LUFTFARTSVERKET
Luftfartsinspektionen

LUFTVÄRDIGHETSDIREKTIV (LVD)

A. Flygplan
Piper
LVD Nr 2632R1
Upphäver LVD 2632

Sektion 2. Utlandstillverkad flygmateriel

TITEL: **Kontroll av främre vingbalkens infästningar för korrosion och sprickor**

GÄLLER: Modellerna PA-25, PA-25-235 och PA-25-260 alla S/N.

ÅTGÄRD: Utför åtgärder angivna i bifogad kopia av FAA AD 95-12-01

TID FÖR ÅTGÄRD: Inom 12 kalendermånader räknat från detta LVD's utgivningsdatum och därefter i intervall ej överstigande 60 kalendermånader (med undantag av vad som anges i para (h) i FAA AD 95-12-01). Flygplan som ej genomgått grundöversyn sedan operation i jordbruksflygverksamhet skall kontrolleras enligt de intervall som anges i FAA AD 95-12-01.

UNDERLAG: FAA AD 95-12-01

REFERENS: FAA AD 95-12-01

BESLUTSDATUM: 1998-01-21

LFS 1998:4

Åtgärder enligt LVD utgör nödvändig förutsättning för ifrågavarande flygmateriels luftvärdighet. Referens BCL M 1.11.
Anteckning om åtgärd, som vidtagits i enlighet med LVD, skall införas i teknisk journal för berörd flygmateriel med hänvisning till ifrågavarande LVD-nummer. Angivet underlag refererar till senast gällande revision/utgåva. LVD utges i luftfartsverkets författningssamlingar LFS.

Postadress	Gatuadress	Telefonnummer	Telegram	Telex
601 79 NORRKÖPING	Vikboplan 11	011-192000	Civilair Norrköping	62450

Bilaga till LVD Nr 2632 R1

AIRWORTHINESS DIRECTIVE

REGULATORY SUPPORT DIVISION
P.O. BOX 26460
OKLAHOMA CITY, OKLAHOMA 73125-0460

U.S. Department
of Transportation
Federal Aviation
Administration

95-12-01 PIPER AIRCRAFT CORPORATION: Amendment 39-9251; Docket No. 92-CE-63-AD. Supersedes AD 93-21-12, Amendment 39-8763.

Applicability: Models PA-25, PA-25-235, and PA-25-260 airplanes (all serial numbers), certificated in any category.

NOTE 1: This AD applies to each airplane identified in the preceding applicability provision, regardless of whether it has been modified, altered, or repaired in the area subject to the requirements of this AD. For airplanes that have been modified, altered, or repaired so that the performance of the requirements of this AD is affected, the owner/operator must use the authority provided in paragraph (k) of this AD to request approval from the FAA. This approval may address either no action, if the current configuration eliminates the unsafe condition, or different actions necessary to address the unsafe condition described in this AD. Such a request should include an assessment of the effect of the changed configuration on the unsafe condition addressed by this AD. In no case does the presence of any modification, alteration, or repair remove any airplane from the applicability of this AD.

Compliance: Required within the next 12 calendar months after the effective date of this AD, unless already accomplished, and thereafter at intervals not to exceed 24 calendar months (except as noted in paragraph (h) of this AD).

To prevent possible in-flight separation of the wing from the airplane caused by a cracked or corroded wing forward spar fuselage attachment assembly, accomplish the following:

(a) Gain access to the left and right wing forward spar fuselage attach fittings by removing the screws retaining the wing fairing. Dismantle the wing fillet by removing the screws on the aft edge top and bottom and removing the wing fairing (see FIGURE 1 of the Appendix to this AD).

(b) Remove the wing attach bolts and wing. Remove paint from the wing forward spar fuselage attachment fittings and surrounding areas; do not sand blast because it may obscure surface indications.

NOTE 2: Saturation of the bolts with a penetrating oil may facilitate removal.

(c) Visually inspect the wing forward spar tubular fuselage attach cluster for damage (cracks, corrosion, rust, or gouges). Prior to further flight, repair or replace any damaged tubular member with equivalent material in accordance with FAA Advisory Circular (AC) No. 43.13-1A, Acceptable Methods, Techniques, Practices - Aircraft Inspection and Repair.

(d) Inspect (using both dye penetrant and ultrasonic procedures) the wing forward spar fuselage attach fitting assembly, part numbers (P/N) 61005-0 (front spar fitting assembly) and 61006-0 (front spar fitting) for Model PA-25; and P/N 64412-0 (front spar fitting assembly) and 64003-0 (front spar fitting) for Models PA-25-235 and PA-25-260, for corrosion and cracks in accordance with the Appendix to this AD.

(1) If any corrosion is found that meets or exceeds the parameters presented in the Appendix to this AD or any cracks are found, prior to further flight, replace the forward spar fuselage tubular attach cluster with serviceable parts as specified in the Appendix to this AD.

(2) The inspection procedures in the Appendix of this AD, except for the dye penetrant inspection procedures, must be accomplished by a Level 2 inspector certified using the guidelines established by the American Society for Non-destructive Testing, or MIL-STD-410. A mechanic with at least an Airframe license may perform the dye penetrant inspection.

(e) Replacement parts required by this AD shall be of those referenced and specified in either Figures 3a and 3b, 4a and 4b, or 5a and 5b (as applicable), included as part of the Appendix of this AD.

(f) Prime and paint all areas where parts were replaced or where paint is bubbled or gone. Use epoxy paint and primer, and, after paint has cured, rust inhibit the entire area.

(g) Reinstall all items that were removed.

(h) If a new cluster is installed into the fuselage frame, repetitive inspections are not required until five years after the replacement date on the respective fuselage side. This cluster may be replaced every five years as an alternative to the repetitive inspections.

(i) Send the results of the inspection required by paragraph (d) of this AD within 10 calendar days after the inspection to the Manager, Atlanta Aircraft Certification Office (ACO), Campus Building, 1701 Columbia Avenue, suite 2-160, College Park, Georgia 30337-2748. Include the airplane model and serial number, the category of operation the airplane is operated in (normal or restricted), the location and condition of any cracked or corroded area, the number of hours TIS of the airplane at the time of inspection, and the approximate number of hours TIS accrued on the airplane annually. (Reporting approved by the Office of Management and Budget under OMB No. 2120-0056.)

(j) Special flight permits may be issued in accordance with sections 21.197 and 21.199 of the Federal Aviation Regulations (14 CFR 21.197 and 21.199) to operate the airplane to a location where the requirements of this AD can be accomplished.

(k) An alternative method of compliance or adjustment of the initial or repetitive compliance times that provides an equivalent level of safety may be approved by the Manager, Atlanta Aircraft Certification Office (ACO), Campus Building, 1701 Columbia Avenue, suite 2-160, College Park, Georgia 30337-2748. The request shall be forwarded through an appropriate FAA Maintenance Inspector, who may add comments and then send it to the Manager, Atlanta ACO.

NOTE 3: Information concerning the existence of approved alternative methods of compliance with this AD, if any, may be obtained from the Atlanta ACO.

(l) This document or any other information that relates to this AD may be inspected at the FAA, Central Region, Office of the Assistant Chief Counsel, Room 1558, 601 E. 12th Street, Kansas City, Missouri.

(m) This amendment (39-9251) supersedes AD 93-21-12, Amendment 39-8763.

(n) This amendment becomes effective on July 7, 1995.

FOR FURTHER INFORMATION CONTACT:

Christina Marsh, Aerospace Engineer, FAA, Atlanta Aircraft Certification Office, Campus Building, 1701 Columbia Avenue, suite 2-160, College Park, Georgia 30337-2748; telephone (404) 305-7362; facsimile (404) 305-7348.

APPENDIX TO AD 95-12-01

PROCEDURES AND REQUIREMENTS FOR WING FORWARD SPAR ATTACHMENT ASSEMBLY; INSPECTION OF PIPER PA-25 SERIES AIRPLANES

EQUIPMENT REQUIREMENTS

1. A portable combination ultrasonic flaw detector with both an LED thickness readout and an A-trace with thickness gate display.

2. An ultrasonic probe with the following: a 15 MHz 0.25-inch diameter with a 0.375-inch plastic delay line. An equivalent permanent delay line transducer that provides adequate sensitivity and resolution to measure a 0.050-inch steel shim can also be used.

3. Three steel shims within the range of 0.050 to 0.100 inches are required. To ensure proper calibration, the steel shims should be smooth and free of dirt. In order to verify the shim thickness, use a calibrated micrometer to measure the steel shims.

4. Either glycerin, 3-in-1 oil, or equivalent ultrasonic couplants are used to conduct this test set-up and inspection. Water-based couplants are not permitted because of the possibility of initiating long-term corrosion of the wing forward spar fuselage attachment fittings.

NOTE: Couplant is defined as "a substance used between the face of the transducer and test surface to improve transmission of ultrasonic energy across this boundary or interface."

NOTE: If surface pitting is found on either side of the fitting ears, lightly sand the surface to obtain a smooth working surface. Removal of surface irregularities such as pits, rust, scale, and paint will enhance the accuracy of the inspection technique.

INSTRUMENT CALIBRATION:

1. Turn the instrument power on and check the battery charge status. The instrument should have at least 40-percent of available battery life. The screen brightness and contrast of the display screen should match the environmental conditions (i.e., outside sunlight or inside a hangar).

2. Depending on the ultrasonic instrument used, select or verify the single element transducer setting from the probe selection menu. If a removable delay line is used, unscrew the plastic delay line from the transducer. Add couplant to the base of the delay line, then reattach the delay line.

3. Obtain steel shims with known or measured thickness at or near 0.050, 0.075, and 0.100 inches. At least one steel shim shall be greater than 0.095 inches, one less than or equal to 0.050 inches, and one between these two values. Place the probe on the thickest steel shim using couplant. Adjust the gain setting to increase the backwall signal from this steel shim. An A-trace will appear on the screen and a thickness readout will appear on the display. The signal on the screen from left to right shows: the initial pulse, the delay line (the front surface of the steel shim) and the backwall echo of the steel shim. A second and third multiple backwall echo may also be seen on the A-trace. Enable the thickness gate. Adjust the thickness gate to initiate at the delay line to steel shim interface and terminate at the first backwall echo.

4. Place the probe on the thinnest steel shim using couplant. Adjust the damping, voltage and pulse width to obtain the maximum signal response and highest resolution on this steel shim. These settings can vary from probe to probe and are somewhat dependent on operator preferences.

5. To stabilize the interface synchronization, adjust the electronic triggering (blocking gate) to approximately three quarters of the distance between the initial pulse and the delay line interface echo. The thickness gate should initiate at the delay line interface echo and terminate at the first backwall echo.

6. Depending on the instrument and probe, select positive half-wave rectified signal display or negative half-wave rectified signal display. This selection should give the best signal display on the thinnest steel shim. Select the interface synchronization. This selection automatically starts the thickness gate at the delay time corresponding to the tip of the plastic delay line.

7. Couple the probe to the thickest steel shim using couplant. Adjust the range so the A-scan display reads from 0.000 to 0.300 inches. Several multiple backwall echoes will disappear from the screen.

8. Adjust the thickness gate to trigger on the first return signal. If instability of the gate trigger occurs, adjust the gain and/or damping to stabilize the thickness reading. A thickness readout should be present on the screen and near the known steel shim thickness.

9. Adjust the velocity to 0.231 inches/microseconds. The thickness reading should be the known steel shim thickness. Couple the transducer to the thinnest steel shim. If the thickness readout does not agree with the known thickness, adjust the fine delay setting to produce the known thickness. Re-check the thickest step. If the readout does not indicate the correct thickness re-adjust the fine delay setting. After this adjustment is made, record the thickness values for each of the steel shims on a set-up sheet.

10. Calculate the percent error for each measured steel shim. The maximum allowable percent error should not exceed 3-percent.

INSPECTION PROCEDURES:

1. Add couplant to the outside inspection surface (Refer to Figures 3a, 4a and 5a, as applicable). Add the appropriate gain to obtain the backwall echo from the inspection surface. If the gain setting is adjusted, re-check the thickness values on the steel shims. To assure proper coupling to the test sample, twist the probe clockwise and counter-clockwise (with a 45-degree twist) and maintain contact with the test surface. During the articulation of the probe, observe the A-trace on the screen and stop the probe twist at the point of adequate back surface signal amplitude to trigger the thickness gate on the first half-cycle. Measure and record the thickness. Repeat the above process at eight equally-spaced locations around the surface. The weld bead near the spar cluster may be hard to access. Find a suitable location near the weld and measure the thickness.

2. Add couplant to the inside inspection surface (Refer to Figures 3a, 4a and 5a, as applicable). Add the appropriate gain to obtain the backwall echo from the inspection surface. To assure proper coupling to the test sample, twist the probe (clockwise and counter-clockwise with a 45-degree twist). During the articulation of the probe, observe the A-trace on the screen and stop the probe twist at the point of adequate back surface signal amplitude to trigger the thickness gate on the first half-cycle. Measure and record the thickness. Repeat the above process at eight equally-spaced locations around the surface.

3. If a thickness reading in any one of the eight locations from paragraph 1. of the **INSPECTION PROCEDURES** section (outside section surface) is .085-inch or less for the PA-25 Model or .055-inch or less for the PA-25-235 and PA-25-260 Models, or if a thickness reading in any one of the eight locations from paragraph 2. of the **INSPECTION PROCEDURES** section (inside section surface) is .055-inch or less for the PA-25 Model or .085-inch or less for the PA-25-235 and PA-25-260 Models, prior to further flight, replace the forward spar fuselage tubular attach cluster with serviceable parts in accordance with FAA AC No. 43.13-1A, Acceptable Methods, Techniques, Practices - Aircraft Inspection and Repair. This procedure requires the following:

a. Provide for the alignment of the airframe with an appropriate alignment fixture in accordance with FAA AC No. 43.13-1A, Acceptable Methods, Techniques, Practices- Aircraft Inspection and Repair.

b. Cut the tubular members as referenced and specified in Figure 2 and either Figures 3a and 3b; Figures 4a and 4b; or Figures 5a and 5b, as applicable.

c. Fabricate a cluster using all applicable part numbers referenced in Figures 3b, 4b, or 5b, as applicable; and

d. Splice the new cluster into the fuselage frame.

DYE PENETRANT INSPECTION:

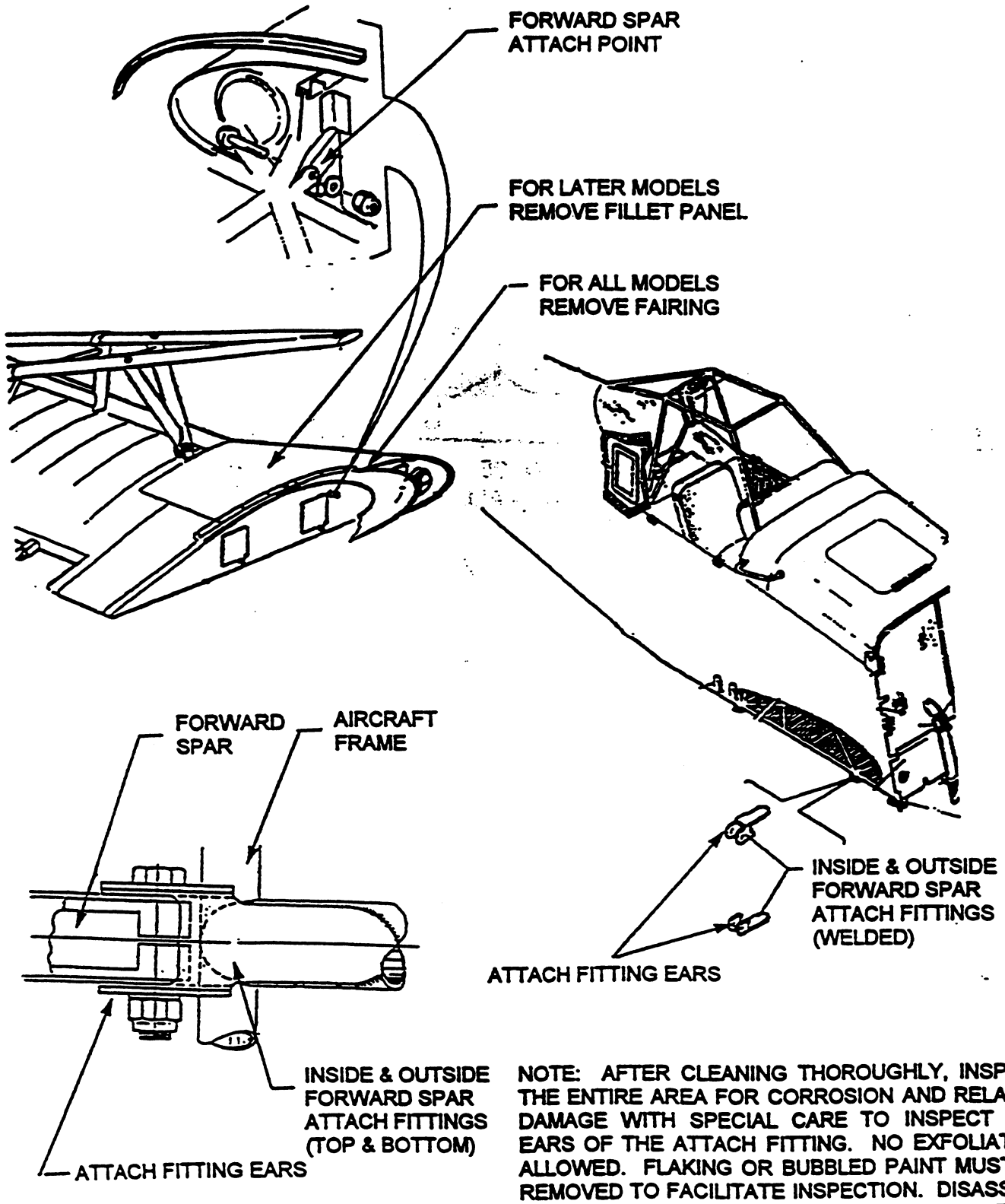
Inspect the wing forward spar fuselage attach fitting assembly for cracks using FAA-approved dye penetrant methods. If any cracks are found, prior to further flight, replace the forward spar fuselage tubular attach cluster with serviceable parts in accordance with FAA AC No. 43.13-1A, Acceptable Methods, Techniques, Practices - Aircraft Inspection and Repair. This procedure requires the following:

1. Provide for the alignment of the airframe with an appropriate alignment fixture in accordance with FAA AC No. 43.13-1A, Acceptable Methods, Techniques, Practices- Aircraft Inspection and Repair.

2. Cut the tubular members as referenced and specified in Figure 2 and either Figures 3a and 3b; Figures 4a and 4b; or Figures 5a and 5b, as applicable.

3. Fabricate a cluster using all applicable part numbers referenced in Figures 3b, 4b, or 5b, as applicable; and

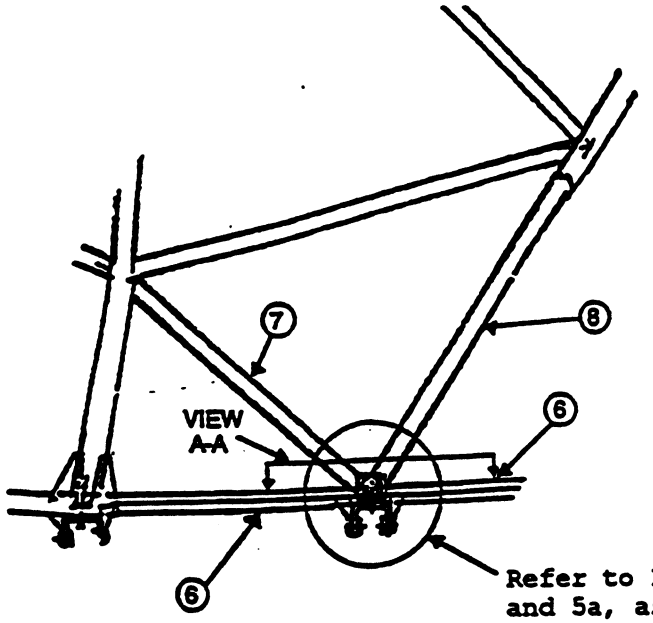
4. Splice the new cluster into the fuselage frame.



NOTE: AFTER CLEANING THOROUGHLY, INSPECT THE ENTIRE AREA FOR CORROSION AND RELATED DAMAGE WITH SPECIAL CARE TO INSPECT THE EARS OF THE ATTACH FITTING. NO EXFOLIATION ALLOWED. FLAKING OR BUBBLED PAINT MUST BE REMOVED TO FACILITATE INSPECTION. DISASSEMBLY WILL BE AS REQUIRED BASED ON CONDITION. RETURN TO SERVICE INCLUDES PRIME, PAINT AND RUST INHIBITOR.

FIGURE 1
95-12-01

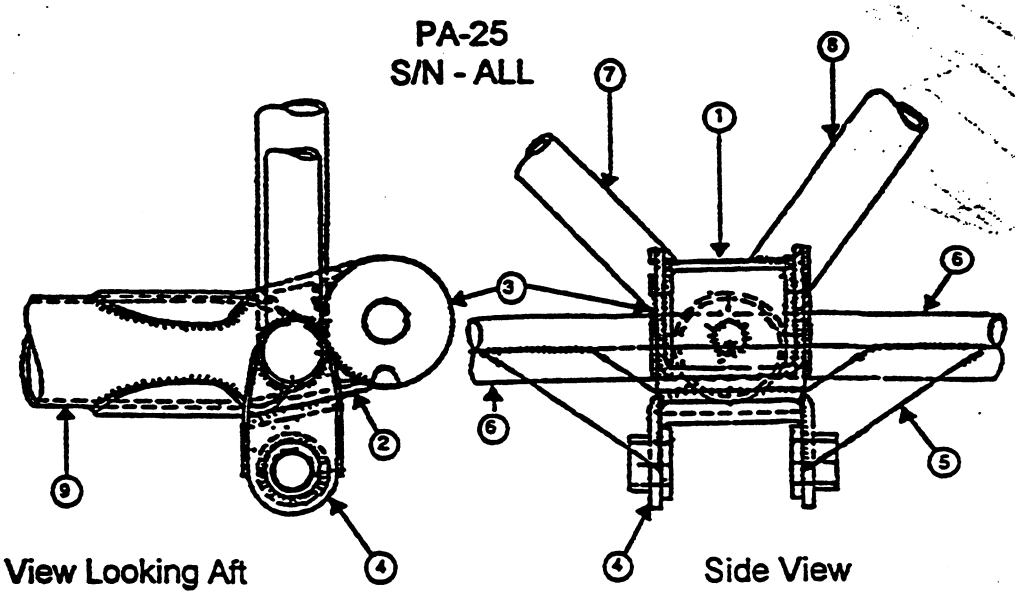
PA-25
Side View of the Front Wing Fitting
and Landing Gear Fittings



Refer to Figures 3a, 4a, and 5a, as applicable.

Figure 2
95-12-01

PA-25
S/N - ALL



View Looking Aft

Side View

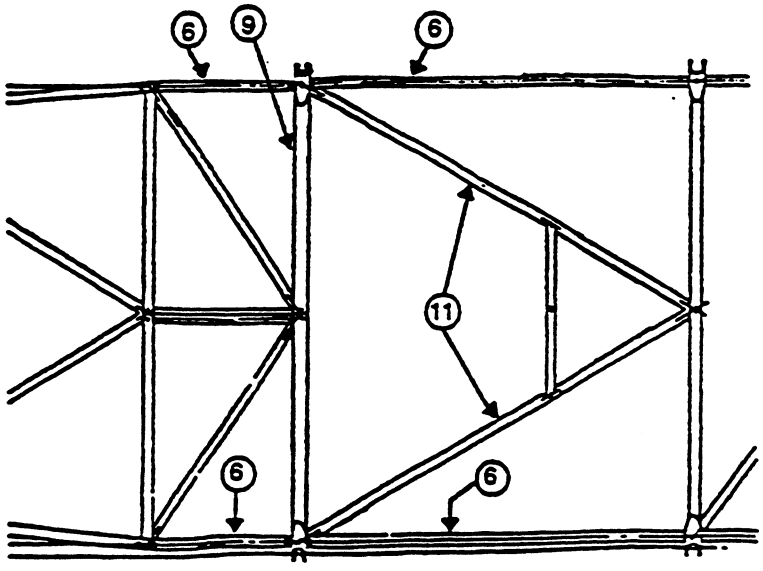


Figure 3a
95-12-01

Bottom View (View A-A)
(Both Sides)

PA-25
S/N - ALL
Front Wing Spar Attachment-Fittings and Tubes

NO.	DESCRIPTION	PART NO./TUBE DIMENSIONS
1	Front Spar Fitting	61006-0
2	Channel	61007-0
3	Fitting Assy-Front Spar	61005-0
4	Fitting Assy-Landing Gear	21242-2
5	Brace-Bracket	11994-28
6	Tube	.75 x .035 (4130)N **
7	Tube	.625 x .035 (4130)N **
8	Tube	.75 x .035 (4130)N **
9	Tube	1.25 x .058 (4130)N **
11	Tube	.625 x .028 (1025)

** - MIL-T-6736 Type 1

Figure 3b
95-12-01

PA-25-235
S/N - 25-2000 to 25-2985
Front Wing Spar Attachment-Fittings and Tubes

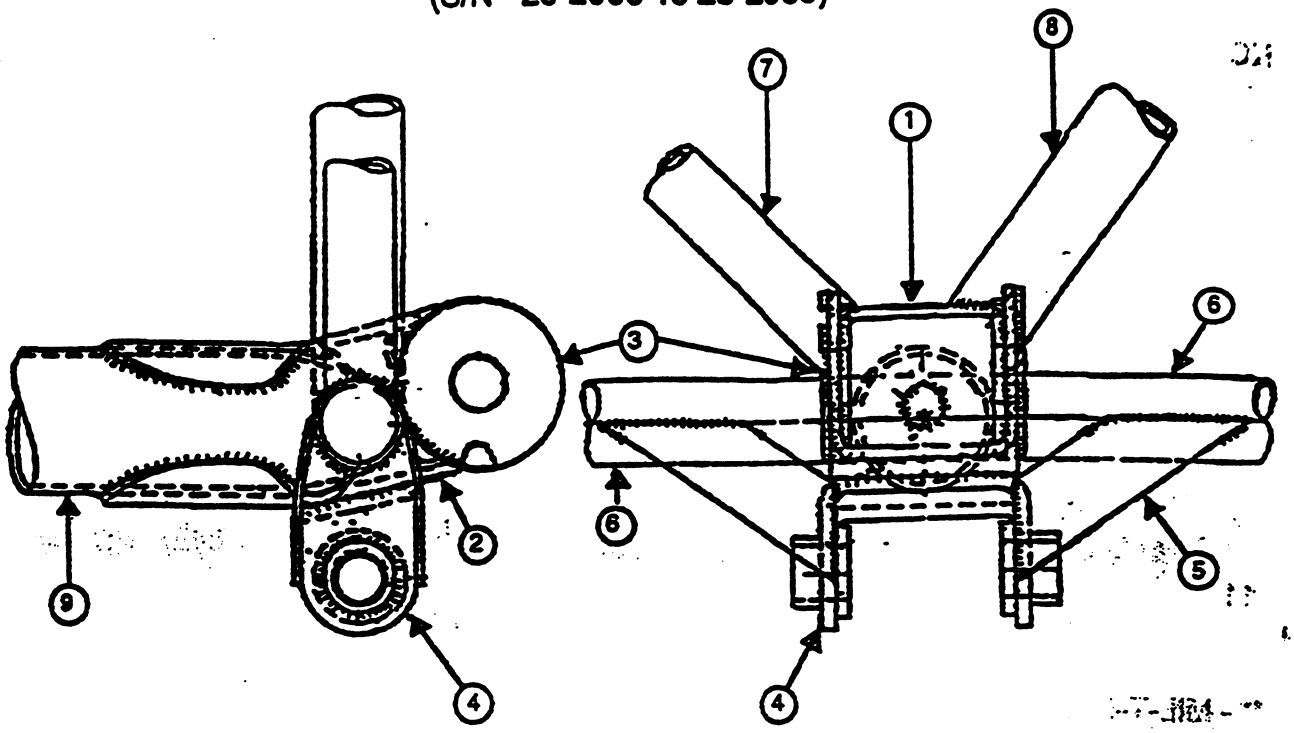
NO.	DESCRIPTION	PART NO./TUBE DIMENSIONS
1	Front Spar Fitting	64003-0
2	Channel	64175-0
3	Fitting Assy-Front Spar	64412-0
4	Fitting Assy-Landing Gear	64005-0 (L) 64005-1 (R)
5	Brace-Bracket	11994-28
6	Tube	.75 x .049 (4130)N **
7	Tube	.625 x .049 (4130)N **
8	Tube	.875 x .065 (4130)N **
9	Tube	1.25 x .095 (4130)N **
10	Tube	.75 x .049 (4130)N **
11	Tube	.625 x .028 (1025)

** - MIL-T-6736 Type 1

(See next page for Figure 4a.)

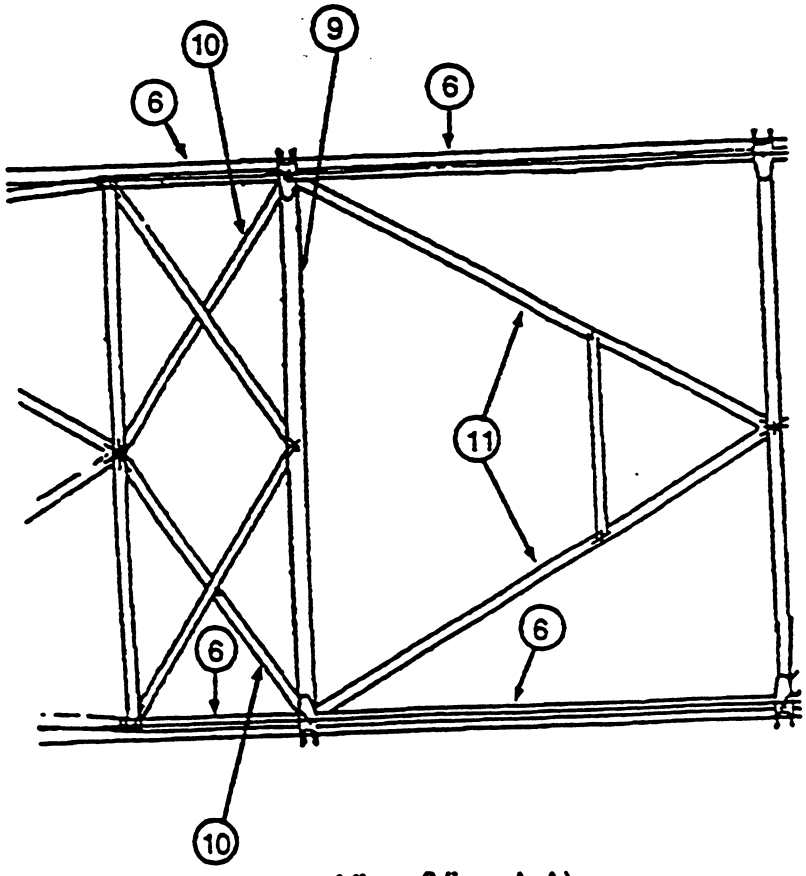
Figure 4b
95-12-01

PA-25-235
(S/N - 25-2000 To 25-2985)



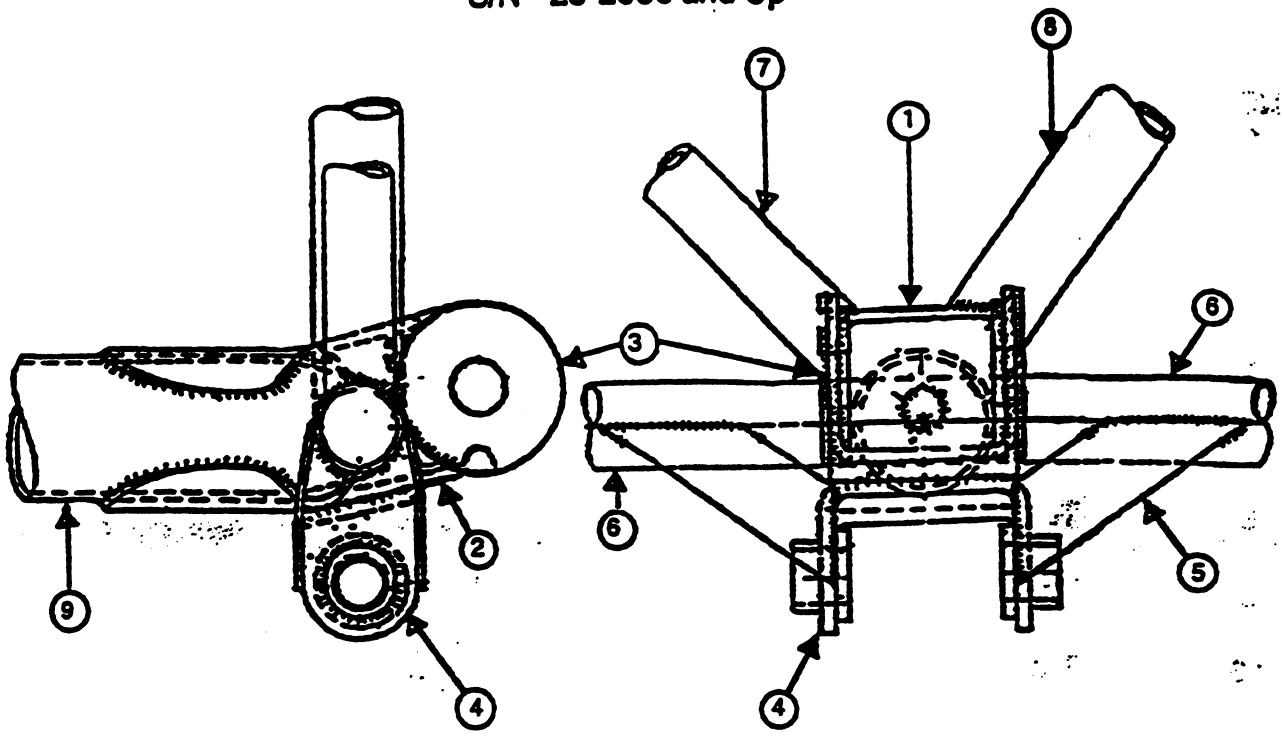
View Looking Aft

Side View



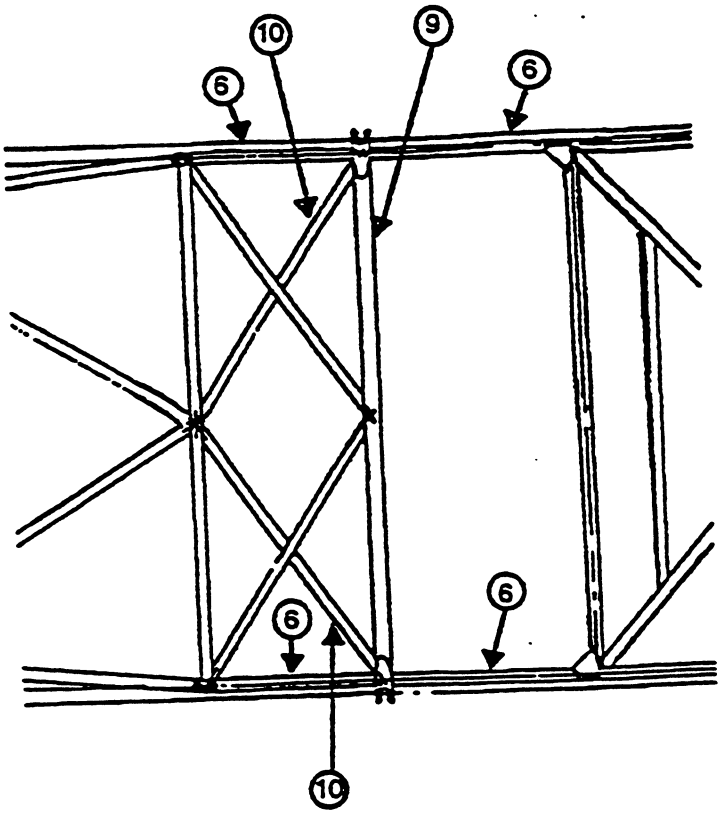
Bottom View (View A-A)
(Both Sides)

Figure 4a
95-12-01



View Looking Aft

Side View



Bottom View (View A-A)
(Both Sides)

Figure 5a
95-12-01

PA-25-235,-260
S/N - 25-2986 and UP
Front Wing Spar Attachment-Fittings and Tubes

NO.	DESCRIPTION	PART NO./TUBE DIMENSIONS
1	Front Spar Fitting	64003-0
2	Channel	64175-0
3	Fitting Assy-Front Spar	64412-0
4	Fitting Assy-Landing Gear	64005-0 (L) 64005-1 (R)
5	Brace-Bracket	11994-28
6	Tube	.75 x .049 (4130)N **
7	Tube	.625 x .049 (4130)N **
8	Tube	.875 x .065 (4130)N **
9	Tube	1.25 x .095 (4130)N **
10	Tube	.75 x .049 (4130)N **

** - MIL-T-6736 Type 1

Figure 5b
95-12-01