

ON BOARD

MAULE AEROSPACE TECHNOLOGY, INC.

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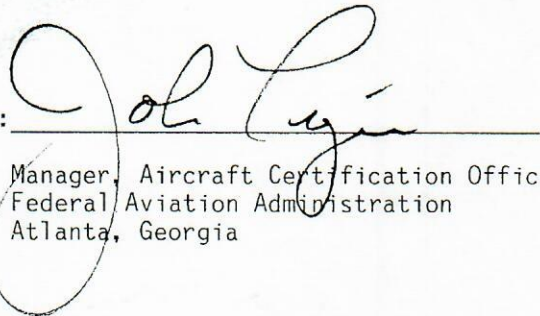
F A A A P P R O V E D
A I R P L A N E F L I G H T M A N U A L
FOR
MAULE MT-7-235

Airplane Serial No. 2531

Registration No. D-EMBJ

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

FAA APPROVED:


Manager, Aircraft Certification Office
Federal Aviation Administration
Atlanta, Georgia

DATE: _____

MAR 20 1992

IT'S PERFORMANCE THAT COUNTS!

MT-7-235.max

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LOG OF SUPPLEMENTS

SUP. NO.	NO. OF PAGES	DESCRIPTION	APPROVAL DATE
1	2	Operation of aircraft with Center Seat at 56 inch Station.	12/17/92
2	21	Inst. of Wipline Model 3000 Amphibious Floats - Maule Drawing 9188A . (05/17/99) Rev. A	08/19/02
3	8	Inst. of Aqua Model 2400 Floats - Maule Drawing 9135A , Rev. E or later revision. (11/19/99) Rev. A	08/19/02
4	2	Inst. of Century Flight Systems Century IIB Autopilot - Maule Installation Manual AK513 .	03/24/95
5	6	English to Metric Conversion Charts - required in aircraft when registered in Canada .	09/03/99
6	9	Inst. of S-TEC System 50 Two Axis Autopilot ST-418-50 (14v) - 9193A , Rev. B or later.	01/05/00
7	9	Inst. of S-TEC System 30 Two Axis Autopilot ST-810-30 (14v) - 9197A , Rev. A or later. (Land)	01/21/00
8	9	Inst. of S-TEC System 30 Two Axis Autopilot ST-810-30 (14v) - 9197A , Rev. A or later (Sea)	01/21/00
9	9	Inst. of S-TEC System 50 Two Axis Autopilot ST-609-50 (28v) - 9200A , Rev. A or later.	02/14/00
10	6	Inst. of S-TEC System 55 Two Axis Autopilot ST-573 (14v) - 9195A , Rev. A or later. (Land)	04/04/00
11	6	Inst. of S-TEC System 55 Two Axis Autopilot ST-573 (14v) - 9195A , Rev. A or later. (Sea)	04/04/00
12	9	Inst. of S-TEC System 20 Single Axis Autopilot ST-810-20 (14v) - 9197A , Rev. B or later. (Land)	03/20/00
13	9	Inst. of S-TEC System 20 Single Axis Autopilot ST-810-20 (14v) - 9197A , Rev. B or later. (Sea)	03/20/00
14	8	Inst. of S-TEC System 20 Single Axis Autopilot ST-820-20 (28v) - 9201A , Rev. A or later.	03/20/00
15	7	Inst. of S-TEC System 40 Single Axis Autopilot ST-418-40 (14v) - 9193A , Rev. C or later.	10/29/01
16	7	Inst. of S-TEC System 40 Single Axis Autopilot ST-609-40 (28v) - 9200A , Rev. B or later.	10/29/01
18	4	Inst. of S-TEC System 20 Single Axis Autopilot ST-872-20 (28v) - Maule Drawing 9211A . (Land)	06/25/01
19	5	Inst. of S-TEC System 30 Two Axis Autopilot ST-872-30 (28v) - Maule Drawing 9211A . (Land)	06/25/01
20	2	Installation of Hartzell HC-C3YR-1RF/F-7693(F)-() Propeller - Maule Drawing 5279F .	05/20/02
-	5	Inst. of S-TEC System 20 Single Axis Autopilot ST-872-20 (28v) - Maule Drawing 9211A . (Sea)	06/25/01
-	5	Inst. of S-TEC System 30 Two Axis Autopilot ST-872-30 (28v) - Maule Drawing 9211A . (Sea)	06/25/01
-	3	Installation of GARMIN GNS-430 (GPS/NAV/COMM) System - Maule Drawing 7205A .	01/03/01
-	3	Installation of GARMIN GNC-300XL (GPS/COMM) System - Maule Drawing 7207A .	01/03/01
-	3	Installation of GARMIN GNC-250XL (GPS/COMM) System - Maule Drawing 7209A .	01/03/01
-	3	Installation of Bendix-King KLX-135A (GPS/COMM) System - Maule Drawing 7219A .	01/03/01
-	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
21	9	Inst. of S-TEC System 60 Two Axis Autopilot ST-495 (28v) - 9235A , Rev. A .	08/29/03

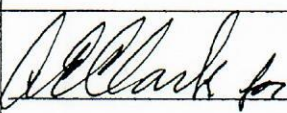
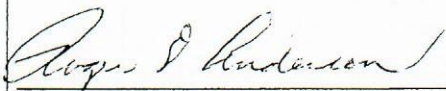
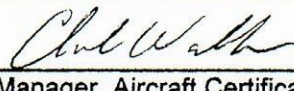
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LOG OF REVISIONS

REV.	TO PAGES	DESCRIPTION	APPROVAL AND DATE
A	4	Propeller mod. no. B2D37C224-C/G-90RA-9 corrected to B2D37C224-B/G-90RA-9	 Manager, Aircraft Certification, Federal Aviation Administration, Atlanta, Georgia Date: <u>DEC 18 1992</u>
B	4	Added Lycoming IO-540-W1A5 engine.	 Manager, Aircraft Certification, Federal Aviation Administration, Atlanta, Georgia Date: <u>DEC 18 1992</u>
C	2 5 6 10 20	Deleted Fuel Quantity in Paragraph 1.4 and referred to Fuel Supply Table. Added Fuel Supply Table. Relocated the Flap Control Handle Placard and the Rear Cabin Cargo Limitations Placard from page 6. Deleted Fuel Capacity numbers from Fuel Transfer Pump Switch Placard and added note for Tank Configuration. Added "Parking Brake...OFF" to 3.2.D. BEFORE TAKEOFF. Added unusable fuel weight for new tank configurations.	 Manager, Aircraft Certification Office Federal Aviation Administration Atlanta, Georgia Date: <u>OCT 28 1994</u>
D	3, 5, 12-17	Changed primary airspeed units to knots.	 for Manager, Aircraft Certification Office, FAA, Atlanta, GA Date: <u>MAR 07 2002</u>

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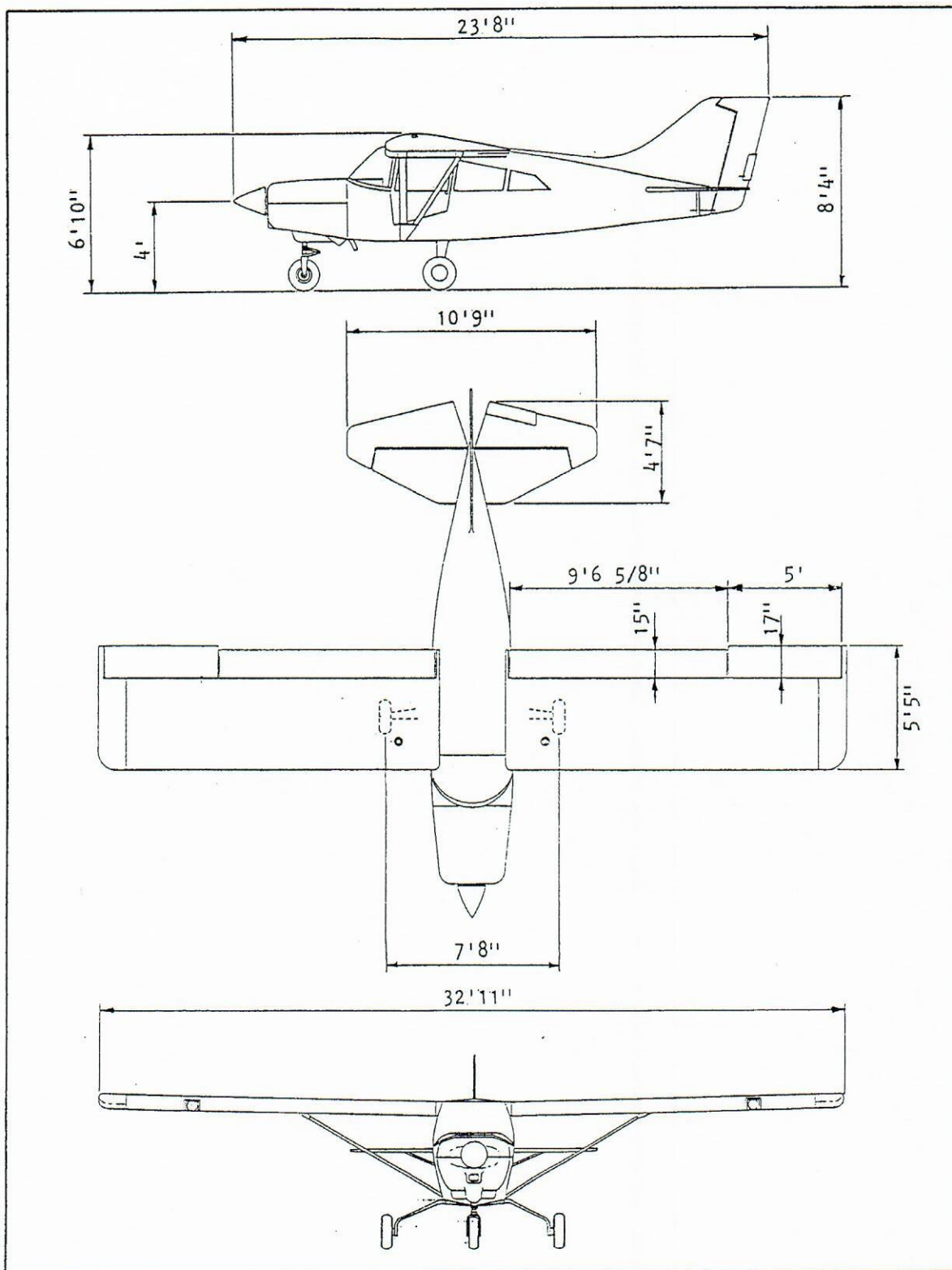
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SECTION I
GENERAL

SECTION I

GENERAL: NORMAL CATEGORY OPERATION

- 1.1 MAXIMUM WEIGHT: 2500 Pounds
- 1.2 CENTER OF GRAVITY LIMITS: +15.0 to +20.5 @ 2500 lbs.
+12.0 to +20.5 @ 1800 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.

///////////////// CHECK WEIGHT AND BALANCE CAREFULLY, ESPECIALLY WHEN USING
////CAUTION//// THE 5TH SEAT OR WHEN CARGO OR BAGGAGE IS CARRIED IN THE
///////////////// REAR CABIN AREA. ALSO, FLIGHT PLANNING SHOULD INCLUDE
ALLOWANCE FOR FORWARD C.G. SHIFT WITH FUEL BURN.

- 1.3 MANEUVERS: Only Normal Category Maneuvers including Stalls, Lazy Eights, Chandelles and steep turns involving bank angles not greater than 60° are approved in this airplane.

///////////////// AEROBATICS AND INTENTIONAL SPINS PROHIBITED.
////CAUTION////
/////////////////

- 1.4 FUEL CAPACITY: Usable Fuel: See Table Below
Unusable Fuel: See Table Below

Fuel Capacity - See Instrument Panel Placard for Tank configuration
installed in this
Aircraft

Tank Config.	Tank Location	Usable Fuel (Gal.)	Unusable Fuel (Gal.)
A	Main	20.0	1.5
	Aux.	15.0	0.0
B	Main	20.0	1.5
	Aux.	21.0	0.0
C	Main	21.5	2.3
	Aux.	15.0	0.0
D	Main	21.5	2.3
	Aux.	21.0	0.0

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

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SECTION II

LIMITATIONS

2.1 **AIRSPEED LIMITS:** All airspeeds are Indicated Airspeeds (IAS).

A. AIRSPEED INDICATOR MARKINGS:

Red Radial, (V_{NE}) - 158K (182 mph)

Yellow Arc, Caution Range - 128 - 158K (147 - 182 mph)

Green Arc, Normal Operating Range - 54 - 128K (62 - 147 mph)

White Arc, Flap Operating Range - 43 - 83K (50 - 95 mph)

B. EXPLANATION OF AIRSPEED INDICATOR MARKINGS:

Red Radial Line - Never Exceed Speed (V_{NE}) 158K (182 mph): Maximum safe airspeed in smooth air.

Yellow Arc - Caution Range, 128 - 158K (147 - 182 mph): 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, 54 - 128K (62 - 147 mph): Extends from flaps up, power off stall speed at 2500 lbs. (V_{S1}) to design cruise speed (V_C).

White Arc - Flap Operating Range, 43 - 83K (50 - 95 mph): Extends from full flap, power off minimum stall speed at 2500 lbs. (V_{SO}) to the Maximum flaps extended speed (V_{FE}).

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LIMITATIONS

2.2 POWER PLANT LIMITS:

Engine: Lycoming IO-540-W1A5D or IO-540-W1A5

Engine Limits: 235 hp @ 2400 rpm, Full Throttle Continuous

Propeller: Hartzell: Constant Speed HC-C2YR-1BF/F8468A-6R
(78") or -3R (81")

McCaughey: Constant Speed B3D32C414-C/G-82NDA-4
(78") or -2 (80") or
B2D37C224-B/G-90RA-9 (81")

Fuel: 100/100LL 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: Green Arc - Normal Operating Range
55 to 95 psi

Yellow Arc - Caution Range,
25 to 55 psi 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 in.H_g

Fuel Flow: Red Radial - Maximum, 8.9 psi or
26.9 gph

Tachometer: Green Arc - Normal Operating Range
2050 to 2400 RPM

Red Radial - Maximum RPM, 2400 RPM

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LIMITATIONS

2.2 POWER PLANT LIMITS: Cont'd

////////////////// DO NOT EXCEED 23 INCHES M.P. BELOW 2050 RPM. WHEN EQUIPPED
////CAUTION//// WITH THE HARTZELL -6R (78") PROP. THIS IS A VIBRATORY STRESS
////////////////// LIMITATION WHICH APPLIES ONLY TO THIS MODEL PROPELLER.

2.3 FLIGHT LOAD FACTORS: Flaps Fully Retracted: 3.8g Positive to 1.5g Negative
Flaps Extended: 1.9g Positive to 0g Negative

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

2.4 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 FLIGHT MANUAL AND IN THE FORM OF PLACARDS AND MARKINGS."

"NO AEROBATIC MANEUVERS INCLUDING SPINS, APPROVED."

"MANEUVERING SPEED: 109K (125 MPH) I.A.S."

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

"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."

Located on flap control handle:

"FLAPS / PULL ON / 2ND NOTCH / TAKEOFF / 4TH NOTCH / LANDING."

In rear cabin area:

"CARGO OR BAGGAGE LIMITATIONS/MAX. LOAD AREA "A" 170 LBS./
MAX. LOAD AREA "B" 350 LBS./MAX. LOAD AREA "C" 250 LBS.

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LIMITATIONS

2.4 PLACARDS: Cont'd)

In Rear Cabin Area: (Cont'd)

"CHECK WEIGHT AND BALANCE CAREFULLY WHEN USING 5TH SEAT OR LOADING REAR/CARGO/BAGGAGE. MAXIMUM REAR SEAT LOADING IS 170 LBS.

The following placard is located at the main fuel tank selector valve on the left kick panel:

FUEL SELECTOR VALVE

LEFT: * GAL.

OFF BOTH

RIGHT: * GAL.

The following placard is located on the instrument panel at the auxiliary tank transfer switches:

FUEL TRANSFER PUMPS

PUSH FOR
AUX. QUANT.

LEFT RIGHT

PUSH FOR
AUX. QUANT.

FUEL CAPACITY: MAIN TANKS * GAL. USABLE EACH, AUX. TANKS * GAL.
USABLE EACH. (TANK CONFIGURATION ____)

* Instrument Panel Placard will show capacity of the tanks installed in this aircraft. See Table on page 2 for capacity of available tank configurations.

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SECTION III
NORMAL PROCEDURES

SECTION III

NORMAL PROCEDURES:

3.1 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 (3RD NOTCH)

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 ATTACHMENTS
3. Aileron.....CHECK HINGES & CONTROL ATTACHMENTS
4. Left Wing Top.....CHECK FOR WRINKLES AS INDICATION OF INTERNAL DAMAGE
5. Left Wing Main & Aux Fuel Tank Drain...DRAIN (2)
6. Left Wing Tip & 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 Landing Gear.....CHECK TIRE INFLATION & 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
18. Nose Gear.....CHECK TIRE INFLATION & STRUT EXTENSION, CLEAN STRUT
19. Right Landing Gear.....CHECK TIRE INFLATION & BRAKE LINE
20. Right Wing & Controls.....INSPECT SAME AS LEFT WING

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SECTION III
NORMAL PROCEDURES

3.1 PREFLIGHT INSPECTION: (Cont'd)

- | | |
|--|---|
| 21. Wing Main & Aux Fuel Tank Drain..... | DRAIN (2) |
| 22. Right Fuselage, Side & Top..... | INSPECT FOR WRINKLES
AS INDICATION OF
INTERNAL DAMAGE |
| 23. Right Side Static Port..... | CLEAR |
| 24. Right Stabilizer..... | CHECK ATTACHMENT POINTS
& STRUT |
| 25. Right Elevator..... | CHECK HINGE POINTS |
| 26. Rudder..... | CHECK HINGE POINTS,
CONTROL ATTACHMENTS
& NAV. LIGHT |
| 27. Tail Skid..... | CHECK FOR DAMAGE, REMOVE
TIEDOWN |
| 28. Left Elevator..... | CHECK TAB CONTROLS
& ALL HINGE POINTS |
| 29. Left Stabilizer..... | CHECK ATTACHMENT &
STRUT |
| 30. Left Fuselage, Side & Top..... | CHECK FOR WRINKLES
AS INDICATION OF
INTERNAL DAMAGE |
| 31. Left Side Static Port..... | CLEAR |

3.2 OPERATING CHECK LISTS:

A. BEFORE STARTING:

- | | |
|---|-----------|
| 1. Seat Belts & Shoulder Harnesses..... | FASTENED |
| 2. Flaps..... | RETRACTED |
| 3. Circuit Breakers..... | CHECK |

B. STARTING:

- | | |
|-------------------------------|--|
| 1. Parking or Toe Brakes..... | ON |
| 2. Fuel Selector Valve..... | ON FULLEST TANK, OR
BOTH IF SAME QUANTITIY |
| 3. Throttle..... | OPEN 1/4 INCH |
| 4. Propeller Control..... | FULL INCREASE RPM |
| 5. Mixture Control..... | RICH (SEE NOTE NEXT
PAGE FOR HOT START) |
| 6. Anti-Collision Light..... | ON |
| 7. BAT and ALT Switch..... | ON |
| 8. Prime..... | AS REQUIRED USING BOOST
PUMP (SEE NOTE NEXT PAGE) |
| 9. Mixture Control..... | FULL LEAN |
| 10. Starter Switch..... | TWIST FULL RIGHT TO
ENGAGE |
| 11. Mixture Control..... | FULL RICH WHEN ENGINE
STARTS TO FIRE |

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NORMAL PROCEDURES

3.2 OPERATING CHECK LISTS: (Cont'd)

NOTE: FOR A HOT START, DO NOT PRIME. A HOT ENGINE MAY FLOOD ON A 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. FOR A COLD ENGINE (FIRST START OF THE DAY), PLACE MIXTURE TO FULL RICH, THROTTLE 1/4" OPEN. PRIME WITH BOOST PUMP FOR 3 to 5 SECONDS. IF ENGINE DOES NOT START, PRIME FOR ANOTHER 3 to 5 SECONDS. OVERPRIME CAN BE NOTED BY FUEL COMING FROM DRAIN IN CENTER OF BOTTOM COWL.

////////// 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.

12. After Starting.....CHECK OIL PRESSURE

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

13. Alternator.....CHECK CHARGING
14. Radios & other electrical switches.....AS REQUIRED
15. Parking Brake.....OFF

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, 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. Propeller Control.....RETARD SLOWLY UNTIL
MAXIMUM OF 500 RPM
DROP IS NOTED. RETURN
TO FULL INCREASE RPM.
REPEAT. SET FULL
INCREASE RPM.

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NORMAL PROCEDURES

3.2 OPERATING CHECK LISTS: (Cont'd)

Alternate Air Control.....TURN LEFT TO UNLOCK
AND PULL

NOTE: NORMAL RPM DROP WITH ALTERNATE AIR IS APPROXIMATELY 50 RPM.

7. Alternate Air Control.....PUSH IN AND TURN RIGHT
TO LOCK
8. Vacuum Gauge.....CHECK IN GREEN
9. Alternator.....CHARGING: LIGHT OUT
ABOVE 900 RPM
10. Throttle.....RETARD TO IDLE

D. BEFORE TAKEOFF:

1. Fuel Selector.....ON FULLEST TANK OR BOTH
2. Flaps.....AS DESIRED FOR T.O.
(MAX. 24°)
3. Trim Controls.....SET FOR TAKEOFF
4. Flight Controls.....CHECK FOR FREEDOM AND
PROPER TRAVEL
5. Mixture Control.....FULL RICH
6. Propeller Control.....FULL INCREASE RPM
7. Alternate Air Control.....PUSH IN AND LOCK
8. Engine Instruments.....RECHECK IN NORMAL RANGE
9. Radios.....AS DESIRED
10. Altimeter.....SET
11. Attitude Indicator.....CHECK ERECT
12. Directional Indicator.....SET
13. Seat Belts & Shoulder Harnesses.....RECHECK FASTENED
14. Doors.....CLOSED & LATCHED
15. Passengers.....BELTS & HARNESSSES
SECURED. BRIEFED ON
OPENING DOORS.
16. Parking Brake.....OFF

E. BEFORE LANDING:

1. Seat Belts & Shoulder Harnesses.....FASTENED
2. Fuel Selector Valve.....ON FULLEST TANK OR BOTH
3. Mixture Control.....FULL RICH
4. Propeller Control.....FULL INCREASE RPM
5. Flaps.....AS REQUIRED
6. Alternate Air Control.....IN AND LOCKED

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SECTION III
NORMAL PROCEDURES

3.2 OPERATING CHECK LISTS: (Cont'd)

F. ENGINE SHUT-DOWN:

1. Parking Brakes.....ON, IF DESIRED
2. Radios.....OFF
3. All other electrical switches.....AS DESIRED
4. Flaps.....AS DESIRED
5. Magneto Grounding Check.....PERFORM BELOW 1000 RPM
6. Mixture Control.....FULL LEAN
7. Magneto Switch.....OFF
8. Anti-Collision Light.....OFF
9. BAT & ALT Switch.....OFF

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3.3 NORMAL FLIGHT OPERATIONS:

A. NOTE: FLAP SETTINGS:

The following Flap Settings are available:

Flap Configuration	Flap Handle Position	Flap Position
Cruise	Handle Full Down	-7°
Flaps Up	First Notch	0°
Takeoff	Second Notch	24°
Landing	Third Notch	40°

B. RECOMMENDED FLAP SETTINGS:

Flap settings are given in number of notches above the fully retracted position, which is handle full down (Normal -7°).

NOTE: The airplane meets CAR 3 takeoff climb requirements at 78K (90 mph) IAS with the flaps selected in any of the following three positions: (a) Fully Retracted, Handle full down (-7°), (b) First Notch (0°), and (c) Second Notch (24°).

Normal Takeoff - Second Notch (24°)

Normal Climb - First Notch (0°)

Best Angle of Climb - Second Notch (24°)

Cruise - Fully retracted (-7°/no notches or 0°/first notch)

Landing - Normally Third Notch (40°/full flaps) - other positions optional

C. CLIMBING:

Best Rate of Climb - 78K (90 mph) IAS, flaps @ First Notch (0°)

Best Angle of Climb - 65K (75 mph) IAS with flaps set @ Second Notch (24°)

////////// FOR TAKEOFF OR LANDING UNDER GUSTY CROSSWIND
////CAUTION//// CONDITIONS FLAP SETTING OF 0° (one notch) IS RECOMMENDED.
////////// -7° OPTIONAL.

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

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SECTION III
NORMAL PROCEDURES

D. RUDDER TRIM:

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

Unlock "T" handle (1/2 turn left), depress right rudder as you pull "T" handle full out. Lock "T" handle 1/2 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 4 to 9K (5 to 10 mph) above the stall speed. Loss of altitude prior to recovery from a stall may be as much as 300 feet.

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

F. CROSSWIND LANDINGS & TAKEOFFS:

Maximum demonstrated crosswind component is 12K (14 mph) and flap extension should be limited to 0° (fully retracted) with such crosswind or higher. 12K (14 mph) is the maximum demonstrated for certification of the airplane and is not considered limiting with flaps at 0°.

G. FUEL SYSTEM MANAGEMENT:

Fuel is fed to the engine from the main (inboard) tanks and is controlled by the selector valve on the left kick panel. Auxiliary (outboard) tanks feed their respective 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 approximately 45 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 slightly more than one quarter full. If the tank being transferred to is feeding the engine, however, transfer can be initiated when the main tank is down to approximately one half. Confirm fuel transfer by illumination of the transfer pump switch, an increase in the respective main tank fuel gauge indicator, and a decrease on the respective auxiliary tank indicator.

3.4 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 - 109K (125 mph)
2. Maximum bank angle - 30°
3. Maximum yaw angle - 10°
4. No Smoking permitted
5. Limit flight to VFR conditions

3.5 NOISE LEVEL:

The noise levels obtained during certification per FAR 36, were:

with Hartzell	-6R (78")	2 blade	67.6 dBA
with Hartzell	-3R (81")	2 blade	71.3 dBA
with McCauley	-4 (78")	3 blade	68.0 dBA
with McCauley	-2 (80")	3 blade	73.6 dBA
with McCauley	-9 (81")	2 blade	73.3 dBA

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.

3.6 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 UNDER THESE
CONDITIONS.

SECTION IV

EMERGENCY PROCEDURES

4.1 **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

4.2 **ENGINE EMERGENCY SHUT DOWN:**

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

4.3 **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.

4.4 **ENGINE FIRE AFTER STARTING:**

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

4.5 **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.

4.6 **TAKEOFF ABORT: (BEFORE LIFT-OFF)**

1. Throttle - Closed
2. Brakes - As Required

4.7 **ENGINE FAILURE AFTER TAKEOFF OR FORCED LANDING:**

1. Glide - Establish 69K (80 mph) IAS with flaps at 0°
2. Switch Fuel Selector to fullest tank

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4.7 ENGINE FAILURE AFTER TAKEOFF OR FORCED LANDING: (Cont'd)

3. Electric Fuel Pump - On
4. Mixture Rich, Ignition On
5. Alternate Air Control - Pull On
6. If engine does not restart, accomplish EMERGENCY SHUT DOWN
7. Wing Flaps - As Required
8. Master Switch - Off

4.8 PARTIAL POWER FAILURE DURING FLIGHT OR AFTER TAKEOFF:

1. Mixture - Rich
2. Alternate Air Control - Pull On
3. Airspeed - Glide at 69K (80 mph) IAS if unable to maintain level flight
4. Fuel Selector - Both
5. Electric Fuel Pump - On
6. Ignition Switch - Both
7. Master Switch - On

4.9 COMPLETE POWER FAILURE DURING FLIGHT:

1. Glide - Establish 69K (80 mph) IAS
2. Attempt engine airstart if warranted

4.10 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. If engine does not start, try flooded engine clearing procedure with throttle wide open and mixture full lean.
6. If no start, make forced landing

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

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

4.11 ELECTRICAL FIRE:

1. Master Switch - Off

4.12 ENGINE FIRE DURING FLIGHT:

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

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4.13 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 104K (120 mph)

4.14 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 4 to 9K (5 to 10 mph) above difficulty airspeed or above normal approach speed, whichever is higher.

4.15 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.

4.16 ALTERNATOR FAILURE:

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.

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SECTION V
WEIGHT AND BALANCE

SECTION V

5.1 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 as delivered from the factory. If the airplane has been altered, refer to the aircraft log and/or aircraft records for this information.

WEIGHT AND BALANCE DATA SUMMARY AS DELIVERED FROM THE FACTORY

Basic Empty Weight (including engine oil).... _____ Lbs.
Gross Weight..... 2500 _____ Lbs.
Useful Load..... _____ Lbs.
Empty Center of Gravity..... _____ Inches
Empty Weight Moment..... _____ Inch Lbs.

CENTER OF GRAVITY RANGE:

<u>At Weight of</u>	<u>Center of Gravity Range</u>
2500 lbs.	+15.0 to +20.5 inches
1800 lbs. or less	+12.0 to +20.5 inches

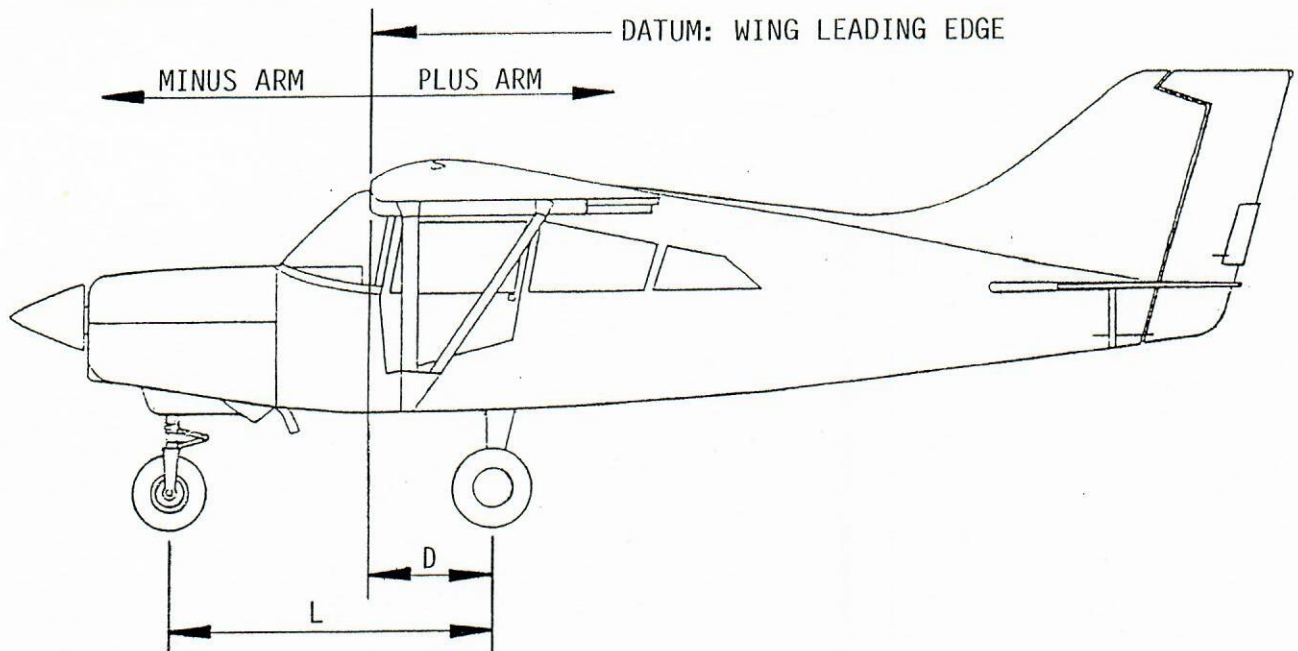
NOTE: Straight line variation between given points

DATUM: Wing leading edge

CERTIFIED BY _____ DATE _____

5.1 WEIGHT AND BALANCE: (Cont't)

DETAILED CALCULATIONS OF EMPTY WEIGHT AND EMPTY WEIGHT CENTER OF GRAVITY AS DELIVERED FROM FACTORY:



PROCEDURES:

1. Place each of the wheels on a scale with the airplane approximate level 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 extension of the nosewheel oleo until the aircraft is level, or flatten tire if necessary.
3. Measure the following distances:
 - a. Wheel base (L) - the horizontal distance from the nosewheel weight point (center of axle) to the main wheel weight point (center of axle).
 $L = \underline{69.75}$ inches
 - b. Main Wheel Station (D) - the horizontal distance from the datum line to the weight point (center of axle).
 $D = \underline{31.5}$ inches
4. Measure the weights at the following points:
 - a. Right Main Wheel = 638 Lbs.
 - b. Left Main Wheel = 652 Lbs.
 - c. Nosewheel (N) = 442 Lbs.Total Weight (W) = 1732 Lbs.

5.1 WEIGHT AND BALANCE: (Cont'd)

The above empty weight includes unusable fuel of ** lbs. at 24 inches and 8 qts. of oil at minus 34 inches, plus all items of equipment as marked on the accompanying Equipment Lists. The certificated empty weight is the above weight less 16 lbs. drainable oil at a minus arm of 34 inches, and

for this airplane is 1716 lbs. The corresponding empty weight center of gravity is 14.14 inches.

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

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

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:

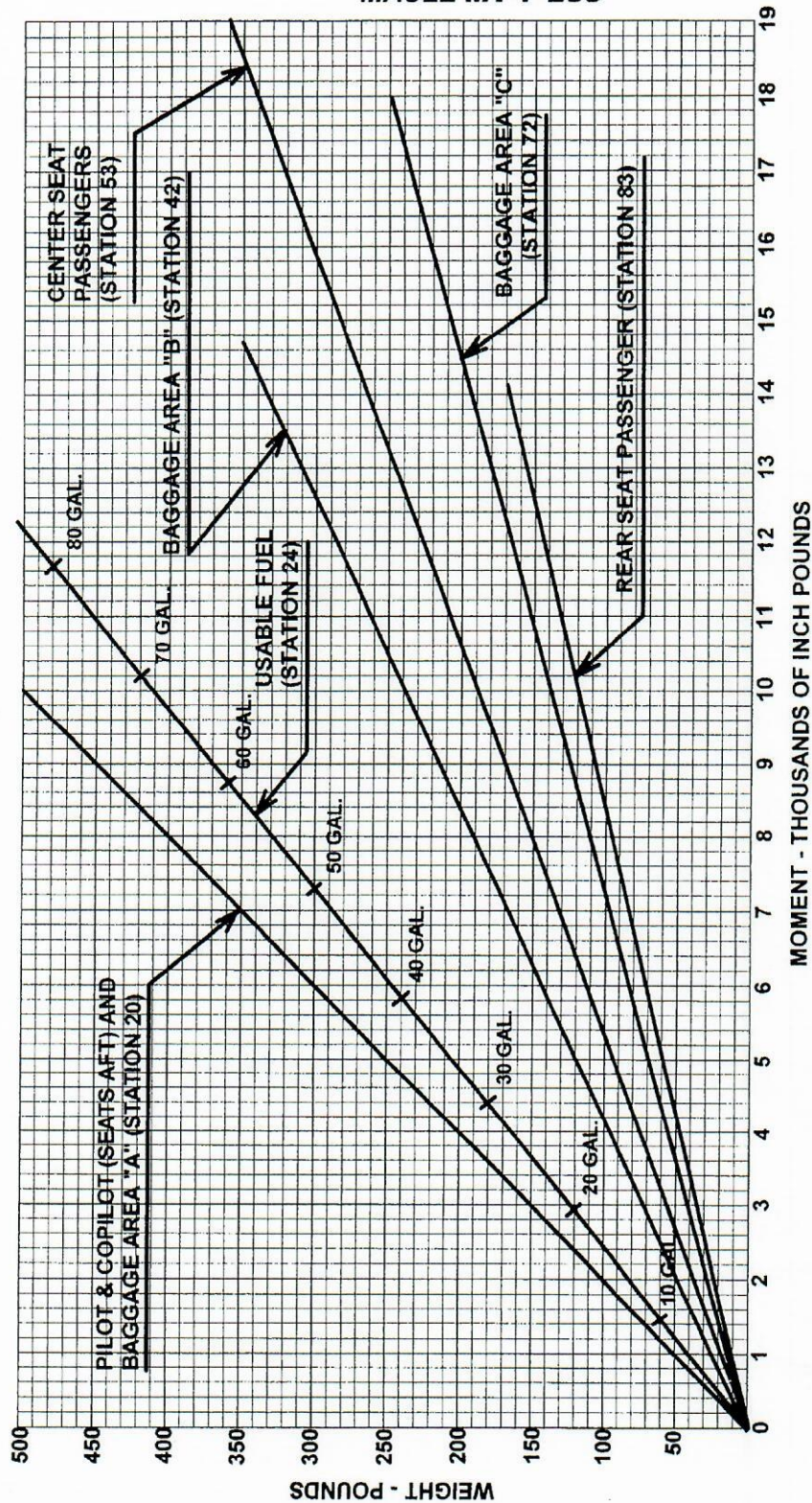
An airplane with an empty weight of 1549 lbs. and an empty weight moment of 16,264 inch lbs. is loaded with a pilot and front seat passenger, fuel and 150 lbs. of baggage.

Item	Weight, lbs.	Arm, Ins.	Moment, In.lbs.
Empty Weight (including engine oil)	1549	10.5	16,264
Pilot and Front Passenger	340	*	6,800
Fuel - 40 gal. in Mains	420	*	10,080
Baggage (Area "C")	150	*	10,500
	<u>2459</u>		<u>43,644</u>

By locating the point corresponding to 2459 lb. aircraft weight and 43,644 inch lbs. total moment on the Center of Gravity envelope graph, you can see that this point falls within the envelope, signifying the loading is acceptable.

* Moments can be read directly from the loading graph.

** Use 18 lbs. for "A" or "B" Tank Configuration and 27.6 lbs. for "C" or "D".

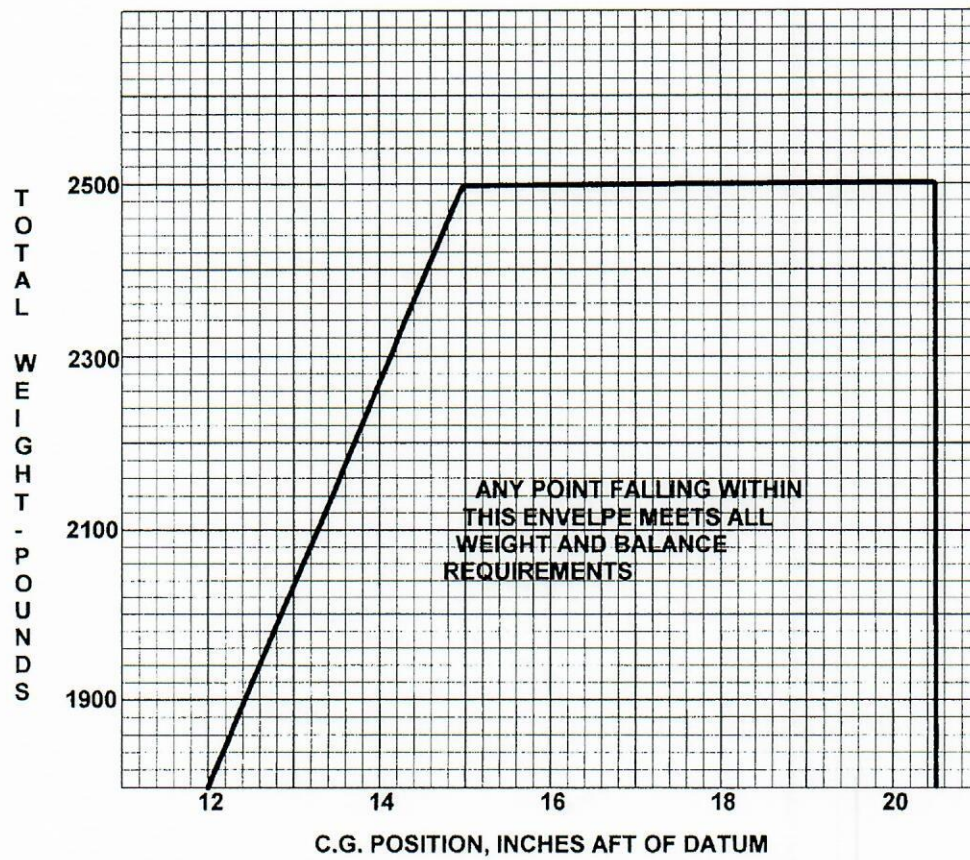


PROCEDURE FOR DETERMINING WEIGHT & CENTER OF GRAVITY:

1. Add weight to be carried to the licensed empty weight of the aircraft.
2. Find moments of item 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 for Step 2, find the point on the Weight and Balance Envelope.

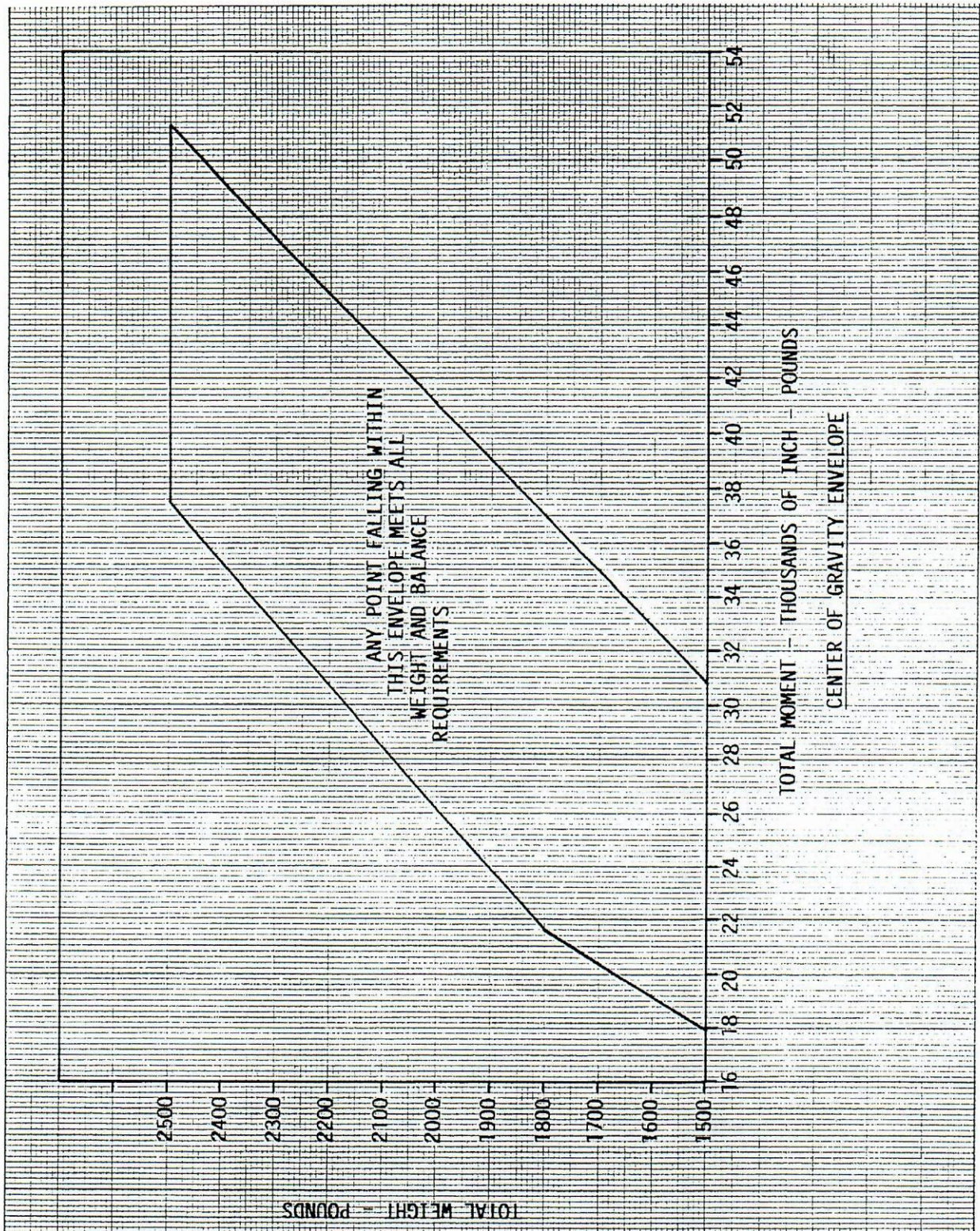
LOADING CHART

WEIGHT AND BALANCE ENVELOPE



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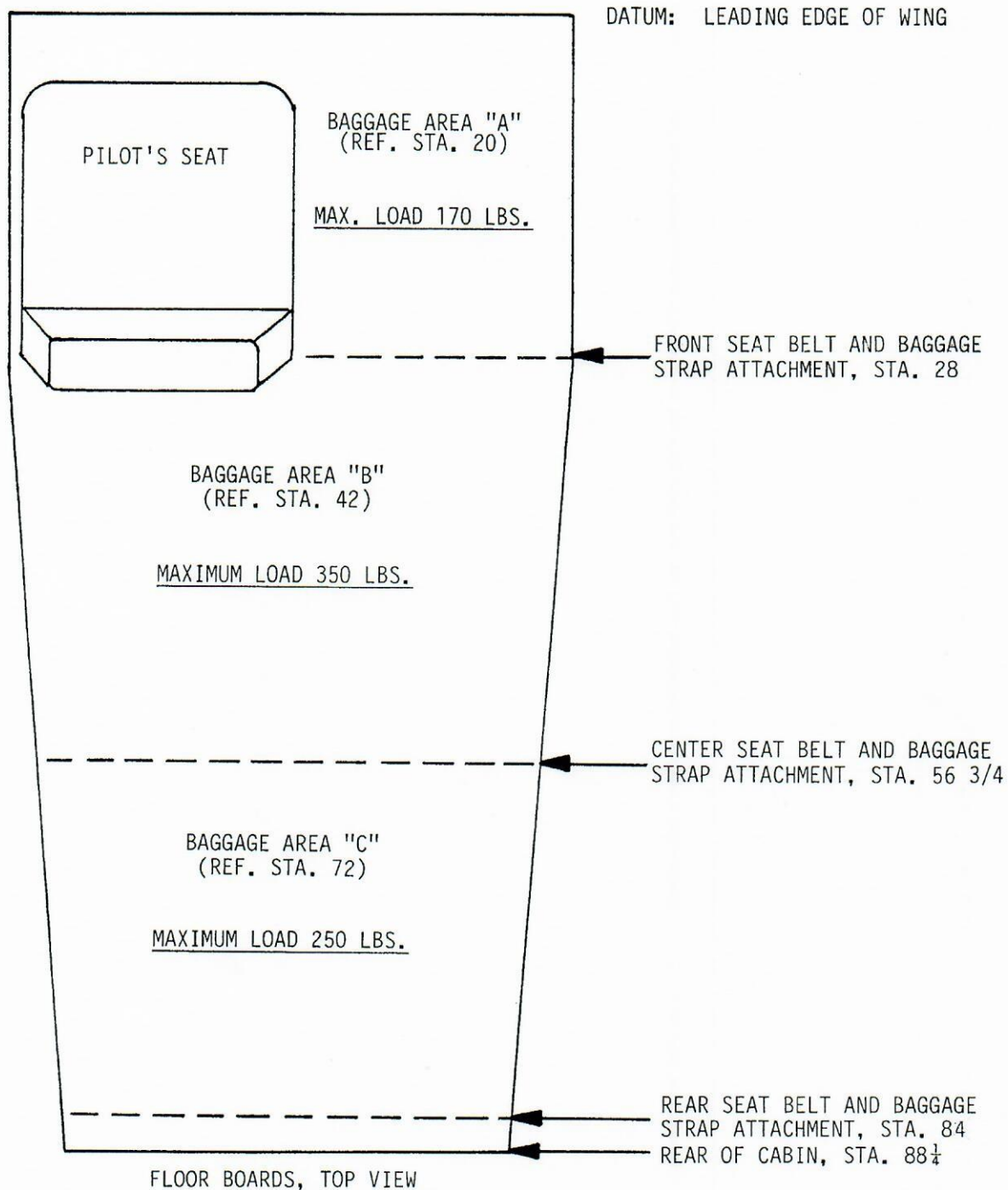
SECTION V
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SECTION V
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STRUCTURAL CAPACITY CHART



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SECTION V
WEIGHT AND BALANCE

SERIAL NO. _____ REG. NO. _____ MODEL _____

EQUIPMENT CHANGE - WEIGHT AND BALANCE

ITEM'S (MAKE & MODEL) WEIGHT ARM MOMENT'S

Previous Aircraft Empty			

- A. New Empty Weight _____ lbs.
B. New Empty Center of Gravity _____ in. lbs.
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 VI

AIRCRAFT SERVICING, HANDLING AND MAINTENANCE

6.1 INTRODUCTION:

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 the Parts Department of Maule Air, Inc. In correspondence, please be certain to give complete information on Serial Number, engine make and model, etc.

The aircraft Type Data Plate can be found on the left side of the vertical fin just above the horizontal stabilizer. Also, pertinent engine and propeller data is in the aircraft Log Book.

A Service Manual is furnished with each aircraft. Extra copies and a Parts Manual can be obtained by contacting the Parts Department of Maule Air, Inc.

6.2 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 recommended that owner's name and address along with aircraft serial number be registered with Maule Air for any Maule Service Letters or Service Bulletins released affecting their aircraft.

6.3 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.

6.4 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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