

# TEMPORARY INSTRUCTIONS

FOR

## ANTENNA AN-86-A

Manufactured By

**BENDIX RADIO**

**DIVISION OF BENDIX AVIATION CORPORATION**

**BALTIMORE, MARYLAND, U. S. A.**



# RESTRICTED

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SPECIAL INSTRUCTIONS  
FOR  
75-FOOT PLYWOOD ANTENNA MAST

SECTION I  
DESCRIPTION

1. GENERAL

The 75-foot plywood antenna mast is similar in design and construction to Antenna AN-56-A except that it is made up of tubular plywood sections instead of steel sections. The plywood mast may be erected in the field by three men in a manner similar to the procedure described in the instruction book for Antenna AN-56-A. Note the method of erection in the instruction book carefully and then proceed with erection according to these special instructions.

2. COMPONENTS, DIMENSIONS, AND WEIGHTS

<i>Description</i>	<i>Overall Size (Inches)</i>	<i>Weight (Lbs.)</i>
1 75-foot plywood antenna mast packed as follows:		
1 Stays Box	12-1/4 x 14-3/4 x 52	245
1 Couplings Box	14-3/4 x 26-3/4 x 52	318
1 Bundle #1	10' 10" long	77
1 Bundle #2	10' 10" long	85
1 Bundle #3	8' long	18

3. PACKING DATA

<i>Quantity</i>	<i>Description</i>
	STAYS BOX
4	Anchors
4	Base Spikes
28	3/8" Shackles (stays)
4	3/4" Shackles (anchors)
2	5/8" Shackles (boom ends)
4	Anchor Chains
2	7/8" Socket Wrenches
2	3/8" Socket Wrenches
2	11/16" Socket Wrenches
4	Bottom Guys (red ends), including turnbuckles
4	Center Guys (white ends), including turnbuckles
4	Top Guys (blue ends), including turnbuckles

## DESCRIPTION

<i>Quantity</i>	<i>Description</i>
	COUPLINGS BOX
2	5-1/4" Couplings
4	4" Couplings
1	4" to 5-1/4" Coupling Reducer
2	Boom Caps
1	Mast End
1	Base Plate
2	Guy Ropes (red end), boom vang
1	Radius Rope, 23.8 ft. (blue end)
1	Block and Fall
	Bundle No. 1
2	Boom Sections, 5-1/4" x 10'10"
2	Mast Sections, 4" x 10'10"
	Bundle No. 2
2	Mast Sections, 5-1/4" x 10'10"
2	Mast Sections, 4" x 10'10"
1	Top Mast Section, 4" x 5'5"
	Bundle No. 3
1	Spreader, 2" x 2" x 8'
2	Spreader Braces, 2" x 2" x 29-1/2"
1	Galvanized Steel Bar, 6 ft.

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SECTION II  
PREPARATION FOR USE

4. UNPACKING

Unpack all parts for the 75-foot plywood mast and lay out on ground. Four-inch diameter sections are shipped inside 5-1/4" diameter sections. Remove cotter pins at ends and slide out smaller pieces.

## SECTION III ERECTION OF MAST AND ANTENNAS

### 5. PREPARATION OF GROUND

- (a) Drive a base spike at the exact center of the site chosen for the mast.
- (b) Loop 23'8" radius rope over base spike and use rope to lay out four anchor locations similar to points B, C, D, and E in Figure 2, but 23'8" from point A as determined by the end of the radius rope.

### 6. ANCHORS AND BASE

- (a) Remove base spike at A and place base plate. Drive four base spikes into ground.
- (b) With 6' steel bar provided, drive small holes at B, C, D, E.
- (c) Drive anchors in by turning clockwise. Use steel bar to turn anchors. Keep anchors vertical. If a stone in the ground should prevent an anchor from going into the ground, remove the anchor and move it about 12 inches from the first point. Seat each anchor so that only eyelet protrudes from ground.
- (d) Fasten anchor chains to anchors.

### 7. LAYING OUT MAST AND SPREADER

Lay out mast sections as follows:

- (a) Two bottom sections, 5-1/4" x 10'10"
- (b) Four top sections, 4" x 10'10"
- (c) Top short section, 4" x 5'5", with slots
- (d) Spreader, 2" x 2" x 8'

### 8. INSTALLING ANTENNA EQUIPMENT

The antenna equipment must be installed before the mast sections are coupled together, since the coaxial antenna cable is brought up through the center of the mast.

- (a) Thread antenna ends of coaxial cables up through the centers of the mast sections. Bring each cable out through slots of top section.
- (b) Loosen cable clips on cross-arm and thread cables through, one to each side.
- (c) Fasten end of cables to dipole antenna bracket, assemble dipole onto bracket, then fasten to the ends of the cross-arm. Take out slack in coaxial cable and tighten cable clamps on cross-arm.
- (d) Fasten cross-arm to top section of mast, being careful not to kink or sharply bend the coaxial cable. The cables enter this mast section through the two slots in the top.

### 9. ASSEMBLY OF MAST

After the antennas are installed, the mast may be assembled using the special couplings provided as follows:

## ERECTION OF MAST AND ANTENNAS

- (a) Fasten cable clamps to coaxial cables at bottom of top mast section in position as shown in Figure 2.
- (b) Fasten a 4-inch eyelet coupling to the top of the second mast section from the top, clamping it to this section leaving the top part loose. Slide this assembly over the bottom end of the top mast section and clamp the coupling tightly. NOTE: Two of the eyelets should be parallel to the cross-arm and two at right angle to it.
- (c) Fasten the cable clamps to the coaxial cables at the bottom of the second section in position as shown in Figure 2.
- (d) Assemble the third section to second section using a plain coupling as described in part (b). Fasten the cable clamps in place as described in part (c).
- (e) Join the fourth and fifth sections to the top part of the mast in sequence in the manner described above. The third and fourth sections are joined by an eyelet coupling and the fourth and fifth sections are joined by a plain coupling.
- (f) The sixth and seventh sections are joined to the top part of the mast as described above, but these sections are 5-1/4" in diameter and use 5-1/4" couplings. Join the sixth section to the fifth section (from the top) using the special eyeletted coupling reducer. Be sure to use cable clamps. Join the sixth section to the seventh section (bottom section), using the plain 5-1/4" coupling, in the same manner as the top sections.
- (g) Fasten the mast end to the seventh, or bottom, tubular section of the mast. Be sure the section is seated completely and tighten in place so that the plane of the flat part of the mast end is perpendicular to the cross-arm.
- (h) Fasten the mast end to the base with a large bolt. Hand tighten. Do not use a wrench to tighten bolt. NOTE: Be sure to use coaxial cable clamps at each mast section coupling.

### 10. ASSEMBLY OF BOOM

- (a) Assemble two boom sections with remaining coupling.
- (b) Fasten boom caps on both ends. The cap with two holes is placed at top end of boom.
- (c) Lay boom over mast and fasten bottom boom cap to base plate on end of bottom mast section with large bolt. Hand tighten bolt.

### 11. ATTACHING GUYS AND VANGS

- (a) Arrange guys as shown on Drawing No. C59606.

Note that there are three sets of guys. Each set is coded as follows:

- (1) Red for bottom guys.
  - (2) White for middle guys.
  - (3) Blue for top guys.
- (b) Attach front guys from top eyelets of mast to boom cap. Turnbuckle ends of front guys are connected to the mast eyelets.

## ERECTION OF MAST AND ANTENNAS

- (c) Attach side guys from side eyelets of mast to side anchors. Turnbuckle ends of side guys are connected to the anchor eyelets.
- (d) Do not attempt to attach rear guys until later.
- (e) Attach boom vang ropes from boom cap to side anchors. Pull each rope taut, keeping boom in line.

### 12. RAISING BOOM

- (a) Connect hoisting tackle from boom cap to forward anchor.
- (b) Pull up boom to vertical position.

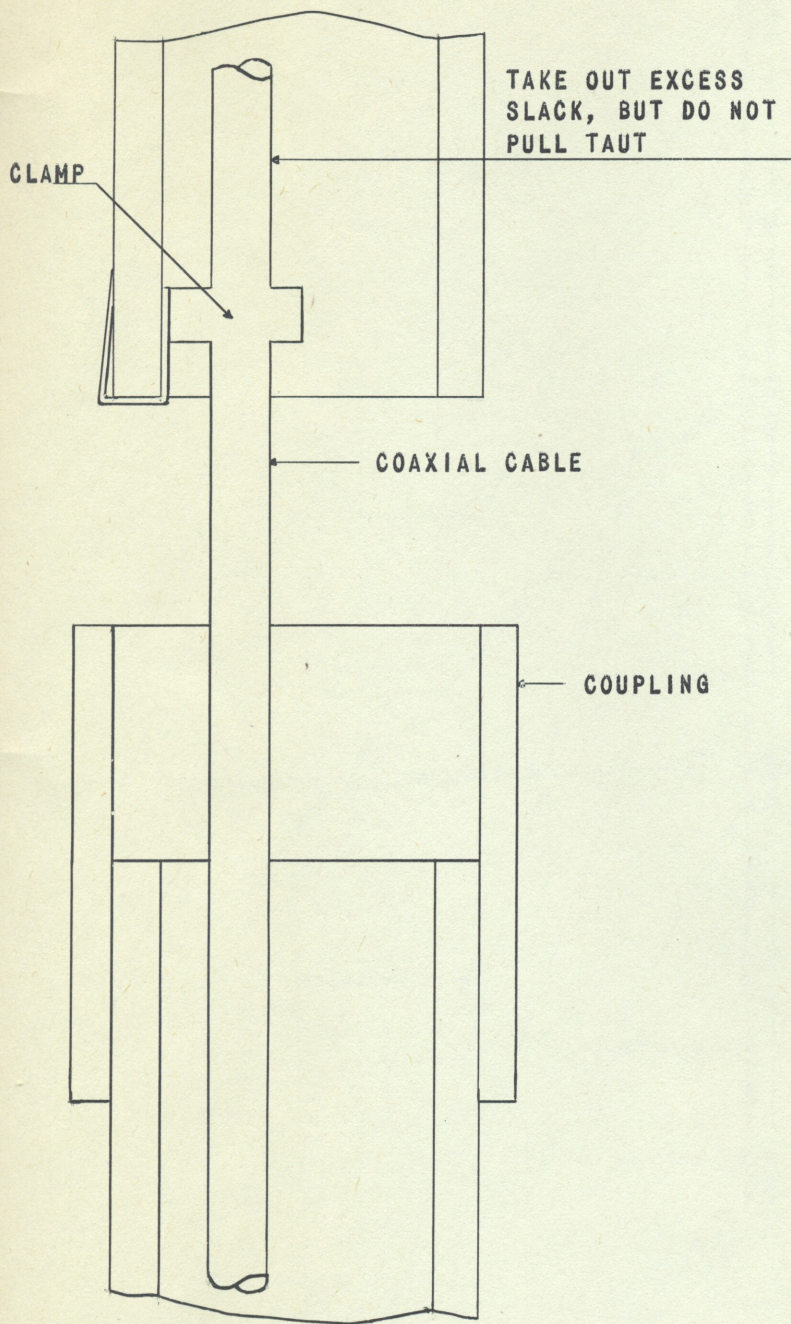
### 13. HOISTING MAST

- (a) Raise mast a few feet from ground.
- (b) Straighten mast by adjusting the turnbuckles on the three forward guys running from the boom cap to the mast.
- (c) Fasten rear guys from mast eyelets to rear anchor eyelets. Thread the rear guys under side guys so that they will not foul when mast is raised.
- (d) Make certain all side guys are equally taut, but not too taut, since they can be tightened when the mast is raised.
- (e) Hoist mast to a vertical position.
- (f) Tighten all guys until the mast is vertical and does not bow.
- (g) Fasten boom to forward anchor with chain and remove tackle. Leave boom vang ropes attached, but loosen slightly to permit ropes to shrink.

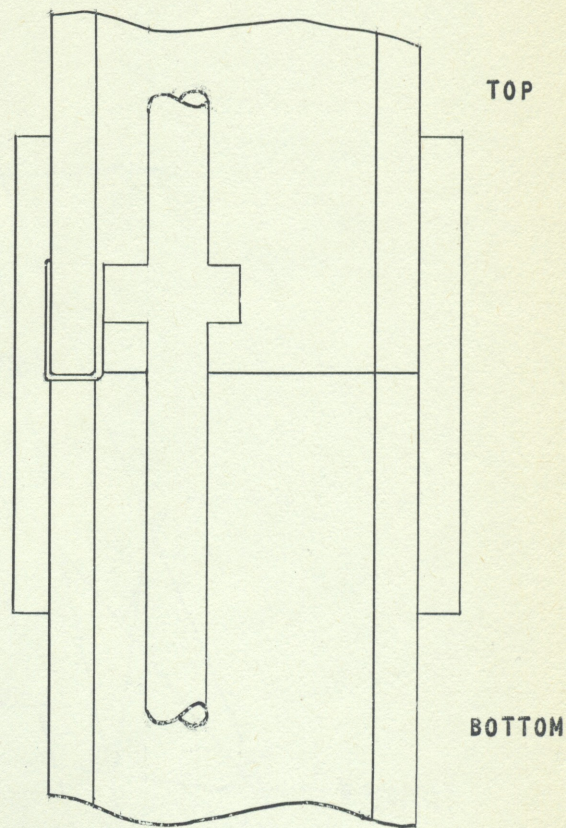
### 14. LOWERING MAST

- (a) Never lower mast without boom vang ropes attached.
- (b) The mast may be lowered to change dipoles, but do not lower the boom unless the mast is to be dismantled. If the boom is lowered, one man must support the boom while tackle is paid out to prevent boom from crashing when tackle no longer holds.



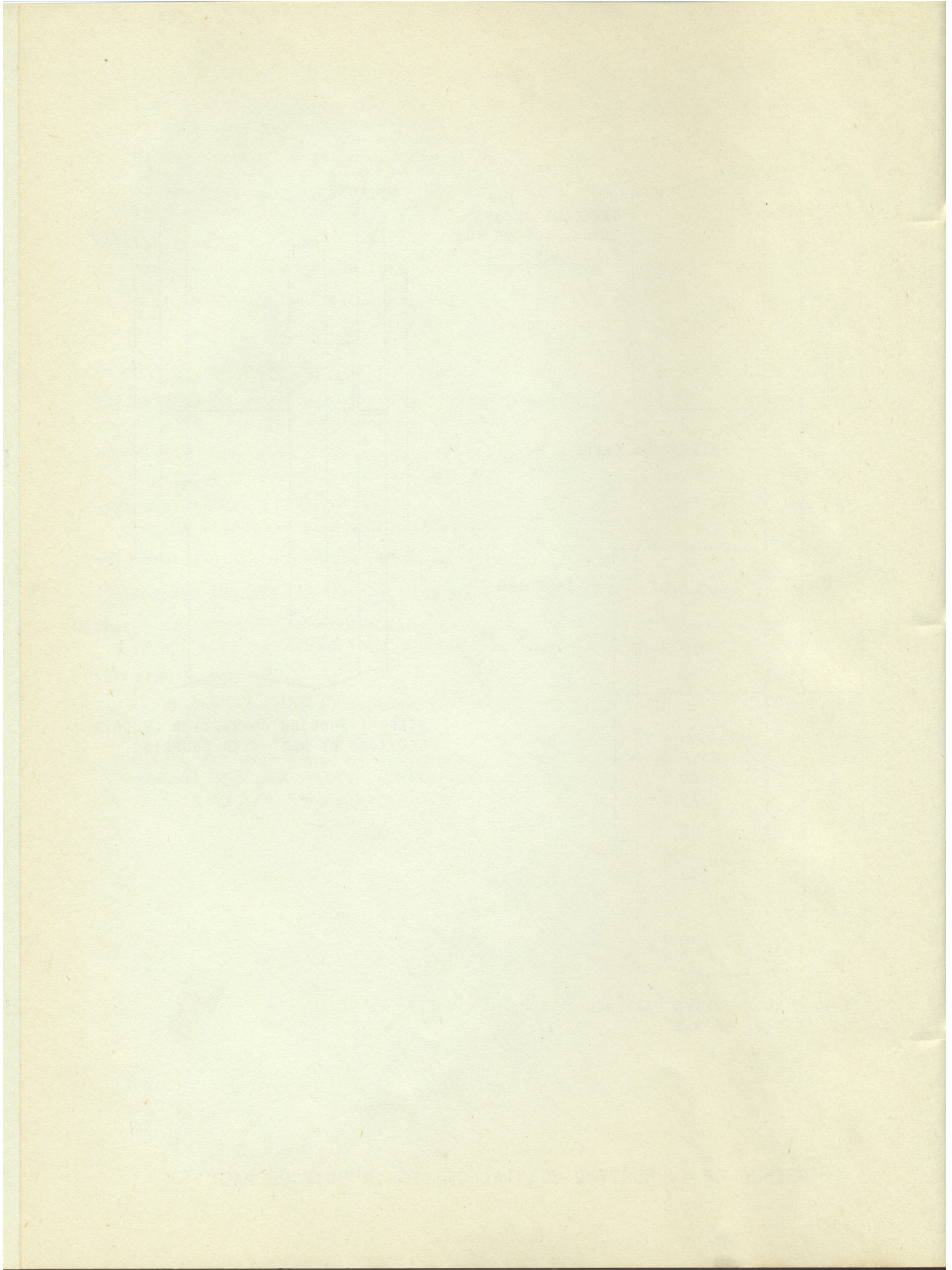


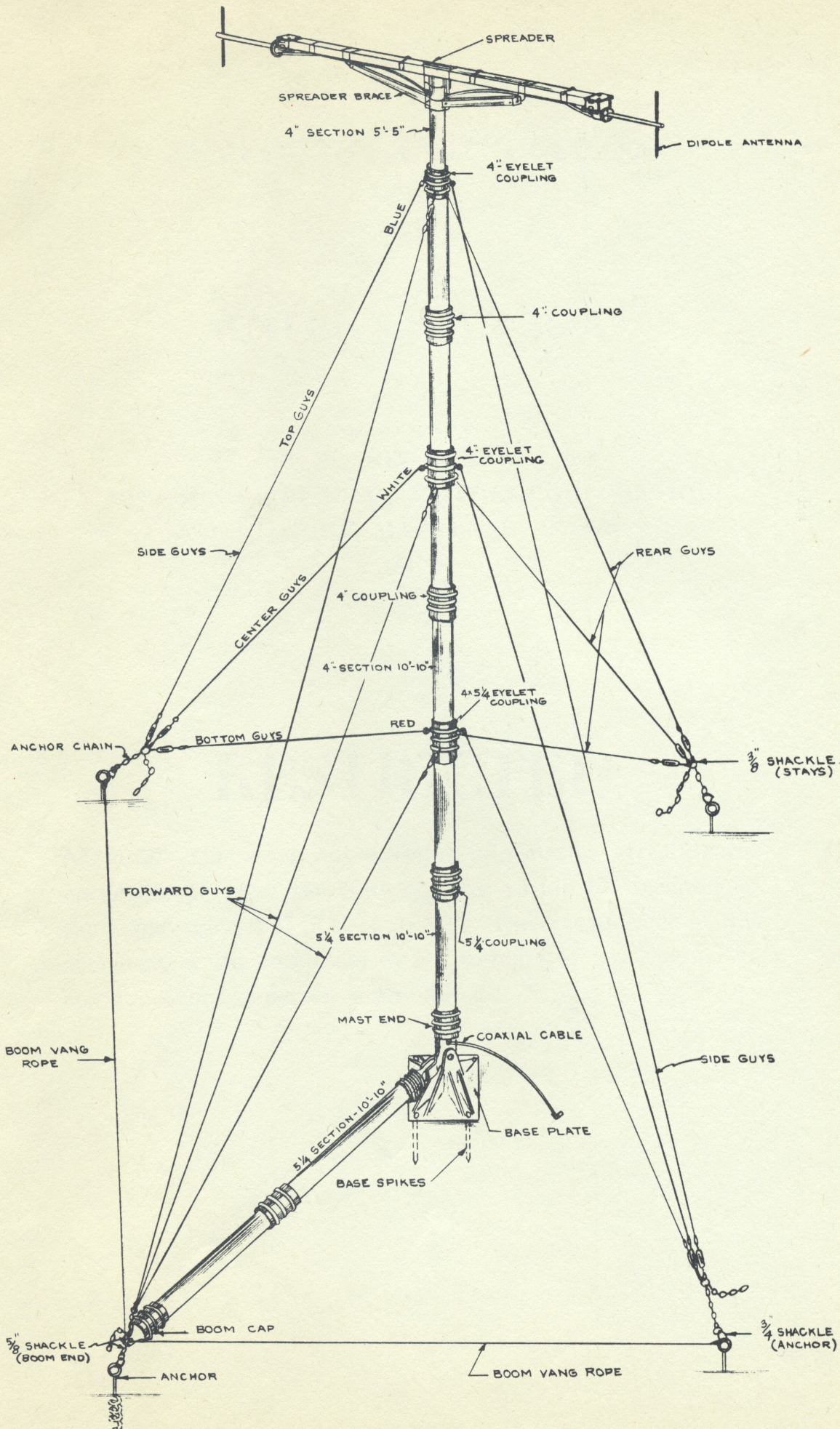
STEP I SHOWING COUPLING FASTENED TO LOWER SECTION OF MAST



STEP II SHOWING CONNECTION OF BOTH SECTIONS OF MAST WITH COUPLING

METHOD OF SUPPORTING COAXIAL CABLES IN PLYWOOD MAST





DRAWING C59303

