

REVISION LIST

CHAPTER 10: CENTER WING SECTION INSTALLATION

The following list of revisions will allow you to update the Legacy construction manual chapter listed above.

Under the “Action” column, “R&R” directs you to remove and replace the pages affected by the revision. “Add” directs you to insert the pages shown and “R” to remove the pages.

PAGE(S) AFFECTED	REVISION # & DATE	ACTION	DESCRIPTION
10-1 through 10-11	0/02-15-02	None	Current revision is correct
10-12	1/09-18-02	R&R	Corrected Figure 10:B:1
10-13 through 10-18	0/02-15-02	None	Current revision is correct
10-1	3/12-15-04	R&R	Updated table of contents with page numbers.

Chapter 10: Center Wing Section Installation

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1. PARTS LIST

#	PART NO. (P/N)	QTY	DESCRIPTION	OPTIONAL ITEM <i>(not included with kit)</i>
1)	4025-01	1	Load Pad, Forward Left	
2)	4025-02	1	Load Pad, Forward Right	
3)	4025-03	1	Load Pad Access Panel, Left	
4)	4025-04	1	Load Pad Access Panel, Right	
5)	4026-01	1	Load Pad, Center Left	
6)	4026-02	1	Load Pad, Center Right	
7)	4200-03	1	Upper Wing Skin, Left Inboard	
8)	4200-04	1	Upper Wing Skin, Right Inboard	
9)	4232-01	1	Load Pad, Aft left	
10)	4232-02	1	Load Pad, Aft Right	
11)	EVAC-U8	1	Emergency Escape Smoke Hood	**Yes

Note:

Optional Parts available through :

(*) Lancair Avionics

() Kit Components, Inc.**



10-1

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CENTER WING SECTION INSTALLATION		

2. CONSTRUCTION PROCEDURES

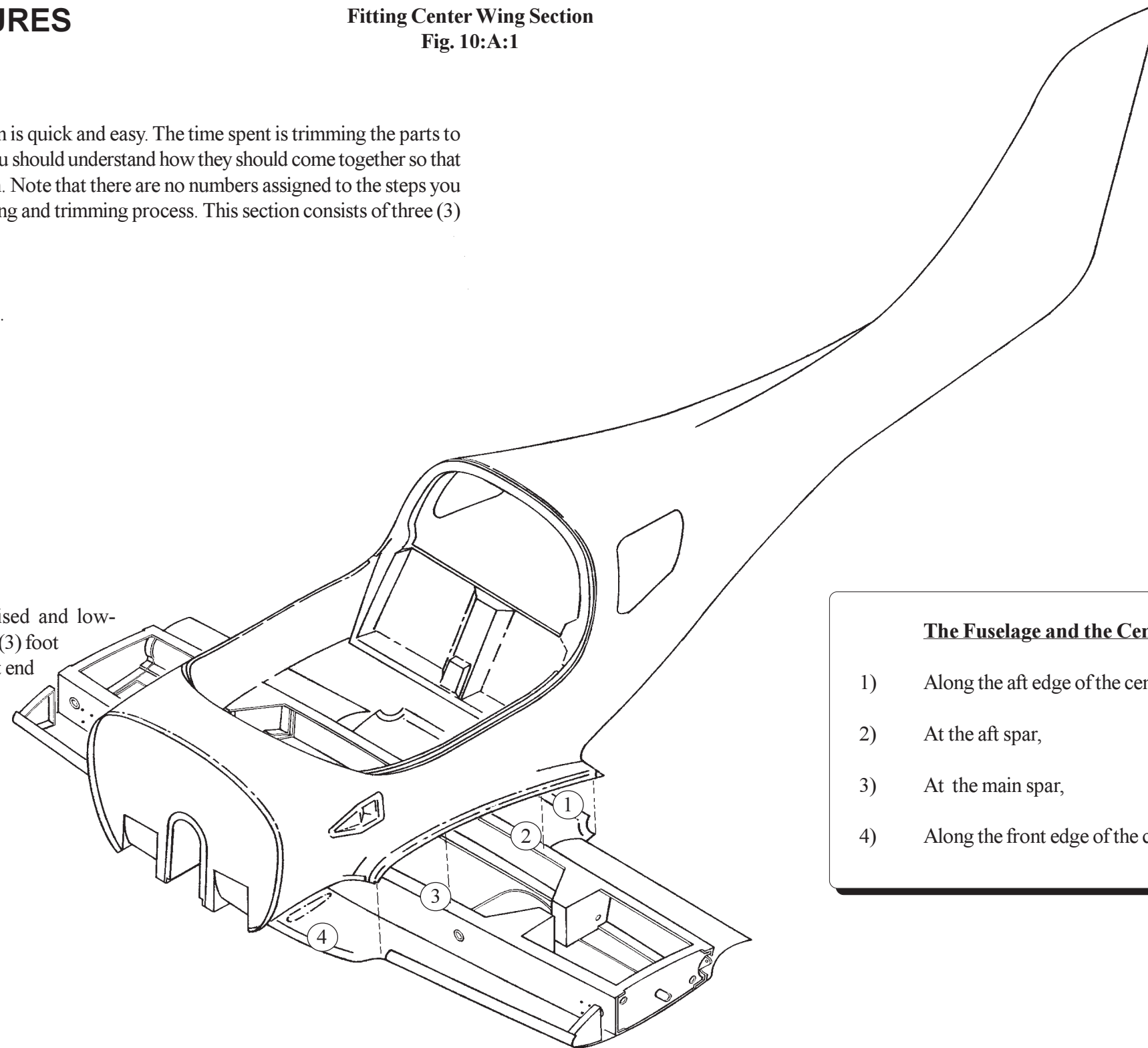
Fitting Center Wing Section
Fig. 10:A:1

A. Bonding the Center Wing Section

The actual bonding of the center wing section is quick and easy. The time spent is trimming the parts to fit each other. In fitting the parts it is important that you should understand how they should come together so that you can make the judgement as to how much to trim. Note that there are no numbers assigned to the steps you will perform in this section. It is a back and forth fitting and trimming process. This section consists of three (3) parts:

- 1) Fit and trim the parts.
- 2) Final alignment and drilling holes for clecoes.
- 3) The bonding of center wing section.

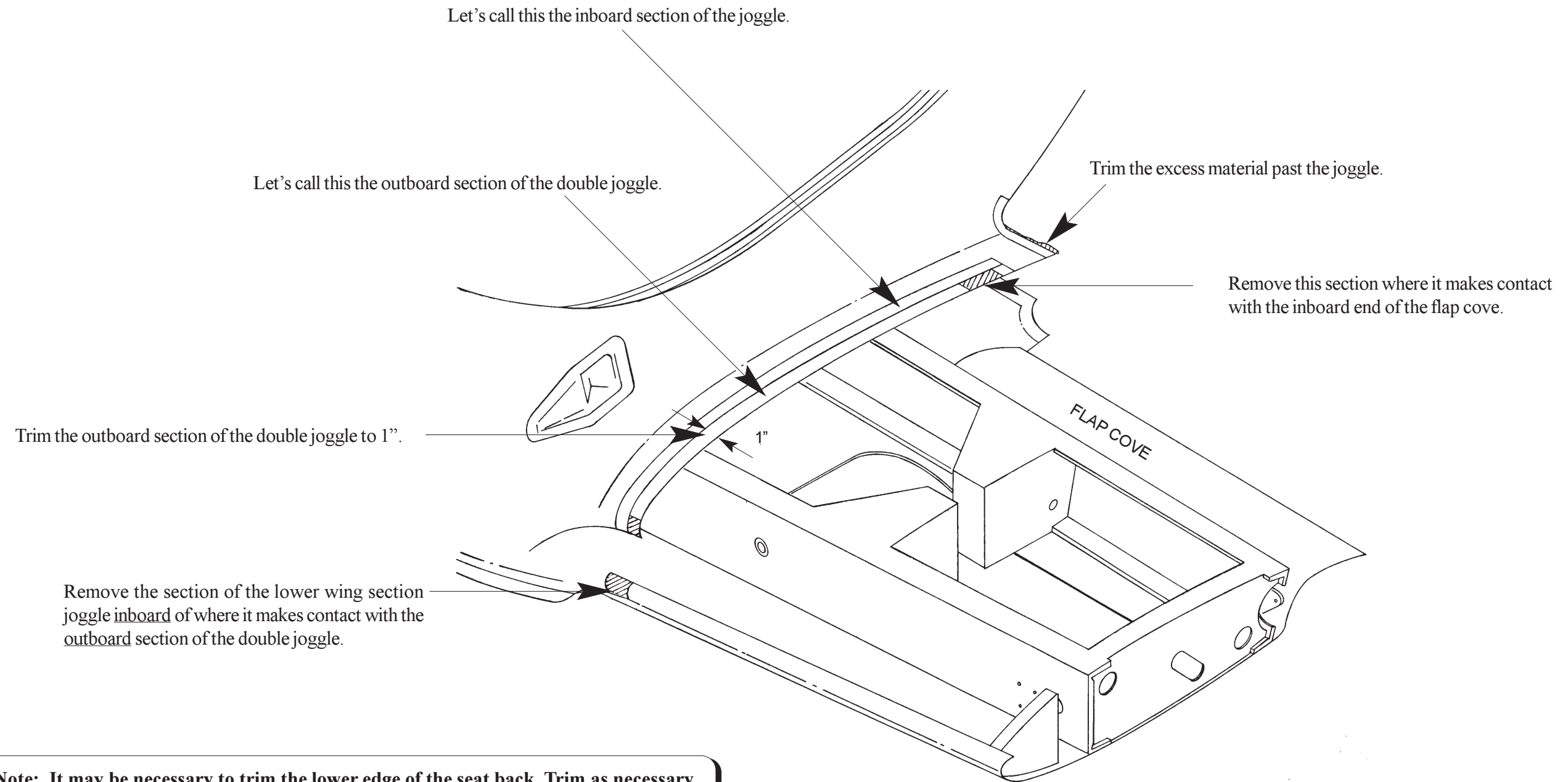
The fuselage will have to be repetitively raised and lowered for checking and trimming. We suggest a three (3) foot tall saw horse for the purpose of supporting the front end of the fuselage when raised.



The Fuselage and the Center Wing Section Bond

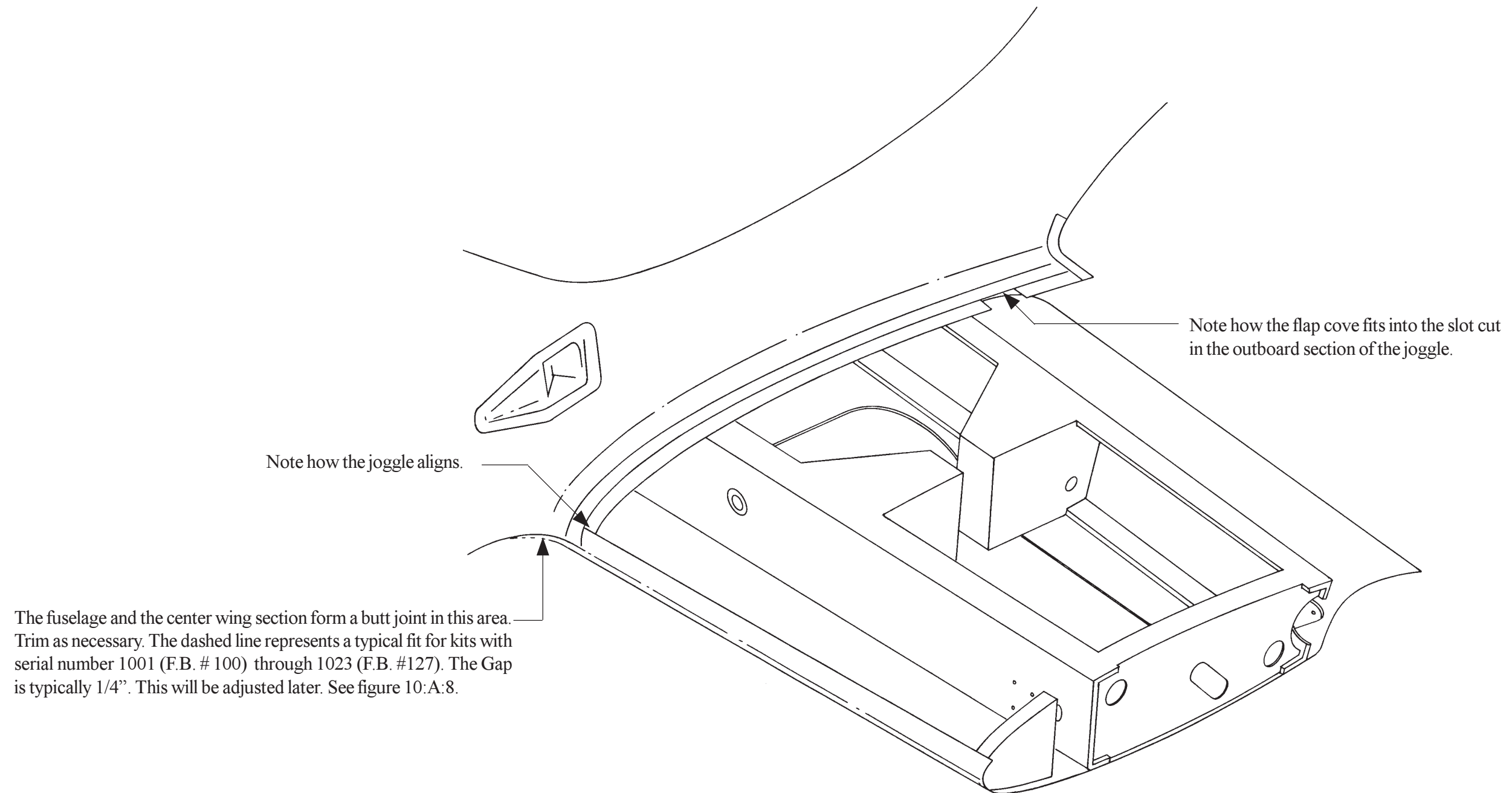
- 1) Along the aft edge of the center wing section,
- 2) At the aft spar,
- 3) At the main spar,
- 4) Along the front edge of the center wing section.

Trimming Joggles Wing Fillet Area
Fig. 10:A:2



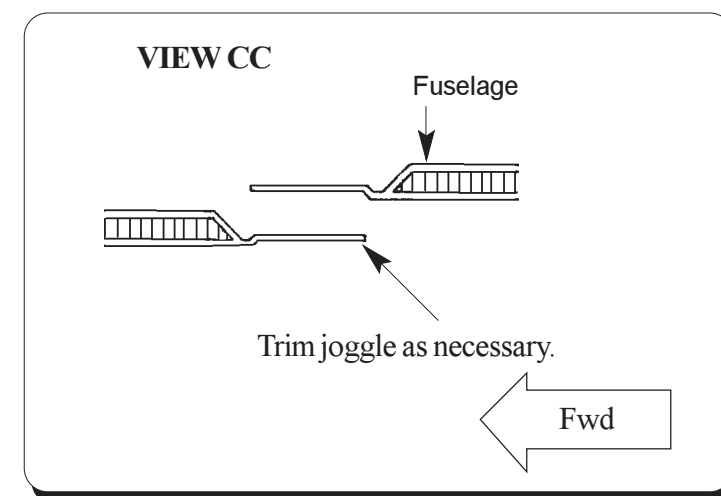
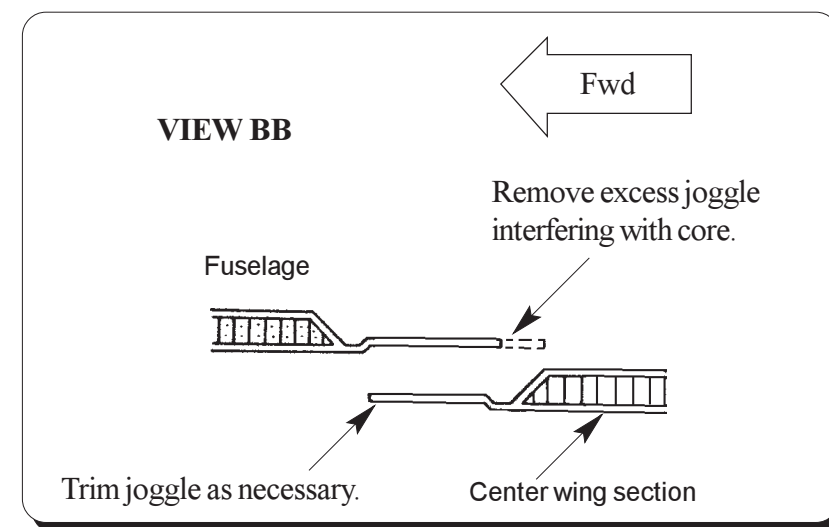
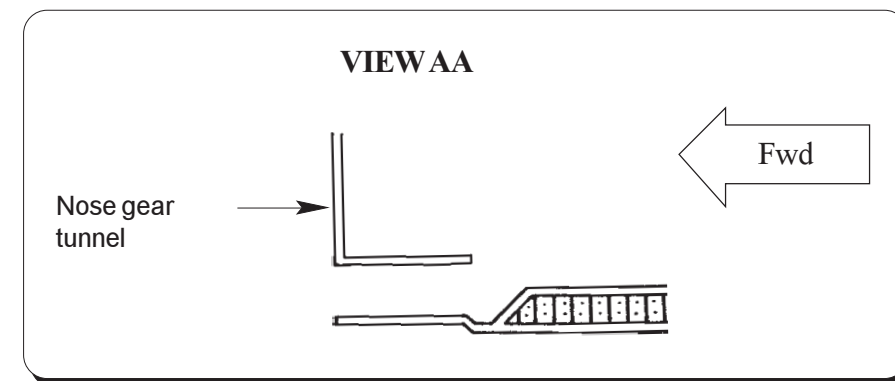
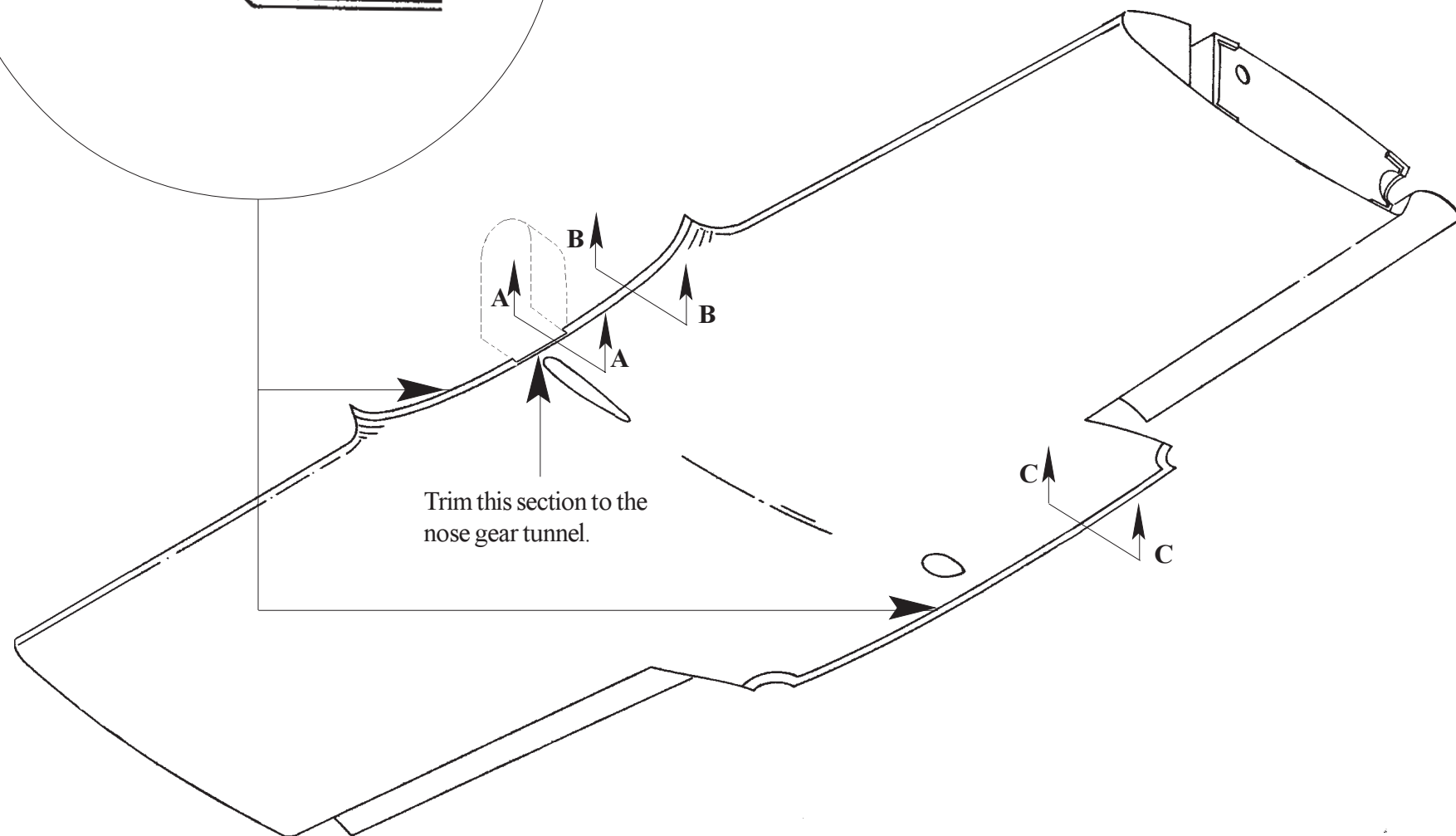
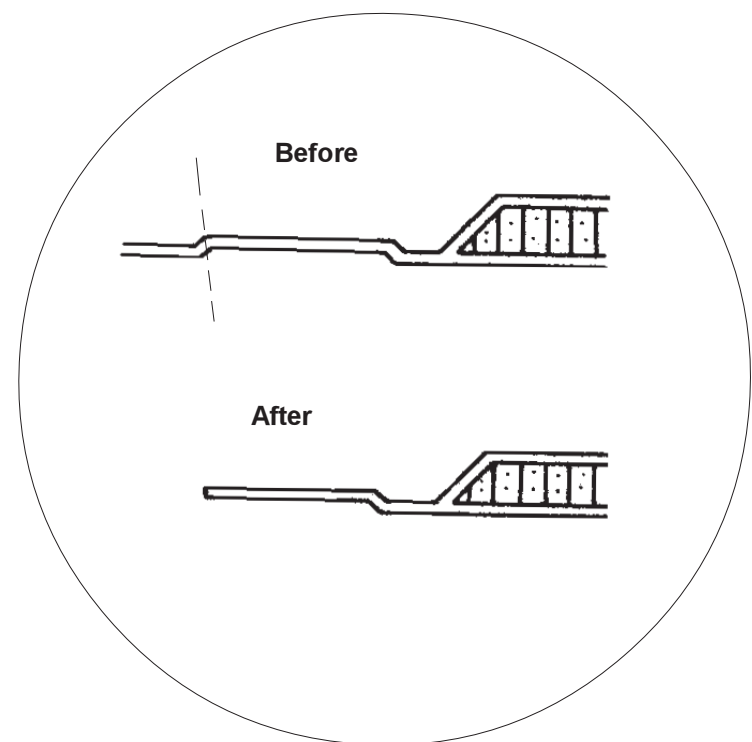
Note: It may be necessary to trim the lower edge of the seat back. Trim as necessary.

Fitting Joggles Wing Fairing Area
Fig. 10:A:3

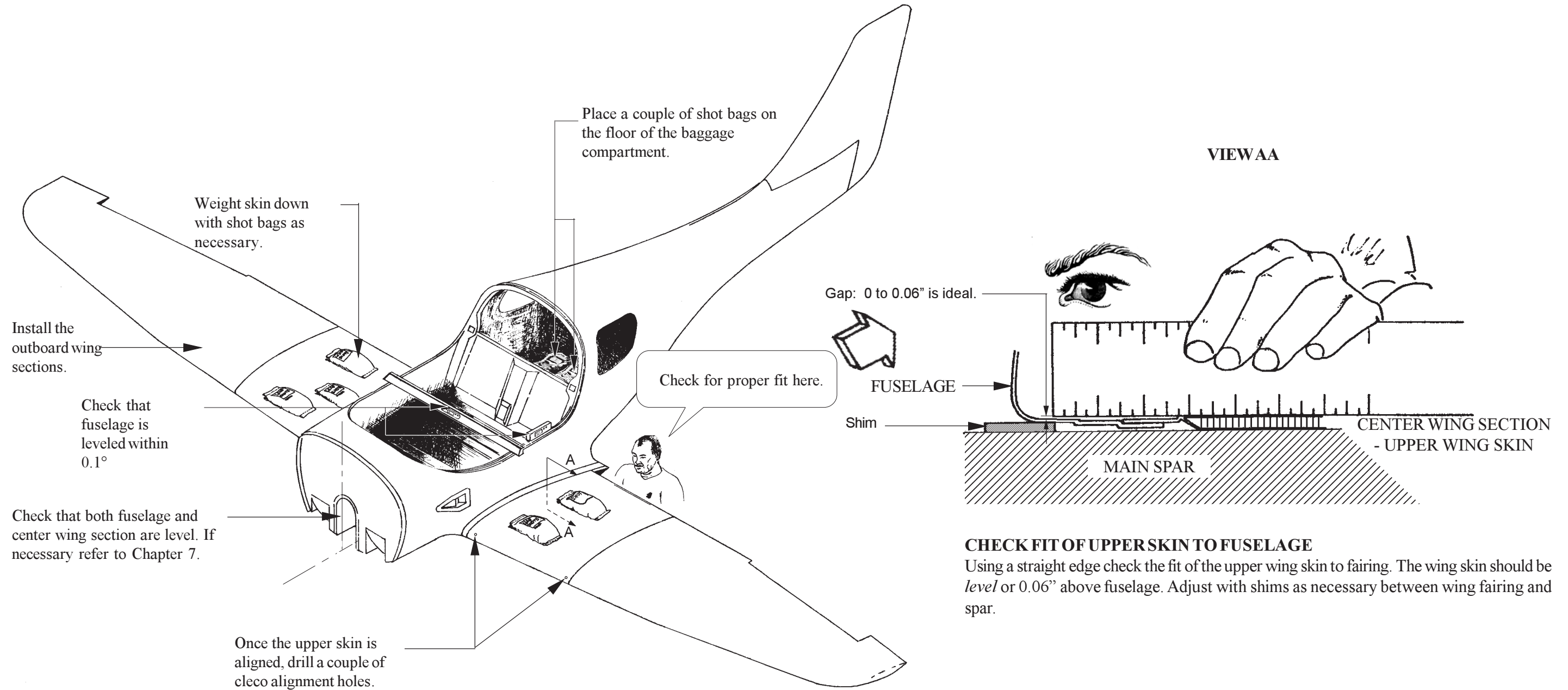


Trimming Joggles Center Wing Section
Fig. 10:A:4

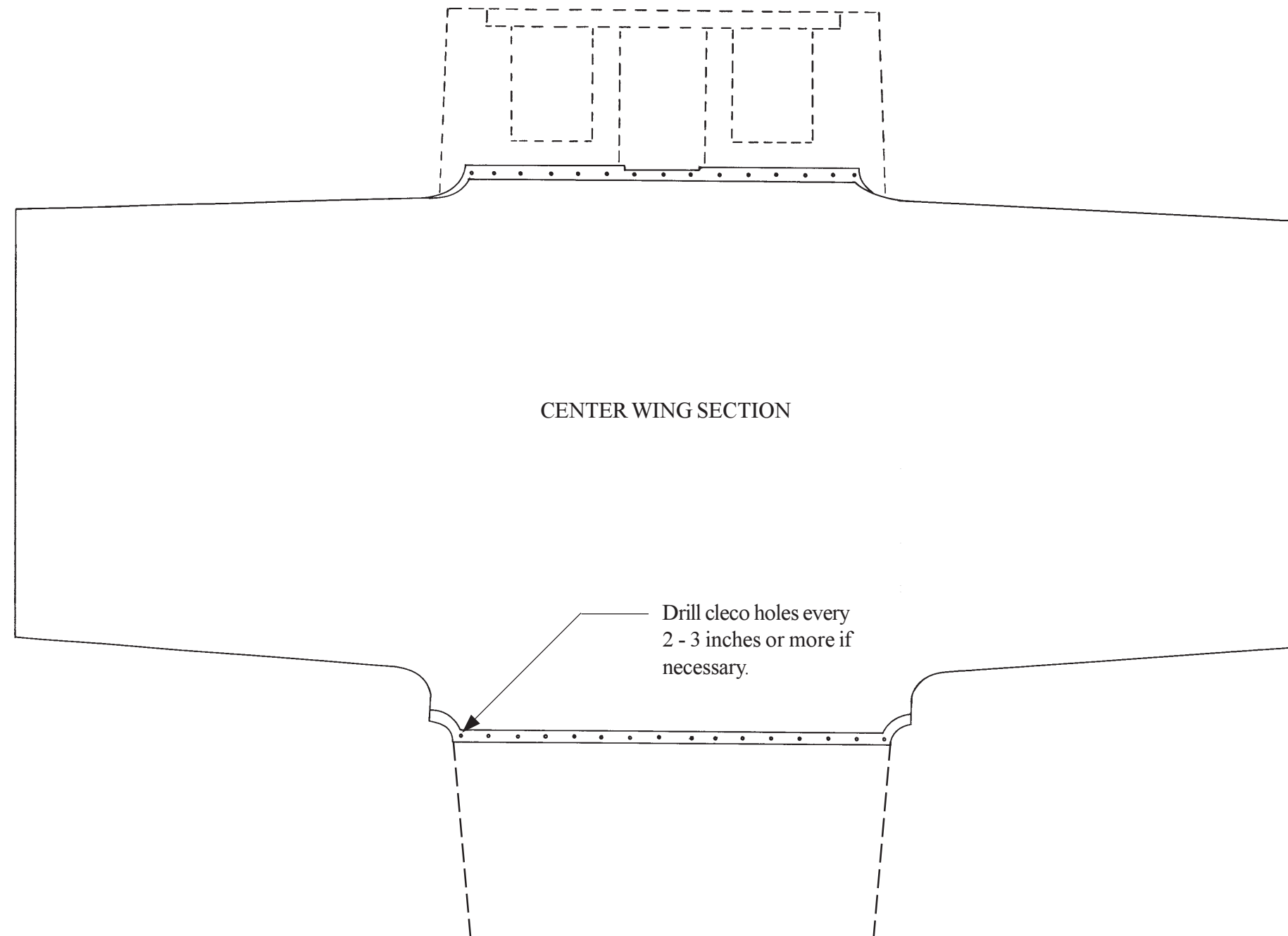
INITIAL CENTER WING SECTION JOGGLE TRIMMING



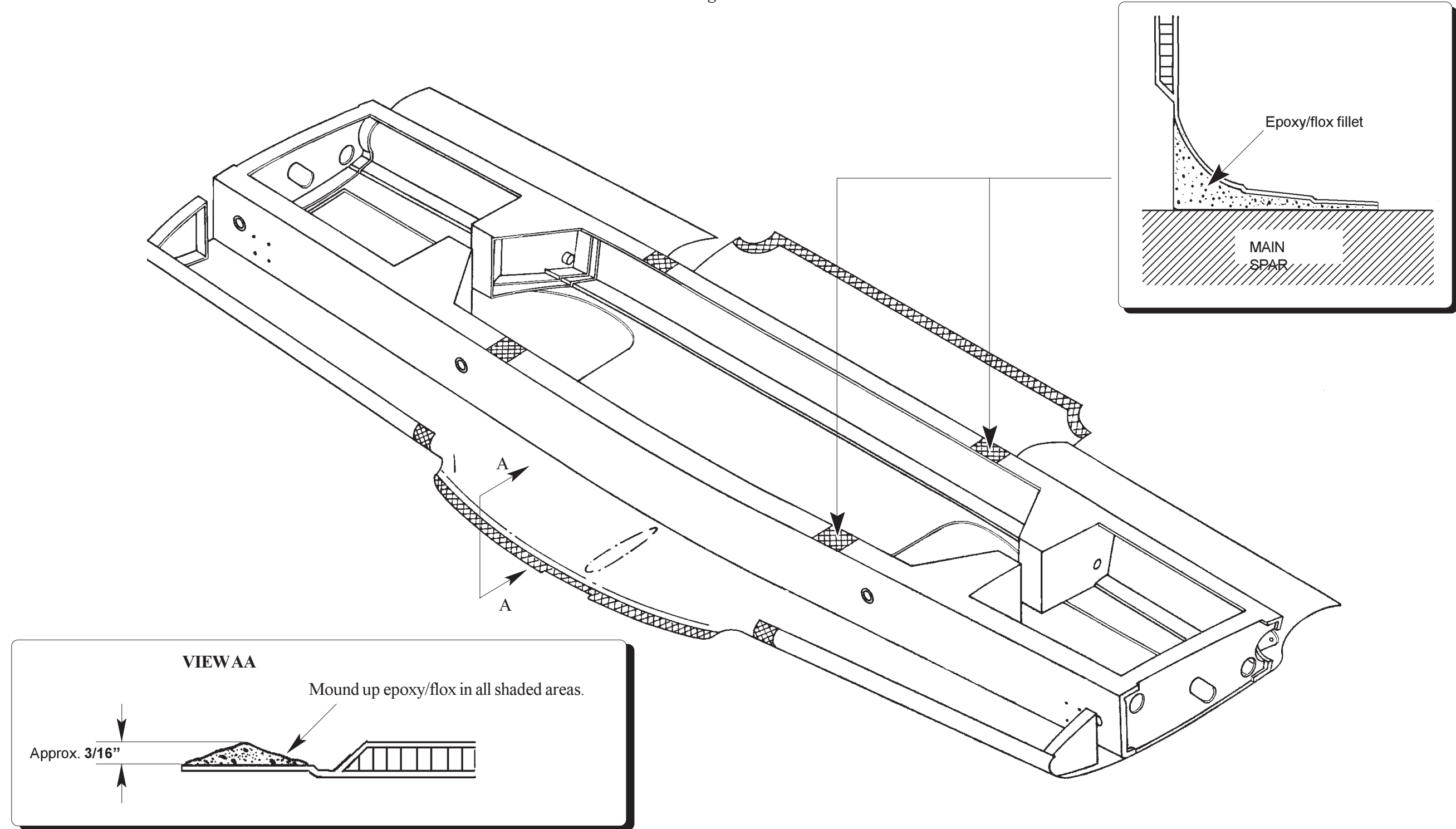
Wing Skin to Fuselage Fitting
Fig. 10:A:5



**Cleco Holes
(Bottom View)
Fig. 10:A:6**



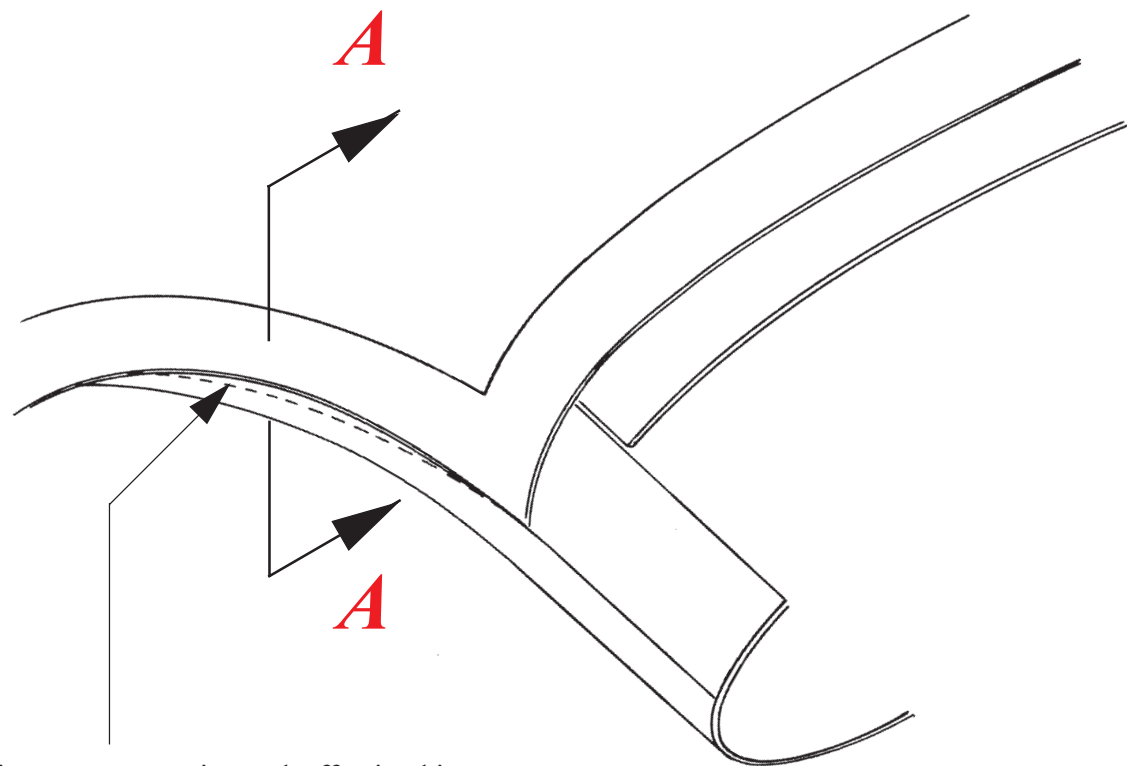
Bonding Center Wing Section
Fig. 10:A:7



NOTE: Refer to chapter 1 for proper bonding procedures if necessary.

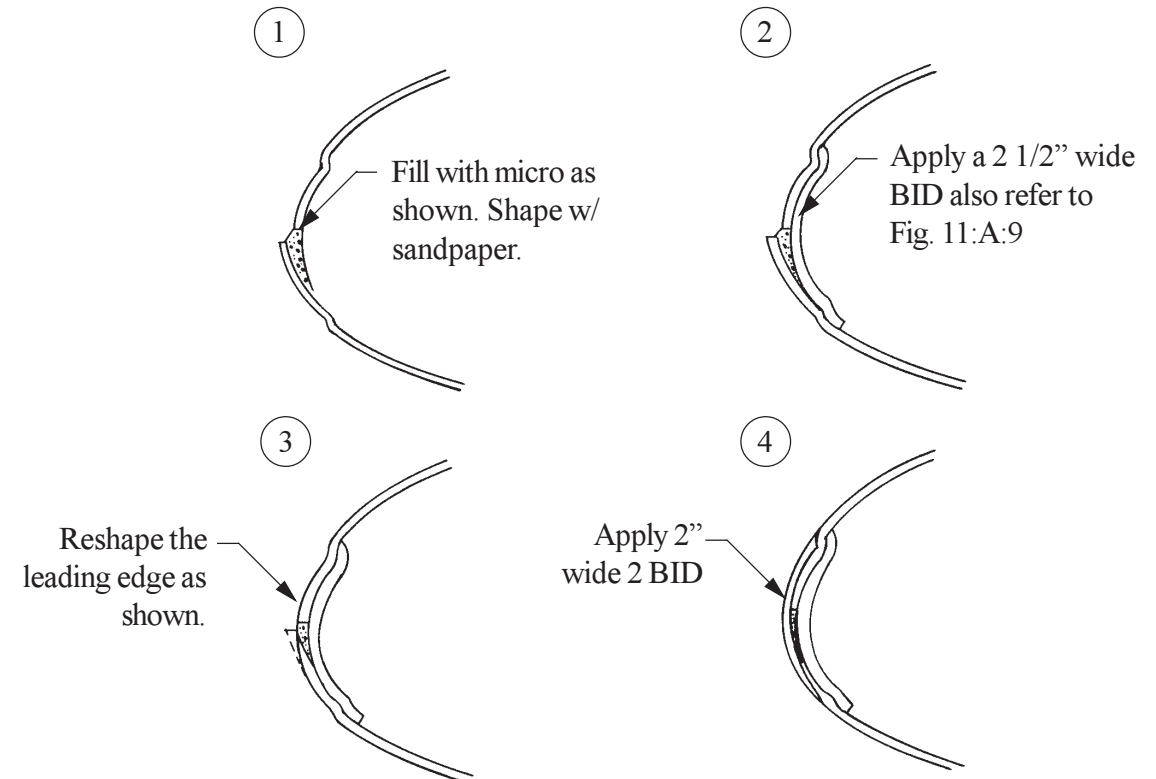
Leading Edge at Fuselage Junction
Fig. 10:A:8

We mentioned in figure 10:A:3 that kits with serial numbers 1001(F.B.# 100) through 1023(F.B.# 127) have a slight mismatch in the leading edge of the wing at the fuselage junction. The construction procedure is essentially the same. The differences are pointed out below.

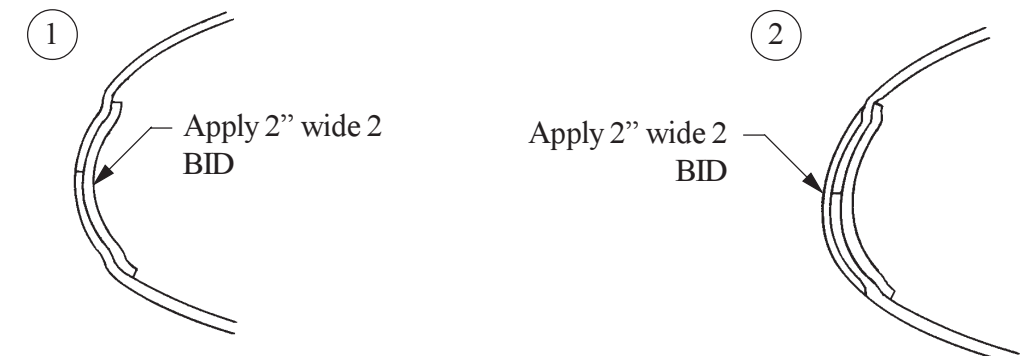


Dashed lines represent mismatch affecting kits with serial # 1001 (F.B. # 100) through 1023 (F.B.# 127).

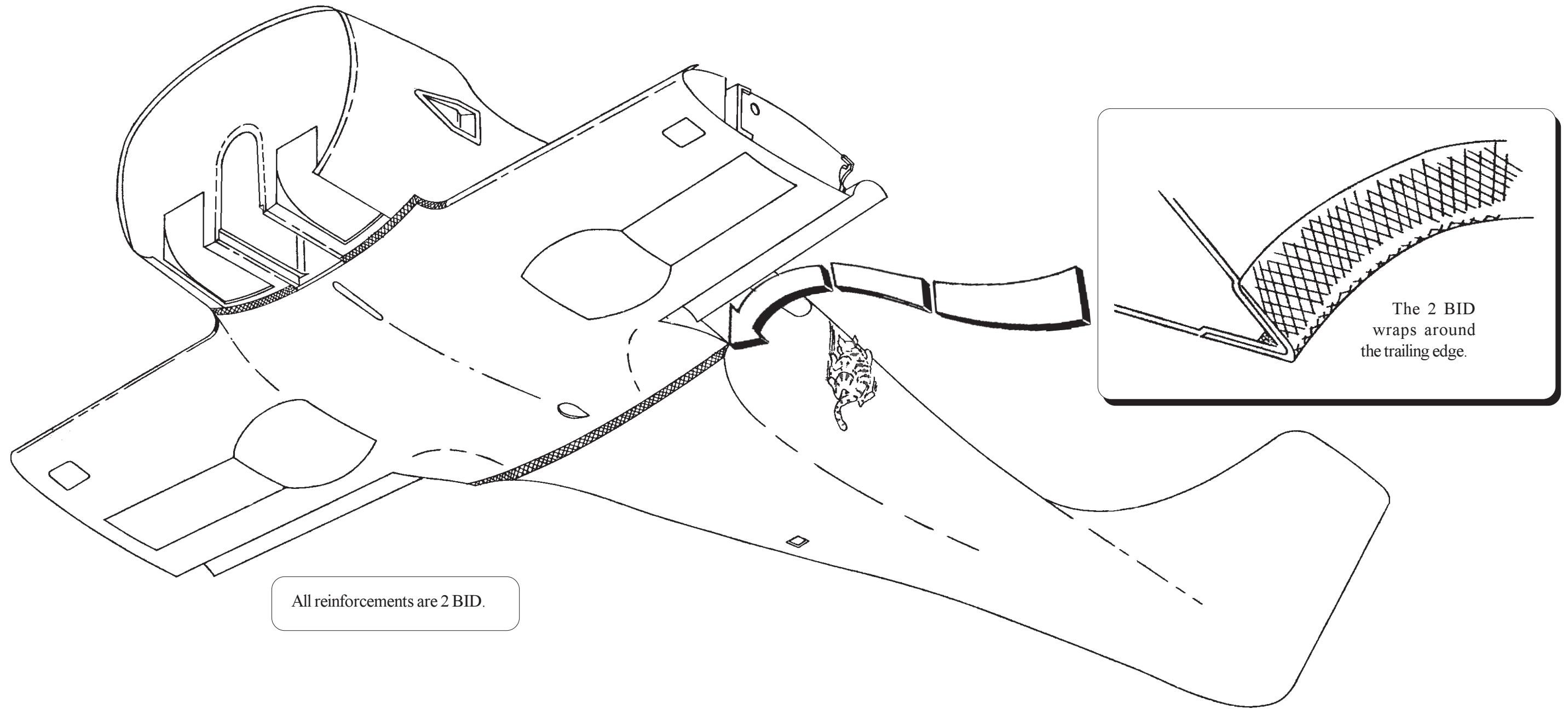
Kits with F.B. # 100 through F.B. # 127



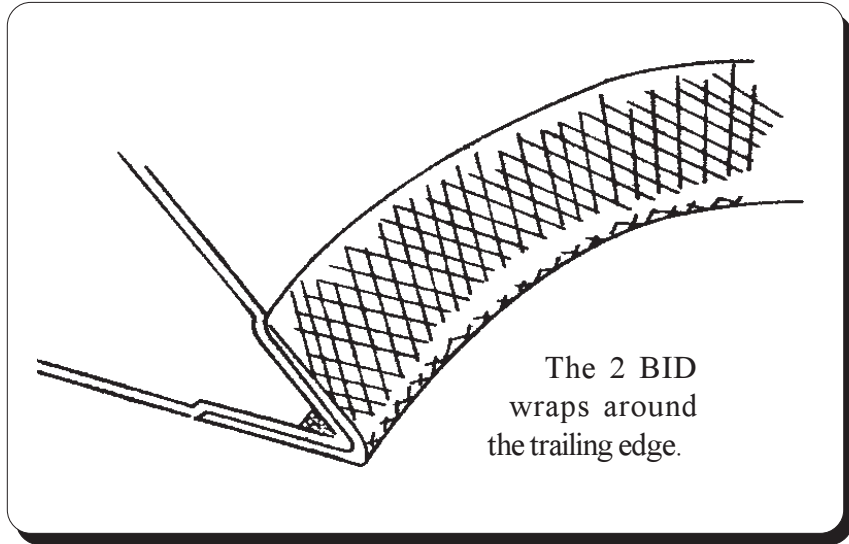
Kits with F.B. # 128 and on.



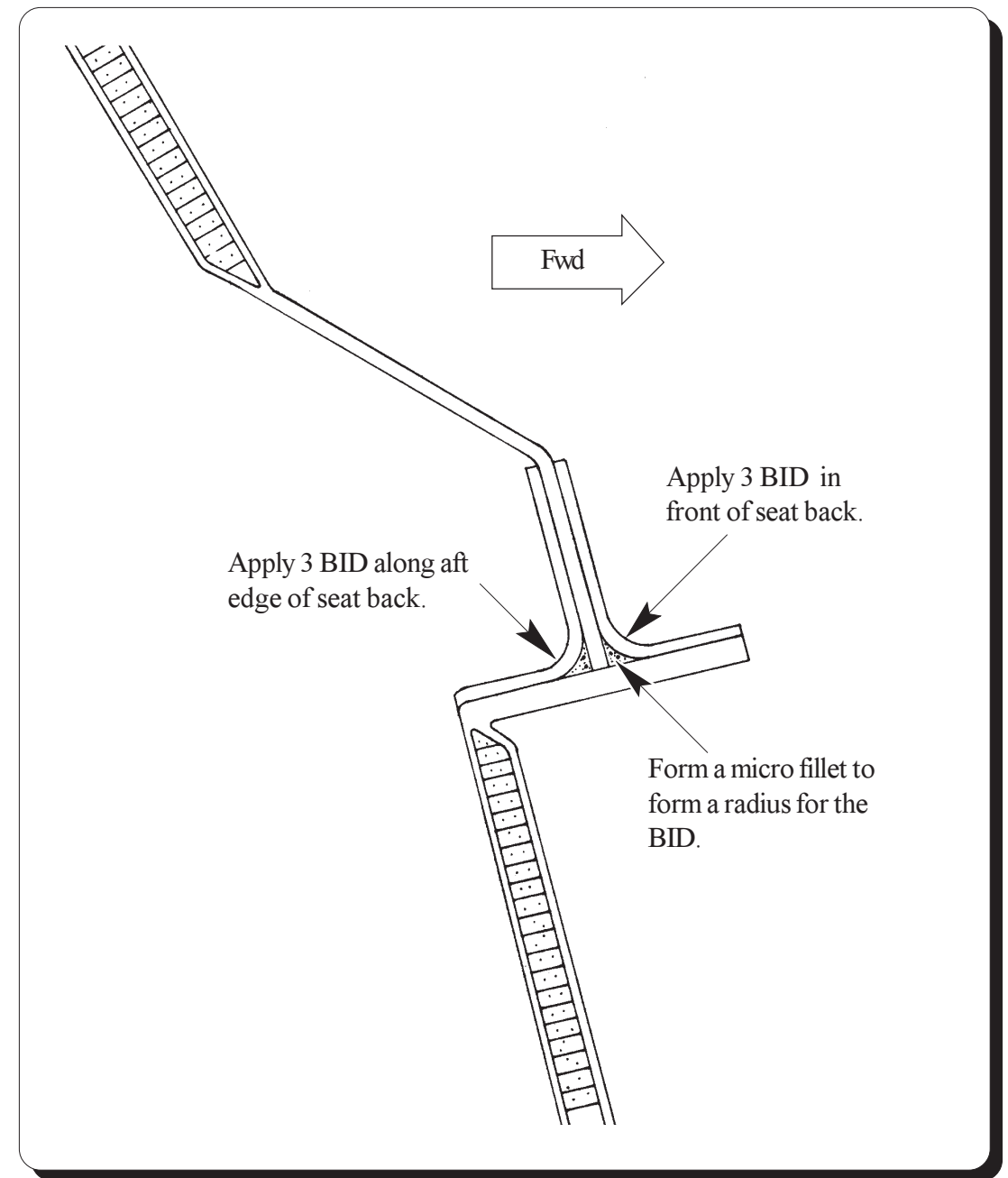
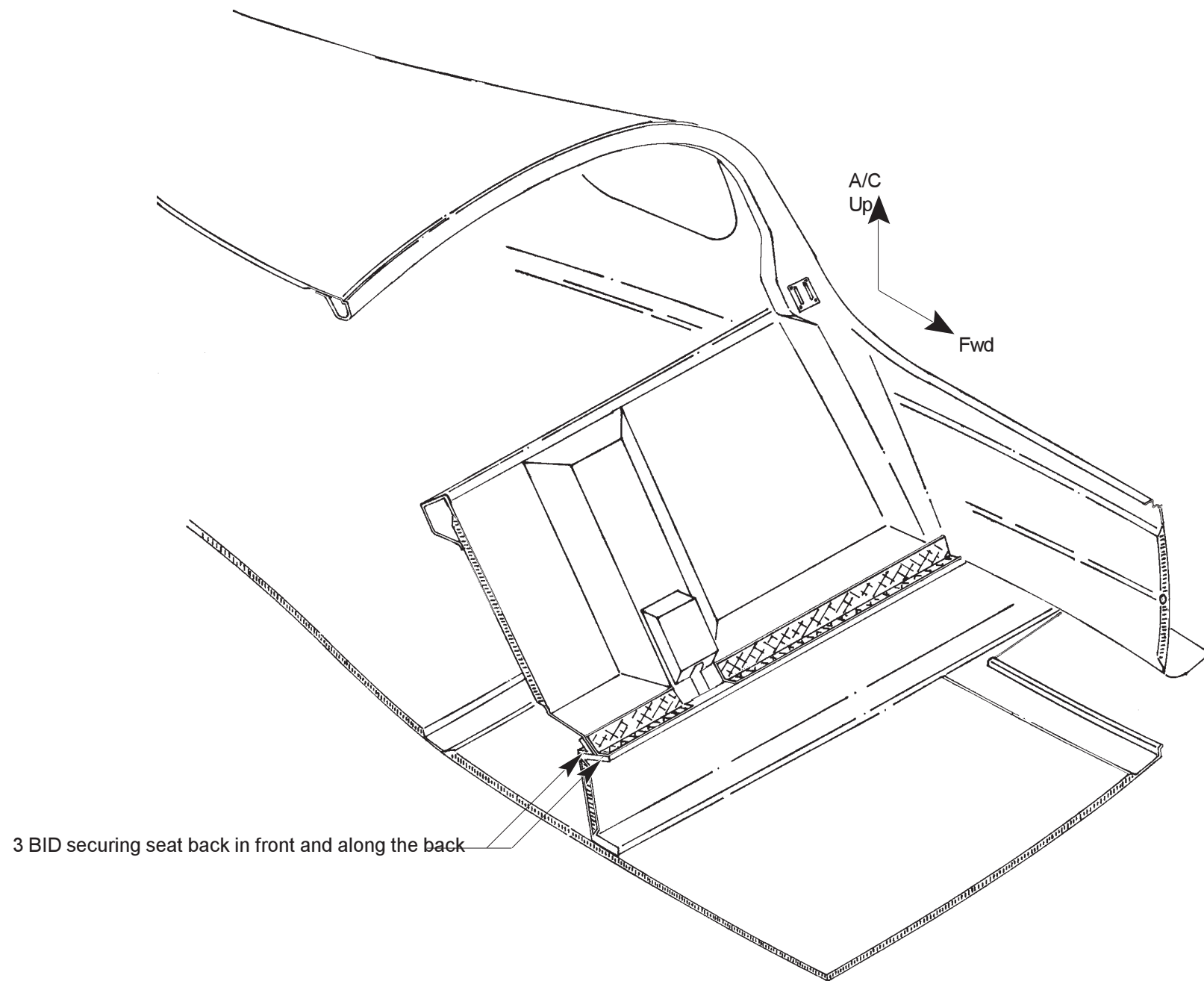
2 BID Reinforcements
Fig. 10:A:9



All reinforcements are 2 BID.



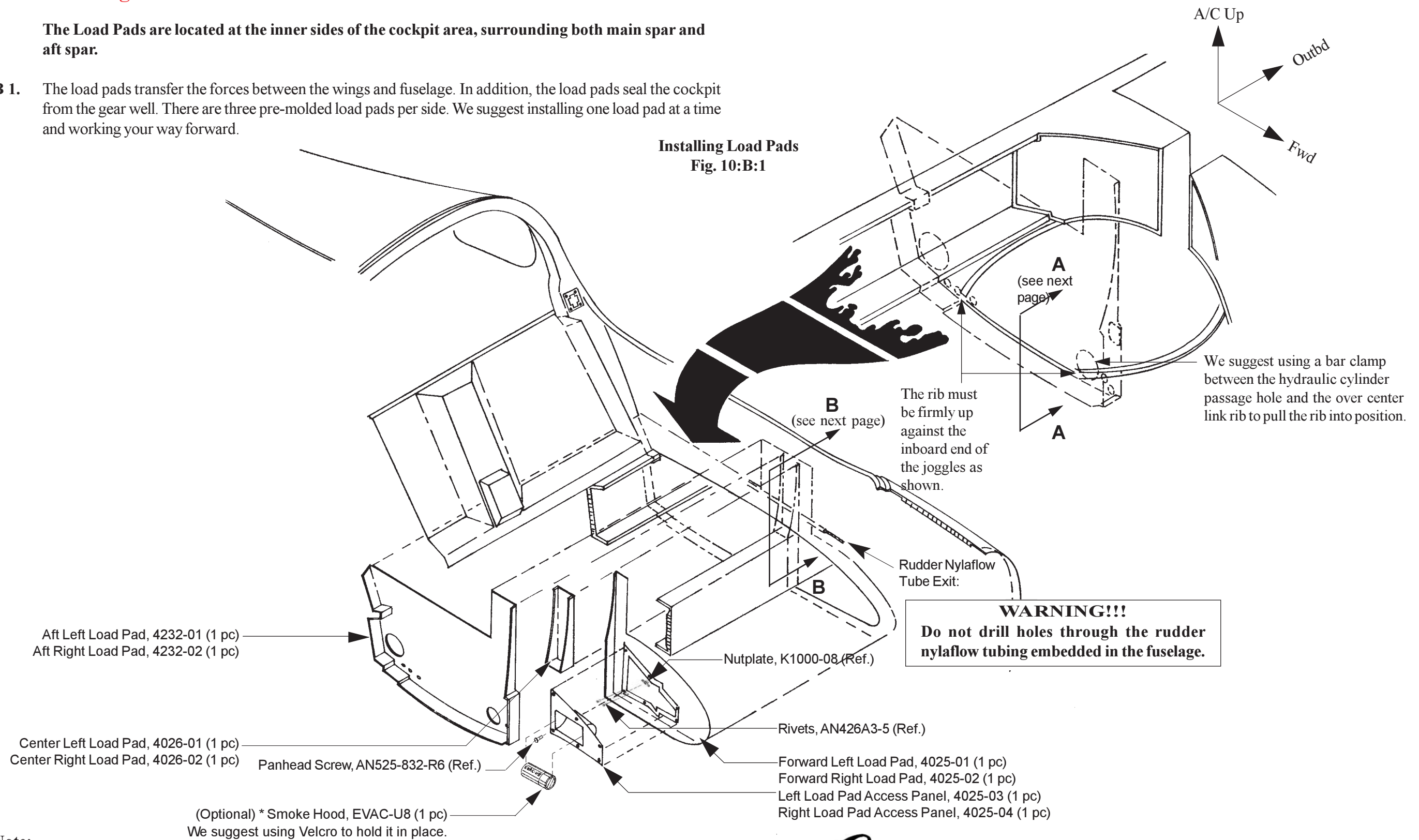
Seat Back BID Reinforcements
Fig. 10:A:10



B. Installing Load Pads

The Load Pads are located at the inner sides of the cockpit area, surrounding both main spar and aft spar.

- B 1.** The load pads transfer the forces between the wings and fuselage. In addition, the load pads seal the cockpit from the gear well. There are three pre-molded load pads per side. We suggest installing one load pad at a time and working your way forward.



Note:

(*) Optional Parts available through Kit Components Inc.



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10-12

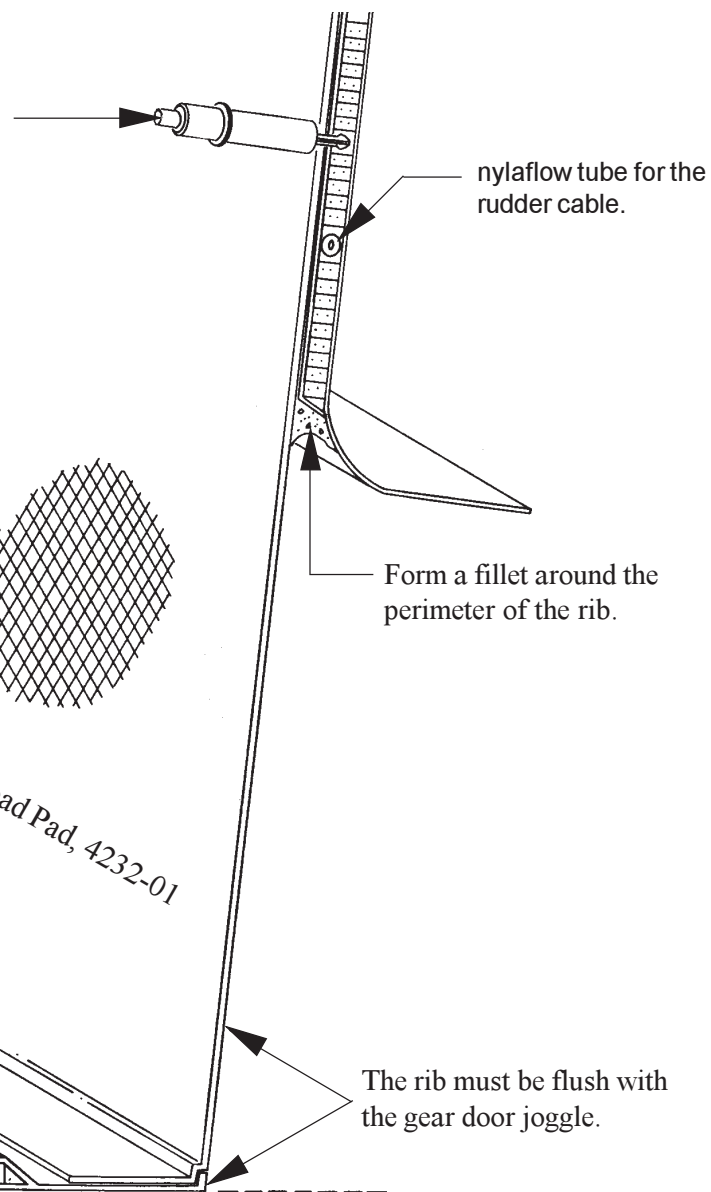
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**Installing Load Pads
(Cross Section)
Fig. 10:B:2**

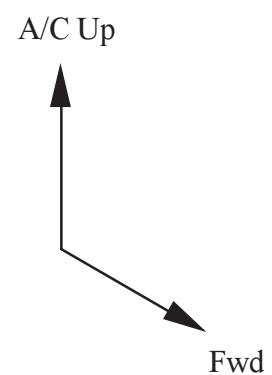
VIEW AA

VIEW BB

We suggest using clecoes for rib installation but you must not drill through the nylaflo tube.



**Practice Installation
Before Bonding**



Left Aft Load Pad 4232-01

The gap between load pads are filled during bonding.

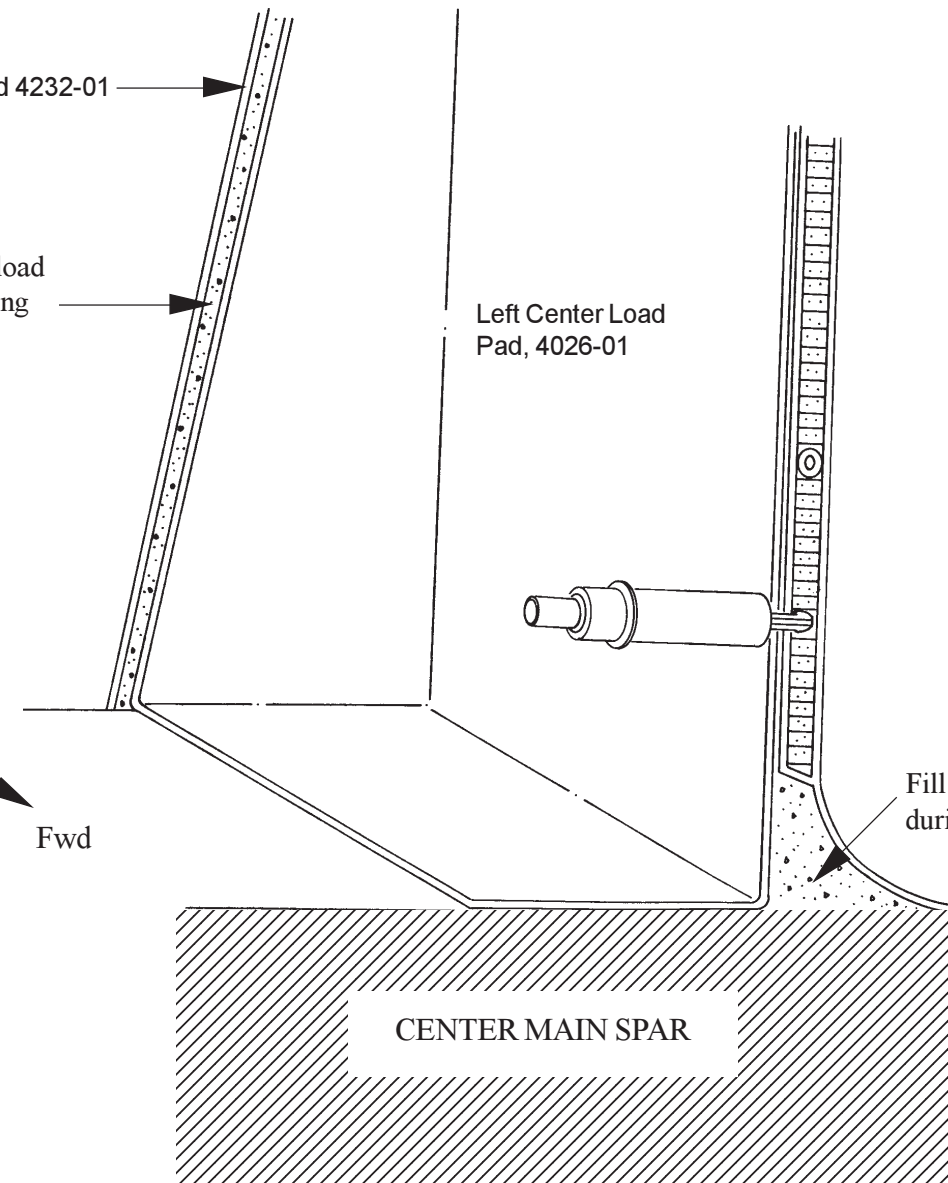
Left Center Load Pad, 4026-01

A/C Up

Fwd

Fill with epoxy flox during bonding

CENTER MAIN SPAR

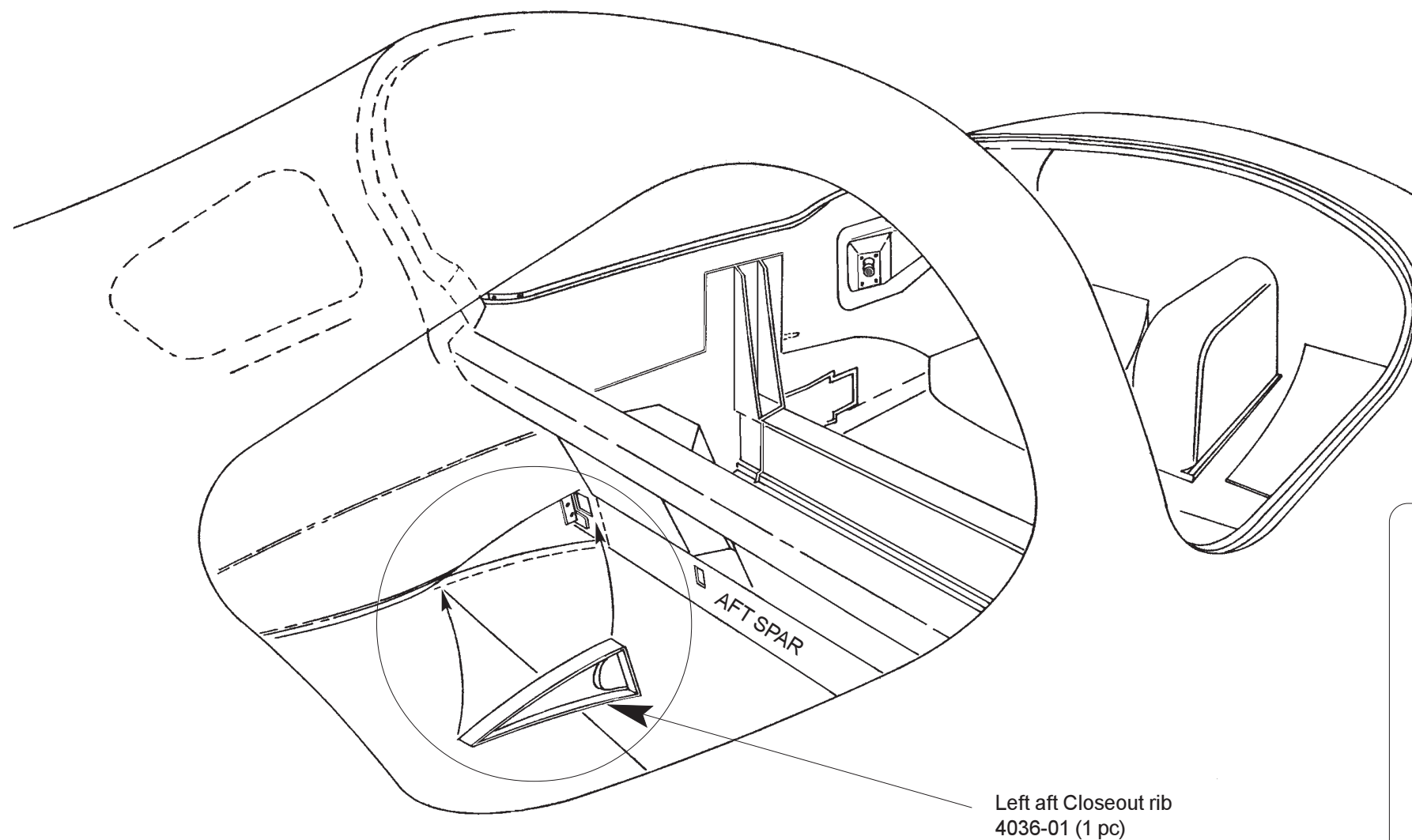


Other Notes on installing the Aft Load Pad

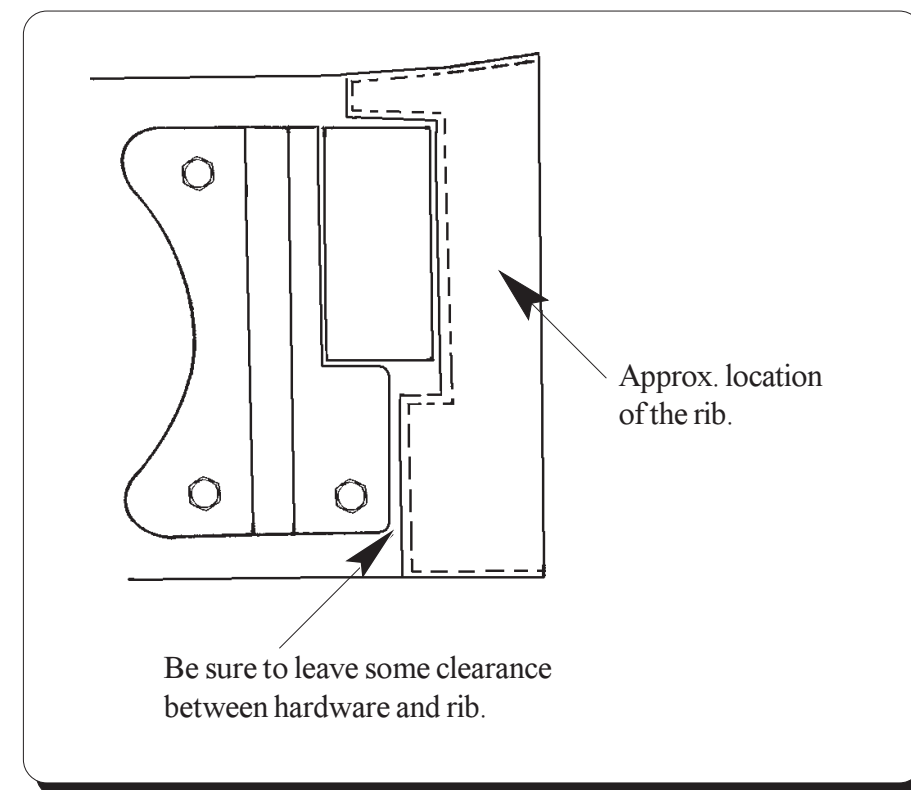
- 1) Load Pad Alignment
 - a) Load pad should be flush with the gear door joggle.
 - b) The load pad must be positioned as far forward as possible up against the spar. You will notice an approximate 1/4" gap between rib and aft spar. This is to allow clearance during installation. Fill gap with flox during bonding.
 - c) Align rib prior to bonding with clecoes, clamps and whatever is necessary.
 - d) Bond using a slightly runny epoxy/flox mix following approved bonding procedures.

C. Installing the Aft Closeout Rib

Installing Aft Closeout Rib
Fig. 10:C:1



The closeout rib installs just aft of the aft spar as shown. The purpose of the rib is to seal the cockpit from the outside. Exact location is not critical. Install from inside the baggage compartment.

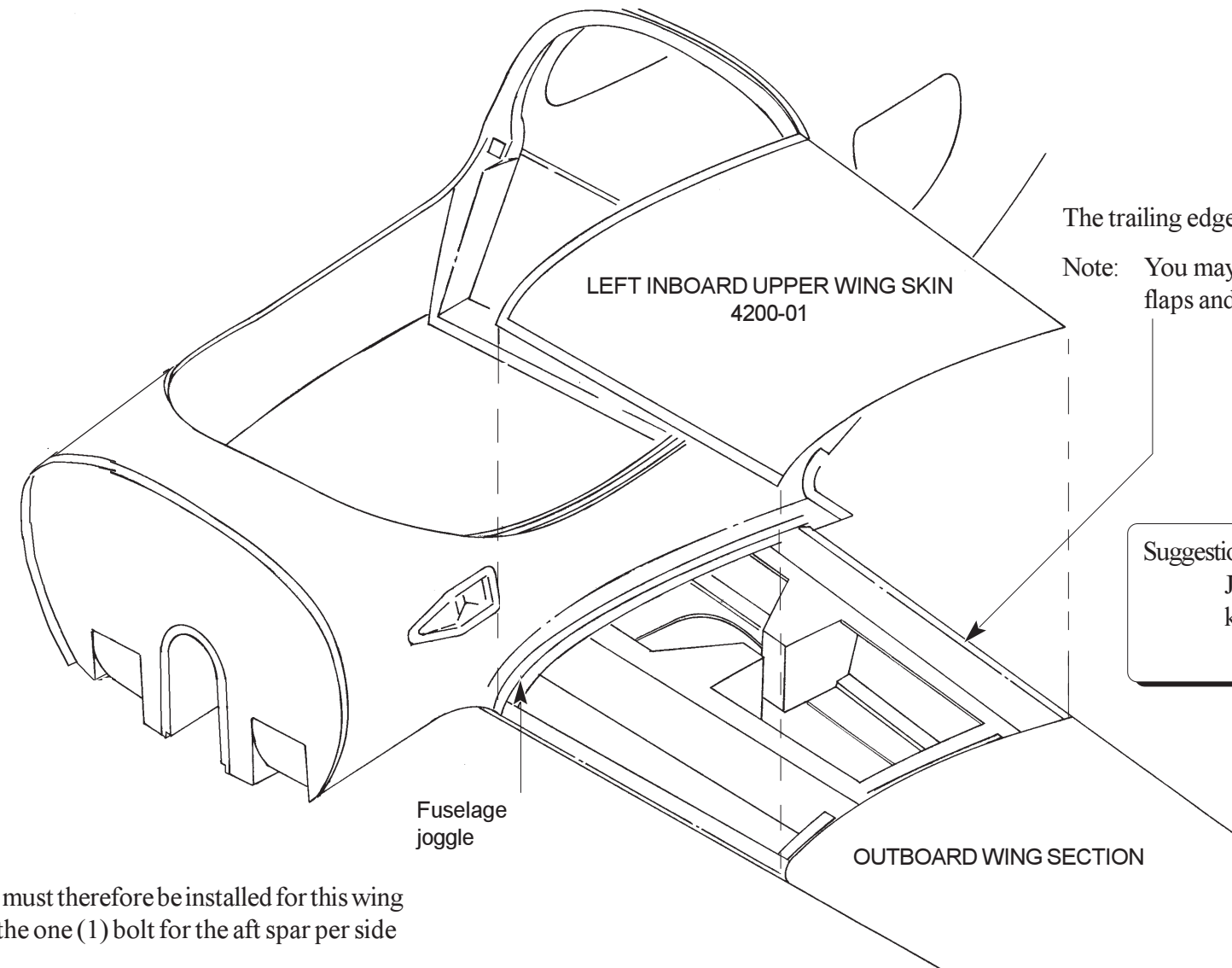


D. Closing the Center Wing Section

Closing Center Wing Section (General Overview)

Fig. 10:D:1

In this section you will close the inboard wing sections. Prior to closing out we suggest that you complete all systems of the center wing section (such as landing gear installation, hydraulics and the fuel system).



The trailing edge is bonded in chapter 21.

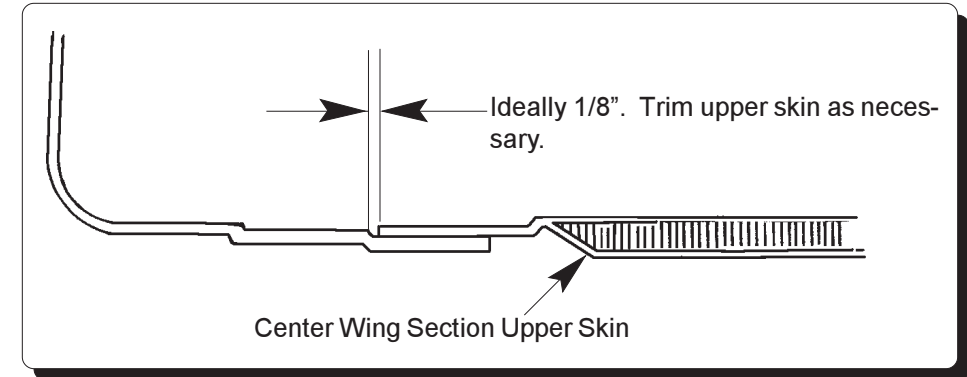
Note: You may bond the trailing edge if you install the flaps and verify the fit as explained in chapter 21.

Suggestion: Paint the inside of the gear wells with Jeffco fuel tank sealant (9700-1G). It makes keeping the gear wells clean much easier.

The inboard wing section is aligned to:

- 1) The fuselage joggle.
- 2) The outboard wing section. The outboard wing section must therefore be installed for this wing section. Install the two (2) bolts of the main spars and the one (1) bolt for the aft spar per side for proper alignment.

Aligning Center Upper Wing Section Upper Skins
Fig. 10:D:2



D 3. Align the joggles.

D 1. Using a long straight edge check the alignment between the center and outboard wing sections. Note: If the center wing section is a little low (within 0.05") this will be corrected during closing. If high it will be necessary to remove material off the release. Carefully use a palm sander as necessary. **DO NOT SAND INTO STRUCTURAL MEMBERS!**

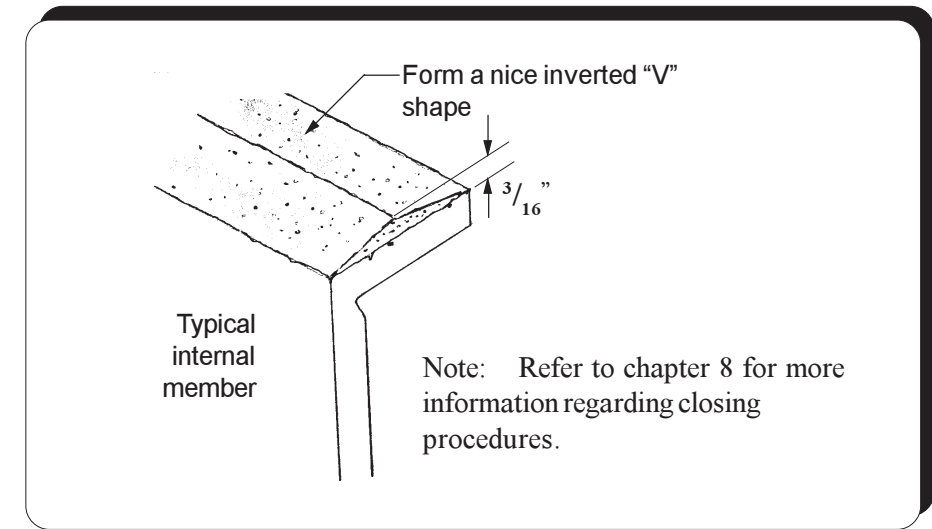
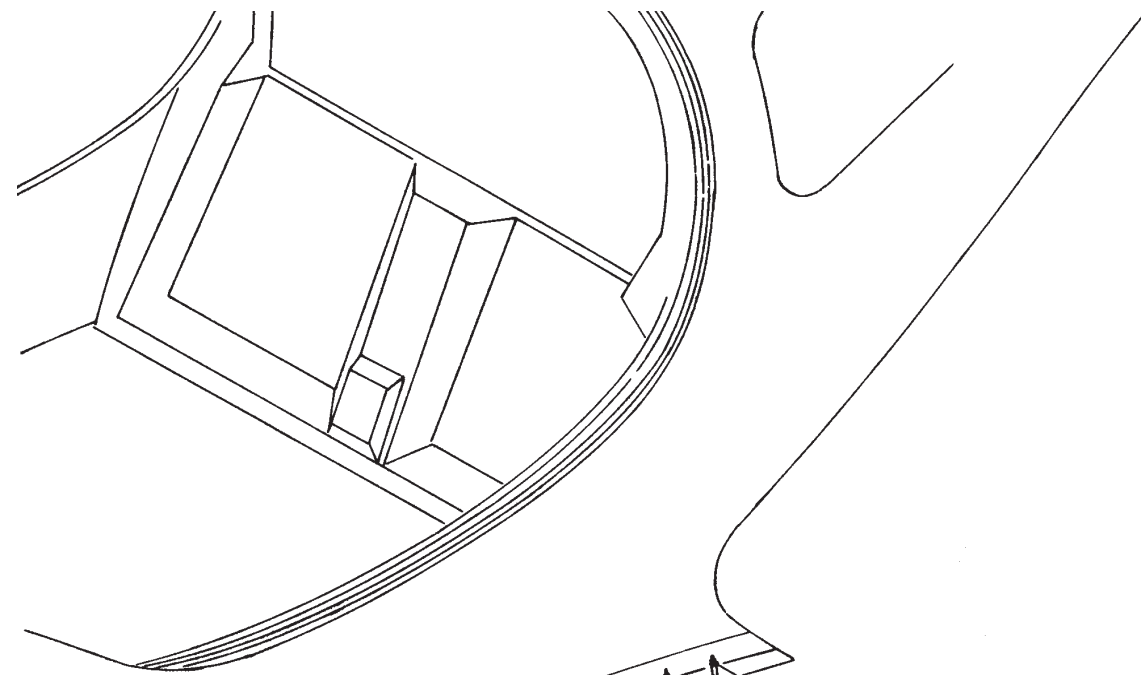
Place weight as necessary

D 2. There should be a light even gap between skins. Note: Eventually install leading edge tape.

D 4. Once aligned, drill cleco holes through the double joggle every 3"- 4".

WARNING: DO NOT DRILL CLECO HOLES THROUGH THE MAIN SPAR OR AFT SPAR!

Closing Center Wing Section
Fig. 10:D:3

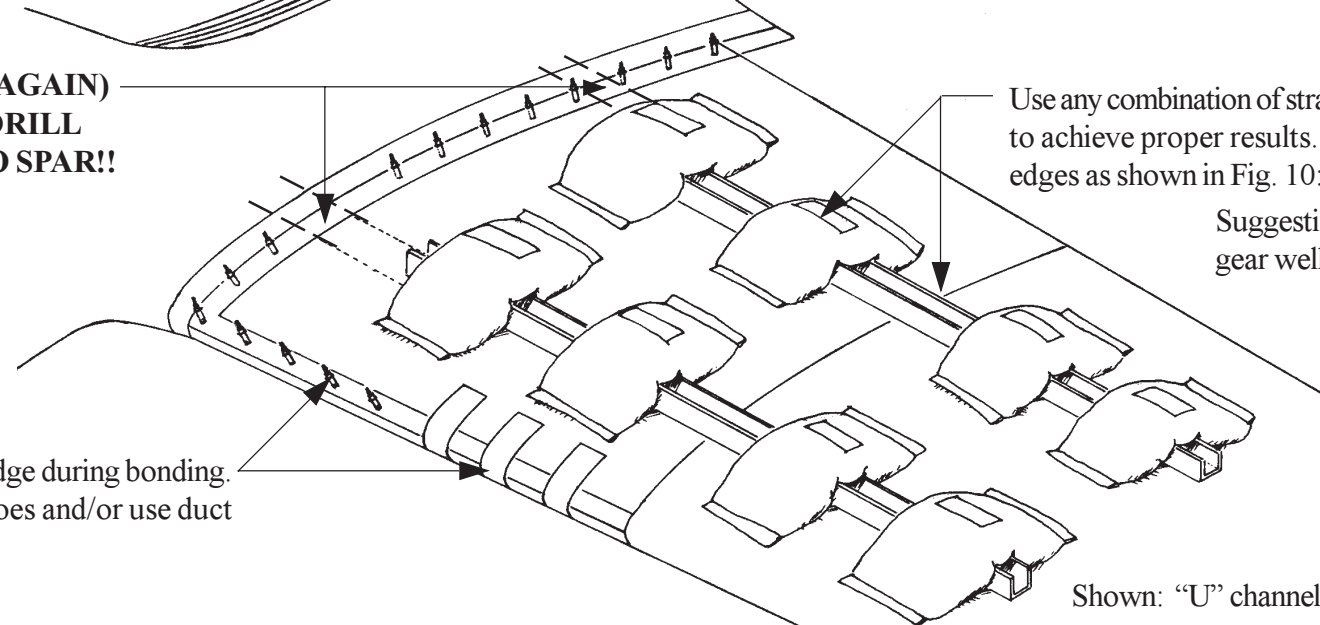


WARNING (AGAIN)
DO NOT DRILL
HOLES INTO SPAR!!

Inspect leading edge during bonding.
 Install more clecoes and/or use duct tape as required.

Use any combination of straight edges and weights to achieve proper results. Inspect using straight edges as shown in Fig. 10:D:2.

Suggestion: Remove adhesive "squeeze out" from the gear wells prior to cure.



Shown: "U" channel

Joggle BID Reinforcements
Fig. 10:D:4

