

MICROWAVE ANTENNAS
KS-16320 PASSIVE REFLECTORS
INSTALLATION
AZIMUTH ADJUSTMENT FOR LISTS 1 AND 2

1. GENERAL

- 1.01 This section presents the azimuth adjustment procedure for KS-16320 passive reflectors.
- 1.02 This section is reissued to agree with changes made in the passive reflectors and the azimuth adjusting screw assemblies.
- 1.03 Azimuth adjustment will be performed at the direction of local supervision after the reflector assembly has been installed on the supporting structure.
- 1.04 The KS-16320, List 8 azimuth adjustment screw assembly is required to perform the work described in this section. *The tools are not furnished with reflector assemblies; they must be ordered separately.* For typical line-up operations, which involve alignment of two reflectors with respect to each other, at least two tools are needed to permit adjustment simultaneously at both ends of the link. A torque wrench is also required at each reflector being adjusted. The wrench should have 50 pound-feet torque capacity and be fitted with a 5/8-inch wrench opening (for 3/8-inch bolts).
- 1.05 Materials used in the azimuth adjusting tool are suitable for limited outdoor exposure. The tool may be left in place on a reflector for short periods while system alignment is in progress. *However, when the work has been completed, or if a delay in excess of three days is anticipated, the tool should be removed and stored for future use.* Dry the assembly thoroughly after use, wipe a light petroleum oil sparingly onto the screw, and work the screw back and forth in the nut several times to establish an oil film over the inside threads. Store the tool in a manner to provide protection from weather, from mechanical damage, and from dirt or grit contamination.

2. DESCRIPTION

- 2.01 Fig. 6, Section 402-423-400, shows the list 8 azimuth adjustment screw assembly. The tool consists of a threaded rod, Item 5, with drive blocks, Items 2 and 3. The rod rotates within drive block 3, and thrust is transmitted to the support either through washer 1 or the rod shoulder, depending on the direction of rotation. Threaded drive block 2 moves laterally as the rod is turned. The drive blocks are to transmit motion from the adjusting tool to the reflector assembly; the term does not imply the use of force when installing the tool.
- 2.02 Fig. 1 of this section shows the tool in an operating position. Connections for the drive blocks are provided on the diagonal member of the lower mount assembly and at the ends of the extended angle on the pipe mount, angle assembly 4B, Fig. 1 and 2, in Section 402-423-400.

3. OPERATION

- 3.01 Azimuth adjustment should be done during weather conditions which will permit a man to work in reasonable comfort at the reflector location for periods in excess of one hour. Keep in mind that it is not always possible or desirable to consider an azimuth adjustment as being complete after a single operation, that there is considerable work involved to prepare and secure the reflector assembly, that frequently azimuth adjustment will be performed in conjunction with other adjustments, that the work is of a kind which requires patience and attention to detail, and that the success of the operation rests largely with the man at the reflector.
- 3.02 Since wind velocity in an exposed location 300 feet above ground may be approximately 180 per cent of the velocity near the

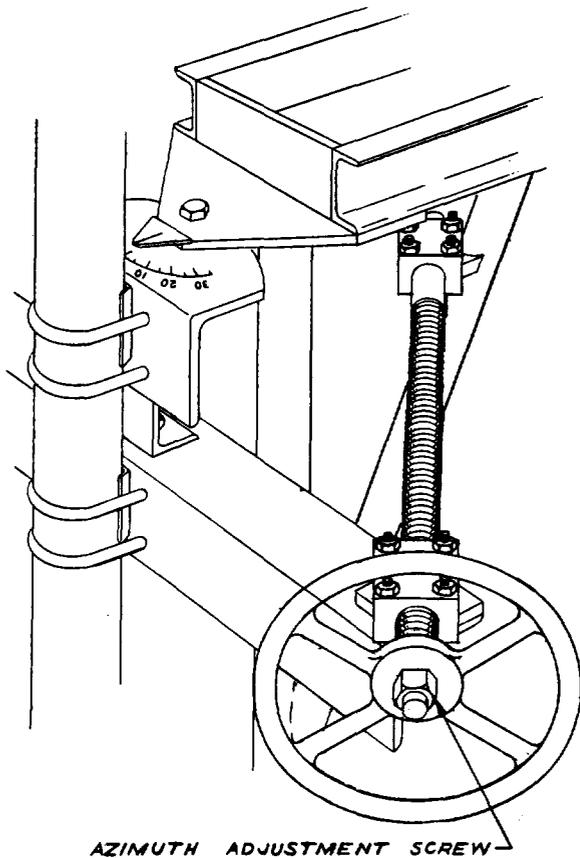


Fig. 1 - KS-16320, List 8 Azimuth Adjustment Screw Assembly in Operating Position

ground, azimuth adjustment should not be attempted when more than moderate winds are being experienced in adjacent, exposed ground locations. Gusts are particularly troublesome. In general, the lower the wind velocity the less difficulty is to be expected in making adjustments. When wind conditions are doubtful, a weight of approximately 4 ounces, such as a 5/8 by 2-1/2 inch bolt, should be suspended freely from 3 feet of light, flexible cord, and exposed broadside to maximum ground wind. If deflection of the weight from the vertical position exceeds approximately 1-1/2 inches, wind conditions are unsatisfactory for reflector adjustment.

3.03 Part names used in the following discussion are identified in the assembly drawings contained in Section 402-423-400. Fig. 1 of that section refers to the list 1 reflector and Fig. 2 refers to the list 2 reflector.

3.04 Install the azimuth adjusting tool as shown in Fig. 1 of this section. On the extended angle, use whichever of the two positions provides the shorter span.

↳ **Note:** The drive blocks must be securely bolted to the bracket of the lower mount and the extended angle on the pipe mount to prevent any backlash in azimuth adjustment. Tighten the bolts of the drive blocks to approximately 30 pound-feet torque.

↳ **3.05** Loosen the pivot bolts which connect the reflector to the mounting angles 3B and 5B on pipe 26; there are two bolts connecting the top and bottom of the lower mount and a bolt at the upper connection holding the top swivel assembly. *Loosen the nuts only enough to permit rotation of the reflector about the three bolts; do not unscrew them to the extent that they are likely to become disengaged from the bolts.* Note that the bolts which connect the top mount assembly to the top swivel and to the reflector, respectively, are not disturbed.

3.06 Loosen the clamps which hold strut assembly 32B, being careful not to remove the nuts completely from the bolts.

↳ **3.07** Adjust the reflector in azimuth by turning the adjustment screw. The handwheel may be removed and a wrench used in place of the handwheel if a greater turning torque is required or if there is interference with the handwheel. An azimuth scale is provided on mounting angle 5B for reference in making adjustments. When the reflector has been brought to the approximate desired position, use a torque wrench to tighten the clamps on strut assembly 32B to 20 pound-feet.

Caution: *Whenever a reflector is to be left unattended at an intermediate stage in the adjustment, such as overnight, etc, be certain that it is restrained sufficiently to prevent wind damage. Do not rely on adjustment tools exclusively for this purpose. Either the bracing means provided in the assembly or suitable auxiliary restraining gear should be employed.*

↳ **3.08** The strut assembly 32B is provided with right- and left-hand threads on the ends. ↳ The strut assembly may be used as a turnbuckle

for final azimuth adjustment. A jam nut is provided to prevent rotation of the strut after adjustment.

Note: The strut assembly is used for final azimuth adjustment after the elevation adjustment is completed. Azimuth adjustment, utilizing the strut assembly, does not change elevation orientation, but elevation adjustment after the strut assembly is clamped does change azimuth orientation.

Caution: *There is 6 inches of thread on the 3/4-inch pipe of the ball joint assembly. Extreme care should be taken to avoid exposure of more than 4-1/2 inches of thread.*

3.09 When the reflector has been brought to the desired azimuth setting, and further elevation adjustment is not anticipated, tighten the three pivot points at angles 3B and 5B and the jam nut on the strut assembly 32B.

Caution: *Do not disengage the azimuth adjusting tool until the strut assembly clamps have been completely tightened.*

4. PRECAUTION

4.01 When all adjustments have been completed, the installation should be examined carefully for immobilization in accordance with Section 402-423-212.