AEROSTAR INTERNATIONAL, INC.
SERVICE LETTER 110

September 10, 1998

SUBJECT: **Modifications to the Aerochute vent/deflation system in S-81A.**

PROBLEM: **There have been reports of actuation forces for the Aerochute deflation portion of the system becoming increasingly difficult to actuate. This appears to be particularly more prevalent when the balloon has been operated for an extended period of time in dusty regions of the country. Additionally, several other reports indicate that the Aerochute does not totally re-center after Aerochute actuation and re-seating.**

DISCUSSION: **The increase in force appears to be related to increased friction within the system due to the increased presence of dirt. This modification includes changes that are designed to reduce friction in the system during actuation and maintain the forces at reasonable levels. The re-centering issue is also addressed with a rigging change that will serve to better center the top.**

APPLICABILITY: **All S-81A envelopes containing the Aerochute produced prior to August 1, 1998.**

CORRECTIVE ACTION: **Modify the Aerochute per Enclosure 1, S-81A Aerochute Retrofit Instructions.**

PROCEDURE: **Contact Aerostar Customer Service to obtain retrofit materials for performing the work. Follow the procedures in Enclosure 1.**

If you have any questions contact:

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S-81A Aerochute Retrofit Instructions

Notes: Page I of the attached drawings contains"NOTES". These are sewing notes that must be followed when performing this retrofit. Each sewing detail will refer to a specific sewing note. In the lower right hand corner is a "parts list of materials". On the drawing details you will find the item number in a circle and an arrow pointing to the location where that part is used.

Top Cap: (Refer to Pages II & III) Install center tabs, center tab backers and 1" webbing around the perimeter of the top cap nucleus. **(See drawing "DETAIL CT")**

Overstraps: (Refer to Pages IV) Remove all originals spider web bands attached to overstraps. Be careful not to damage overstraps.

Install new small spider web with additional overstraps to original overstraps. Sew new spider web to underside of the original overstraps except at the 8" splice (Page IV, Note 1D). "Sandwich" cut edge between webbing layers. Sew loose end of additional overstaps to port edge. **(See drawing, "DETAIL ZA2" Note 1E)**

Aerochute Deflation - Vent Pull Assembly: (Refer to Page V,VII) Install deflation attach loop on "seam 17"; top of loop at "station 19", **(See drawing "DETAIL AL" page VII).** Install one bridle anchor on "seam 17, station 41" **(See drawing, "DETAIL AB" page VII).** Install single 8 foot bridle line with guide ring. Install 2 bridle anchor loops, "seams 43 and 45" at "station 49.0" **(See drawing, "DETAIL AB" page VII).** Install 8ft. Bridle cords and pulley.

Route vent pull line assembly as specified on Page V. **(Note * Lines stay on the inside of all rotator lines.)**

Enclosure 1

Aerochute Center Pull Assembly: (Refer to Page VI,VII) Install (7) center pull cords to top loop of center pull rope and to new center tab loops on inside of top cap.

Install bridle anchor loops on "seams 15 and 17" at "station 49" **(See drawing, "DETAIL AB" page VII)**.

Install 8 ft. bridle lines and pulley.

Route top cap center pull line assembly **(See drawing "DETAIL KG", page VI).**

Inspect all original lines for excessive wear or damage. Replace if needed.

Inflate envelope, during cold inflation, inspect for proper routing of all lines. Lubricate all original pulleys with Tri-Flow lubricant. Hot inflate envelope, pull vent line to break Velcro tabs. Heat envelope to buoyancy. Pull Aerochute center pull to collapse top cap, reset by pulling on vent line. Top cap should return to center and reset.

Enclosure 1

NOTES:

1. SEAMS AND STITCHINGS SHALL BE AS SPECIFIED AND/OR SHOWN. EXCEPT AS NOTED. CONFORMITY SHALL BE TO FEDERAL STANDARD 751a, WITH STITCH TYPE 301, AND 7 TO 11 STITCHES PER INCH.

   C. DOUBLE NEEDLE, 3/8" ±1/32 GAGE, 1/8" MINIMUM EDGE DISTANCE.

   D. 4-PT, W-W 1/16" MINIMUM DISTANCE, 6-9 STITCHES PER INCH, SIZE F THREAD ONLY.

   E. BOX-X, 1/16" MINIMUM EDGE DISTANCE, SIZE F THREAD ONLY.

   J. 64-STITCH BARTACK (3-PT W-W @ 7/8 X 1), SIZE F THREAD ONLY.

   L. 3-PT W-W, 1/16" MINIMUM EDGE DISTANCE, 6-9 STITCHES PER INCH, SIZE F THREAD ONLY.

   M. 1/8" MINIMUM EDGE DISTANCE.

   P. 3-PASS, DOUBLE NEEDLE, E THREAD.

PARTS LIST OF MATERIALS

DESCRIPTION	*PART NO.*	*NOTE*	*ITEM*
PULLEY	51980		76
HEAT SHRINK TUBING - 3/4"	51027-11		74
3/16" KEXLON	51047-77		69
CORD, 550 LBS.	51047-10		41
F-THREAD, POLYESTER	51046-21	V-T-285	29
1" NYLON TAPE	51047-16	MIL-T-5038 T-4	24
E-THREAD, POLYESTER	51046-02	V-T-285	19

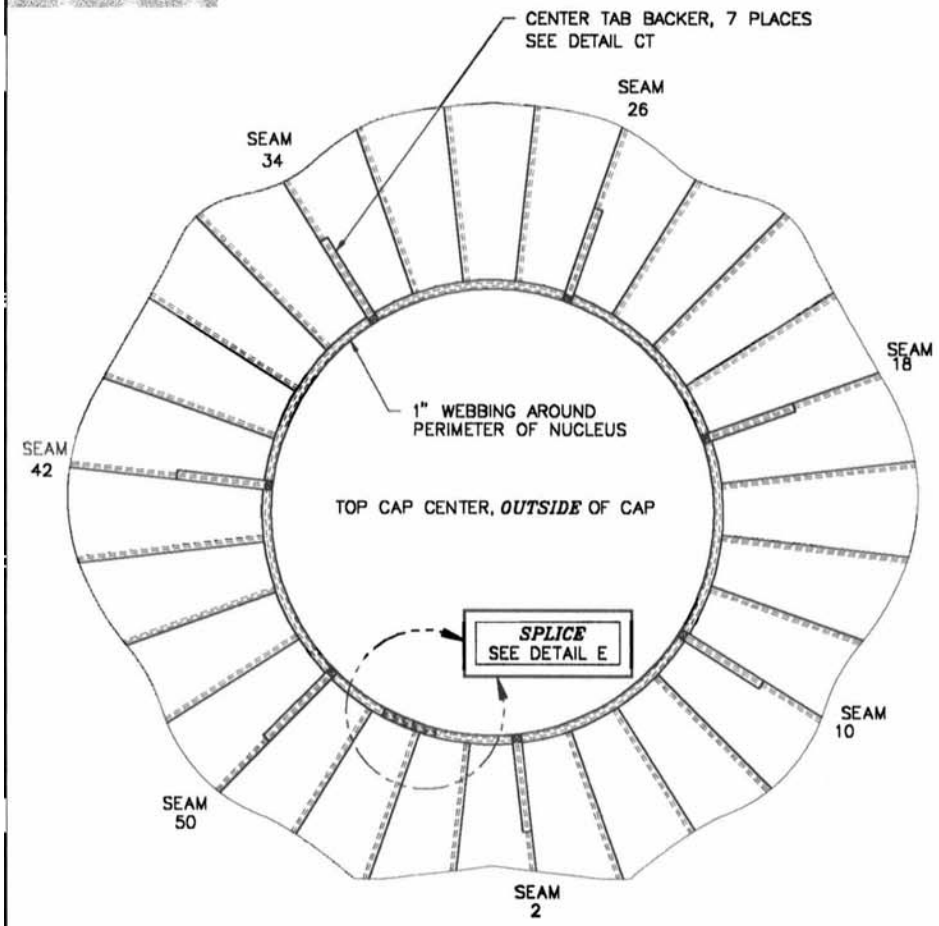
UNLESS OTHERWISE SPECIFIED

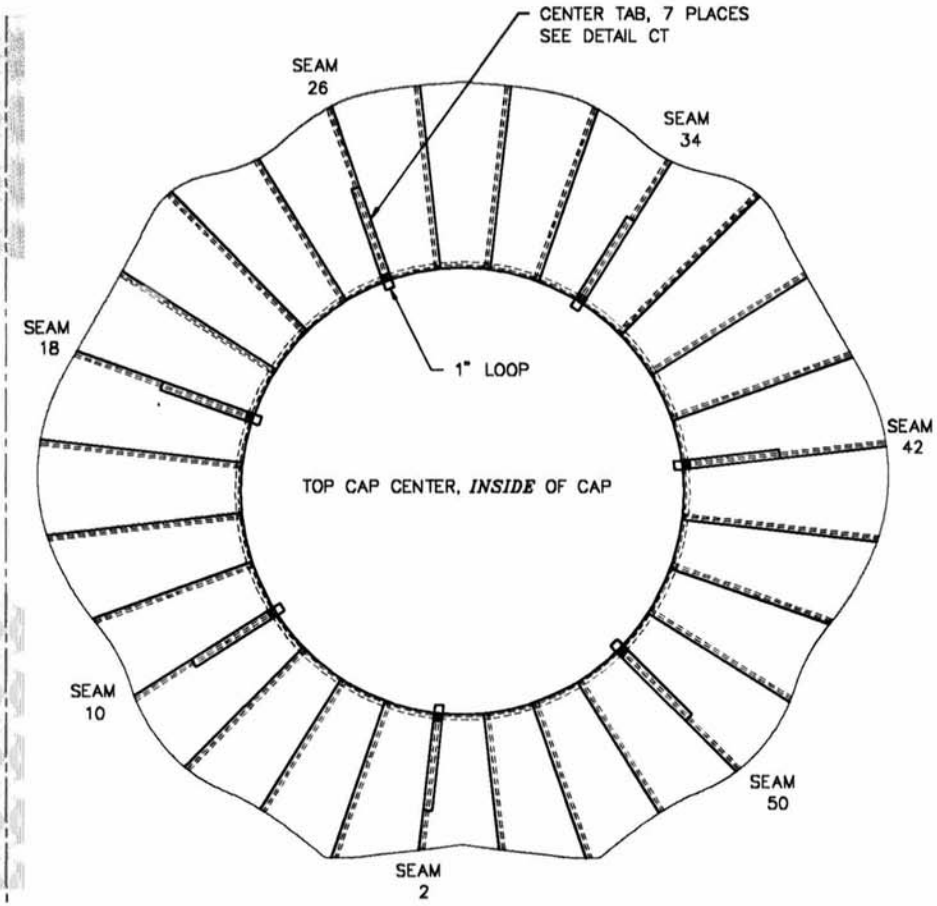
DIMENSIONS ARE IN INCHES
TWO PLACE DECIMALS ±.03
THREE PLACE DECIMALS ±.010
FRACTIONS XXXXX
ANGLES ±0° -30'
BREAK EDGES .005-.015

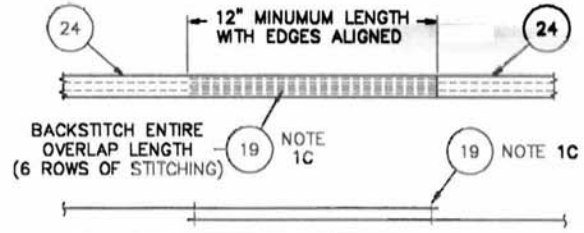
AEROSTAR™
INTERNATIONAL, INC.
SIOUX FALLS, SOUTH DAKOTA

DATE 8/2/98

TITLE RETROFIT
AEROCHUTE DEFLATION
S-81A







DETAIL E

TAPE SPLICE

TYPICAL SPLICE JOINT
FOR 1" TAPE

UNLESS OTHERWISE SPECIFIED

DIMENSIONS ARE IN INCHES
TWO PLACE DECIMALS ±.03
THREE PLACE DECIMALS ±.010
FRACTIONS XXXXX
ANGLES ±0° -30'
BREAK EDGES .005-.015

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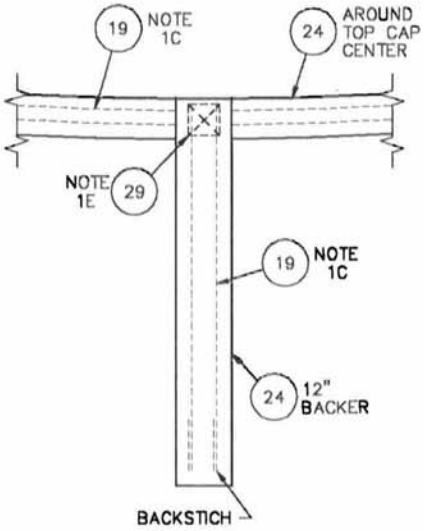
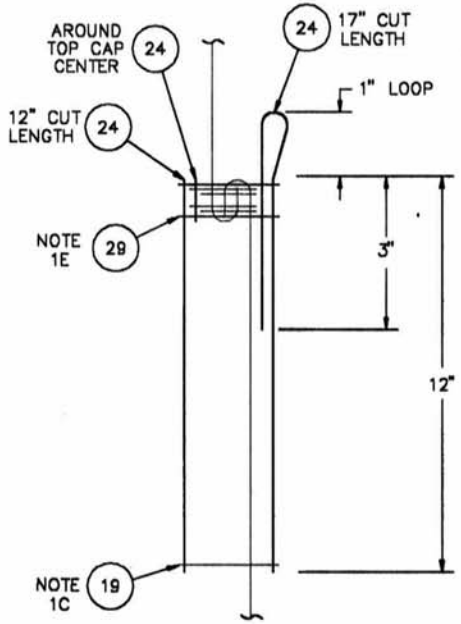
TITLE RETROFIT
AEROCHUTE DEFLATION
S-81A



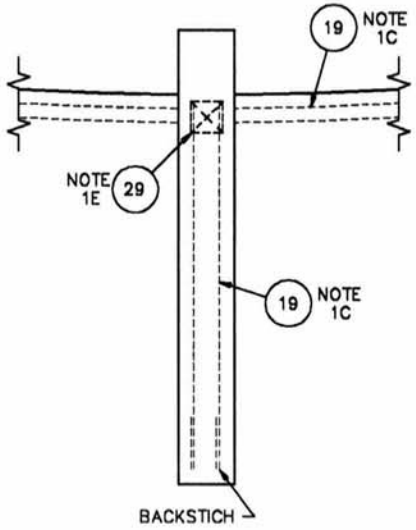
TOP CAP AS SEEN FROM OUTSIDE



DETAIL CT

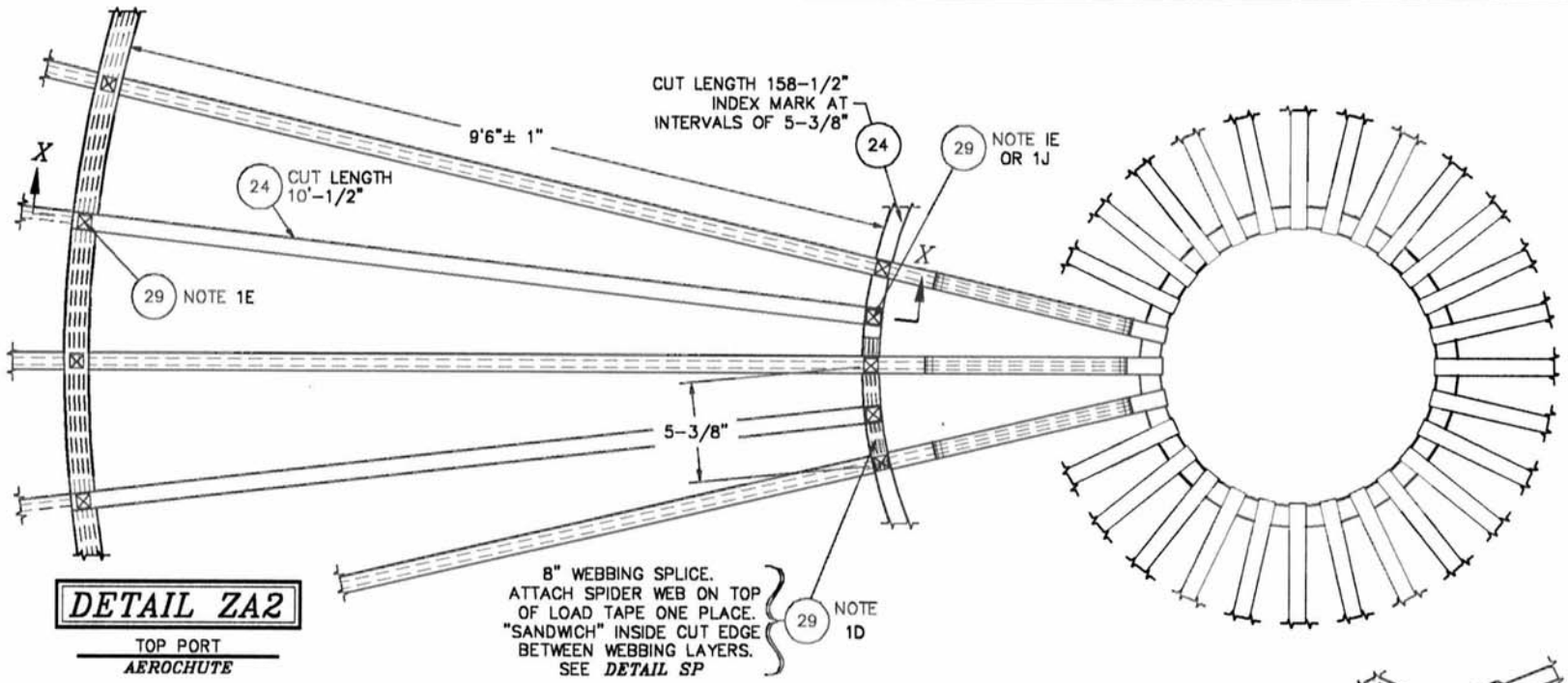
CENTER TABS & RELATED FEATURES

7 PLACES; SEAMS 2, 10, 18, 26, 34, 42, & 50



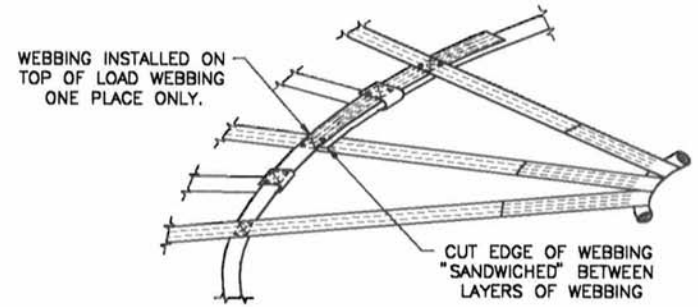
TOP CAP AS SEEN FROM INSIDE

UNLESS OTHERWISE SPECIFIED	AEROSTAR INTERNATIONAL, INC. SIOUX FALLS, SOUTH DAKOTA	TITLE RETROFIT AEROCHUTE DEFLATION S-81A
DIMENSIONS ARE IN INCHES TWO PLACE DECIMALS ±.03 THREE PLACE DECIMALS ±.010 FRACTIONS XXXXX ANGLES ±0° -30' BREAK EDGES .005-.015	DATE 9/2/98	PAGE III



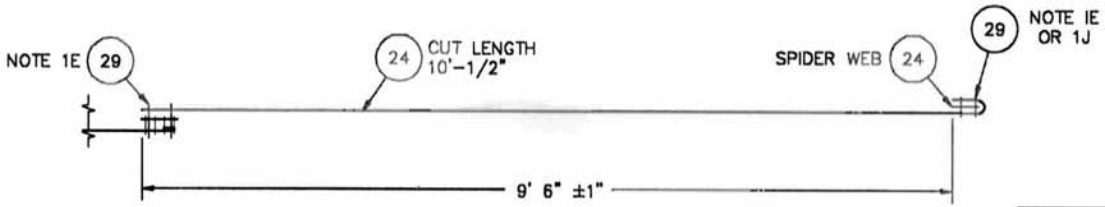
DETAIL ZA2

TOP PORT
AEROCHUTE



DETAIL SP

WEBBING SPLICE



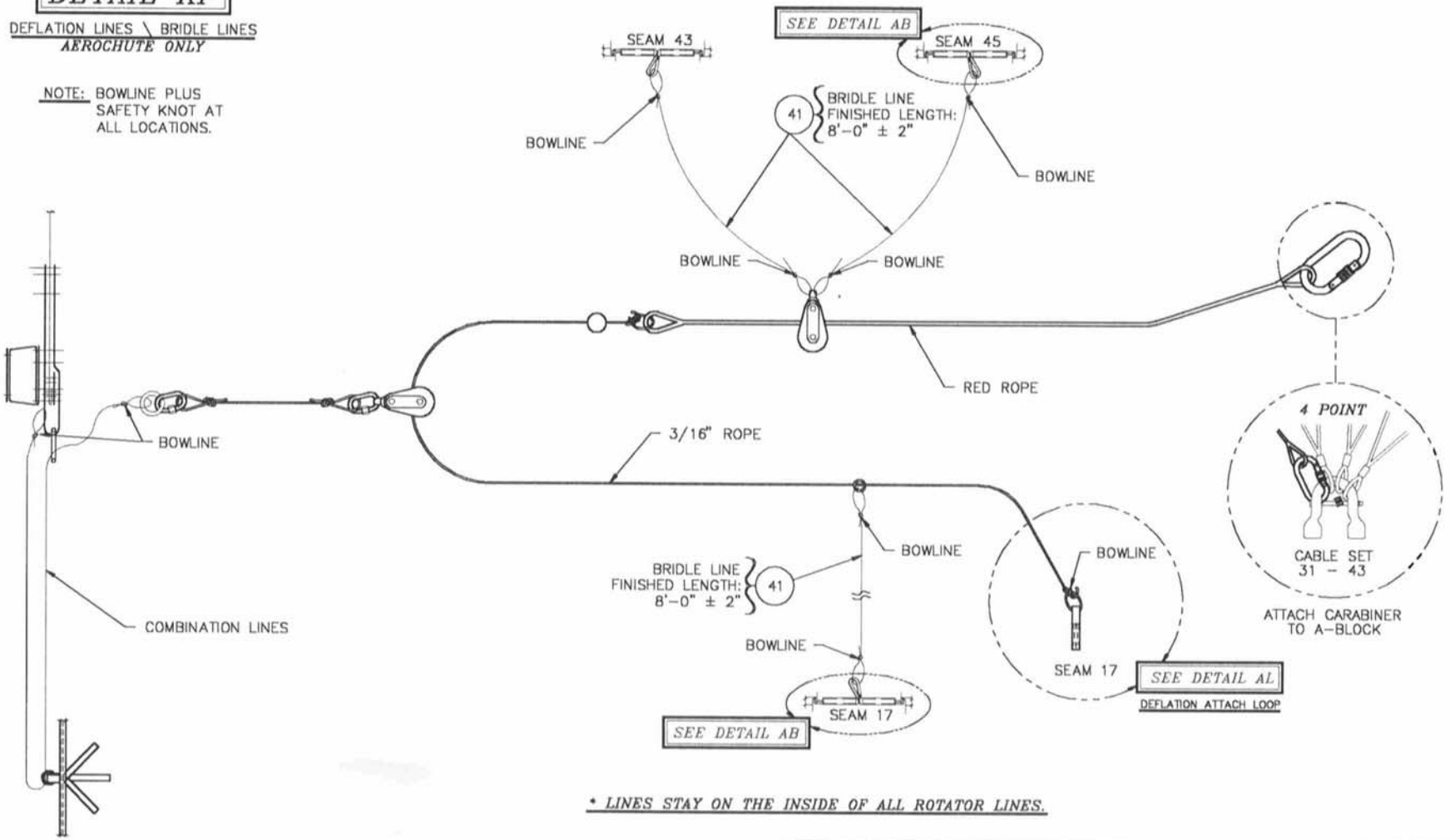
SECTION X-X

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES TWO PLACE DECIMALS ±.03 THREE PLACE DECIMALS ±.010 FRACTIONS XXXXX ANGLES ±0 -30' BREAK EDGES .005-.015	AEROSTAR INTERNATIONAL, INC. SIOUX FALLS, SOUTH DAKOTA DATE 9/2/98	TITLE RETROFIT AEROCHUTE DEFLATION S-81A	PAGE IV

DETAIL KF

DEFLATION LINES \ BRIDLE LINES
AEROCHUTE ONLY

NOTE: BOWLINE PLUS SAFETY KNOT AT ALL LOCATIONS.

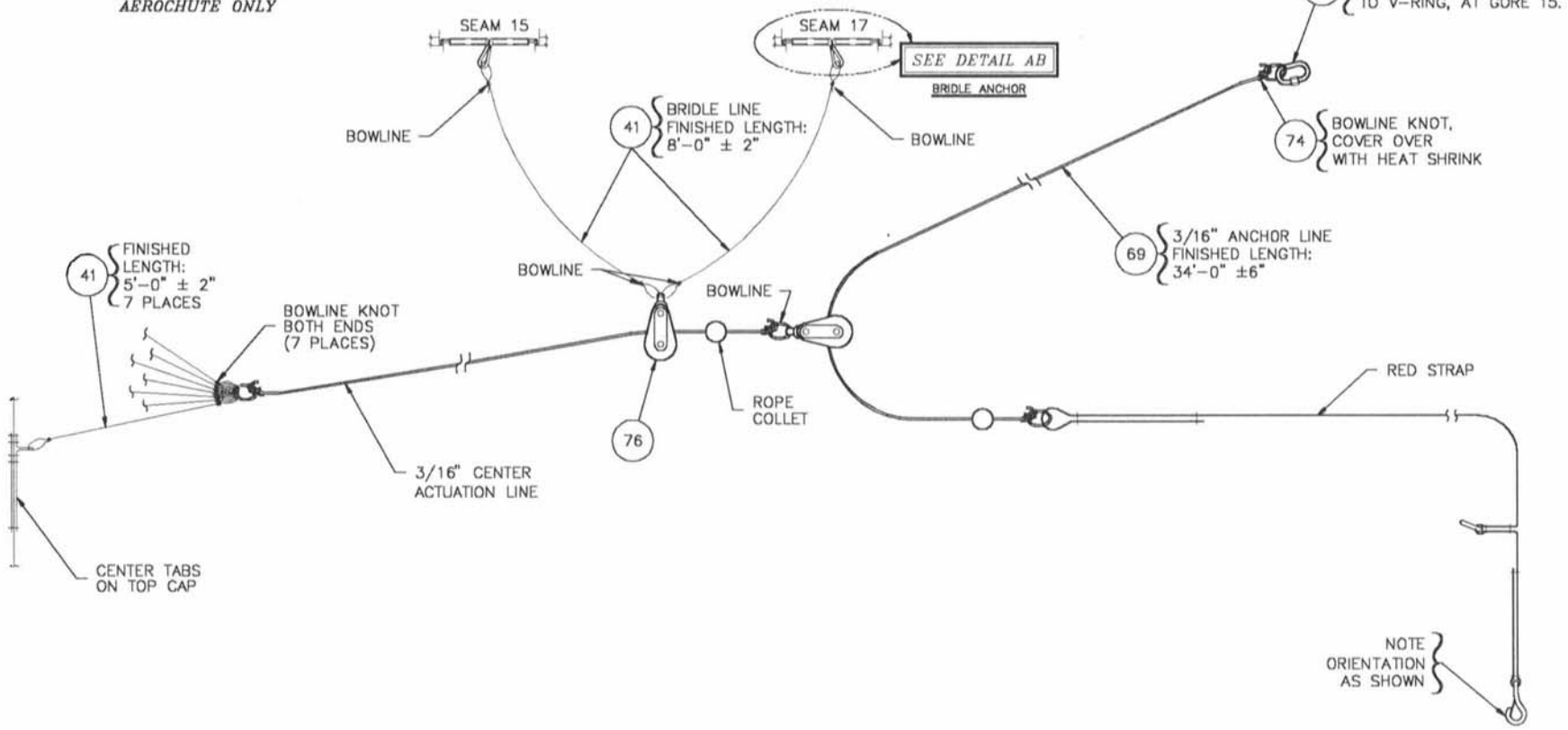


** LINES STAY ON THE INSIDE OF ALL ROTATOR LINES.*

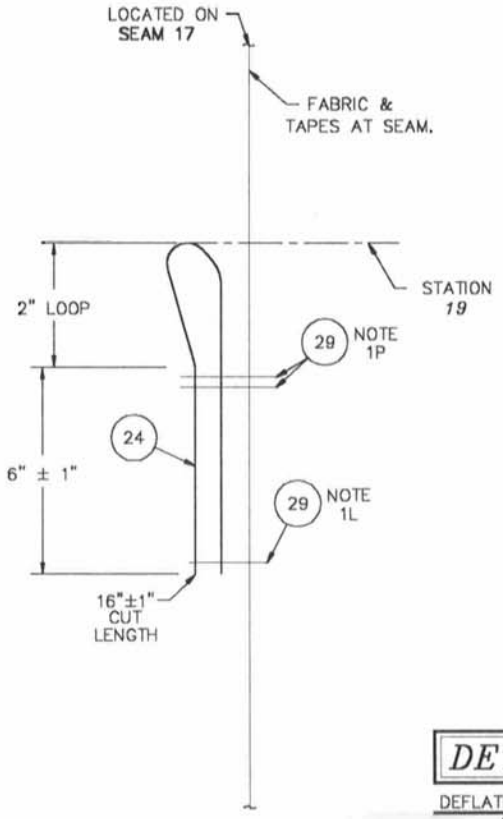
UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES TWO PLACE DECIMALS ±.03 THREE PLACE DECIMALS ±.010 FRACTIONS XXXXX ANGLES ±0°-30' BREAK EDGES .005-.015	AEROSTAR INTERNATIONAL, INC. SIOUX FALLS, SOUTH DAKOTA DATE 9/2/98	TITLE RETROFIT AEROCHUTE DEFLATION S-81A PAGE V

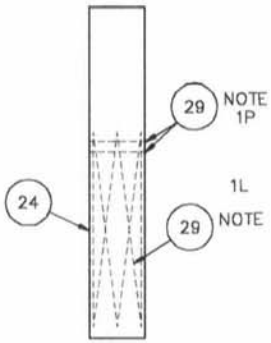
DETAIL KG

CENTER TOP CAP PULL
AEROCHUTE ONLY



UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES TWO PLACE DECIMALS ±.03 THREE PLACE DECIMALS ±.010 FRACTIONS XXXXX ANGLES ±0 -30' BREAK EDGES .005-.015	AEROSTAR™ INTERNATIONAL, INC. SIOUX FALLS, SOUTH DAKOTA DATE 8/2/98	TITLE RETROFIT AEROCHUTE DEFLATION S-81A PAGE VI





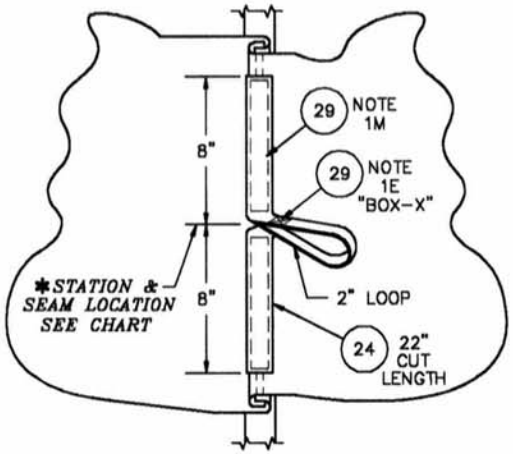
DETAIL AL

DEFLATION ATTACH LOOP
AEROCHUTE

DETAIL AB

BRIDLE ANCHOR

BRIDLE ANCHOR SEAM & STATION LOCATION		
TOP CAP	✱ ONE EACH AT SEAMS	✱ STATION
AEROCHUTE CENTER PULL	15 & 17	49
AEROCHUTE DEFLATION / VENT	43 & 45	49
AEROCHUTE DEFLATION / VENT	17	41



UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES TWO PLACE DECIMALS ±.03 THREE PLACE DECIMALS ±.010 FRACTIONS XXXXX ANGLES ±0 ~30' BREAK EDGES .005~.015	AEROSTAR™ INTERNATIONAL, INC. SIOUX FALLS, SOUTH DAKOTA DATE 9/2/98	TITLE RETROFIT AEROCHUTE DEFLATION S-81A	PAGE VII