



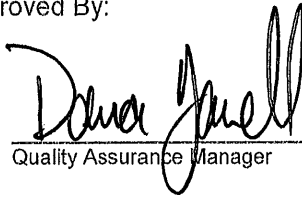
McFarlane Aviation Products

Instructions for Continued Airworthiness

McFarlane Aviation Inc. FAA-PMA Part Number MC1741-79.5 and MC1741-116.25, Flap Trailing Edge Stiffeners.
FAA PMA Number: PQ3732CE

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www.McFarlaneAviation.com/ICA**

Approved By:


 Quality Assurance Manager


 Engineering Manager


 Production Manager

Revisions

Revision	Date	Summary
Original	5-25-2011	Original release
A	07/12/2012	Added inspection requirement for rivet hole dimples and rivet head contact.
B	08/11/2012	Revised instructions 5 & 6; added Figure 5; & instruction 9; Renumbered instructions; Improved readability of Figures 1, 2 and 3; Changes expanded content; adding pages 5 and 6.

List of Effective Pages

Page	Rev/Date
All	~
2 & 4	A/ 07/12/2012
2,3,4,5 & 6	B/ 08/11/2012

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APPLICABILITY

These Instructions for Continued Airworthiness are applicable only for the installation and maintenance of "Flap Trailing Edge Stiffeners" manufactured by McFarlane Aviation, Inc. for installation in Cessna aircraft.

INTRODUCTION

This document is intended to provide for the continued airworthiness of McFarlane Aviation, Inc. PMA Flap Trailing Edge Stiffeners, eligible for installation on Cessna aircraft. McFarlane drawing 1743 identifies Cessna aircraft models eligible for installation of the flap trailing edge stiffeners. The eligibility data can be seen at: www.mcfarlaneaviation.com. The part numbers are MC1741-79.5 and MC1741-116.25. For all items not related to the installation of the stiffener, refer to the applicable aircraft service and parts manuals.

SYSTEM DESCRIPTION

The flap trailing edge stiffener is designed to be installed in the trailing edge of Cessna flaps and increases the rigidity of the trailing edge. (Reference Figure 1)

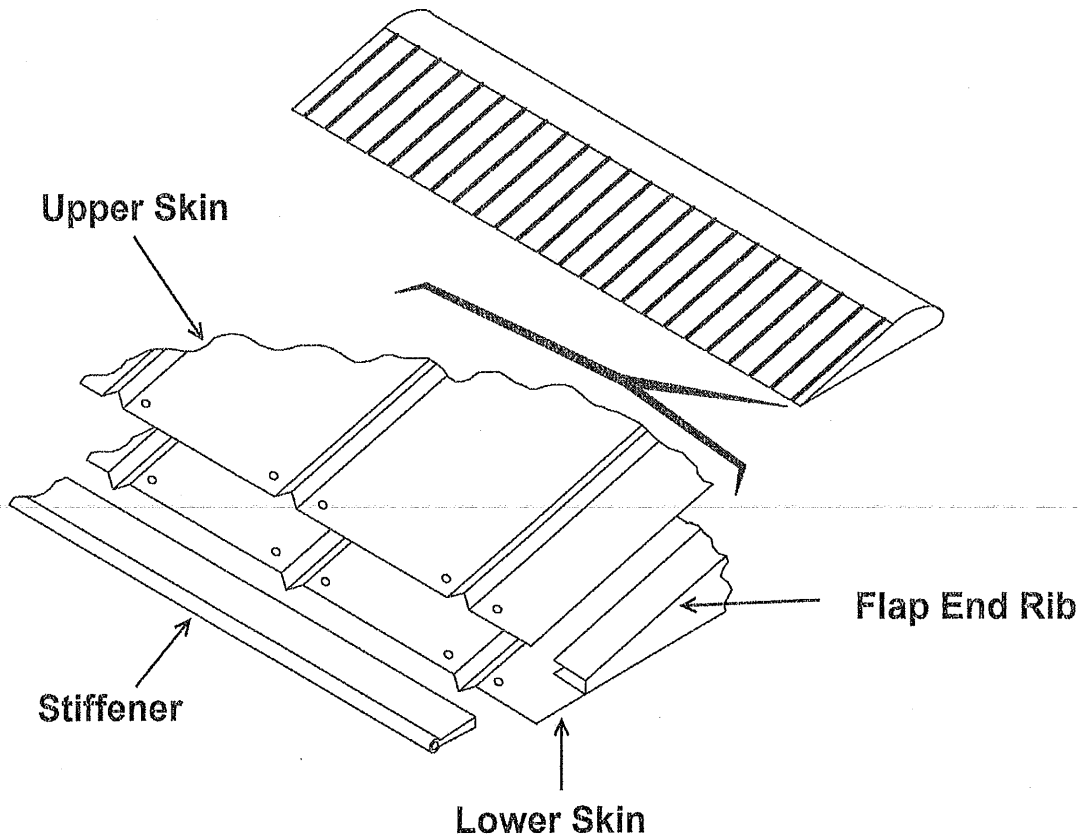


Figure 1. Construction of Typical Cessna Flap.

SPECIAL OPERATING INFORMATION

The control and operation of the aircraft's flap system does not change with the installation of the flap trailing edge stiffener. Refer to the aircraft flight manual and service manual for system description and operating instructions.

PART REMOVAL, REPLACEMENT, AND SERVICE INFORMATION

Removal of rivets and reinstallation of rivets must be accomplished in conformance to FAA Advisory Circular AC43.13-1B, Chapter 4, Section 4.

Note: Some Cessna aircraft were not fitted with a stiffener when the aircraft was manufactured. A McFarlane stiffener may be installed in eligible aircraft previously not fitted with a stiffener, and those previously fitted with a stiffener, per the instructions below. A list of aircraft eligible for installation of the stiffener may be seen on McFarlane drawing 1743, available on the McFarlane Aviation web-site: McFarlaneaviation.com

Note: The flap trailing edge stiffener may be painted with primer prior to installation.

1. Prepare flap for installation of stiffener by removing rivets from trailing edge of wing flap. If installed, remove existing stiffener.
 - a. *Note: If replacing both the upper and the lower flap skins concurrent to stiffener replacement/installation, it is not necessary to remove the trailing edge rivets. Remove all other rivets securing skins to flap, then, remove both the upper and lower skins simultaneously.*
2. Remove drill chips, rivet heads and any other debris from the flap.
3. Inspect the flap skins for raised metal around the rivet holes.

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4. Inspect the flap skins for dimpling caused by the rivets, and other negligible damage at the trailing edge of the skins such as minor wrinkles or dents that can be repaired by smoothing with a hammer or otherwise repaired without the use of additional materials.
5. Smooth dimples and any other minor defect, using a small "body" type hammer and bucking bar. Use only light hammer blows to avoid stretching the flap skin.
6. Inspect the flattened areas of the flap skins ensuring there are no cracks resulting from the smoothing process.
7. For installation of the MC1741-79.5, proceed to Step 8.

For installation of the MC1741-116.25 proceed to Step 7a.

7a. Installation of the MC1741-116.25 stiffener requires the stiffener to be bent where the flap trailing edge angles forward. Cut notches in the stiffener at the bend locations as per Figure 2. Bend the trailing edge at the notches as shown in Figure 3, in a manner so that the stiffener angles match the flap skin trailing edge angles. Allow approximately 1 ½ degrees for spring-back when forming the stiffener. Over bending of the stiffener after the initial bend must be avoided to prevent fatiguing the stiffener at the notch locations. After forming the bends, inspect the area of each bend for cracks. If cracks are found, the stiffener must not be installed in the aircraft.

Note: The stiffener is weakened at the notch location. Handle stiffener carefully before, during and after cutting the notch to prevent damage.

Note: After drilling the notch hole, the cuts may be made with a fine-toothed hacksaw (24-32 teeth per inch). Smooth and deburr the notches with a needle file and/or emery cloth.

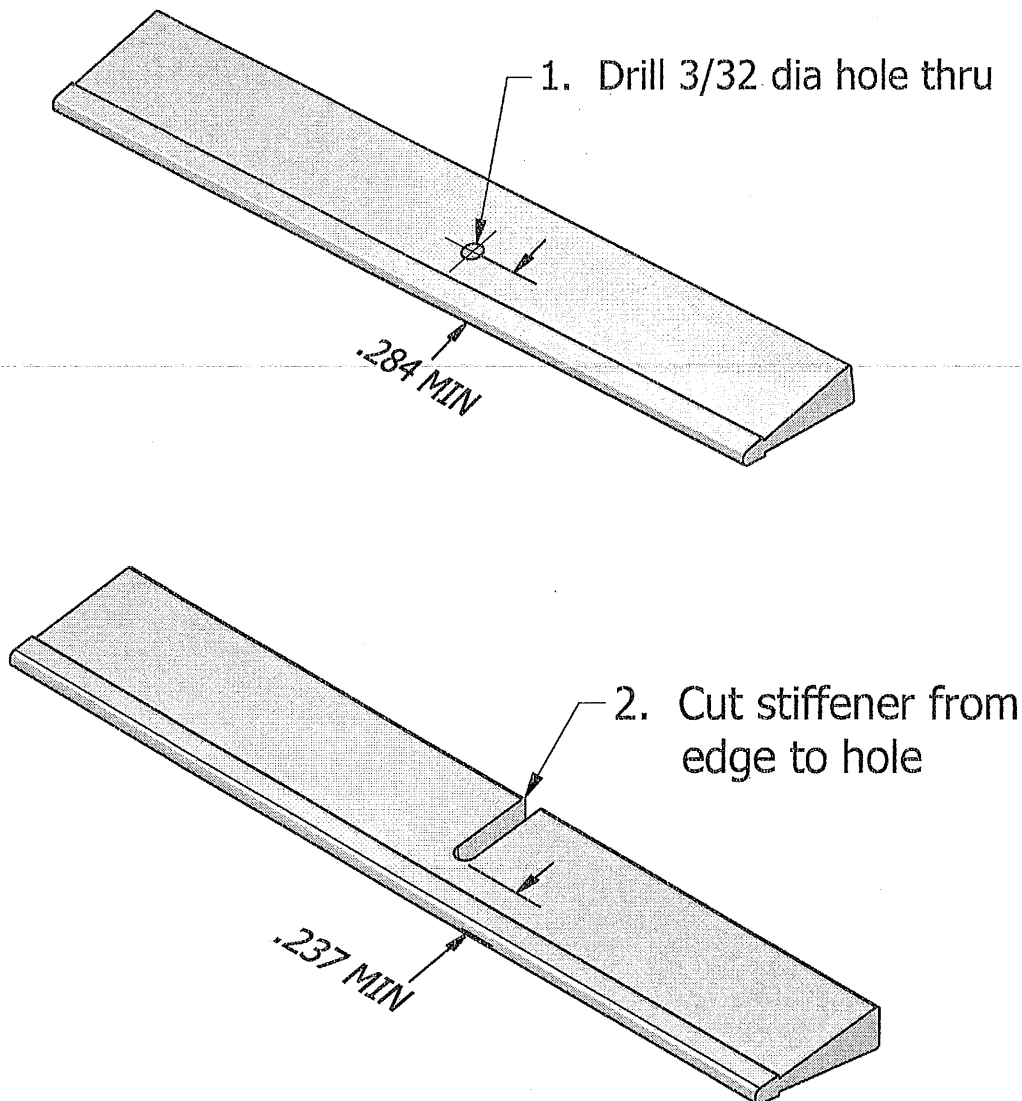


Figure 2. Cut notch to dimensions above, at locations where flap trailing edge angles forward.

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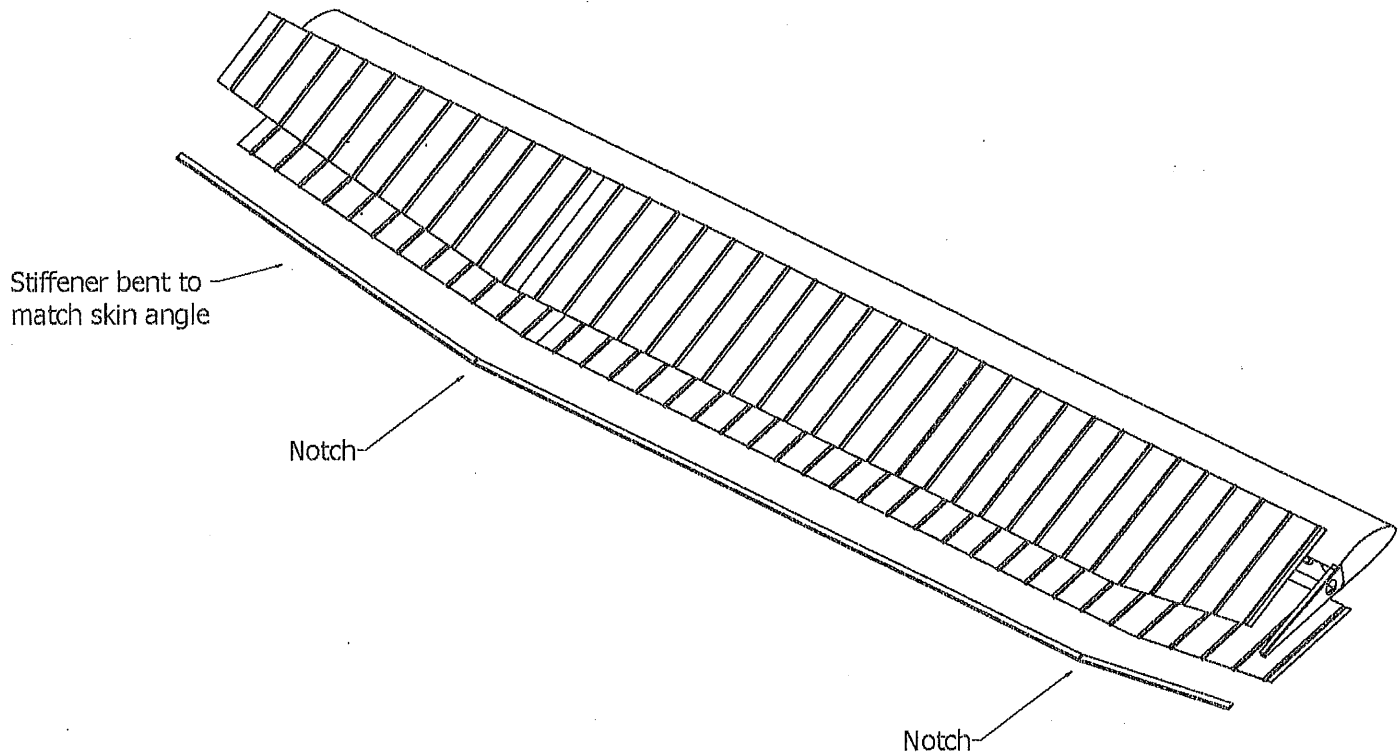


Figure 3. Shows a typical flap for Cessna 206, 207 and 210 model series.

8. Position Stiffener in flap trailing edge as shown in Figure 4.
9. Examine the stiffener for the presence of a gap between the edges of the skins and stiffener as shown in Figure 5.
 - a. Draw-file the skins as required to perfect the fit of the upper and lower skins to the stiffener.
 - b. Remove any burrs or raised metal caused by draw filing.
 - c. Maximum gap allowed between either skin trailing edge and the stiffener is .020 inches as seen in Figure 5.
10. Secure the stiffener to the skins with temporary clamps.
11. Back-drill rivet holes in stiffener using original holes in skin as a guide.
12. Secure the trailing edge stiffener to the upper and lower flap skins using the same type and size rivets, in the same locations as the original factory rivets.
 - a. *Note: Monitor straightness and alignment of the trailing edge while installing rivets. Avoid uneven stress in flap skins by installing successive rivets in a random sequence along the trailing edge in lieu of installing the rivets in consecutive locations.*
 - b. *Note: If rivet holes become enlarged use the next size larger rivets as per AC43.13 Chapter 4, Section 4 paragraph 4-57, b.*
13. After riveting, trim excessive stiffener length as required. Leave enough trailing edge material to flush the upper and lower skins to the stiffener with a file. Exercise caution to prevent damage to the flap when cutting excessive stiffener length.
14. After installing the stiffener in the flap, inspect the alignment of the flap trailing edge and the quality of the workmanship. The driven rivets' must meet the criteria in AC43.13B, Chapter 4, Section 4. Inspect the rivets heads for evidence of a gap between the rivet head and the skin. A minimum of 70 percent of the rivet head perimeter must be visibly in contact with the flap skin. The trailing edge must be straight without undue distortion from riveting or other defects.
15. Complete aircraft logbook entries including weight and balance changes as listed below.

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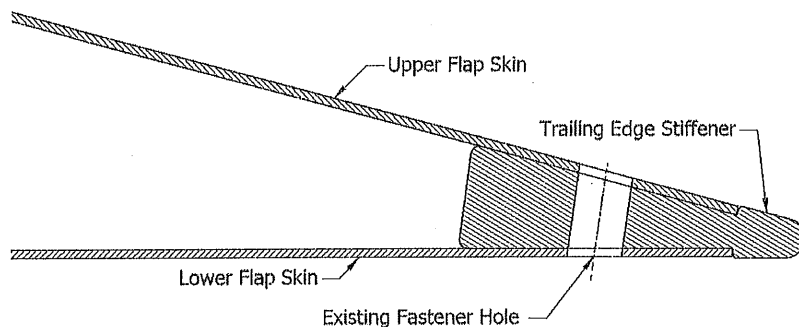


Figure 4. Trailing edge stiffener location.

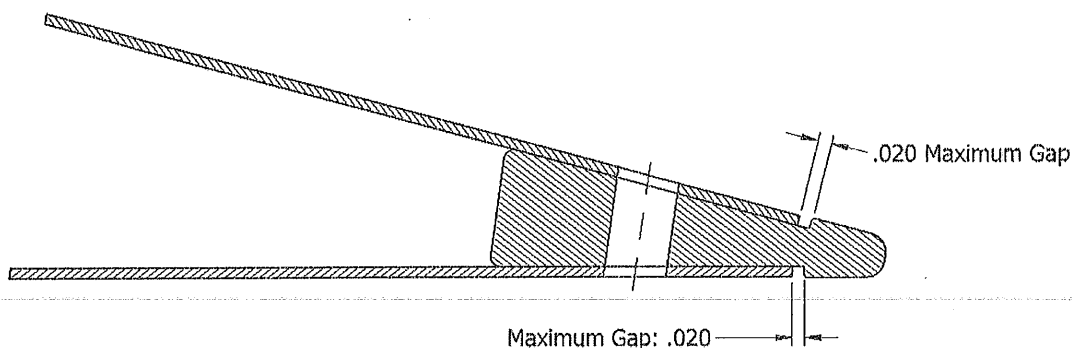


Figure 5. Maximum Gap between edge of skins and stiffener.

WEIGHT AND BALANCE

After installing the McFarlane Flap Trailing Edge Stiffener, it may be necessary to revise the aircraft's weight and balance. The weights of the Cessna and the McFarlane stiffeners are given below. Procedures for computation of the changed weight and balance of the aircraft are found in FAA Advisory Circular AC43.13-1B, Chapter 10.

Flap Trailing Edge Stiffener Weight <i>(in pounds, listed weight is for one stiffener)</i>			
Stiffener length	Cessna Formed Stiffener	Cessna Heavy-Duty Stiffener	McFarlane Stiffener
79.5	.327 lbs.	.638 lbs.	.5687 lbs.
116.25	.478 lbs.	.934 lbs.	.831 lbs.

TROUBLESHOOTING

Installation of McFarlane Aviation, Inc. flap trailing edge stiffeners does not alter the existing troubleshooting information as provided by Cessna. When troubleshooting the flap system refer to the specific Cessna aircraft model Service manual.

PLACARDS

None applicable

DATA

All information to support the continued airworthiness of this replacement part is as defined herein and as contained in the applicable Cessna Service Manual.

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INSPECTION

Installation of the McFarlane Aviation, Inc. wing flap stiffener, does not alter the existing inspection requirements or procedures as found in the aircraft model specific Cessna Service manual, Service Bulletins and Letters.

RECOMMENDED OVERHAUL PERIODS

No additional overhaul recommendations or requirements, or service time limitations exist with the use of this part

AIRWORTHINESS LIMITATIONS

The Airworthiness Limitations section is FAA approved and specifies maintenance required under Sec. 43.16 and 91.403 of the Federal Aviation Regulations unless an alternative program has been FAA approved. No additional airworthiness limitations exist.

ASSISTANCE & REVISIONS

ICA revisions shall be made available on the McFarlane website, www.mcfarlaneaviation.com/ICA. For questions or assistance regarding these Instructions for Continued Airworthiness (ICA), contact McFarlane Aviation, Inc via email or phone. Email: engineering@mcfarlaneaviation.com Phone: 1-800-544-8594 (within the US) or 1-785-594-2741.