

# Antenna Manual Insert

## Instructions for Adding a Phasing Cable

### Parts List for Phasing Kit

Quantity	Parts included with the Radio JOVE Phasing Kit	Parts Checklist	
1	8 ft.1 in.(2.46 m) RG59/U Coaxial Cable (Belden 8241)*		
1	2-way hybrid splitter (Radio Shack part no. 15-1234)		
2	Twist-on F-connectors (for RG59/U coax)		
1	Coax Cable coupler		

**\* Note: these instructions are only valid for Coaxial Cable RG-59/U. Do not try to substitute another type of coax because the cable lengths and connectors will change.**

### Building the $\frac{1}{4}$ Wavelength Phasing Cable

1. Install the F-connectors on the 8 ft. section ( $\frac{1}{4} \lambda$ ) of the coaxial cable. To install, remove about  $\frac{3}{4}$  inches (2 cm) of the outer coax casing (See Figure 7a).
2. Carefully unbraid about half of the exposed shielding (about  $\frac{3}{8}$  inch (1 cm)) and fold it back over the other half of the copper shielding and over the outer casing (Figure 7b).
3. Remove the insulation around the center conductor leaving about  $\frac{1}{2}$  inch (1.3 cm) of bare center conductor wire (Figure 7c, 7d).
4. Push the F-connector over the end of the coax and twist on as tightly as possible. The teeth of the F-connector will bite into the shielding that has been folded back, and this will provide good contact for ground. About  $\frac{1}{8}$  –  $\frac{1}{4}$  inch (0.3 – 0.6 cm) of center conductor wire should protrude out of the end of the F-connector (Figure 7e).
5. Repeat steps 1-4 for the other F-connector.

## Field Setup

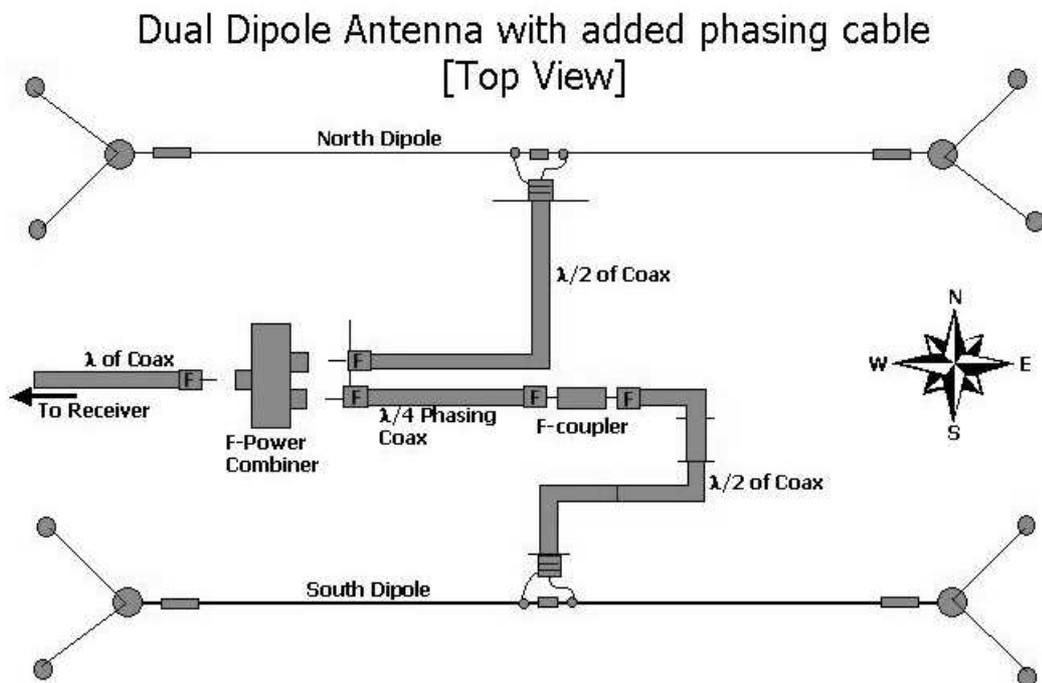
### Setting Up The Antenna

Adding the phasing cable to the Radio Jove antenna will produce a different antenna beam pattern in the sky. It is important that the antenna beam be aimed to the region of the sky where Jupiter (or the Sun) will be passing during the observation period. As Jupiter (and the Sun during the northern hemisphere winter) gets lower in the sky, it is imperative that we change the direction of the beam pattern to aid in the detection of Jupiter and solar radio bursts.

Find a clear location at least 30 feet on a side to erect the antenna. Moderately soft soil will make it easier to insert the antenna mast tips. Three or four people can make quick work of putting up the antenna. Be sure to avoid any location where there are low power lines that might come into contact with the Jove antenna.

## Connecting the $\frac{1}{4}$ Wavelength Phasing Cable to the Radio JOVE Antenna

1. Set up the antenna in the Standard In-Phase East-West configuration per the instructions in your Antenna manual (Steps 1-5 on pages 17-18)
2. On the North dipole connect the coaxial feed line directly to the power combiner on the twin-side by screwing on the F-connector to the threads of the power combiner (see Figure 10 below).
3. Connect the  $\frac{1}{4}$  wavelength phasing cable to the South coaxial feed line by using the F-connector coupler. Tighten one side of the coupler onto the coaxial feed line and then attach the extra  $\frac{1}{4}$  wavelength cable to the other side of the coupler.
4. On the South dipole connect the coaxial feed line plus phasing cable to the power combiner on the twin-side by screwing on the F-connector to the threads of the power combiner.
5. Connect the  $1\lambda$  coaxial cable (long coax) to the single-side of the power combiner.
6. Connect the other end of the  $1\lambda$  coax to the antenna input on the JOVE RJ 1.1 Receiver.



**Figure 10. Schematic drawing of the Radio JOVE dual dipole antenna with the phasing cable added onto the South dipole.**