MOULTRIE, GEORGIA 31788

14 May 1973

Rev. A dated: MAR 0 7 2003

# Service Letters #24, #25, #26, and #27

To: All owner's of Maule Models M-4-180C and M-4-220C/S aircraft, Serial Numbers 3001C - 3006C, 2001S, 2001C - 2126C, 2129C - 2175C and 2177C.

It has become necessary to alter the engine cooling on M-4-180 and M-4-220 aircraft equipped with the Franklin Engine as shown in the attached Service Letters. Service Letters #24, #25, and #26 are mandatory and must be complied with within the next fifty (50) hours of engine operation. Additional cooling modifications are included in revision A of Service Letters # 24 and #26.

Service Letter #24 requires no parts unless additional cooling is being installed per revision A.

<u>Service Letter #25</u> requires one ea. Cylinder Head Temperature Probe Slug, Maule p/n 6002B-4 which may be ordered for affected aircraft free of charge.

<u>Service Letter #26</u> requires parts as specified for Kit #26 and, if desired, parts required for additional cooling per revision A available from Maule Air, Inc.

Service Letter #27 offers an optional advantage available to owners of Maule Airplanes upon completion of certain checks and, alterations. All Maule Airplanes are currently limited to five (5) minutes of full throttle operation as stated on the Power Limitation Placard on the Instrument Panel. Completion of Service letter #27 allows continuous full throttle operation with the resultant advantage being a faster speed. No parts are required to realize this advantage.

Federal Aviation Administration Regulations require that Maule Air, Inc. keep a record of compliance with the mandatory Service Letters. Please fill out and return the enclosed compliance record immediately upon completion of the required items.

Enclosures:

One ea. copy of: Service Letters #24, #25, #26, and #27

One ea. Compliance Record Sheet

MOULTRIE, GEORGIA 31788

Date: 27 April 1973

Rev. A dated: MAR 0 7 2003

# **SERVICE LETTER # 24**

Subject: Cylinder Head Temperature Probe Location.

Models Affected: M-4-180C Serial No. 3001C - 3006C

M-4-220C/S Serial No. 2001S, 2001C - 2126C, 2129C - 2175C and 2177C

Compliance: Mandatory within the next fifty (50) hours of engine operation.

Authority: This Service Letter is FAA Approved.

Background: No. 4 Cylinder has been determined to be the hottest running Cylinder on the

affected engines.

#### Description:

 Remove the Cylinder Head Temperature Probe located on the outboard end of the Cylinder.

 Install the Probe in the Cylinder Head Temperature Probe Hole in the No. 4 Cylinder. Cylinder numbering is stamped on the Crankcase Cover adjacent to the Cylinder. The No. 4 Cylinder is the right hand center Cylinder when facing forward.

Material Required: None.

## Note: Install the following to achieve additional cooling

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

Part required for 5.b.:

1 ea. 6002B-4 Slug

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

b. <u>Change Cylinder Head Temperature probe from No. 4 to No. 2 cylinder.</u> Insert 6002B-4 slug in cylinder before installing probe. (The No. 2 cylinder is located on rear, right side.)

MOULTRIE, GEORGIA 31788

27 April 1973

Rev. A dated: MAR 0 7 2003

## SERVICE LETTER NO. 25

Subject: Cylinder Head Temperature Probe Slug Installation

M-4-220C, Serial No. 2135C - 2175C and 2177C Model Affected:

Compliance: Mandatory within the next fifty (50) hours of engine operation.

Authority: This Service Letter is FAA Approved.

Prerequisite: Simultaneous compliance with Service Letter No. 24.

Background: It has been discovered that Cylinder Head Temperatures have been reading low.

Remove Cylinder Head Temperature Probe, Stewart-Warner P/N 333-B, Description: from Cylinder.

- 2. Install Cylinder Head Temperature Probe Slug, Maule P/N 6002B-4 in hole.
- 3. Reinstall Probe.

Material Required: 1 ea. Cylinder Head Temperature Probe Slug, Maule P/N 6002B-4.

# Maule Aircraft Corporation Moultrie, Georgia 31788

27 April 1973

Rev. A dated: MAR 0 7 2003

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### **SERVICE LETTER NO. 26**

Subject: Engine Top Baffle, Maule p/n 5031X-3, Installation.

Models Affected: M-4-180C Serial NO. 3002C - 3006C

M-4-220C Serial No. 2053C - 2126C, 2129C -2175C and 2177C

Compliance: Mandatory within the next fifty (50) hours of engine operation.

Authority: This Service Letter is FAA Approved.

Background: In an effort to allow continuous full throttle engine operation, it has been

found necessary to improve the engine cooling.

Description: Install Top Baffle, Maule p/n 5031X-3 as follows:

1. Detach top right center and top right forward Spark Plug Leads.

- 2. Feed the two Spark Plug Leads and the Cylinder Head Temperature Probe wire through the rubber Grommet, p/n AN931-16-30 or p/n MS35489-24.
- 3. Install the rubber Grommet in the hole in the Baffle.
- 4. Remove the Top Crankcase Bolt as shown on Figure 1.
- 5. Install the Baffle in the position shown in Figure 1.
- 6. Mount the Baffle by placing a washer, p/n AN960-516, under and a Lock Washer, p/n AN935-516, on top of the Brace using the Top Crankcase Bolt removed in step 4 for securement torquing to 60 to 75 inch pounds.
- 7. Use a Lock Washer p/n AN935-516, over the other Brace and secure with a 5/16 18 x ½" long Bolt to the Cylinder Base Temperature Probe Hole as shown in Figure 1.
- 8. Form the Baffle to fit and attach it to the Right Side Baffle by drilling two #30 holes and securing with two each, Screws, p/n AN515-6-6, Nuts, p/n AN365-632, and four Washers, p/n AN960-6L, or equivalent as shown in figure 2.
- 9. Trim the top of the Baffle (metal portion only) if required to provide clearance between it and the Top Cowling.
- 10. Slice the rubberized seal on top of the Baffle as necessary to lay forward smoothly when the Top Cowling.

**MOULTRIE, GEORGIA 31788** 

27 April 1973

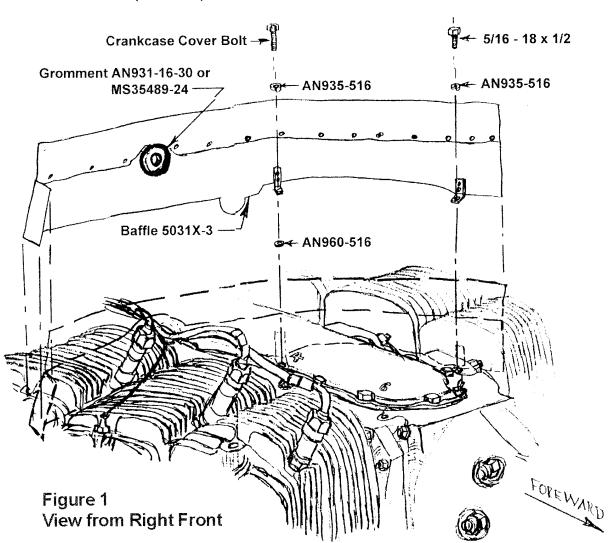
Rev. A dated: MAR 0 7 7003

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## **SERVICE LETTER NO. 26**

**DESCRIPTION:** 

(continued)



Material Required: The Following parts may be obtained from Maule Air, Inc. by specifying Kit No. 26:

1 ea. Top Baffle, Maule P/N 5031X-3

2 ea. Lock Washers AN935-516

2 ea. Nuts AN365-632

1 ea. Washer AN960-516

2 ea. Screw AN515-6-6

4 ea. Washers AN960-6L

1 ea. Grommet AN931-16-30 or MS35489-24

1 ea. Machine Bolt 5/16 - 18 x 1/2

**MOULTRIE, GEORGIA 31788** 

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### SERVICE LETTER NO. 26

**DESCRIPTION:** (continued)

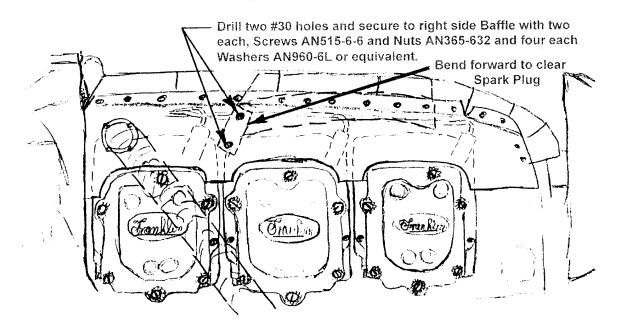


Figure 2. View from Right Side

### Note: Install the following to achieve additional cooling

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

Part required for 5.b.:

1 ea. 6002B-4 Slug

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. (The No. 2 cylinder is located on rear, right side.)

**MOULTRIE, GEORGIA 31788** 

30 April 1973 Rev. A dated: MA

MAR 0 7 2003

Page 1 of 2

### **SERVICE LETTER NO. 27**

Subject: Maximum Continuous Full Throttle Engine Operation.

Models Affected: All M-4-220 Aircraft.

Compliance: Optional at owner's discretion.

Authority: This Service Letter is FAA Approved.

Prerequisite: Compliance with Maule Aircraft Service Letters No. 24, No. 25 and No.26.

Description: The instrument Panel Placard limiting the Full Throttle Power setting to Five (5)

minutes and reading:

Takeoff 5 min. 2800 R.P.M. F,T. 220 H.P. Metro Power 2800 R.P.M. 26.5 H.Q. 194 H.P.

may be removed from Instrument Panel and continuous Full Throttle operation may safely be used upon completion of the following:

- I. Cheek Elevator Cable Tension as follows:
  - Place Elevators in neutral position.
  - 2. Use Cable Tensionmeter to verify that cable tension is 25 to 40 pounds average on both cables.
  - 3. Adjust tension by turning the turnbuckles attached to the Elevator Control Horn (on the Elevators).
- II. Check Elevator Control System Friction as follows:
  - 1. Place three (3) pound weight on left elevator as shown below.
  - 2. With elevators in neutral position attach a scale accurate to ±1/4 pound to the Control Wheel Rim and pull gently and slowly forward (nose down direction) until the system starts to move. Record the greatest force required to move the Elevators.
  - 3. Repeat Step 2 above pulling gently and slowly rearward (nose up direction) until the system starts to move. Record the greatest force required to move the Elevators.

**MOULTRIE, GEORGIA 31788** 

30 April 1973

Rev. A dated: MAR 0.7 2003

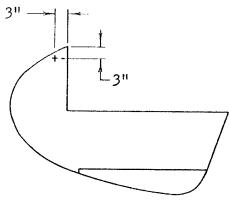
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### **SERVICE LETTER NO. 27**

- II. Check Elevator Control System Friction as follows: (continued)
  - 4. The total of the nose up and nose down breakout friction obtained in Steps 2 and 3 above may not exceed 14 pounds.
  - 5. Friction in excess of 14 pounds may be reduced by lubricating hinges in the elevators, control column base, control column wheel universal joints, control column nylon guide bushing, and lubricating and readjusting the tension in the control column sliding friction blocks.
- III. Add the following statement to the Aircraft Maintenance Manual:

Check Elevator Cable Tension and Elevator Control System breakout friction as per instructions in Maule Aircraft Corporation Service Letter No. 27. at each inspection.

- IV. Add Aircraft Flight Manual Supplement No. 3 to the Flight Manual Package.
- V. Remark Manifold Pressure Gauge by extending the green arc to 29.0 Hg and deleting the yellow arc.



LEFT ELEVATOR

#### MAULE AIRCRAFT CORPORATION

#### Moultrie, Georgia

#### FAA APPROVED

AIRPIANE FLIGHT MANUAL SUPPLEMENT NO. 3

MAXIMUM CONTINUOUS FULL THROTTLE OPERATION

FOR

M-4-220,	M-4-220C,	M-4-22	20S,	M-4-220T
REG. NO.	:	SERIAL	NO.	

This Supplement must be attached to the FAA Approved Airplane Flight Manual dated 28 September 1966 after satisfactory completion of elevator control system tests in accordance with Maule Service Letter 27. The following information supersedes and supplements the corresponding material in the basic manual. For limitations, procedures, and performance not contained in this supplement, consult the manual proper.

#### I. LIMITATIONS

B. Engine Limits

220 H.P. @ 2800 R.P.M. All Operations

E. Power Plant Instruments

Manifold Pressure

No Required Markings

II. PROCEDURES: No Change

Approved:

Acting Chief, Engineering and

Manufacturing Branch F.A.A., Southern Region

Date:

May 14, 1973

# Maule Aircraft Corporation MOULTRIE, GEORGIA 31788

27 February 2003

# **SERVICE LETTERS NO. 24, 25, 26 & 27**

### **Compliance Record Sheet**

Aircraft Serial Number	
Aircraft Registration (N) Number	
Be it hereby attested that following Service Letters have been complied with: (Check appropriate box)	
Service Letter #24, Cylinder Head Temperature Probe Location.	
Additional cooling modification installed per Revision A.	
Service Letter #25, Cylinder Head Temperature Probe Slug Installation.	
Service Letter #26, Engine Top Baffle, Maule P/N 5031X-3, Installation.	
Additional cooling modification installed per Revision A.	
Service Letter #27, Maximum Continuous Full Throttle Engine Operation.	
I no longer own this aircraft. It was sold to:	
Address	_
City, State, Zip	
Certified by (Signature)	
Certified by(Print Name)	
Title (Owner, A & E, IA, etc.)	
Date	

MOULTRIE, GEORGIA 31788

Date: 27 April 1973

Rev. A dated: MAR 0 7 2003

### **SERVICE LETTER # 24**

Subject: Cylinder Head Temperature Probe Location.

Models Affected: M-4-180C Serial No. 3001C - 3006C

M-4-220C/S Serial No. 2001S, 2001C - 2126C, 2129C - 2175C and 2177C

Compliance: Mandatory within the next fifty (50) hours of engine operation.

Authority: This Service Letter is FAA Approved.

Background: No. 4 Cylinder has been determined to be the hottest running Cylinder on the

affected engines.

#### Description:

1. Remove the Cylinder Head Temperature Probe located on the outboard end of the Cylinder.

2. Install the Probe in the Cylinder Head Temperature Probe Hole in the No. 4 Cylinder. Cylinder numbering is stamped on the Crankcase Cover adjacent to the Cylinder. The No. 4 Cylinder is the right hand center Cylinder when facing forward.

Material Required: None.

### Note: Install the following to achieve additional cooling

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

Part required for 5.b.:

1 ea. 6002B-4 Slug

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

b. <u>Change Cylinder Head Temperature probe from No. 4 to No. 2 cylinder.</u> Insert 6002B-4 slug in cylinder before installing probe. (The No. 2 cylinder is located on rear, right side.)

MOULTRIE, GEORGIA 31788

14 May 1973

Rev. A dated: MAR 0 7 2003

# Service Letters #24, #25, #26, and #27

To: All owner's of Maule Models M-4-180C and M-4-220C/S aircraft, Serial Numbers 3001C - 3006C, 2001S, 2001C - 2126C, 2129C - 2175C and 2177C.

It has become necessary to alter the engine cooling on M-4-180 and M-4-220 aircraft equipped with the Franklin Engine as shown in the attached Service Letters. Service Letters #24, #25, and #26 are mandatory and must be complied with within the next fifty (50) hours of engine operation. Additional cooling modifications are included in revision A of Service Letters # 24 and #26.

Service Letter #24 requires no parts unless additional cooling is being installed per revision A.

<u>Service Letter #25</u> requires one ea. Cylinder Head Temperature Probe Slug, Maule p/n 6002B-4 which may be ordered for affected aircraft free of charge.

<u>Service Letter #26</u> requires parts as specified for Kit #26 and, if desired, parts required for additional cooling per revision A available from Maule Air, Inc.

<u>Service Letter #27</u> offers an optional advantage available to owners of Maule Airplanes upon completion of certain checks and. alterations. All Maule Airplanes are currently limited to five (5) minutes of full throttle operation as stated on the Power Limitation Placard on the Instrument Panel. Completion of Service letter #27 allows continuous full throttle operation with the resultant advantage being a faster speed. No parts are required to realize this advantage.

Federal Aviation Administration Regulations require that Maule Air, Inc. keep a record of compliance with the mandatory Service Letters. Please fill out and return the enclosed compliance record immediately upon completion of the required items.

Enclosures:

One ea. copy of: Service Letters #24, #25, #26, and #27

One ea. Compliance Record Sheet

MOULTRIE, GEORGIA 31788

27 April 1973

Rev. A dated: MAR 0 7 2003

### **SERVICE LETTER NO. 25**

Subject: Cylinder Head Temperature Probe Slug Installation

Model Affected: M-4-220C, Serial No. 2135C - 2175C and 2177C

Compliance: Mandatory within the next fifty (50) hours of engine operation.

Authority: This Service Letter is FAA Approved.

Prerequisite: Simultaneous compliance with Service Letter No. 24.

Background: It has been discovered that Cylinder Head Temperatures have been reading low.

Description: 1. Remove Cylinder Head Temperature Probe, Stewart-Warner P/N 333-B, from Cylinder.

2. Install Cylinder Head Temperature Probe Slug, Maule P/N 6002B-4 in hole.

3. Reinstall Probe.

Material Required: 1 ea. Cylinder Head Temperature Probe Slug, Maule P/N 6002B-4.

**MOULTRIE, GEORGIA 31788** 

27 April 1973

Rev. A dated: MAR 0 7 2003

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# **SERVICE LETTER NO. 26**

Subject: Engine Top Baffle, Maule p/n 5031X-3, Installation.

Models Affected: M-4-180C Serial NO. 3002C - 3006C

M-4-220C Serial No. 2053C - 2126C, 2129C -2175C and 2177C

Compliance: Mandatory within the next fifty (50) hours of engine operation.

Authority: This Service Letter is FAA Approved.

Background: In an effort to allow continuous full throttle engine operation, it has been

found necessary to improve the engine cooling.

Description: Install Top Baffle, Maule p/n 5031X-3 as follows:

1. Detach top right center and top right forward Spark Plug Leads.

- 2. Feed the two Spark Plug Leads and the Cylinder Head Temperature Probe wire through the rubber Grommet, p/n AN931-16-30 or p/n MS35489-24.
- 3. Install the rubber Grommet in the hole in the Baffle.
- 4. Remove the Top Crankcase Bolt as shown on Figure 1.
- 5. Install the Baffle in the position shown in Figure 1.
- 6. Mount the Baffle by placing a washer, p/n AN960-516, under and a Lock Washer, p/n AN935-516, on top of the Brace using the Top Crankcase Bolt removed in step 4 for securement torquing to 60 to 75 inch pounds.
- 7. Use a Lock Washer p/n AN935-516, over the other Brace and secure with a 5/16 18 x ½" long Bolt to the Cylinder Base Temperature Probe Hole as shown in Figure 1.
- 8. Form the Baffle to fit and attach it to the Right Side Baffle by drilling two #30 holes and securing with two each, Screws, p/n AN515-6-6, Nuts, p/n AN365-632, and four Washers, p/n AN960-6L, or equivalent as shown in figure 2.
- 9. Trim the top of the Baffle (metal portion only) if required to provide clearance between it and the Top Cowling.
- Slice the rubberized seal on top of the Baffle as necessary to lay forward smoothly when the Top Cowling.

MOULTRIE, GEORGIA 31788

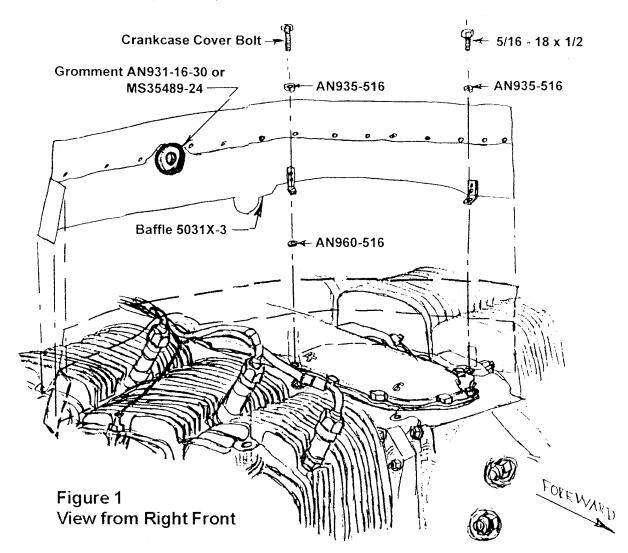
27 April 1973

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## **SERVICE LETTER NO. 26**

DESCRIPTION: (continued)



Material Required: The Following parts may be obtained from Maule Air, Inc. by specifying Kit No. 26:

1 ea. Top Baffle, Maule P/N 5031X-3

2 ea. Lock Washers AN935-516

2 ea. Nuts AN365-632

1 ea. Washer AN960-516

2 ea. Screw AN515-6-6

4 ea. Washers AN960-6L

1 ea. Grommet AN931-16-30 or MS35489-24

1 ea. Machine Bolt 5/16 - 18 x 1/2

MOULTRIE, GEORGIA 31788

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### **SERVICE LETTER NO. 26**

DESCRIPTION: (continued)

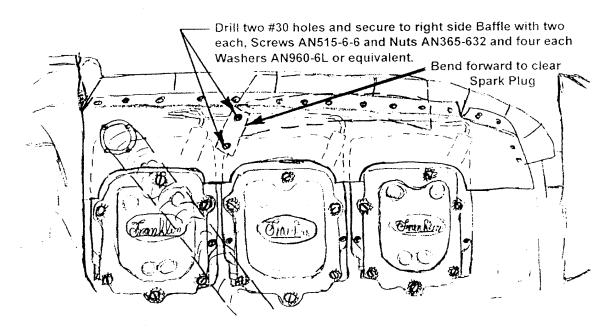


Figure 2. View from Right Side

### Note: Install the following to achieve additional cooling

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

Part required for 5.b.:

1 ea. 6002B-4 Slug

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

b. <u>Change Cylinder Head Temperature probe from No. 4 to No. 2 cylinder.</u> Insert 6002B-4 slug in cylinder before installing probe. (The No. 2 cylinder is located on rear, right side.)

**MOULTRIE, GEORGIA 31788** 

30 April 1973

Rev. A dated: MAR 0 7 2003

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### SERVICE LETTER NO. 27

Subject: Maximum Continuous Full Throttle Engine Operation.

Models Affected: All M-4-220 Aircraft.

Compliance: Optional at owner's discretion.

Authority: This Service Letter is FAA Approved.

Prerequisite: Compliance with Maule Aircraft Service Letters No. 24, No. 25 and No.26.

Description: The instrument Panel Placard limiting the Full Throttle Power setting to Five (5)

minutes and reading:

Takeoff 5 min. 2800 R.P.M. F,T. 220 H.P. Metro Power 2800 R.P.M. 26.5 H.Q. 194 H.P.

may be removed from Instrument Panel and continuous Full Throttle operation may safely be used upon completion of the following:

- 1. Cheek Elevator Cable Tension as follows:
  - 1. Place Elevators in neutral position.
  - 2. Use Cable Tensionmeter to verify that cable tension is 25 to 40 pounds average on both cables.
  - 3. Adjust tension by turning the turnbuckles attached to the Elevator Control Horn (on the Elevators).
- II. Check Elevator Control System Friction as follows:
  - 1. Place three (3) pound weight on left elevator as shown below.
  - 2. With elevators in neutral position attach a scale accurate to ±1/4 pound to the Control Wheel Rim and pull gently and slowly forward (nose down direction) until the system starts to move. Record the greatest force required to move the Elevators.
  - Repeat Step 2 above pulling gently and slowly rearward (nose up direction)
    until the system starts to move. Record the greatest force required to move
    the Elevators.

**MOULTRIE, GEORGIA 31788** 

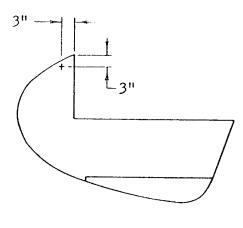
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### SERVICE LETTER NO. 27

- II. Check Elevator Control System Friction as follows: (continued)
  - 4. The total of the nose up and nose down breakout friction obtained in Steps 2 and 3 above may not exceed 14 pounds.
  - 5. Friction in excess of 14 pounds may be reduced by lubricating hinges in the elevators, control column base, control column wheel universal joints, control column nylon guide bushing, and lubricating and readjusting the tension in the control column sliding friction blocks.
- III. Add the following statement to the Aircraft Maintenance Manual:

Check Elevator Cable Tension and Elevator Control System breakout friction as per instructions in Maule Aircraft Corporation Service Letter No. 27. at each inspection.

- IV. Add Aircraft Flight Manual Supplement No. 3 to the Flight Manual Package.
- V. Remark Manifold Pressure Gauge by extending the green arc to 29.0 Hg and deleting the yellow arc.



LEFT ELEVATOR

#### MAULE AIRCRAFT CORPORATION

#### Moultrie, Georgia

#### FAA APPROVED

AIRPIANE FLIGHT MANUAL SUPPLEMENT NO. 3

MAXIMUM CONTINUOUS FULL THROTTLE OPERATION

FOR

M-4-220,	M-4-220C,	M-4-220S,	M-4-220T
REG. NO.		SERIAL NO.	

This Supplement must be attached to the FAA Approved Airplane Flight Manual dated 28 September 1966 after satisfactory completion of elevator control system tests in accordance with Maule Service Letter 27. The following information supersedes and supplements the corresponding material in the basic manual. For limitations, procedures, and performance not contained in this supplement, consult the manual proper.

#### I. LIMITATIONS

B. Engine Limits

220 H.P. @ 2800 R.P.M. All Operations

E. Power Plant Instruments

Manifold Pressure

No Required Markings

II. PROCEDURES: No Change

Approved:

Acting Chief, Engineering and

Manufacturing Branch F.A.A., Southern Region

Date:

May 14, 1973

# Maule Aircraft Corporation MOULTRIE, GEORGIA 31788

27 February 2003

# **SERVICE LETTERS NO. 24, 25, 26 & 27**

# **Compliance Record Sheet**

Aircraπ Serial Number
Aircraft Registration (N) Number
Be it hereby attested that following Service Letters have been complied with: (Check appropriate box)
Service Letter #24, Cylinder Head Temperature Probe Location.
Additional cooling modification installed per Revision A.
Service Letter #25, Cylinder Head Temperature Probe Slug Installation.
Service Letter #26, Engine Top Baffle, Maule P/N 5031X-3, Installation.  Additional cooling modification installed per Revision A.  Service Letter #27, Maximum Continuous Full Throttle Engine Operation.  I no longer own this aircraft. It was sold to:  Address
City, State, Zip
Certified by (Signature)
Certified by(Print Name)
Title (Owner, A & E, IA, etc.)
Date