

**\*MANDATORY SERVICE BULLETIN\*****NUMBER:** SB-028**REVISION:** 01**DATE:** June 7, 2013**SUBJECT:** AFT FUSELAGE RIVET INSPECTION AND DOUBLER INSTALLATION**EFFECTIVITY:**

KODIAK 100 Series Aircraft Serial Numbers: 100-0001 through 100-0036

**SUMMARY:**

The accompanying Field Service Instruction provides instructions for inspecting for skin damage and installing two (2) doublers in the aft section of the fuselage.

**COMPLIANCE:**

This Service Bulletin may be complied with as convenient for the owner/operator but must be completed prior to 1000 airframe hours.

**ATTACHED DOCUMENTS:**

| Document #: | Revision: | Document Title:  |
|-------------|-----------|--|
| FSI-009     | 01        | AFT FUSELAGE RIVET INSPECTION AND DOUBLER INSTALLATION |

**FAA APPROVAL STATUS:**

The instructions attached to this Service Bulletin have demonstrated compliance with all applicable Federal Aviation Regulations and are approved by the Federal Aviation Administration.

**CREDIT AND WARRANTY INFORMATION:**

Quest Aircraft Company will reimburse for the cost of this modification up to \$675.00 for aircraft under Factory Warranty. For reimbursement send a copy of the maintenance record, completed KODIAK 100 Warranty Form, and an invoice that does not exceed the amount listed above to Quest Aircraft Company, Attn: Warranty Dept.

**Quest Customer Service****Service Bulletin: SB-028****Phone:** (208)263-1111 Toll Free: 1(866)263-1112**Email:** [Customerservice@questaircraft.com](mailto:Customerservice@questaircraft.com)**SPECIAL INSTRUCTIONS:**

N/A

**\*MANDATORY SERVICE BULLETIN\*****\*MANDATORY SERVICE BULLETIN\***



## FIELD SERVICE INSTRUCTION

TITLE:

AFT Fuselage Doublers Installation

SERIAL RANGE:

100-0001 thru 100-0036

JASC CODE:

5320

PAGE:

1 of 10

REPORT NO.:

FSI-009

REVISION:

01

### SUBJECT

This Field Service Instruction provides instructions for inspecting for skin damage and installing two (2) doublers in the aft section of the fuselage.

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### AFFECTED MANUALS AND PUBLICATIONS

None

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### INDUSTRY REFERENCES

None

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### WEIGHT AND BALANCE

Negligible

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### MANPOWER

The estimated man-hours and minimum number of persons required to perform this Field Service Instruction are listed below. The "Minimum Persons" refers only to maintenance personnel or installers, and unless otherwise specified within this instruction does not include additional personnel that may be needed solely to comply with safety requirements (for example, safety observers that are not performing tasks within this instruction). It is the responsibility of maintenance personnel to comply with safety requirements, including having a safety observer available as needed.

**Estimated Man-hours: 9 hours**

**Minimum Persons: 2 persons**

If more than the minimum personnel perform this instruction, the actual man-hours required may be reduced due to increased efficiencies. As appropriate, Quest encourages the use of additional personnel; man-hour estimates are based on the minimum personnel required.

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### RECORD OF COMPLETION

Update the appropriate maintenance log books.

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QUEST® Aircraft Company, LLC  
1200 Turbine Drive  
Sandpoint, ID 83864



# FIELD SERVICE INSTRUCTION

TITLE:

AFT Fuselage Doublers Installation

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01

## REVISION RECORD

| REV | PAGE | CHANGE DESCRIPTION   |
|-----|------|--|
| 00  | All  | Initial Release  |
| 01  | All  | Updated formatting of document to correspond with current style standards.   |
|     | 1    | Subject WAS: "a doubler (x2) installation"<br>IS: "for inspecting for skin damage and installing two (2) doublers"   |
|     | 5    | Section 3 ADDED: General Information and Figure 3-1.<br>Edited Warning. WAS: "All power to the airplane should be off for this procedure." IS: "All power to the airplane must be switched off for this procedure. Ensure the Master Switch is in the OFF position."   |
|     | 6    | Figure 4-1 UPDATED<br>Section 4.1 WAS: "Remove aft bulkhead access panel using the procedures defined in the KODIAK 100 Aircraft Maintenance Manual."<br>IS: "Remove the aft bulkhead access panel by turning the thirteen (13) camlocks ¼ turn."<br>ADDED: "Carefully remove the aft bulkhead access panel and store in a safe location."<br>Section 4.2 ADDED: Numbering to identify a numbered list of steps.<br>Section 4.2 ADDED: Numbering to identify a numbered list of steps.   |
|     | 7    | Section 5.1 Renamed. WAS: "Remove Frame To Skin Rivets As Necessary" IS: "Remove Rivets as Necessary"<br>Section 5.1 edited to add "FAA Advisory Circular" preceding "AC 43.13-1B".<br>Section 5.2 ADDED: Numbering to identify a numbered list of steps.<br>Section 5.2 Step 1 edited to remove "When rivets have been removed".<br>Section 5.3 WAS: "Install the doubler using the procedure defined in this section. This will require two people."<br>IS: "The installation of the doublers may require two persons."<br>Section 5.3 step 1 edited. WAS: "Locate the position of the doublers" IS: "Position the doublers" Updated figure reference to Figure 5-4. |
|     | 8    | Step 2 WAS: "Once in place, using..." IS: "Using..."<br>Step 3 WAS: "cleko's" IS: "clekos"<br>Step 5 WAS: "drill 4 holes" IS: "drill four (4) holes" WAS: "(these are circled in...)" IS: "(circled in...)"<br>Step 6 WAS: "Remove drill debris if required." IS: "Remove any drill debris."<br>Step 7 WAS: "The gap between the skin and the frame MUST NOT exceed 0.010" for the area defined in Figure 2-3." IS: "Inspect the gap between the skin and the frame."<br>Moved content to NOTE, ADDED  |
|     | 9    | Step 7 continued to add "If the gap exceeds 0.010, install tapered shims..."<br>Step 9 WAS: "Install the rivets" IS: "Spot prime and touch up paint per AC43.13-1B."<br>Step 11 removed. WAS: "Continue to Section 3.1"  |
|     | 10   | Section 6 WAS: "Upon completion, annotate all work in the appropriate log books."<br>IS: "Upon completion, record all work performed in the appropriate maintenance records."<br>Figure 5-4 and Figure 5-5: Combined.  |



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## 1. Special Safety Instructions

### 1.1 Warnings

Failure to comply with “Warnings” contained in this instruction may result in financial loss, significant delay in the completion time, and/or serious injury to personnel.

### 1.2 Cautions

Failure to comply with “Cautions” contained in this instruction may result in the destruction of components, unnecessary complications, the need to reverse completed work, and/or delays in the completion time.

### 1.3 Notes

“Notes” are provided when additional information may lead to an increase in efficiency.

## 2. Parts, Tools, and Equipment

The following tables describe the parts, tools, and equipment necessary to successfully complete this instruction. Where applicable, reference to drawings provided with this instruction is provided.

**Table 2-1: Parts and Tools Included in the Service Kit**

| Item # | Part No.     | Qty | Description                         | Drawing No. | Dwg Item # |
|--------|--------------|-----|-------------------------------------|-------------|------------|
| 2-1-1  | 100-240-4057 | 2   | Doubler, Canted Frame, AFT Fuselage | N/A         | N/A        |

**Table 2-2: Consumables Included in the Service Kit**

| Item # | Part No. | Qty | Description | Drawing No. | Dwg Item # |
|--------|----------|-----|-------------|-------------|------------|
| 2-2-1  | N/A      | -   | N/A         | N/A         | N/A        |

**Table 2-3: Serial-Number-Specific Parts Included in the Service Kit**

| Item # | Part No. | Qty | Description | Drawing No. | Dwg Item # |
|--------|----------|-----|-------------|-------------|------------|
| 2-3-1  | N/A      | -   | N/A         | N/A         | N/A        |

**Table 2-4: Parts and Tools NOT Included in the Service Kit**

| Item # | Part No. | Qty | Description | Drawing No. | Dwg Item # |
|--------|----------|-----|-------------|-------------|------------|
| 2-4-1  | N/A      | -   | N/A         | N/A         | N/A        |



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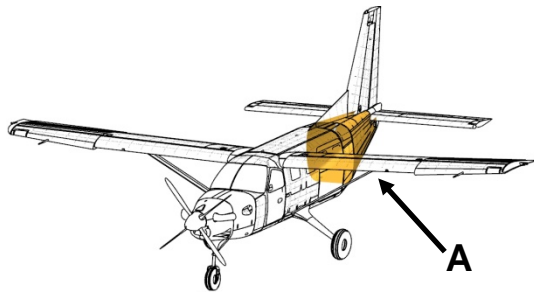
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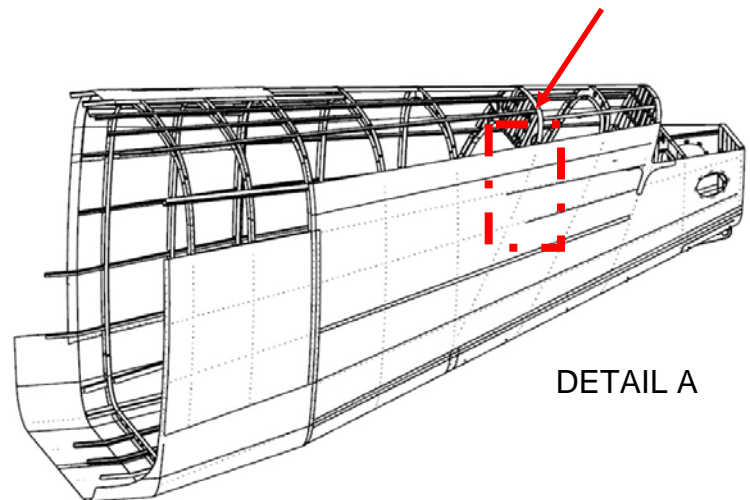
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### 3. General

This Field Service Instruction provides procedures for inspecting the exterior skin, and installing a doubler on the left and right side of the aft fuselage.



Inspection and modification area on both sides of the aircraft.



**Figure 3-1: Inspection and Modification Area**

#### 3.1 Special Safety Instructions

### **⚠ WARNING ⚠**

All power to the airplane must be switched off for this procedure. Ensure the Master Switch is in the **OFF** position.

## 4. Preparation

### 4.1 Remove Bulkhead

1. Remove aft bulkhead access panel by turning the thirteen (13) camlocks  $\frac{1}{4}$  turn.
2. Carefully remove the aft bulkhead access panel and store in a safe location.

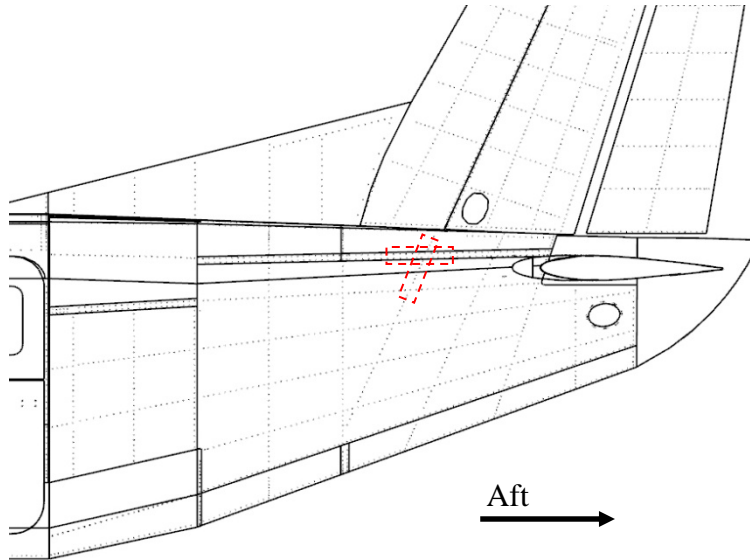
### 4.2 Rivet Inspection (Exterior Skin Cracking)

Visually inspect the exterior of the aircraft indicated in **Figure 4-1**, on both left and right sides, for skin damage including:

1. Rivet heads that are pulled sharply into skin
2. Cracking around rivet holes.

If skin damage is present, contact Quest Aircraft Company for repair instructions.

Inspect the indicated area on both the left and right sides of the aircraft.



**Figure 4-1: Inspection Area**

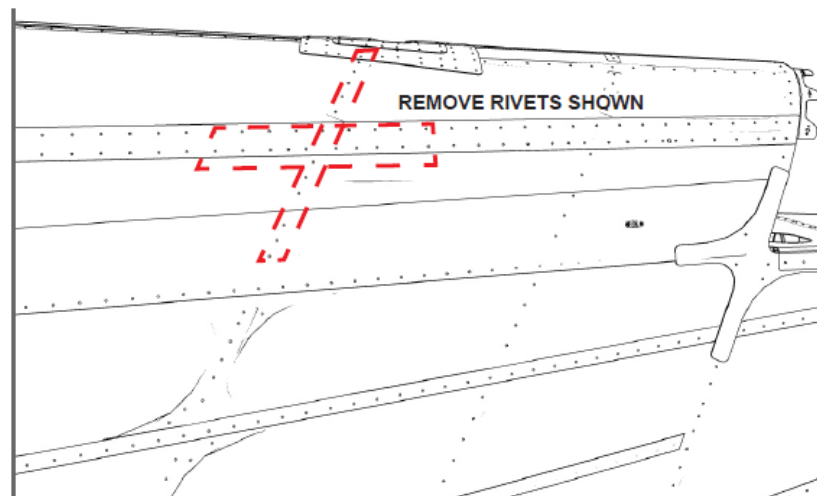
## 5. Instructions

### 5.1 Remove Rivets As Necessary

Using acceptable industry practices, as found in FAA Advisor Circular AC 43.13-1B, remove the rivets that attach the skin to the frame as shown in **Figure 5-1**.

**▲ NOTE ▲**

It may be necessary to remove more rivets than shown in **Figure 5.1** to loosen skin and install the doubler as described in **Section 5.3**. Ensure that skin is loosened enough that doubler can be inserted without excessive force that would result in loss of corrosion protection on the doubler or the skin.



**Figure 5-1: Remove Rivets**

### 5.2 Inspect Empty Rivet Holes

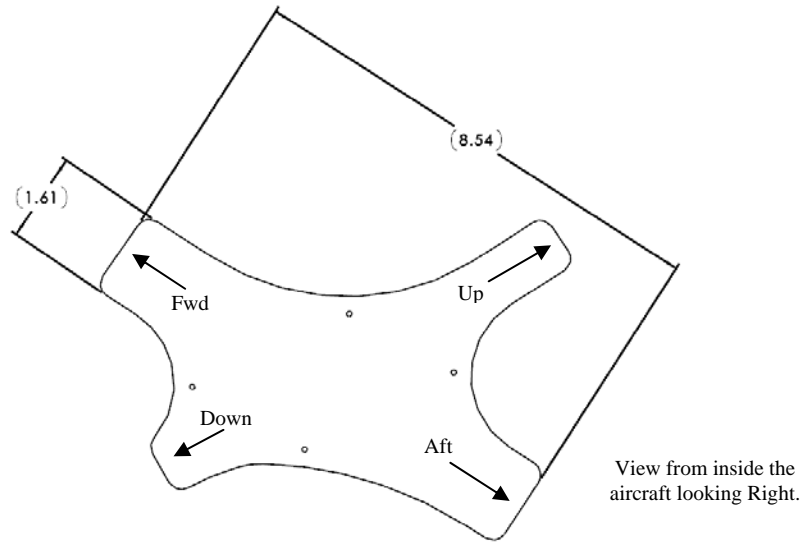
1. Visually inspect for cracks or severe dimpling at the empty rivet holes and the area under the rivet head in the area indicated in **Figure 5-1**.
2. If skin damage is present, contact Quest Aircraft Company for repair instructions.

### 5.3 Install Doublers (P/N 100-240-4057)

Installation of the doublers may require two persons.

1. Position the doublers (P/N 100-240-4057) as shown in **Figure 5-2** and **Figure 5-4**.





**Figure 5-2: Doublor (P/N 100-240-4057)**

2. Using the existing holes in the skin as a guide, drill two pilot holes through the positioned doubler (P/N 100-240-4057).

**⚠ CAUTION ⚠**

A drill stop is advised to prevent damage to the interior structure.

**⚠ WARNING ⚠**

Use extreme caution when drilling holes. Make sure to not damage the aircraft skin.

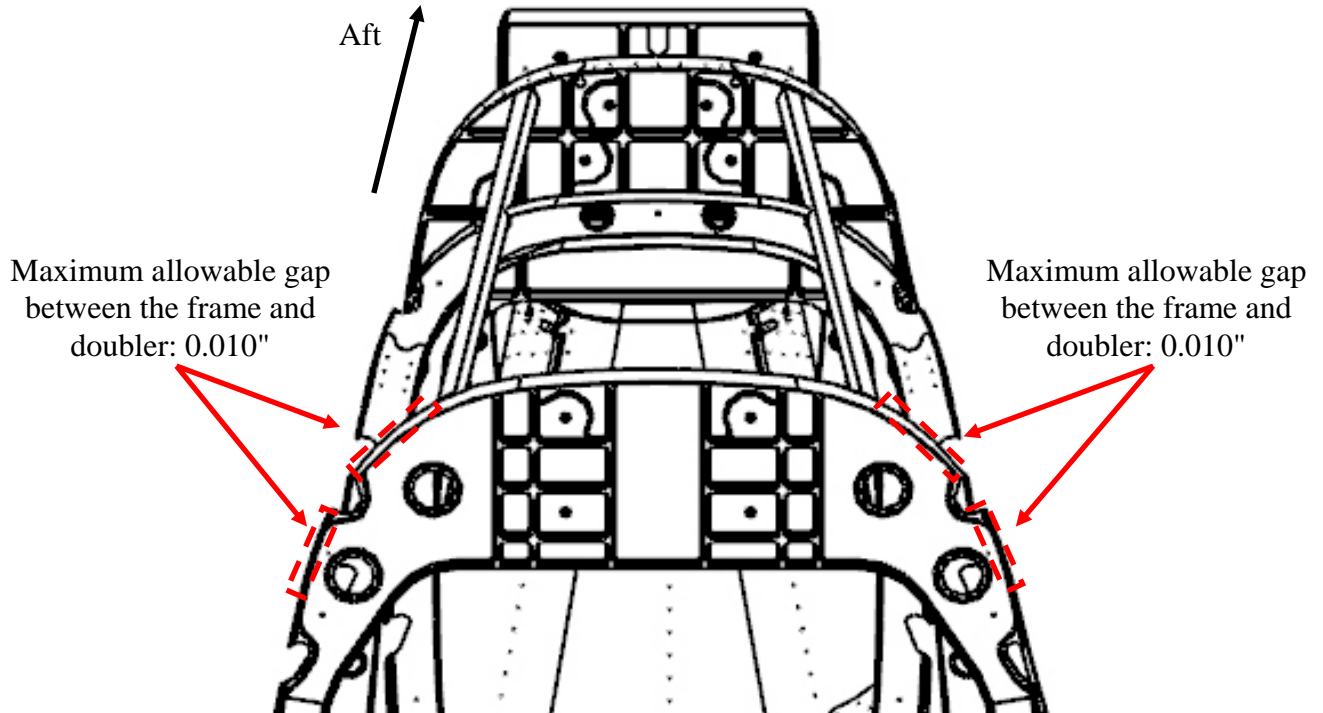
**⚠ WARNING ⚠**

Maintain minimum 2D edge distance for all fasteners.

3. Install clekos, in the pilot holes.
4. With the doubler held in position, drill the remaining holes and cleko as holes are drilled.
5. Back drill four (4) holes in the inside corners of doubler (P/N 100-240-4057), to a hole size for a (P/N MS20470AD-4) rivet (circled in **Figure 5-4**).
6. Remove any drill debris.
7. Inspect the gap between the skin and the frame.
  - a. Ensure that no debris has accumulated in the gap.
  - b. Ensure the gap does not exceed 0.010" (**Figure 5-3**).

**⚠ NOTE ⚠**

Hand pressure or spring cleco pressure is acceptable to draw the structure together prior to gap evaluation.



**Figure 5-3: Interior Gap Measurement**

8. If the gap exceeds 0.010", install tapered shims at the end of the uppermost, fwd and aft fingers of the doubler as needed to fill gaps between the skin and associated frame such that there are no gaps greater than 0.010" before installing rivets.

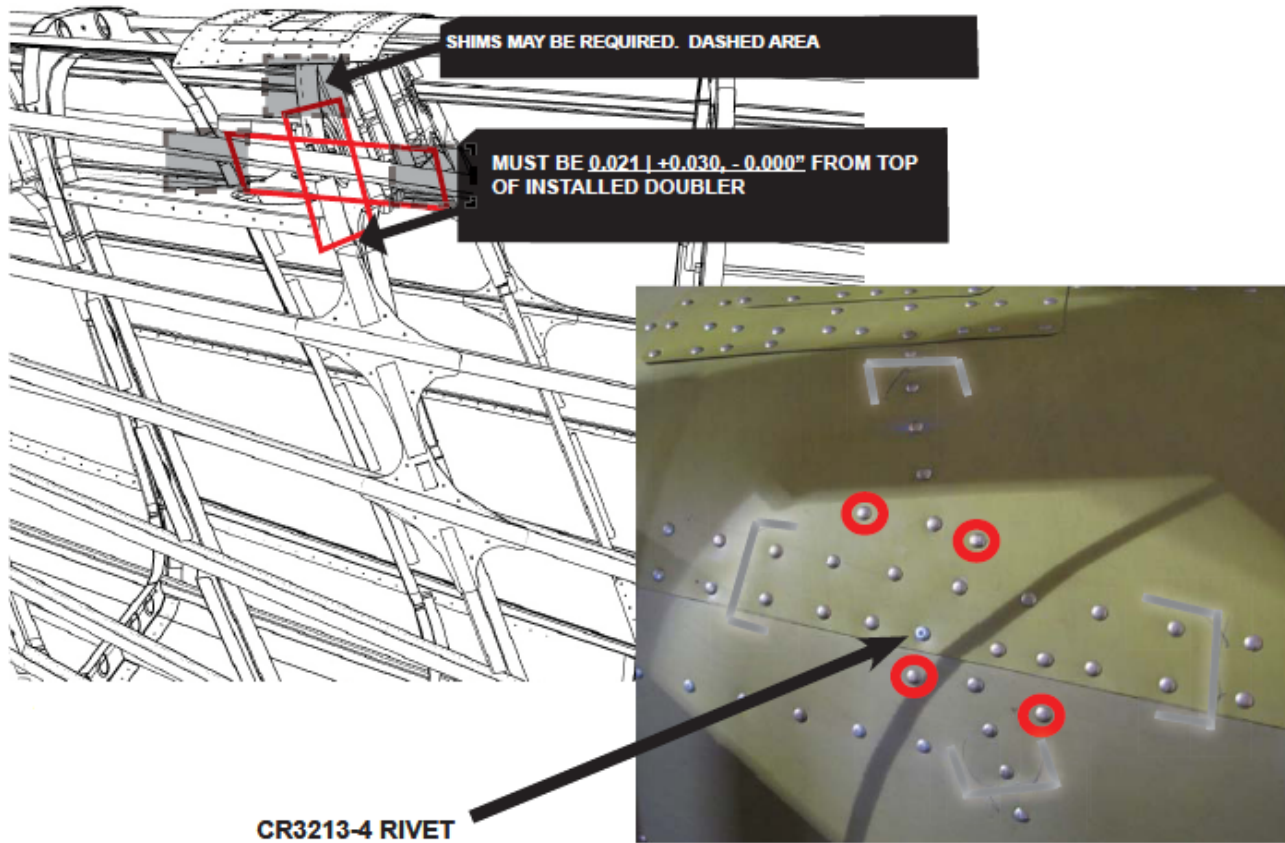
**▲ NOTE ▲**

If shim installation is required, use 2024-T3 ALCLAD sheet and round corners with minimum radius of .25" ±.060". Maximum allowable thickness of shims is 0.032". If shims need to be thicker than 0.032", contact Quest Aircraft.

**▲ NOTE ▲**

All rivets are nominally (P/N MS20470AD-4), except as shown in **Figure 5-4**, which is a (P/N CR3213-4, Cherry Max Rivet) for ease of installation. If a rivet hole becomes enlarged, deformed, or otherwise damaged, corrective action shall be taken per the guidance found in AC 43.13-1B, to ensure proper edge distance and drill or ream the hole for the next larger rivet size.

9. Install rivets.
10. Spot prime and touch up paint per AC 43.13-1B.



**Figure 5-4: Doubler and Rivet Installation**

## 6. Completion

1. Reinstall the aft bulkhead and secure using the thirteen (13) camlocks.
2. Upon completion, record all work performed in the appropriate maintenance records.

---END---