



U.S. Department
of Transportation
**Federal Aviation
Administration**

New York Aircraft Certification Office

1600 Stewart Avenue
4th Floor, Suite 410
Westbury, NY 11590

JUN - 6 2007

Mr. Keith Mackey
9000 Southeast 70th Terrace
Ocala, FL 34472

Subject: Alternate Method of Compliance to Airworthiness Directives (AD) 79-18-07 and AD 79-11-05R1

Dear Mr. Mackey:

This is in response to your June 5, 2007 letter requesting approval of your proposed Alternate Method of Compliance (AMOC) to paragraphs (1) through (9) of AD 79-18-07 and paragraph (4) of AD 79-11-05 R1. We have reviewed your Report No. 4159, dated May 18, 2007, along with other documentation that you sent with the request letter, and we approve use of the instructions in Report No.4159 as an AMOC for the stated paragraphs of the subject Airworthiness Directives. Please note that this approval incorporates more frequent inspections compared to the original Airworthiness Directives.

The statement in paragraph (10) of AD 79-18-07 and paragraph (6) of AD 79-11-05 R1 remains in effect, although the referenced Advisory Circular is now AC 43.13-1B, and you should now send your request for approval of repairs, inspections, or parts to the Manager, New York Aircraft Certification Office at the above letterhead address.

Before using this AMOC, you are responsible for notifying your Flight Standards District Office Maintenance Inspector. **This AMOC is transferable for use by other operators at the discretion of the addressee.**

If you have any questions regarding this approval, please call Mr. Jon Hjelm at 516-228-7323.

Sincerely,

for Danko Kramar
Anthony Socias
Manager, New York Aircraft Certification Office

cc: Albert Kimball, PMI, Orlando Flight Standards District Office, ASO-ORL-FSDO-15
Danko Kramar, ANE-170
Anthony Troia, ANE-171

**Alternate Method of Compliance (AMOC) for
paragraphs (1) through (9) of AD 79-18-07
and paragraph (4) of AD 79-11-05 R1**

Applies to Mooney Mite models M-18L s/n 2 and up, M- 18C s/n 201 and up, M-18LA s/n 100 through 200, M-18C55 s/n 323 and up, certificated in all categories.

To prevent structural failure due to wood and glue joint deterioration in the fuselage and wing accomplish the following,

If AD 79-18-07 and/or AD 79-11-05 R1 paragraph (4) has not been previously complied with, or within 12 calendar months after the last 36 month repetitive inspection required by AD 79-18-07 and/or AD 79-11-05 R1 paragraph (4), whichever is applicable, accomplish the preparation, visual inspections, preventative measures, and repairs specified in paragraphs (a), (b), (c), (d), (e), (f), (g) and (k) of this report. Repair all discrepancies found prior to further flight. Repeat these preparations, visual inspections, and preventative measures, each 12 months thereafter.

To preclude structural failure due to deteriorated wood structures and structural joints, accomplish the following:

(a) Prepare the wing and fuselage structure for inspection as follows:

- (1) Remove the wing to fuselage fairings and fillets.
- (2) Remove all the wing and center section access panels.
- (3) Remove the sealing tape at the wing-fuselage joint.
- (4) Remove the seat and auxiliary fuel tank (if installed) for access to the wing center section.
- (5) Disconnect and remove the wing flaps and ailerons.

(b) Visually inspect the wing and wing carry-thru structure as follows:

If necessary use the supplemental inspection methods in paragraph (h) of this report. Repair any discrepancies found prior to further flight in accordance with the instructions in paragraph (k).

- (1) Inspect the areas around wing to fuselage attach fittings for evidence of deterioration or joint separation.
- (2) Inspect the flap and aileron attach clevis pins, and hinge fitting attach bolts for evidence of rust, corrosion, and wear.
- (3) Visually inspect the wood end-grain surrounding bolt holes for evidence of rust, discoloration, deterioration, and evidence of moisture accumulation at the trailing edges of the wings.
- (4) Visually inspect the center auxiliary spar for glue bond separations, water stains, and wood rot. If these inspections identify any questionable areas in which possible deterioration may exist in the concealed spar caps, prior to further flight, determine the condition of the internal spruce core in accordance with paragraph (h) of this report. See Note 1 of this report.
- (5) Visually inspect all accessible areas of the main spar from the fuselage center line (BL 0.0) out to left and right wing Station 40.0 for glue bond separations, water stains, and wood rot. If these inspections identify any questionable areas in which possible deterioration may exist in the concealed spruce spar prior to further flight determine the condition of the internal spruce core in accordance with paragraph (h) of this report. See Note 1 of this report.
- (6) Visually inspect the accessible interior of the wing using a flashlight and mirror, for wood decay, water and/or wood stains, pooled dust/dirt which may indicate evidence of previous standing water, rust or corrosion on metallic surfaces, wood discoloration, and detectable moisture. See Note 1 of this report.

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- (7) Inspect the upper and lower exterior surfaces of the wing, including the wheel well, for the following: See Note 1 of this report.
 - (i) Indications that the wood immediately below the fabric is soft or contains excessive moisture (i.e., swollen). Soft wood may be located and/or confirmed by depressing the wing's surface in the vicinity of the area in question with a rounded, blunt instrument and comparing its hardness to that of good wood. Note that any areas being compared must have identical substructure.
 - (ii) Indications that the fabric/paint is delaminating from the wood surface (bubbles, discoloration, boils, soft spots and other surface flaws).
 - (iii) Cracks or breaks in the paint which could allow water to enter the wing.
 - (iv) Any other exterior damage which would allow water to penetrate the fabric/paint barrier and enter the wood.
 - (8) Visually inspect the rear auxiliary spar in all areas it is accessible from the fuselage center line out to the left and right wing tips for wood rot, water stains in wood and glue joint separation. Pay special attention to the area around all flap and aileron hinge supports, including the support ribs and spars at wing stations 9.0 and 112.0 (flap inboard and outboard hinge support ribs).
 - (9) Inspect all drain holes on the bottom of the wing and fuselage to ensure they are completely open and free of burrs and/or pieces of fabric.
 - (10) Visually inspect, if necessary repair, and refinish the main landing gear wheel well area.
- (c) After inspection has been completed, apply a water resistant cloth or plastic adhesive such as duct tape at the wing to fuselage joint from the wing leading edge to the wing trailing edge under the metal fairing strip, to prevent entry of water at this point.
- (d) If fabric covering is found on the bottom of the fuselage between stations 29.0 to 35.5 it must be removed and not replaced. Inspect plywood joints on the fuselage bottom between stations 29.0 and 35.5 for wood deterioration. If a battery is installed at this location, inspect glue joints in the area of the battery for separation and deterioration.
- (e) Apply hand pressure on top of plywood turtleback in the area of fuselage station 105.0. If softness is detected, remove fabric and inspect for wood cracks.
- (f) Inspect welds for cracks and welds which do not completely fill fillet cross section area at rudder and elevator hinges and control horns with a 10-power glass.
- (g) Inspect the fuel tank attachment points to the fuselage in the areas of the attachment bolts for deterioration.
- (h) If the inspections specified in paragraphs (b), (d) (e) and (g) of this report reveal any visual indications of wood deterioration below the surface, prior to further flight, inspect and test these areas to assure their structural integrity by using one or more of the following:
- (1) Test for soft/decayed wood with a sharp probe such as an awl or sharp pocket knife.
 - (2) Disassemble the structure as necessary to gain access to the area and perform a detailed visual inspection.
 - (3) Tap the wood area in question with a small rounded blunt instrument approximately the size of a small pocket knife. Compare the sound to similar areas that are not suspect. Assuming similar understructure, an abrupt change in sound to a less or non-resilient sound may indicate decay below the surface.

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(k) If significant structural repair of the wing main spar, center auxiliary spar or rear auxiliary spar or other major structural elements is found necessary as a result of the inspections and tests of the preceding paragraphs, repair in accordance with FAA Advisory Circular AC 43.13-1B or approved equivalent, or replace with an identical new part or equivalent, prior to further flight. Equivalent repairs or parts must be approved by the Manager, New York Aircraft Certification Office, ANE-170, 1600 Stewart Ave. Suite 410, Westbury, NY 11590 (516) 228-7300.

Note 1: The surface features described in this report may be accentuated by illuminating the surface with a light source at a shallow angle. The following technique may be used by an experienced inspector to detect soft and/or decayed wood in the wing spars. Tap the wing directly above and below the spars with a small rounded blunt instrument approximately the size of a small pocket knife. Start at the outboard end and move inboard, listening to the sound generated by the wing. The sound quality will change slowly. If the change is abrupt or if the sound is not resilient, the wood directly below the surface may be deteriorated.

Note 2: Shelter - Owners and operators are encouraged to shelter the airplanes, to keep the airplane protected from rain and from unnecessary long term exposure to the sun.

Note 3: Maintenance - Owners and operators are encouraged to be selective in who performs maintenance on their airplane. Only personnel experienced in wood airplane inspection and repair should be contacted.

Note 4: Repairs to primary and secondary structure may be accomplished with reference to:

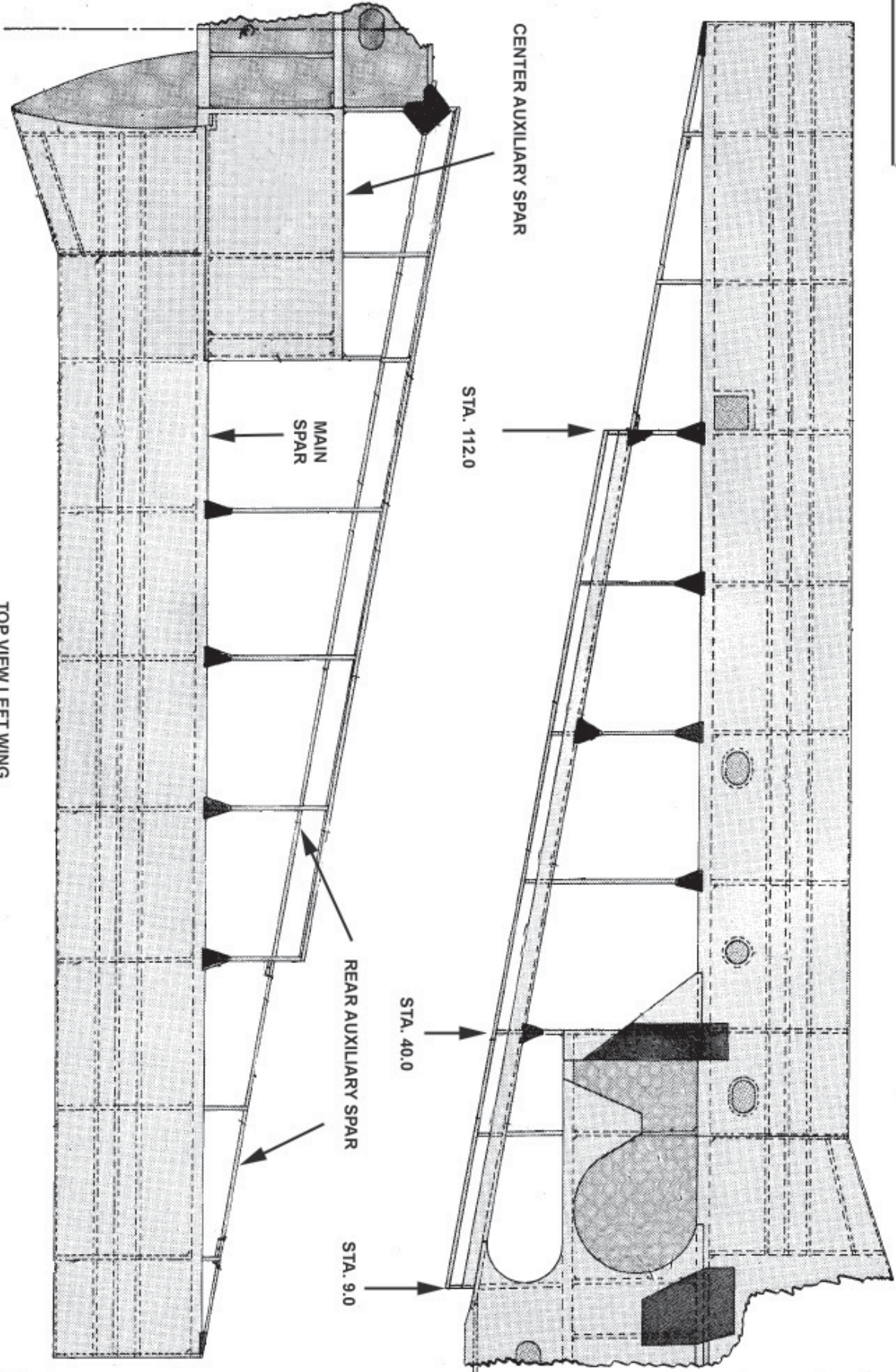
(a) FAA Advisory Circular (AC) No. 43.13-1B: Acceptable Methods, Techniques and Practices Aircraft Inspection and Repair, Department of Transportation, Federal Aviation Agency 1998; available through the Government Printing Office, or at the following website: <http://rgl.faa.gov/>

(b) ANC-18: Design of Wood Aircraft Structures, Chapter 4, Munitions Board Aircraft Committee June 1951.

(c) Design of major repairs to primary wood structure (main, center auxiliary, and rear auxiliary spars, ribs, or attachments of control surfaces to fixed structure, or attachment of fixed surfaces to the fuselage) should be reviewed by a FAA Designated Engineering Representative (DER) having appropriate authority (This is not necessary for replacement of a deteriorated part with an entire new part that is an exact duplicate of the original).

FAA approval of major structural repairs can be facilitated if you consult a DER, who can evaluate your repair and determine that it complies with the required regulations. DERs with appropriate delegated authority can be found in AC No.183.29-1HH, available at the above website. You will need to search for Structures DERs with authority designations of at least A1, P1, A4, and P4. DERs need not be in your immediate vicinity, as most conduct business by phone, facsimile, and email. As with maintenance personnel, you should seek those with experience in wood structures. Major repairs will be considered for FAA approval when forwarded by a Flight Standards Maintenance Inspector to the Manager, New York Aircraft Certification Office.

BOTTOM VIEW RIGHT WING



TOP VIEW LEFT WING

FUSELAGE WOOD STRUCTURE

