

MAULE AIRCRAFT CORPORATION

FAA APPROVED

Airplane Flight Manual

FOR

MAULE M-5-180C

(S/n's 8001C – 8069C)

Airplane Serial No. _____

Registration No. _____

THIS DOCUMENT MUST BE KEPT IN THE AIRPLANE AT ALL TIMES.

FAA APPROVED:



Acting Chief, Engineering and Manufacturing Branch
Federal Aviation Administration
Atlanta, Georgia USA

DATE: April 19, 1979

Performance That Counts!

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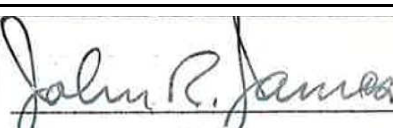
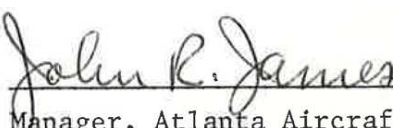


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AIRPLANE FLIGHT MANUAL

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LOG OF REVISIONS

REV.	TO PAGES	DESCRIPTION	APPROVAL AND DATE
A	All	Table of Contents added, format changed, no change in content.	 FRANCIS C. ROCK Acting Chief, Engineering and Manufacturing Branch Southern Region, FAA Date: <u>July 23, 1979</u>
B	11, 12, 13	Revised ALTERNATOR FAILURE to include aircraft with (Lamar) Alternator Control System	 Manager, Atlanta Aircraft Certification Office FAA, Central Region Date: <u>February 21, 1984</u>
C	2	Revised Oil Pressure limits and Fuel limitation.	 Manager, Atlanta Aircraft Certification Office FAA, Central Region Date: <u>April 6, 1984</u>
D	5	In Section II, <u>EXTERIOR PREFLIGHT INSPECTION</u> , added 18a. and revised 5. to include draining of the Main Fuel Tank sumps.	 Acting Manager, Atlanta Aircraft Certification Off. FAA, Central Region Date: <u>April 12, 1984</u>
E	Iii 1 3 5 4, 6-16 24	Corrected page numbers; Added Sec. 5. Corrected info and s/n effect for White Arc Markings. Added placards; Corrected usable main fuel. Added main tank selector valve placard. Corrected Baggage and Cargo Limitations; Added JPI EDM- 900/930 Updated Manual. Added Section V.	 Manager, Southeast Flight Test Section, AIR-712, FAA Atlanta, GA Date: <u>FEB 28 2019</u>

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LOG OF SUPPLEMENTS

(1)

SUPP. NO.	NO. OF PAGES	DESCRIPTION	APPROVAL DATE
1	2	Installation of 20°/40° Flap Ratchet P/N 3207B – Maule Service Letter No. 49.	04/01/83
2	2	Flight operation with either one (not both) of the Front doors removed.	08/20/02
3	2	Installation of Lamar Alternator Control System – Maule Service Letter No. 60.	09/20/84
-	2	Operation of aircraft when M-5 Wing Assemblies 2110X-30 (with Main Fuel Tanks P/N 2167X) are installed - Maule Modification Kit No. 15.	10/08/96
-	5	Installation of Apollo MX20 Multi-Function Display - Maule Drawing 7265A	08/15/02
-	8	Installation of GARMIN GNC-420 (GPS/COMM) System - Maule Drawing 7251A.	06/30/03
-	9	Installation of GARMIN GNS-530 (GPS/NAV/COMM) System - Maule Drawing 7253A.	06/30/03
-	4	Installation of GARMIN GTX-330 Mode S Transponder Traffic Information System (TIS) - Maule Drawing 7255A.	06/30/03
-	4	Installation of Aqua 2200 Floats @2300# - STC SA00758CH.	09/18/97
-	3	Operation of aircraft when a 5th passenger Seat is installed in rear cabin - Maule Modification Kit No. 8.	09/02/97
-	3	Operation of aircraft when Micro AeroDynamics Vortex Generator System is installed in accordance with Maule Drawing 9177A.	12/16/05

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SECTION I

OPERATING LIMITATIONS

AIRSPEED LIMITS: All airspeeds are calibrated airspeeds (CAS).

A. AIRSPEED INDICATOR MARKINGS:

Red Radial, (V_{NE}) - 180 mph (156K)

Yellow Arc, Caution Range - 145-180 mph (126-156K)

Green Arc, Normal Operating Range - 65-145 mph (57-126K)

White Arc, Flap Operating Range - *

B. EXPLANATION OF AIRSPEED INDICATOR MARKINGS:

Red Radial Line - Never Exceed Speed (V_{NE}) 180 mph (156K): Maximum safe airspeed in smooth air.

Yellow Arc - Caution Range, 145-180 mph (126-156K): Extends from design cruise speed (V_C) to never exceed speed. Operation in this speed range should be conducted only in smooth air and control movements should not be large or abrupt.

Green Arc - Normal Operating Range, 65-145 mph (57-126K): Extends from flaps up, power off stall speed at 2300 lbs. (V_{S1}) to design cruise speed (V_C).

For s/n's 8001C-8022C without Service Letter #49 complied with:

White Arc - Flap Operating Range, *60-94 mph (53-82K): Extends from full flap, power off stall speed at 2300 lbs. (V_{SO}) to the maximum flaps extended speed (V_{FE}).

For s/n's 8001C-8022C with Service Letter #49 complied with and s/n's 8023C-8069C:

White Arc - Flap Operating Range, *53-94 mph (46-82K): Extends from full flap, power off stall speed at 2300 lbs. (V_{SO}) to the maximum flaps extended speed (V_{FE}).

DESIGN MANEUVERING SPEED: The maximum safe airspeed at which full aerodynamic controls can be applied (V_A) is 125 mph (109K). This airspeed is not marked on the airspeed indicator.

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POWER PLANT LIMITS:

Engine: Lycoming O-360-C1F

Engine Limits: 180 hp @ 2700 RPM, Full Throttle Continuous

Propeller: Hartzell HC-C2YR-1BF/F7666A

Fuel: 100/100 LL Minimum Grade Aviation Gasoline

Engine Instrument Markings:

Cylinder Head Temperature:	Green Arc -	Normal Operating Range, 200°F - 435°F
	Red Radial -	Operating Limit, 500°F
Oil Temperature:	Green Arc -	Normal Operating Range, 140°F - 245°F
	Red Radial -	Operating Limit, 245°F
Oil Pressure: (Applicable to s/n's 8001C-8022C)	Green Arc -	Normal Operating Range, 60 to 90 psi.
	Yellow Arc -	Caution Range, 25 to 60 psi and 90 to 100 psi.
	Red Radial -	Minimum Operating pressure, 25 psi.
	Red Radial -	Maximum Operating Pressure, 100 psi.
Oil Pressure: (Applicable to s/n's 8023C-8069C)	Green Arc -	Normal Operating Range, 55 to 95 psi
	Yellow Arc -	Caution Range, 25 to 55 and 95 to 115 psi
	Red Radial -	Minimum Operating Pressure, 25 psi
	Red Radial -	Maximum Operating Pressure, 115 psi
Manifold Pressure:	Green Arc	Normal Operating Range, 14.5 to 29 ins. of Mercury

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Fuel Pressure:	Green Arc -	Normal Operating Range, 0.5 to 8 psi
	Red Radial -	Minimum, 0.5 psi,
	Red Radial -	Maximum, 8 psi
Tachometer:	Green Arc -	Normal Operating Range, 2250 - 2600 RPM
	Red Radial -	Maximum RPM, 2700 RPM
	Red Arc -	Avoid Continuous Operation 2000 – 2250 RPM

MAXIMUM WEIGHT: 2300 Pounds

CENTER OF GRAVITY LIMITS: +16.7 to +20.5 @ 2300 lbs.
+12.6 to +20.5 @ 1600 lbs. or less

Straight line variation between points given
Datum: Wing Leading Edge

NOTE: It is the responsibility of the pilot to assure that the airplane is properly loaded. Refer to the Weight and Balance Data for baggage/cargo loading recommendations and loading graphs.

MANEUVERS: Only normal Category Maneuvers including Lazy Eights and Chandelles involving bank angles not greater than 60°, stalls (except whip stall), and any maneuver incident to normal flying are approved in this airplane.

|||||
|||CAUTION||| AEROBATICS AND INTENTIONAL SPINS PROHIBITED.
|||||

FLIGHT LOAD FACTORS: Flaps Up (Fully Retracted): 3.8g Positive to 1.5g Negative
Flaps Down (Extended): 1.9g Positive

FUEL CAPACITY:

Usable Fuel: MAIN TANKS - 20 Gal. each
OPTIONAL AUXILIARY TANKS - 11.5 Gal. each

Unusable Fuel: 1.5 Gallons per Main Tank

|||||
|||CAUTION||| FUEL REMAINING IN TANK WHEN INDICATOR READS EMPTY
||||| CANNOT BE USED SAFELY IN FLIGHT.

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PLACARDS:

The following placards are in the cockpit in clear view of the pilot:

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

NO AEROBATIC MANEUVERS, INCLUDING SPINS, ARE APPROVED

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

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

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

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

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

On the top of the wing next to the filler caps:

Inboard tanks: FUEL – 100/100 LL AVGAS – 21.5 GAL.

Outboard tanks: FUEL – 100/100 LL AVGAS – 11.5 GAL. (If installed)

Located on flap control handle: (s/n 8001C-8022C without SL#49 c/w):

FLAPS / PULL ON / 15° TAKEOFF / 35°
LANDING

Located on flap control handle: (s/n 8023C-8069C and 8001C-8022C with SL#49 c/w):

FLAPS / PULL ON / 20° TAKEOFF / 40°
LANDING

On the lower window frame near the latch when optional swing out windows are installed:

WINDOW MUST BE CLOSED ABOVE 120 MPH

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In rear cabin area:

CARGO OR BAGGAGE LIMITATIONS MAX. LOAD AREA "A" 100 LBS. MAX. LOAD AREA "B" 175 LBS. MAX. LOAD AREA "C" 125 LBS.

At the main fuel tank selector valve on the left kick panel:

FUEL SELECTOR VALVE LEFT: 20 GAL. OFF BOTH RIGHT: 20 GAL.
--

On the instrument panel at the auxiliary tank transfer switches: (if installed)

FUEL TRANSFER PUMPS	
PUSH FOR AUX. QUANT. LEFT	PUSH FOR AUX. QUANT. RIGHT

NOTE: If JPI EDM-900/930 units are installed, the PUSH FOR AUX. QUANT. buttons and placards are not installed. However, FUEL TRANSFER PUMPS and LEFT and RIGHT placards are used as below:

FUEL TRANSFER PUMPS	
LEFT	RIGHT

FUEL CAPACITY: MAIN TANKS 20 GAL. USABLE EACH,
AUX. TANKS 11.5 GAL. USABLE EACH.

SECTION II

NORMAL OPERATING PROCEDURES:

PREFLIGHT INSPECTION:

Before entering aircraft..... REMOVE CONTROL LOCKS

A. INTERIOR:

1. Master Switch..... ON
2. Fuel Gauges..... CHECK INDICATIONS
3. Auxiliary Fuel Pumps..... ON, THEN OFF (LISTEN TO VERIFY OPERATION) (If installed)
4. All Electrical Switches..... OFF
5. Master Switch..... OFF
6. Flaps..... FULL DOWN

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)

Note: Main Fuel tank drains (lowest part of fuel system) are located behind the step on the left side; front drain is left tank, rear drain is right tank. Auxiliary tank drains are flush valves located at the rear of each tank.

2. Left Flap..... CHECK HINGES AND CONTROL ATTACHMENTS
3. Aileron..... CHECK HINGES AND CONTROL ATTACHMENTS
4. Left Wing Top..... CHECK FOR WRINKLES AS INDICATION OF INTERNAL DAMAGE
5. Left Wing Main and Aux Fuel Tank Drain..... DRAIN (2)
6. Left Wing Tip and Nav Light..... CHECK FOR DAMAGE
7. Auxiliary Fuel Tank..... VISUALLY CHECK QUANTITY
8. Landing Light..... CHECK FOR DAMAGE
9. Left 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 Main Landing Gear..... CHECK TIRE INFLATION AND BRAKELINE SECURITY
14. Bottom left side of Cowl..... DRAIN GASCOLATOR (1)

PREFLIGHT INSPECTION: (Cont'd)

- | | | |
|-----|---|---|
| 15. | Top Cowl, Oil Access Door..... | CHECK OIL QUANTITY
(5 QT. MIN., 8 QT. MAX.) |
| 16. | Propeller..... | CHECK LEADING EDGE FOR
DAMAGE. CHECK SPINNER FOR
SECURITY |
| 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 and Aux Fuel Tank Drain..... | DRAIN (2) |
| 21. | Right Fuselage, Side, Top and Bottom..... | INSPECT FOR WRINKLES AS
INDICATION OF INTERNAL DAMAGE |
| 22. | Right Side Static Port..... | CLEAR |
| 23. | Right Stabilizer..... | CHECK ATTACHMENT POINTS AND
STRUT |
| 24. | Right Elevator..... | CHECK HINGE POINTS |
| 25. | Rudder..... | CHECK HINGE POINTS, CONTROL
ATTACHMENT AND NAV LIGHT |
| 26. | Tailwheel..... | CHECK FOR INFLATION,
ATTACHMENTS, REMOVE TIEDOWN |
| 27. | Left Elevator..... | CHECK TAB CONTROLS AND ALL
HINGE POINTS |
| 28. | Left Stabilizer..... | CHECK ATTACHMENT POINTS AND
STRUT |
| 29. | Left Fuselage, Side, Top and Bottom..... | CHECK FOR WRINKLES AS
INDICATION OF INTERNAL DAMAGE |
| 30. | Left Side Static Port..... | CLEAR |

OPERATING CHECK LISTS:

A. BEFORE STARTING:

- | | | |
|----|--|----------|
| 1. | Seat Belts and Shoulder Harnesses..... | FASTENED |
| 2. | Flaps..... | UP |
| 3. | Circuit Breakers..... | CHECK |

B. STARTING:

- | | | |
|----|----------------------------|--|
| 1. | Parking or Toe Brakes..... | ON |
| 2. | Fuel Selector Valve..... | ON FULLEST TANK, OR BOTH IF
SAME QUANTITY |

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OPERATING CHECK LISTS: (Cont'd)

3. Throttle..... OPEN 1/4 INCH
4. Propeller Control..... FULL INCREASE RPM
5. Mixture Control..... RICH (SEE NOTE FOR HOT START)
6. Anti-Collision Light..... ON
7. BAT and ALT Switch..... ON
8. Primer..... AS REQUIRED

////////// FOR A HOT START, DO NOT PRIME. A HOT ENGINE MAY FLOOD ON A
////NOTE//// START ATTEMPT. TO CLEAR A FLOODED ENGINE, PULL MIXTURE FULL
////////// LEAN AND OPEN THROTTLE, CRANK WITH STARTER. WHEN ENGINE
STARTS, PULL THROTTLE TO IDLE AND EASE MIXTURE TO FULL RICH.

9. Starter Switch..... TWIST FULL RIGHT TO ENGAGE

////////// IN EVENT OF ENGINE FIRE, CONTINUE CRANKING. PULL MIXTURE
////CAUTION//// TO FULL LEAN. IF ENGINE FAILS TO START AFTER SEVERAL
////////// REVOLUTIONS, AND FIRE CONTINUES, SECURE IGNITION, BAT.
AND ALT. SWITCHES, TURN FUEL VALVE OFF AND EXIT AIRCRAFT.

10. After Starting..... CHECK OIL PRESSURE

////////// IF OIL PRESSURE DOES NOT EXCEED 25 PSI WITHIN 30 SECONDS,
////CAUTION//// SHUT DOWN ENGINE.
//////////

11. Alternator..... CHECK CHARGING
12. Radios and other electrical switches..... AS REQUIRED
13. Parking Brake..... OFF (PUSH KNOB COMPLETELY
AGAINST INSTRUMENT PANEL)

C. ENGINE CHECK:

1. Parking Brake..... ON, IF DESIRED
2. Engine Instruments..... CHECK, IN GREEN ARCS
3. Throttle..... INCREASE TO 2000 RPM
4. Magnetos..... SWITCH TO RIGHT, BOTH, LEFT,
BOTH, CHECKING RPM DROPS

////////// A RPM DROP OF MORE THAN 175 RPM OR A DIFFERENCE BETWEEN
////CAUTION//// LEFT AND RIGHT OF MORE THAN 50 RPM IS UNACCEPTABLE.
//////////

5. Carburetor Heat Control..... PULL HOT, NORMAL DROP WITH
CARB AIR HOT IS 150 ±50 RPM

OPERATING CHECK LISTS: (Cont'd)

- | | | |
|-----|------------------------------|---|
| 6. | Carburetor Heat Control..... | PUSH COLD |
| 7. | Vacuum Gauge..... | CHECK IN GREEN |
| 8. | Alternator..... | CHARGING: LIGHT OUT ABOVE 900 RPM |
| 9. | Throttle..... | RETARD TO IDLE |
| 10. | Parking Brake..... | OFF (PUSH KNOB COMPLETELY AGAINST INSTRUMENT PANEL) |

D. BEFORE TAKEOFF:

- | | | |
|-----|--|--|
| 1. | Fuel Selector..... | ON FULLEST TANK OR BOTH |
| 2. | Flaps..... | AS DESIRED FOR T.O. (MAX. 15°/20°) |
| 3. | Trim Controls..... | SET FOR TAKEOFF |
| 4. | Flight Controls..... | CHECK FOR FREEDOM AND PROPER TRAVEL |
| 5. | Mixture Control..... | FULL RICH (EXCEPT AT HIGH ALTITUDE AIRPORTS) |
| 6. | Propeller Control..... | FULL INCREASE RPM |
| 7. | Carburetor Heat Control..... | PUSH COLD |
| 8. | Engine Instruments..... | RECHECK IN NORMAL RANGE |
| 9. | Radios..... | AS DESIRED |
| 10. | Altimeter..... | SET |
| 11. | Directional Indicator..... | SET |
| 12. | Seat Belts and Shoulder Harnesses..... | RECHECK FASTENED |
| 13. | Doors..... | CLOSED AND LATCHED |
| 14. | Passengers..... | BELTS AND HARNESSSES SECURED BRIEFED ON OPENING DOORS. |
| 15. | Parking Brake..... | OFF (PUSH KNOB COMPLETELY AGAINST INSTRUMENT PANEL) |

E. BEFORE LANDING:

- | | | |
|----|--|---|
| 1. | Seat Belts and Shoulder Harnesses..... | FASTENED |
| 2. | Fuel Selector Valve..... | ON FULLEST TANK OR BOTH |
| 3. | Mixture Control..... | FULL RICH (EXCEPT AT HIGH ALTITUDE AIRPORTS) |
| 4. | Propeller Control..... | FULL INCREASE RPM |
| 5. | Flaps..... | AS REQUIRED |
| 6. | Carburetor Heat Control..... | PULL HOT |
| 7. | Parking Brake..... | OFF (PUSH KNOB COMPLETELY AGAINST INSTRUMENT PANEL) |

F. ENGINE SHUT DOWN:

- | | |
|---------------------------------------|------------------------|
| 1. Parking Brakes..... | ON, IF DESIRED |
| 2. Radios..... | OFF |
| 3. All Other Electrical Switches..... | AS DESIRED |
| 4. Flaps..... | UP |
| 5. Magneto Grounding Check..... | PERFORM BELOW 1000 RPM |
| 6. Mixture Control..... | FULL LEAN |
| 7. Magneto Switch..... | OFF (AFTER PROP STOPS) |
| 8. Anti-Collision Light..... | OFF |
| 9. Master Switch..... | OFF |

NORMAL FLIGHT OPERATIONS:

A. FLAP SETTINGS:

The following Flap Settings are available:

Flap Configuration	Flap Handle Position	Flap Position	*Flap Position
Cruise	Handle Full Down	0°	0°
Flaps Up	First Notch	15°	20°
Takeoff	No Notch/First Notch	0°/15°	0°/20°
Landing	Second Notch	35°	40°
Landing	No Notch/First Notch	0°/15°	0°/20°

B. RECOMMENDED FLAP SETTINGS:

Flap settings are given in number of notches above the fully retracted position which is handle full down (0°).

Normal Takeoff - No Notch (0°) – First Notch (15°/*20°) Optional

Short, Rough and/or Soft Field Takeoff - Second Notch (35°/*40°) until safely airborne, then retract to First Notch (15°/*20°)

Normal Climb - (0°)

Best Angle of Climb - First Notch (15°/*20°)

Cruise - Fully retracted - No Notch (0°)

Landing - Second Notch (35°/*40° Full Flaps) - other positions optional

*(s/n 8001C-8022C modified per Maule SL#49 and s/n 8023C-8069C)

C. CLIMBING:

Best Rate of Climb – 90 MPH (78K) CAS, with Flaps @ No Notch (0°)

Best Angle of Climb – 75 MPH (65K) CAS with Flaps set @ First Notch (15°/*20°)

*(s/n 8001C-8022C modified per Maule SL#49 and s/n 8023C-8069C)

////////////////////
////CAUTION////
////////////////////
FOR TAKEOFF OR LANDING UNDER GUSTY CROSSWIND
CONDITIONS, FLAP SETTING OF 0° (NO NOTCH) IS
RECOMMENDED.

////////////////////
////CAUTION////
////////////////////
USE CLIMB AIRSPEED BELOW 90 MPH (78K) ONLY AS
NECESSARY AND CHECK CYLINDER HEAD TEMPERATURE
FREQUENTLY WHEN DOING SO.

D. RUDDER TRIM:

NOTE: To assure full effectiveness of the Right Rudder Trim:

Unlock "T" handle (½ turn left), depress right rudder as you pull "T" handle full out.

Lock "T" handle ½ turn right before releasing right rudder pressure. If too much trim,
move handle in until trim is correct and then lock.

E. STALLS:

Stalls are preceded by mild buffet that can be felt through the rudder pedals. The red
stall warning light on the instrument panel will illuminate at 5 to 10 mph above the
stall speed. Loss of altitude prior to recovery from a stall may be as much as 200
feet.

////////////////////
////CAUTION////
////////////////////
THE STALL WARNING LIGHT IS INOPERATIVE WHEN THE
MASTER SWITCH IS OFF

F. CROSSWIND LANDINGS & TAKEOFFS:

Maximum demonstrated 90° crosswind component is 14 MPH (12K).

G. FUEL SYSTEM MANAGEMENT:

Fuel is fed to the engine from the main (inboard) tanks and is controlled by the selec-
tor valve on the left kick panel. Optional auxiliary (outboard) tanks feed their respec-
tive main tanks via transfer pumps that are controlled by switches on the instrument
panel. These transfer pumps transfer fuel at a rate of 0.4 gallons per minute or ap-
proximately 30 minutes for a full auxiliary tank. Since overfilling a main tank from an
auxiliary tank will force excess fuel overboard, it is recommended that the transfer
pumps not be activated until their respective main tanks are less than one-half full.
Confirm fuel transfer by illumination of the transfer pump switch, an increase in the re-
spective main tank fuel gauge indicator, and a decrease on the respective auxiliary
tank indicator.

DOOR-OFF OPERATION:

This aircraft may be operated with either one (not both) of the front doors removed, or when both front doors are installed, with the rear passenger door or rear passenger and baggage doors off. When doing so, observe the following additional limitations:

1. Maximum airspeed - 125 MPH (109K)
2. Maximum bank angle - 30°
3. Maximum yaw angle - 10°
4. No Smoking permitted
5. Limit flight to VFR conditions

NOISE LEVEL:

The noise level obtained during certification per FAR 36 was 72.32 dBA. This was determined under the following conditions: Gross Weight 2300 lbs., 2600 RPM, Full Throttle.

No determination has been made by the Federal Aviation Administration that the noise level of this airplane is or should be acceptable for operation at, into, or out of any airport.

USE OF CARBURATOR HEAT:

Normal Flight:

If icing conditions are suspected, the manifold pressure should be closely monitored. Accumulation of ice will result in a loss of manifold pressure. Apply full carburetor heat until the manifold pressure returns to normal, then full cold.

Traffic Pattern:

If icing conditions are suspected, prior to power reduction, apply full carburetor heat. This allows engine heat to melt away any ice that may have accumulated in the carburetor. Leave on thought-out landing.

NOTE: Avoid the use of partial carburetor heat. Partial heat may cause ice to form under certain atmospheric conditions. If icing conditions are suspected, frequent power changes are recommended to prevent the throttle butterfly valve from freezing in position.

ANTI-COLLISION LIGHT:

//////////////////// ANTI-COLLISION LIGHT MAY CAUSE ADVERSE EFFECT ON PILOT
////WARNING//// WHEN FLYING IN VISIBLE MOISTURE, OVERCAST OR HAZE. IT IS
//////////////////// RECOMMENDED THAT IT BE TURNED OFF SHOULD PILOT DIS-
COMFORT BE NOTICED.

SECTION III

EMERGENCY PROCEDURES

EMERGENCY BASIC RULES:

To assist the pilot when an emergency occurs, three basic rules are established which apply to most emergencies occurring while airborne. Each aircrew member should remember them.

1. Maintain aircraft control
2. Analyze the situation and take proper action
3. Land as soon as conditions permit

ENGINE EMERGENCY SHUT DOWN:

1. Mixture - Full lean
2. Fuel Selector - OFF
3. Ignition Switch - OFF

/////////
////NOTE////
/////////

THE OVERVOLTAGE RELAY WARNING LIGHT WILL NOT OPERATE WHEN
THE MASTER SWITCH IS OFF.

ENGINE FIRE DURING STARTING:

1. Mixture - Full lean
2. Throttle - Open
3. Continue cranking for several revolutions. Attempt to draw fire inside engine.
4. Accomplish ENGINE EMERGENCY SHUT DOWN if fire continues.

ENGINE FIRE AFTER STARTING:

1. Accomplish ENGINE EMERGENCY SHUT DOWN
2. Master Switch - OFF

EMERGENCY EXIT ON THE GROUND:

1. Accomplish ENGINE EMERGENCY SHUT DOWN
2. Master Switch - OFF
3. Leave aircraft by either door or kick out side window panels or baggage door.

TAKEOFF ABORT: (BEFORE LIFT-OFF)

1. Throttle - Closed
2. Brakes - As Required

ENGINE FAILURE AFTER TAKEOFF OR FORCED LANDING:

1. Glide - Establish 83 MPH (72K) with flaps at 0°
2. Switch Fuel Selector to fullest tank
3. Electric Fuel Pump - ON
4. Mixture Rich, Ignition ON
5. Carburetor Heat Control - Pull HOT
6. If engine does not restart, accomplish EMERGENCY SHUT DOWN
7. Wing Flaps - As Required
8. Master Switch - OFF

PARTIAL POWER FAILURE DURING FLIGHT OR AFTER TAKEOFF:

1. Mixture - RICH
2. Carburetor Heat Control - Pull HOT
3. Airspeed - Glide at 83 MPH (72K) IAS if unable to maintain level flight
4. Fuel Selector - BOTH
5. Electric Fuel Pump - ON
6. Ignition Switch - BOTH
7. Master Switch - ON

COMPLETE POWER FAILURE DURING FLIGHT:

1. Glide - Establish 83 MPH (72K) (IAS)
2. Attempt engine airstart if warranted

ENGINE AIRSTART:

1. Fuel Selector – BOTH
2. Electric Fuel Pump - ON
3. Mixture - RICH
4. Ignition Switch - BOTH (start if propeller is not turning)
5. Auxiliary Fuel Tank pump switch – ON for tank feeding engine if Auxiliary tank has fuel.
6. If engine does not start, try flooded engine clearing procedure with throttle wide open and mixture FULL LEAN.
7. If no start, make forced landing

/////////
////NOTE////
/////////

PROPELLER WILL NOT WINDMILL BELOW 70 MPH (61K).

/////////
////NOTE////
/////////

AT ALTITUDES OVER 8000 FEET, A LEANER MIXTURE MAY BE REQUIRED.

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ELECTRICAL FIRE:

1. Master Switch - OFF

ENGINE FIRE DURING FLIGHT:

1. Accomplish ENGINE EMERGENCY SHUT DOWN
2. Make forced landing

SMOKE AND FUME ELIMINATION:

1. Cabin Heat Knob - IN
2. Cabin Air Knob - IN
3. Upper Air Vents - OPEN
4. Pilot's Window - OPEN (below 124 MPH (108K))

STRUCTURAL DAMAGE:

1. On Takeoff - Abort
2. In flight, maintain controllable airspeed
3. Climb to safe stall recovery altitude
4. Notify appropriate controlling agency, if appropriate.
5. Determine control difficulty airspeed by slowing down while flying straight ahead. Do not allow the aircraft to stall.
6. Make full stop landing using 5-10 MPH (4 to 9K) above difficulty airspeed or above normal approach speed, whichever is higher.

RECOVERY FROM INADVERTENT SPINS:

Intentional spins are prohibited. If the aircraft inadvertently enters a spin, simultaneously apply full rudder opposite to the direction of rotation and full nose down elevator with ailerons neutral and reduce power to idle. When the rotation stops, neutralize the rudder and elevator, and ease back on the control wheel as required to smoothly regain level flight. Wing flaps should be retracted to avoid exceeding the maximum flap speeds during recovery.

ALTERNATOR FAILURE:

Applicable to Serial Numbers 8001C thru 8022C:

The electrical system is protected from overvoltage by an overvoltage relay. Should the relay trip the alternator off, it will be indicated by illumination of the white OVERVOLTAGE RELAY "RESET" switch light located on the left instrument panel sub-panel. To reset the relay, momentarily push the "RESET" switch light. If the system will not reset or the relay repeatedly trips, reduce electrical load as much as possible, land as soon as practicable and investigate the electrical system malfunction before further flight.

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ALTERNATOR FAILURE: (Cont'd)

Applicable to Serial Numbers 8023C and up:

Alternator output should be monitored by reference to the ammeter located on the right side of the engine instrument cluster. Should the ammeter indicate a minus deflection when engine RPM is above 900 and/or red "ALTERNATOR OFF WARNING" light is illuminated, push ALT switch OFF then ON. Repeat two times as necessary to reset. If system will not reset, reduce the electrical load as much as possible, land as soon as practical and investigate the electrical system malfunction before further flight.

SECTION IV

WEIGHT AND BALANCE

Serial Number _____ Registration Number _____

It is the responsibility of the airplane owner and the pilot to insure that the airplane is loaded properly. The empty weight, empty weight center of gravity and useful load are listed below for this airplane. If the airplane has been altered, refer to the aircraft log and/or aircraft records for this information.

WEIGHT AND BALANCE DATA SUMMARY:

Basic Empty Weight (including engine oil)..... Lbs.
Gross Weight..... 2300 Lbs.
Useful Load..... Lbs.
Empty Center of Gravity..... Inches
Empty Weight Moment..... Inch Lbs.

CENTER OF GRAVITY RANGE:

<u>Center of Gravity Range</u>	<u>At Weight of</u>
+16.7 to +20.5 inches	2300 lbs.
+12.6 to +20.5 inches	1600 lbs. or less

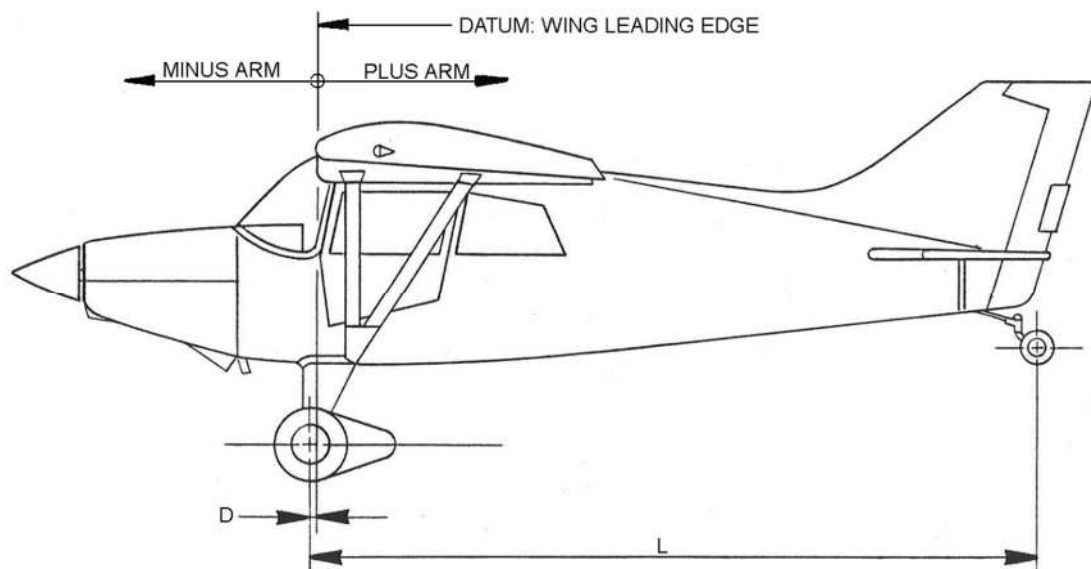
NOTE: Straight line variation between given points

DATUM: Wing leading edge

CERTIFIED BY _____ DATE _____

5.1 WEIGHT AND BALANCE: (Cont'd)

DETAILED CALCULATIONS OF EMPTY WEIGHT AND EMPTY WEIGHT CENTER OF GRAVITY:



PROCEDURE:

1. Place each of the wheels on a scale with the tailwheel elevated to place the airplane in approximately the flight attitude.
 2. Place a level on the leveling mark and leveling lug on the bottom of the right wing near the root. Adjust the height of the tailwheel until the aircraft is level.
 3. Measure the following distances:
 - a. Wheel base (**L**) - the horizontal distance from the tailwheel weight point (center of axle) to the main wheel weight point (center of axle).
L = _____ Inches
 - b. Main Wheel Station (**D**) - the horizontal distance from the main wheel weight point (center of axle) to the datum line.
D = _____ Inches
 4. Measure the weights at the following points:
 - a. **Right Main Wheel**.....= _____ Lbs.
 - b. **Left Main Wheel**.....= _____ Lbs.
 - c. **Tailwheel**, with tare = _____ Lbs., minus tare of _____ Lbs.
= net Tailwheel wt. (**T**) of _____ Lbs.
- Total Weight as Weighted (**W**) = _____ Lbs.

5.1 WEIGHT AND BALANCE: (Cont'd)

The above empty weight includes unusable fuel of 18 lbs. at 24 inches and 8 quarts of oil at minus 36.5 inches plus all items of equipment as marked on the accompanying Equipment Lists. The Certificated empty weight is the above weight less 16 lbs. drain-

able oil at a minus arm of 36.5 inches and for this airplane is _____lbs. The

corresponding empty weight center of gravity is _____inches.

5. Calculations for determining weight, C.G. and moment:

a. Center of Gravity (inches) = $\frac{L \times T}{W} - D$

i.e., C.G. = _____ - _____ = _____inches.

b. Moment (inch pounds) = **W** x C.G.

i.e., Moment = _____ x _____ = _____inch lbs.

EXAMPLE OF WEIGHT AND BALANCE CALCULATION FOR LOADED AIRCRAFT:

An airplane with an empty weight of 1350 lbs. and empty weight C.G. location of 12.5 inches is loaded with a pilot and front seat passenger, fuel and baggage.

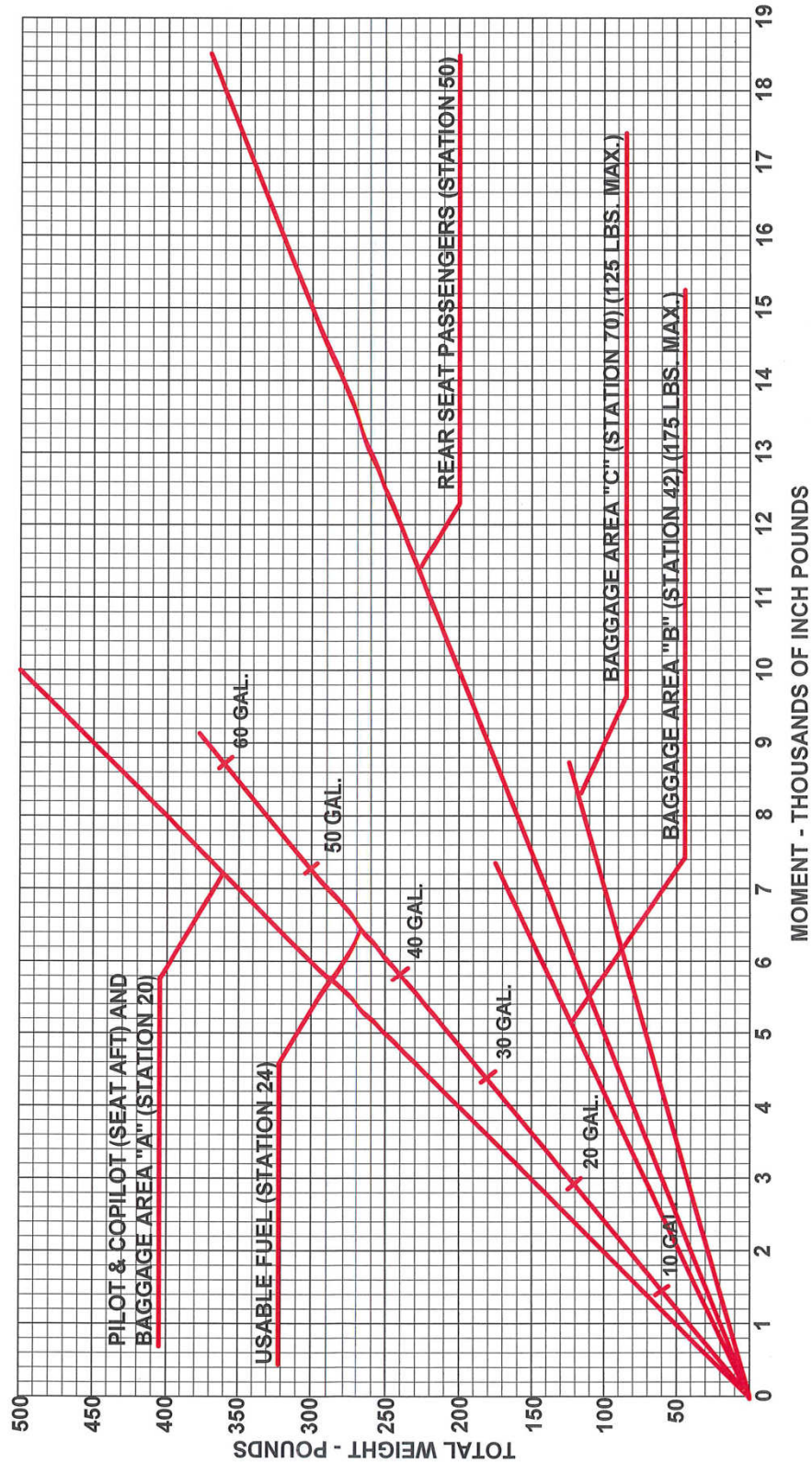
Item	Weight, lbs.	C.G. Location	Moment, In.lbs.
Empty Weight (including engine oil)	1350	12.5	16,875
Pilot and Front Passenger	340	*	6,800
Fuel - 40 gal. in Mains plus 23 gal. in Aux.	378	*	9,072
Baggage (Area "C")	<u>125</u>	*	<u>8,750</u>
	2193	18.9	41,497

*Moments can be read directly from the loading graph.

By locating the point corresponding to 2193 lb. aircraft weight and a C.G. Location of 18.9 inches on the Center of Gravity envelope graph, you can see that this point falls within the envelope, signifying the loading is acceptable.

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(S/n's 8001C – 8069C)

SECTION IV
WEIGHT AND
BALANCE

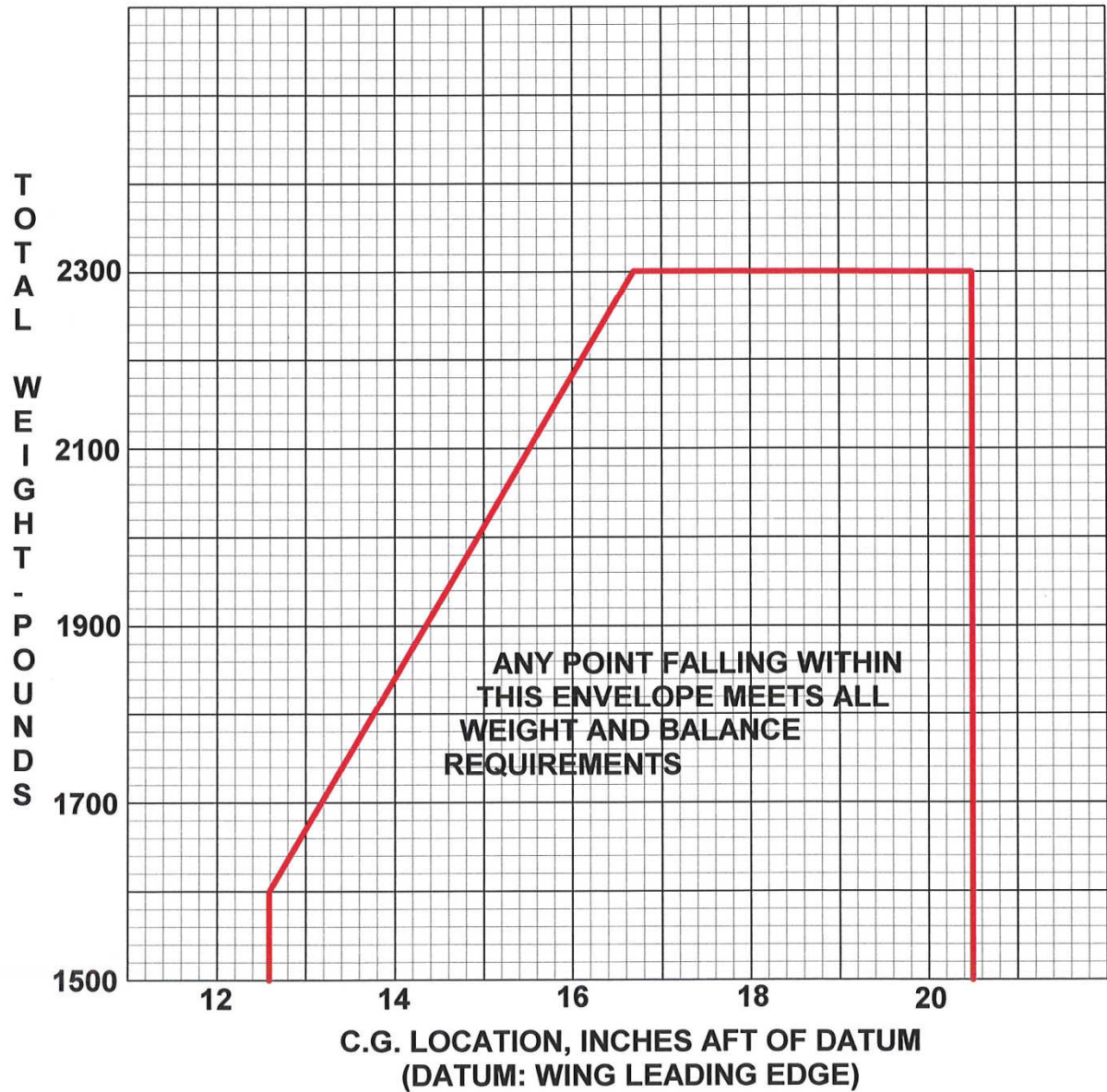


LOADING CHART

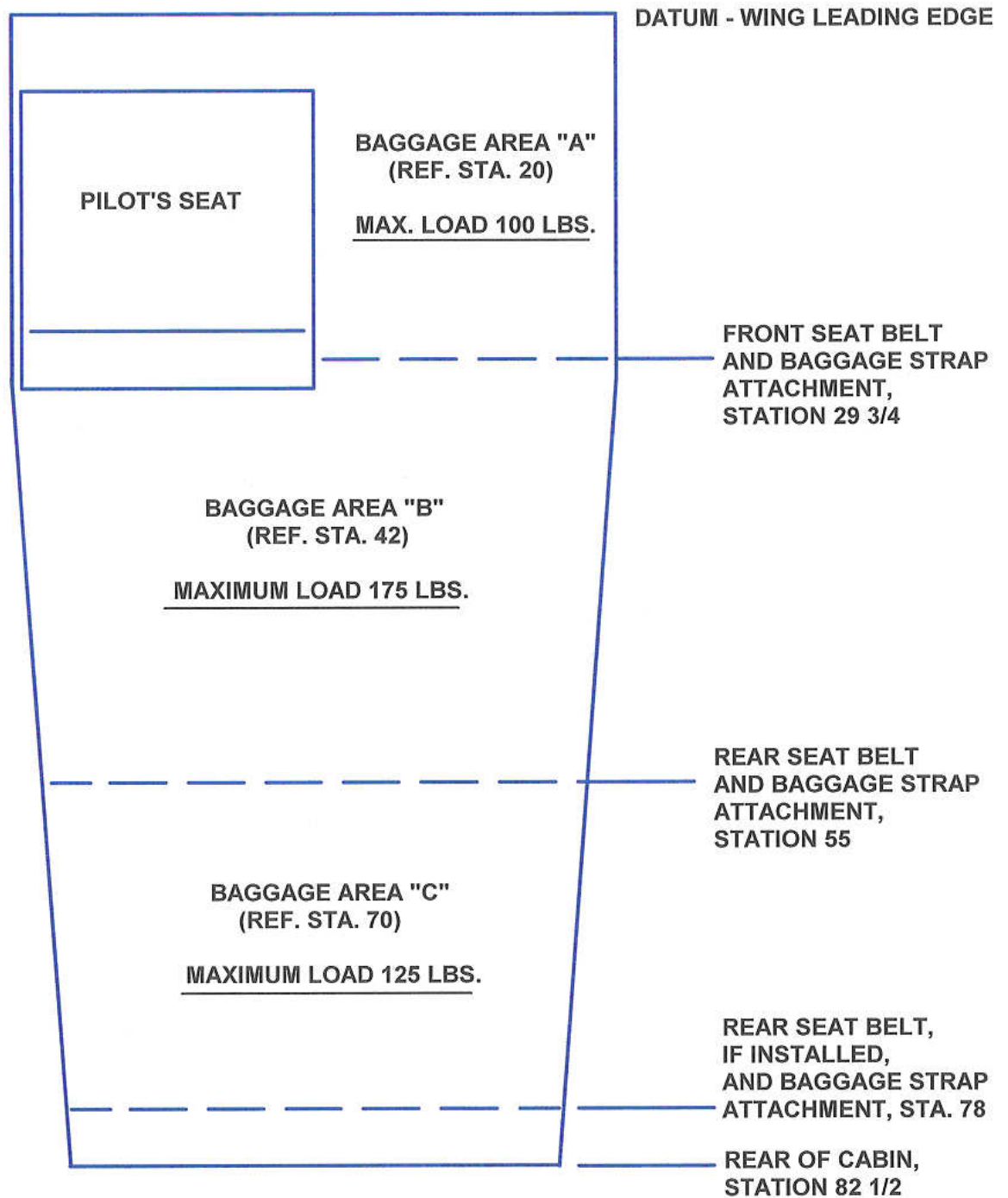
PROCEDURE FOR DETERMINING WEIGHT & CENTER OF GRAVITY:

1. Add weight of items to be carried to the basic empty weight of the aircraft.
2. Find moments of items to be carried by using the above loading graph and add these moments to the empty moment of the aircraft. Divide total moment by total weight for aircraft C.G. location.
3. Using the C.G. location from Step 2, find the point on the Weight and Balance Envelope.

WEIGHT AND BALANCE ENVELOPE



STRUCTURAL CAPACITY CHART



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MAULE M-5-180C

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SECTION IV
WEIGHT AND
BALANCE

SERIAL NO. _____ REG. NO. _____ MODEL _____

EQUIPMENT CHANGE - WEIGHT AND BALANCE

ITEM'S (MAKE & MODEL) WEIGHT ARM MOMENTS

Previous Aircraft Empty			

- A. New Empty Weight _____ lbs.
- B. New Empty Center of Gravity _____ ins.
- C. New Empty Weight C.G. Moment _____ in. lbs.
- D. New Useful Load _____ lbs.

Supersedes all previous weight and balance data. For aircraft loading see instructions in original weight and balance forms.

BY _____ DATE _____

SECTION V

AIRCRAFT SERVICING, HANDLING AND MAINTENANCE

Our dealers and distributors are anxious to serve you and will gladly furnish advice as to proper servicing methods. You may also address request for information on any items not covered in the manual to our Service Department (229-873-0204). In correspondence, please be certain to give complete information on serial number, engine make and model.

The aircraft Type Data Plate can be found on the door post behind pilot seat or left side of the vertical fin just above the horizontal stabilizer. Also, pertinent engine and propeller data is in the aircraft log-book.

A Maintenance Manual is furnished with each aircraft. Extra copies can be downloaded from our website at mauleairinc.com. Information for purchasing a Parts Catalog DVD can be found on the website.

AIRPLANE INSPECTION PERIOD:

The airplane must be maintained as outlined in FAR 43. Recommended inspections are outlined in the airplane Maintenance Manual. The owner/operator is responsible for Airworthiness Directives (AD's) that may be issued from time to time. Reference should be made to FAR 91 and FAR 43 requirements for properly certified agency or personnel to accomplish the required FAA inspection and most of the manufacturer's recommended inspections.

It is required that owner's email address, (name and home address – optional) and aircraft serial number be sent to **OwnerAlert@mauleairinc.com** for notification of any Maule Service Letters, Service Bulletins and/or Manual updates available for downloading from our website at mauleairinc.com.

PREVENTIVE MAINTENANCE THAT MAY BE ACCOMPLISHED BY A CERTIFIED PILOT:

- A. A certified pilot who owns or operates an airplane not used as an air carrier is authorized by FAR Part 43 to perform limited preventive maintenance on his airplane. Refer to FAR Part 43 for list of things the pilot may do. Pilots operating aircraft of other than U.S. registry should refer to the regulations of the country of certification for information on preventive maintenance that may be performed by pilots. All other maintenance required on airplane is to be accomplished by appropriately licensed personnel and that airplane dealer or service station should be contacted for further information.
- B. Preventive maintenance should be accomplished in accordance with the appropriate airplane Maintenance Manual. Manual should be obtained prior to performing preventive maintenance to be sure that proper procedures are followed.

ALTERATIONS OR REPAIRS TO AIRPLANE:

Alterations or repairs to airplane must be accomplished by licensed personnel. The FAA should be contacted prior to any alterations on airplane to insure that Airworthiness of the airplane is not violated.

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