



Piper Aircraft, Inc.
2926 Piper Drive
Vero Beach, FL, U.S.A. 32960

SERVICE NO. 1413 BULLETIN

PIPER CONSIDERS COMPLIANCE MANDATORY

Date: April 9, 2024

(S) (M)

SUBJECT:

AFT WING SPAR ATTACH FITTING INSPECTION

MODELS AFFECTED:

PA-28-181 Archer III

PA-28-181 Piper Pilot 100i

PA-28R-201 Arrow III

PA-34-220T Seneca V

PA-44-180 Seminole

SERIAL NUMBERS AFFECTED:

2843940 thru 2843949, 2881049 thru 2881099,
2881102 thru 2881224, 2881228 thru 2881238,
2881240 thru 2881243, 2881245, 2881247 thru 2881255,
2881257 thru 2881264, 2881266, 2881267, 2881272,
2881273, 2881275 thru 2881293, 2881295 thru 2881304,
2881306, 2881307, 2881309 thru 2881313,
2881315 thru 2881329, 2881331 thru 2881344,
2881346 thru 2881350, 2881352, 2881354 thru 2881364,
2881370 thru 2881378, 2881380 thru 2881390, 2881392,
2881394 thru 2881396, 2881398 thru 2881404,
2881406 thru 2881427, 2881429, 2881431,
2881433 thru 2881445, 2881447, 2881449 thru 2881452,
2881454, 2881462 thru 2881464, 2881466 thru 2881469,
2881471 thru 2881473, 2881545, 2881547, 2881548,
2881550, 2881552 thru 2881557, 2881559 thru 2881566,
2881568

28020001 thru 28020016, 28020019, 28020020,
28020068 thru 28020070, 28020072 thru 28020074,
28020076 thru 28020078, 28020080

2844182 thru 2844185

3449510 thru 3449514

4496434 thru 4496490, 4496493 thru 4496496,
4496498 thru 4496503, 4496505 thru 4496523, 4496537,
4496538, 4496539, 4496541, 4496542

COMPLIANCE TIME:

Prior to next flight, except as provided for in Part I of this service bulletin.

APPROVAL:

The engineering aspects of this service document have been shown to comply with the applicable Federal Aviation Regulations and are FAA approved.

PURPOSE:

This service bulletin provides instructions for a one-time inspection (and on condition, rework) of the aft wing spar-to-fuselage attachment, for the affected aircraft.

SAFETY INTENT:

On some of the affected aircraft, the bolt hole(s) common to the aft spar fitting and the aft spar plate may be mis-drilled. An airplane in this condition does not conform to type design and does not possess its required type design strength.

The safety intent of Part I of this service bulletin is to prevent these aircraft from operating until compliance with Part II is accomplished.

ATA/JASC: 5741

(OVER)

The safety intent of Part II is to identify, through inspection, whether the bolt holes common to the aft spar fitting and the aft spar plate conform to Piper original type design specifications. Aircraft with nonconforming bolt holes will require a suitable repair before being allowed to return to service. Part II also mandates documenting any rework, along with reporting the rework to Piper Aircraft, Inc.

INSTRUCTIONS:

NOTE: Some steps in these instructions are identified as “Required for Compliance” (RC). If this service bulletin is mandated by an airworthiness directive (AD), the steps identified as RC must be done to comply with the AD. Steps not identified as RC are recommended and may be deviated from, done as a part of other actions, or done with accepted methods different from those given in this service bulletin, if the RC steps can be done and the airplane can be put back in a serviceable condition.

Part I. Temporary Grounding

THE ABOVE LISTED AIRCRAFT ARE GROUNDED, EXCEPT AS PROVIDED FOR IN PARTS I AND II OF THIS SERVICE BULLETIN.

THE FOLLOWING PRECAUTIONARY PROCEDURES ARE IN EFFECT IMMEDIATELY AND SHALL REMAIN IN EFFECT UNTIL THE INSPECTION DESCRIBED IN PART II OF THIS SERVICE BULLETIN HAS BEEN COMPLETED:

- Operators are allowed one flight to reach an approved repair facility capable of performing the inspection and on condition, repair mandated by this service bulletin. This flight may include fueling stops, but shall not exceed 10 hours of operation.
- Flights are limited to the minimum required crew. No passenger flights are allowed.
- Do not exceed V_A (design maneuvering speed), as published in the aircraft-specific POH.

Part II. Inspection

NOTE: Perform the inspection described in Part II of this service bulletin using a mirror and a bright flashlight or other suitable light source.

NOTE: Refer to the appropriate section of the applicable Airplane Maintenance Manual (AMM) for the procedures to perform the required shoring (jacking) and inspection (and on condition, rework) of the aft wing spar-to-fuselage attachment described in this service bulletin.

NOTE: Take note of the number and placement of washers at each attach point to facilitate reinstallation.

NOTE: The temporary removal of interior components, flaps, fairings, access panels, and other aircraft components may be required in order to accomplish these instructions.

NOTE: The instructions that follow apply to both left and right sides of the aircraft.

NOTE: Unless stated otherwise, replacement rivets shall be type MS20470AD4 series, size to match original rivet. Install rivets wet with primer conforming to MIL-PRF-85582, Type 1, Class C2, or any one of the primers listed in Chart 1. Alternatively, use primer conforming to MIL-P-23377 Type 1, Class 1, and apply per manufacturer's instructions. For exterior surfaces, apply a top coat of Axalta Imron paint that matches the color of adjacent surfaces.

NOTE: Unless otherwise specified, installed rivets shall conform to the requirements stated in Chapter 4, Section 4 of FAA Advisory Circular AC 43.13-1B.

NOTE: Report any rework to Piper electronically by completing and submitting the Inspection Feedback Form at <https://techpubs.piper.com/feedback>.

1. Place airplane on jacks. Refer to 7-10-00 of the applicable AMM for instructions.
2. RC – Locate the aft spar attachment on the wing as identified in Figure 1 and remove the fastener hardware (bolt, washers, and nut) securing the aft spar attachment. Replace the nut; retain bolt and washers that are in serviceable condition.
3. Inspect the holes in the Aft Spar Plate (installed on the wing) and the Aft Spar Fitting (installed on the fuselage), as shown in View A-A and Section B-B of Figure 1. Verify that holes in the aft spar plate and aft spar attachment are circular and do not exceed 0.3765 inch diameter.

Additionally, inspect the structure that is riveted to the Aft Spar Plate for evidence of corrosion.

- If the holes are circular and do not exceed 0.3765 inch diameter, and the area is free of corrosion, then the configuration conforms to type design. No rework is required. Proceed to step 6.
 - RC – If the holes are not circular or if one or both holes exceed 0.3765 inch diameter, proceed to step 4.
 - If corrosion is suspected, proceed to step 4.
4. Perform one or more of the following corrective actions listed below as required to restore the aircraft to an airworthy condition.

a. Corrosion Control

The Aft Spar Plate is made from steel. The adjacent components such as the Aft Spar and Stiffener, as shown in Section B-B of Figure 1, are made from aluminum. If the area is exposed to a corrosive environment over an extended period of time these components are susceptible to galvanic (i.e. “dissimilar metal”) corrosion.

Carefully inspect forward and aft wing spar surfaces that are in contact with the Aft Spar Plate for evidence of corrosion. Refer to Figure 1, Section B-B. The initial stages of corrosion are often masked by paint coatings, and hidden under faying surfaces, such as riveted lap joints. Since the products of corrosion occupy more volume than the parent metal, carefully inspect these areas for irregularities such as blisters, flakes, chips, lumps, bulging skins and missing rivets.

- If evidence for corrosion is found, proceed to step 4.a.1) .
- If there is no evidence of corrosion, proceed to step 4.a.3) .

1) Remove corrosion per FAA Advisory Circular AC 43.13-1B, Chapter 6.

After removal of the corrosion, verify that all affected areas meet or exceed the minimum thicknesses stated within this service bulletin. See Section B-B and Chart 3. At locations where direct measurement is not possible, thickness measurements shall be accomplished using a nondestructive inspection method such as ultrasound, eddy current, or equivalent, provided that such method achieves a measurement accuracy of ± 0.005 inches or better.

- If the part thickness at all locations meets or exceeds the minimum thicknesses stated within this service bulletin, proceed as follows: Apply primer to the areas where paint was removed using MIL-PRF-85582D Type I Class C2 primer, or any primer conforming to MIL-P-23377 and apply per manufacturer's instructions. Alternately, any of the primers listed in Chart 1 may be used. Proceed to step 3).
- If removal of corrosion in the affected area results in a part thickness at any location that is less than the minimum values stated within this service bulletin, proceed to step 4.a.2) .

- 2) Order and install Kit – Corrosion – Aft Spar Rework, Piper part number (P/N) 87584-000. This kit provides parts and instructions to replace (via a splicing operation) the Aft Spar Plate, as well as the inboard 10.80 inches of the aft wing spar on both left and right wings.
- 3) Review step b. and/or step c. for applicability. Otherwise, proceed to step 5.

b. RC – Bushing Installation

For aircraft models PA-28-181 Archer III, PA-28-181 Piper Pilot, and PA-28R-201 Arrow III only, determine if a 0.437–0.438 inch diameter line-reamed hole perpendicular to both the Aft Spar Plate and the Aft Spar Fitting will clean out any oversize or out-of-round condition, and achieve a minimum 0.56 inch radius edge distance for both parts, as shown in View A-A of Figure 1.

- If the above conditions can be satisfied, order and install Kit – Wing Aft Spar/Fuselage Attach Fitting, Piper P/N 88365-002. This kit provides parts and instructions for repairing an oversize hole condition in the wing aft spar/fuselage attach fittings, for specific aircraft models. Upon completion, proceed to step 5.
- If the hole size conditions cannot be satisfied, proceed to Step c.

c. RC – Component Replacement

Replace the Aft Spar Plates and/or Aft Spar Fittings as required. See Chart 2 for service replacement parts.

5. RC – Upon completion of the corrective measures described in step 4, perform a reaming operation as needed to achieve a 0.3745–0.3765 diameter hole with the Aft Spar Plate and the Aft Spar Fitting, while maintaining a minimum 0.56 inch radius edge distance for both parts, as shown in View A-A of Figure 1.
6. RC – Secure the aft spar attachment by installing the bolt and washers that were removed in step 2. Install a new nut, and torque 360–390 in-lb. Refer to 57-40-00 of the applicable AMM for specific instructions.
7. Perform a precautionary inspection of the bolt holes common to the forward spar attachment for excessive wear. Locate the forward spar attachment as identified in Chapter 57-40-00 of the applicable AMM.
 - a. Remove the fastener hardware (bolt, washers, and nut) securing the forward spar attachment. Replace the nut; retain bolt and washers that are in serviceable condition.
 - b. Inspect all holes common to the bolt.
 - For PA-28-181 Archer III, PA-28-181 Piper Pilot, and PA-28R-201 Arrow III; verify that each hole does not exceed 0.2510 inch diameter.
 - For PA-34-220T Seneca V and PA-44-180 Seminole; verify that each hole does not exceed 0.3140 inch diameter.Replace any components which have a bolt hole that exceeds the allowables stated above.
 - c. Reinstall the bolt and washers that were removed in step 6.a. Install a new nut as follows:
 - For PA-28-181 Archer III, PA-28-181 Piper Pilot, and PA-28R-201 Arrow III; install new MS21042-4 nut and torque to 50–60 inch-pounds.
 - For PA-34-220T Seneca V and PA-44-180 Seminole; install new MS21042-5 nut and torque to 70–90 inch-pounds.
8. Perform a functional check on any systems that were disturbed during compliance with this service bulletin.
9. Remove aircraft from jacks.
10. Report any rework to Piper electronically by completing and submitting the Inspection Feedback Form at <https://techpubs.piper.com/feedback>.
11. Make a logbook entry documenting compliance with this service bulletin, including a statement describing the results of this inspection and any rework that was performed.

CHART 1
ACCEPTABLE EPOXY PRIMERS

Vendor Product Name	Vendor Product Number
PPG Aerospace PRC-DeSoto	EWDE072A/B
AkzoNobel Aerospace Coatings	10P8-10NF / EC-283
AkzoNobel Aerospace Coatings	10P30-5 / EC-275
Deft, Inc.	44GN036

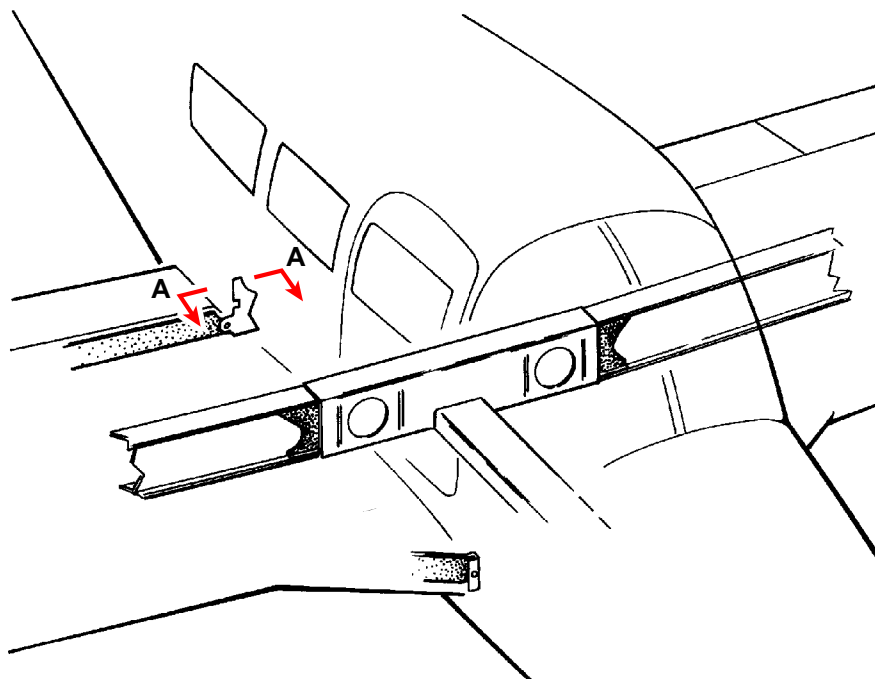
CHART 2
AFT SPAR ATTACHMENT REPLACEMENT PARTS

Model	Aft Spar Plate (Installed on Wings)	Aft Spar Fitting - LH (Installed on Fuselage)	Aft Spar Fitting - RH (Installed on Fuselage)
PA-28-181 Archer III	Piper P/N 66762-000	Piper P/N 62448-002	Piper P/N 62448-003
PA-28-181 Piper Pilot 100i			
PA-28R-201 Arrow III			
PA-44-180 Seminole		Piper P/N 68621-002	Piper P/N 68621-003
PA-34-220T Seneca V			

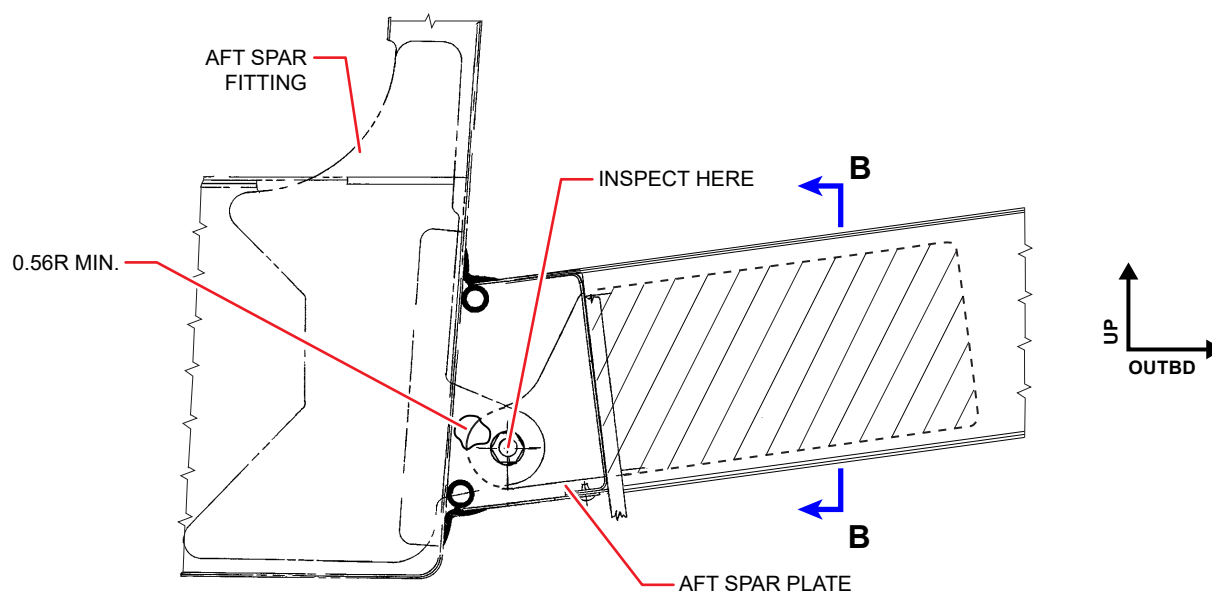
CHART 3
ADJACENT COMPONENTS MATERIAL THICKNESS

Part Nomenclature	Minimum Thickness (in.)
Stiffener T_1	0.0225
Aft Spar T_2	0.0610

(1) Refer to Figure 1 for component locations.

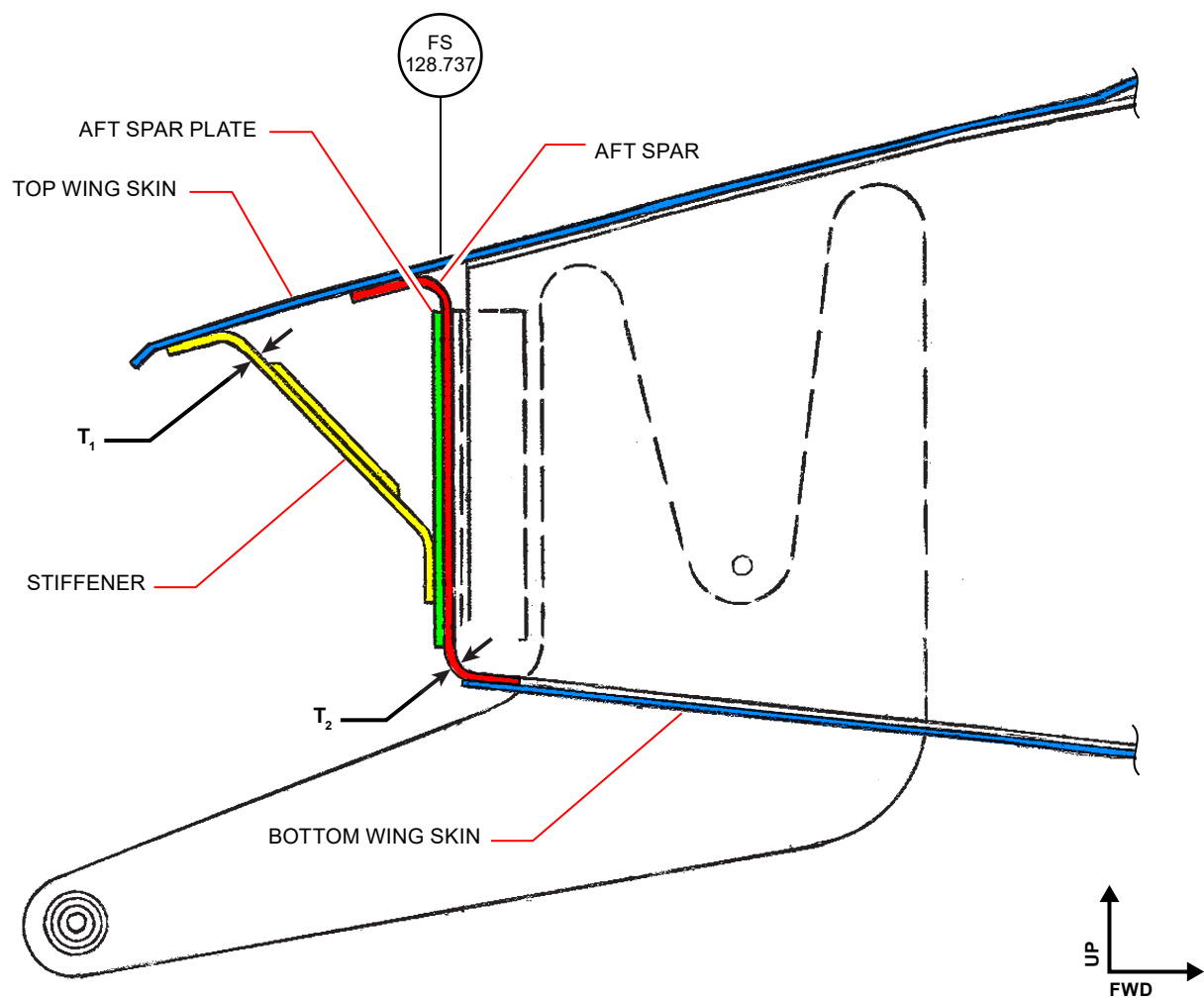


WING INSTALLATION
ISOMETRIC VIEW



VIEW A-A
LOOKING FWD AT AFT SPAR ATTACHMENT
RIGHT WING SHOWN (LEFT WING OPPOSITE)

Figure 1 (Sheet 1 of 2)
Aft Attach Fitting Installation (Typical)



SECTION B-B
LOOKING INBOARD
RIGHT WING SHOWN (LEFT WING OPPOSITE)

Figure 1 (Sheet 2 of 2)
Aft Attach Fitting Installation (Typical)

MATERIAL REQUIRED:**For all aircraft models, per aircraft:**

- On condition, up to two (2) Aft Spar Plate, Piper P/N 66762-000
- On condition, one (1) Kit – Corrosion Aft Spar Rework, Piper P/N 87584-000
- As required, fastener hardware (bolts, washers, and nuts) for the aft wing spar attachments. Refer to the appropriate Airplane Parts Catalog for applicable P/Ns.

For PA-28-181 Archer III, PA-28-181 Piper Pilot 100i, or PA-28R-201 Arrow III, per aircraft:

- On condition: up to two (2) Kit – Wing Aft Spar/Fuselage Attach Fitting, Piper P/N 88365-002

For PA-28-181 Archer III, PA-28-181 Piper Pilot 100i, PA-28R-201 Arrow III, or PA-44-180 Seminole, per aircraft:

- On condition: one (1) Aft Spar Fitting (LH), Piper P/N 62448-002
- On condition: one (1) Aft Spar Fitting (RH), Piper P/N 62448-003

For PA-34-220T Seneca V, per Aircraft:

- On condition: one (1) Aft Spar Fitting (LH), Piper P/N 68621-002
- On condition: one (1) Aft Spar Fitting (RH), Piper P/N 68621-003

AVAILABILITY OF PARTS:

Your Piper Approved Service Center –
Find your local service center at <https://www.piper.com/>

EFFECTIVITY DATE:

This service bulletin is effective on April 18, 2024.

SUMMARY:

Applicable factory participation is limited to new aircraft in warranty at the time of compliance. Factory participation will remain in effect for a period of time not to exceed 180 days from the effectivity date of this service bulletin.

Please contact your Piper Approved Service Center to make arrangements for compliance with this service bulletin in accordance with the compliance time indicated.

NOTE: Please notify the factory of any address/ownership corrections. Changes should include aircraft model, serial number, and current owner's name and address.

Corrections and/or changes should be directed to:

PIPER AIRCRAFT, INC.
Attn: Customer Service
2926 Piper Drive
Vero Beach, FL 32960
or:
CustomerService@piper.com
Please include in subject line: "Aircraft ownership update"