MICROWAVE ANTENNAS
KS-16320 PASSIVE REFLECTORS
DESCRIPTION

1. GENERAL

1.01 This section provides a general description of KS-16320 passive reflectors. Figs. 1 and 2 of this section illustrate a typical passive reflector assembly.

1.02 The KS-16320, List 1 passive reflector has a 6- by 8-foot reflecting surface, whereas the list 2 passive reflector has an 8- by 12-foot reflecting surface and is correspondingly larger in other over-all dimensions.

1.03 Parts as received are packed in two wooden boxes, the 4-inch O.D. by 14-feet long support pipe is shipped as a separate piece.

1.04 These reflectors are essentially flat reflecting surfaces with supporting structures of suitable strength for mounting on a tower or other structure. The list 1 reflector has a flat reflecting surface 6 feet wide and 8 feet high; the list 2 reflector has a surface 8 feet wide and 12 feet high. These reflectors have been designed to reflect 11 KMC radio frequency waves, polarized simultaneously both vertically and horizontally, without distortion under an operating wind load of 20 pounds per square foot (70 mph) and will withstand without damage wind loads of 40 pounds per square foot (100 mph). The reflecting surface of the 8- by 12-foot list 2 reflector has also been designed so it can be curved in the vertical plane to approximate a paraboloid, thus obtaining a small amount of gain. These units are designed primarily for use at either terminals or repeaters as part of the periscope TJ radio relay system but may be used with other radio relay systems.

2. ARRANGEMENT AND OPERATION

2.01 As illustrated in Figs. 1 and 2, each reflector consists of a metal sheet attached to a ribbed frame of tubular members and supported by a tubular structure; the foregoing parts are entirely of aluminum.

2.02 The reflector is mounted on galvanized steel parts comprising an upper mount arranged to pivot vertically and horizontally, a lower mount which pivots horizontally and permits the base of the reflector to be moved toward or away from the supporting structure, and a pipe with attached mounting angles to which the upper and lower mounts are connected. Connection is made from the pipe mount to the supporting structure.

2.03 Elevation adjustment is effected in two steps. Attachment of the reflector at one of two positions in the top mount makes it adjustable either from 29 to 41 degrees or from 39 to 51 degrees with respect to the vertical. Final adjustment is accomplished by sliding the base of the reflector along the lower mount to the desired elevation setting within the predetermined range. The reflector is clamped to the lower mount at the desired elevation setting.

2.04 Rotation about the three pivot bolts in the mounting angles permits adjustment to the desired azimuth setting within 30 degrees to either side of the central position.

2.05 After elevation and azimuth settings have been made, the telescoping tube (which connects the reflector frame to the supporting structure) is clamped, and pivot bolts at the three angles on the pipe mount and at both ends of the top mount are tightened to hold the reflector rigidly in position.

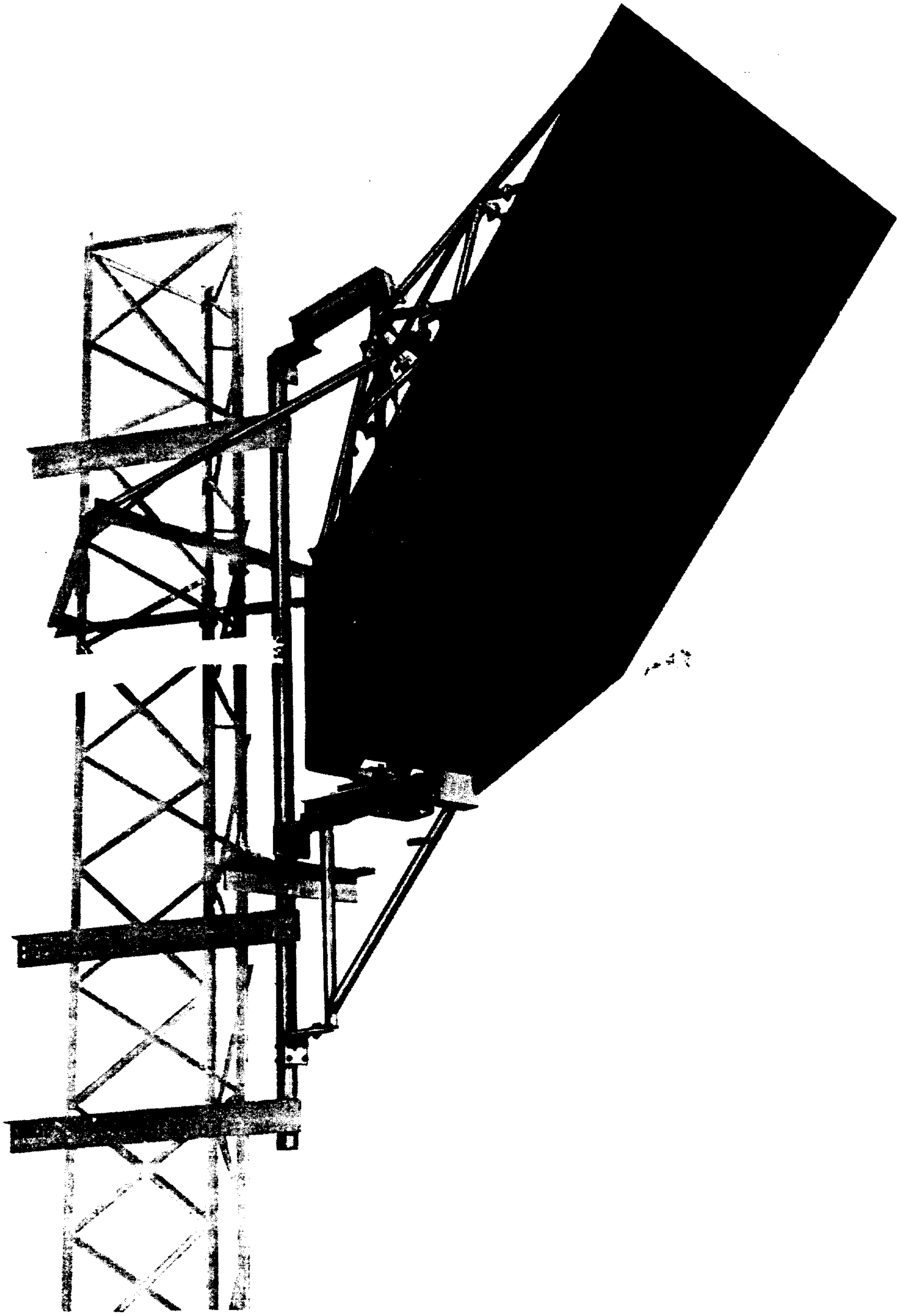

Fig. 1 — Typical Passive Reflector — Front View

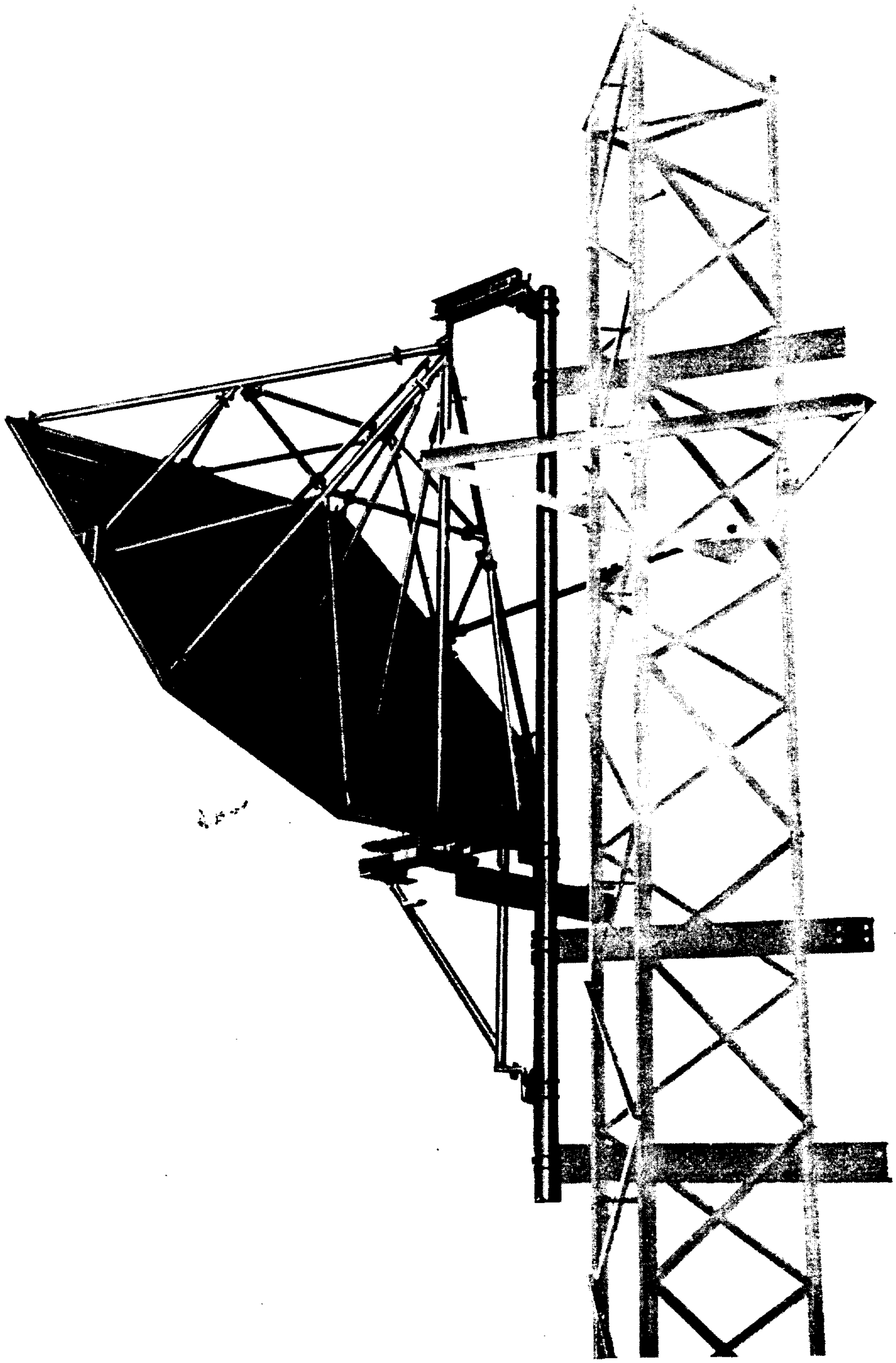

Fig. 2 — Typical Passive Reflector — Back View