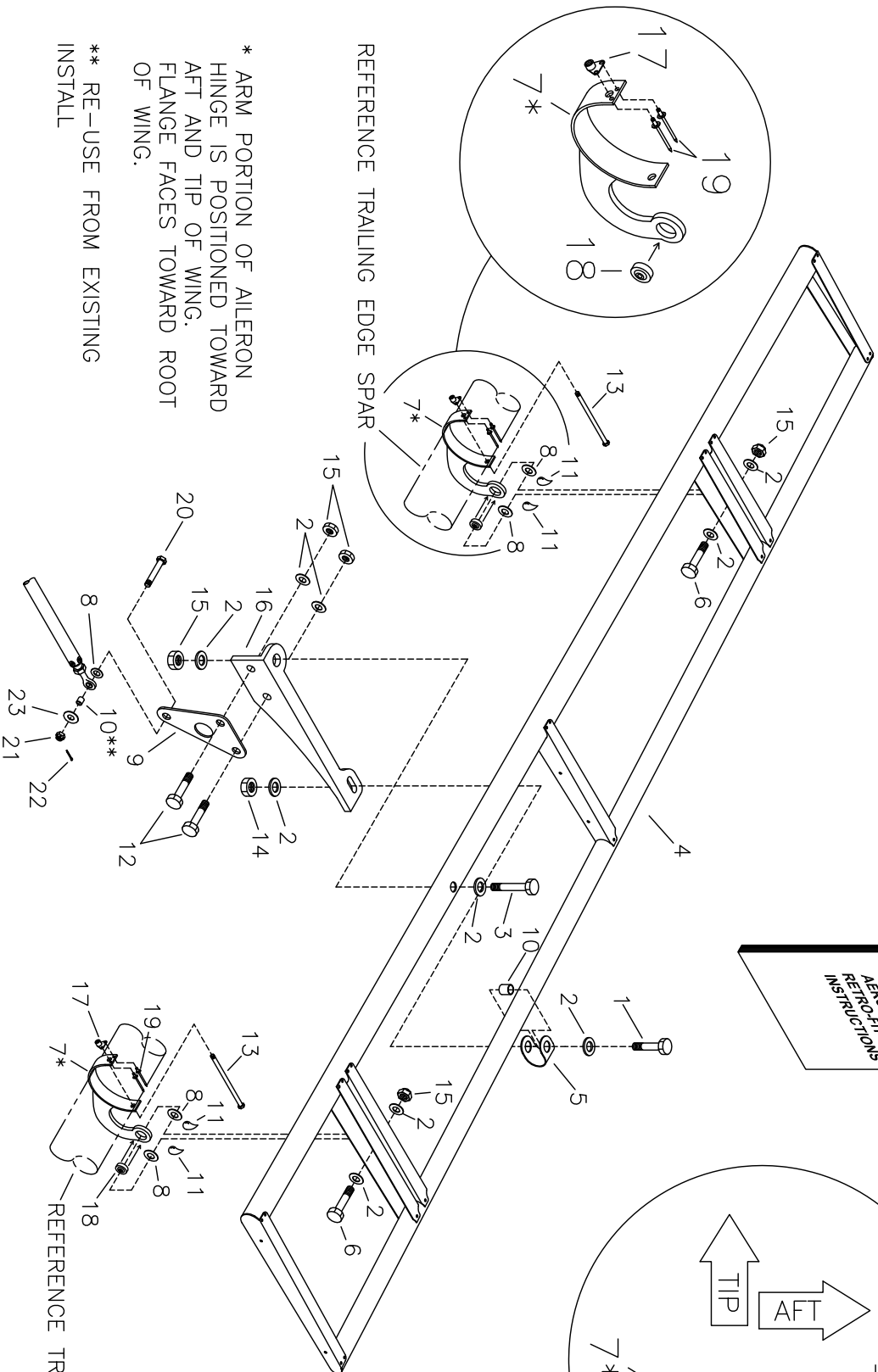
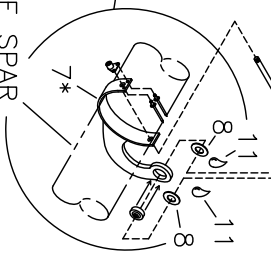
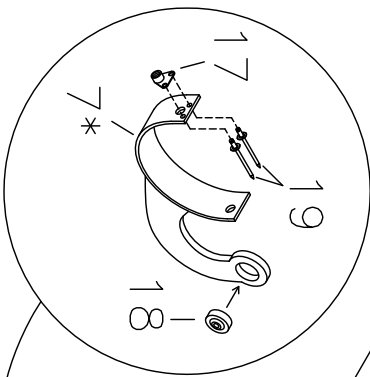
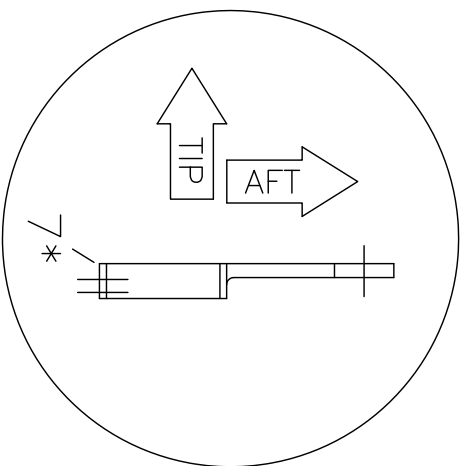


NOTE: RIGHT AILERON SHOWN



24



MD5545

\* ARM PORTION OF AILERON HINGE IS POSITIONED TOWARD AFT AND TIP OF WING. FLANGE FACES TOWARD ROOT OF WING.

\*\* RE-USE FROM EXISTING INSTALL

REFERENCE TRAILING EDGE SPAR

# RANS S-7S COURIER RFK 32 - RETRO-FIT AERO-SERVO AILERON ASSEMBLY AND INSTALLATION

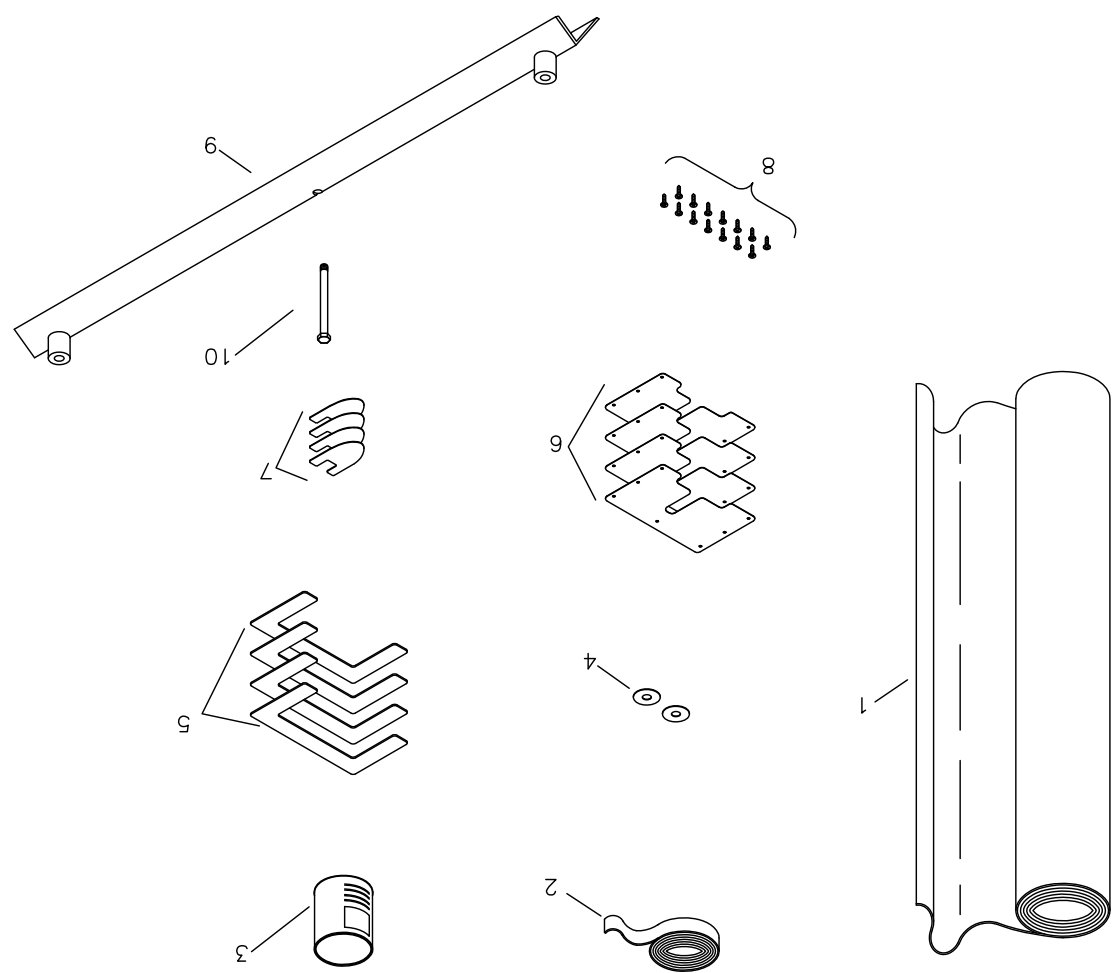
<b>#</b>	<b>DESCRIPTION</b>	<b>PART NUMBER</b>	<b>QUANTITY</b>
1.	3/16" Bolt	AN3-10A	2
2.	3/16" Thin Washer	AN960-10L	16
3.	3/16" Bolt	AN3-20A	2
4.	Aileron Frame Assembly	KAAL0015	2
5.	Aileron Clip	W-A-CLIP	2
6.	3/16" Bolt	AN3-7A	4
7.	Aileron Hinge - LH	KPAL0112-L	2
7.	Aileron Hinge - RH	KPAL0112-R	2
8.	3/16" Thick Washer	AN960-10	10
9.	Aileron Horn	KPAL0124	2
10.	Aluminum Bushing, 1/4" x .028" x 2" *	1/4X028 ALUM TUBE	1
11.	Adhesive - Superglue **	-----	0
12.	3/16" Bolt	AN3-4A	4
13.	3/16" Bolt	AN3-25A	4
14.	3/16" Shear Acorn Nut	22NKM02	2
15.	3/16" Shear Nut	AN364-1032A	8
16.	Aileron Attach Angle - LH	KPAL0125-L	1
16.	Aileron Attach Angle - RH	KPAL0125-R	1
17.	3/16" Side by Side Nut Plate	MS21086-L3	4
18.	3/16" Spherical Bearing	KSHW0089	4
19.	3/32" Aluminum Rivet	40APR1/4	8
20.	3/16" Bolt	AN3-7	2
21.	3/16" Castle Nut	AN310-3	2
22.	Small Cotter Pin	MS24665-134	2
23.	#10 SS Washer	BSHW0022	2
24.	Instruction Pages	-----	1 set

\* Builder Modifies

\*\* Builder Supplied

# RPM S-7S COURIER RFK 32 - RETRO-FIT AERO-SERVO AILERON ASSEMBLY COVERING

MD4219



<b>#</b>	<b>DESCRIPTION</b>	<b>PART NUMBER</b>	<b>QUANTITY</b>
1.	Aircraft Fabric	CV-S7	2 yds
2.	2" Surface Tape	2 TAPE	9 yds
3.	Aircraft Fabric Glue*	-----	0
4.	Drain Grommet	KSCV0003	2
5.	Exit Ring - Aileron Hinge - Aileron	KPCV0058	2
6.	Exit Cover - Aileron Hinge - Aileron	KPCV0059	1
7.	Exit Ring - Aileron Hinge - Wing	KPCV0060	1
8.	#4 Small Pan Head Screw	4X1/4 PHS	28
9.	Servo Aileron Drill Jig	KPAL0123	1
10.	3/16" Bolt	AN3-26A	1

\* Builder Supplied

## **S-7S RETRO AERO-SERVO AILERON INSTALLATION**

### **SUPPLIES REQUIRED**

Super Glue Type Adhesive  
SuperFlite U-500 Urethane Adhesive or similar  
Brushes to apply U-500  
Sandpaper  
Fabric Covering Iron

### **PREPARATION OF WING**

1. Disconnect Push-Pull Tube Assembly from Aileron Horn.
2. Remove Aileron and associated Hinges from Wing Trailing Edge.
3. Mark and trim Gap Seal to be flush with outboard end of Flap. Remove Gap Seals from Aileron area. Rivet holes closed if desired.
4. Bolt Aileron Drill Jig to center Aileron mount hole in Trailing Edge Spar. **CAUTION:** *Be sure to orientate the Jig Correctly. The inboard end is marked.* Drill Jig should align with the centerline of the spar. **IMPORTANT:** *Aileron Drill Jig must align with center of spar!!!* Drill #11 using drill bushings in Drill Jig as a guide. Drill through AFT and FWD sides of Spar. Remove Drill Jig.
5. Hold Aileron Hinge with aft hole aligned with newly drilled hole in Trailing Edge Spar. **IMPORTANT:** *Be sure to check the orientation of the Aileron Hinge.* Rotate forward end of Hinge until touching lower skin of wing. Mark skin where sides of Hinge touches.
6. Use a hot knife or razor blade to make an opening as wide as the Aileron Hinge. Start at the aft end where the skin meets the spar. Increase width and length of slits until Hinge slips into place. Trim off skin once fitted.
7. **NOTE:** *If opening is cut neat enough patches and Exit Ring may not need to be installed. Steps 9 thru 13 may be avoided by neatly trimming.*
8. Rotate Hinge into place and check for proper hole alignment through spar. Remove Aileron Hinge.
9. Layout and mark the Aileron Hinge Exit Ring locations as shown in **FIGURES 07A-33** and **07A-33A**. Modify The Aileron Hinge Exit Rings per **FIGURE 07A-33B**. **IMPORTANT:** *Allow enough room for Aileron Hinge to rotate into place.*
10. Lightly sand bond area and bond the Exit Rings to the fabric in their respective locations.
11. Using a pinking shear cut out fabric patches as per **FIGURE 07A-33**, lightly sand patch area and glue patches over the top of the Exit Rings.

12. Iron along patches and iron down edges. Cut out patch on inside of Aileron Hinge Exit Ring.
13. Re-finish patch areas.

### **PREPARATION OF AILERON HINGE**

14. Install Nut Plate to forward side of Aileron Hinge. **NOTE:** *Pre-located rivet holes in Aileron Hinge will need to be counter-sunk to allow rivets to clear spar.* A #11 drill bit may be used to counter-sink. After pulling Rivet, Squeeze in a vise to ensure the rivet head is flush or below surface. **NOTE:** *Solid Rivets may also be substituted.* **CAUTION:** *Rivet Heads must **NOT** protrude beyond the hinge material or they may scratch the Spar during assembly.*
15. Install Spherical Bearing into arm of Aileron Hinge. Press Bearing into Aileron Hinge until centered. **CAUTION:** *Press only on the outer portion of the Bearing. Do **NOT** press on the inner movable bearing portion.* Sockets or tubes of the proper diameter on either side of the Aileron Hinge arm work well. Squeeze between a vise or arbor press until the Bearing is centered.

### **COVERING AILERON**

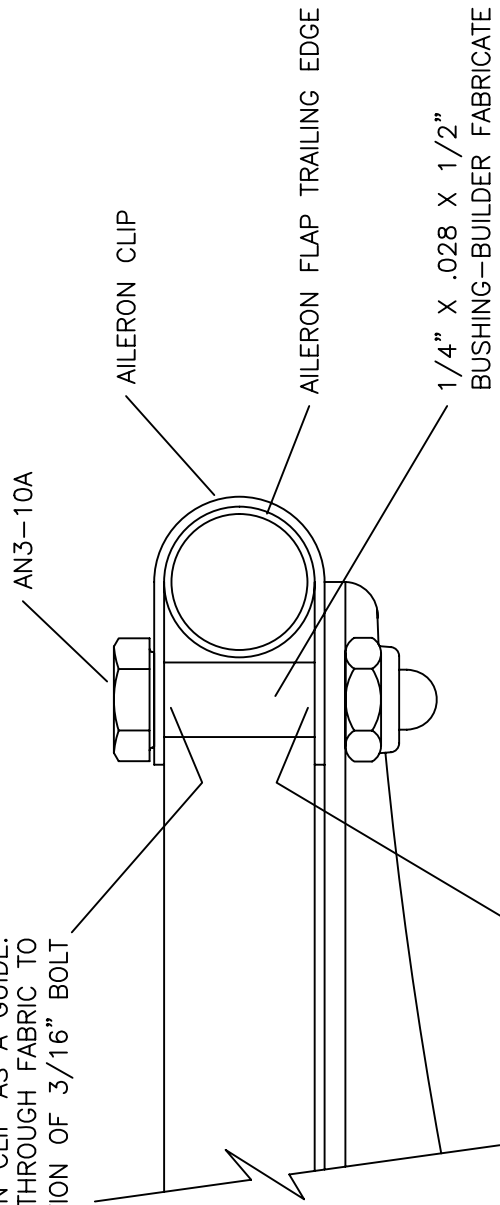
16. Use a light hammer and form AFT ends of Aileron Ribs to follow contour of Aileron Trailing Edge Spar.
17. Clean the entire frame thoroughly with Acetone or similar.
18. Apply anti-chafe tape around sharp edges of ribs (masking tape) as shown in **FIGURE 07B-03**.
19. Cut fabric large enough to fit frames as shown in **FIGURE 07B-05**. **NOTE:** *The fabric is glued around the Leading Edge Spar, wrapped around the Trailing Edge Spar and then glued to the Leading Edge Spar.*
20. The fabric should extend past both ends of frames about 2".
21. Glue fabric to inside of Leading Edge Spar, (cut out to clear ribs) let dry and iron edges down.
22. Wrap around Trailing Edge and glue to Leading Edge. Refer to **FIGURE 07B-05**.
23. Cut and glue fabric around both ends of frames (overlap fabric).
24. Let dry and final iron entire surface for tightening of fabric.
25. Modify the Hinge Exit Covers and Rings per **FIGURE 07B-12**.

26. Apply Drain Grommets and Aileron Exit Rings (bottom side only), patches, and tapes (in this order). Refer to **FIGURE 07B-13**.
27. Iron along tapes and iron down tape edges.
28. Ailerons are now ready for primer and paint. Finish for Aileron Hinge Covers may also be applied at this time.

## **INSTALLATION**

29. Aileron Hinges must be bolted to the Wing Trailing Edge Spar before bolting to the Aileron Frame. **IMPORTANT:** *Be sure to check the orientation of the Aileron Hinge.*
30. Bolt Aileron Attach Angles to bottom of Aileron. **NOTE:** *Aileron Attach Angles are orientated 90 degree to the Aileron Leading Edge.* Fabricate small bushings as per parts manual. Locate and burn small holes through the fabric at the bushing locations. Refer to **FIGURE 05D-05**. **HINT:** *An easy way to locate burn locations is to position Aileron Angle and mark on fabric through AFT slotted hole. Slide Aileron Clip on, align with marked area and mark through Clip holes on both sides.*
31. Position Aileron Hinge Cover and drill #40 through the pre-located holes. Refer to **FIGURE 07B-13**.
32. Install Ailerons per parts pages.
33. Install Aileron Hinge Covers with small #4 screws.
34. Reconnect Push-Pull Tube to Aileron Horn.
35. Re-check rigging of Aileron per **FIGURE 09A-09**.

USE AILERON CLIP AS A GUIDE.  
MARK AND BURN THROUGH FABRIC TO  
ALLOW INSERTION OF 3/16" BOLT

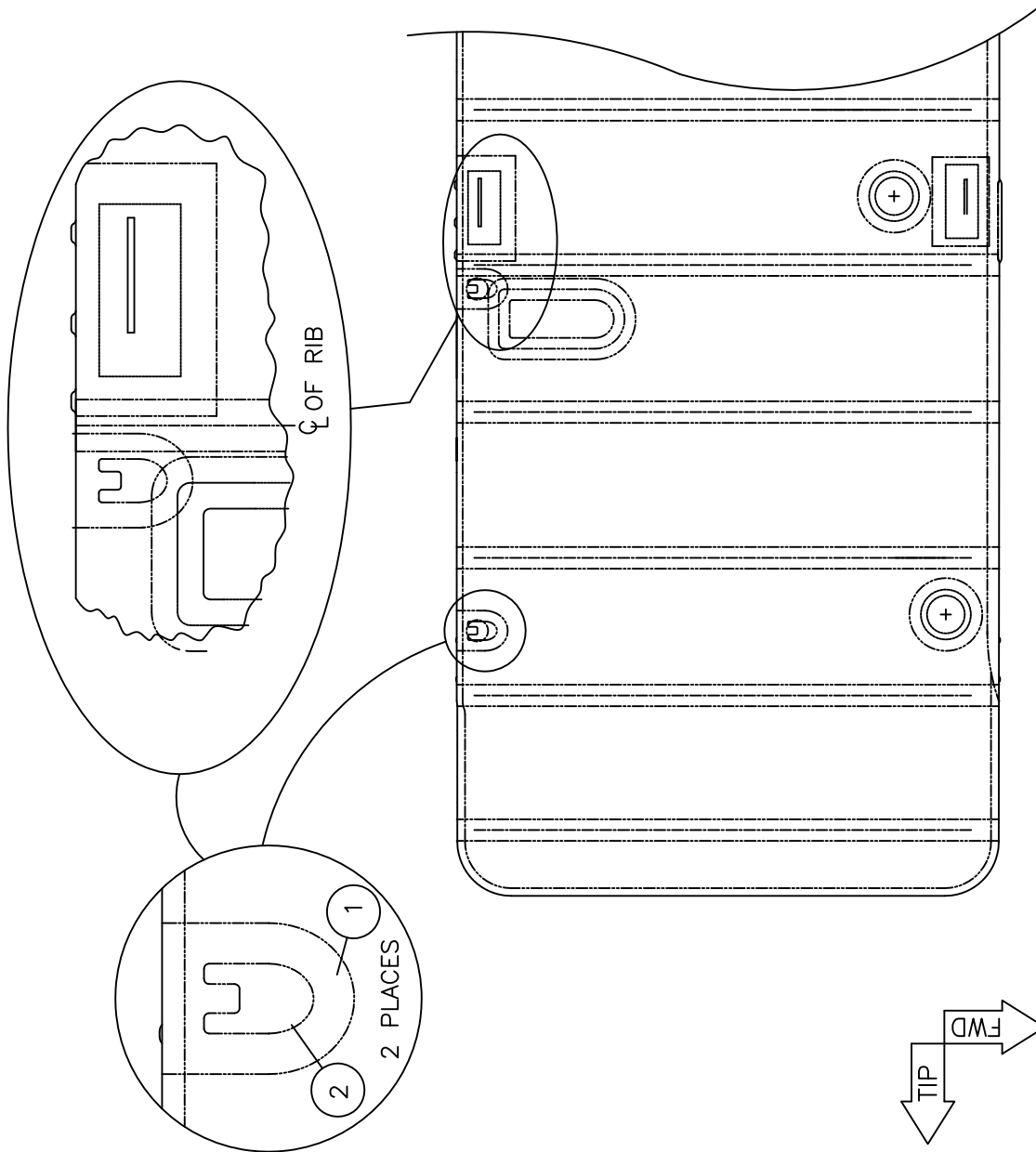


USE AILERON CLIP AS A GUIDE.  
MARK AND BURN THROUGH FABRIC TO  
ALLOW INSERTION OF 1/4" SPACER

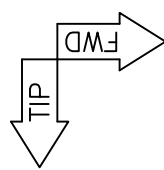
MD4349

**RAMS S-7S**  
**AILERON AND FLAP ATTACH ANGLE**  
**(TRAILING EDGE)**  
**FIGURE 05D-05**

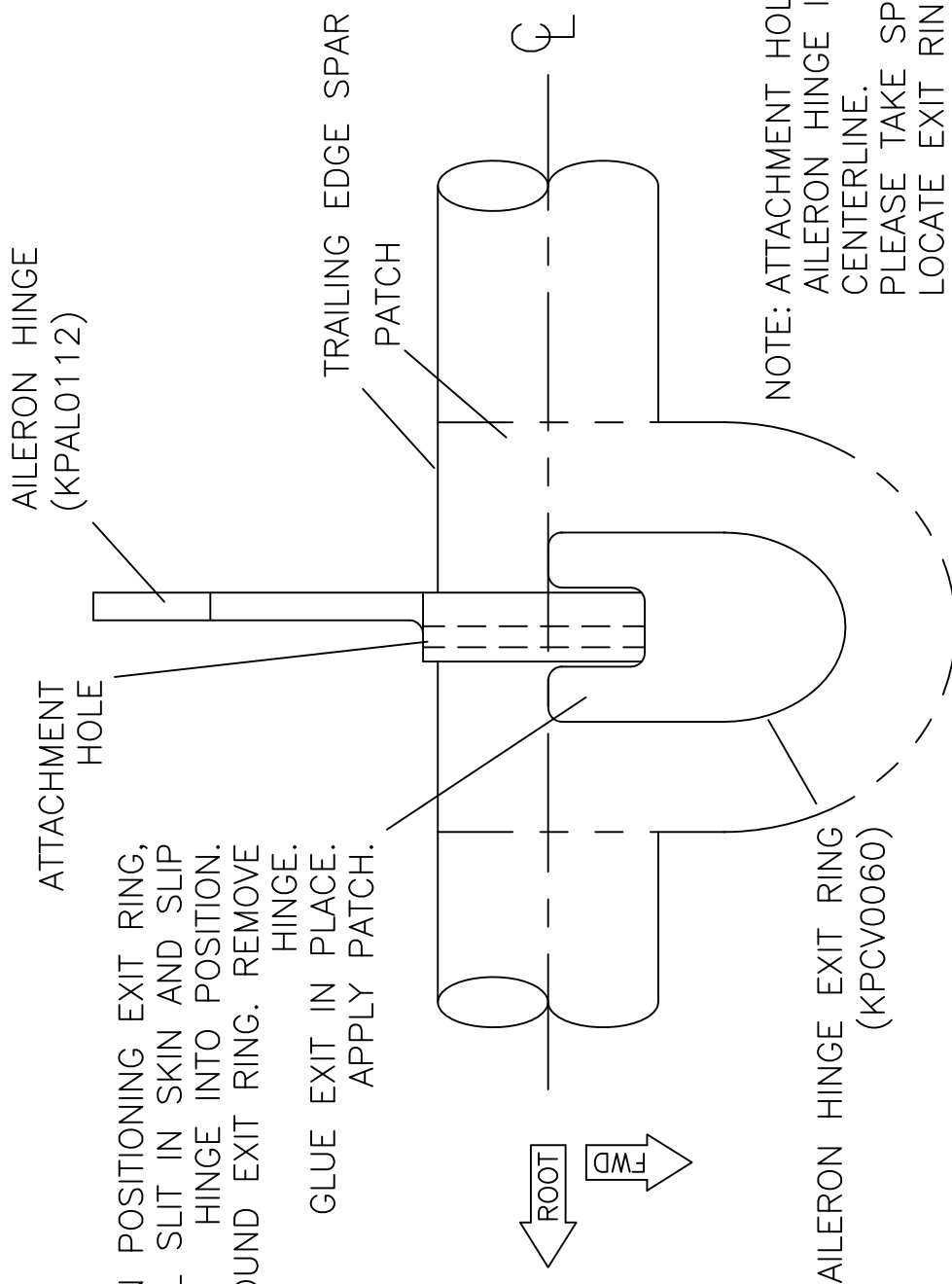




**RFA108 S-7S**  
**RFK 32 - WING BOTTOM COVERING**  
**FIGURE 07A-33**



MD4339



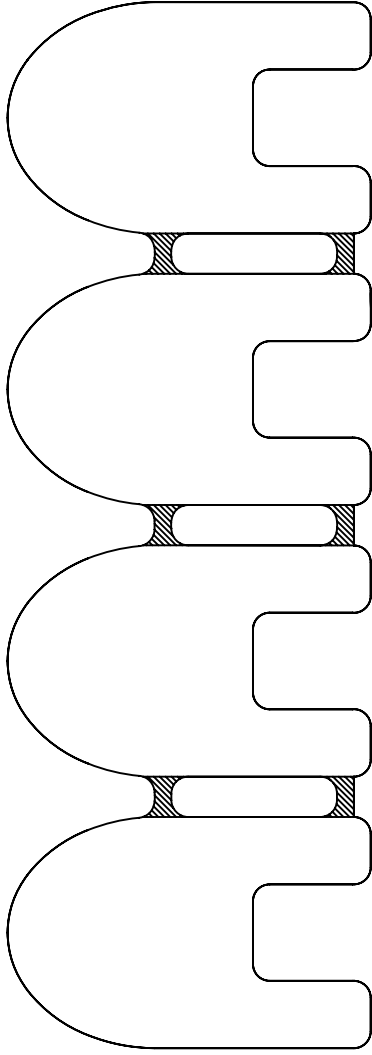
TO HELP IN POSITIONING EXIT RING,  
 MAKE SMALL SLIT IN SKIN AND SLIP  
 HINGE INTO POSITION.  
 MARK AROUND EXIT RING. REMOVE  
 HINGE.  
 GLUE EXIT IN PLACE.  
 APPLY PATCH.

NOTE: ATTACHMENT HOLE THROUGH  
 AILERON HINGE IS OFFSET FROM  
 CENTERLINE.  
 PLEASE TAKE SPECIAL CARE TO  
 LOCATE EXIT RING PROPERLY.

VIEWED FROM BOTTOM SIDE

**RAMS S-7S**  
**AILERON HINGE EXIT RING PLACEMENT**  
**FIGURE 07A-33A**

MD5561

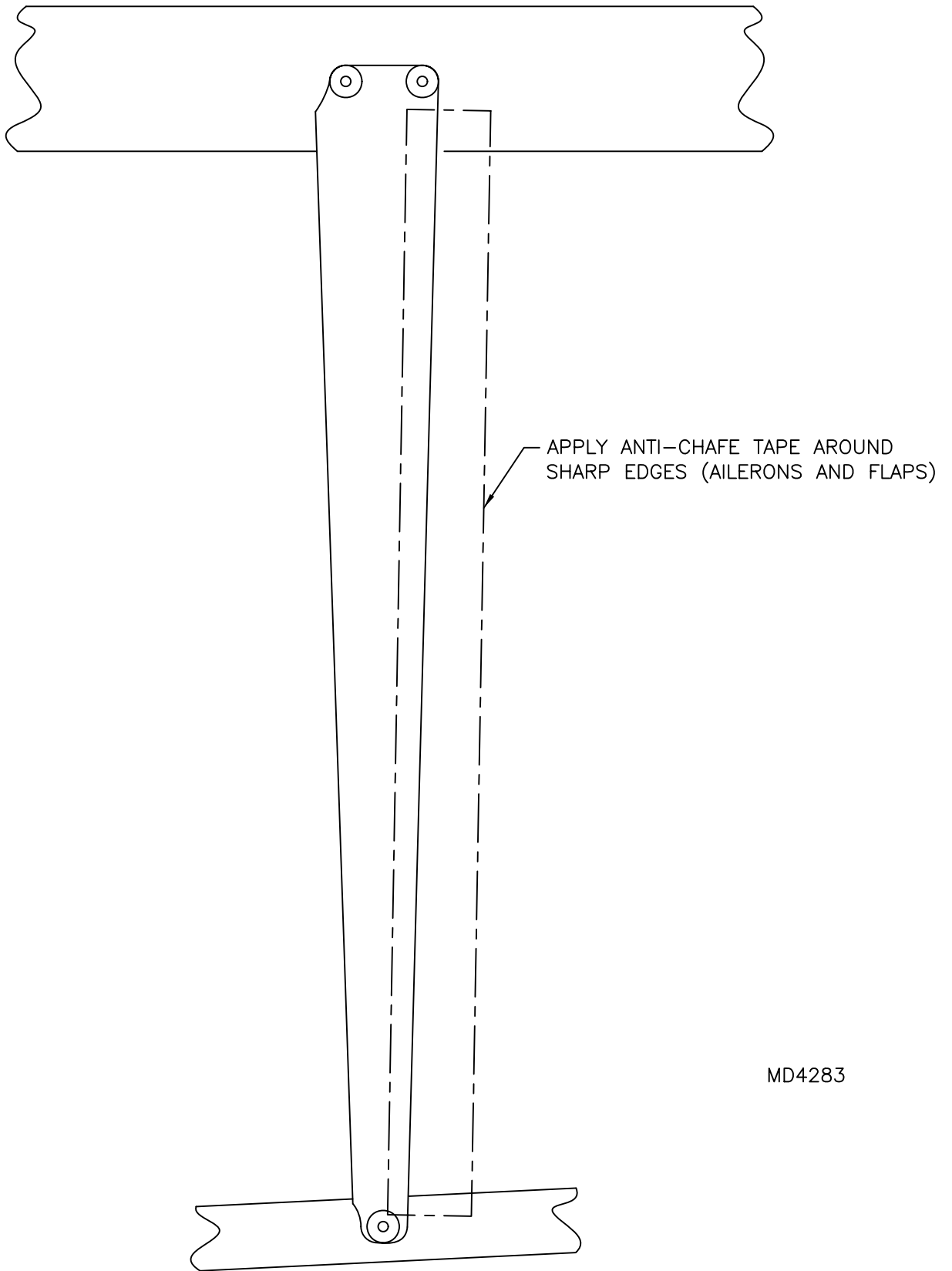


EXIT RING  
AILERON HINGE -- WING  
(KPCV0060)

REMOVE HATCHED AREAS

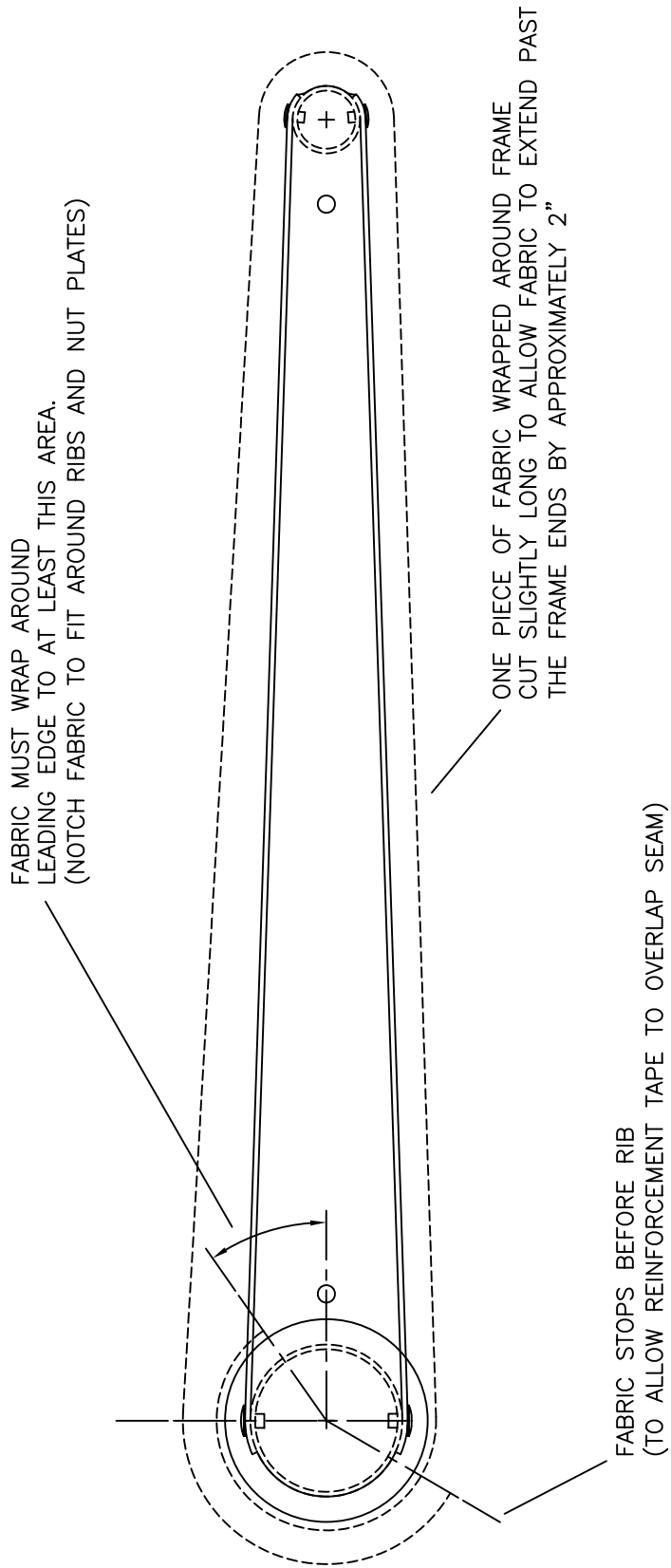
MD5549

**RRR S-7S**  
AILERON HINGE EXIT RING MODIFICATION  
FIGURE 07A-33B



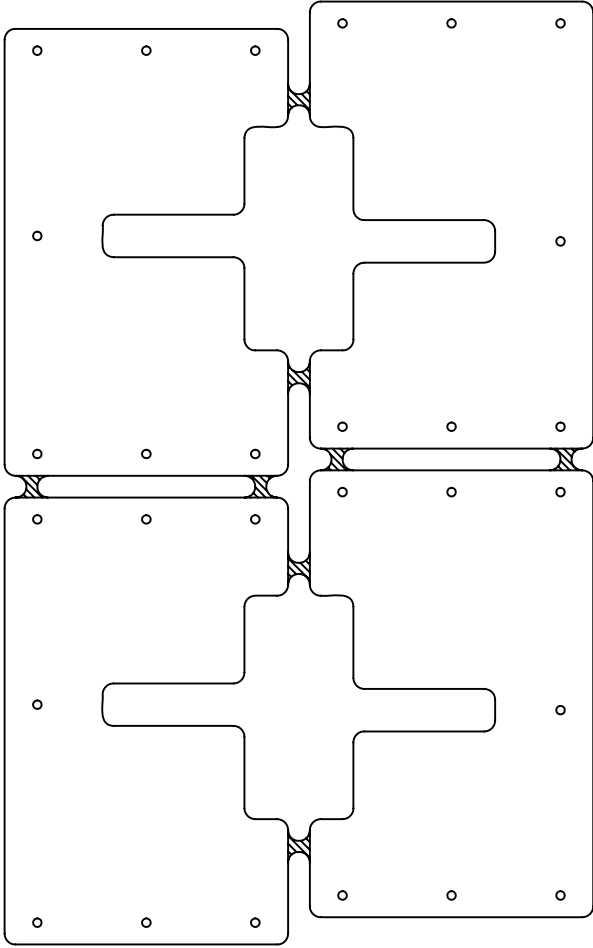
MD4283

**RANS S-7S**  
**ANTI-CHAFE TAPE APPLICATION FOR AILERONS AND FLAPS**  
**FIGURE 07B-03**

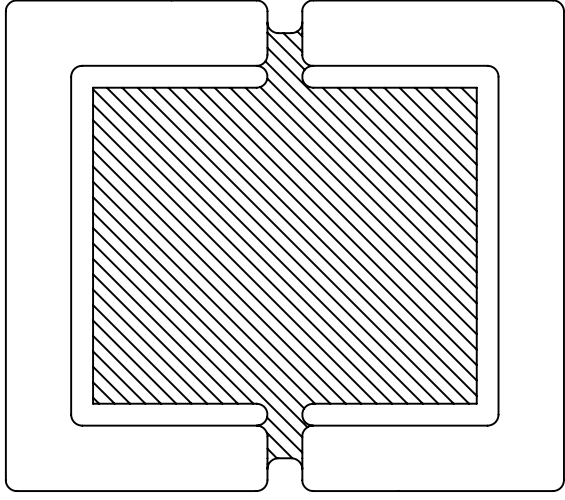


MD4284

**RAFANES S-7S**  
**AILERON AND FLAP COVERING**  
**FIGURE 07B-05**



EXIT COVER  
AILERON HINGE – AILERON  
(KPCV0059)

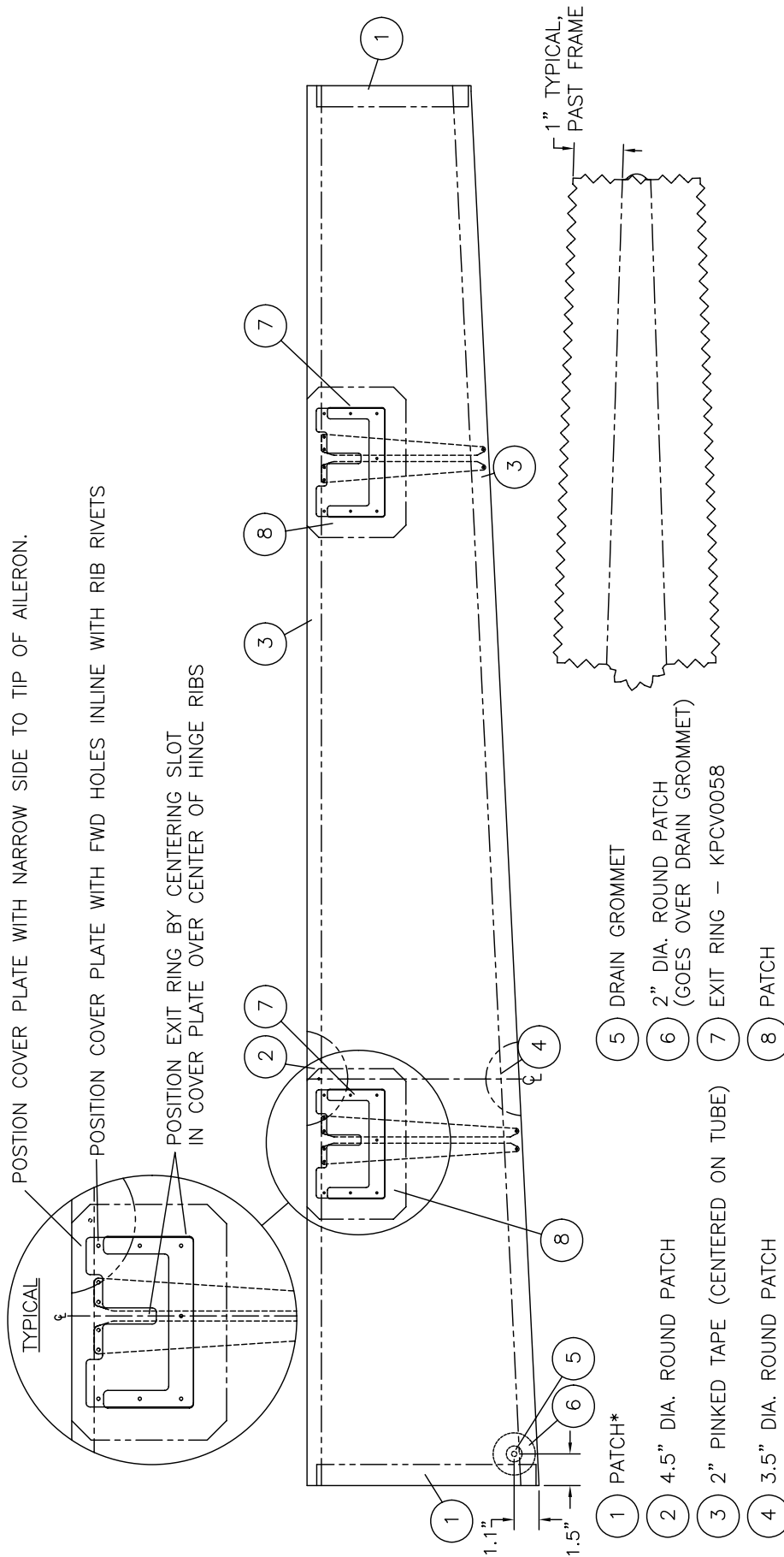


EXIT RING  
AILERON HINGE – AILERON  
(KPCV0058)

REMOVE HATCHED AREAS

MD5549

**RRADONS S-7S**  
AILERON HINGE COVER AND RING MODIFICATION  
FIGURE 07B-12

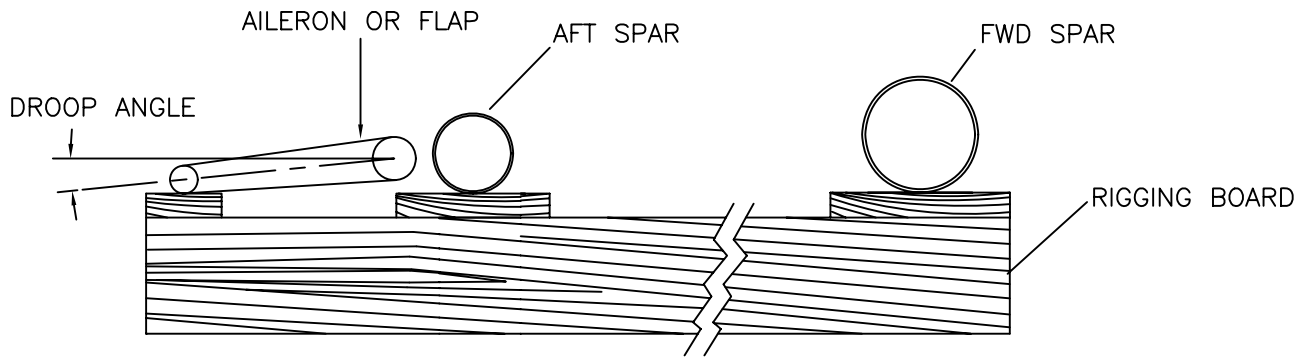


\* TYPICAL END PATCH FORAILERONS.  
MAKE 1" LARGER THAN END RIB. CUT WITH PINKED  
SCISSORS.

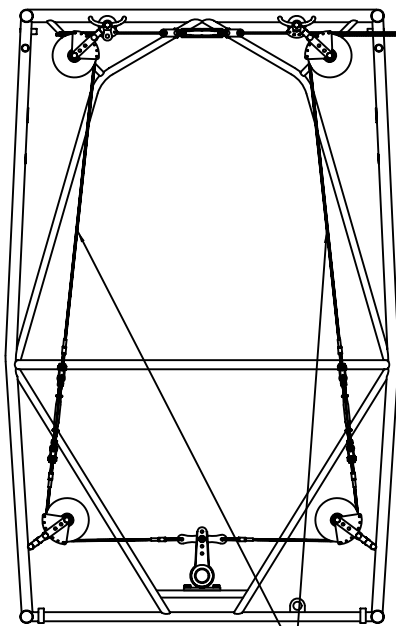
MD5538

LOWER SIDE OF LEFT HAND  
AILERON SHOWN

**RAMS S-7S**  
**AILERON COVERING**  
**FIGURE 07B-13**

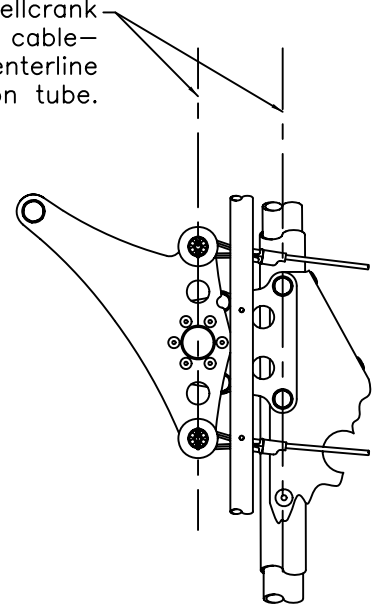


CENTER FORWARD CONTROL STICK (AILERON NEUTRAL) AND FIX IN THIS POSITION.  
 ADJUST AILERON CABLE LENGTH AND CABLE TENSION AND CHECK THAT BOTH AILERON  
 BELL CRANKS ARE IN NEUTRAL POSITION (VISUAL INSPECTION) WITH STICK CENTERED.  
 ADJUST CABLE TENSION TO 25 LB. - 0.0 + 5 LBS (2 PLS)



Measure left and right  
 approximate here

In neutral position of bellcrank  
 the centerline through both cable-  
 attach bolts is parallel to centerline  
 of compression tube.



MD4427

**RANS S-7S**  
**AILERON RIGGING**  
**FIGURE 09A-09**