figure 2a. The supports should be tall enough to allow the elements to clear the ground.
  2. Loosen the bolts that hold the topmost element to the mast and rotate the element 45° toward the second element (see Figure 2b).
  3. Loosen the second element and rotate it 45° so the two elements are aligned. Be careful not to rotate any of the elements more than 45° to avoid placing undue strain on the wiring harnesses (see Figure 2b).
  4. Once the two upper elements are aligned, tighten the bolts that clamp the elements to the mast.
  5. Remove the four flange bolts from the center flanges of the mast. Caution: Be sure both halves of the mast are supported as shown in Figures 2a through 2c before removing the bolts from the center flanges. Also, remember that the transmission line runs inside the mast.
- Do not allow the mast sections to separate so much that it causes damage to the transmission line.
6. Rotate the upper half of the mast 180° until the two top



Figures 2a through 2c. Changing an Omni Pattern (DB264) to a Directional Pattern (DB264E)

elements point in a direction that is  $45^\circ$  between the two bottom elements (see Figure 2c). Caution: Remember, the transmission line runs through the mast. Do not allow the mast sections to separate so much that it causes damage to the transmission line.

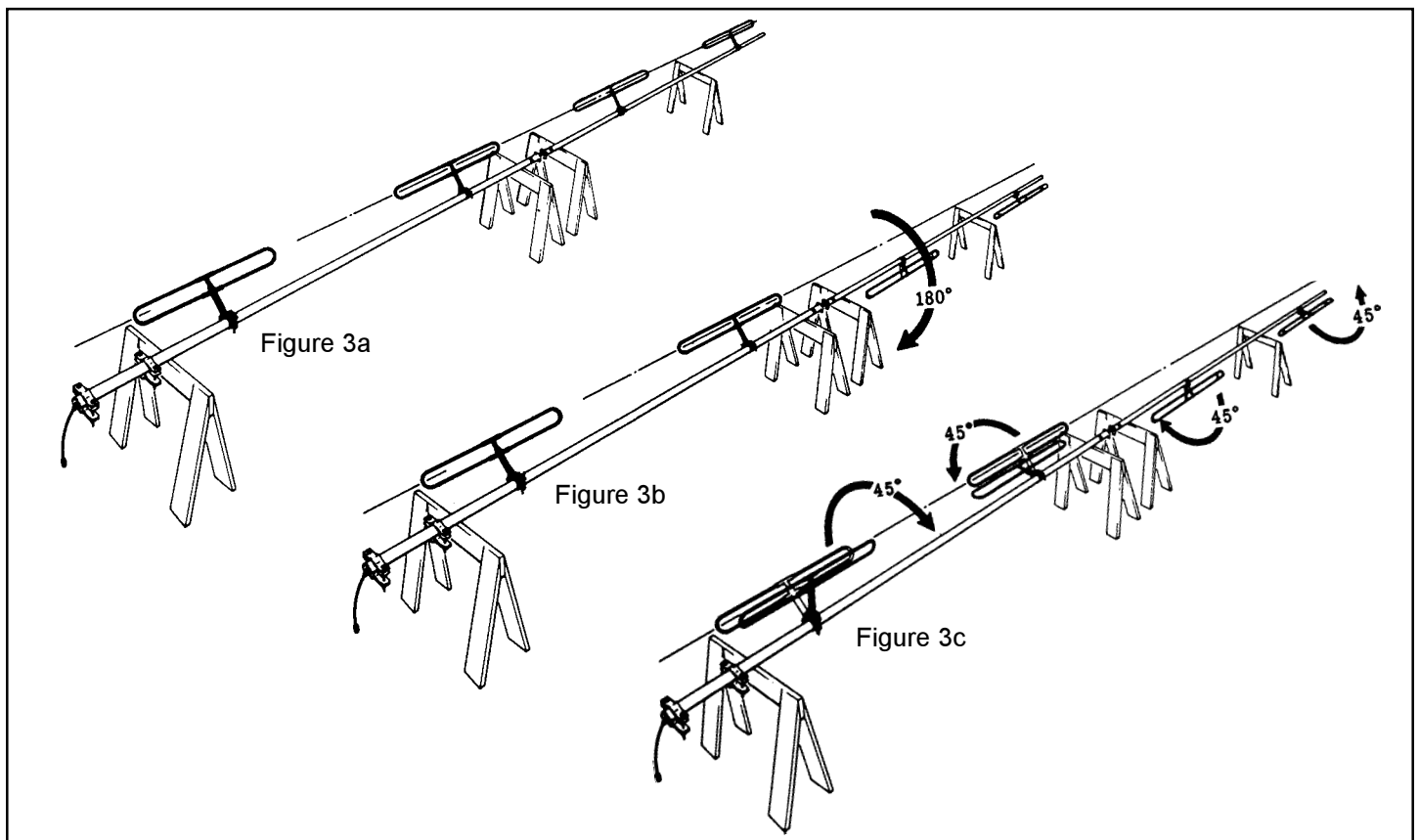
7. Position the mast sections together. Reinstall the flange bolts that hold the sections together and tighten the flange bolts.
8. Loosen the bolts that clamp the two bottom elements to the mast and rotate each one  $45^\circ$  so they line up with the top elements (see Figure 2c).
9. Once the elements are aligned, tighten the bolts that clamp the elements to the mast.
10. Mount the antenna to the tower. Position it so the elements point in the direction of maximum desired coverage.

#### Changing a Directional Pattern to an Omni Pattern

1. If the antenna is currently mounted to a tower, remove it from the tower and place it onto four supports as shown in Figure 3a. The supports should be tall enough to allow the elements to clear the ground.
2. Remove the four bolts from the center flanges of the mast.

ported as shown in Figures 3a through 3c before removing the bolts from the center flanges. Also, remember that the transmission line runs inside the mast. Do not allow the mast sections to separate so much that it causes damage to the transmission line.

3. Rotate the upper half of the mast  $180^\circ$  so the two bottom elements and the two top elements point in opposite directions (see Figure 3b).
4. Position the mast sections together. Reinstall the flange bolts that hold the sections together and tighten the flange bolts.
8. Loosen the bolts that clamp the two bottom elements to the mast.
9. Looking from the bottom of the mast toward the top, rotate the bottom element  $45^\circ$  clockwise, to the right (see Figure 3c).
10. Looking from the bottom of the mast toward the top, rotate the second element  $45^\circ$  counterclockwise, to the left (see Figure 3c).
11. By sighting past the edges of a square, check to see that the two bottom elements are now  $90^\circ$  apart. Tighten the bolts that clamp the elements to the mast.
12. Loosen the bolts that clamp the third element to the mast



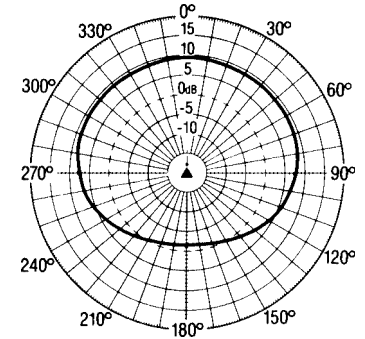
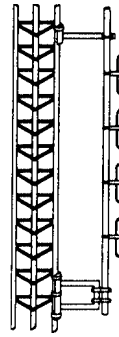
Figures 3a through 3c. Changing a Directional Pattern (DB264E) to an Omni Pattern (DB264)

and rotate it 45° to the right until it is pointed in the direction opposite the bottom element (see Figure 3c).

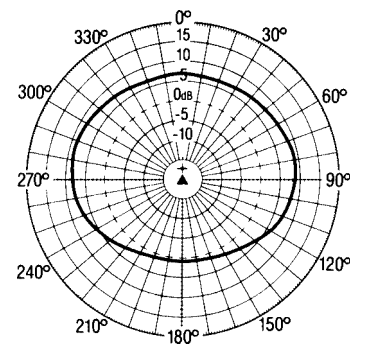
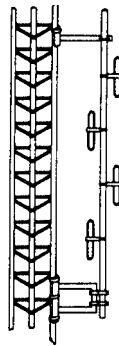
13. Loosen the bolts for the top element and rotate it 45° to the left so that it points in a direction opposite the second element (see Figure 3c).
14. Once the elements are aligned, tighten the bolts that clamp the elements to the mast.
15. Mount the antenna to the tower. Be sure to position it so the bottom element points away from the tower.

**SIDE MOUNTING**

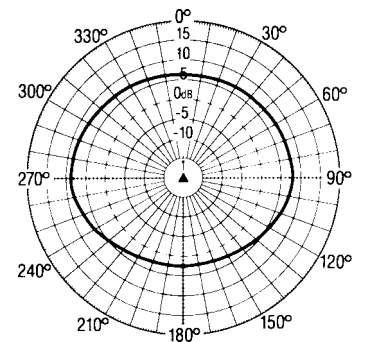
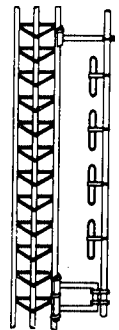
The normal horizontal radiation pattern of an antenna becomes distorted when the antenna is mounted on the side of a tower. However, this distortion can often be used to an advantage if the distorted pattern shape is known. The patterns shown in Figures 4a thru 4c indicate the approximate pattern shapes of DB264 and DB264E antennas when side mounted on a tower that has an 18-24 inch face, using the DB5001 side mount kit. The 0° direction is from the center of the tower through the antenna mast.



*Figure 4a. DB264E (Directional)  
Elements Pointed Away From The Tower*



*Figure 4b. DB264 (Omni)  
Mounted On The Side Of A Tower*



*Figure 4c. DB264E (Directional)  
Elements Pointed Toward The Tower*