



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

SERVICE NO. 1317C BULLETIN

**PIPER CONSIDERS
COMPLIANCE MANDATORY**

Date: August 9, 2017

(S)

Service Bulletin (SB) 1317C supersedes SB 1317B in its entirety.

SUBJECT:

AFT WING SPAR INSPECTION

REASON FOR REVISION:

SB 1317C adds Part IV, which provides minimum allowable thickness values as shown in Table 3.

MODELS AFFECTED:

PA-46-600TP M600

SERIAL NUMBERS AFFECTED:

4698004 through 4698042

COMPLIANCE TIME:

- Part I:** Prior to next flight, except as provided for in Part II and Part III of this service bulletin
- Part II:** One time only, at owner/operator discretion
- Part III:** Prior to next flight, except as provided by Part II of this service bulletin
- Part IV:** If required according to Part III, prior to next flight

APPROVAL:

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

PURPOSE:

The M600 model aircraft features aft wing spars that are designed by Piper and fabricated by a supplier. It has been discovered that the supplier may have delivered aft wing spars to Piper that do not conform to Piper's original type design specifications and requirements. These nonconforming aft spars may have been installed on some of the affected aircraft.

SAFETY INTENT:

The affected aircraft may have aft wing spars that are understrength and compromise the aircraft's airworthiness.

The safety intent of Part I of this service bulletin is to prevent these aircraft from operating until an appropriate terminating action is developed and implemented.

The safety intent of Part II is to minimize the safety risk associated with transporting these aircraft to a facility capable of performing the inspection(s) and/or repair(s) that will be required as a condition of returning the aircraft to service.

The safety intent of Part III is to identify, through inspection, whether the inboard aft wing spars conform to Piper original type design specifications. Following FAA approval, aircraft with conforming aft spars will be allowed to return to service.

The safety intent of Part IV is to identify, through inspection, whether the inboard aft wing spars conform to Piper approved minimum allowable dimensions. Following FAA approval, aircraft with aft spars that meet or exceed these values will be allowed to return to service. Aircraft with aft spars that do not meet or exceed these values will require some other terminating action before being allowed to return to service.

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

RC – THE ABOVE LISTED AIRCRAFT ARE GROUNDED UNTIL FURTHER NOTICE, EXCEPT AS PROVIDED FOR IN PARTS II, III AND/OR IV OF THIS SERVICE BULLETIN.

Part II. Allowance for a One-Time Flight to the Nearest Dealer

Only after the visual inspection described in Part II, Step 1, has been completed, aircraft are allowed a one-time flight to reach the nearest Piper Aircraft Dealer that is capable of performing the inspection(s) and/or repair(s) that will be required to release the aircraft from the limitation stated in Part I.

NOTE: Refueling stops are permitted. Perform the following inspection as part of every pre-flight inspection procedure.

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

1. RC – Inspection

NOTE: The instructions that follow apply to both the left and right wings.

NOTE: Place the flap selector lever in the full down (LND -35°) position to display the aft surface of the aft wing spar for examination.

NOTE: This inspection is to be accomplished by a licensed airframe and powerplant mechanic.

- a. Prior to inspection, wipe surfaces clean using a soft cloth dampened with isopropyl alcohol, mineral spirits, naphtha, or other suitable cleaning agent or method.
- b. Locate the area of inspection, which is shown in Figure 1. This area (highlighted in yellow in Figure 1) begins at the aft spar outboard splice at wing station (WS) 182.85 and extends inboard to the wing root.

NOTE: The area of inspection is comprised of a single machined plate of aluminum. The portion of the aft spar that is outboard of this area is formed from aluminum sheet and is not subject to this inspection.

- c. Visually inspect the area of the aft wing spar identified in Figure 1 for cracks:

Apply finger pressure to the aft wing spar web and flanges at locations midway between ribs, looking for any displacement that would reveal a crack. Refer to Figure 1, Section C–C.

- 1) Apply horizontal, forward finger pressure to the web, near the radii common to the upper and lower flanges, as well as to the center of the web.
- 2) Apply vertical, upward finger pressure onto the upper flange and vertical, downward finger pressure onto the lower flange.

Any crack, if present, will likely follow a path as shown in Figure 1, Detail B, along the upper and/or lower radius.

In addition to cracks that are large enough to be visible, look carefully for the presence of fuel on the exterior of the spar, as this could indicate a crack. If there is evidence of fuel leakage, contact Piper for disposition (Piper contact information is below).

WARNING: FLIGHT WITH KNOWN CRACKS IN THE AIRCRAFT STRUCTURE IS NOT PERMITTED.

WARNING: ANY CRACKS DISCOVERED IN THE AIRCRAFT STRUCTURE MUST BE REPAIRED PRIOR TO THE NEXT FLIGHT. AN AIRPLANE WITH A CRACK IN THE STRUCTURE DOES NOT MEET ITS TYPE DESIGN AND NO LONGER POSSESSES ITS REQUIRED TYPE DESIGN STRENGTH.

- If cracks **are not found**, proceed to Step 2.
- **If any crack is found**, an FAA approved repair must be accomplished prior to next flight. Contact Piper for disposition (contact information follows).

Contact Piper Customer Service for assistance at (+1) 772-299-2141 or customer.service@piper.com to develop a suitable repair. Piper's normal business hours are 7:30 am to 4:30 pm (Eastern US), Monday through Friday.

2. RC – Operation

A one-time flight to the nearest Piper Aircraft Dealer is authorized, provided that the following limitations, in addition to those in the Limitations section of Pilot's Operating Handbook (POH) VB-2366, are followed throughout the flight:

- Aircraft is to be flown with minimum crew only, no passengers allowed
- Operation is limited to sunrise through sunset only
- Operation under Instrument Flight Rules is permitted
- Minimize operation in Instrument Meteorological Conditions
- Avoid operation in moderate or severe turbulence (AIRMETs, SIGMETs, or Convective SIGMETs)
- Operation in icing conditions is prohibited
- Operation with autopilot and yaw damper on is recommended
- Do not exceed 45 degrees of bank angle
- Do not exceed 200 knots indicated airspeed
- Maximum fuel of 200 gallons
- Maximum zero fuel weight of 4,200 lb

Place a copy of this service bulletin in the Limitations section of POH VB-2366.

The aircraft shall only be flown to the nearest Piper Aircraft Dealer. No other operations of any kind are authorized at this time.

3. RC – Documentation of Compliance

Make a logbook entry documenting compliance with Part II of this service bulletin.

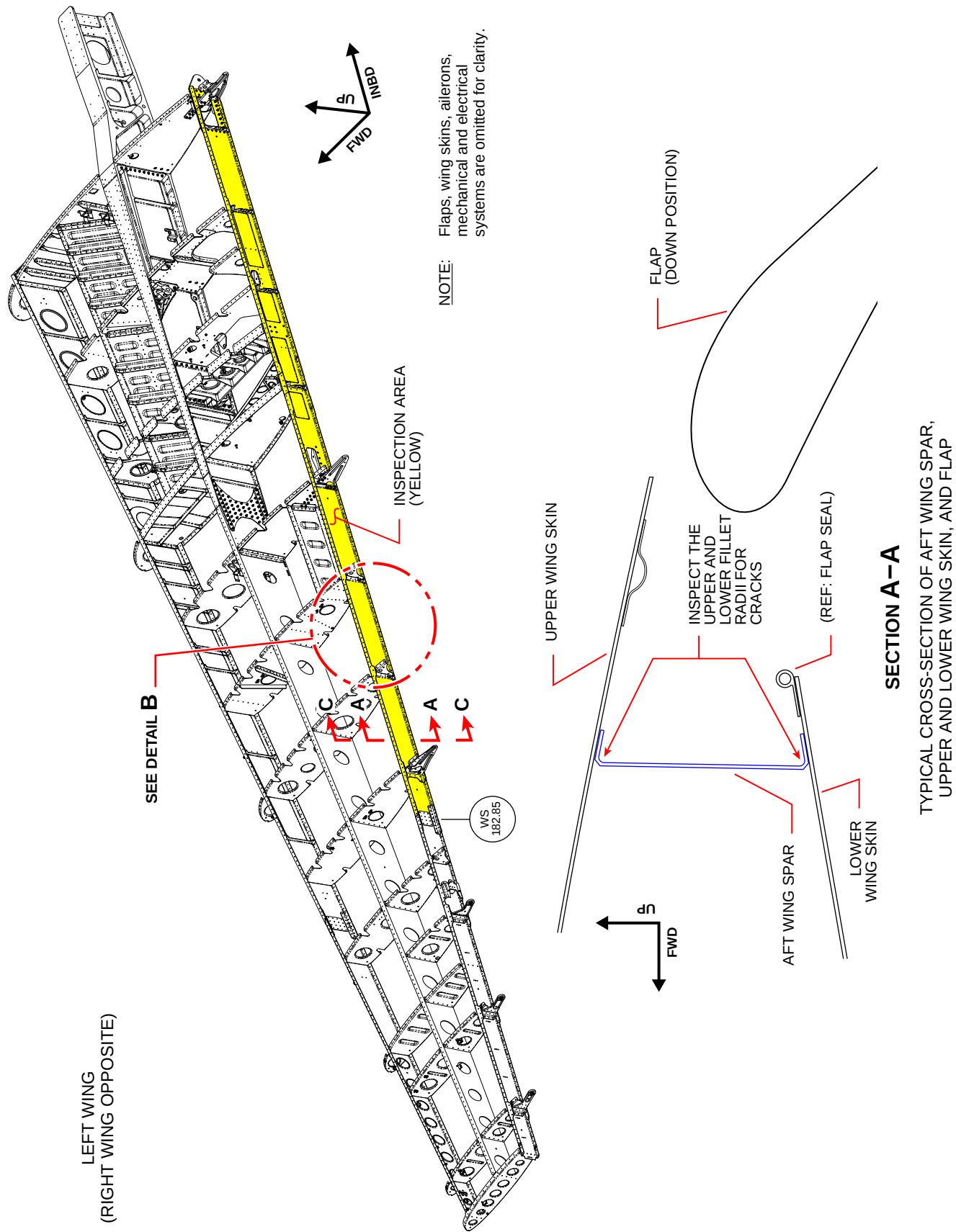


Figure 1, Sheet 1
Aft Wing Spar – Visual Inspection

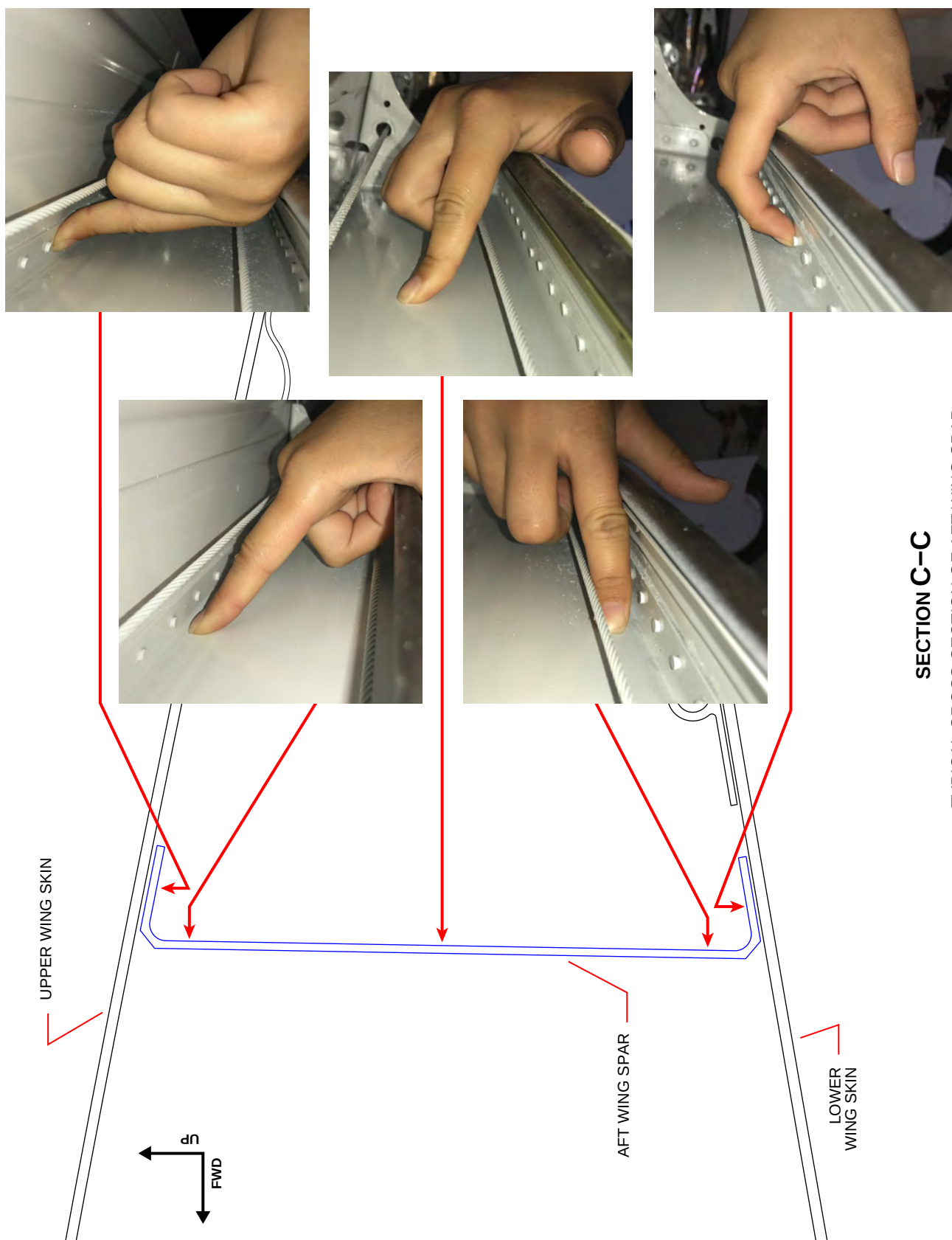


Figure 1, Sheet 2
Aft Wing Spar – Visual Inspection

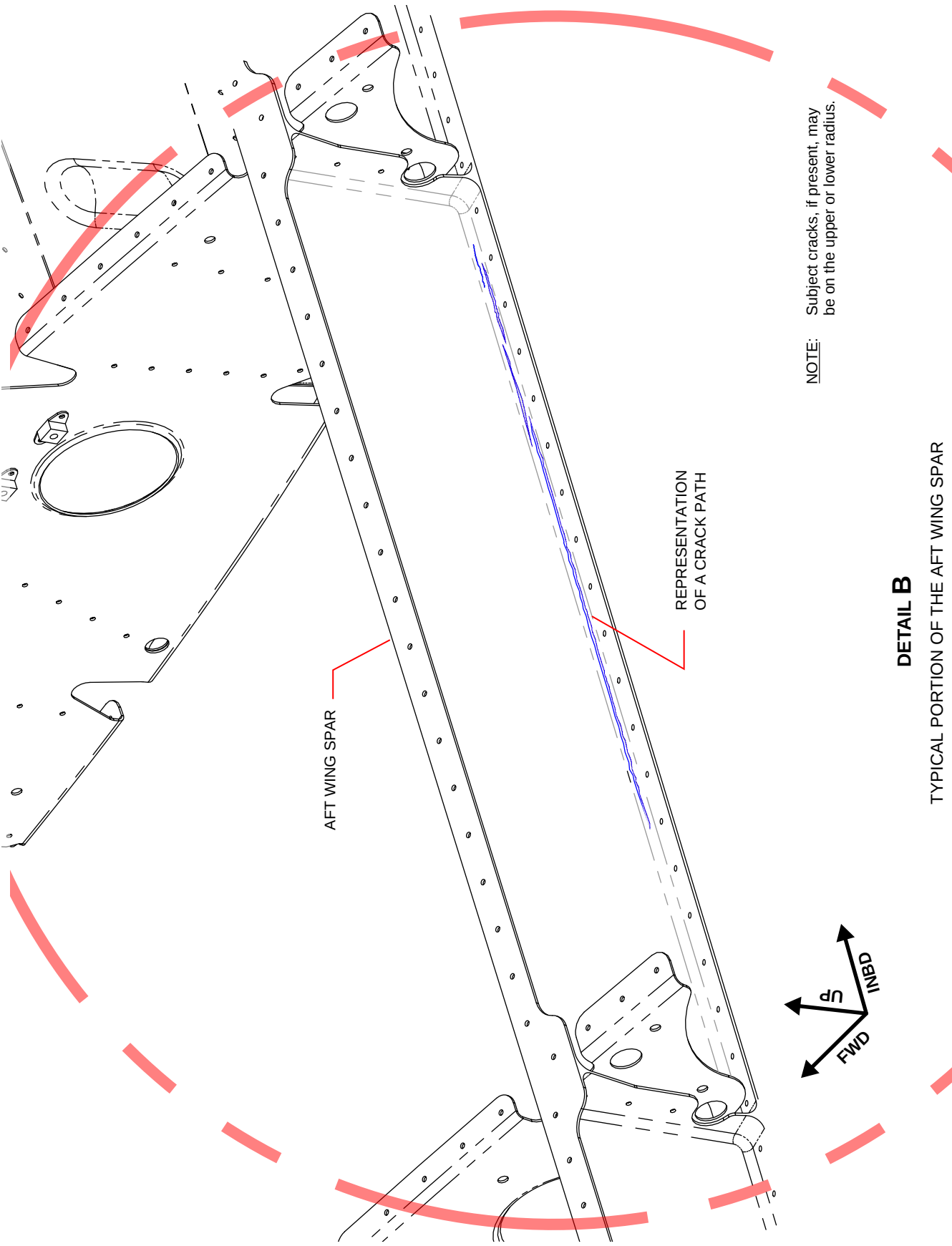


Figure 1, Sheet 3
Aft Wing Spar – Visual Inspection

DETAIL B
TYPICAL PORTION OF THE AFT WING SPAR

Part III. Detailed Inspection

NOTE: The instructions that follow apply to both left and right wings.

RC – The thickness measurements described in Part III of this service bulletin shall be accomplished using ultrasonic nondestructive equipment (NDE) in accordance with ASTM E114 and ASTM E797 industry inspection standards.

RC – The thickness measurements shall be performed by a nondestructive testing (NDT) technician with a minimum Level II certification in ultrasonic testing (UT), per NAS410 and ATA-105, or ASNT Level III certification by the American Society for Nondestructive Testing, Inc.

RC – The thickness determination shall be made by reading the distance between the zero-corrected initial pulse and first-returned echo (back reflection), or echo to echo between successive back echoes following an interface echo, which is a measured time interval, using an instrument with the A-scan display readout and thickness references verified by mechanical inspection against calibrated standards.

RC – The transducer shall be a delay line tip with a frequency range between 10Mhz and 20Mhz. The transducer tip shall be shaped to fit the radius contour. The minimum machined fillet radius is 0.120 inches.

RC – A minimum of two actual spar samples (provided by Piper) shall be utilized for radius calibrations (minimum and maximum thickness values).

RC – A minimum of three readings shall be taken at each site and the lowest repeatable reading shall be recorded.

1. Drain fuel from the aircraft wing

NOTE: For the specific tasks described in this service bulletin, using the instructions that follow will be more expedient than following the instructions found in Section 28-00-00 of Piper AMM P/N 767-617. However, at the mechanic's discretion, either method may be used.

- a. Level the airplane. Refer to Section 8-20-00 of Piper PA-46-600TP M600 Airplane Maintenance Manual (AMM), Part Number (P/N) 767-617.
- b. Pull the manual fuel shut-off (in the cockpit) to the OFF position.
- c. Remove the fuel line from the outlet of the engine-driven fuel pump. Attach a suitable hose to that outlet to direct the fuel flow into a suitable container.
- d. Push in the manual fuel shut-off (in the cockpit) to the ON position.
- e. Apply ground power to the aircraft.
- f. Select fuel pump switch on the overhead switch panel to MAN.
- g. When fuel quantity in each tank reaches the low float switch level, the wing boost pump will be turned off. The remaining fuel in each tank must be drained through the fuel drain sump.

NOTE: Do not let the pumps run dry. The float switch in each header tank should shut down its respective wing boost pump with approximately 4.5 gallons remaining. If the float switch does not turn off the wing boost pumps, the pumps can be shut down by pulling its circuit breakers.

- h. Select fuel pump switch on the overhead switch panel to OFF.
- i. Remove ground power from the aircraft.
- j. Reconnect the fuel line to the outlet of the engine-driven fuel pump and return fuel system to its original configuration.

2. RC – Provide access to, and prepare, inspection sites:

NOTE: The inspection area begins at the aft spar outboard splice at wing station (WS) 182.85 and extends inboard to the wing root. The specific inspection sites within this broad inspection area are defined in Figure 2, marked as 1 through 10, beginning at the wing root.

The inspection area spans approximately 12-1/2 feet in length and covers a single machined plate of aluminum. The portion of the aft spar that is outboard of this area is formed from aluminum sheet and is not subject to this inspection.

- a. Remove and retain wing inspection plates and associated gaskets and mounting hardware, as necessary, to gain access to the forward face of the aft wing spar. Refer to Section 6-00-00, Piper AMM P/N 767-617.
- b. Remove and retain the wing flaps and associated hardware. Refer to Section 27-50-00, Piper AMM P/N 767-617.

- c. Locate inspection sites 9 and 10 as shown in Figure 2. At these sites, remove the cured polysulfide fuel tank sealant from the forward surface of the aft spar, along the upper and lower corners, as shown in Figure 2, Section D-D. Remove the sealant along a spanwise length of at least three (3) inches to provide a sealant-free area of at least 1.5 inches on either side of the inspection site.

NOTE: Inspection sites 9 and 10 may be adjusted inboard or outboard as dictated by accessibility to the forward side of the aft wing spar.

Non-metallic scrapers and ScotchBrite ultrafine abrasive pads shall be used for the removal of the cured sealant. The paint removal from the aft face shall be performed at the discretion of the NDE technician, as its presence can be accommodated by the measurement method. Residue resulting from this process shall be removed from the fuel tank using acetone.

3. RC – At all inspection sites (1 through 10, as shown in Figure 2), measure the upper corner and lower corner thicknesses, as depicted in Figure 2, Section D–D.

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During the aft wing spar inspection and thickness measurements, visually inspect for cracks along the entirety of both the upper and lower corner features as shown in Figure 2, Section D-D (an example of a crack path is shown in Figure 1, Detail B). If a crack is discovered at any time during compliance with this service bulletin, an FAA approved repair must be accomplished prior to next flight. Contact Piper for disposition (contact information follows).

NOTE: The attached inspection form is to be filled out and submitted to Piper Aircraft as part of compliance with Part III of this service bulletin. Additionally, provide photographs of any identifying markings discovered during compliance with Part III of this service bulletin. If any cracks are discovered, complete the attached inspection form with all the readings that can be obtained and, along with photographs and approximate wing station locations of crack tips, submit the form to Piper.

Record measurements in Tables 1 and 2 of the attached inspection form, and compare measured thicknesses against the published minimum original type design thicknesses. (All dimensions are in inches.) At each site, position the transducer probe tip as shown in Figure 2, Section E-E, to measure the corner thicknesses. Observe and document any cracks that are discovered.

- If all measured thicknesses meet or exceed the minimum original type design thickness requirements stated in Tables 1 and 2, then no modification to the aft spar is required. Proceed to Part V.
- If any measured thicknesses are **less than** the minimum original type design thickness requirements stated in Tables 1 and 2, further evaluation is required. Proceed to Part IV.

NOTE: Data recorded in the SB 1317B, or later, inspection form are acceptable for compliance with this service bulletin.

If any cracks are discovered, an FAA approved repair must be accomplished prior to returning the aircraft to service. Contact Piper Customer Service to develop a suitable repair.

Contact Piper Customer Service for assistance at (+1) 772-299-2141 or customer.service@piper.com. Piper's normal business hours are 7:30 am to 4:30 pm (Eastern US), Monday through Friday.

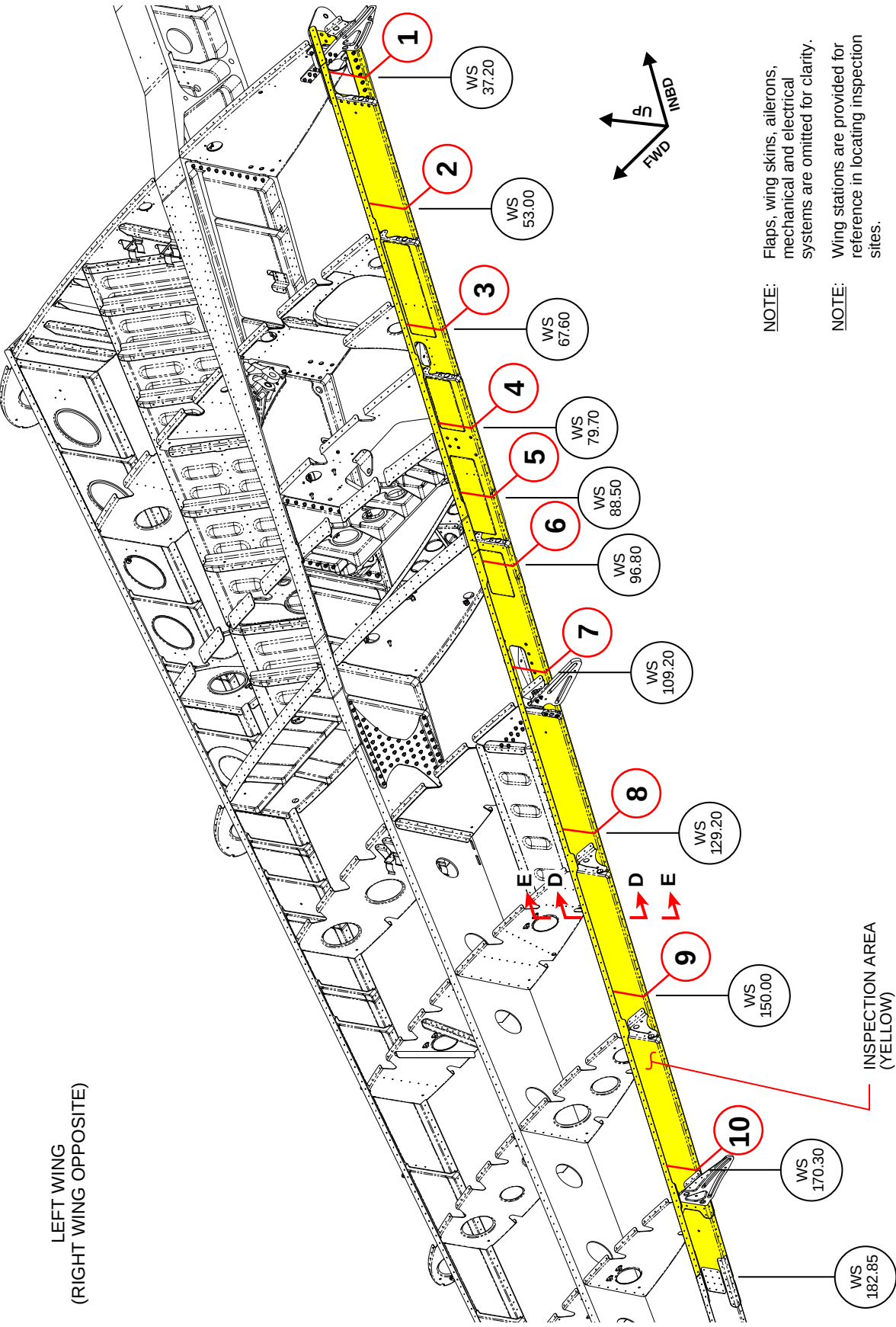
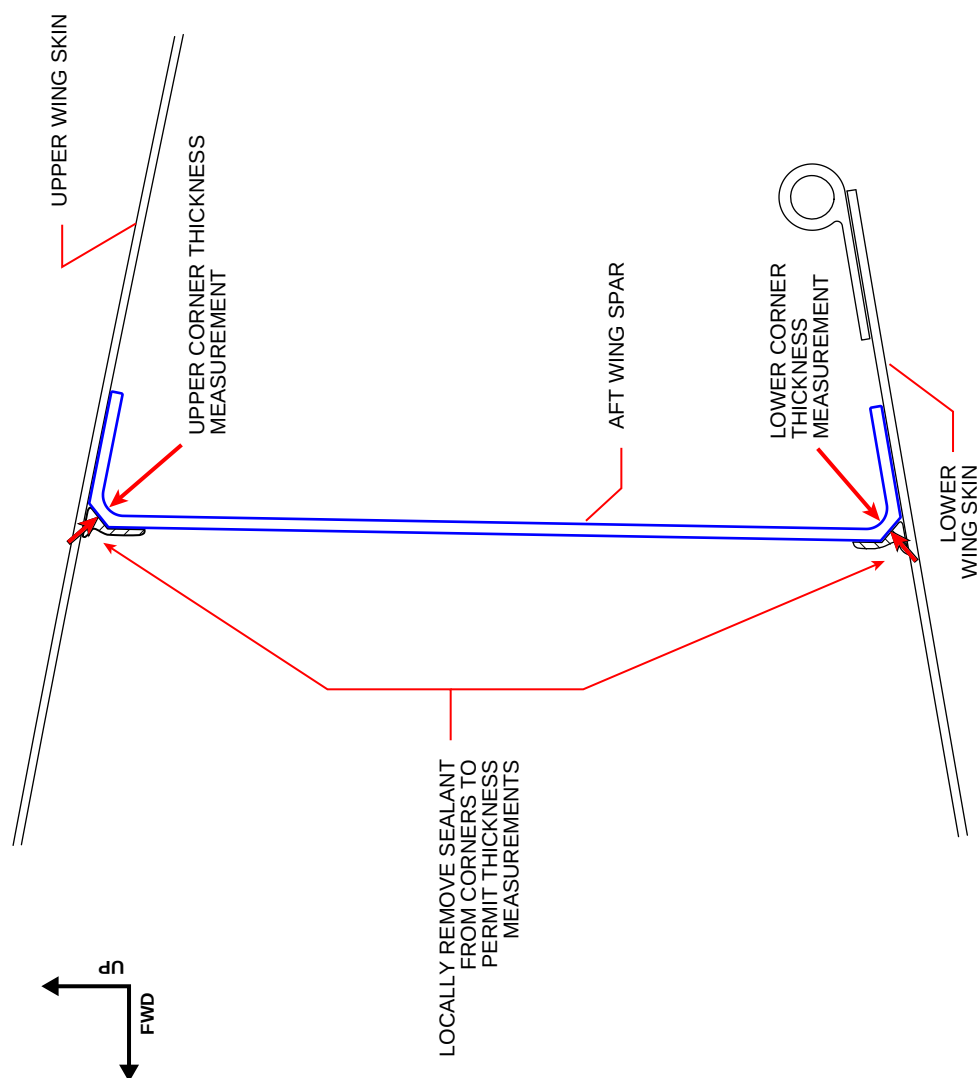
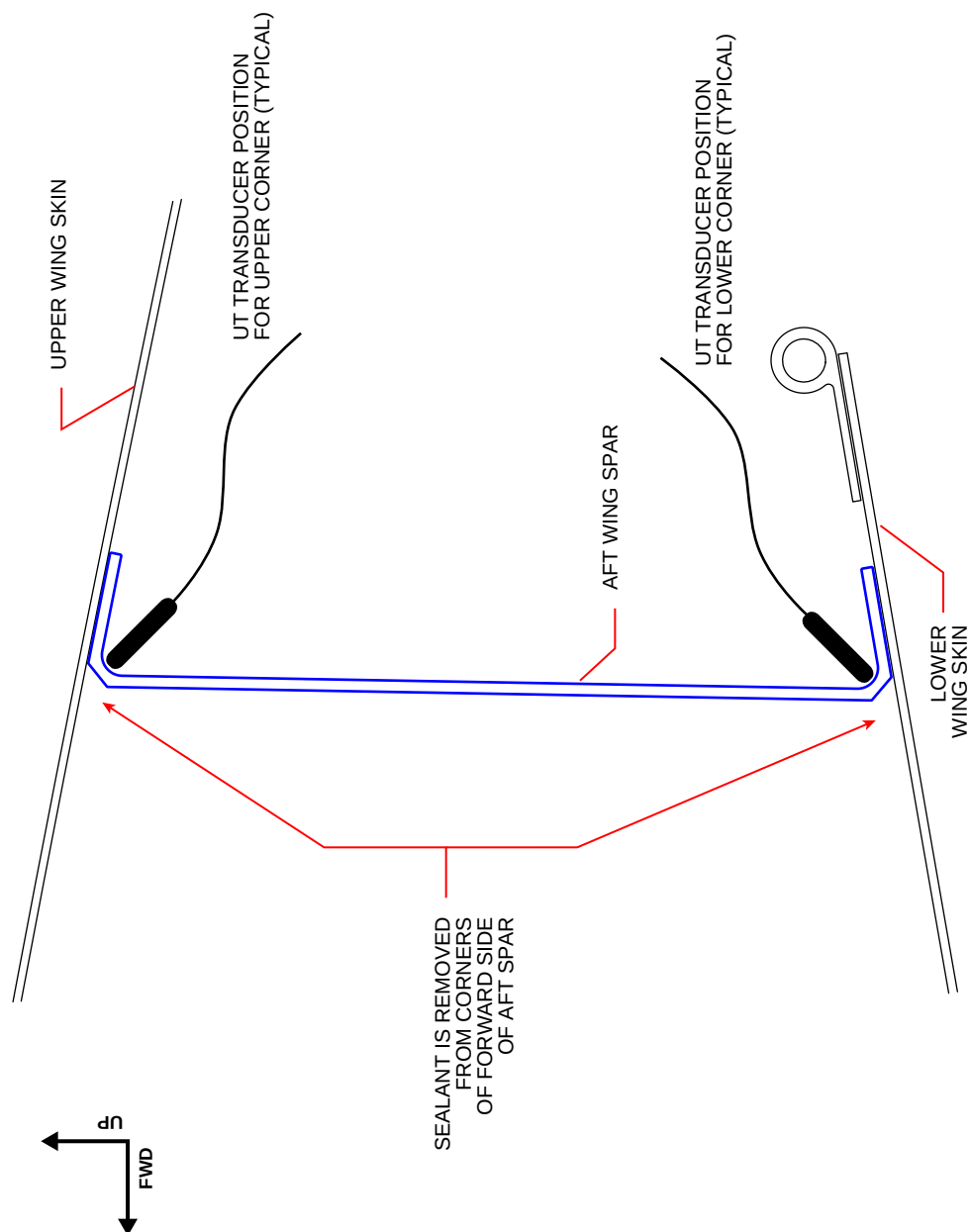


Figure 2, Sheet 1
Aft Wing Spar – Detailed Inspection



SECTION D-D
TYPICAL CROSS-SECTION OF AFT WING SPAR,
UPPER AND LOWER WING SKIN

Figure 2, Sheet 2
Aft Wing Spar – Detailed Inspection



SECTION E-E
TYPICAL CROSS-SECTION OF AFT WING SPAR,
UPPER AND LOWER WING SKIN

Figure 1, Sheet 3
Aft Wing Spar – Detailed Inspection

Part IV. Further Evaluation

NOTE: Although the minimum allowable dimensions shown in Table 3 are less than original type design minimums, Piper has evaluated and the FAA has approved these values as the minimum required to be allowed to return the aircraft to service without any modifications.

Engineering documents, Engineering Order D46W57A101 (dated 08-03-17) and Structural Substantiation Report VB-2745 (latest revision), have been FAA approved and are reflected in Table 3.

RC – For any measured thickness values (recorded in Tables 1 and 2 of the attached form) that are less than the original type design minimums, compare them against the minimum allowable thickness values shown in Table 3.

NOTE: Data recorded in the SB 1317B, or later, inspection form are acceptable for compliance with this service bulletin.

- If all measured thicknesses meet or exceed the minimum allowable thicknesses provided in Table 3, then no modification to the aft spar is required. Proceed to Part V.
- If any measured thickness is less than the minimum allowable thicknesses provided in Table 3, do not proceed to Part V. An FAA approved repair must be accomplished prior to returning the aircraft to service. Contact Piper Customer Service to develop a suitable repair.

TABLE 3
MINIMUM ALLOWABLE THICKNESSES (IN INCHES)

LOCATION (Site Number)	WING STATION (Reference)	MINIMUM ALLOWABLE THICKNESS
1 (Inb'd End)	37.20	0.104
2	53.00	0.047
3	67.60	0.045
4	79.70	0.075
5	88.50	0.075
6	96.80	0.042
7	109.20	0.042
8	129.20	0.035
9	150.00	0.030
10 (Outb'd End)	170.30	0.030

Part V. Preparation for Return to Service

1. Apply polysulfide fuel tank sealant to the inside corners of the aft spars, to replace the sealant removed in Part III, Step 2. Coverage and thickness shall match adjacent cured sealant. Use guidance from Section 28-10-00 of Piper AMM P/N 767-617, as well as the sealant manufacturer's instructions. Sealant material shall conform to Chart 11 in Section 91-10-00 of Piper AMM P/N 767-617, Type 1, Type 1LD, or Type 6.
2. Reinstall the wing inspection plates and associated gaskets and mounting hardware that were removed in Part III, Step 2. Use fastener torque sequence and other instructions found in Section 28-10-00 of Piper AMM P/N 767-617. Install fasteners with Loctite 222MS and torque to 22–23 inch-pounds.
3. Reinstall the wing flaps and associated hardware that were removed in Part III, Step 2. Check rigging of flaps and adjust per Section 27-50-00 of Piper AMM P/N 767-617.
4. Allow the sealant to cure before fueling the tanks. Prior to fueling, evaluate the tanks for leaks and, on condition, repair. In addition, test the fuel supply lines for leaks. Refer to Section 28-10-00 of Piper AMM P/N 767-617.
5. Perform the following documentation requirements:

Upon satisfactory completion of Part III or, on condition, Part IV, of this service bulletin, the aircraft grounding restriction shall be lifted.

 - a. Send a copy of the included inspection form to Piper Aircraft as documentation of the dimensional properties of the aft wing spars.
 - b. Remove any copy of this service bulletin that may have been placed in the Limitations section of POH VB-2366 as part of compliance with Part II, Step 2, of this service bulletin.

THE OPERATING LIMITATIONS STATED IN PART I AND PART II OF THIS SERVICE BULLETIN NO LONGER APPLY. APPLICABLE OPERATING LIMITATIONS SHALL BE AS STATED IN POH VB-2366.
6. RC – Make a logbook entry documenting compliance with Part III or IV of this service bulletin, as applicable.

MATERIAL REQUIRED: On condition, per aircraft:

- Quantity as required, Loctite 222MS
- Quantity as required, polysulfide fuel tank sealant (conforming to Chart 11 in Section 91-10-00 of Piper AMM P/N 767-617, Type 1, Type 1LD, or Type 6)

AVAILABILITY OF PARTS: Procure locally

EFFECTIVITY DATE: This service bulletin is effective upon receipt.

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 date of this service bulletin.

Please contact your Piper Aircraft Dealer 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

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TABLE 1

LEFT WING AFT SPAR THICKNESS MEASUREMENTS (IN INCHES)

LOCATION (Site Number)	WING STATION (Reference)	CORNER THICKNESSES		
		Minimum Required*	Upper Corner As Measured	Lower Corner As Measured
1 (Inb'd End)	37.20	0.117		
2	53.00	0.060		
3	67.60	0.075		
4	79.70	0.120		
5	88.50	0.168		
6	96.80	0.136		
7	109.20	0.075		
8	129.20	0.059		
9	150.00	0.050		
10 (Outb'd End)	170.30	0.050		

TABLE 2

RIGHT WING AFT SPAR THICKNESS MEASUREMENTS (IN INCHES)

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LOCATION (Site Number)	WING STATION (Reference)	CORNER THICKNESSES		
		Minimum Required*	Upper Corner As Measured	Lower Corner As Measured
1 (Inb'd End)	37.20	0.117		
2	53.00	0.060		
3	67.60	0.075		
4	79.70	0.120		
5	88.50	0.168		
6	96.80	0.136		
7	109.20	0.075		
8	129.20	0.059		
9	150.00	0.050		
10 (Outb'd End)	170.30	0.050		

* These are the minimum thicknesses required to meet type design.

NDT Level II Technician or Level III Engineer:

Were any cracks found? YES ☐ NO ☐

Aircraft S/N: _____

If yes, provide photographs as described in Part III, Step 3.

INSPECTORS: Please provide Piper with photographs of any identifying markings discovered on the aft wing spars during inspection.

Name (Print): _____ Signature: _____

Certificate No.: _____ Inspected On: ____/____/____
Use MM/DD/YYYY format