

MICROWAVE ANTENNAS
KS-15676 HORN-REFLECTOR AND WAVEGUIDE SYSTEMS
INSTALLATION
KS-15676, L19, L20, L21, AND L22 MODIFICATION KITS

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1. GENERAL

1.01 This section is issued to provide procedures for installing the KS-15676, List 19, 20, 21, or 22 modification kits on a standard KS-15676, L8, L9, or L14 horn-reflector antenna. Installation of the List 18 modification kit is not covered herein, because the List 20 includes this change. Therefore, the List 18 has been rated MD. These modifications will improve the transmission characteristics of

the antenna by reducing the level of various sidelobes in the antenna's radiation pattern.

1.02 The List 19 modification consists of adding a weather cover edge seal to each side of the antenna. This seal minimizes RF energy that escapes through the edge of the weather cover. Antennas so modified are redesignated "C" as in List 9C.

1.03 The List 20 modification consists of the List 19 weather cover edge seal and the replacement of the captive nuts and bolts used to fasten the bottom edge of the antenna weather cover with a stud bar. This modification reduces the level of some sidelobes in the radiation pattern of the antenna. Antennas so modified are designated "BC" as in List 9BC.

1.04 The List 21 modification consists of the addition of 14-edge blinders to each side of the antenna along the window edge. It also includes the replacement of the captive nuts and bolts at the inside bottom edge of the weather cover with a stud bar. This modification further reduces the level of some sidelobes in the radiation pattern. Antennas so modified are designated "BD" as in List 9BD.

1.05 The List 22 modification consists of the addition of 14-edge blinders to each side of the antenna along the window edge. These blinders also serve as a weather cover edge seal. This modification kit is used when List 18 and 19 or List 20 have been previously applied.

1.06 These modification kits cannot be applied to an L8 or L9 antenna that has been field-modified with the List 15 hardening kit.

2. MATERIALS AND TOOLS

A. KS-15676, List 19 Modification Kit

2.01 The KS-15676, L19 modification kit consists of the following material:

QUANTITY	ITEM
2	Angle, Weather Cover Edge Seal (Fig. 1)
40	Washer, Flat, Type 18-8, 300 Series, CRES, 9/16 by 1-3/8 by 3/32 inch
36	Bolt, Type 18-8, 300 Series, CRES, 1/2-20 UNF-2A by 2 inch

2.02 The following tools and equipment are required for the proper installation of the L19 kit:

QUANTITY	ITEM
1	Wrench, Torque, 1/2-inch drive, 60 foot-pound capacity
1	Maintenance Platform, Up-Right Scaffolds Part No. L-1586 (upper platform only)
1	Wrench, Ratchet, 1/2-inch drive
1	Socket, 7/8-inch, 1/2-inch drive
6	"C" Clamp, Deep Throat (4-inch minimum throat)
1	Stamp, Letter C (for marking aluminum nameplate)

B. KS-15676, List 20 Modification Kit

2.03 The KS-15676, L20 modification kit consists of the following material:

QUANTITY	ITEM
1	Stud Bar (Fig. 2)
2	Angle, Weather Cover Edge Seal (Fig. 3)
36	Bolt, Type 18-8, 300 Series, CRES, 1/2-20 UNF-2A by 2 inches
40	Washer, Flat, Type 18-8, 300 Series, CRES, 9/16 by 1-3/8 by 3/32 inch
18	Washer, Stat-O-Seal, 600-3030-1/2
18	Nut, Elastic Stop, 79 NE-080
1	Assemble, Sealer Strip, ES-8943141, 7 rolls: one 11 feet, two 9 feet, four 7 feet long
1	Tool, Aligning (Fig. 4)
4 oz	Compound, Antiseize, KS-19094, List 1

2.04 The following tools and equipment are required for the proper installation of the L20 kit:

QUANTITY	ITEM
1	Maintenance Platform, Up-Right Scaffolds Part No. L-1586 (upper platform only)
1	Tray, Plywood (Fig. 5)
1	Wrench, Pipe

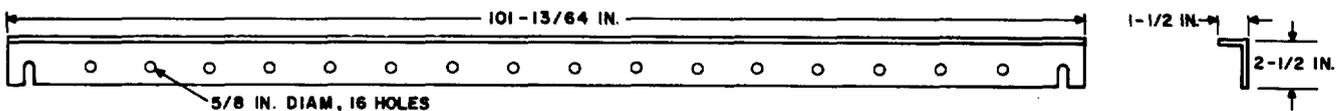


Fig. 1—Weather Cover Edge Seal for List 19

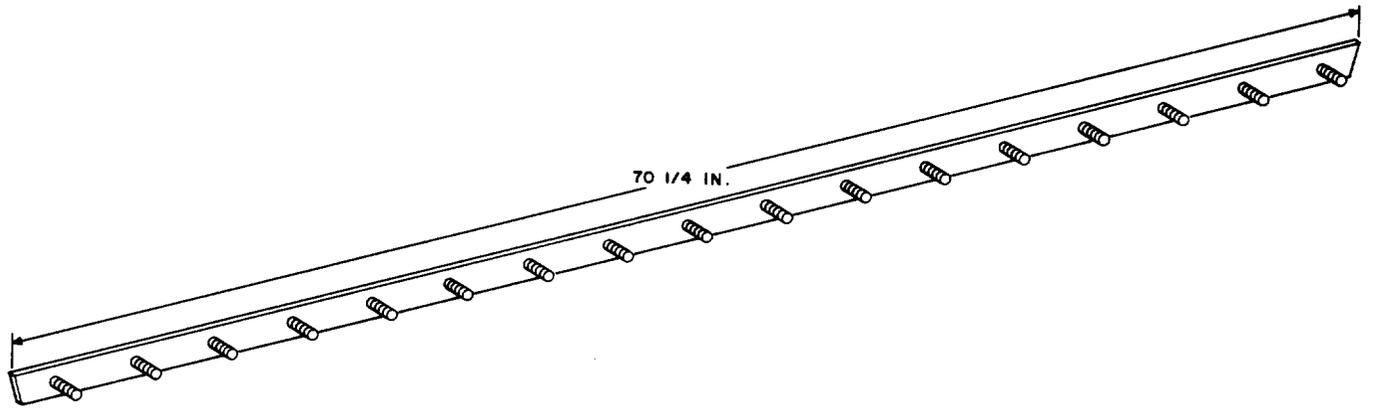


Fig. 2—Stud Bar

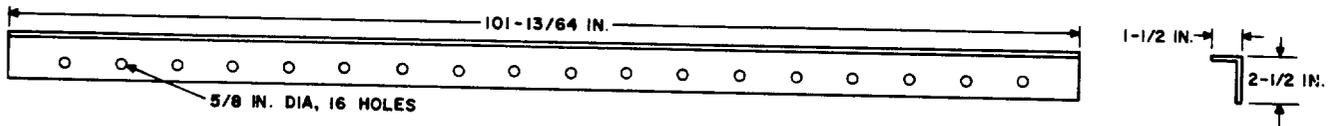


Fig. 3—Weather Cover Edge Seal for List 20

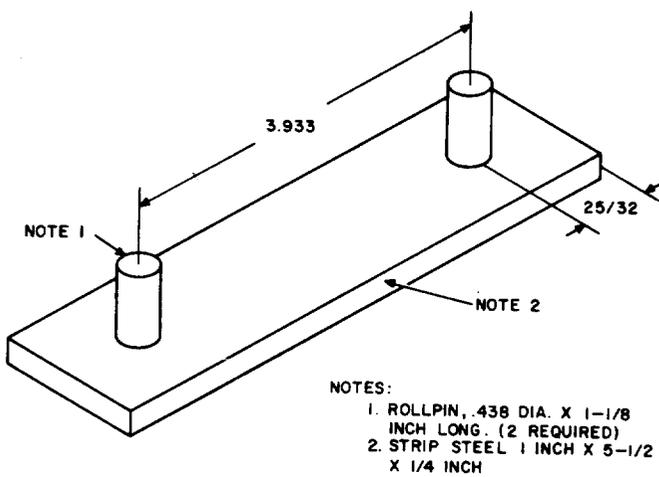


Fig. 4—Aligning Tool

		1	Socket, 7/8-inch, 1/2-inch drive
		6	"C" Clamp, Deep Throat, 4-inch minimum
		6	"C" Clamp, 2-inch
		1	Wrench, Torque, 1/2-inch drive, 60 foot-pound capacity
		2	Knives, Putty
		5 oz	Adhesive, #847, Scotch Grip Industrial (obtain from 3M CO)
		1 pt	Solvent, Acetone or Methyl Ethyl Ketone (for use as a solvent after Scotch Grip is applied)
1 lot	Rags, Cleaning		
1 qt	Trichloroethane, KS-19578, List 1	2	Stamp, Letters B and C (for marking nameplates)
1	Wrench, Ratchet, 1/2-inch drive	1 roll	Tape, Masking, 2-inch

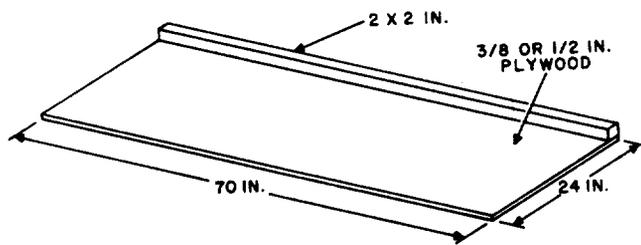


Fig. 5—Plywood Tray

C. KS-15676, List 21 Modification Kit

2.05 The KS-15676, List 21 modification kit consists of the following material:

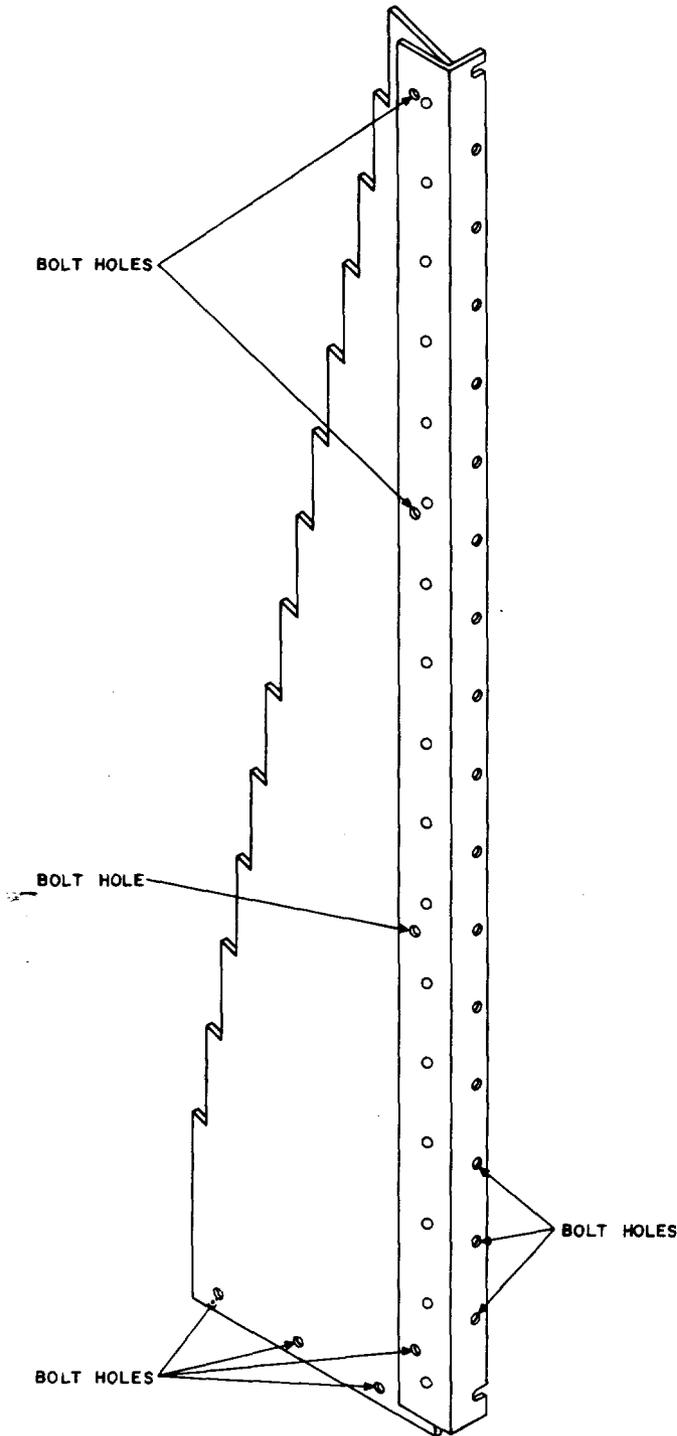
QUANTITY	ITEM
2	14-Edge Blinder Assembly, LH and RH (Fig. 6)
2	Blinder Support, LH and RH (Fig. 7)
1	Stud Bar (Fig. 2)
42	Bolt, Type 18-8, 300 Series, CRES, 1/2-20 UNF-2A by 2 inches
8	Bolt, Type 18-8, 300 Series, CRES, 1/2-20 UNF-2A by 1-3/4 inches
6	Bolt, Type 18-8, 300 Series, CRES, 1/2-20 UNF-2A by 1-1/2 inches
64	Washer, Flat, Type 18-8, 300 Series, CRES, 9/16 by 1-3/8 by 3/32 inch
18	Washer, Stat-O-Seal, 600-3030-1/2 inch
32	Nut, Elastic Stop 79 NE-080
6	Bolt, Type 18-8, 300 Series, CRES, 3/8-24 UNF-2A by 1 inch
6	Washer, Flat, Type 18-8, 300 Series, CRES, 7/16- by 1- by 0.083-inch
6	Nut, Elastic Stop, 79 NE-064

1 Assemble, Sealer Strips, ES-8943141, 7 rolls: one 11-foot, two 9-foot, four 7-foot lengths

1 Tool, Aligning (Fig. 4)

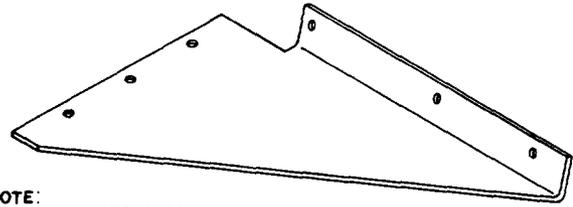
2.06 The following tools and equipment are required for the proper installation of the List 21 kit:

QUANTITY	ITEM
1	Maintenance Platform, Up-Right Scaffolds Part No. L-1586 (upper platform only)
1	Tray, Plywood (Fig. 5)
1 qt	Trichloroethane, KS-19578, List 1
1 lot	Rags, Cleaning
1	Wrench, Pipe
1	Wrench, Open-End, 9/16-inch
1	Wrench, Socket, 1/2-inch drive
1	Socket, 9/16-inch, 1/2-inch drive
1	Socket, 7/8-inch, 1/2-inch drive
1	Wrench, Torque, 1/2-inch drive (60 foot-pound capacity)
4	"C" Clamp, Deep Throat (4-inch minimum)
2	Knives, Putty
5 oz	Adhesive, #847, 3M CO, Scotch Grip Industrial
1 pt	Solvent, Acetone or Methyl Ethyl Ketone (for use as a solvent after Scotch Grip is applied)
1 roll	Tape, Masking, 2 inches wide
1	Punch, Center, Automatic
1	Drill, Electric, 1/2-inch chuck



NOTE:
RH 14 EDGE BLINDER ASSEMBLY SIMILAR TO LH
ONLY ANGLE MOUNTED OPPOSITE.

Fig. 6—Left-Hand 14-Edge Blinder Assembly



NOTE:
RH BLINDER SUPPORT SIMILAR TO
LH SUPPORT EXCEPT OPPOSITE

Fig. 7—Left-Hand Blinder Support

- 2 Drill, Twist, Number 10 (for use as pilot drills)
- 1 Drill, Twist, 13/32-inch
- 1 Drill, Twist, 17/32 (for use in 1/2-inch drill chuck)
- 1 Power Cord, 3-Conductor (length must be sufficient to reach antenna)
- 2 Stamp, Letters B and D (for marking aluminum nameplate)

D. KS-15676, List 22 Modification Kit

2.07 The KS-15676, List 22 modification kit consists of the following material:

QUANTITY	ITEM
2	14-Edge Blinder Assembly, LH and RH (Fig. 6)
2	Blinder Support, LH and RH (Fig. 7)
42	Bolt, Type 18-8, 300 Series, CRES, 1/2-20 UNF-2A by 2 inches
8	Bolt, Type 18-8, 300 Series, CRES, 1/2-20 UNF-2A by 1-3/4 inches
6	Bolt, Type 18-8, 300 Series, CRES, 1/2-20 UNF-2A by 1-1/2 inches
64	Washer, Flat, Type 18-8, 300 Series, CRES, 9/16 by 1-3/8 by 3/32 inch
14	Nut, Elastic Stop, 79 NE-080

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- 6 Bolt, Type 18-8, 300 Series, CRES, 3/8-24 UNF-2A by 1 inch
- 6 Washer, Flat-Type, 18-8, 300 Series, CRES, 7/16- by 1- by 0.083-inch
- 6 Nut, Elastic Stop, 79 NE-064
- 4 oz Compound, Antiseize, KS-19094, List 1

2.08 The following tools and materials are required for the proper installation of the List 22 kit:

QUANTITY	ITEM
1	Maintenance Platform, Up-Right Scaffolds Part No. L-15686 (upper platform only)
1	Wrench, Socket, 1/2-inch drive
1	Socket, 9/16-inch, 1/2-inch drive
1	Socket, 7/8-inch, 1/2-inch drive
1	Wrench, Open-End, 9/16-inch
1	Wrench, Torque, 1/2-inch drive (60 foot-pound capacity)
4	"C" Clamp, Deep Throat, 4-inch minimum
1	Drill, Electric, 1/2-inch chuck
2	Drill, Twist, No. 10
1	Drill, Twist, 13/32-inch
1	Drill, Twist, 17/32-inch (for use in 1/2-inch chuck)
1	Cord, Power, 3-Conductor (length must be sufficient to reach antenna)
2	Stamp, Letters B and D (for marking aluminum nameplate)

3. PRELIMINARY TESTS

3.01 Make a visual inspection of the antenna for any signs of damage that may require repair prior to the installation of the modification kits.

3.02 Check the antenna and waveguide system for air leakage by the flowrater method described in Section 402-421-201, and record the leakage rate. If it is excessive, make the necessary repairs.

3.03 If the List 20 or 21 modification is going to be applied, measure the antenna return loss. Detailed procedures for performing this test can be found in Sections 402-400-501 through 402-400-503. Choose one operating channel frequency for each polarization in the 4- and 6-GHz bands being used. Record the test traces obtained.

4. INSTALLATION GENERAL

4.01 The modification can be applied without removing service from the antenna. However, radiation protection clothing must be worn if the input to the waveguide feeding the antenna exceeds 60 watts. See Section 010-150-002 for further information regarding radiation protection.

4.02 If the existing tower grating does not provide an adequate working area, the upper portion of the L-1586 portable maintenance platform should be used. This platform and associated scaffolding is available from Up-Right Scaffolds, Berkeley, California. Complete instructions for mounting the platform are contained in Engineering Memorandum 136, dated December 2, 1966.

4.03 The air pressure must be removed from the antenna and waveguide system during the installation of these modification kits. This can be accomplished by disconnecting the tubing from the waveguide pressure window fitting of the antenna being modified. Clamping the end of the plastic tubing will prevent air flow from the dehydrator manifold while the antenna is depressurized.

4.04 The List 20 and List 21 modifications require the partial removal and reinstallation of the antenna weather cover. Additional instructions are given in Section 402-421-502.

4.05 The time required to complete the List 19 or List 22 modification should be approximately

one-half day per antenna (two men for 4 hours). The time required to complete the List 20 or List 21 modification should be approximately one full day per antenna (two men for 8 hours). These times include the installation and removal of the maintenance platform.

5. INSTALLATION PROCEDURES

A. KS-15676, List 19

5.01 Remove the 1/2 by 1-1/2 inch bolts and nuts marked A (Fig. 8). Retain the nuts, as they will be reused in 5.04. The bolts will not be reused. Do not remove the bolts and nuts marked B at this time.

5.02 Install the weather cover edge seal as shown in Fig. 8.

5.03 Secure the edge seal to the clamping angle with deep throat C clamps. Place a clamp approximately every 18 inches along the angles.

Caution: *It is important that the edge seal be installed so that continuous contact is made with the clamping angle.*

5.04 Install the 1/2-20 by 2 inch bolts in the A holes. Place a flat 9/16 by 1-3/8 by 3/32 inch washer and nut on each bolt. (See Fig. 8.) Tighten each nut to a torque of 60 foot-pounds.

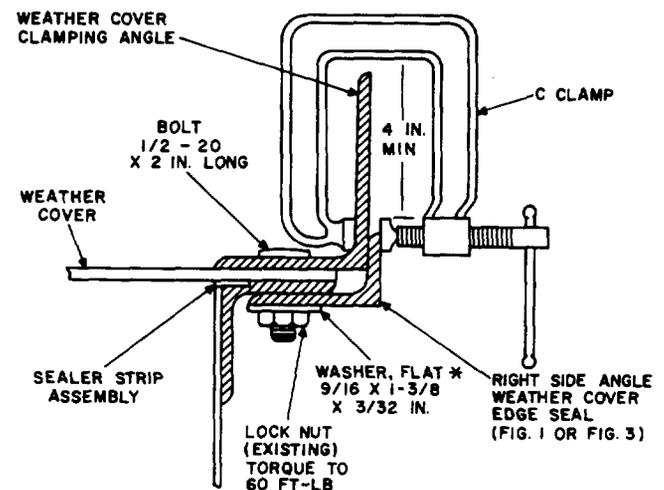
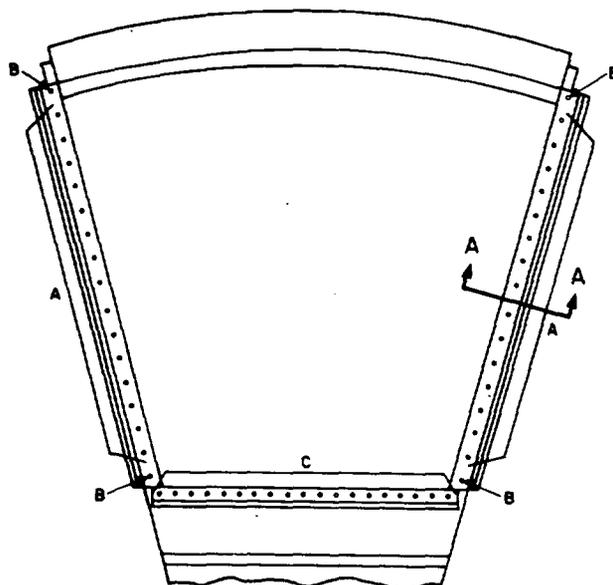
5.05 Remove the bolts and nuts from the B location, and replace them with 1/2-20 by 2 inch bolts. Install two flat 9/16 by 1-3/8 by 3/32 inch washers, and reuse the nuts. Tighten each nut to a torque of 60 foot-pounds.

5.06 Remove the C clamps.

5.07 Install the remaining angle on the other side of the antenna, repeating 5.01 through 5.06.

5.08 Add the suffix letter C to the KS-15676 list number on the nameplate, making the antenna a List 1C, 8C, 9C, 14C, 1BC, 8BC, 9BC, or 14BC.

5.09 Restore the air pressure to the antenna and waveguide system, and recheck the leakage rate by using the flowrater method described in Section 402-421-201. If the rate is significantly higher or exceeds the allowable rate, check the antenna for air leaks as outlined in Section 402-421-201.



* USE DOUBLE WASHER AT BOTTOM AND TOP SLOT

SECTION A-A

Fig. 8—KS-15676 Antenna Face and Edge Seal Angle

B. KS-15676, List 20

5.10 Before proceeding with the installation of this modification, the preliminary tests and the general installation steps covered in Parts 3 and 4 of this section must be performed.

5.11 Remove the right and left weather cover clamping angles by removing the 1/2 by 1-1/2 inch bolts and nuts marked A and B (Fig. 8). Retain the nuts, as they will be reused in 5.34.

5.12 Remove the lower weather cover clamping angle by removing the bolts marked C (Fig. 8).

5.13 Starting at the lower corners, pull the weather cover away from the antenna. The weather cover should be pulled out from the bottom so that approximately 3/4 of each side is pulled away from the antenna.

5.14 Insert the plywood tray (Fig. 5) inside the window opening so that it fits snugly against the front interior surface of the antenna. The 2-by-2-inch block should be towards the back of the antenna.

5.15 Secure the tray in place by taping the plywood to the antenna using the 2-inch masking tape.

5.16 Apply masking tape to the interior of the antenna, covering the 1/2-inch holes in the captive nuts. This is to prevent any of the sealant from being pushed through the holes into the antenna during the cleaning operation.

5.17 Using a putty knife, the trichloroethane solvent, and clean rags, remove all traces of the black sealant material from the sides and bottom of the window opening. Also remove any material from the bolt holes.

Caution: *Extreme care must be taken to prevent any foreign matter from entering the antenna and circular waveguide.*

5.18 Carefully remove the masking tape from the captive nuts, and clean out any sealant material left in the hole of the captive nut by running the alignment tool through each captive nut from the interior of the antenna to the exterior.

5.19 From the outside of the antenna, insert the pins of the alignment tool through the front panel and the captive nuts (Fig. 9).

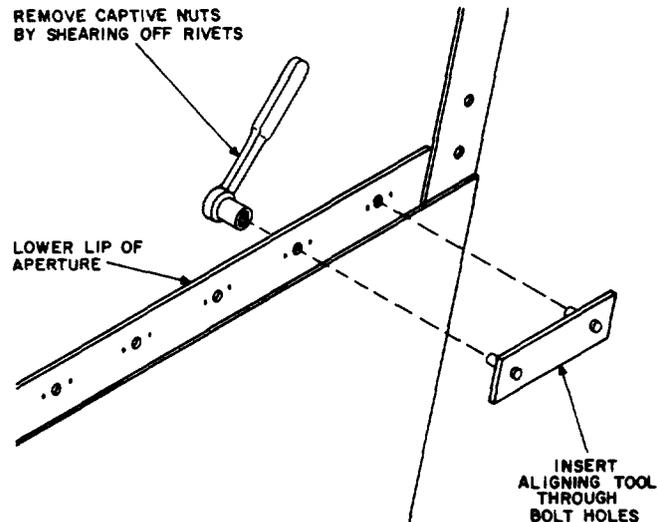


Fig. 9—Removing Captive Nuts

5.20 Using a pipe wrench or 7/8-inch socket wrench, twist off the captive nuts inside the antenna at the lower edge of the window opening. Only a nominal torque will be required to shear the rivets.

Note: The antenna will have either one or two types of captive nuts (Fig. 10). Either may be gripped for removal using a standard pipe wrench. The 7/8-inch socket may be used on the Standard Pressed Steel Nut.

Caution: *Extreme care must be taken to avoid dropping the nuts, rivet pieces, tools, or any foreign matter inside the antenna during this operation.*

5.21 Repeat 5.19 and 5.20 until all 18 captive nuts are removed.

5.22 Inspect the inside lower edge of the window opening. Any rivets that did not shear off flush with the antenna surface should be cut off with a chisel.

5.23 Apply a thin, even coat of Scotch Grip adhesive to the stud side of the stud bar and the inside lower lip of the window (Fig. 11).

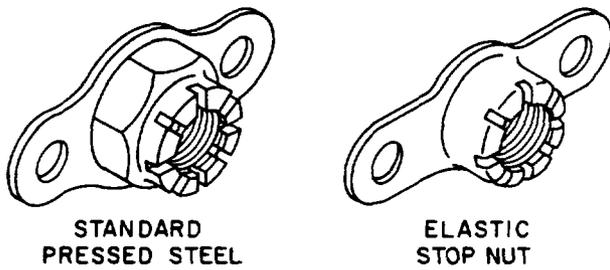
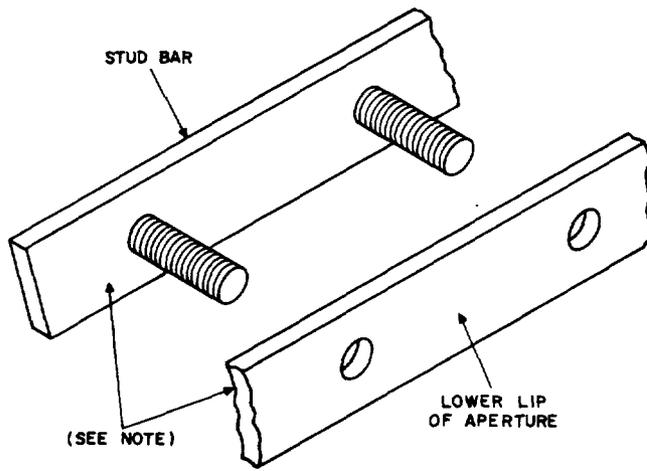


Fig. 10—Captive Nuts



NOTE:

APPLY A THIN, EVEN COAT OF SCOTCH GRIP ADHESIVE TO BOTH SURFACES. INSTALL IMMEDIATELY BY INSERTING STUDS THROUGH BOLT HOLES AND CLAMP IN PLACE FOR APPROXIMATELY 10 MINUTES, REFASTEN WEATHER COVER WITH NUTS SUPPLIED.

Fig. 11—Insertion of Stud Bar

- 5.24** Immediately install the stud bar on the inside of the lower edge of the window opening with the studs passing through the 18 existing bolt holes to the outside of the antenna.
- 5.25** Clamp the stud bar in place for approximately 10 minutes.
- 5.26** Remove the plywood tray and the 2-inch masking tape from inside the antenna, being careful that nothing falls down the antenna into the circular waveguide.
- 5.27** Remove the old sealant material from the inside edges of the antenna weather cover

and the front edge of each side and front panel using trichloroethane and clean rags.

5.28 Immediately before applying a sealer strip assembly to a surface, clean the surface with solvent and a clean rag. While the surface is still wet with solvent, use a clean rag and wipe away residual solvent. This will eliminate any contaminant that may prevent the proper adhesion of the sealant material.

5.29 Place a continuous ribbon of the sealer strip assembly inside the bolt hole pattern of the side panel. Place a sealer strip on each side of the studs at the bottom edge of the weather cover opening and across the ends between the end hole and first stud. Location of the sealer strip assemblies is shown in Fig. 12. Make sure the strips are butted at all corners. The sealer strip assembly should be oriented so the wire fin is towards the pressurized side of the joint except at the lower window clamping bar where all four strips should have the sealant toward the studs.

5.30 Clean the surface of the lower window clamping bar with trichloroethane and clean rags. Also clean the lower outside edge of the weather cover.

5.31 Apply the sealer strips on the joining surfaces of the lower clamping angle on both sides of the stud holes and across the ends inside the end holes as shown in Fig. 12.

5.32 Starting at the bottom center, carefully place the weather cover on the studs and press the cover until contact is made with the sealer strips. Immediately place the lower clamping angle on the studs. Coat the threads of the studs with antiseize compound. Place a Stat-O-Seal washer and Elastic Stop nut on each stud, and tighten the nuts sufficiently to hold the clamping angle and weather cover in contact with the sealer strips.

Caution: *Extreme care must be taken not to break the seal between the stud bar and the inside lower edge of the antenna when placing the weather cover on the studs. Breaking of this seal could result in the stud bar falling inside the antenna.*

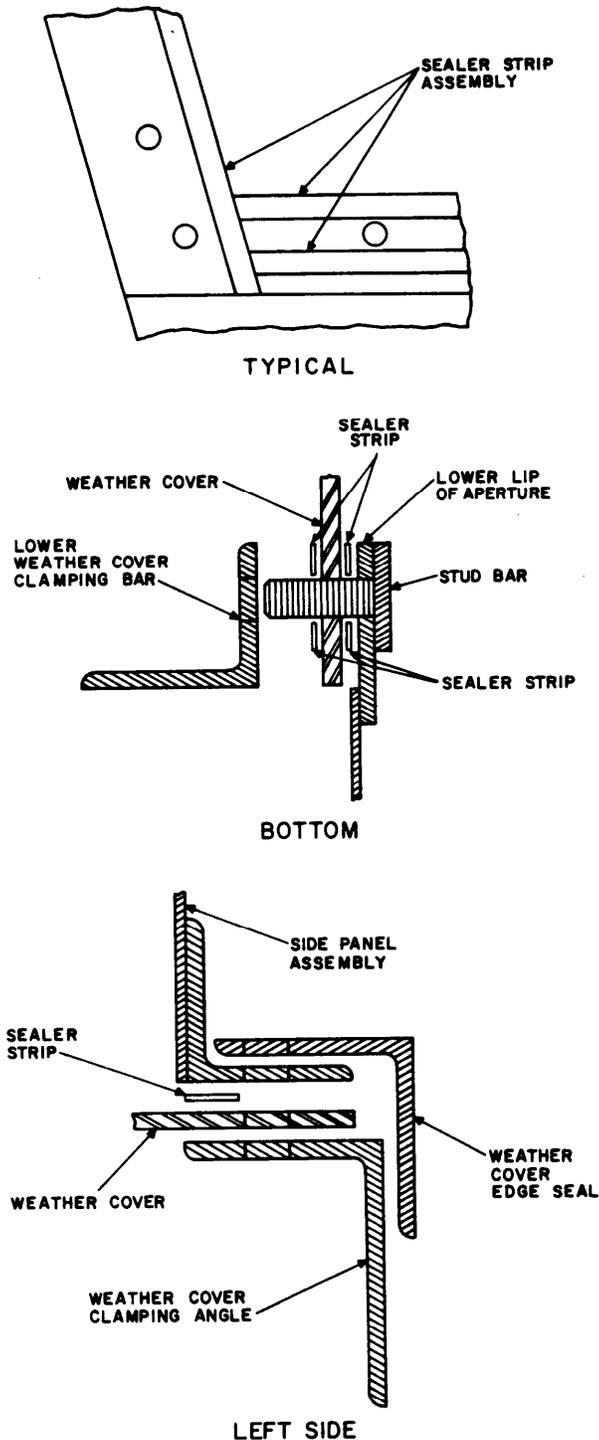


Fig. 12—Location of Sealer Strip Assembly for Weather Cover

5.33 Align the holes of the weather cover with the holes in the side panel, and press the weather cover against the sealer strips.

5.34 Using the 1/2- by 2-inch bolts, mount the weather cover clamping angle and the antenna edge seal to the antenna as shown in Fig. 8. Reuse the nuts removed in 5.11. Tighten the nuts just enough to hold the cover in contact with the sealer strip.

5.35 Secure the edge seal angle to the clamping angle with the deep throat C clamps.

Caution: *It is important that the edge seal be installed so that continuous contact is made with the clamping angle.*

5.36 Repeat 5.33 through 5.35 for the opposite side.

5.37 Tighten the nuts in the bottom clamping angle to a torque of 60 foot-pounds.

5.38 Starting at the narrow end, tighten the bolts and nuts along each side to a torque of 60 foot-pounds.

5.39 Remove the C clamps.

5.40 Add the letters B and C to the KS-15676 list number on the nameplate, making the antenna a List 1BC, 8BC, 9BC, or 14BC.

5.41 If the lower end of the vertical waveguide run terminates in a shorting plate or water trap, remove the plate or trap and remove any foreign matter.

5.42 Restore the shorting plate or water trap.

5.43 Restore the air pressure to the antenna and waveguide system, and recheck the leakage rate by using the flowrater method described in Section 402-421-201. If the rate is significantly higher than the rate recorded in 3.02 or exceeds the allowable rate, check the antenna for air leaks as outlined in Section 402-421-201.

5.44 Measure the antenna return loss using the same frequencies and procedures used in 3.03. Compare the test traces. Locate and clear any impedance irregularities that are out of limits.

C. KS-15676, List 21

5.45 Before proceeding with the installation of this modification, the preliminary tests and

general installation steps covered in Parts 3 and 4 of this section must be performed.

5.46 Proceed with the installation by performing 5.11 through 5.32 of this section.

5.47 Align the holes of the weather cover with the holes in the side panel, and press the weather cover against the sealer strip.

5.48 Using the 1/2- by 2-inch bolts, mount the weather cover clamping angle and the 14-edge blinder assembly to the antenna as shown in Fig. 13 and 14. Reuse the nuts removed in 5.11. Tighten the nuts just enough to hold the cover in contact with the sealer strip.

5.49 Secure the 14-edge blinder assembly to the weather cover clamping angle with C clamps, placing them at the top and bottom of the assembly.

Caution: *It is important that the blinder assembly be installed so that continuous contact is made with the clamping angle.*

5.50 Repeat the procedures outlined in 5.47 through 5.49 for the opposite side of the antenna.

5.51 Tighten the nuts in the bottom clamping angle to a torque of 60 foot-pounds.

5.52 Starting at the narrow end, tighten the bolts and nuts along each side to a torque of 60 foot-pounds.

5.53 Remove the C clamps.

5.54 Drill four holes, 17/32 inch in diameter, through the side of the front weather cover clamping angle to match the four holes in the 14-edge blinder assembly. These holes are marked A in Fig. 14. A pilot drill should first be used to drill these holes.

5.55 Using a 1/2 by 20 by 1-3/4 inch bolt, two washers, and a nut, bolt the 14-edge blinder to the side of the front window clamping angle using the holes drilled in 5.54 (Fig. 13, section A-A).

Note 1: Coat all the hardware with KS-19094 antiseize compound before using.

Note 2: All bolts should be inserted so as to point away from the window aperture.

5.56 Repeat the procedures outlined in 5.54 and 5.55 for the opposite side.

5.57 If the antenna is a List 14 (hardened), remove and discard the last three vertical bolts from the end of the lower window clamping angle and bolt the blinder support to the clamping angle using three 1/2- by 20- by 2-inch bolts. Do not tighten at this time.

5.58 Bolt the blinder support to the 14-edge blinder assembly using three 3/8- by 24- by 1-inch bolts (Fig. 13 and 14).

5.59 Tighten the bolts and nuts placed in 5.57 and 5.58.

5.60 Repeat the procedures outlined in 5.57 through 5.59 for the opposite side of the antenna.

5.61 If the antenna is a List 1, 8, or 9, bolt the blinder support to the bottom of the 14-edge blinder assembly using three 3/8- by 24- by 1-inch bolts and tighten only fingertight (Fig. 13 and 14).

5.62 Secure the blinder support to the top of the lower window clamping angle with a C clamp.

5.63 Drill three 17/32-inch holes in the clamping angle to match the holes in the blinder support.

5.64 Bolt the blinder support to the lower window clamping angle using three 1/2 by 20 by 1-1/2 inch bolts. Place the bolts, nuts, and washers as shown in Fig. 13 and 14.

5.65 Tighten the bolts and nuts placed in 5.61 and 5.64.

5.66 Add the remaining blinder support to the other side of the antenna by repeating the procedures in 5.61 through 5.65.

5.67 Add the letters BD to the KS-15676 list number on the nameplate, making the antenna a List 1BD, 8BD, 9BD, or 14BD.

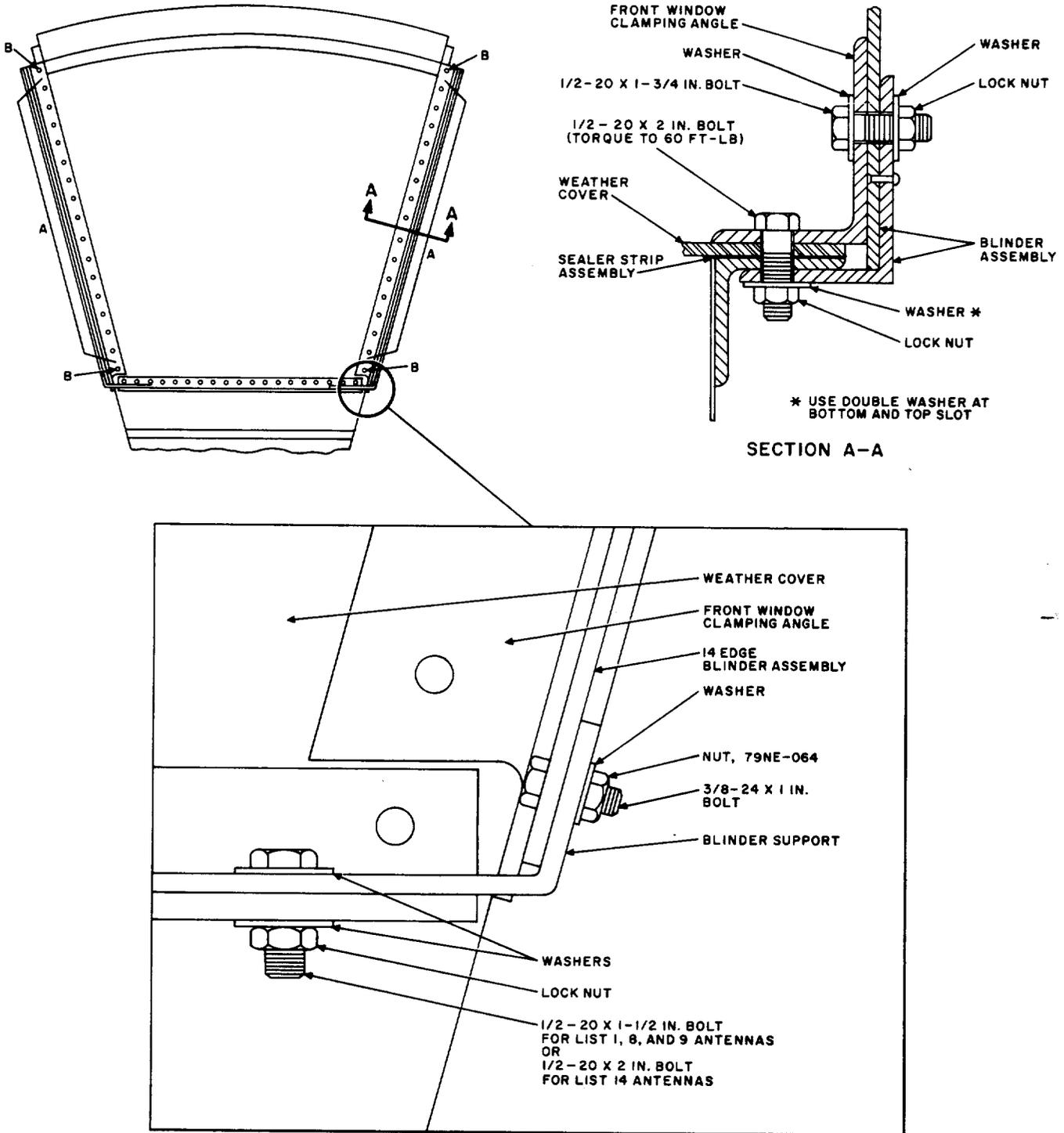


Fig. 13—KS-15676 Antenna Face and Blinder Assembly

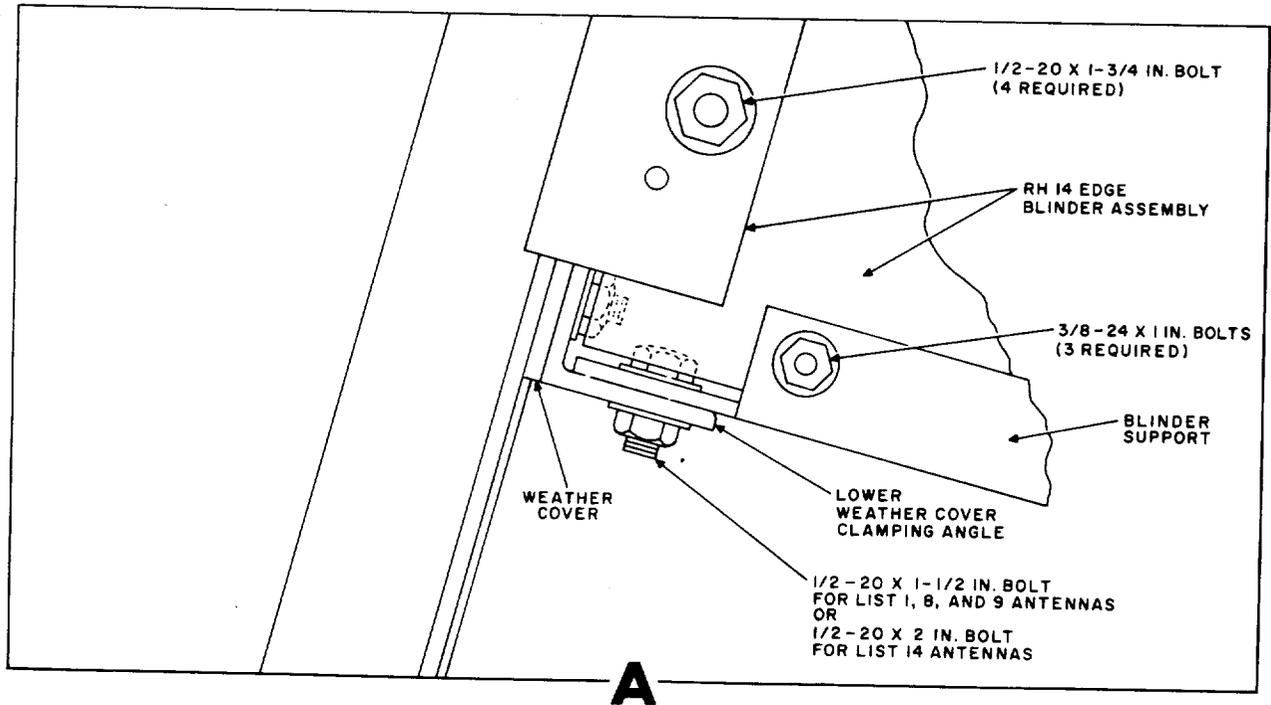
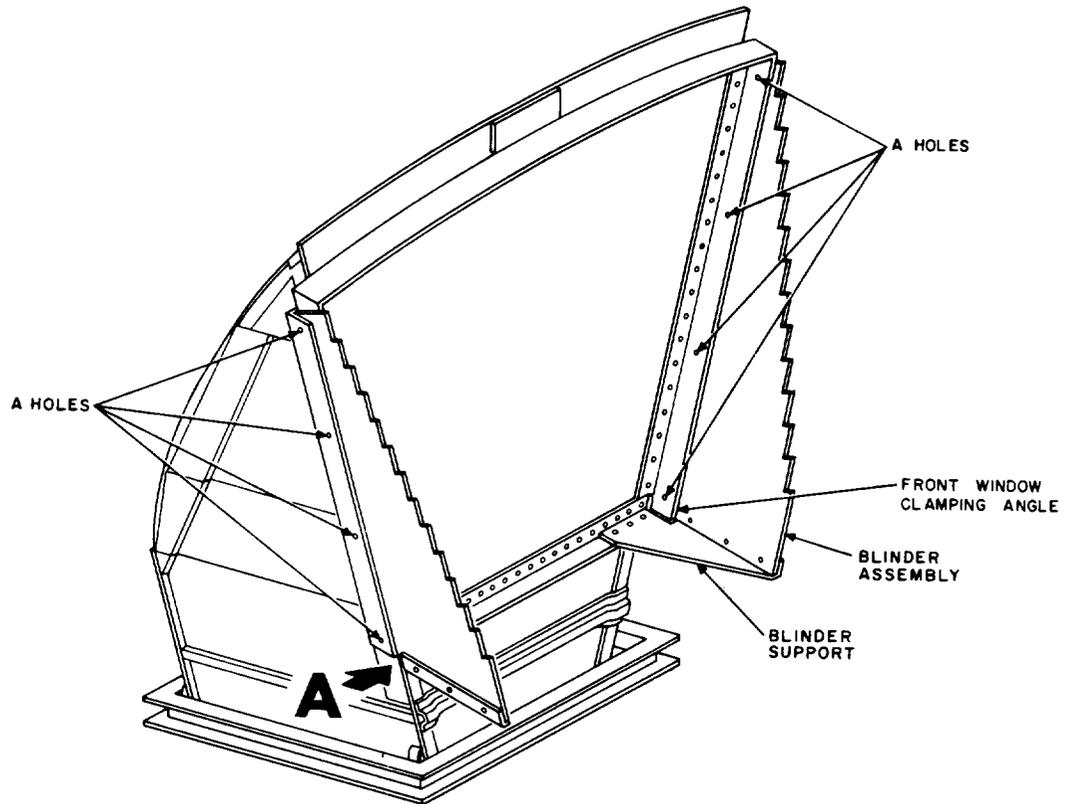


Fig. 14—Side View of KS-15676 Antenna With the Blinder Assembly

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5.68 Complete the installation by following the procedures outlined in 5.41 through 5.44 of this section.

D. KS-15676, List 22

5.69 Before proceeding with the installation of this modification, the preliminary tests and the general installation steps covered in Parts 3 and 4 of this section must be performed.

5.70 Remove the 1/2 by 1-1/2 inch bolts and nuts marked A (Fig. 13). Retain the nuts, as they will be reused in 5.73. Do not remove the bolts and nuts marked B at this time.

Note: Some antennas may have weather cover edge seal angles. The angle must be removed and discarded. To remove this angle, remove the bolts marked A and B (Fig. 13) and remove the edge seal angle. Care must be exercised not to damage the window seal or permit the window clamping angle to fall to the ground. Immediately rebolt the clamping angle to the antenna, using the holes marked B (Fig. 13).

5.71 Install the 14-edge blinder assembly as shown in Fig. 13, section A-A.

5.72 Secure the blinder assembly to the clamping angle with deep throat C clamps. Place a clamp at each end of the assembly.

Caution: *It is important that the blinder be installed so that continuous contact is made with the clamping angle.*

5.73 Install the 1/2- by 20- by 2-inch bolts in the A holes. Place a flat 9/16 by 1-3/8 by 3/32 inch washer and nut on each bolt. (See Fig. 13, section A-A.) Tighten each nut to a torque of 60 foot-pounds.

5.74 Remove the bolts from the B location, and replace them with 1/2- by 20- by 2-inch bolts. Place two flat 9/16 by 1-3/8 by 3/32 inch washers and a nut on each bolt. Tighten each nut to a torque of 60 foot-pounds.

5.75 Remove the C clamps.

5.76 Install the remaining blinder assembly on the other side of the antenna by repeating the procedures in 5.70 through 5.75.

5.77 The blinder supports should be installed by following the procedures as outlined in 5.54 through 5.66 of this section.

5.78 Add the letter D to the KS-15676 list number on the nameplate, making the antenna a List 1BD, 8BD, 9BD, or 14BD. If the antenna was previously marked BC, strike out the letter C before adding the letter D.

5.79 Restore the air pressure to the antenna and waveguide system, and recheck the leakage rate using the flowrater method described in Section 402-421-201. If the rate is significantly higher or exceeds the allowable rate, check the antenna for air leaks as outlined in Section 402-421-201.