

FAA APPROVED
A I R P L A N E F L I G H T M A N U A L

MAULE AIRCRAFT CORPORATION
MOULTREE, GEORGIA

Model M-5-220C

Airplane Serial No. _____


FAA Registration No. _____

(THIS DOCUMENT MUST BE KEPT IN THE AIRPLANE AT ALL TIMES)

FAA APPROVED: John F. Vogel
Chief, Engineering and
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Southern Region, FAA

DATE: December 28, 1973

MAULE MODEL M-5-220C
AIRPLANE FLIGHT MANUAL
LOG OF REVISIONS

Rev. No.	Page(s)	Description	Approval and Date
A	3a	Add " <u>PREFLIGHT INSPECTION</u> " to "II PROCEDURES".	 Manager, Atlanta Aircraft Certification Office FAA, Central Region Date: <u>May 1, 1984</u>

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LOG OF SUPPLEMENTS

SUPP. NO.	NO. OF PAGES	DESCRIPTION	APPROVAL DATE
1	2	Inst. of EDO 248A2440 or 248B2440 Floats - Maule Dwg 9080A .	06/27/74
2	3	Installation of FluidDyne C2200H - Maule Drawing 9021X .	04/02/75
3	2	Flight operation with either one (not both) of the Front doors removed .	08/20/02
-	3	Installation of Pee Kay 2300 Floats .	03/02/77
-	3	Installation of Aqua 2400 Floats .	07/20/77
4	2	Installation of 20°/40° Flap Ratchet Maule p/n 3207B.	04/01/83
5	2	Inst. of 20°/40° Flap Ratchet and 2500# Uppross modification.	03/21/84
-	2	Operation of aircraft when M-5 Wing Assemblies 2110X-30 (with 2167X Main Fuel Tanks) are installed - Maule Mod Kit No. 15 .	10/08/96
7	8	Inst. of EDO 248B2440 Floats @ 2500# GW - Maule Dwg 9173A .	12/08/98
8	6	Installation of S-TEC System 55 Two Axis Autopilot Model ST-620 (14v) per Maule Drawing 9196A , Rev. A or later. (Land)	04/04/00
9	6	Installation of S-TEC System 55 Two Axis Autopilot Model ST-620 (14v) - Maule Drawing 9196A , Rev. A or later. (Sea)	04/04/00
10	9	Installation of S-TEC System 20 Single Axis Autopilot Model ST-810-20 (14v) - Maule Drawing 9197A , Rev. B or later. (Land)	03/20/00
11	9	Installation of S-TEC System 20 Single Axis Autopilot Model ST-810-20 (14v) - Maule Drawing 9197A , Rev. B or later. (Sea)	03/20/00
12	7	Installation of S-TEC System 40 Single Axis Autopilot Model ST-418-40 (14v) - Maule Drawing 9193A , Rev. C or later.	10/29/01
-	5	Installation of Apollo MX20 Multi-Function Display - Maule Drawing 7265A .	08/15/02
-	8	Installation of GARMIN GNC-420 (GPS/COMM) System per Maule Drawing 7251A .	06/30/03
-	9	Installation of GARMIN GNS-530 (GPS/NAV/COMM) System per Maule Drawing 7253A .	06/30/03
-	4	Installation of GARMIN GTX-330 Mode S Transponder Traffic Information System (TIS) per Maule Drawing 7255A .	06/30/03

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I. LIMITATIONS

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

A. Engine	Franklin 6A-350-C1
B. Engine Limits	220 H.P. @ 2800 rpm, all operations
C. Fuel	100-130 Minimum Grade Aviation Gasoline
D. Propellers	McCauley 2A34C22-N/S84SF-6 McCauley 2A34C22-N/S84SF-8
E. Power Plant Instruments:	
Cylinder Head Temp	Green Arc: 200-390° F. (Normal Operating Range) Red Radial: 390° F.
Manifold Pressure	No required markings
Oil Temperature	Green Arc: 100-235° F. (Normal Operating Range) Red Radial: 235° F.
Oil Pressure	Green Arc: 55-80 psi (Normal Operating Range) Yellow Arc: (Caution) 0-55 psi Red Radials: 80 psi
Tachometer	Green Arc: 1800-2800 rpm (Normal Operating Range) Red Radial: 2800 rpm
Fuel Pressure	Green Arc: .5-9 psi Red Radials: .5 and 9 psi

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F. Airspeed Limits: (Calibrated Airspeed)

Never Exceed (V_{NE})	180 mph (156K) (Red Radial)
Caution Range	145-180 mph (126-156K) (Yellow Arc)
Design Cruising Speed (V_C)	145 mph (126K)
Normal Operating Range	62-145 mph (54-126K) (Green Arc)
Max. Design Maneuvering Speed (V_P)	125 mph (109K) (Maximum safe speed for application of full aerodynamic controls)
Max. Flap Extension Speed (V_F)	94 mph (82K)
Flap Operating Range	56-94 mph (49-82K) (White Arc)

NOTE: Airspeed Instrument Markings and their significance:

- (a) Radial RED line marks the never exceed speed, which is the maximum safe airspeed.
- (b) YELLOW arc on indicator denotes range of speeds in which operations should be conducted with caution and only in smooth air.
- (c) GREEN arc denotes normal operating speed range; 62 mph (54K) CAS is stall speed with flaps up, power off at 2300 lbs.
- (d) WHITE arc denotes speed range in which flaps may be safely lowered; 56 mph (49K) CAS is stall speed with flaps 35°, power off at 2300 lbs.

G. Maneuvers: Normal category maneuvers only are approved.

H. Flight Load Factors: (At max. gross weight of 2300 lbs.)

Maneuver: Positive Flaps Up	3.8g	Negative:	1.5g
Flaps Extended:	1.9g		

I. Maximum Weight 2300 lbs.

J. Center of Gravity Limits

	(+16.0) to (+20.5)	at 2300 lbs.
	(+15.0) to (+20.5)	at 2100 lbs.
	(+12.0) to (+20.5)	at 1600 lbs. or less

Straight Line variation between points given
Datum: Wing Leading Edge

NOTE: It is the responsibility of the airplane owner and the pilot to insure that the airplane is properly loaded. Refer to Weight and Balance data for baggage/cargo loading.

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K. Placards:

"THIS AIRPLANE MUST BE OPERATED AS A NORMAL CATEGORY AIRPLANE IN COMPLIANCE WITH THE OPERATING LIMITATIONS STATED IN THE FORM OF PLACARDS, MARKINGS AND MANUAL."

"NO ACROBATIC MANEUVERS INCLUDING SPINS APPROVED."

"ROUGH AIR OR MANEUVERING SPEED: 125 MPH (109K)"

"SEE LOADING INSTRUCTIONS IN WEIGHT AND BALANCE SECTION OF AIRPLANE FLIGHT MANUAL."

Type of Operation Authorized:

"THIS AIRPLANE APPROVED FOR DAY OR NIGHT IFR NON-ICING FLIGHT WHEN EQUIPPED IN ACCORDANCE WITH FAR 91 OR FAR 135"

Fuel System Operation:

"FUEL REMAINING IN TANK WHEN INDICATOR READS ZERO CANNOT BE USED SAFELY IN FLIGHT."

Next to fuel filler caps:

MAIN (inboard) TANKS:

"FUEL - 100/130 OCTANE - 21.5 GAL" (20 gal useable each tank)

AUXILIARY (outboard) TANKS IF INSTALLED

"FUEL - 100/130 OCTANE - 11.5 GAL" (11.5 gal. useable each tank if transferred in level flight).

On face of each auxiliary tank fuel quantity gauge, if installed: "CAP 11.5 GAL".

"DO NOT TURN OFF ALTERNATOR IN FLIGHT EXCEPT IN CASE OF EMERGENCY"

L. Door off operation (rear passenger door or rear passenger door and baggage compartment door off):

1. Maximum speed with door removed - 125 MPH IAS
2. Maximum angle of bank - 30°
3. Maximum angle of yaw - 10°
4. No smoking permitted
5. Flight limited to VFR conditions.

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II PROCEDURES

PREFLIGHT INSPECTION:

A. INTERIOR:

1. BAT. Switch.....ON
2. Fuel gauges.....CHECK INDICATIONS
3. All Electrical Switches.....OFF
4. BAT. Switch.....OFF
5. Flaps.....FULL DOWN

B. EXTERIOR: Begin at the left front door, proceed around the left wing to the nose area, then around the right wing and back to the fuselage, then around the tail section.

1. Fuel drains behind step.....DRAIN (2)
2. Left Flap.....CHECK HINGES & CONTROL ATTACHMENT
3. Aileron.....CHECK HINGES & CONTROL ATTACHMENT
4. Wing Top.....CHECK FOR WRINKLES AS INDICATION OF INTERNAL DAMAGE
5. Wing Main & Aux Fuel Tank Drains.....DRAIN (2)
6. Wing tip and nav. light.....CHECK FOR DAMAGE
7. Auxiliary fuel tank.....VISUALLY CHECK QUANTITY
8. Landing light.....CHECK FOR DAMAGE
9. Wing Tiedown.....REMOVE
10. Pitot tube.....REMOVE COVER
11. Stall Warning Switch.....CHECK FOR FREEDOM OF MOVEMENT
12. Main Fuel Tank.....VISUALLY CHECK QUANTITY
13. Left Landing Gear.....CHECK TIRE INFLATION AND BRAKE LINE SECURITY
14. Bottom left side of cowl.....DRAIN GASCOLATOR (1)
15. Top Cowl; Oil access door.....CHECK OIL QUANTITY
16. Propeller.....CHECK LEADING EDGE FOR DAMAGE
17. Air inlets.....CHECK FOR FOREIGN OBJECTS, INSPECT VISIBLE CONNECTIONS AND COMPONENTS
18. Right landing gear.....CHECK TIRE INFLATION AND BRAKE LINE SECURITY
19. Right wing and controls.....INSPECT SAME AS LEFT WING
20. Wing Main & Aux Fuel Tank Drains.....DRAIN (2)
21. Right fuselage side and top.....INSPECT FOR WRINKLES AS INDICATION OF INTERNAL DAMAGE
22. Static port.....CLEAR
23. Right Stabilizer.....CHECK ATTACHMENT POINTS AND STRUT
24. Right Elevator.....CHECK HINGE POINTS
25. Rudder.....CHECK HINGE POINTS, CONTROL ATTACHMENTS AND NAV. LIGHT
26. Tailwheel.....CHECK INFLATION, ATTACHMENTS, REMOVE TIEDOWNS
27. Left Elevator.....CHECK TAB CONTROLS AND ALL HINGE POINTS
28. Left Stabilizer.....CHECK ATTACHMENT AND STRUT
29. Left Fuselage side and bottom.....CHECK FOR WRINKLES AS INDICATION OF INTERNAL DAMAGE
30. Left side Static port.....CLEAR

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II. PROCEDURES

A. Normal Procedures

1. Wing Flap Settings:

Takeoff - Normal 15° (First Notch) (0° permissible)
- Shortfield 35° until safely airborne, then retract to 15°

Normal Climb and Cruise 0°

Landing 35° (Second Notch) (0° or 15° permissible)

2. Caution: Take off and land on fullest main tank.
3. Best Rate of Climb Speed: 90 MPH (CAS) at sea level, 0° flaps.
Best Angle of Climb Speed: 75 MPH (CAS) at sea level, 15° flaps.
4. Right Rudder Trim: Use of right rudder trim is recommended during takeoff and climb to reduce the amount of right rudder force required. During level flight at moderate speeds and glide, the trim control should be in the OFF position, or as required to counteract any fuel unbalance.
5. Stall Warning Indicator: The electric stall warning system will light a red light on the instrument panel at approximately seven mph above the stalling speed. It will be inoperative when the master switch is off.
6. Loss of altitude prior to recovery from a stall may be as much as 200 feet.
7. Maximum 90° crosswind velocity demonstrated: 14 MPH
8. Anti-Collision Light:
WARNING: Anti-Collision light may cause adverse effect on pilot when flying in overcast or haze. It is recommended that it be turned off under these conditions.
9. Auxiliary Gas Tank Operation (if installed):
 - a. The auxiliary fuel tank switches activate transfer pumps which will transfer the contents of the selected auxiliary tank into its respective main tank at a rate of 0.4 gallons per minute (approximately 30 minutes for a full auxiliary tank). Over filling a main tank from an auxiliary tank will force the excess fuel overboard through the tank vent system.

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- b. Recommended fuel use sequence:
 1. Use each main tank to one-half (1/2).
 2. With the left main to engine selected, transfer one-half of the left auxiliary tank to the left main tank.
 3. With the right main to engine selected, transfer the entire right auxiliary tank to the right main tank.
 4. With the left main to engine selected, transfer remaining left auxiliary fuel to the left main tank.
 5. Use either main tank as necessary to maintain lateral trim.

B. Emergency Procedures

1. Engine failure.

a. Air Restart:

Check mixture rich (over 8,000 feet a leaner mixture may be required), fuel on proper tank.
Maintain 85 mph (74K) IAS (engine will not windmill below 80 mph).
Use Boost Pump for engine restart.

b. Forced Landing:

Maximum glide range under zero wind condition is obtained with prop stopped, 80 MPH, 0° flap setting. Turn fuel selector "OFF". Cut ignition and master switches just prior to landing. Use flaps as necessary.

2. Engine Fire:

Turn fuel selector OFF
Open throttle to full ON position
Turn ignition switch OFF
Push OFF air vent and cabin heat

3. Spin Recovery:

Intentional spins are prohibited. If aircraft inadvertently enters a spin, immediately use opposite rudder followed by forward elevator for recovery. Adding power assists recovery.

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