

## MICROWAVE ANTENNAS

### KS-5759 DELAY LENS ANTENNA

### REPLACING WEATHER COVER AND LENS

#### 1. GENERAL

**1.01** This section pertains to the method of removing and replacing the weather cover and lens elements of the KS-5759 delay lens antenna.

**1.02** It is recommended that either the antenna be rotated on its mount to a convenient position or that a platform with sufficient working area be constructed to extend past the antenna front to facilitate performing the operations listed herein.

**1.03** It is strongly recommended that the removal of the weather cover and lens elements be started only when the entire operation, including the replacement of lens elements and reinstallation of the weather cover, can be completed without interruption. Since dryness of the lens is important, the lens element assemblies should be well protected from rain or snow at all times.

**1.04** The expressions "top," "bottom," "front," "back," "left," and "right" are used herein with reference to the surfaces of an element. The front of the element bears the element number, eg A1-A24, thus distinguishing this surface from the others; right and left refer to the ends and imply facing the front of the element with respect to its orientation within the antenna lens housing.

#### 2. REMOVING WEATHER COVER

**2.01** When removing the weather cover, care should be exercised at all times to prevent any damage to the weather cover.

**2.02** Remove, progressively, the 1/4 -20 by 3/4-inch HH self-tapping screws (type F Parker-Kalon or equivalent), which are equipped with lock washers, from the clamping strip over the center of the top cover; then remove the clamping strip (see Fig. 1).

**2.03** Remove the clamping strip over the center of the bottom cover, proceeding as in 2.02.

**2.04** Remove the clamping strip across the center of the cover (junction of top and bottom cover assemblies) by removing the 5/16 -18 by 1-1/2 inch stainless steel HH cap screws, which are equipped with two plain washers and self-locking hex nut, from each end of the clamping strip; then proceed as in 2.02.

**2.05** Remove the top half of the weather cover by removing the stainless steel HH cap screws, which are equipped with plain washers and self-locking nuts, from along the top and two sides of this section of the cover (see Fig. 1).

**2.06** Remove the bottom half of the weather cover following the procedure in 2.05 by removing the cap screws, etc, from along the two sides and bottom of this section of the cover.

**2.07** After removing the weather cover, store the two halves of the cover in a place where they will be safe from damage until such time as they will be reinstalled.

#### 3. REMOVAL OF LENS ELEMENTS

**3.01** Remove the three 1- by 3-inch stretcher bars from the mouth of the antenna by removing the 5/16 -18 by 1-inch stainless steel HH cap screws which are equipped with plain washers and lock washers (see Fig. 2).

**3.02** Remove the stainless steel HH cap screws, which are equipped with plain washers and lock washers (or self-locking nuts), that secure the lens retainer assemblies to the sides of the antenna mouth (see Fig. 2).

**3.03** Unset the lock nuts on all clamp screws (see Fig. 3).

**3.04** Retract the eight clamp plate assemblies, located on the inside walls of the lens housing, by means of the clamp screws to pro-

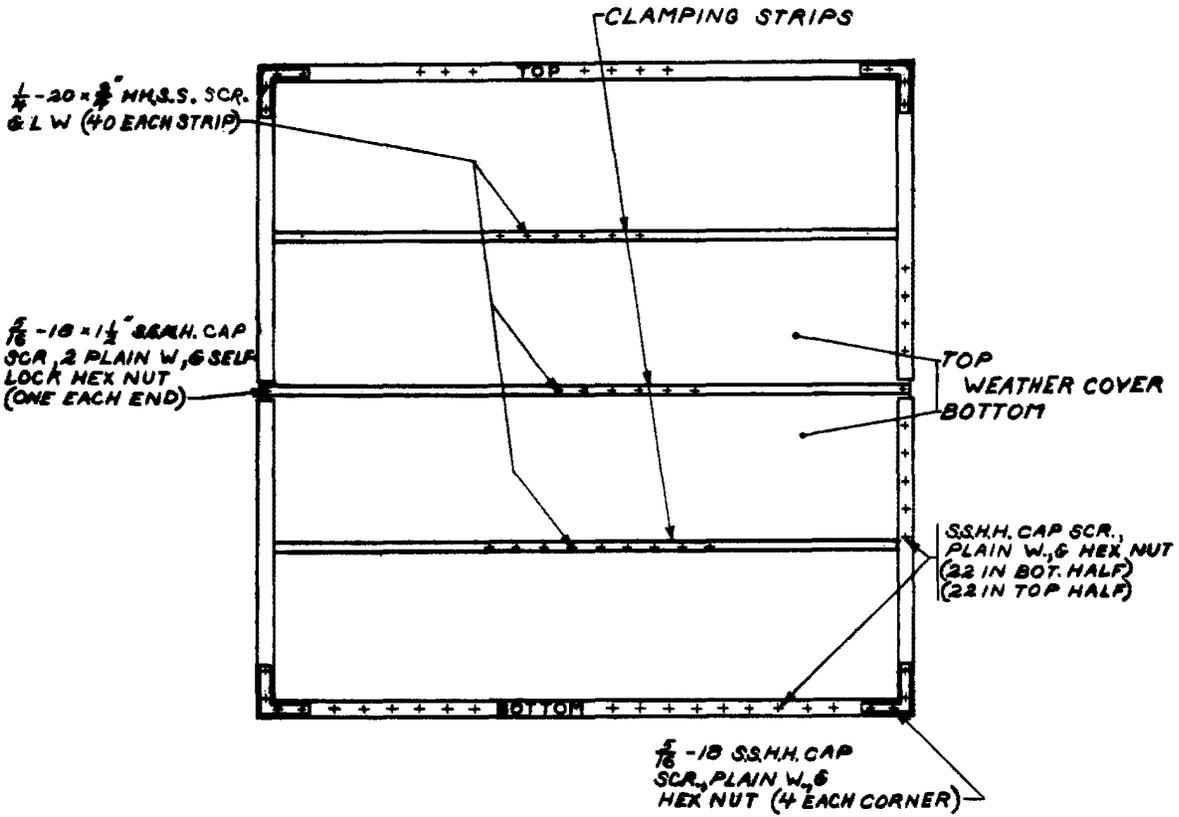


Fig. 1 - Weather Cover Assembly

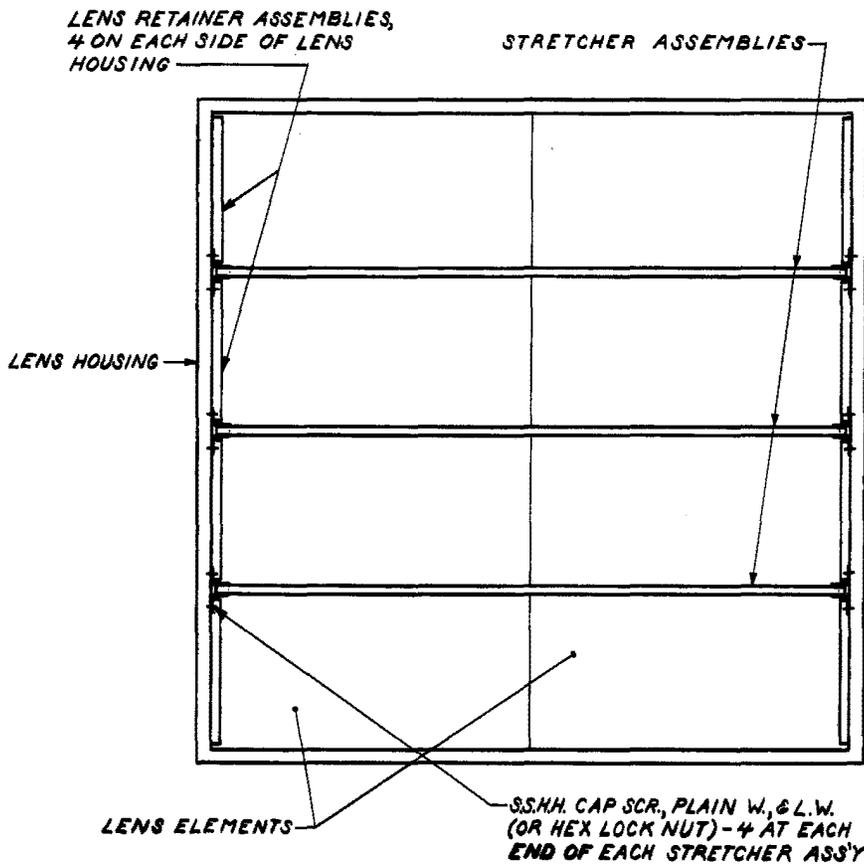


Fig. 2 - Weather Cover Supports

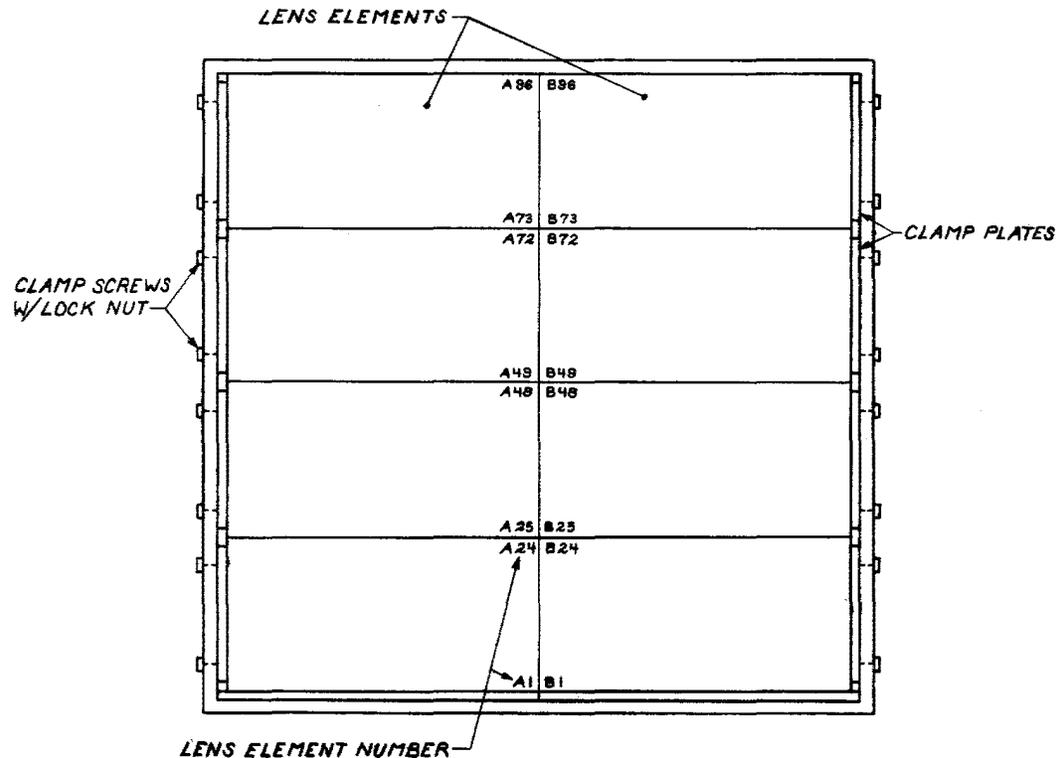


Fig. 3 - Element Retainers

vide maximum space for removal of the lens elements.

**3.05** Remove the lens element assemblies from the antenna lens housing by entering the access door in the horn bottom and pushing against either of the two uppermost elements (A73-A96 or B73-B96) with two clean boards (2 by 4 by 28 inches).

*Note:* Should the elements offer resistance, it will be necessary to remove the top cover of the antenna (see Fig. 4) and then loosen the cap screws securing the lens housing structure assembly to provide sufficient clearance for the removal of the elements (see view A-A of Fig. 4).

**3.06** Each lens element assembly shall be marked as it is removed from the antenna lens housing. This mark shall be on masking tape and shall bear the element number, eg A1-A24. For A elements, the tape shall be placed in the upper-right front corner; for B elements, it shall be placed in the upper-left front corner.

#### 4. REPLACING LENS ELEMENTS

**4.01** All lens element assemblies that are to be replaced in the antenna lens housing shall be enclosed in black polyethylene bags.

**4.02** Prior to replacing the lens elements, check to see that the clamp plates are completely retracted to provide maximum space for installation of the lens elements.

**4.03** Special care shall be taken to avoid piercing or tearing the black polyethylene bag enclosing each lens element. Care shall also be taken to prevent denting or crushing the fragile foamed-polystyrene lens elements and to prevent separating the layers which make up each element.

**4.04** The lens elements are to be installed in the antenna housing in the arrangement shown in Fig. 3, starting with elements A1-A24 and B1-B24.

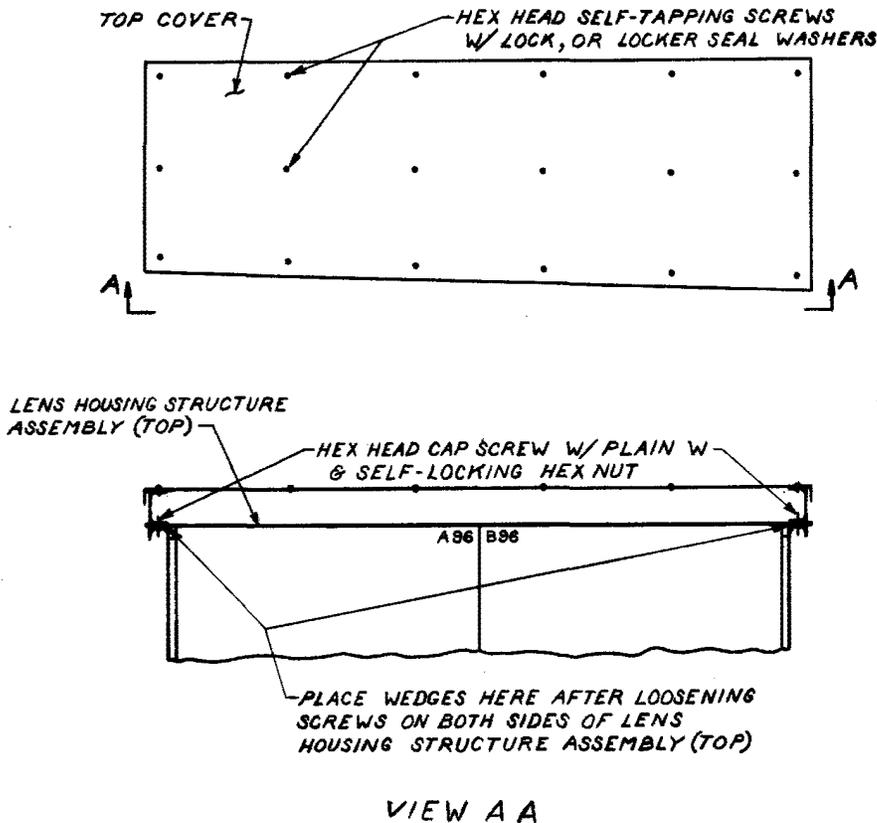


Fig. 4 - Top Cover

**4.05** After installing element A1-A24, push against the front surface with two clean boards (2 by 4 by 28 inches long) held flat against the assembly to ensure positioning the element firmly against the vertical cleats on the back wall of the lens housing and with the left end against the A-side wall clamp plate.

**4.06** Repeat as above with lens element B1-B24, locating its right end against the B-side wall clamp plate.

**4.07** Finger tighten the clamp screws to bring the clamp plates firmly against the right and left ends of the above two elements, pushing them together and centering them.

**4.08** Install the remaining six elements following the procedure outlined above. These remaining six elements bear directly against the rear wall rather than against cleats as do the bottom two elements. Align the center of these six elements by entering the access door in the

horn bottom and inspecting the rear surfaces of these six elements for flushness.

**4.09** Install the lens retainers removed under 3.02.

**4.10** Tighten all clamp screws hand tight; continue two more turns with a wrench; then set all lock nuts.

**4.11** Replace the three stretcher assemblies removed under 3.01.

## 5. WEATHER COVER INSTALLATIONS

**5.01** To replace the weather cover, reverse the procedure outlined under Part 2.

## 6. INSPECTION

**6.01** Upon completing the installation of the weather cover, refer to Section 402-420-330

and carry out the maintenance routines outlined therein.

**6.02** Should the supply of caulking compound (KS-14424 polysulfide putty) as called for in Section 402-420-330 be exhausted, the following shall be used for recaulking an antenna:

QUANTITY	ITEM
—	Caulking Compound, type JS-718, in a metal cartridge
1	Gun, spouted, one-half barrel type, for use with caulking compound

These items may be obtained from the Tremco Manufacturing Co, Cleveland, Ohio.