

MICROWAVE ANTENNAS
GENERAL
MAINTENANCE



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1. GENERAL

1.01 This section contains safety precautions to be observed by telephone company maintenance personnel when climbing and working on or near antenna towers. Also included in this section is a chart describing the use of a temporary plastic membrane to prevent debris from falling into the waveguide run and adversely affecting service.

1.02 Whenever this section is reissued, the reason for reissue will be stated in this paragraph.

1.03 The safety precautions in this section were formerly contained in Section 402-421-500, Issue 1.

2. SAFETY PRECAUTIONS

2.01 Although antenna tower work is usually handled by firms specializing in tower maintenance, it is suggested that a telephone company representative be present to ensure satisfactory performance. The following precautions are intended for the protection of telephone company personnel.

Danger 1: Whenever work is being performed aloft, protective hats should be worn by all ground personnel who are within a radius equal to 1/3 the tower height (Fig. 1). Maintenance personnel working aloft should take every precau-

tion to avoid dropping tools or materials, since these items could inflict serious injury on ground personnel. When work is being conducted aloft, anyone not involved in work operations should remain a safe distance away from the tower (at least 1/3 the height of the highest operation). Motor vehicles should also be kept a safe distance from the tower to avoid possible damage from falling objects.

Danger 2: When climbing and working aloft on towers, telephone company personnel should wear protective equipment such as a tower body belt and safety strap. Remember that tower climbing is strenuous activity; personnel should not climb more than about 25 feet without stopping and resting to prevent overexertion. If towers are ice-coated, postpone maintenance work because of the increased hazard of slipping and the danger of being struck by falling ice.

Danger 3: Do not touch air obstruction lighting fixtures when the lamps are on since these fixtures will be very hot.

Danger 4: When inspecting the antenna, do not stand in front of the aperture (weather cover) if the system is operating because of the danger of hazardous radiation.

3. SERVICE PROTECTION DURING ANTENNA REPAIRS

3.01 Chart 1 describes the use of a temporary plastic membrane to prevent debris from falling into the waveguide run and degrading or interrupting service.

NOTICE

Not for use or disclosure outside the Bell System except under written agreement

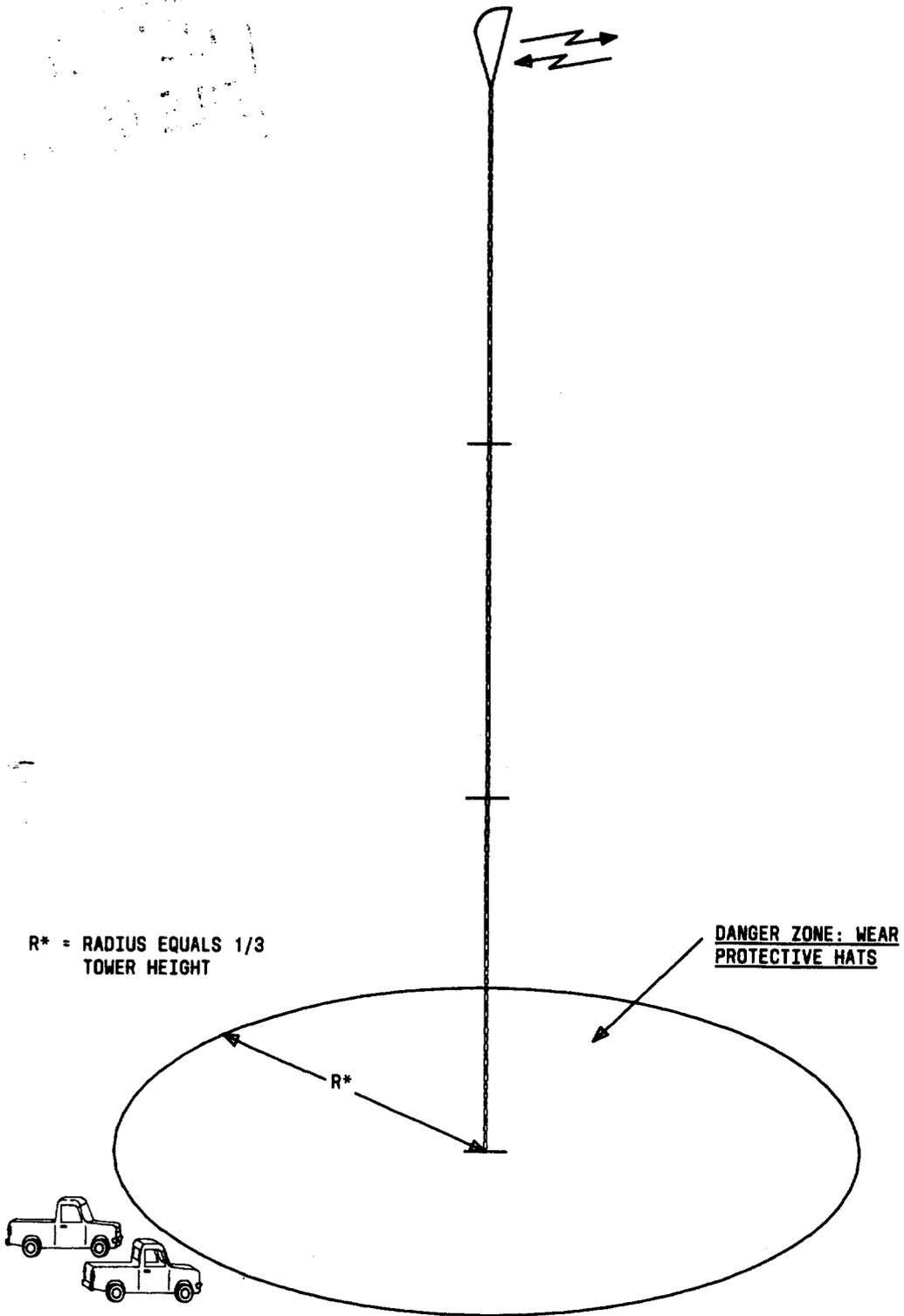


Fig. 1—Antenna Tower Safety Considerations

CHART 1

USE OF PROTECTIVE MEMBRANE DURING ANTENNA REPAIRS

STEP	PROCEDURE
1	Before performing antenna repairs, construct a protective plastic membrane according to the specifications in Fig. 2.
2	On the bottom (square) flange of the 29B transducer, remove the two waveguide bolts from one side and loosen the remaining six bolts (Fig. 3). Insert the temporary plastic membrane so that the membrane covers the waveguide opening. Caution: <i>Do not insert the membrane in a circular waveguide joint, since doing so can adversely affect cross-polarization discrimination.</i>
3	After completing the antenna repair work, lower the bottom flange of the 29B transducer enough to see whether there is any foreign material on the plastic membrane. Caution: <i>Do not allow any foreign material to fall from the membrane into the waveguide run.</i>
4	If debris has accumulated on the plastic membrane, lower the waveguide section beneath the 29B transducer and carefully sweep the foreign material from the membrane.
5	Remove the plastic membrane, reposition any waveguide sections that were moved, and tighten the bolts on the bottom flange of the 29B transducer. Note: Opening waveguide flanges could cause a reduction in cross-polarization discrimination. If a reduction occurs, slight rotation of the bottom flange of the 29B transducer may restore the proper cross-polarization level. If further cross-polarization adjustments are necessary, refer to Section 402-421-210.

CHART 1 (Contd)

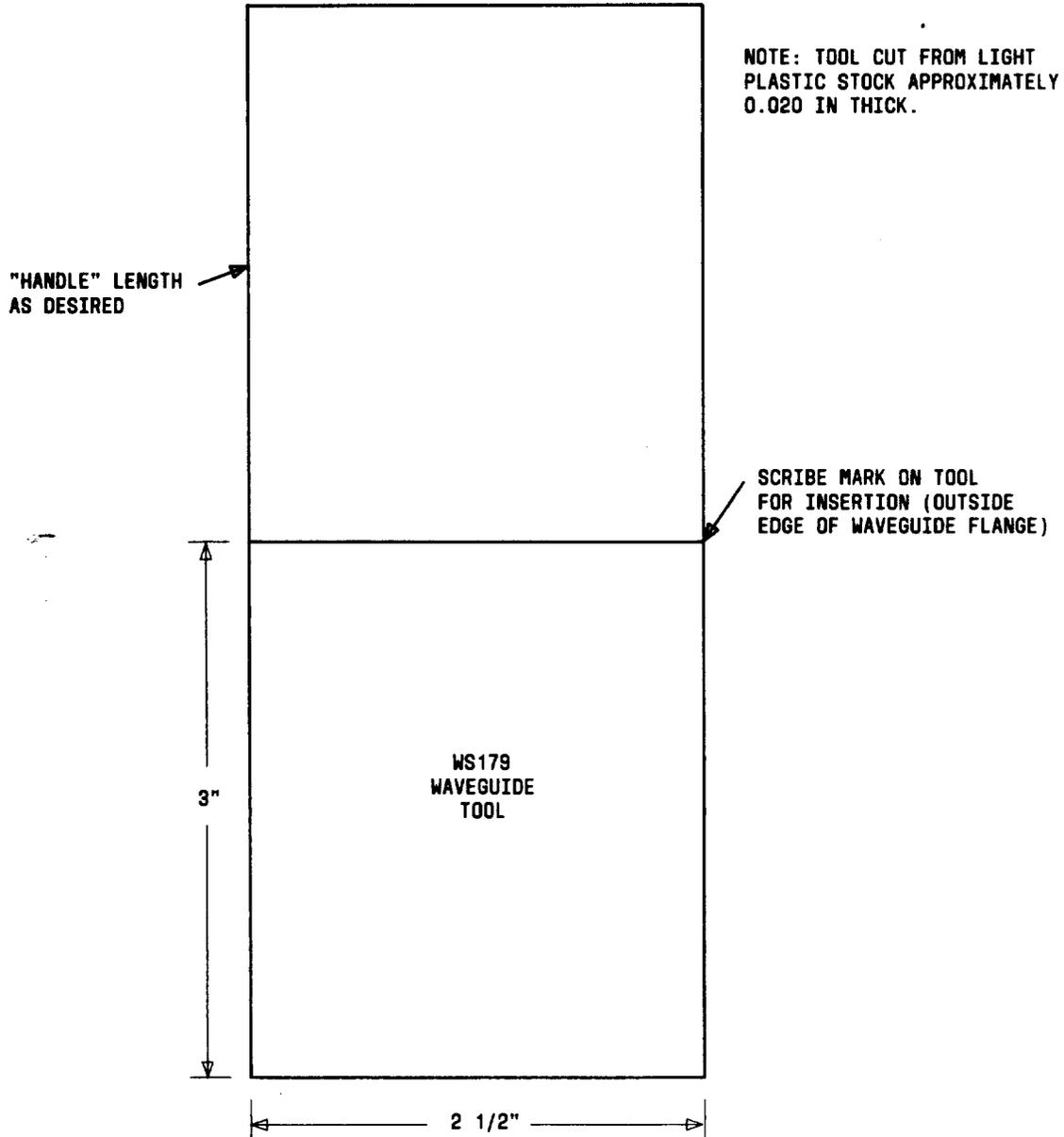


Fig. 2—Template for WS179 Waveguide Tool (Plastic Membrane)

CHART 1 (Contd)

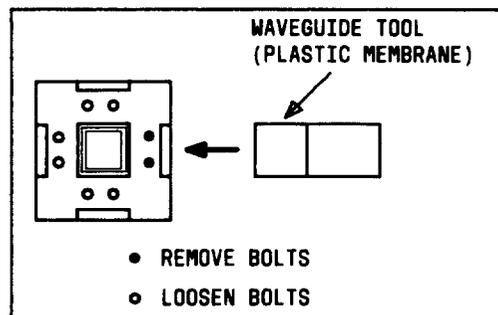
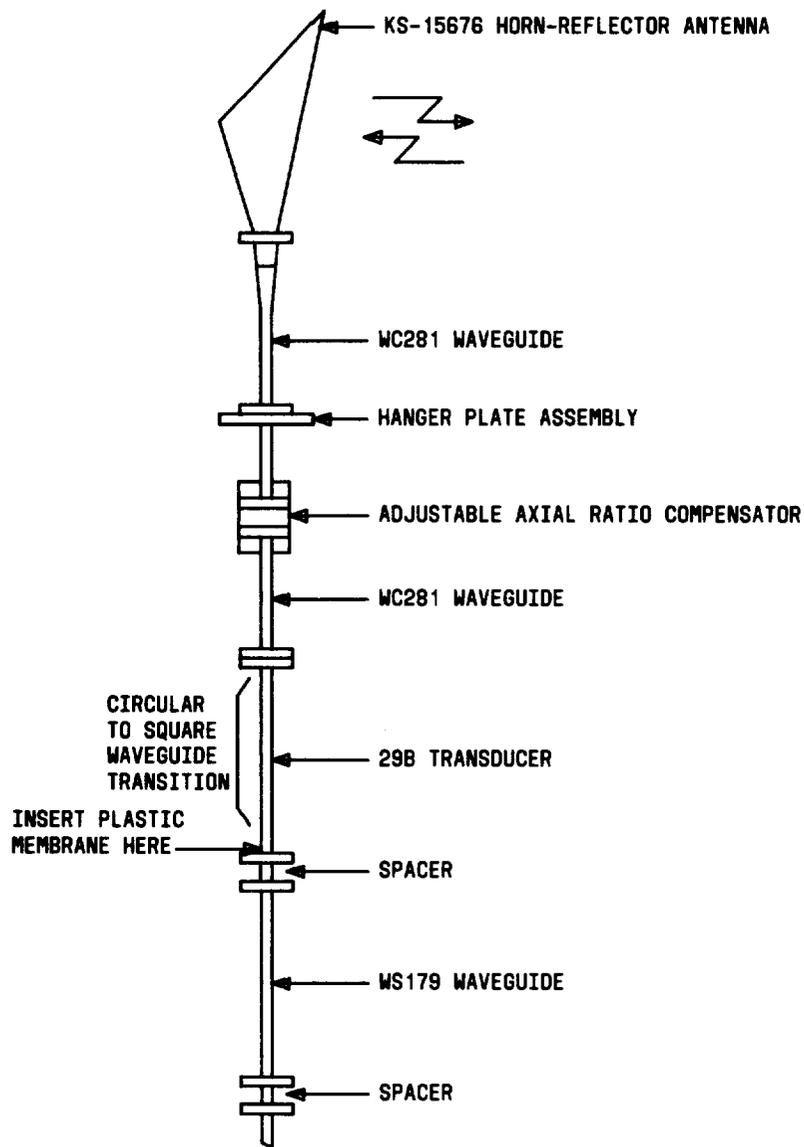


Fig. 3—Use of Temporary Plastic Membrane (4-, 6-, and 11-GHz Systems)