



CUSTOM KIT

CK-AG-58

REV A: 09/09/2024

BELLY SKIN IMPROVEMENTS

AIRCRAFT AFFECTED:

MODEL

T-660

SERIAL NUMBERS

-189 & below

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LOG OF REVISIONS

NOTE: Reformatting and correction of typographical errors is not considered revision.

REV	PAGE	DESCRIPTION OF REVISION	BY
IR	All	New Document Initial Release	T. Surratt 07/03/2024
A	Cover 7 7 7	Updated effectivity. Corrected fwd and aft channel PNs for Parts Lists 8-3 & 8-4. Added spacer (533120038-001) and angle (5333120039-001) to Parts Lists 8-3 and 8-4. Added MS20615-4M3 and -4M4 rivet quantities in Parts Lists 8-3 and 8-4.	T. Surratt 09/09/24



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1. PURPOSE/REASON FOR PUBLICATION

This publication is to give instructions for modification of the T660 Center Belly Skin and attaching structures to increase longevity and durability, as well as the replacement of the T660 Center Belly Skin, as required including the lists of parts necessary to accomplish the modification or replacement.

2. SCOPE/COMPLIANCE

This document will provide part numbers and work instructions for the installation of "U" Channels, an Angle, a Spacer, and Standoffs to reinforce the Belly Skin, including the instructions to install the Belly Skin if needed.

3. BY WHOM WORK WILL BE ACCOMPLISHED

The work is to be accomplished by an FAA Certified A&P, IA mechanic, or foreign equivalent.

4. APPROVAL

4-1 THRUSH AIRCRAFT, LLC

This Custom Kit is approved by the Engineering Department at Thrush Aircraft, LLC.

4-2 FAA APPROVAL

The technical content of this Custom Kit is FAA approved.

5. MAN HOURS

This CK may take up to 8 labor hours to accomplish.

6. SPECIAL TOOLS

- None

7. CUSTOM KIT OVERVIEW

To accomplish this custom kit, owner/operator will do one or multiple of the following:

- Install “U” Channels to Belly Skin.
- Install (weld) Gussets to Standoffs (as required).
- Install Belly Skin to Aircraft (as required).

8. PARTS LISTS

8-1 SINGLE COCKPIT WITH BELLY SKIN

Part Number	Description	Quantity	Use
533010052-901	SC Ctr Belly Skin Assy	1	Belly Skin
MS20427M4-4	Flush Rivet – Fslg Clips	32	Belly Skin
MS20427M4-8	Flush Rivet – Fslg Clips	32	Belly Skin
MS20427M4-3	Flush Rivet – Aft Row	2	Belly Skin
MS20615-4M3	Rivet – Aft Row	12	Belly Skin
MS20615-4M4.5	Rivet – Aft Row	8	Belly Skin
CR3213-4-2	Cherrymax Rivet	6	Belly Skin
AN525832R7	Screw – Fwd Standoff	9	Belly Skin
NAS1149CN832R	Washer – Fwd Standoff	18	Belly Skin
MS21042-08	Nut – Fwd Standoff	9	Belly Skin
40R17-2	Camloc Receptacle	22	Belly Skin
MS35489-9	Aux Pump Grommet	1	Belly Skin
MS35489-20	Cockpit Drain Grommet	1	Belly Skin
MS35849-23	Boom SO Grommet	2	Belly Skin
533110002-007	Standoff Assy	1	Standoff
533110002-008	Standoff Assy	1	Standoff
533110002-009	Standoff Assy	1	Standoff
533110002-010	Standoff Assy	1	Standoff
533120031-029	Channel, Fwd	2	Standoff
533120031-037	Channel, Aft	2	Standoff
533120046-001	Pad	2	Standoff
533120046-003	Pad	2	Standoff
AN526C632R10	Screw	12	Standoff
NAS1149C0632R	Washer	48	Standoff
MS21044N06	Nut	24	Standoff

8-2 DUAL COCKPIT WITH BELLY SKIN

Part Number	Description	Quantity	Use
533010052-903	DC Ctr Belly Skin Assy	1	Belly Skin
MS20427M4-4	Flush Rivet – Fslg Clips	32	Belly Skin
MS20427M4-8	Flush Rivet – Fslg Clips	32	Belly Skin
MS20427M4-2	Flush Rivet – Aft Row	2	Belly Skin
MS20615-4M3	Rivet – Aft Row	12	Belly Skin
MS20615-4M4.5	Rivet – Aft Row	8	Belly Skin
CR3213-4-2	Cherrymax Rivet	6	Belly Skin
AN525832R7	Screw – Fwd Standoff	9	Belly Skin
NAS1149CN832R	Washer – Fwd Standoff	18	Belly Skin
MS21042-08	Nut – Fwd Standoff	9	Belly Skin
40R17-2	Camloc Receptacle	22	Belly Skin
MS35489-9	Aux Pump Grommet	1	Belly Skin
MS35849-23	Boom SO Grommet	2	Belly Skin
533110002-007	Standoff Assy	1	Standoff
533110002-008	Standoff Assy	1	Standoff
533110002-011	Standoff Assy	1	Standoff
533110002-012	Standoff Assy	1	Standoff
533120031-029	Channel, Fwd	2	Standoff
533120031-035	Channel, Aft	2	Standoff
533120046-001	Pad	2	Standoff
533120046-005	Pad	2	Standoff
AN526C632R10	Screw	12	Standoff
NAS1149C0632R	Washer	48	Standoff
MS21044N06	Nut	24	Standoff

8-3 SINGLE COCKPIT WITHOUT BELLY SKIN

Part Number	Description	Quantity	Use
533110002-013	Standoff Assy	1	Standoff
533110002-014	Standoff Assy	1	Standoff
533110002-015	Standoff Assy	1	Standoff
533110002-016	Standoff Assy	1	Standoff
533120031-043	Channel, Fwd	2	Standoff
533120031-047	Channel, Aft	2	Standoff
533120046-001	Pad	2	Standoff
533120046-003	Pad	2	Standoff
AN526C632R10	Screw	12	Standoff
NAS1149C0632R	Washer	48	Standoff
MS21044N06	Nut	24	Standoff
533120038-001	Spacer	1	"U" Channel
533120039-001	Angle	1	"U" Channel
533120037-001	Stiffener	4	"U" Channel
533120037-003	Stiffener	3	"U" Channel
MS20615-4M3	Rivet	80	"U" Channel
MS20615-4M4	Rivet	28	"U" Channel

8-4 DUAL COCKPIT WITHOUT BELLY SKIN

Part Number	Description	Quantity	Use
533110002-013	Standoff Assy	1	Standoff
533110002-014	Standoff Assy	1	Standoff
533110002-017	Standoff Assy	1	Standoff
533110002-018	Standoff Assy	1	Standoff
533120031-043	Channel, Fwd	2	Standoff
533120031-049	Channel, Aft	2	Standoff
533120046-001	Pad	2	Standoff
533120046-005	Pad	2	Standoff
AN526C632R10	Screw	12	Standoff
NAS1149C0632R	Washer	48	Standoff
MS21044N06	Nut	24	Standoff
533120038-001	Spacer	1	"U" Channel
533120039-001	Angle	1	"U" Channel
533120037-001	Stiffener	4	"U" Channel
533120037-003	Stiffener	3	"U" Channel
MS20615-4M3	Rivet	80	"U" Channel
MS20615-4M4	Rivet	28	"U" Channel

9. ACCOMPLISHMENT INSTRUCTIONS

9-1 HOW TO ACCESS

1. Remove skins and wing fairings from LH & RH sides up to where the center belly skin ends.
2. Remove forward belly skin by loosening Camlocs.
3. Disconnect cables from batteries for safety purposes.

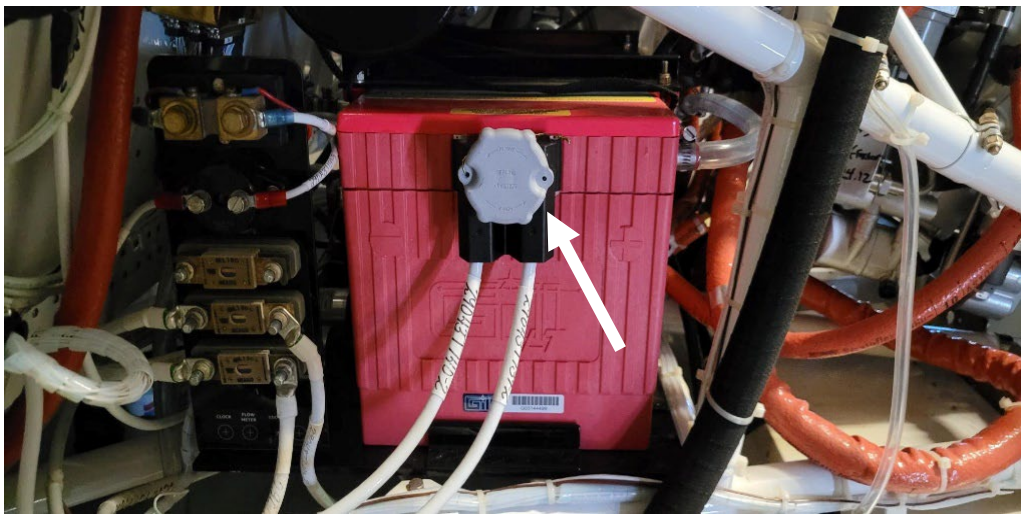


Figure 9-1a

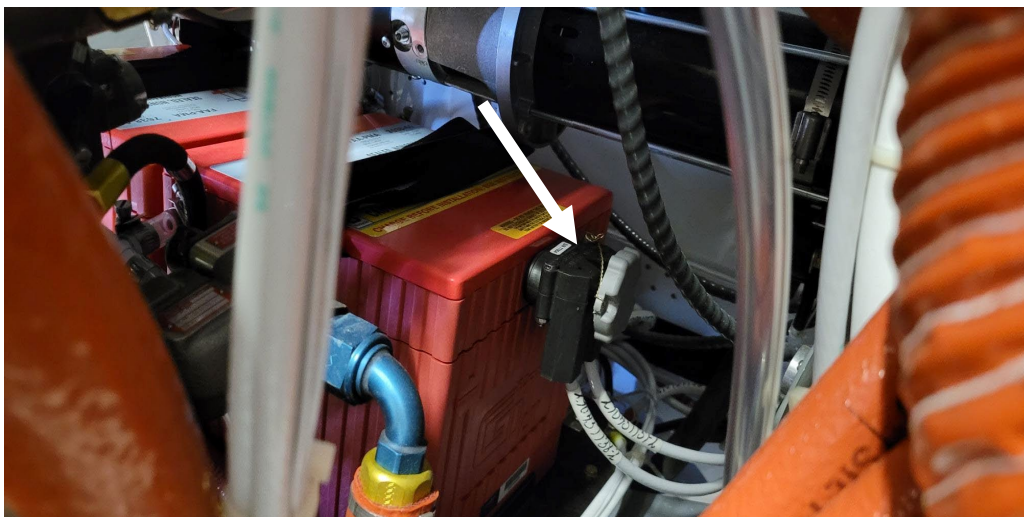


Figure 9-1b

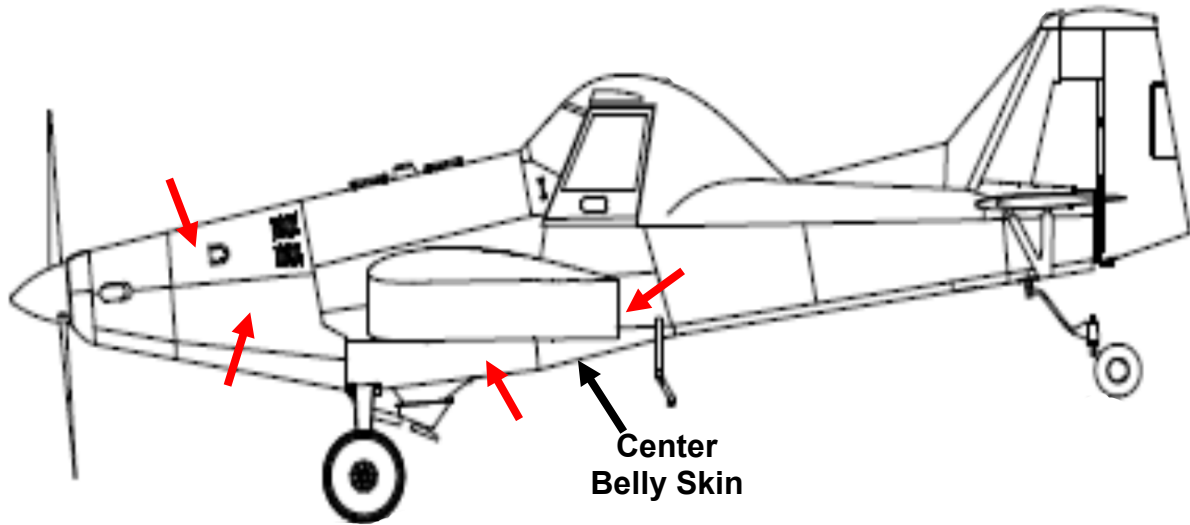


Figure 9-1c – Single Cockpit

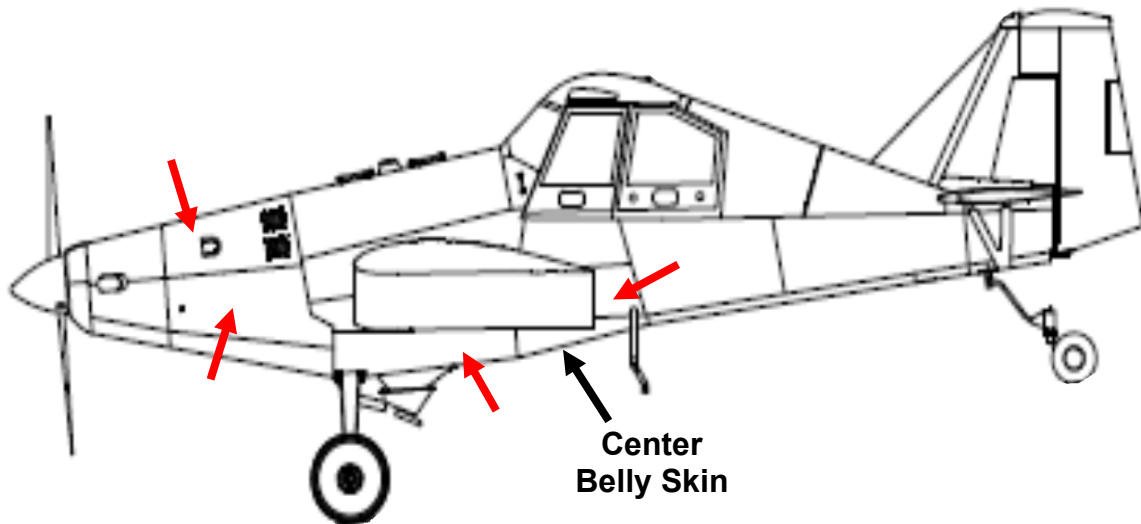


Figure 9-1d – Dual Cockpit

9-2 - "U" CHANNEL, ANGLE, AND SPACER

9-2.1 "U" CHANNEL INSTALLATION

1. Locate "U" channels on belly skin.

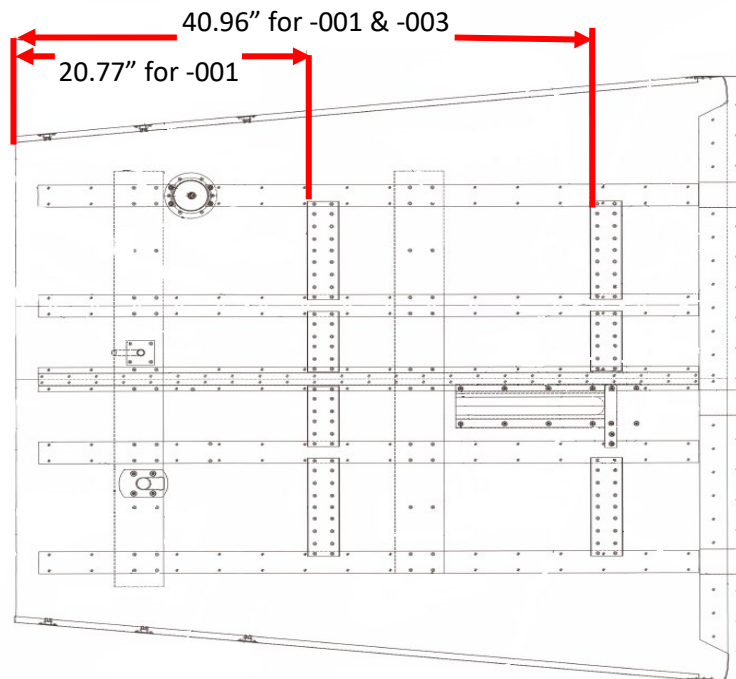


Figure 9-2.1a – Single Cockpit -001

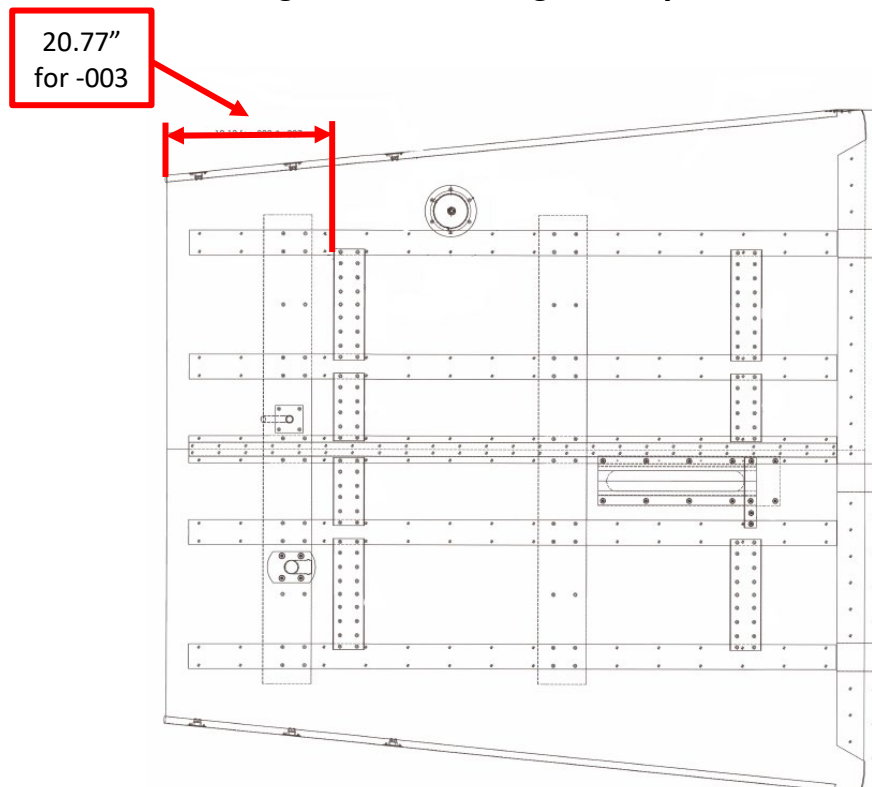


Figure 9-2.1b – Dual Cockpit -003

2. Ensure "U" channels fit in place and lay flat between channel stiffeners.
 - **NOTE:** Remove material from "U" channels if necessary.
3. Before removing "U" channels, identify locations of "U" channels on belly skin.



Figure 9-2.1c

4. Remove "U" channels and place on work surface.
5. Locate and mark hole locations on each "U" channel.

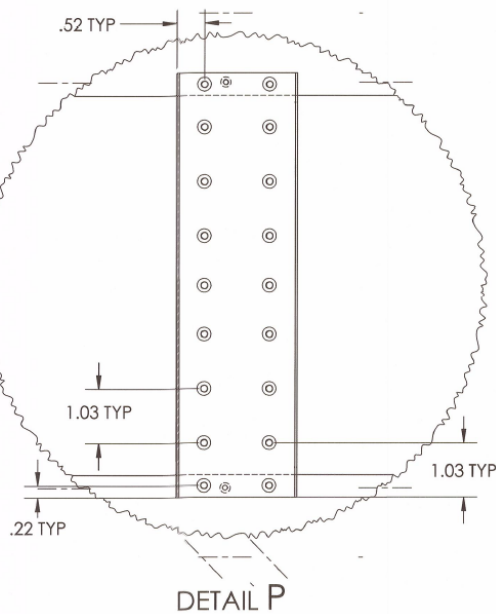


Figure 9-2.1d

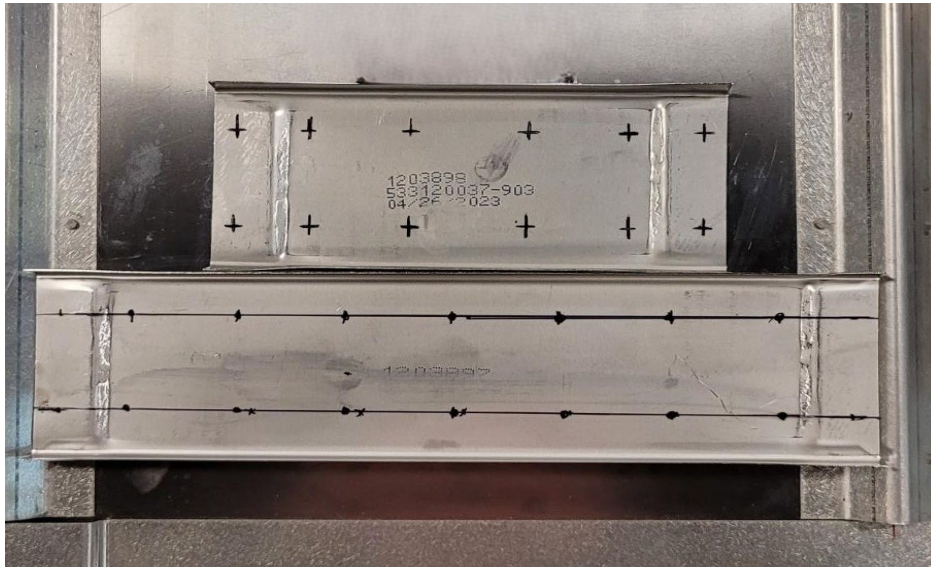


Figure 9-2.1e

6. Drill #30 holes at marked locations on each “U” channel.
7. Deburr every hole until smooth.



Figure 9-2.1f

8. Place each “U” channel back in original locations.

9. Match drill and Cleco each hole through “U” channel and belly skin.

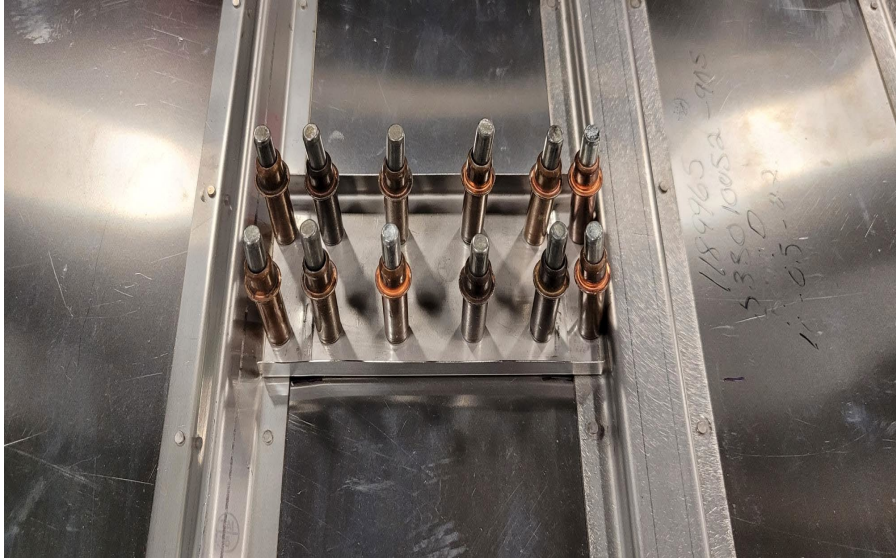


Figure 9-2.1g

10. Remove “U” channels from belly skin.

11. Deburr every hole in belly skin until smooth.

12. Remove all FOD and clean surfaces of belly skin where “U” channels will be installed.

- **NOTE:** It is of the utmost importance that cleanliness be carefully observed through all phases of preparation and sealing to ensure good adhesion of the sealants.

13. Apply RTV-732 (Clear Adhesive Sealant) or equivalent per MIL-A-46106 to mating surfaces of each “U” channel.

14. Locate and reattach “U” channels to belly skin in original identified locations using enough Clecos to hold in place.

15. Install rivets.

- **NOTE:** MS20615-4M4 rivets are to be used when going through belly skin, stiffener flange, and each “U” channel.
- **NOTE:** MS20615-4M3 rivets are to be used when going through belly skin and “U” channel only.

16. Remove Clecos and install the remainder of the rivets.



Figure 9-2.1h

17. Follow same process for each “U” channel.

18. Apply a bead of RTV-732 (Clear Adhesive Sealant), or equivalent per MIL-A-46106 on both sides of all seven “U” channels.

9-2.2 ANGLE AND SPACER INSTALLATION (WITHOUT BELLY SKIN)

- **NOTE:** Reference Figures 9-2.2c & 9-2.2d to see complete install.
1. Take angle (533120039-001) and hold so short flange is facing away.
 2. Take spacer (533120038-001) and hold so holes are facing towards person.

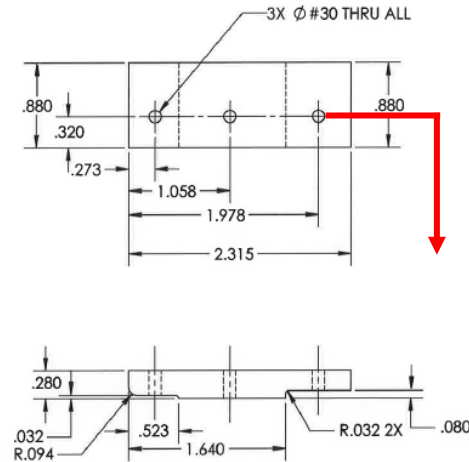


Figure 9-2.2a - Spacer

3. Place spacer to left hand side of angle and ensure edges of both parts are flush at front, back, and left-hand side of angle.

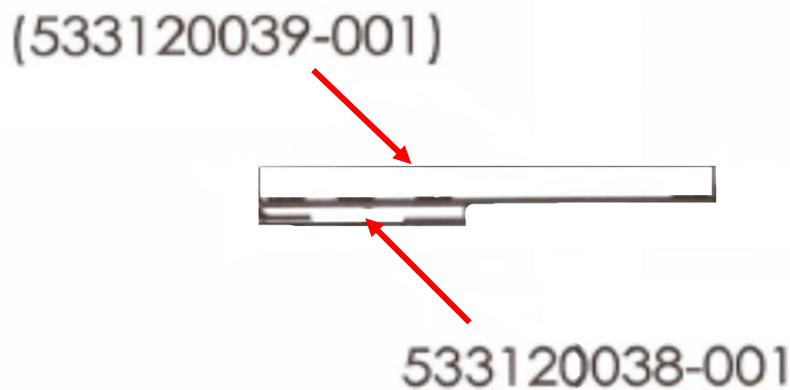


Figure 9-2.2b – Angle & Spacer

4. Clamp angle and spacer together at center of spacer.
5. Match drill two (2) open holes through spacer into angle using #30 bit then Cleco.

6. Remove clamp and match drill center hole using #30 bit.
7. Remove Clecos to separate angle and spacer.
8. Step up three (3) holes in angle and spacer using #19 drill bit.
9. Deburr every hole until smooth.
10. Place straight edge horizontally across angle and in center of three (3) #19 holes.
11. Mark straight horizontal line across angle.
12. Locate angle and spacer flush with forward end of brush holders.
13. Adjust angle inboard and outboard to ensure proper edge distance on both ends.
14. Make vertical mark in line with bolts in brush holder inboard of angle.
15. Remove angle and spacer.
16. Drill #19 hole at "crosshairs" mark made from vertical and horizontal lines.
17. Deburr until smooth.
18. Place angle and spacer back at forward end of brush holders.
19. Mark hole locations through angle and spacer onto belly skin and brush holders.
20. Set angle and spacer aside.
21. Drill #19 holes where marks were made.
22. Deburr holes until smooth.
23. Remove all FOD and clean surfaces of belly skin and brush holders where angle and spacer will be installed.
 - **NOTE:** It is of the utmost importance that cleanliness be carefully observed through all phases of preparation and sealing to ensure good adhesion of the sealants.
24. Apply RTV-732 (Clear Adhesive Sealant) or equivalent per MIL-A-46106 to every mating surface of angle and spacer and location of installation.
25. Install angle and spacer using hardware with bolt heads facing downward.

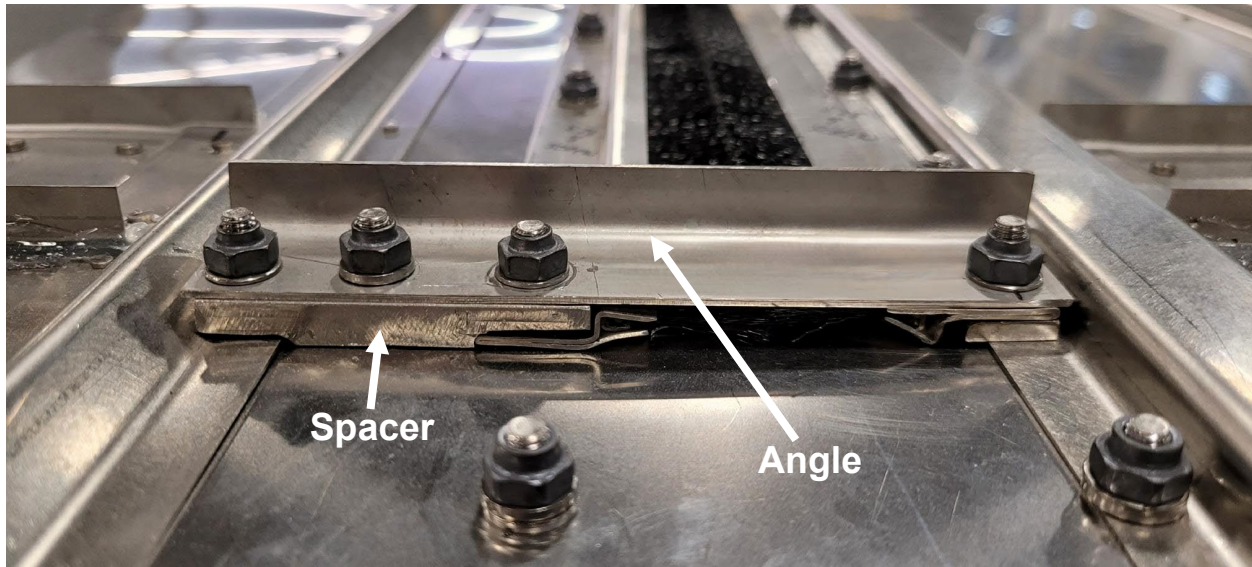


Figure 9-2.2c

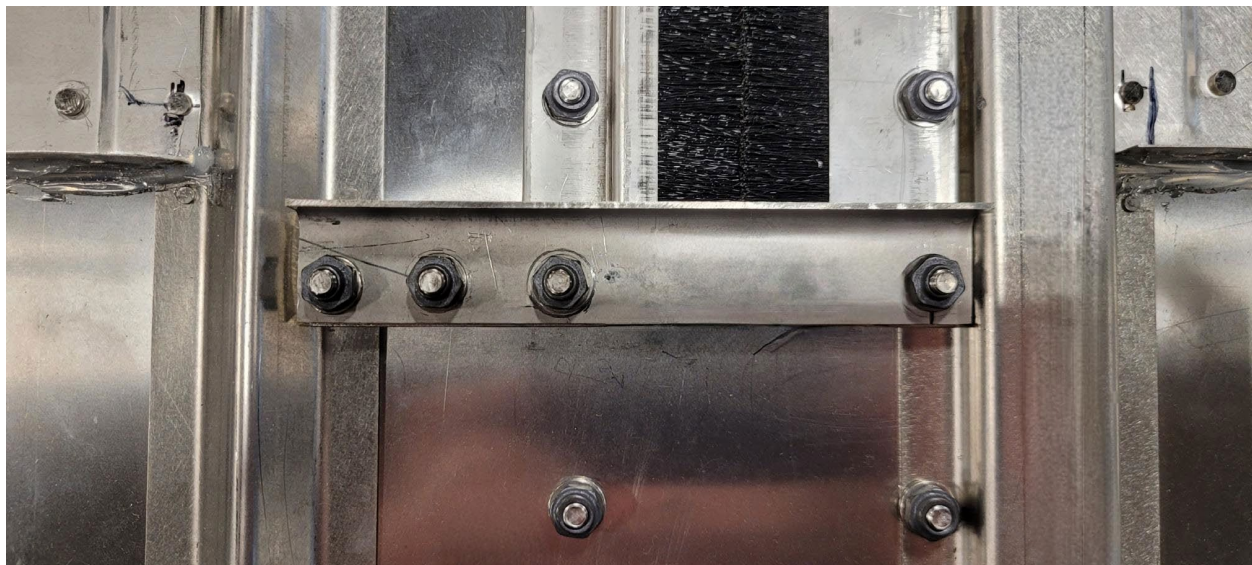


Figure 9-2.2d

26. Apply sealant to every gap of angle, spacer, and "U" Channel.

9-3 - BELLY SKIN

- **NOTE:** It is best practice to have assistance when removing and installing the belly skin.

9-3.1 BELLY SKIN REMOVAL

1. Remove center boom.



Figure 9-3.1a

2. Disconnect hoses attached to belly skin.
3. Remove flap stop brackets.

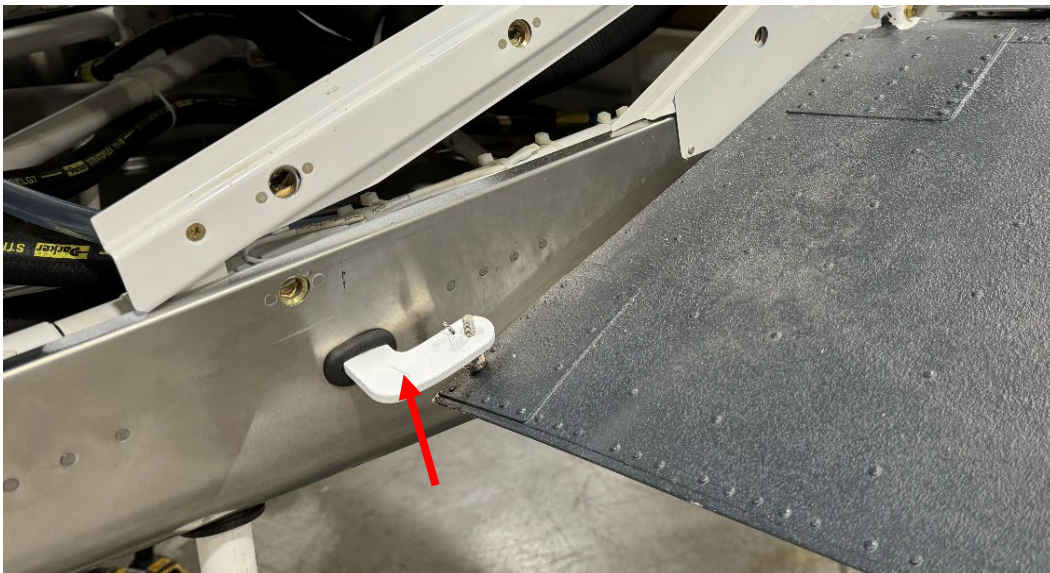


Figure 9-3.1b

4. Remove Cherrymax rivets from center standoff.

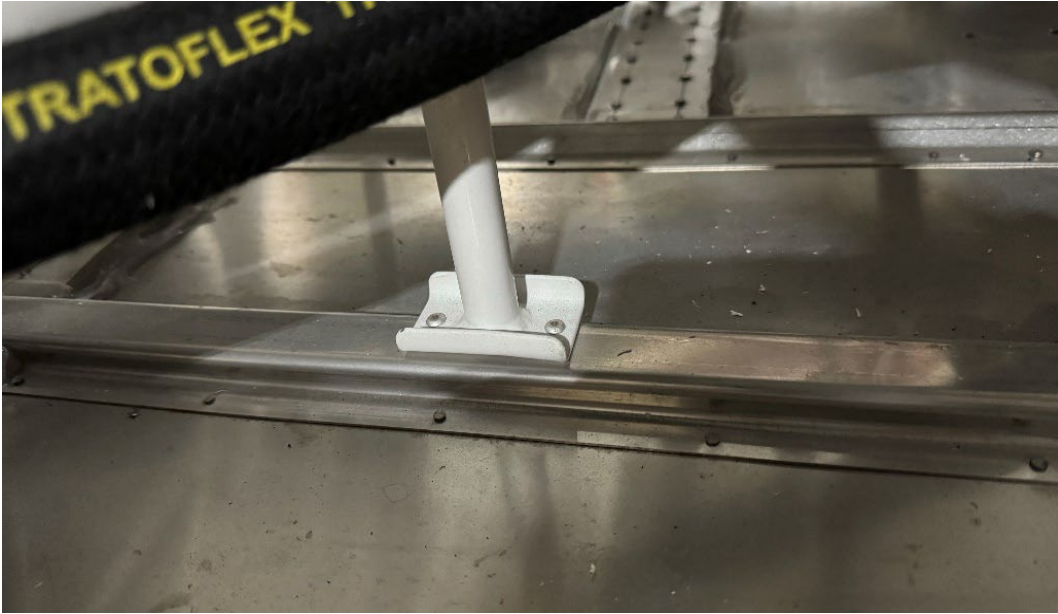


Figure 9-3.1c

5. Remove Cherrymax rivets from channel bracket.



Figure 9-3.1d

6. Remove row of rivets located at aft end of belly skin.



Figure 9-3.1e

7. Remove hardware and doublers from forward standoffs.

- **NOTE:** It is best practice to identify and mark doubler location to ensure reinstalment in original location. (Reference Figure 9-3.1g)

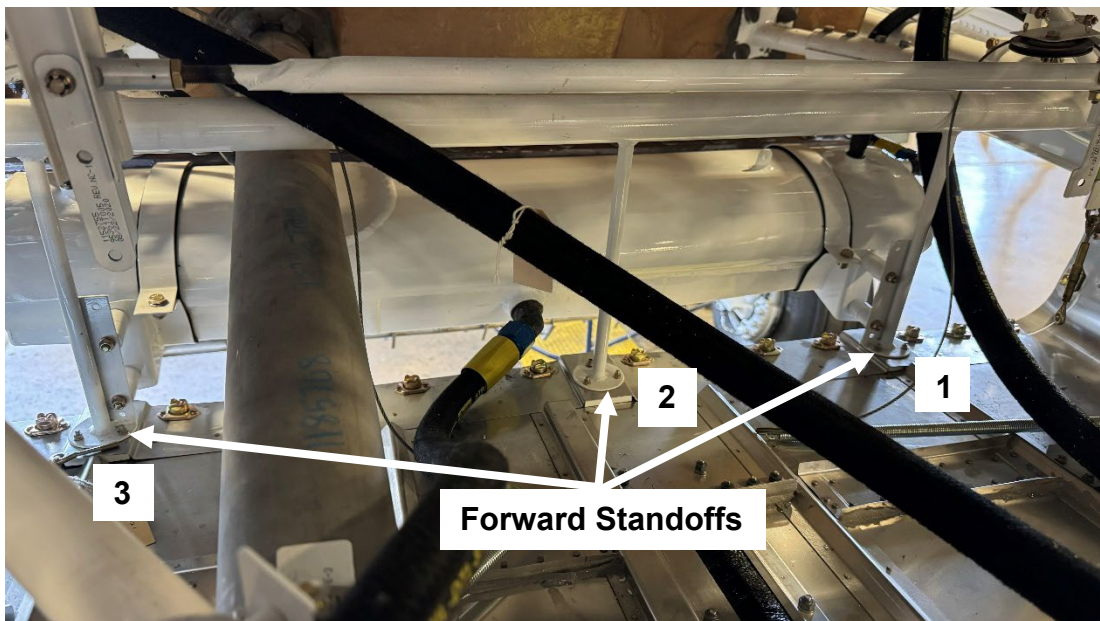


Figure 9-3.1f

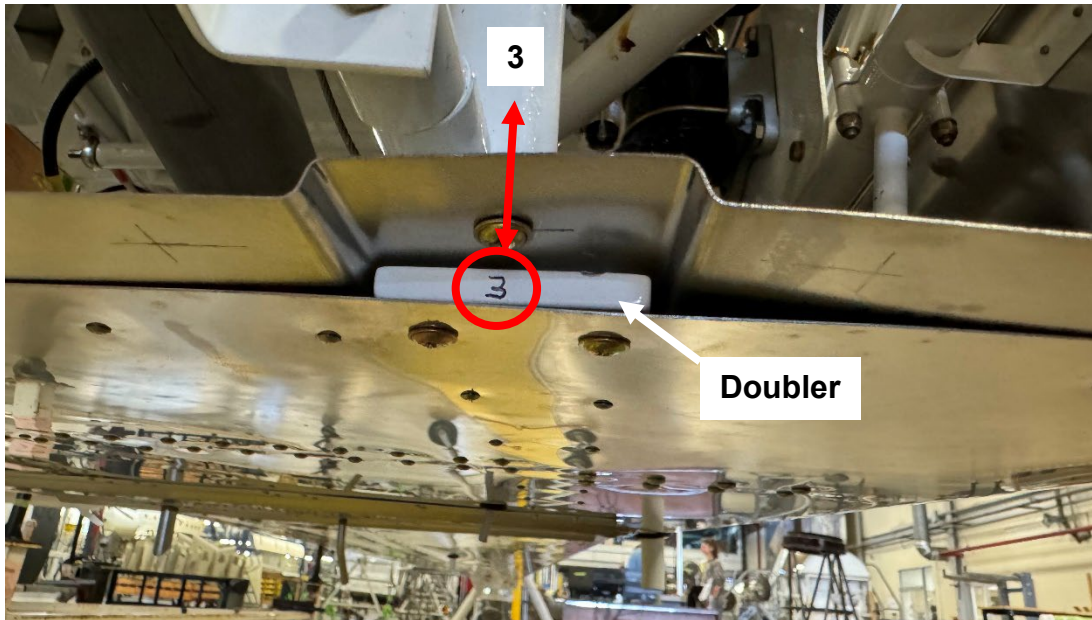


Figure 9-3.1g

8. Remove rivets from LH & RH sides of belly skin.

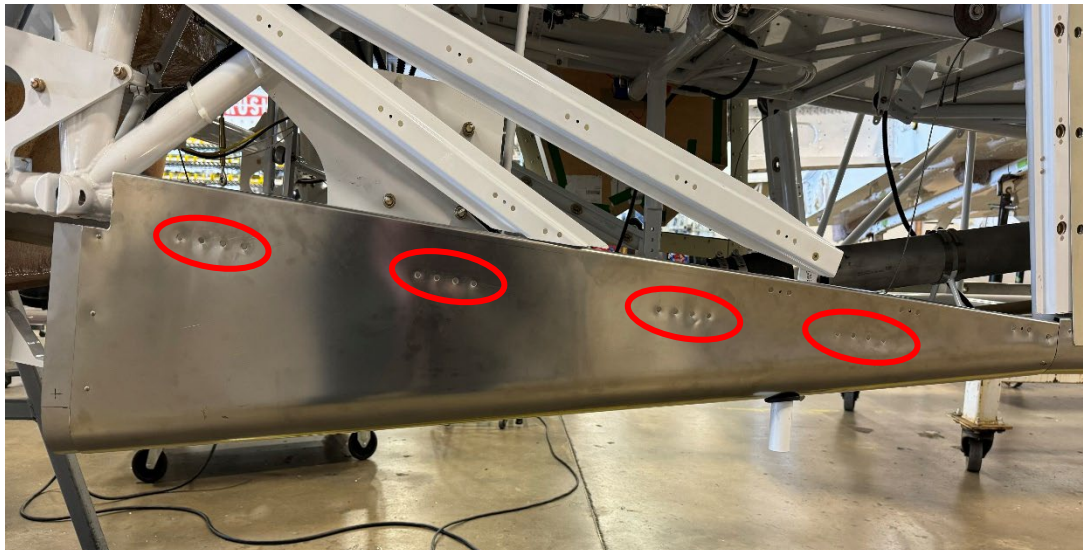


Figure 9-3.1h

9. Install Clecos to hold belly skin to LH & RH clips.
10. Remove standoff Dutchman clamps.

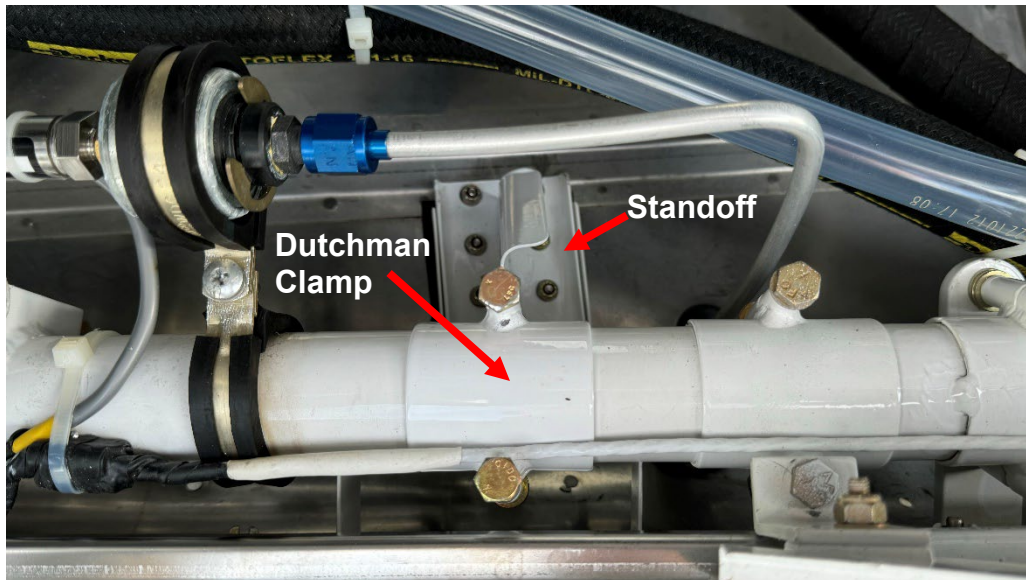


Figure 9-3.1i

11. Remove Clecos from LH & RH belly skin and clips.
12. Remove belly skin.

9.3.2 BELLY SKIN INSTALL

1. Safely and effectively transfer holes from previous belly skin to new belly skin.



Figure 9-3.2a



Figure 9-3.2b – Single Cockpit ONLY



Figure 9-3.2c

****NOTE:** The forward doubler can be removed from the previous belly skin to be installed on the new belly skin or used to transfer holes onto new doubler.**

(Reference Figure 9-3.2e)

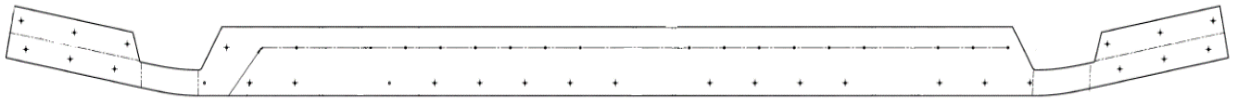


Figure 9-3.2d



Figure 9-3.2e

2. Deburr holes until smooth.
3. Insert new grommets into belly skin.
4. Lift and position belly skin.

5. Clamp belly skin to each LH & RH fuselage frame clip (4 each side).
 - **NOTE:** Belly skin may need to be removed, trimmed, and deburred at aft end and at center section attach bolts to ensure proper fit.
 - After trimming and deburring belly skin, locate and position belly skin back in place.

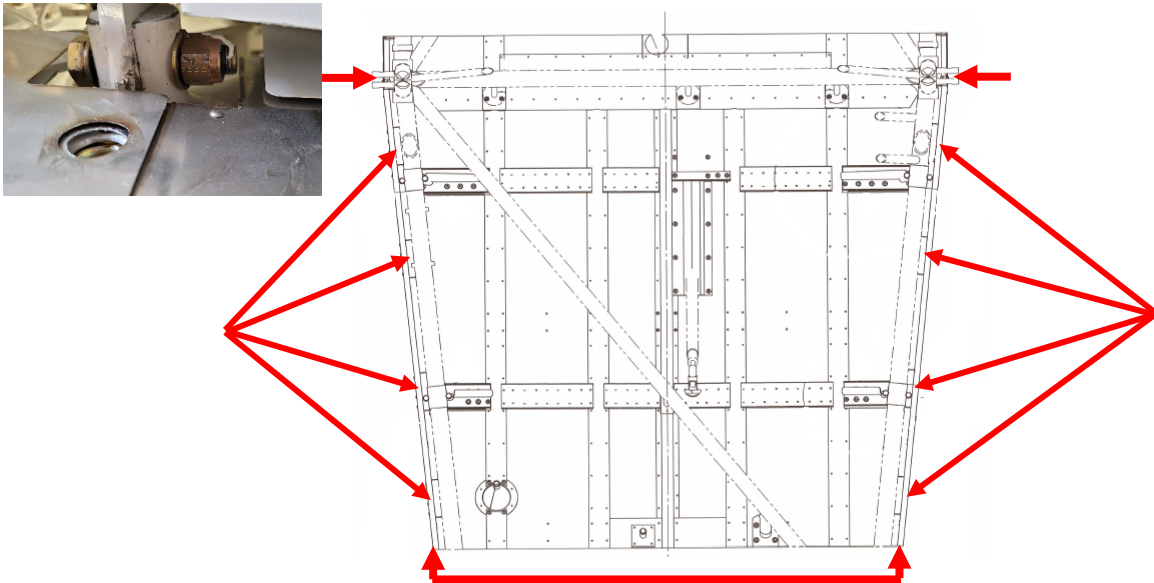


Figure 9-3.2f

6. Locate center fuselage frame standoff then match drill and Cleco two (2) #30 holes.
 - **CAUTION:** Do **NOT** drill completely through belly skin. Drill through hat channel **ONLY**.

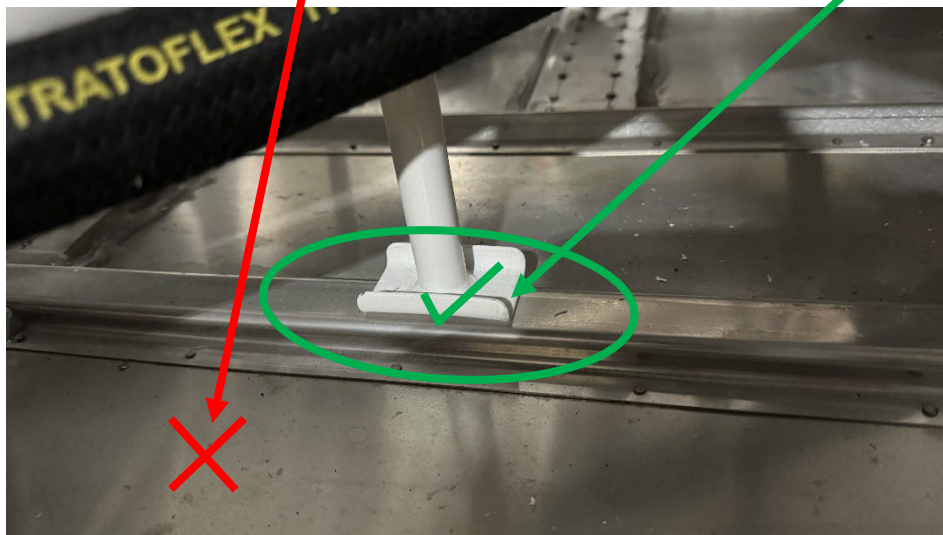


Figure 9-3.2g

7. At middle forward standoff, ensure standoff is located center of channel (similar to previous belly skin) and clamp in place.

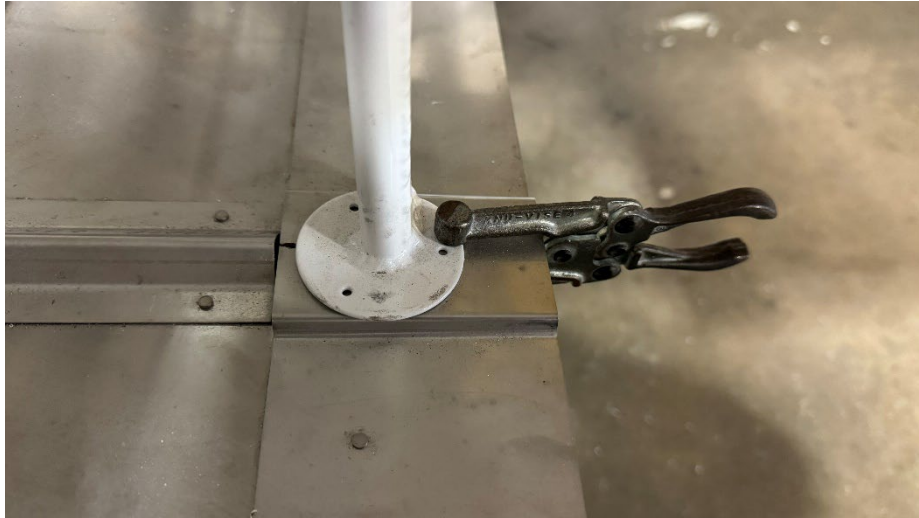


Figure 9-3.2h

8. Match drill 3 three holes into channel and Cleco as you go.
9. Follow steps 9 & 10 to match drill and Cleco LH & RH forward standoffs.
10. At aft end of belly skin, match drill holes from center, out and Cleco as you go.
11. Match drill and Cleco four (4) #30 holes through each fuselage frame clip.

(Reference Figure 9-3.2f)

- **NOTE:** Shim as required.
 - It is best practice to identify spacer locations with some form of marking (same as identifying forward standoff doublers (Reference Figure 9-3.1g)).



Figure 9-3.2i – No Shim



Figure 9-3.2j – Shim

12. Remove all clamps and Clecos then remove belly skin and place on work surface.
13. Deburr all holes made.
14. Install Camlocs (40R17-2 x 22) in doubler using flush rivets (MS20427M4-8) or install doubler from previous belly skin onto new belly skin.
15. Lift belly skin back into place.
16. Install Clecos in belly skin and LH & RH outboard Fuselage Frame Clips.
17. Install Cherrymax rivets (CR3213-4-2 x 2) in center standoff.
18. At center forward standoff insert doubler previously identified and removed, then install hardware (3 x AN525-832R7 – Screw, 6 x NAS1149CN832R – Washer, 3 x MS21042-08 – Nut).
19. Install hardware in LH and RH forward standoffs (6 x AN525-832R7 – Screw, 12 x NAS1149CN832R – Washer, 6 x MS21042-08 – Nut).
20. Install aft row of rivets in belly skin (12 x MS20615-4M3 – Rivet, 8 x MS20615-4M4.5, 2 x MS20427M4-3).
21. Reference Section 9.4.2 for standoff installation instructions.
22. Secure belly skin to fuselage frame clips, along with necessary shims, using flush rivets (MS20427M4-4 – MS20427M4-8 depending on length needed at particular location).

23. Install channel brackets to belly skin using Cherrymax rivets.



Figure 9-3.2k

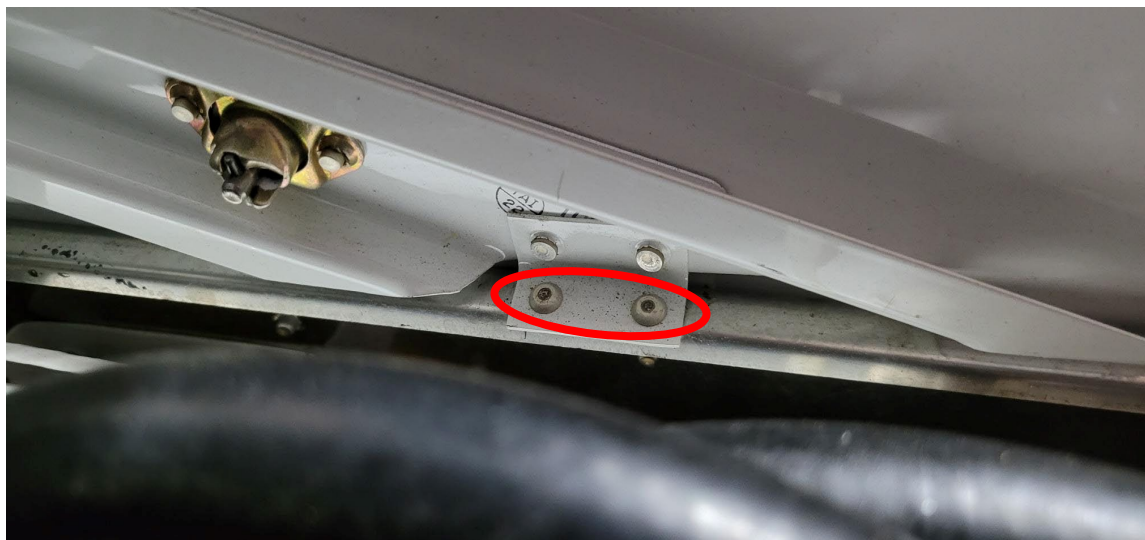


Figure 9-3.2l

9-4 - STANDOFFS

9-4.1 STANDOFF REMOVAL

1. Remove hardware from standoff.
2. Remove top half of Dutchman clamp.
3. Remove previous standoff.

9-4.2 STANDOFF INSTALL – SAME BELLY SKIN

1. Locate the new standoff in place of the previous standoff and trim-to-fit so to ensure appropriate edge distance with the standoff foot covering the full length of the hat channel flange. (Reference Figures 9-4.2a, 9-4.2c, 9-4.3a, & 9-4.3b)
2. Deburr and round all edges.
3. Prime and paint the standoff. (Reference the S2R-T660 AMM; Section 2-34)
4. Mark hole locations onto the standoff foot from the bottom side of the belly skin.
5. Remove standoff.
6. Drill #27 holes at marked locations then deburr.
7. Repeat the above steps for the remaining standoffs.
8. Bring standoffs back to location and loosely install.
9. Locate appropriate steel doubler edge flush with edge of doubler.
10. Place appropriate thickness of neoprene padding to fill space between belly skin and standoff.
11. Tighten Dutchman clamp.
12. Use an awl to punch through or drill through the two #27 holes and Cleco.
13. Match-drill remaining #27 holes through holes in standoff and Cleco as you go.
14. Remove standoff and pads then deburr every hole.
15. Put standoff, steel doubler, and neoprene pad(s) back in place where previously located and Cleco in place.
16. Install new hardware in standoff foot and belly skin.
17. Tighten Dutchman clamp to complete standoff install.

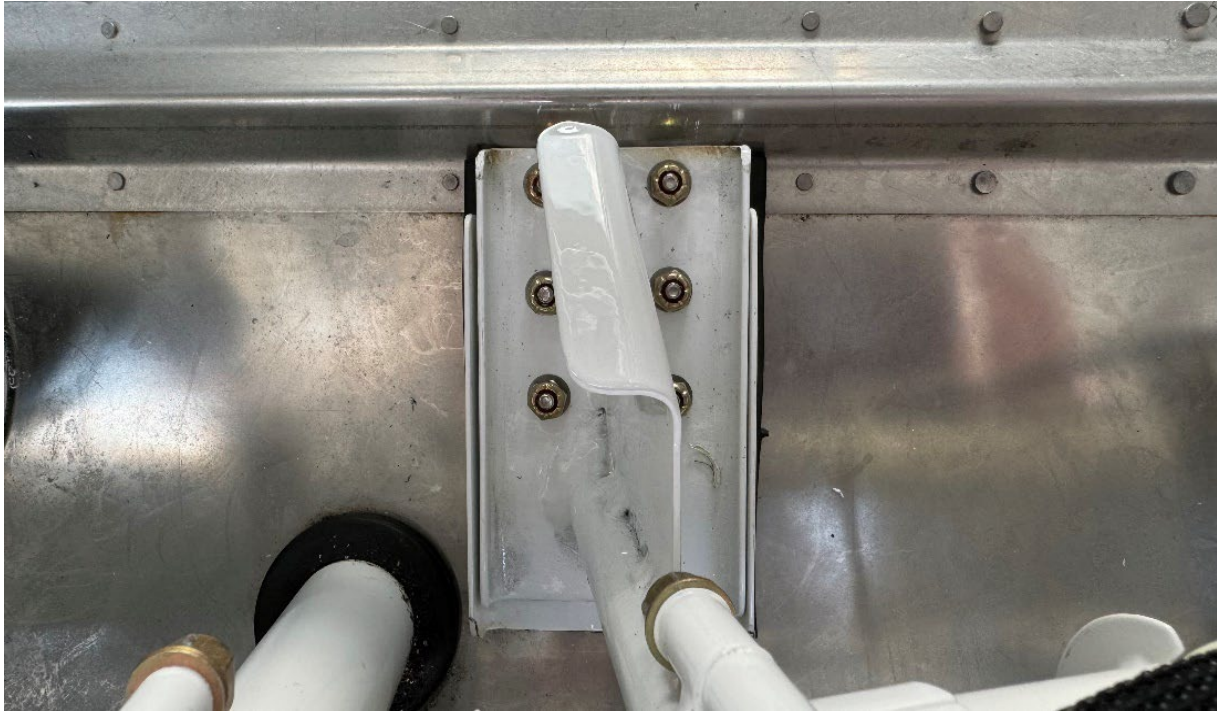


Figure 9-4.2a

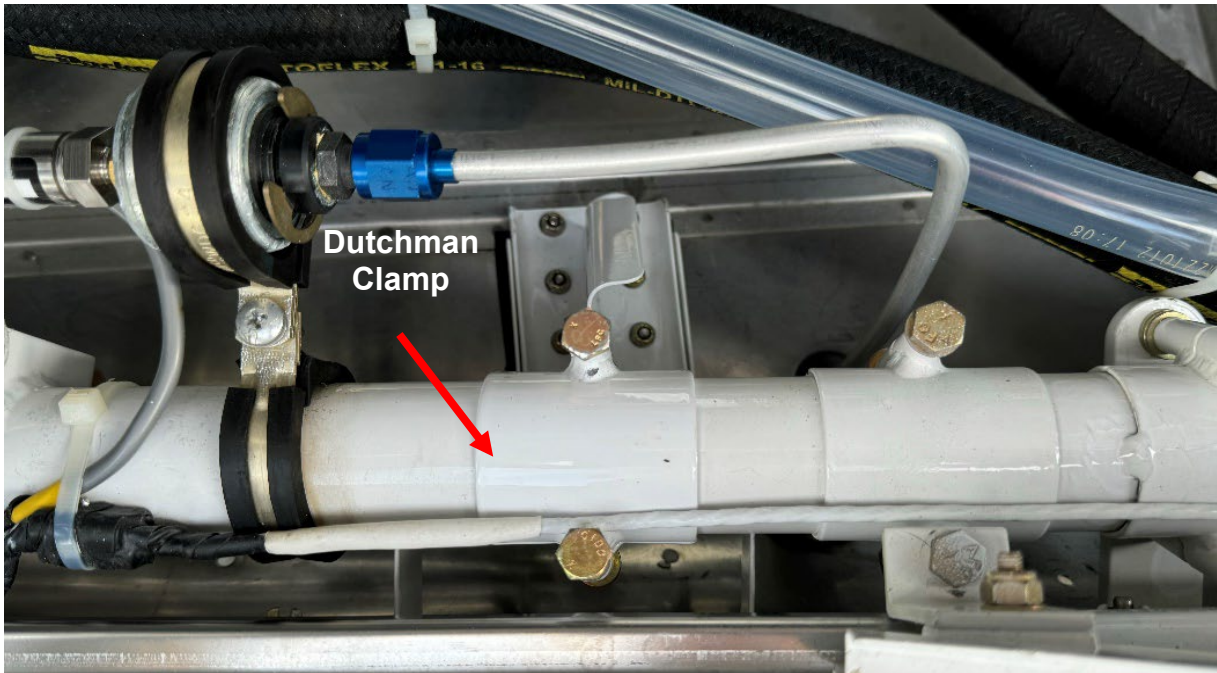


Figure 9-4.2b

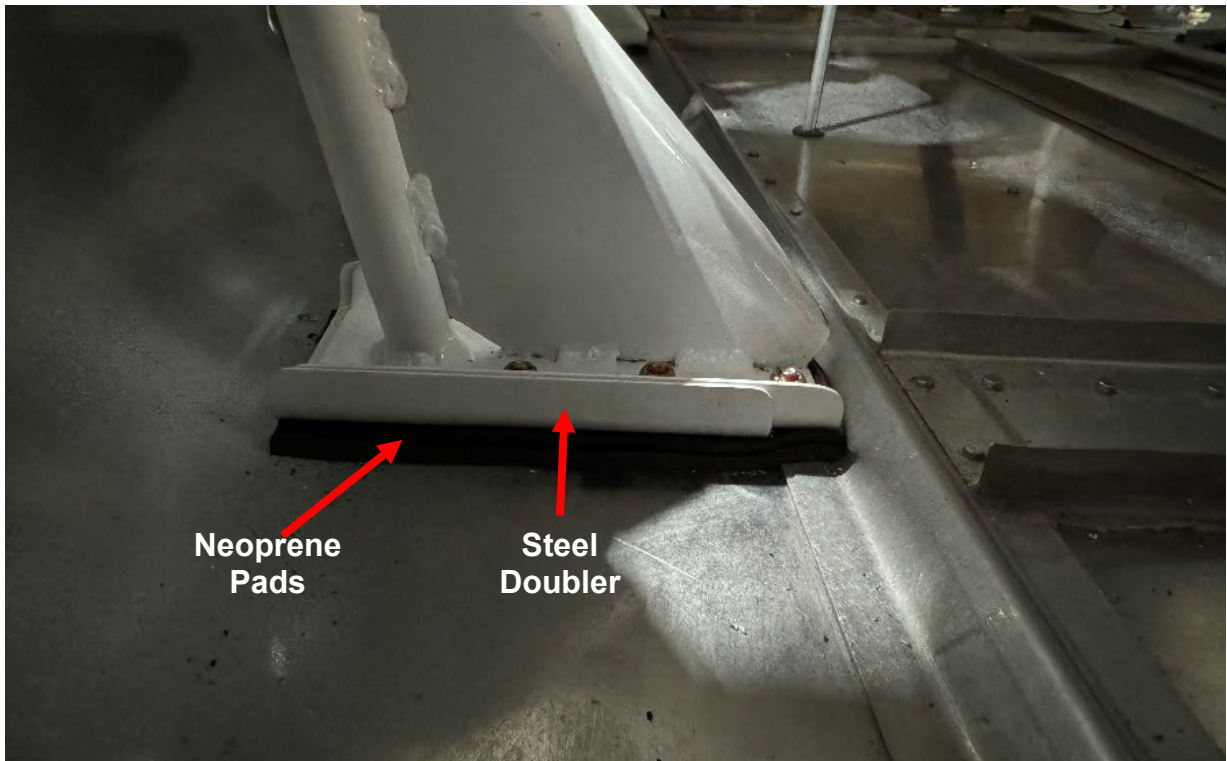


Figure 9-4.2c

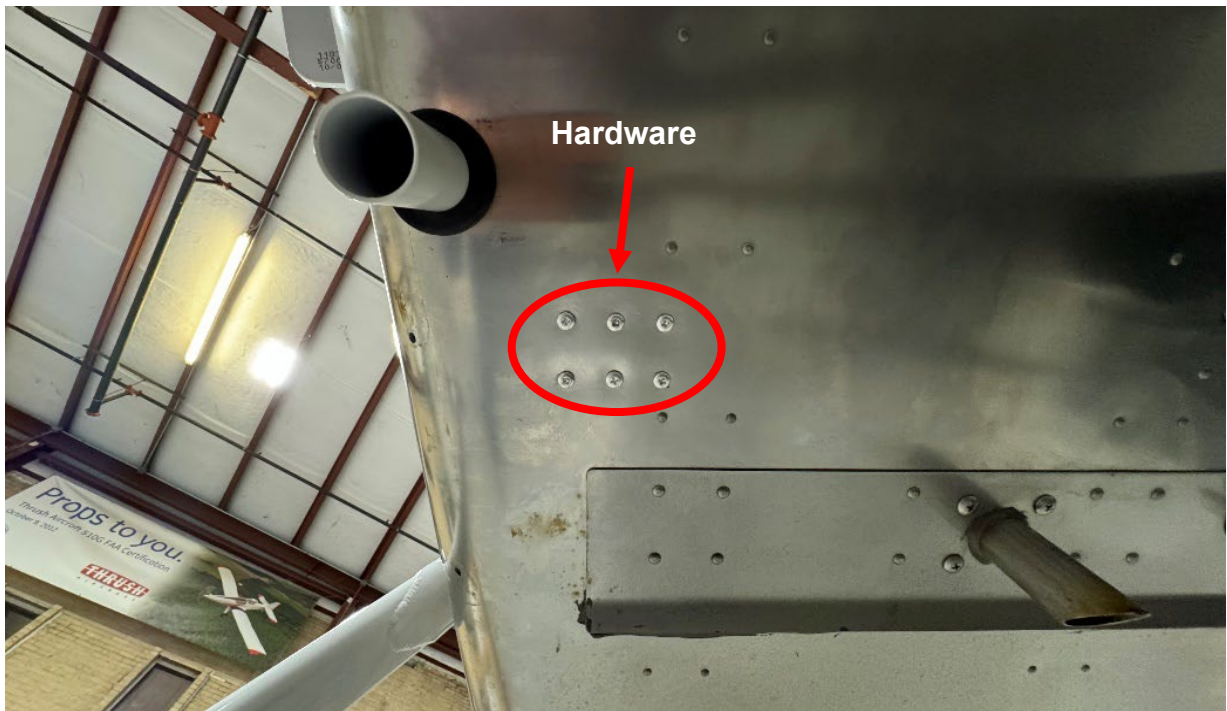


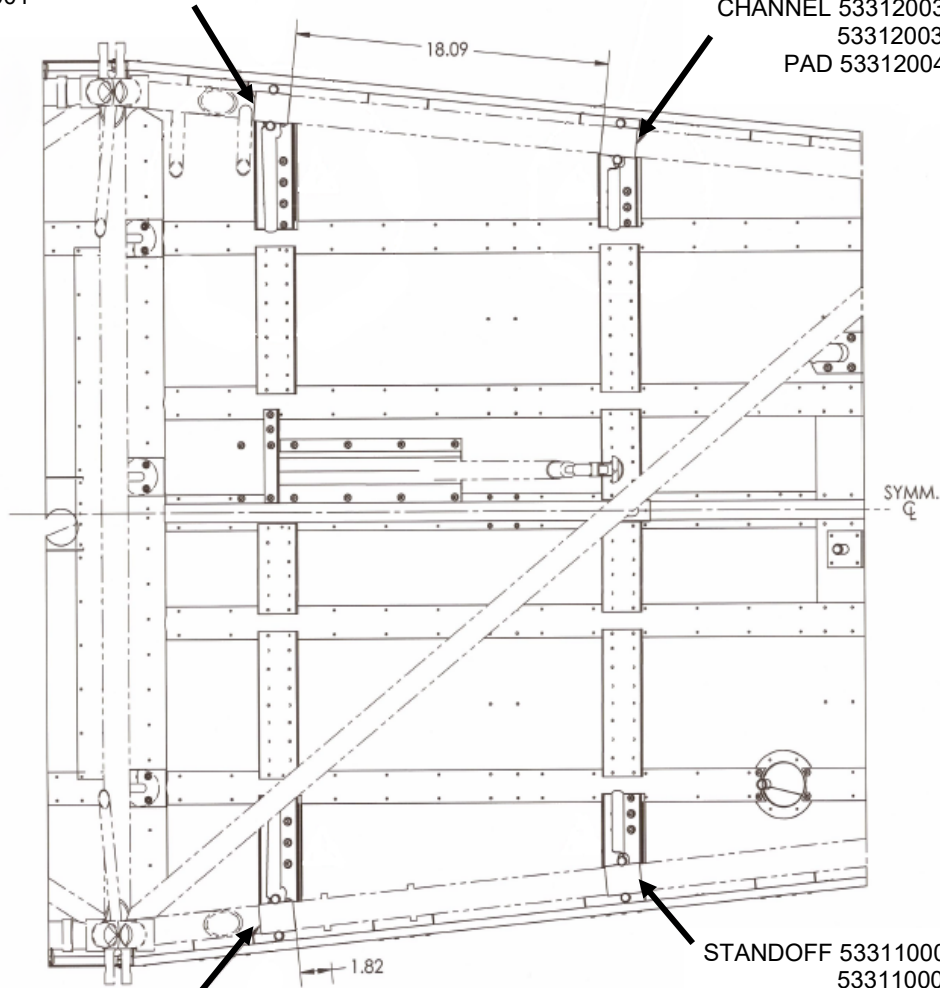
Figure 9-4.2d

9.4.3 STANDOFF INSTALL – NEW BELLY SKIN

1. Locate the new standoff in place of the previous standoff and trim-to-fit so to ensure appropriate edge distance with the standoff foot covering the full length of the hat channel flange. (Reference Figures 9-4.3a, 9-4.3b, 9-4.3c, & 9-4.3d)

STANDOFF 533110002-008 (W/ HOLES)
533110002-014 (W/O HOLES)
CHANNEL 533120031-029 (W/ HOLES)
533120031-043 (W/O HOLES)
PAD 533120046-001

STANDOFF 533110002-010 (W/ HOLES)
533110002-016 (W/O HOLES)
CHANNEL 533120031-037 (W/ HOLES)
533120031-047 (W/O HOLES)
PAD 533120046-003



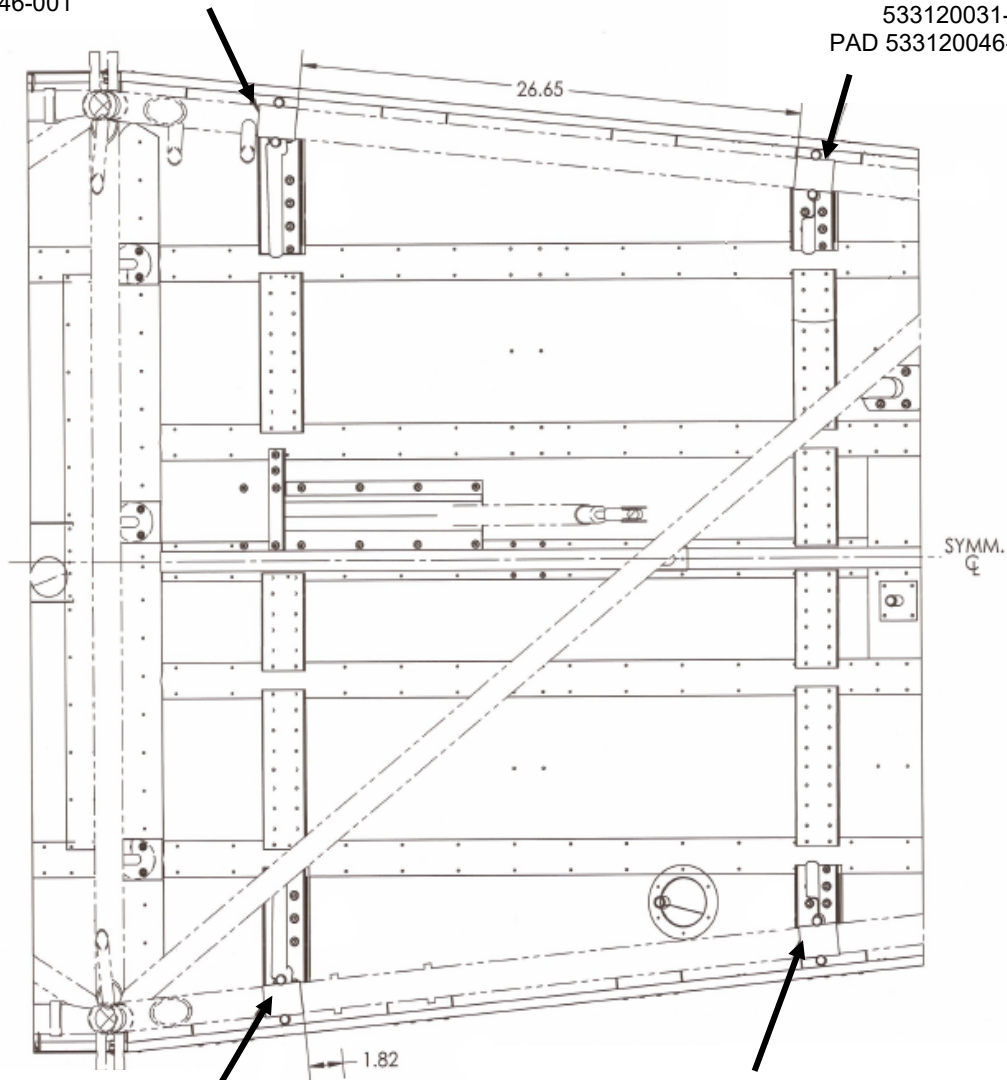
STANDOFF 533110002-007 (W/ HOLES)
533110002-013 (W/O HOLES)
CHANNEL 533120031-029 (W/ HOLES)
533120031-043 (W/O HOLES)
PAD 533120046-001

STANDOFF 533110002-009 (W/ HOLES)
533110002-015 (W/O HOLES)
CHANNEL 533120031-037 (W/ HOLES)
533120031-047 (W/O HOLES)
PAD 533120046-003

Figure 9-4.3a – Single Cockpit

STANDOFF 533110002-008 (W/ HOLES)
533110002-014 (W/O HOLES)
CHANNEL 533120031-029 (W/ HOLES)
533120031-043 (W/O HOLES)
PAD 533120046-001

STANDOFF 533110002-012 (W/ HOLES)
533110002-018 (W/O HOLES)
CHANNEL 533120031-035 (W/ HOLES)
533120031-049 (W/O HOLES)
PAD 533120046-005



STANDOFF 533110002-007 (W/ HOLES)
533110002-013 (W/O HOLES)
CHANNEL 533120031-029 (W/ HOLES)
533120031-043 (W/O HOLES)
PAD 533120046-001

STANDOFF 533110002-011 (W/ HOLES)
533110002-017 (W/O HOLES)
CHANNEL 533120031-035 (W/ HOLES)
533120031-049 (W/O HOLES)
PAD 533120046-005

Figure 9-4.3b – Dual Cockpit

2. Deburr and round all edges.
3. Prime and paint the standoff. (Reference the S2R-T660 AMM; Section 2-34)
4. Mark two holes (closest to doubler).

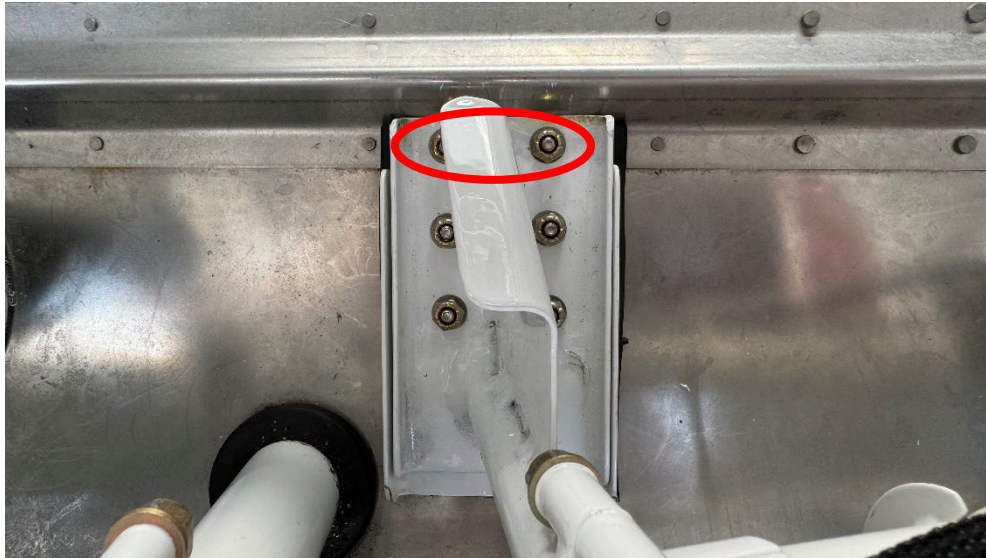


Figure 9-4.3c

5. Remove new standoff and set aside.
6. Drill two #27 holes at previously marked locations then deburr.
7. Loosely install new standoff in same location.
8. Locate appropriate steel doubler edge flush with edge of doubler.

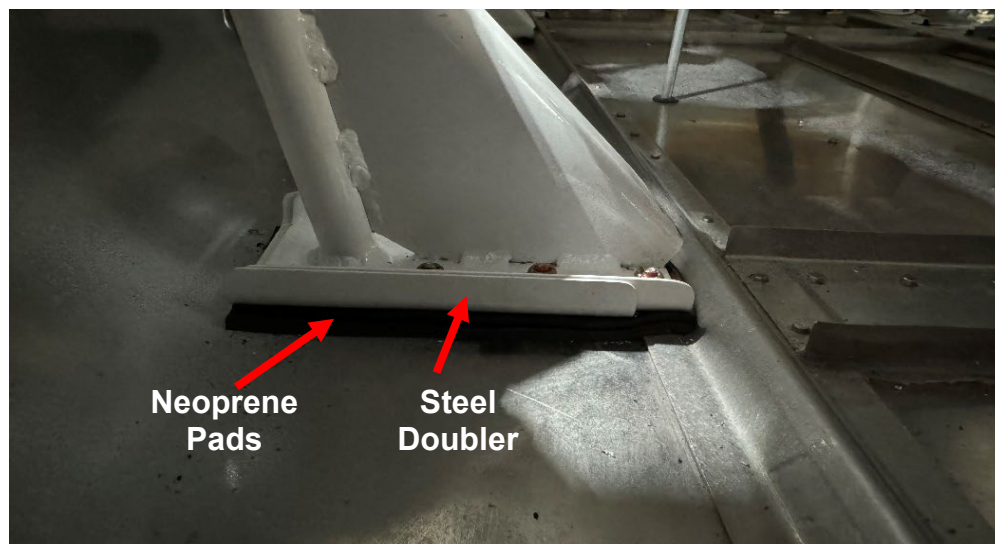


Figure 9-4.3d

9. Place appropriate thickness of neoprene padding to fill space between belly skin and standoff. (Reference Figure 9-4.3d)
10. Locate the edge of standoff foot at radius of doubler and on pads. (Reference Figure 9-4.3d)
11. Use an awl to punch through or drill through the two #27 holes and Cleco.
12. Temporarily install Dutchman clamp.
13. Match-drill remaining #27 holes through holes in standoff and Cleco as you go.
14. Remove standoff and pads then deburr every hole.
15. Put standoff, steel doubler, and neoprene pad(s) back in place where previously located and Cleco in place.
16. Install new hardware in standoff foot and belly skin.
17. Tighten Dutchman clamp to complete standoff install.



Figure 9-4.3e

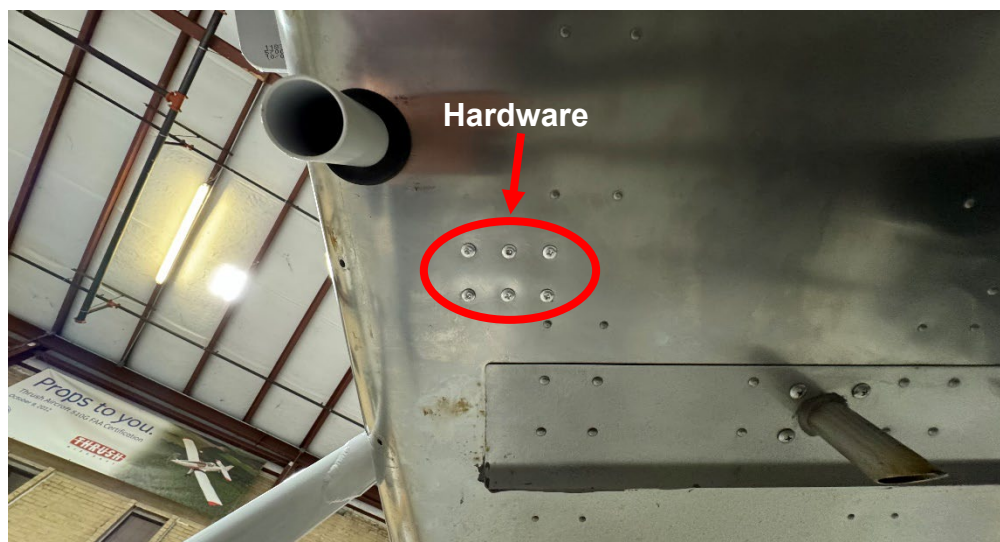


Figure 9-4.3f



10. RECORD OF COMPLIANCE

Make appropriate entry in airplane maintenance records as follows:
"Thrush Custom Kit CK-AG-58 Rev A complied with at _____ total hours on aircraft."

Modification accomplished by:

Name & Certificate #	Date
----------------------	------

11. RESPONSE CARD

The final step in compliance with this Custom Kit is to complete and return the compliance card on the next page. It may be mailed, faxed, or scanned and e-mailed.

Fax:	Thrush Support	229-317-8225
Email:	Thrush Support	support@thrushaircraft.com



12. CUSTOM KIT CK-AG-58 REV A COMPLIANCE REPORT

Aircraft S/N:	Aircraft Owner:
Aircraft Registration #:	Address of Owner:
Airframe Total Time:	City & State:
Engine Total Time:	Physical Location:
Complied With By:	Date of Compliance:
Signature:	Certificate #:

PLEASE RETURN THIS REPORT ONLY AFTER MODIFICATION IS MADE

This response card may be mailed, faxed to (229) 317-8225, or emailed to support@thrushaircraft.com.

Fold, Tape, & Mail (Do Not Staple)

Return Address:

Thrush Aircraft LLC.
 Attn: Customer Assurance and Support
 300 Old Pretoria Road
 Albany, GA 31721