

## SERVICE BULLETIN 12-11-09 ADDENDUM

Issue Date: 13-01-08

This Addendum supplements and clarifies the contents of Service Bulletin SB 12-11-09

**NOTE: The service bulletin available for download has been updated to reflect five changes noted in this addendum.**

- 1) Add to List of required materials and specialty tools; 100 Degree countersink cutter (1/2" diam)
- 2) In Figure 6; "VA-140" should be "VA-204"
- 3) In Figure 12; F-1204U-L and F-1204U-R were changed to F-1204U-B-L and F-1204U-B-R
- 4) Information added to Step 30 and *GENERAL CHERRYMAX RIVET INSTALLATION* procedures added before Step 30.

### GENERAL CHERRYMAX RIVET INSTALLATION

CHERRYMAX CR32XX style blind rivets are high strength aircraft grade fasteners but only if properly installed.

**NOTE: To achieve maximum rated strength use only manufacturer recommended method of installation. The source of information for Tables 1 and 2 and Figures 14B and 14D was the *CHERRYMAX Process Manual* which may be viewed and/or downloaded at: <http://www.cherryaerospace.com/files/pdf/catalog/CA-1015.pdf>**

#### KEY POINTS TO REMEMBER:

##### RIVET SIZE

Rivets must be accurately sized for each application. Proper grip length selection is critical. Use only rivet lengths called out in the construction manual.

##### RIVET HOLE

Rivets require close tolerance holes in parts where they are being installed. See Table 1.

RIVET DIAMETER	DRILL SIZE	HOLE SIZE	
		MIN.	MAX.
-4 (1/8") [3.2mm]	#30	0.129 [3.3mm]	0.132 [3.4mm]

**TABLE 1**

##### TOOLS

CHERRYMAX rivets require a greater pull force than common blind rivets which is why the PRP-26A tool recommended for RV-12 construction does not work in this application. However most common blind rivet installation tools can install CHERRYMAX rivets so a more expensive Cherry brand tool is not required.

## ALIGNMENT

Unlike other blind rivets used in RV construction the CHERRYMAX stem cannot be pulled at an angle relative to the rivet axis. If stem is not pulled straight / parallel to rivet axis premature stem breakage can occur resulting in a rivet that has not fully formed or locked.

## DRIVING ANVIL

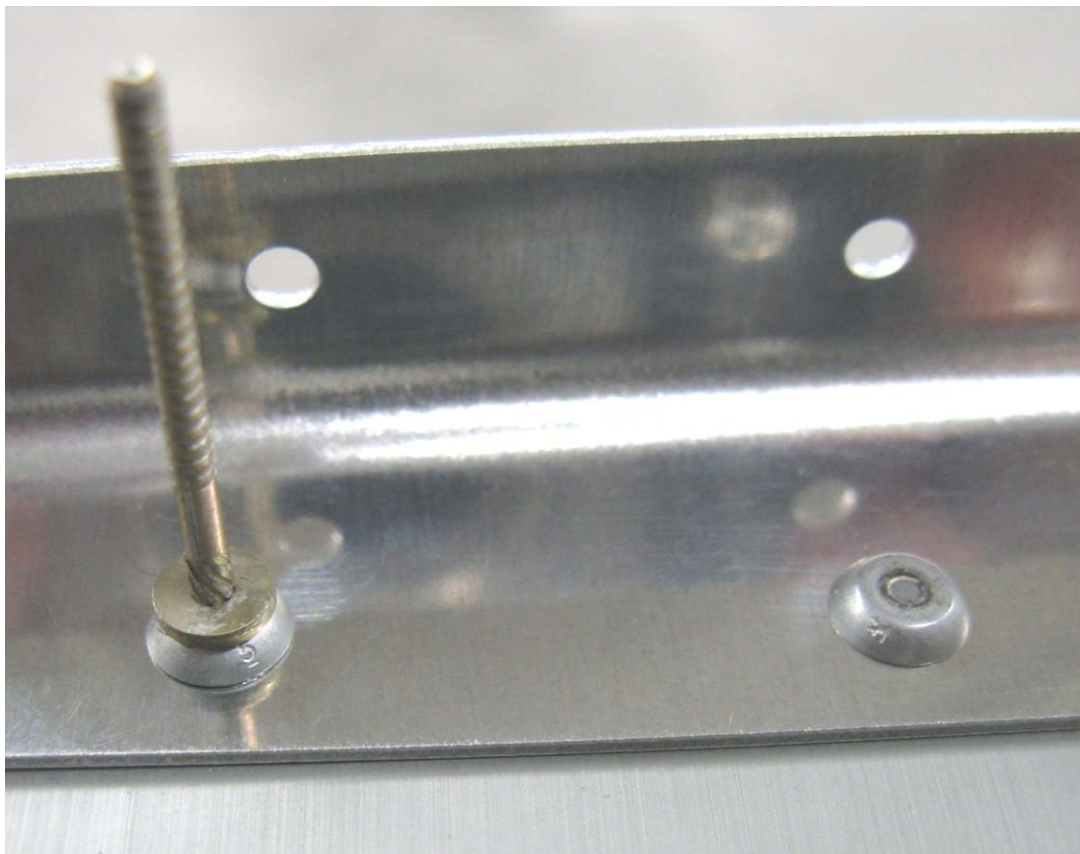
This small washer like device located above the manufactured head is a critical component of the installation process and **must not be removed**. It will detach on its own after the stem breaks.

## PROPER INSTALLATION

[Step 1]: Verify tool and CherryMAX rivet compatibility by performing a test on an easily removed rivet, in the event that removal becomes necessary. If necessary see **CherryMAX RIVET REMOVAL** below.

[Step 2]: Verify correct rivet part number which is marked on the head of the rivet as shown in left-hand side of Figure 14A.

[Step 3]: Insert rivet in hole and verify manufactured head fits square and flush to material surface. See the left-hand side of Figure 14A.



**FIGURE 14A:** CR32XX MANUFACTURED HEAD EXAMPLE

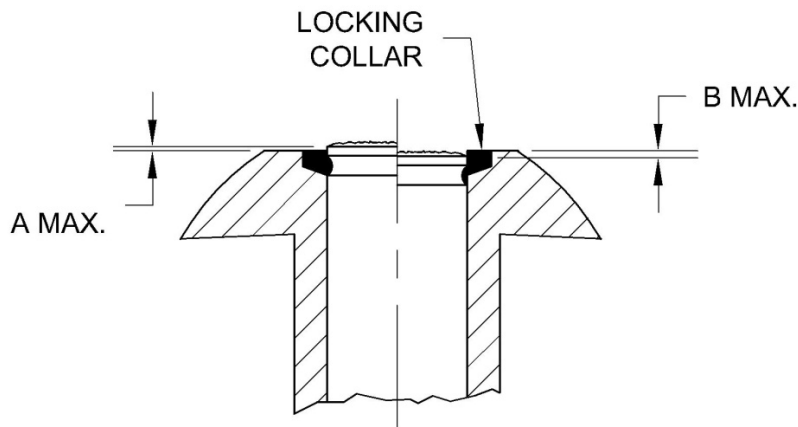
[Step 4]: Slip tool over rivet stem.

[Step 5]: Operate tool while taking care to not lean tool or bend rivet stem while doing so. Continue to pull rivet stem until it snaps free as shown in right-hand side of Figure 14A.

[Step 6]: Inspect rivet to confirm proper installation per the following three criteria:

- i. Nearly flush surface due to stem fracture at top of manufactured head. See right-hand side of Figure 14A.

Typical fastener flushness acceptance criteria is shown in Figure 14B and listed in Table 2 below. Locking collar is to be flush with top surface of rivet head. Collar flash permissible is .020 max. Stem flushness shall be as indicated.



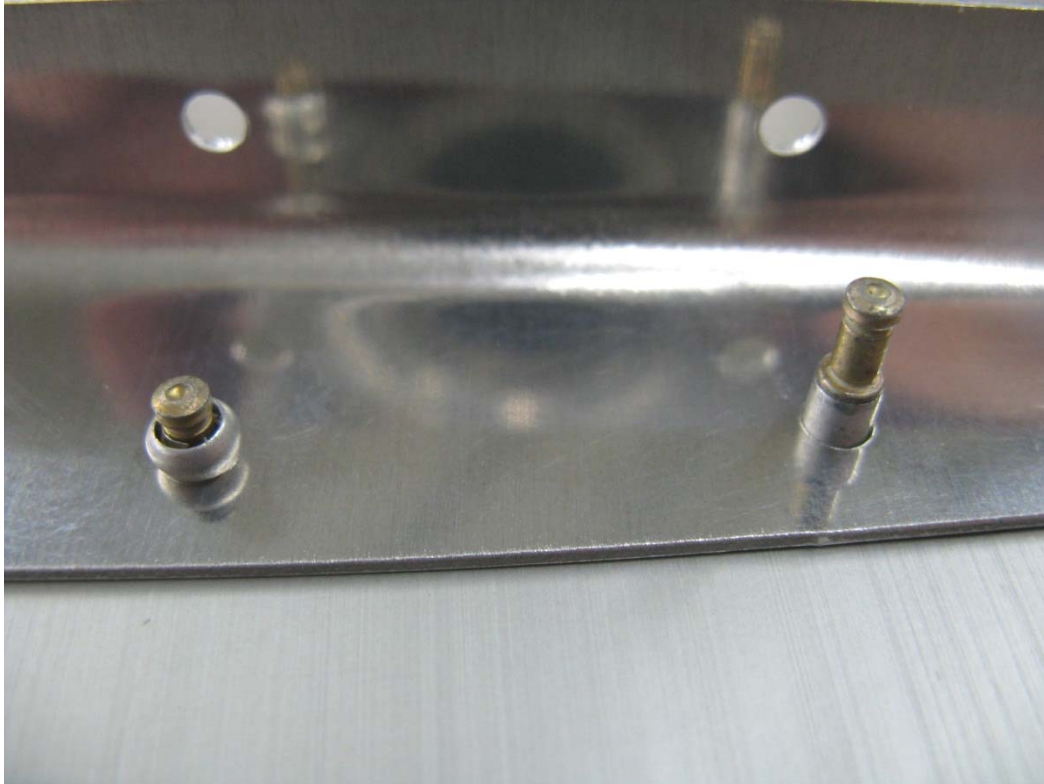
**FIGURE 14B:** RIVET CROSS SECTION

RIVET DIAMETER	A MAX.	B MAX.
-4 (1/8") [3.2mm]	0.010 [.25mm]	0.015 [.38mm]

**TABLE 2**

- ii. Base of manufactured head should be tight against surface of material being riveted as shown in right-hand side of Figure 14A.

- iii. Stem will not be pulled fully into rivet body at shop head end, but rivet body should have formed (closed up) around stem as shown in left-hand side of Figure 14C. See Figure 14D for acceptable blind head formations.



**FIGURE 14C:** CR32XX SHOP HEAD EXAMPLE



**FIGURE 14D:** ACCEPTABLE BLIND HEAD FORMATIONS.

## CherryMAX RIVET REMOVAL

**NOTE:** Information taken from *CHERRYMAX Process Manual* which may be viewed and/or downloaded at: <http://www.cherryaerospace.com/files/pdf/catalog/CA-1015.pdf>

This manual contains drawing which coincide with the text below.

Should it be necessary to remove an installed **CherryMAX** rivet, the following procedures are recommended.

**NOTE:** All work is performed from the manufactured head side of the rivet.

[Step 1]: Center punch stem.

[Step 2]: It is recommended that a small center drill be used to provide a guide for a larger drill on top of the rivet stem, and the upper portion of the stem be drilled away to destroy the lock.

[Step 3]: Drive out the rivet stem using a steel pin punch.

[Step 4]: Drill nearly through the head of the rivet using a drill the same size as the rivet shank.

[Step 5]: Break off rivet head using a pin punch as a pry bar.

[Step 6]: Drive out the remaining rivet shank with a pin punch.

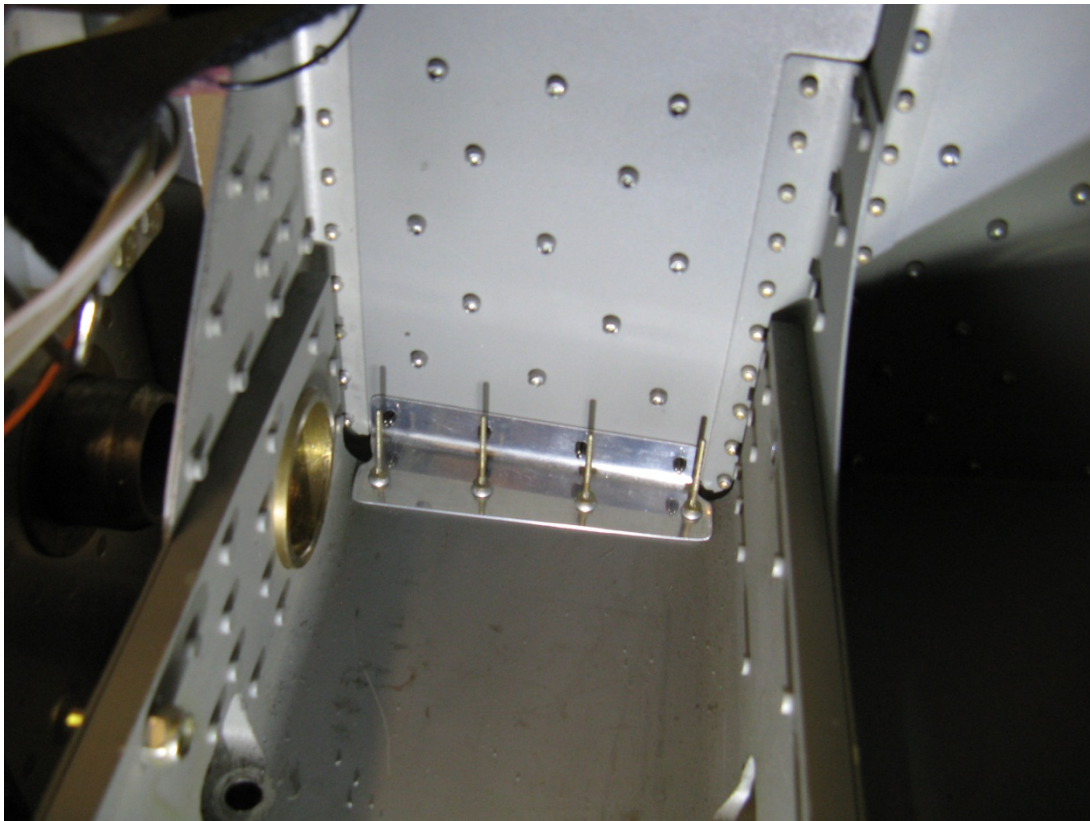
**Caution: DO NOT drill completely through the rivet sleeve to remove a rivet as this may enlarge the hole.**

Step 30: Tap the Spar Pin Bushing in the left and right sides of the F-1204 Center Section fwd slightly to provide access to the fwd most rivet that attaches the F-1204U-B L & R and F-1204T-2 L & R Angles.

**NOTE: In Figure 14E rivets are shown installed from the upper side. IT IS NOT PERMISSIBLE FOR THE STEM OF THE RIVET TO BE BENT OVER DURING INSTALLATION. If the side skin in combination with the size of the rivet puller does not permit pulling squarely without bending the rivet stem then you must either locate a different puller or the rivets must be installed from the bottom side. See "COVER PLATE REMOVAL" below.**

Rivet the F-1204U-B L & R and F-1204T-2 L & R to the F-1204 Center Section Assembly using CR3213-4-5 rivets as shown in Figure 14E.

Tap the Spar Pin Bushings back into their original position.



**FIGURE 14E:** ATTACHING SKIN STIFFENER ANGLES TO CENTER SECTION CHANNEL USING CHERRYMAX CR32XX RIVETS  
(NOTE: RIVETS ARE SHOWN INSTALLED FROM THE UPPER SIDE)

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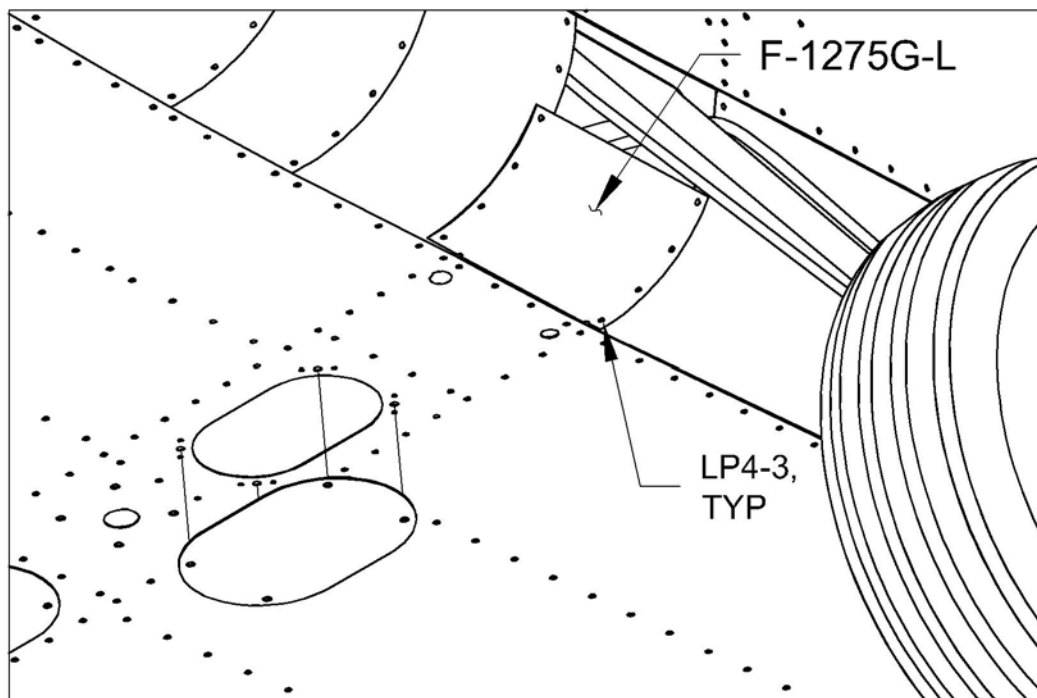
## COVER PLATE REMOVAL & INSTALLATION

This procedure is only necessary if it's not possible to install the CR32XX rivets from the upper surface of the Center Section, as shown in Figure 14E, and for reasons mentioned in the NOTE above.

[Step 1]: Drill out the existing LP4-3 rivets attaching the Cover Plate to the surrounding skins and remove the F-1275G-L and F-1275G-R (not shown) Cover Plates.

[Step 2]: Insert rivets called out in Step 30 through the underside of the Center Section Assembly and F-1204U-B-L Skin Stiffener and rivet them together. Repeat for F-1204U-B-R Skin Stiffener.

[Step 3]: Cleco then rivet the F-1275G-L and F-1275G-R Cover Plates back into place using the rivets called out in Figure 14F.



**FIGURE 14F: F-1275G-L COVER PLATE REMOVAL**

5) In Step 64; “Moment = 2.22 lb X 99.09inches = 109.63 inch – lb” should be “Moment = 2.22 lb X 99.09inches = 219.98 inch – lb”