MICROWAVE ANTENNAS
KS-5759 DELAY LENS ANTENNA
REPAIR PROCEDURES

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1. GENERAL

1.01 This section presents the methods to be used when repairing the KS-5759 Delay Lens Antenna assembly and the KS-16784 Heater-Blower assembly.

2. REPAIRS DUE TO CORROSION

2.01 The KS-5759 List 1, 2, or 5 Delay Lens Antenna is not sufficiently corrosion resistant to be entirely satisfactory in certain locations such as exposure to smoke from railroad terminals, railroad switch yards, public buildings, manufacturing plants, etc.

2.02 Where existing antennas are found corroded, antennas added at that location should be treated at the point of assembly before being hoisted to the installed position.

2.03 The KS-5759, List 4, Delay Lens Antenna is manufactured of zinc clad sheet steel and is painted for protection. If it becomes necessary to touch up the antenna, the air drying, acid-resistant enamel per paragraph 2.06 should be used.

2.04 Before painting a KS-5759 List 1, 2, or 5 antenna, the surface should be thoroughly cleaned with water, wiped off with a cloth moistened with petroleum spirits, and scratch brushed with a wire brush or mild sand blasting to remove corrosion products. Wipe small areas immediately before applying the primer coat.

2.05 Apply one coat of air drying primer such as the No. 1178 yellow chromate primer made by the Newark Varnish Works, Newark, N. J.

2.06 Apply two coats of air drying gray acid — resistant enamel.

Preferred: No. 488 James S. Sipe & Co., Pittsburgh, Pa.

Alternates: (a) No. P7592 Watson Standard Co., 15 Park Row, New York 1, N. Y.

(b) No. 513 Interchemical Corporation of Elizabeth, N. J., Newark, N. J., Chicago, Ill., and Los Angeles, Cal.

Note: Solvent naphtha or its equivalent may be used to thin primer or acid resistant enamels. The primer and enamels preferably are applied by atomized spray, but may be applied with a brush.

Caution: The inside surfaces of the antennas should not be painted, except for small areas where corrosion may have resulted from trapped water which does not drain out properly. In applying paint to any part of the antenna, care must be taken not to impair electrically connecting surfaces such as the corner joints and the inspection cover on the access opening in the bottom of each antenna.

2.07 Painted surfaces of antennas should be good for three to five years, except where severely corrosive atmospheric conditions prevail.

3. REPAIRS TO WEATHER COVER

3.01 Small holes in the weather cover can be repaired by patching the break with a piece of glass cloth. In general, the largest size

hole that should be patched should not exceed an area that can be covered by a piece of 3" x 7" material.

3.02 Breaks of a larger area may be covered, but it may be advisable to replace the weather cover.

3.03 ***Material Required:***

(1) Bakelite C-8 Repair Kit

Contents

4 pcs of Glass Cloth (O-C #162-144) 3" x 7"
1 Jar of Bakelite C-8 (RD49-120)
1 Vial of Bakelite C-8 (RD49-73)
1 Stirring Stick
4 pcs of Polyvinyl Alcohol
1 pc Sandpaper

Order from Winner Mfg. Co., West Trenton, New Jersey.

Note 1: The resin supplied in this kit is a two part material. The RD49-120 has an indefinite shelf life, whereas RD49-73 is quite critical with regard to shelf life. This period may be no longer than six months at room temperature.

Note 2: Because of short shelf life of RD49-73, repair kits should be ordered only as needed.

3.04 ***Procedure***

(1) Lightly sand the area to be repaired.

(2) Prepare the resin by mixing, as required, the RD49-73 and RD49-120 compounds.

Note: Reaction of the mixed components should start at 70° F and will commence ***immediately*** after mixing. If possible, gradually raise the curing temperature from 70° F to 150° F after reaction has started.

(3) Apply the resin mixed in Step (2) to both sides of a glass cloth patch and apply the patch to the damaged area.

(4) Cover the patch with polyvinyl alcohol film, tape in place, and rub gently to expel trapped air.

Caution: Entire amount of resin must be utilized within 15 minutes after mixing, or the unused portion discarded.

4. CAULKING COMPOUNDS

4.01 Drawing ES-877600 specifies the use of KS-14424 Polysulfida Putty. There are, however, some locations where birds or insects are removing the KS-14424 putty from the outside of the antenna housing. Where this difficulty is experienced, it is recommended that the following compound be used. The ordering information is:

(quantity) Compound, Caulking, JS-720, metal cartridge.

Order from Tremco Manufacturing Company, Cleveland, Ohio.

Note: The cartridges are packed 10 to a case and the total compound in a case is one gallon.

4.02 To apply this compound, a caulking gun is required and may be ordered from the same manufacturer as follows:

(quantity) Gun, Spouted, 1/2 barrel type, for use with JS-720 caulking metal cartridge.

4.03 The caulking compound shall be applied, as required, to sections B-B, C-C, D-D, E-E, F-F, J-J, O-O, P-P, and S-S as indicated on drawing ES-877600.

5. HEATER-BLOWER

5.01 The blower-motor assembly requires no maintenance. It is lubricated for the life of the unit. A complete replacement will be required should there be any failure of the blower or the motor. Drawing B-190072 provides the ordering information for this assembly.

5.02 The filter should be examined periodically, as determined by the location, and cleaned or replaced if necessary. The location and the height of the antenna will determine whether this inspection can be made by local forces or whether persons qualified to ascend the antenna supporting structure are required. When the structure is equipped with air navigation lighting, the person doing the lamp maintenance could replace the filter.

5.03 The filters are reusable after cleaning. They can be cleaned with a solution of warm water and mild detergent. Rinse and dry.

5.04 To ensure proper continuity of the motor and heater windings, periodically measure the loop resistance of the power leads terminated in the parallel combination of motor and heater. Any reasonable increase in resistance indicates an open in either the motor or heater element.

Caution: Make sure the fuse or fuses are removed and there are no voltages existing on the conductors before making these resistance meansurements.

5.05 Some typical resistance readings are listed below. They may vary dependent upon the lead lengths.

(1) Loop resistance terminated with parallel combination of motor and heater windings — 8.0 ohms.

(2) Loop resistance terminated with motor alone — 12.5 ohms.

(3) Loop resistance terminated with heater alone — 18.75 ohms.

(4) Loop resistance of 100 feet of #14 gauge wire — 0.6 ohms.

(5) Loop resistance of 100 feet of #12 gauge wire —0.18 ohms.