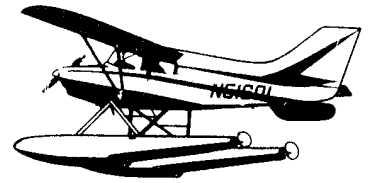


# Maule Aircraft Corporation

SPENCE AIR BASE - MOULTRIE, GEORGIA 31768 - PHONE 912/985-2045



Date: 5/03/83 **SERVICE LETTER NO. 51**  
Rev. A: OCT 01 1996 *CH*

Page 1 of 4  
Rev. A: 9/6/96

**SUBJECT:** Modification for gross weight increase.

**AIRPLANES AFFECTED:** Maule Model **M-5-220C**, Serial Numbers 5001C thru 5057C.

**COMPLIANCE:** Optional.

**AUTHORITY:** This Service Letter is FAA Approved.

**BACKGROUND:** Many MAULE M-5-220C owners have requested additional useful load for their airplanes. By incorporating this modification, most M-5-220C airplanes will have a useful load in excess of 1000 pounds.

### **ACTION TO BE TAKEN AND INSTALLATION INSTRUCTIONS:**

- (1) Attach AFM Supplement No. 5 to FAA Approved Airplane Flight Manual dated 28 December 1973.
- (2) Substitute the enclosed pages 3, 4, 6C and 7 dated 5/3/83 of the Weight and Balance data for the corresponding pages you now have.  
NOTE: Fill-in data where necessary using figures entered at manufacture and increase useful load by 200 pounds.
- (3) Comply with Service Letter #48, modification for increased flap travel.  
NOTE: Supplements No. 5 supersedes Supplement No. 4 when modification per Service Letter #51 is in effect.
- (4) Remark Green Arc of Airspeed Indicator in accordance with page 2 of AFM Supplement No. 5. Since the instrument must be opened, it is required that an approved instrument shop do the work.
- (5) Required on Serial Numbers 5002C, 5019C, 5020C, 5022C thru 5024C-only:
  - a. Install the following in accordance with drawing 5425E:

1	ea.	5031X-6	Deflector - Right Rear
1	ea.	5031X-22	Baffle
1	ea.	5031X-23	Baffle
12	ea.	SB-4-2	Rivets

NOTE: Remove old 5031X-6 and install new 5031X-6. (New 5031X-6 will have bend).

- b. Change Cylinder Head Temperature probe from No. 4 to No. 2 cylinder. Insert 6002B-4 slug in cylinder before installing probe.

**ACTION TO BE TAKEN AND INSTALLATION INSTRUCTIONS: (Cont'd)**

Part required for 5.b.:

1 ea. 6002B-4 Slug

(6) Install the following per drawing 2158E, rev. B:

1 ea.	2157E-1	Plate, Rear Left
1 ea.	2157E-2	Plate, Rear Right
1 ea.	2157E-3	Plate, Front Left
1 ea.	2157E-4	Plate, Front Right
2 ea.	2036B-2	Fitting - Wing Front
2 ea.	2037B-2	Fitting - Wing Rear
42 ea.	AN470AD4-6	Rivets
18 ea.	AN426AD3-6	Rivets
4 ea.	AN5-10	Bolt
10 ea.	AN5-13	Bolt
2 ea.	2040F-3	Rib, Leading Edge
2 ea.	2041X-3	Rib, Center
14 ea.	AN470AD4-7	Rivets
14 ea.	AN365-524	Nut

**INSTALLATION INSTRUCTIONS:**

1. Remove wing gap fairings at fuselage, proceed by disconnecting fuel lines and wiring at tank. Also, remove flap cables by disconnecting at the wing and remove rubbing block. Remove aileron cables by disconnecting turnbuckles above headliner and removing rubbing blocks attached to fuselage. Detach struts at wings and remove wings.
2. Remove screws holding tank skin down, then lift tank skin just high enough to disconnect gas tank straps and remove tank.
3. Remove ribs 2040F and 2041X.
4. Remove wing root fittings 2035B, 2036B and 2037B.
5. Place 2157E-3 or -4 in position flush with end of front spar. Drill as per print. Mark contour of end.
6. Remove reinforcement 2157E and cut to fit. Reinstall and rivet.
7. Remove first two inboard nut plates from rear spar. Place rear spar reinforcement 2157E-1 or -2 (predrilled) in position flush with end of spar. Mark end and drill spar. Locate holes for wing root fitting. Remove, cut and profile. Drill wing root fitting holes underside. Position reinforcement, rivet in place. Ream wing root fitting holes .312 +.002/-.001. Install root fittings. Reinstall nut plates.

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8. Use above procedure to install front reinforcement.
9. Temporarily install center rib 2041X. Locate and drill holes for tank door. Remove and install-nut plates. Reinstall and rivet. Install nose rib using skin holes for rivet pattern.
10. Reinstall wings: Reverse procedures for removal of wings.

**CAUTION: Service Bulletin #11 (AD 95-26-18) Wing Lift Strut Inspection/Replacement must be complied with.**

**CAUTION: If decision is made to retain the original wing lift struts, inspect the strut fork for thread diameter. Models M-5 and later must have 1/2 inch diameter strut fork thread. (Early M-4 models were produced with 7/16 inch diameter strut fork threads.**

When modification is completed, make proper log entries, fill out Compliance Record Sheet, page 4, and return.

**MAULE SERVICE LETTER NO. 51**

**COMPLIANCE RECORD SHEET**

Airplane Serial Number \_\_\_\_\_

Airplane Registration Number \_\_\_\_\_

The following action was taken with respect to this service letter:

( ) Service Letter No. 51 completed

Certified by \_\_\_\_\_  
(Signature)

\_\_\_\_\_  
(Printed name)

Title \_\_\_\_\_  
(Owner, A&P, IA, etc.)

Date performed: \_\_\_\_\_

In an effort to keep our mailing list current for sending service bulletins, service letter, etc., please fill in the following:

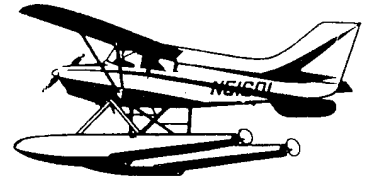
Owner's name \_\_\_\_\_

Owner's address \_\_\_\_\_ Zip \_\_\_\_\_

Mail this compliance record to: Maule Aircraft Corporation  
Engineering Records  
Spence Field  
Moultrie, GA 31768

# Maule Aircraft Corporation

SPENCE AIR BASE :: MOULTREE, GEORGIA 31768 :: PHONE 912/985-2045



FAA APPROVED

AIRPLANE FLIGHT MANUAL SUPPLEMENT NO. 5

FOR

MODEL M-5-220C

Reg. No. \_\_\_\_\_

Ser. No. \_\_\_\_\_

This Supplement must be attached to the FAA Approved Airplane Flight Manual dated 28 December 1973 when modification for gross weight increase is incorporated in accordance with Maule Service Letter No. 51 and when ratchet p/n 3207B is installed in accordance with Maule Service Letter No. 48.

The information contained herein supersedes and supplements the information for the basic Airplane Flight Manual; for limitations, procedures and performance information not contained in this Supplement, consult the basic Airplane Flight Manual.

FAA APPROVED:

*John R. James*

Manager, Atlanta Aircraft Certification Office  
FAA, Central Region

MAR 21 1984

DATE: \_\_\_\_\_

MAULE AIRCRAFT CORPORATION

MOULTRIE, GEORGIA

AFM SUPPLEMENT NO. 5

M-5-220C

I. LIMITATIONS

The following limitations must be observed in the operation of this airplane:

F. Airspeed Limits: (CAS)

NOTE: Airspeed Instrument Markings and their significance:

(c) GREEN arc denotes normal operating speed range; 65 - 145 mph (57 - 126K): Extends from flaps up, power off minimum steady flight speed at 2500 lbs. ( $V_{S1}$ ) to design cruise speed ( $V_C$ ).

(d) WHITE arc denotes flap operating range, 56 - 94 mph (49 - 82K): Extends from full flap, power off minimum flaps extended speed ( $V_{FE}$ ).

I. Maximum Weight: 2500 lbs.

J. Center of Gravity Limits: +17.0 to +20.5 inches @ 2500 lbs.

+15.0 to +20.5 inches @ 2100 lbs.

II. PROCEDURES

+12.0 to +20.5 inches @ 1600 lbs. or less

A. Normal Procedures

1. Wing Flap Setting:

Takeoff - Normal - 20° (First Notch). No-Flap (0°) takeoff permissible  
- Shortfield - 40° (Second Notch) until safely airborne, then retract to 20°

Normal Climb - 0°

Best Angle of Climb - 20°

Landing - 40° (0° or 20° permissible)

3. Best Rate of Climb - 90 mph CAS, no flaps

Best Angle of Climb - 75 mph CAS, 20° flaps

FAA APPROVED

DATE: MAR 21 1984

MAR 21 1984

4. Solving for the empty center of gravity:

$$\text{C.G. (inches)} = \left( \frac{L \times T}{W} \right) - D$$

$$\text{C.G. (inches)} \times W \text{ (pounds)} = \text{Moment (inch-pounds)}$$

5. Summary:

- A. Empty weight \_\_\_\_\_ lbs.
- B. Empty center of gravity \_\_\_\_\_ in.
- C. Empty weight moment \_\_\_\_\_ in.-lbs.
- D. Useful load \_\_\_\_\_ lbs.

6. Center of gravity range:

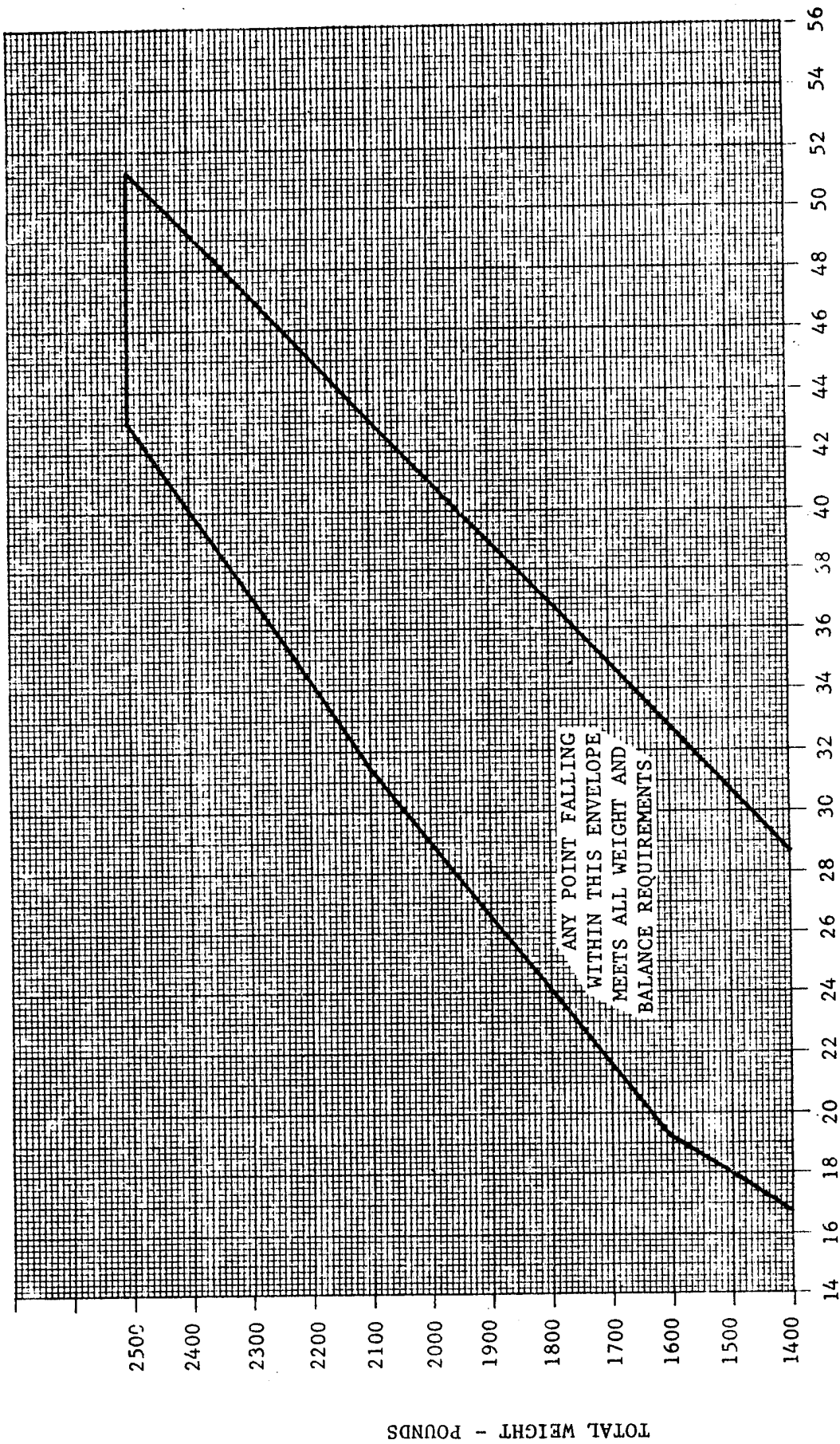
<u>AT WEIGHT OF</u>	<u>C.G. RANGE FOR M-5-220C</u>
2500 lbs.	+17.0 to +20.5
2100 lbs.	+15.0 to +20.5
1600 lbs. or less	+12.0 to +20.5

NOTE: Straight line variation between points.

BY \_\_\_\_\_ DATE \_\_\_\_\_



MAR 21 1984



TOTAL MOMENT - THOUSANDS OF INCH - POUNDS

CENTER OF GRAVITY ENVELOPE

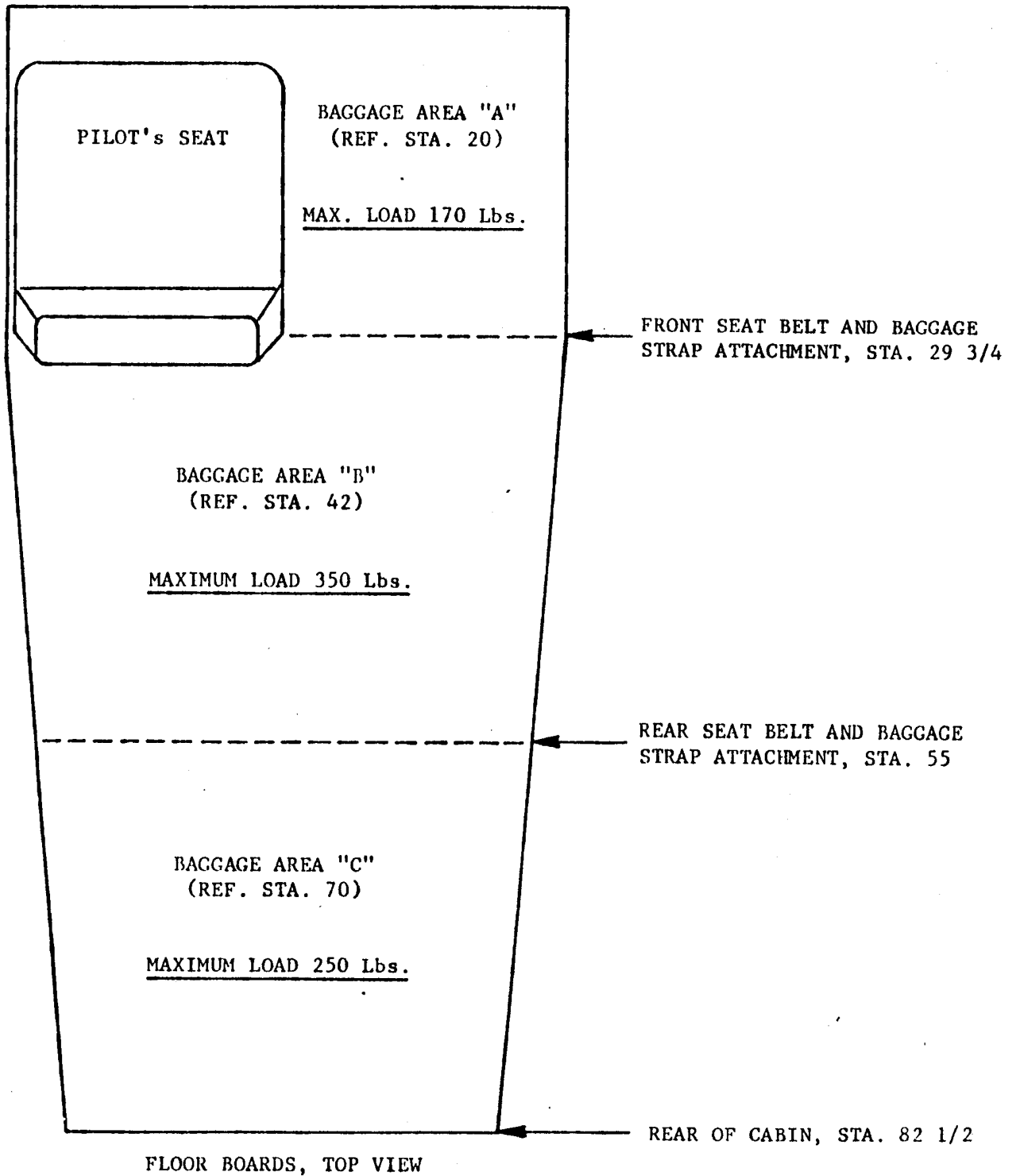
M-5-220C

TOTAL WEIGHT - POUNDS

MAR 21 1984

BAGGAGE AREA CHART

DATUM: LEADING EDGE OF WING



MAULE AIRCRAFT CORPORATION

SERVICE LETTER #51 - COMPLIANCE RECORD

Airplane Serial Number \_\_\_\_\_

Airplane Registration Number \_\_\_\_\_

The following action was taken with respect to this service letter:

Service Letter #51 completed

Certified by \_\_\_\_\_  
(Signature)

\_\_\_\_\_  
(Printed name)

Title \_\_\_\_\_  
(Owner, A&P, IA, etc.)

Date performed \_\_\_\_\_

In an effort to keep our mailing list current for sending service bulletins, service letter, etc., please fill in the following:

Owner's name \_\_\_\_\_

Owner's address \_\_\_\_\_

Mail this compliance record to: Maule Aircraft Corporation  
Engineering Records  
Spence Field  
Moultrie, GA 31768