

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

Flight Standards National Field Office
P.O. Box 25082
Oklahoma City, Oklahoma 73125

February 27, 1981

**Airworthiness Directive
Revision**

The following Airworthiness Directive issued by the Federal Aviation Administration in accordance with the provisions of Federal Aviation Regulations, Part 39, applies to an aircraft model of which our records indicate you may be the registered owner. Airworthiness Directives affect aviation safety. They are regulations which require immediate attention. You are cautioned that no person may operate an aircraft to which an Airworthiness Directive applies, except in accordance with the requirements of the Airworthiness Directive (FAR 39.3)

79-11-05 R1 MOONEY: Amendment 39-3480 as amended by Amendment 39-4050. Applies to Mooney M-18L S/N's 2 and up, M-18C S/N's 201 and up, M-18LA S/N's 100 through 200, M-18C55 S/N's 323 and up certificated in all categories.

Compliance required as indicated:

To prevent failure of the vertical fin spar in flight due to wood deterioration and to detect other wood and glue joint deterioration in the wood wing and wood empennage structure, accomplish the following inspections and checks or approved equivalents within the next 30 days after the effective date of this AD, unless already accomplished within the last 35 months, and thereafter at intervals not to exceed 36 months from the last inspection.:

- (1) Remove all fabric from the horizontal and vertical stabilizers. Inspect all wood and glue joints including attachment of leading edge skin to main spar for deterioration.
- (2) At center junction of stabilizer spar and fin inspect glue joint between attach blocks and stabilizer spar for deterioration and inspect spar and blocks for cracks. Inspect fin and spar for cracks at attachment bolts.
- (3) Inspect rear bulkhead of the stabilizer for cracks and looseness in the area of the stabilizer attachments. Inspect attachment blocks for cracks or looseness at spar.
- (4) Remove wing fabric locally in area of aileron hinges and at inboard corner of aileron cutout. Check condition of wood and glue joints. If evidence of deterioration is found, remove fabric further as necessary for complete examination of forward area of wing trailing edge. Check attachment of wing trailing edge in aileron area for looseness.
- (5) Ensure that all drain holes in empennage and wing are clear.
- (6) If any defects set forth in paragraphs (1), (2), (3), or (4) above are detected, repair in accordance with FAA Advisory Circular AC 43.13-1A or approved equivalent or replace with an identical new part or equivalent prior to further flight. Equivalent repairs, inspections, and/or parts must be approved by the Chief, Engineering and Manufacturing Branch, FAA, Eastern Region.
- (7) A borescope, utilizing FAA approved permanent access holes, is considered an approved equivalent means of inspecting only for the vertical and horizontal stabilizers, when satisfying the requirements of paragraphs (1), (2), and (3). The borescope inspection shall be accomplished within the next 30 days after the effective date of this AD, unless already accomplished within the last 11 months, and thereafter at intervals not to exceed 12 months from the last inspection.
- (8) Upon submission of substantiating data by an owner or operator, through an FAA maintenance inspector, the Chief, Engineering and Manufacturing Branch, FAA, Eastern Region, may adjust the inspection time in this Airworthiness Directive.

Amendment 39-3480 was effective June 5, 1979.

This amendment 39-4050 is effective April 1, 1981.

Title 14 - Aeronautics and Space

CHAPTER I - FEDERAL AVIATION ADMINISTRATION
DEPARTMENT OF TRANSPORTATION

(Docket No. 80-EA-47; Amendment 39-4050)

PART 39 - AIRWORTHINESS DIRECTIVES

Mooney Mite Model 18

AGENCY: Federal Aviation Administration (FAA), DOT.

ACTION: Final Rule.

SUMMARY: This amendment issues an amendment to AD 79-11-05 applicable to Mooney Mite 18 type airplanes. AD 79-11-05 requires a repetitive inspection every 36 months at areas of the horizontal and vertical stabilizers. Subsequent to publishing AD 79-11-05 at the request of an owner, it was determined that an alternate method of compliance using a borescope and permanent access holes was acceptable. This amendment permits such alternate compliance.

EFFECTIVE DATE: April 1, 1981. Compliance is required as set forth in the AD.

FOR FURTHER INFORMATION CONTACT: L. Lipsius, Airframe Section, AEA-212, Engineering and Manufacturing Branch, Federal Building, J.F.K. International Airport, Jamaica, New York 11430; Tel. 212-995-2875.

SUPPLEMENTARY INFORMATION: Since a situation exists which permits an optional method of compliance, it is found that notice and public procedure hereon are unnecessary, and permits making the amendment effective in less than 30 days.

ADOPTION OF THE AMENDMENT

Accordingly, pursuant to the authority delegated to me by the Administrator, Section 39.13 of Part 39 of the Federal Aviation Regulations, 14 CFR 39.13 is amended, by amending AD 79-11-05 as follows:

COMPLIANCE OF AD79-11-05R1 FOR MOONEY MITES

- A. The following modifications are acceptable as an alternate method of inspection compliance for using a borescope with Paragraphs (1), (2) & (3) of AD79-11-05R1 dated 27 Feb 1981. SEE:

FIGURE 17 STAB & FIN

- (a) Cut 2.00 inch diameter holes in approximately the locations as shown on stab & fin drawing.
- (b) Cut a 2.62 inch diameter plastic ring with a 2.00 inch diameter hole from a .025 inch thickness material.
- (c) Insert plastic ring into 2.00 inch fabric hole and glue to inside. See "Typical Installation Of Inspection" drawing. Clip the plastic ring onto fabric with clothespins until dry. Take care not to drop ring inside in attempting to glue onto fabric.
- (d) Cut a 2.62 inch diameter aluminum disk, .016 inch thickness.
 - Paint disc with the same color as aircraft (one side only).
 - Apply contact cement to the edges of unpainted side of disc, ¼ inch wide of total circumference. This step is not required if using optional disc with clip.
 - Apply contact cement on fabric outside surface of 2.00 inch diameter hole, ¼ inch wide in circumference. The diameter of contact cement applied should not be larger than the disc.
 - Apply (stick) the metal disc to the fabric to cover the exposed hole until the next inspection.
 - For the next inspection, use a solvent to dissolve the disc cover cement for removal.
- (e) Follow the procedures (b) through (d) above for holes "A" through "H", except for hole "F". All holes in stabilizer are located on bottom side only.
- (f) The holes shown in view AA and BB should remain open. If hole "K" is to be used for inspection purposes, hole "C" is not required or vice versa; it's optional.
- (g) NOTE: Hole "F" is already an existing inspection hole in the bottom side of stabilizer.
- (h) Holes in fin are placed on either side or as noted on the drawing.

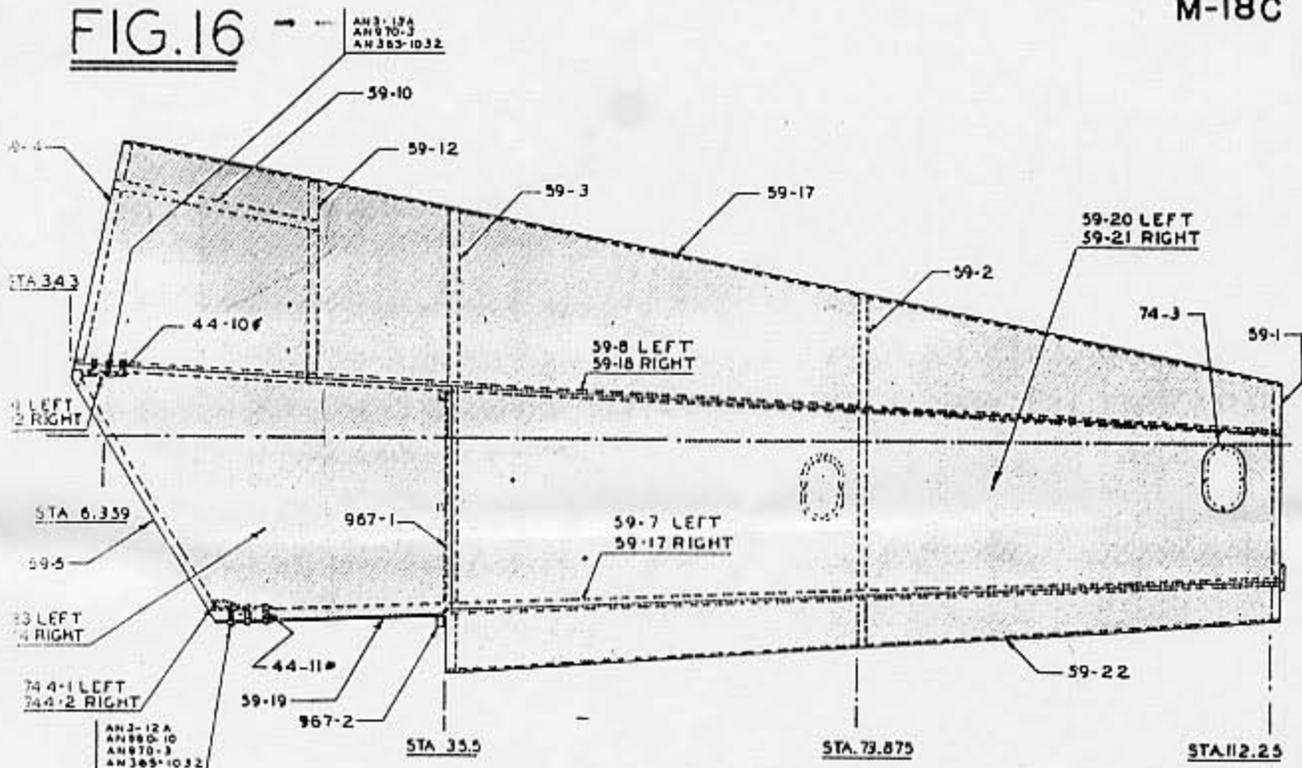
- B. The following method is an optional method of access in inspection compliance for Paragraph (4) of AD79-11-05 R1 dated 27 Feb 1951. SEE:

FIGURE 18 Wing Layout

- (a) Cut 2.00 inch diameter holes in approximately the locations shown on the bottom side of the wing drawing.
- (b) Cut a 2.62 inch diameter plastic ring with a 2.00 inch diameter hole from a .025 inch thickness material.
- (c) Follow the same procedures (c) and (d) described for FIGURE17 stab & fin to complete the process.

- C. In order to accomplish the stab & fin modifications of inspection holes to accommodate the AD note, the stab & fin assembly should be removed from the fuselage. In addition, it is best to disassemble the stab & fin for access to cut certain inspection holes for inspection of possible spar cracks and wood deterioration.

FIG. 16

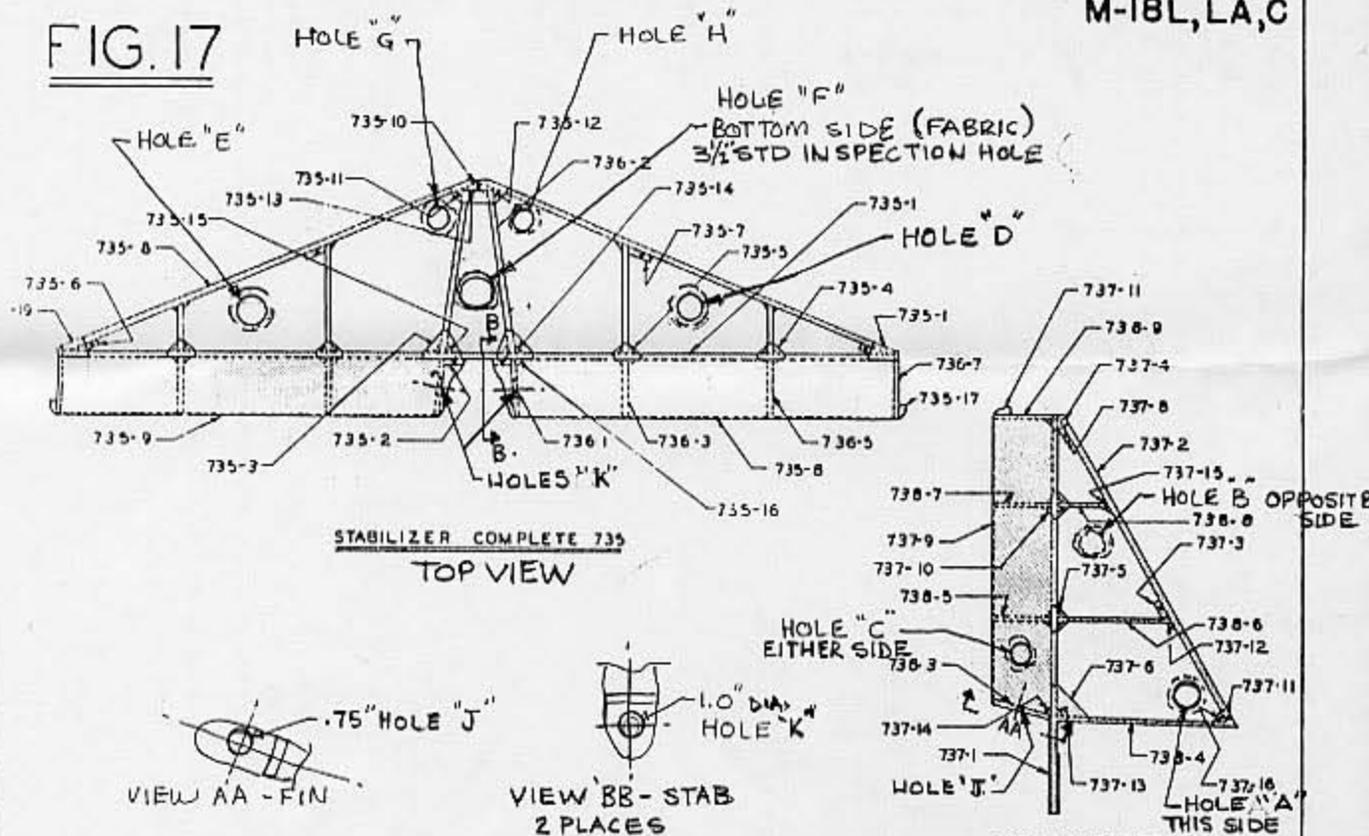


FUSELAGE COMPLETE WITH PARTS SHOWN NO. 59

FUSELAGE WOOD STRUCTURE

PRICE \$ ON REQUEST

FIG. 17

**STABILIZER & FIN**

PRICES ON REQUEST

FIG. 18

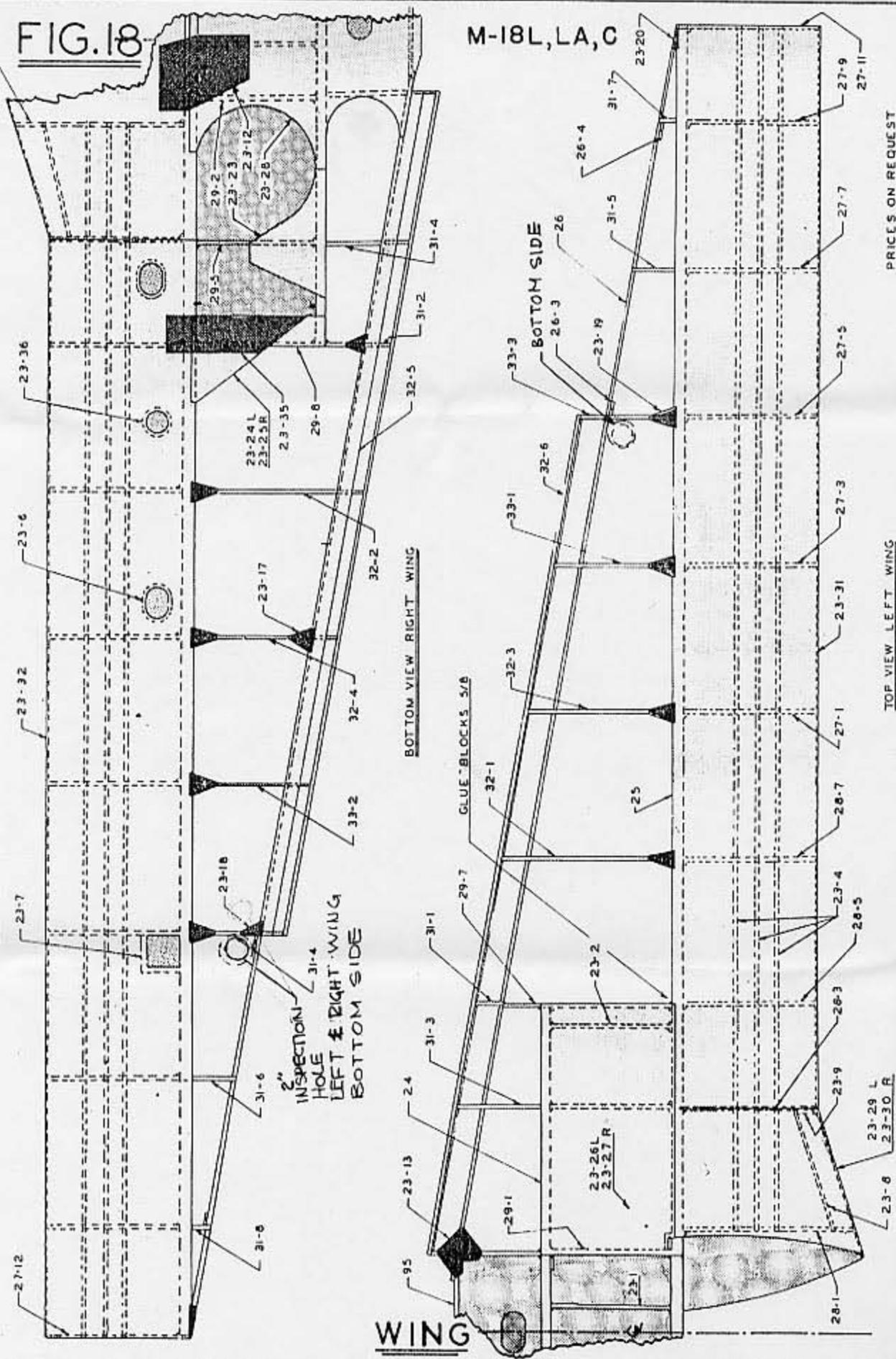
M-18L, LA, C

904C-1 WING WITHOUT COVERING
 904C-2 WING COVERED AND FOLLOWING
 PARTS 11-2, 11-3, 11-4, 11-7, 11-8, 05-10,
 573 & 566

INSPECTION PLATES
 ROUND 74-5
 ROUND WITH CLIP 52AA
 OVAL 74-3
 SQUARE 74-2

METAL WING TIPS 30-1 LEFT
 30-2 RIGHT

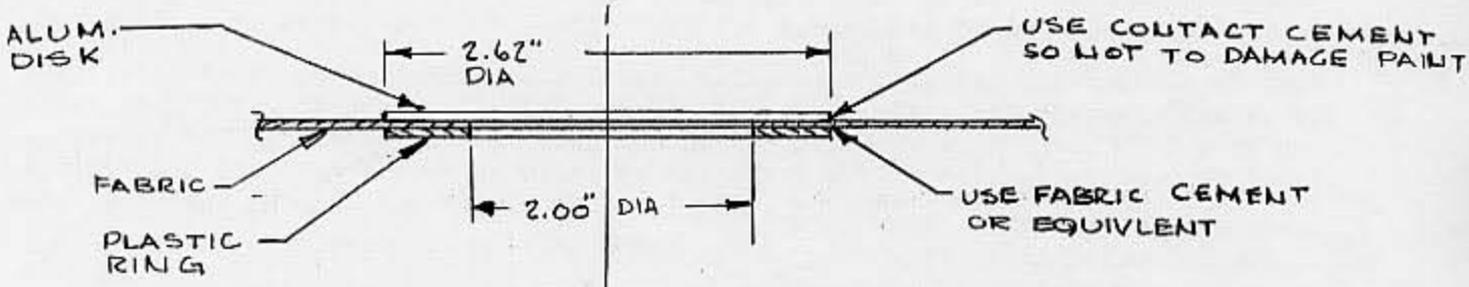
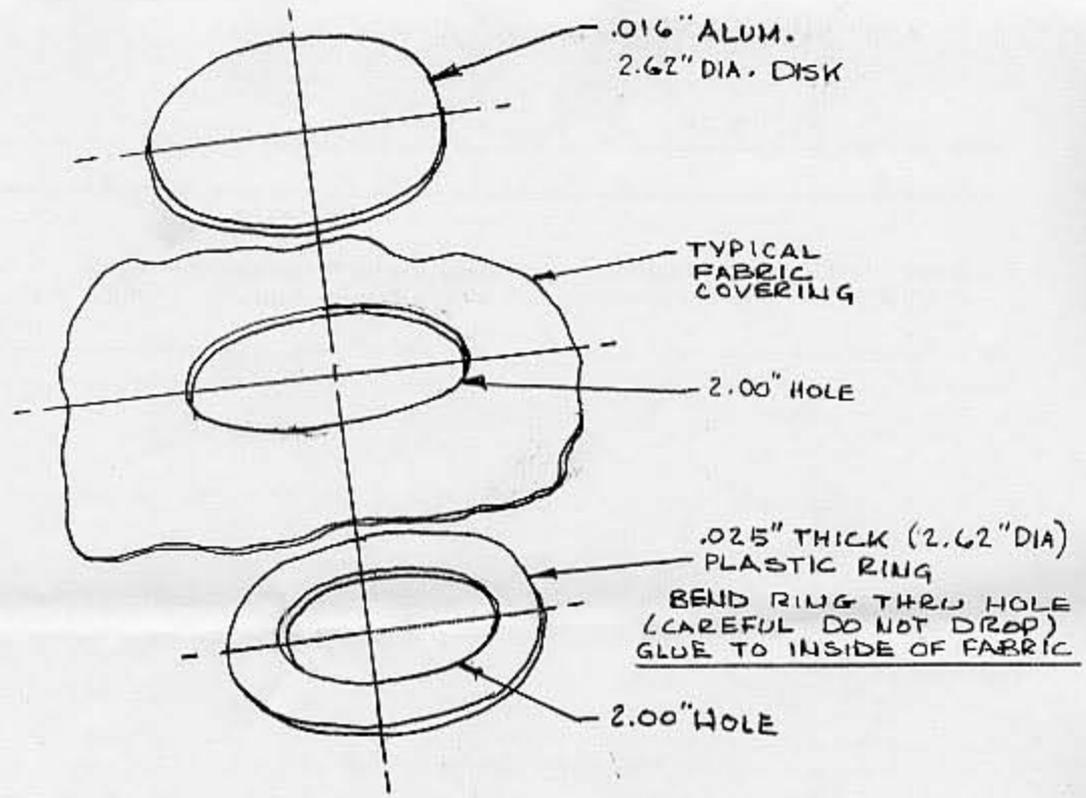
WING ROOT FAIRING 867-1 LEFT
 867-2 RIGHT



PRICES ON REQUEST

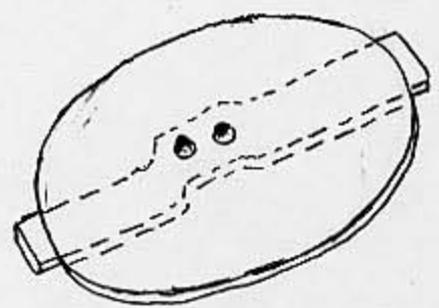
TOP VIEW LEFT WING

WING



TYPICAL INSTALLATION
SECTIONAL VIEW
OF INSPECTION HOLE

NOTE: AS AN OPTION TO THE .016 PLAIN DISK SHOWN A CLIP CAN BE FABRICATED FROM THIN FLAT SPRING STEEL AND RIVETED TO DISK. SEE BELOW;



NOTICE

Weight and balance or operating limitation changes shall be entered in the appropriate aircraft record. An alteration must be compatible with all previous alterations to assure continued conformity with the applicable airworthiness requirements.

8. DESCRIPTION OF WORK ACCOMPLISHED (If more space is required, attach additional sheets. Identify with aircraft nationality and registration mark and date work completed.)

Aircraft completely disassembled including all hardware; gear; retract mechanism; controls; cables; push rods; etc. All wood inspected and checked for deterioration. Removed fuselage rear bulkhead at station 112.5 and reglued. Replaced small lower skin section at same station. Reglued all fuselage bulkheads and added doublers to gas tank attachment longerons. Partially reglued fuselage longerons, applied protective coating on entire interior skin. Added 3/4" x 3/4" spruce longeron in rear turtledeck.

Removed complete fabric from vertical fin and rudder - inspected wood and glue for deterioration, repaired fin spar at lower attachment bolt station and recovered completely per guidelines of AC43.13-2. Horizontal stab, removed partial fabric for wood and glue inspection, reglued where necessary and recovered with fabric using AC43.13-2 as guideline. Installed new inspection holes on the vertical and horizontal stabs to comply with AD 79-11-05-R1 and admendment 39-4050 dated 1 April 1981.

Fabricated main and nosewheel gear doors, using materials and attachments of fasteners conforming to accepted standards AN, NAS, or MIL-Spec, to prevent flutter or loosening during flight due to vibration as suggested in AC43.13-2, CH.8 para's 4,5,6,9 and 10. Cut fabric on wings to inspect & reglue aileron attachment joints and recovered in compliance with AD 79-11-05R1.

Removed NARCO MK-3 VHF NAV/COM Radio. New electronics were installed using guidelines of AC43.13-2 para. 21, 25a, and 25b. The compass is not affected with radios on or off. An electric turn coordinator was installed using AC 43.13-2 CH7 para.'s 183a and 183b. Install anti-collision light per guidelines of AC 43.13-2 para. 44. All new wiring used throughout as per MIL-W-5086 and routed per AC43.12-2. A VOR antenna installed with AC43.13-2 para. 31a and 31b used as guide. Gear retract checked clear and free. All fittings, pulleys, rod hearings, checked and greased. All hardware replaced throughout aircraft. Replaced battery this date, new brakes, new tires for all wheels within the requirements of safety standards of AC43.13-2. Aircraft assembled and rigged in accordance with Mooney aircraft specs.
New Equipment Added to Equipment List

Spinner

Cylinder Head Temp.

Volt Meter

Amp Meter

Clock

Transponder-Collins 950A

NAV/COM EDO-AIRE 553A

Turn Coordinator

Center of Gravity Limits ("29.00 - 30.00")

Aircraft weight empty 573 lbs.

Empty weight CG -- 17088.5/573.0 = 29.85 aft datum

See additional attachments

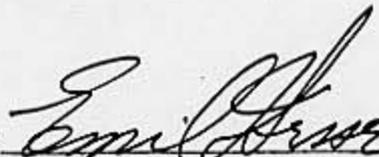


Mooney Mite M18L - S/N #81 - Reg. No. N120C

Equipment List

- 25 AMP/HR Battery 12V
- * EDO-AIRE RT-553A NAV/COM Radio
- * Collins 950A Transponder
- * 2 minute turn coordinator
- Altimeter
- Vertical Speed Indicator
- Airspeed Indicator
- Recording Tachometer
- Volt Meter
- Amp Meter
- Gas Gauge
- * Manifold Pressure Gauge
- Oil Pressure Indicator
- Oil Temperature Gauge
- * Cylinder Head Temp Gauge
- Generator - 12V 15 Amp
- * VOR Antenna
- Radio Transmitter Antenna
- Clock
- Compass
- * Added Equipment

Approved by

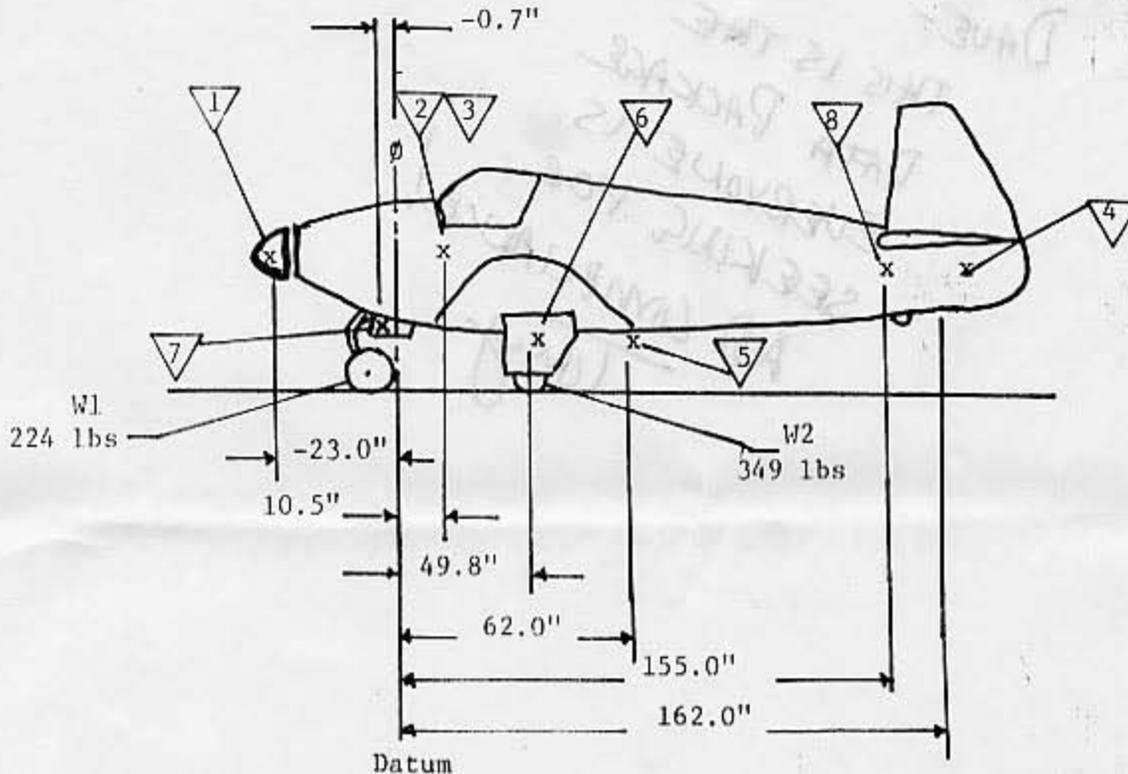

Emil Hesse

Date

8-27-81

IA No.

313344 IA



Empty Weight & C.G. computation (attachment to DD337)

Make & Model No. - Mooney Mite M18L

Serial No. #81

Registration No. N120C

<u>DESCRIPTION</u>	<u>WEIGHT</u>	<u>ARM</u>	<u>MOMENT</u>
1. Spinner	Added.....1.3 lbs	-23.0	-29.9
2. Instruments	Added.....3.7 lbs	10.5	388.5
3. Radio & Transponder	Added.....7.5 lbs	10.5	78.8
4. VOR Antenna	Added.....1.0 lbs	162.0	162.0
5. Strobe	Added.....1.5 lbs	62.0	93.0
6. Gear Doors (Main)	Added.....4.0 lbs	49.8	199.2
7. Gear Doors (Nose)	Added.....0.3 lbs	-0.7	-2.1
8. Rear Ballast	Removed....-3.5 lbs	155.0	-542.5
9. MK3-NAV Radio	Removed....-7.5 lbs	10.0	-75.0
10. Paint, Dope, Misc.	Added.....7.1 lbs	---	---
11. Old empty weight557.6 lbs	---	16826.5
New empty weight573.0 lbs		17098.5

Empty weight C.G = 29.84" aft datum (17098.5/573.0)

Note: Empty weight within limits of (29.00" - 30.00") per Mooney Specs.

Approved By Emil Hesse Date 8-27-81 IA No. 313344 IA
Emil Hesse