

MAULE AEROSPACE TECHNOLOGY, INC.

LAKE MAULE :- RT. 5, BOX 318 :- MOULTRIE, GA. 31768 :- PHONE (912) 985-2045 :- FAX: (912) 890-2402

FAA APPROVED AIRPLANE FLIGHT MANUAL

FOR

MAULE MX-7-180

Airplane Serial No. _____

Registration No. _____

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

FAA APPROVED: _____

John R. James

Manager, Atlanta Aircraft Certification Office
FAA, Central Region

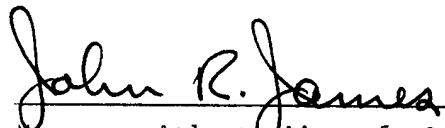
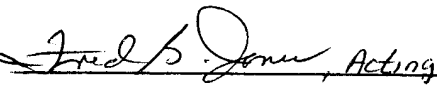
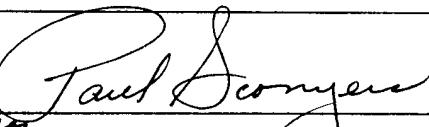
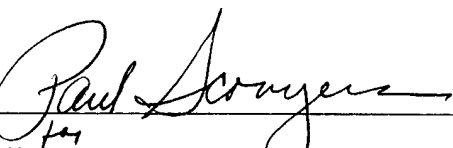
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IT'S PERFORMANCE THAT COUNTS!

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LOG OF REVISIONS

REV.	TO PAGES	DESCRIPTION	APPROVAL AND DATE
A	5 A11	Added Flap Control Placard. Changed company headings to read: 'MAULE AEROSPACE TECHNOLOGY, INC.'	 Manager, Atlanta Aircraft Cert. Office, FAA, Central Region Date: <u>APR 25 1985</u>
B	24 27	Added Tex Tron - Avco (item 12.C.1.) and Champ (item 12.D.1.) Oil Filters and Teledyne Battery (item 13.E.1.) Added AM-Safe Shoulder Harness Assemblies (items 32.C.1. and 33.B. 2.) to Required Equipment List. Added NOTE re Rear Seat occupants Shoulder Harness requirement.	 Manager, Atlanta Aircraft Certification Office, FAA, Central Region Date: <u>DEC 29 1986</u>
C	iiii, 23 - 27	Required Equipment List, pages 23 thru 27, removed and replaced with all recip. models combined Required Equipment List.	 Manager, Atlanta Aircraft Certification Office FAA, Central Region Date: <u>OCT 31 1989</u>
D	A11 13 20 10	Updated entire AFM to latest format. Added Front Door-Off Operation. Corrected Center Seat and Rear Seat Passenger Stations. Added "Parking Brake...OFF to 3.2.D. BEFORE TAKEOFF and E. BEFORE LANDING.	 Manager, Aircraft Certifica- tion Office Federal Aviation Administra- tion, Atlanta, Georgia Date: <u>6-10-94</u>
		(Revision F on page ia)	

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REV.	TO PAGES	DESCRIPTION	APPROVAL AND DATE
E	2	Deleted Fuel Quantity in Paragraph 1.4 and referred to Fuel Supply Table. Added Fuel Supply Table. Added to CAUTION Note under Paragraph 1.2.	 Manager, Aircraft Certification Office Federal Aviation Administration Atlanta, GA Date: <u>OCT 28 1994</u>
	5	Relocated the Flap Control Handle Placard and the Rear Cabin Cargo Limitations Placard from page 6.	
	6	Deleted Fuel Capacity numbers from Fuel Transfer Pump Switch Placard and added note for Tank Configuration.	
	19	Added Unusable Fuel weight for new Tank Configurations.	

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LOG OF SUPPLEMENTS

SUPP. NO.	NO. OF PAGES	DESCRIPTION	APPROVAL DATE
1	2	Installation of Century 21 Autopilot - Maule Installation Manual AK932 .	08/12/86
-	1	Installation of Aero-Trim Model 400 Electric Aileron Trim System .	09/24/87
2	2	Installation of Century IIB Autopilot - Maule Installation Manual AK513 .	09/21/87
4	6	Inst. of S-TEC System 55 Two Axis Autopilot ST-620 (14v) - Maule Dwg 9196A . (Land)	04/04/00
5	6	Inst. of S-TEC System 55 Two Axis Autopilot ST-620 (14v) - Maule Dwg 9196A . (Sea)	04/04/00
6	9	Inst. of S-TEC System 50 Two Axis Autopilot ST-418-50 (14v) - Maule Dwg 9193A .	01/05/00
7	9	Inst. of S-TEC System 30 Two Axis Autopilot ST-810-30 (14v) - Dwg 9197A . (Land)	01/21/00
8	9	Inst. of S-TEC System 30 Two Axis Autopilot ST-810-30 (14v) - Dwg 9197A . (Sea)	01/21/00
9	9	Inst. of S-TEC System 50 Two Axis Autopilot ST-609-50 (28v) - Maule Dwg 9200A .	02/14/00
10	9	Inst. of S-TEC System 20 Single Axis Autopilot ST-810-20 (14v) - Dwg 9197A . (Land)	03/20/00
11	9	Inst. of S-TEC System 20 Single Axis Autopilot ST-810-20 (14v) - Dwg 9197A . (Sea)	03/20/00
12	9	Inst. of S-TEC System 20 Single Axis Autopilot ST-820-20 (28v) - Maule Dwg 9201A .	03/20/00
13	7	Inst. of S-TEC System 40 Single Axis Autopilot ST-418-40 (14v) - Maule Dwg 9193A .	10/29/01
14	7	Inst. of S-TEC System 40 Single Axis Autopilot ST-609-40 (28v) - Maule Dwg 9200A .	10/29/01
-	4	Inst. of S-TEC System 20 Single Axis Autopilot ST-872-20 (28v) - Dwg 9211A . (Land)	06/25/01
-	5	Inst. of S-TEC System 30 Two Axis Autopilot ST-872-30 (28v) - Dwg 9211A . (Land)	06/25/01
-	5	Inst. of S-TEC System 20 Single Axis Autopilot ST-872-20 (28v) - Dwg 9211A . (Sea)	06/25/01
-	5	Inst. of S-TEC System 30 Two Axis Autopilot ST-872-30 (28v) - Dwg 9211A . (Sea)	06/25/01
-	3	Inst. of GARMIN GNS-430 (GPS/NAV/COMM) System - Maule Dwg 7205A .	01/03/01
-	3	Inst. of GARMIN GNC-300XL (GPS/COMM) System - Maule Dwg 7207A .	01/03/01
-	3	Inst. of GARMIN GNC-250XL (GPS/COMM) System - Maule Dwg 7209A .	01/03/01
-	3	Inst. of Bendix-King KLX-135A (GPS/COMM) System - Maule Dwg 7219A .	01/03/01
-	5	Inst. of S-TEC System 20 Single Axis Autopilot Model ST-873-20 (14/28v) - Maule Dwg 9212A . (Land)	10/15/01
-	5	Inst. of S-TEC System 30 Two Axis Autopilot Model ST-873-30 (14/28v) - Maule Dwg 9212A . (Land)	10/15/01
15	9	Installation of Aqua 2200 Floats per Maule Installation Drawing 9225A .	10/29/02
-	8	Inst. of GARMIN GNC-420 (GPS/COMM) System per Maule Drawing 7251A .	06/30/03
-	9	Inst. of GARMIN GNS-530 (GPS/NAV/COMM) System per Maule Drawing 7253A .	06/30/03
-	4	Inst. of GARMIN GTX-330 Mode S Transponder Traffic Information System (TIS) per Maule Drawing 7255A .	06/30/03

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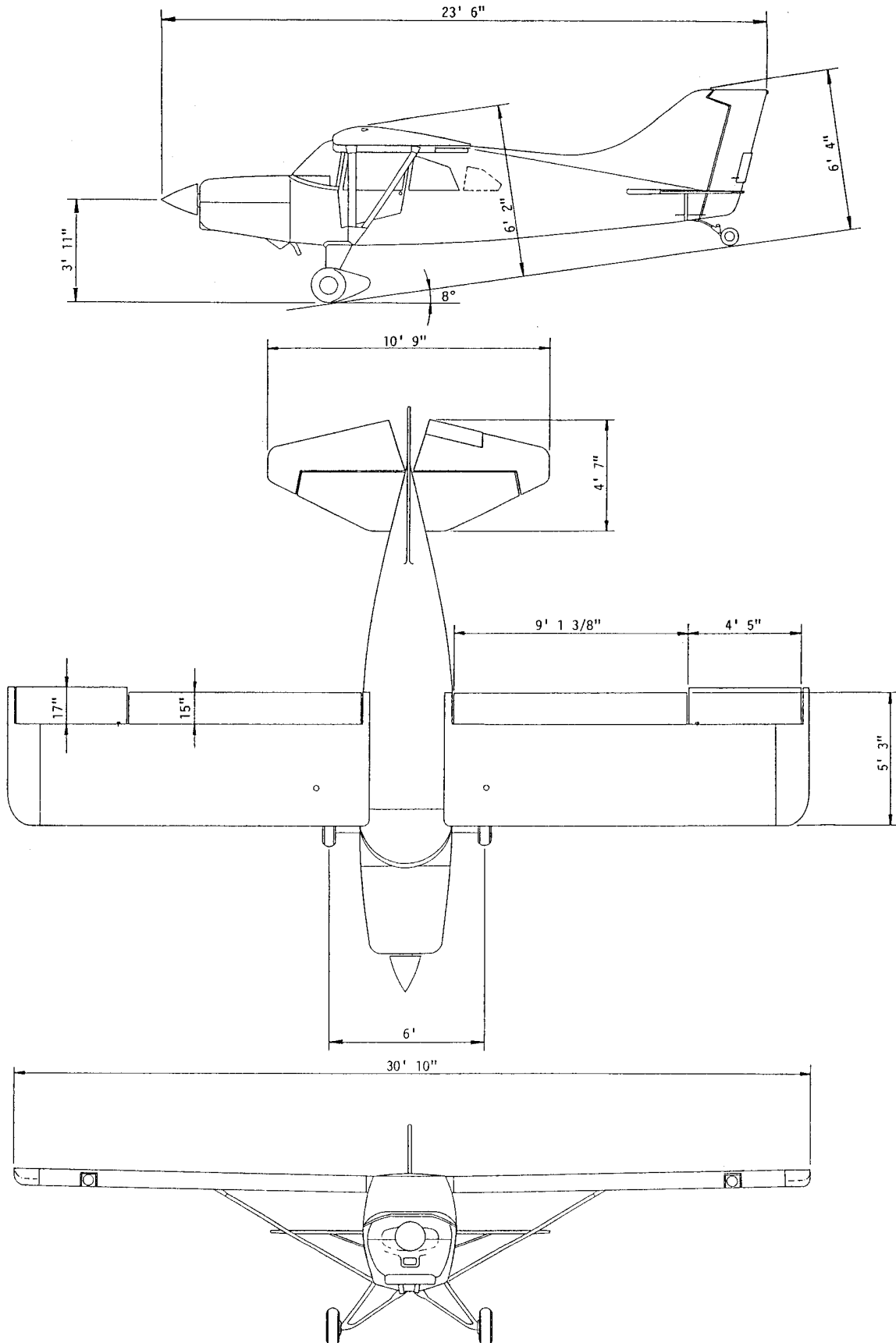
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Optional Equipment List



SECTION I

GENERAL: NORMAL CATEGORY OPERATION

1.1 MAXIMUM WEIGHT: 2500 Pounds

1.2 CENTER OF GRAVITY LIMITS: +16.7 to +20.5 @ 2500 lbs.
+13.6 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.

///////////////// CHECK WEIGHT AND BALANCE CAREFULLY, ESPECIALLY WHEN USING
////CAUTION//// THE 5TH SEAT, IF INSTALLED, 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
C	Main	21.5	2.3
	Aux.	15.0	0.0

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

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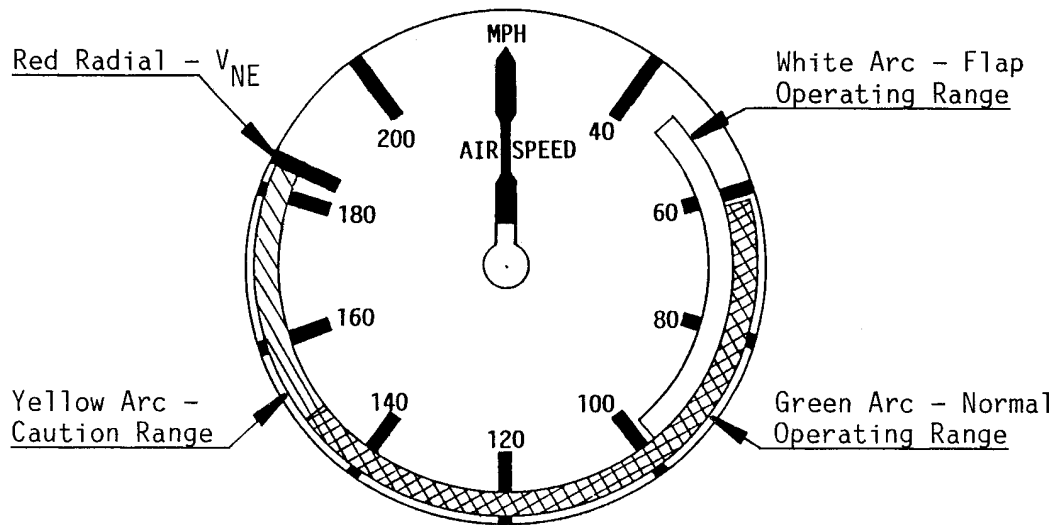
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SECTION II

LIMITATIONS

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

A. AIRSPPEED INDICATOR MARKINGS:



B. EXPLANATION OF AIRSPPEED INDICATOR MARKINGS:

Red Radial Line - Never Exceed Speed (V_{NE}) 185 mph (161K): Maximum safe airspeed in smooth air.

Yellow Arc - Caution Range, 129-185 mph (129-161K): 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, 61-149 mph (53-129K): Extends from flaps up, power off stall speed at 2500 lbs. (V_{SI}) to design cruise speed (V_C).

White Arc - Flap Operating Range, 47-98 mph (41-85K): 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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2.2 POWER PLANT LIMITS:

Engine: Lycoming O-360-C1F

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

Propeller: Hartzell Constant Speed HC-C2YR-1BF/F7666A (76")

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. of Mercury

Fuel Pressure: Green Arc - Normal Operating Range,
0.5 to 8 psi

Red Radial - Minimum Pressure, 0.5 psi

Red Radial - Maximum Pressure, 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

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- 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 129 mph (112K). 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 AIRPLANE FLIGHT MANUAL AND IN THE FORM OF PLACARDS AND MARKINGS."

"NO AEROBATIC MANEUVERS INCLUDING SPINS, APPROVED."

"ROUGH AIR OR MANEUVERING SPEED: 129 MPH (112K)."

"SEE LOADING INSTRUCTIONS IN WEIGHT AND BALANCE SECTION OF AIRPLANE FLIGHT MANUAL." or "SEE LOADING INSTRUCTIONS IN WEIGHT AND BALANCE SECTION OF PILOT'S OPERATING HANDBOOK."

"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."

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."

Also, in Rear Cabin area when 5th Seat is installed:

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

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2.4 PLACARDS: (Cont'd)

The following placard is located on flap control handle:

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

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 optional 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:

3.1 **PREFLIGHT INSPECTION:**

A. **INTERIOR:**

1. BAT Switch.....ON
2. Fuel Gauges.....CHECK INDICATIONS
3. Aux. Fuel Pumps.....ON, THEN OFF (LISTEN TO VERIFY OPERATION)
4. All Electrical Switches.....OFF
5. BAT Switch.....OFF
6. Flaps.....FULL DOWN (4TH 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 Fuel Tank Drain.....DRAIN (1)
6. Left Wing Aux Fuel Tank Drain.....DRAIN (1)
7. Left Wing Tip & Nav Light.....CHECK FOR DAMAGE
8. Auxiliary Fuel Tank.....VISUALLY CHECK QUANTITY
9. Landing Light.....CHECK FOR DAMAGE
10. Left Wing Tiedown.....REMOVE
11. Pitot Tube.....REMOVE COVER
12. Stall Warning Switch.....CHECK FOR FREEDOM OF MOVEMENT
13. Main Fuel Tank.....VISUALLY CHECK QUANTITY
14. Left Landing Gear.....CHECK TIRE INFLATION & BRAKE LINE SECURITY
15. Bottom left side of Cowl.....DRAIN GASCOLATOR (1)
16. Top Cowl, Oil Access Door.....CHECK OIL QUANTITY
17. Propeller.....CHECK LEADING EDGE FOR DAMAGE. CHECK SPINNER FOR SECURITY
18. Air Inlets.....CHECK FOR FOREIGN OBJECTS, INSPECT VISIBLE CONNECTIONS AND COMPONENTS

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3.1 PREFLIGHT INSPECTION: (Cond't)

- | | | |
|-----|---|---|
| 18. | Right Landing Gear..... | CHECK TIRE INFLATION
& BRAKE LINE SECURITY |
| 19. | Right Wing & Controls..... | INSPECT SAME AS LEFT WING |
| 20. | Wing Main Fuel Tank Drain..... | DRAIN (1) |
| | Wing Aux Fuel Tank Drain..... | DRAIN (1) |
| 21. | Right Fuselage, Side, Top & Bottom..... | INSPECT FOR WRINKLES
AS INDICATION OF
INTERNAL DAMAGE |
| 22. | Right Side Static Port..... | CLEAR |
| 23. | Right Stabilizer..... | CHECK ATTACHMENT POINTS
& STRUT |
| 24. | Right Elevator..... | CHECK HINGE POINTS |
| 25. | Rudder..... | CHECK HINGE POINTS,
CONTROL ATTACHMENTS
& NAV. LIGHT |
| 26. | Tailwheel..... | CHECK FOR INFLATION,
ATTACHMENTS, REMOVE
TIEDOWN |
| 27. | Left Elevator..... | CHECK TAB CONTROLS
& ALL HINGE POINTS |
| 28. | Left Stabilizer..... | CHECK ATTACHMENT POINTS
& STRUT |
| 29. | Left Fuselage, Side, Top & Bottom..... | CHECK FOR WRINKLES
AS INDICATION OF
INTERNAL DAMAGE |
| 30. | 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 QUANTITY |
| 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. | Primer..... | AS REQUIRED |

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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.

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

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

11. Alternator.....CHECK CHARGING

12. Radios & other electrical switches.....AS REQUIRED

13. 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 FULLY UNTIL RPM
DROP IS NOTED. RETURN
TO FULL INCREASE RPM.
REPEAT. SET FULL IN-
CREASE RPM
6. Carburetor Air Control.....PULL HOT, NORMAL DROP
WITH CARBURETOR AIR HOT
IS 150 \pm 50 RPM
7. Carburetor Air Control.....PUSH COLD
8. Vacuum Gauge.....CHECK IN GREEN
9. Alternator.....CHARGING: LIGHT OUT
ABOVE 900 RPM
10. Throttle.....RETARD TO IDLE

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3.2 OPERATING CHECK LISTS: (Cont'd)

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. Carburetor Air Control.....PUSH COLD
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. Carburetor Air Control.....PULL HOT
7. Parking Brake.....OFF

F. ENGINE SHUTDOWN:

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
10. Parking Brake.....OFF (AS DESIRED)

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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°
Landing	Fourth Notch	48°

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 94 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°/1st notch)

Landing - Normally Fourth Notch (48°/full flaps) - other positions permissible

C. CLIMBING:

Best Rate of Climb - 94 mph IAS, flaps @ First Notch (0°)

Best Angle of Climb - 78 mph IAS with flaps set @ Second Notch (24°)

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

//////////
 ///CAUTION///
 //////////
 USE CLIMB AIRSPEED BELOW 94 MPH ONLY AS NECESSARY AND CHECK CYLINDER HEAD TEMPERATURE FREQUENTLY WHEN DOING SO.

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3.3 NORMAL FLIGHT OPERATIONS: (Cont'd)

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 which 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 300 feet.

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

F. CROSSWIND LANDINGS & TAKEOFFS:

Maximum demonstrated crosswind component is 14 mph and flap extension should be limited to 0° (one notch) or -7° with such crosswind or higher. 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 which 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 over-filling 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.

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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 - 129 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 level obtained during certification per FAR 36, was 71.1 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:

/////////////////
////WARNING////
/////////////////

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

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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. They should be remembered by each aircrew member.

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

4.2 ENGINE EMERGENCY SHUTDOWN:

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 SHUTDOWN if fire continues.

4.4 ENGINE FIRE AFTER STARTING:

1. Accomplish ENGINE EMERGENCY SHUTDOWN
2. Master Switch - Off

4.5 EMERGENCY EXIT ON THE GROUND:

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

4.6 TAKEOFF ABORT: (BEFORE LIFTOFF)

1. Throttle - Closed
2. Brakes - As Required

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4.7 ENGINE FAILURE AFTER TAKEOFF OR FORCED LANDING:

1. Glide - Establish 83 mph IAS with flaps at 0°
2. Switch Fuel Selector to fullest tank
3. Electric Fuel Pump - On
4. Mixture Rich, Ignition On
5. Carburetor Air Control - Pull Hot
6. If engine does not restart, accomplish EMERGENCY SHUTDOWN
7. Wing Flaps - As Required
8. Master Switch - Off

4.8 PARTIAL POWER FAILURE DURING FLIGHT OR AFTER TAKEOFF:

1. Mixture - Rich
2. Carburetor Air Control - Pull Hot
3. Airspeed - Glide at 83 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 83 mph
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. 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 73 MPH.

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

4.11 ELECTRICAL FIRE:

1. Master Switch - Off

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4.12 ENGINE FIRE DURING FLIGHT:

1. Accomplish ENGINE EMERGENCY SHUTDOWN
2. Make forced landing

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 124 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 5-10 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

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:

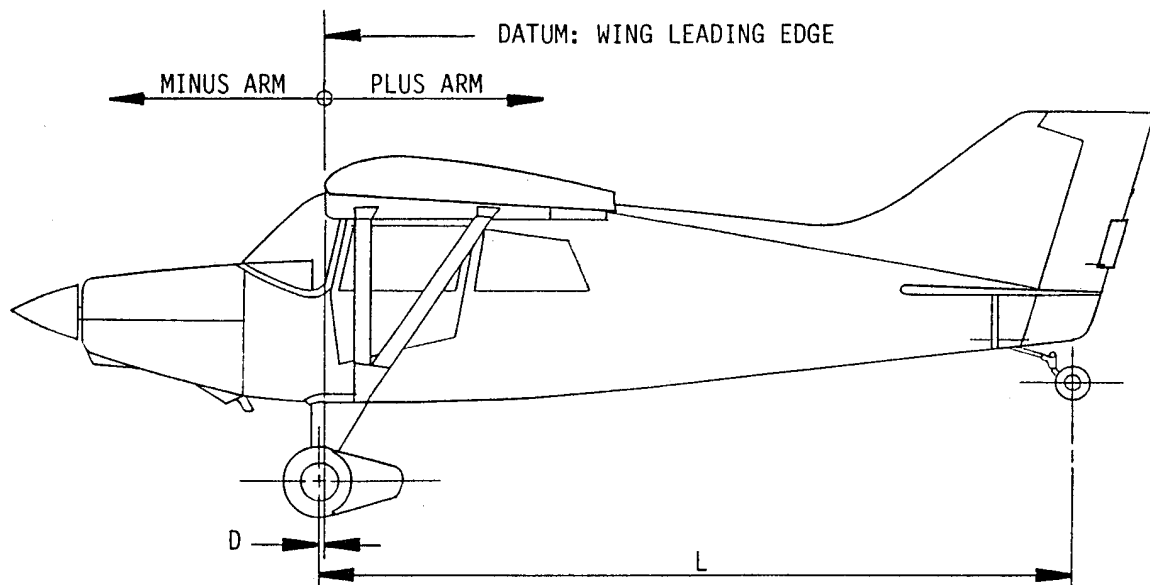
<u>At Weight of</u>	<u>Center of Gravity Range</u>
2500 lbs.	+16.7 to +20.5 inches
1600 lbs. or less	+13.6 to +20.5 inches

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 AS DELIVERED FROM FACTORY:



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)
 $L = \underline{\hspace{2cm}}$ inches
 - b. Main Wheel Station (D) - the horizontal distance from the main wheel weight point (center of axle) to the datum line.
 $D = \underline{\hspace{2cm}}$ inches
4. Measure the weights at the following points:
 - a. **Right** Main Wheel..... = $\underline{\hspace{2cm}}$ Lbs.
 - b. **Left** Main Wheel..... = $\underline{\hspace{2cm}}$ Lbs.
 - c. **Tailwheel**, with tare = $\underline{\hspace{2cm}}$ Lbs., minus tare of $\underline{\hspace{2cm}}$ Lbs.
 = net Tailwheel wt. (T) of $\underline{\hspace{2cm}}$ Lbs.
 Total Weight as Weighted (W) = $\underline{\hspace{2cm}}$ 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 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. drainable 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) = $W \times C.G.$

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

EXAMPLE OF WEIGHT AND BALANCE CALCULATION FOR LOADED AIRCRAFT:

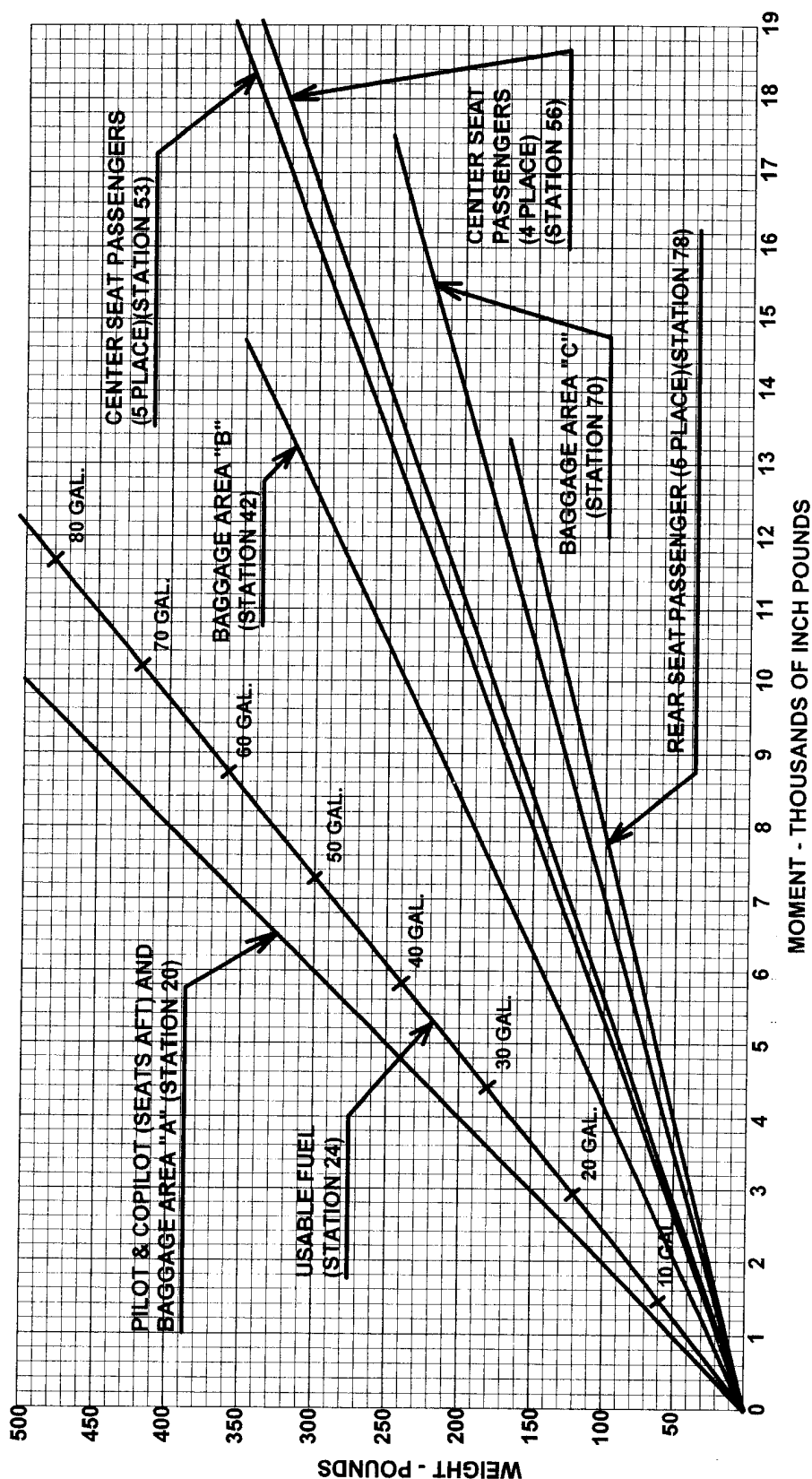
An airplane with an empty weight of 1383 lbs. and an empty weight moment of 17,288 inch lbs. is loaded with a pilot and front seat passenger, fuel and 150 lbs. of baggage.

Item	Weight, lbs.	Arm, Ins.	Moment, In.lbs.
Empty Weight (including engine oil)	1383	12.5	17,288
Pilot and Front Passenger	340	*	6,800
Fuel - 40 gal. in Mains	240	*	5,760
Baggage (Area "C")	150	*	10,500
	<u>2113</u>		<u>40,348</u>

By locating the point corresponding to 2113 lb. aircraft weight and 40,348 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.

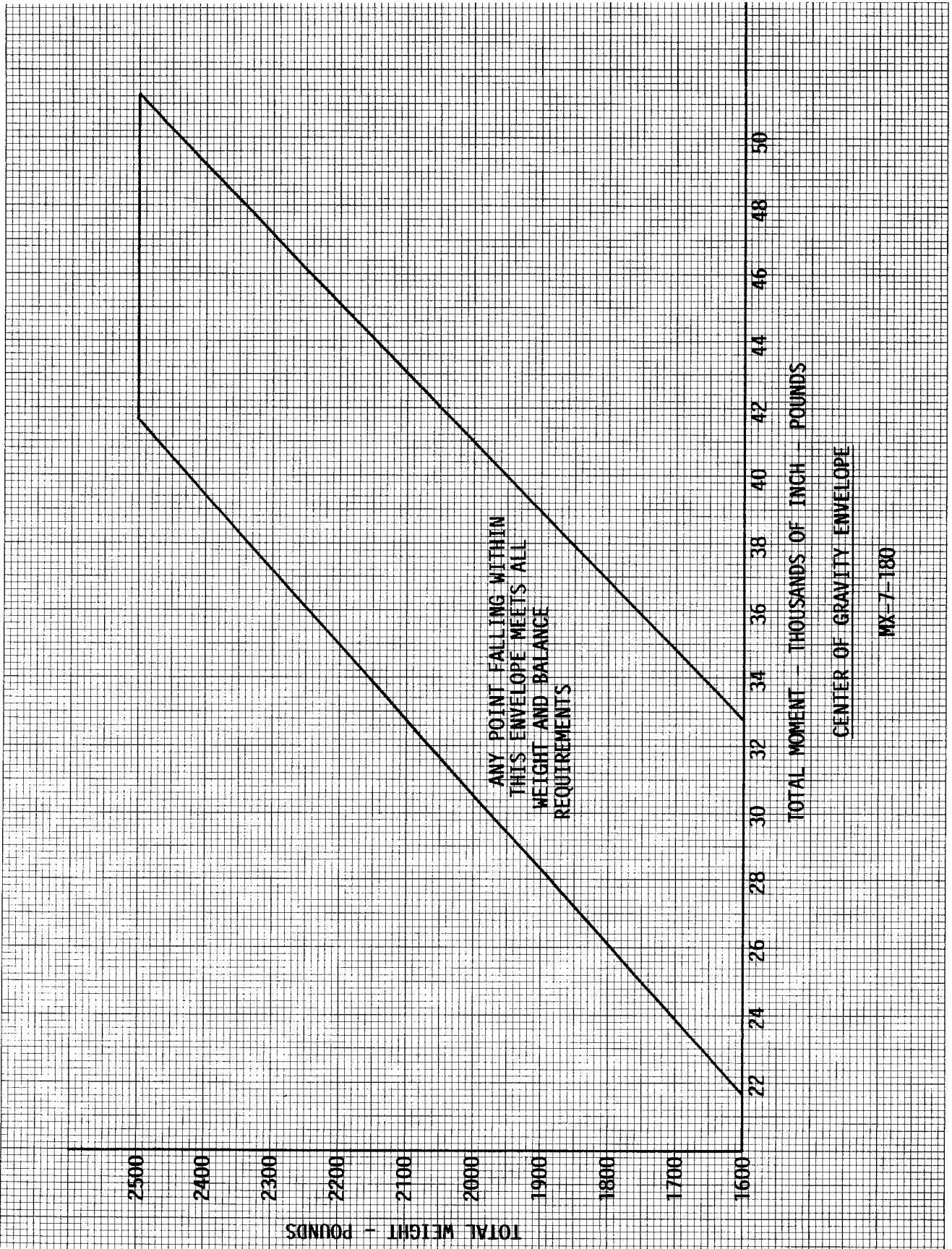
** Use 18 lbs. for "A" Tank configuration and 27.6 lbs. for "C".

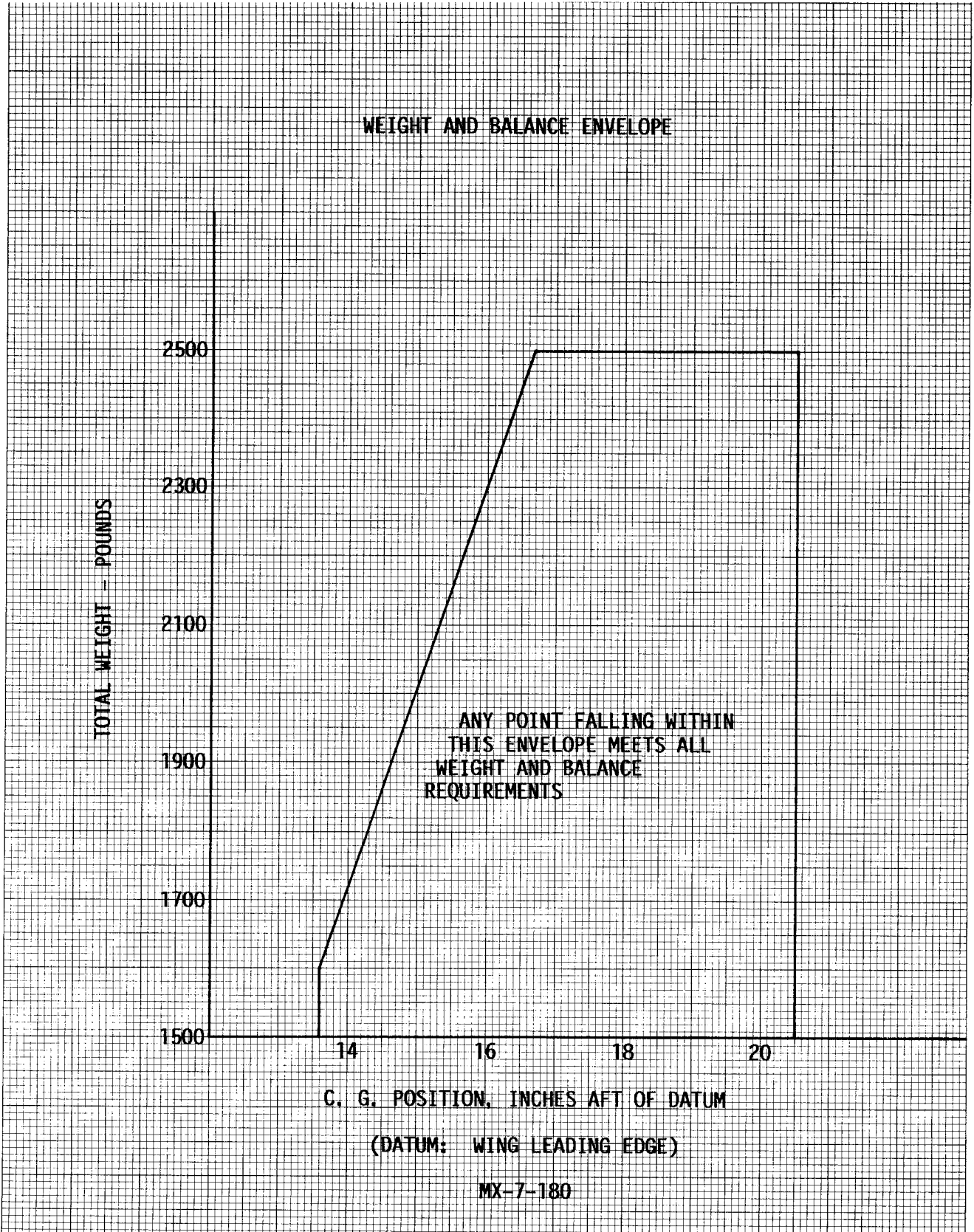


PROCEDURE FOR DETERMINING WEIGHT & CENTER OF GRAVITY:

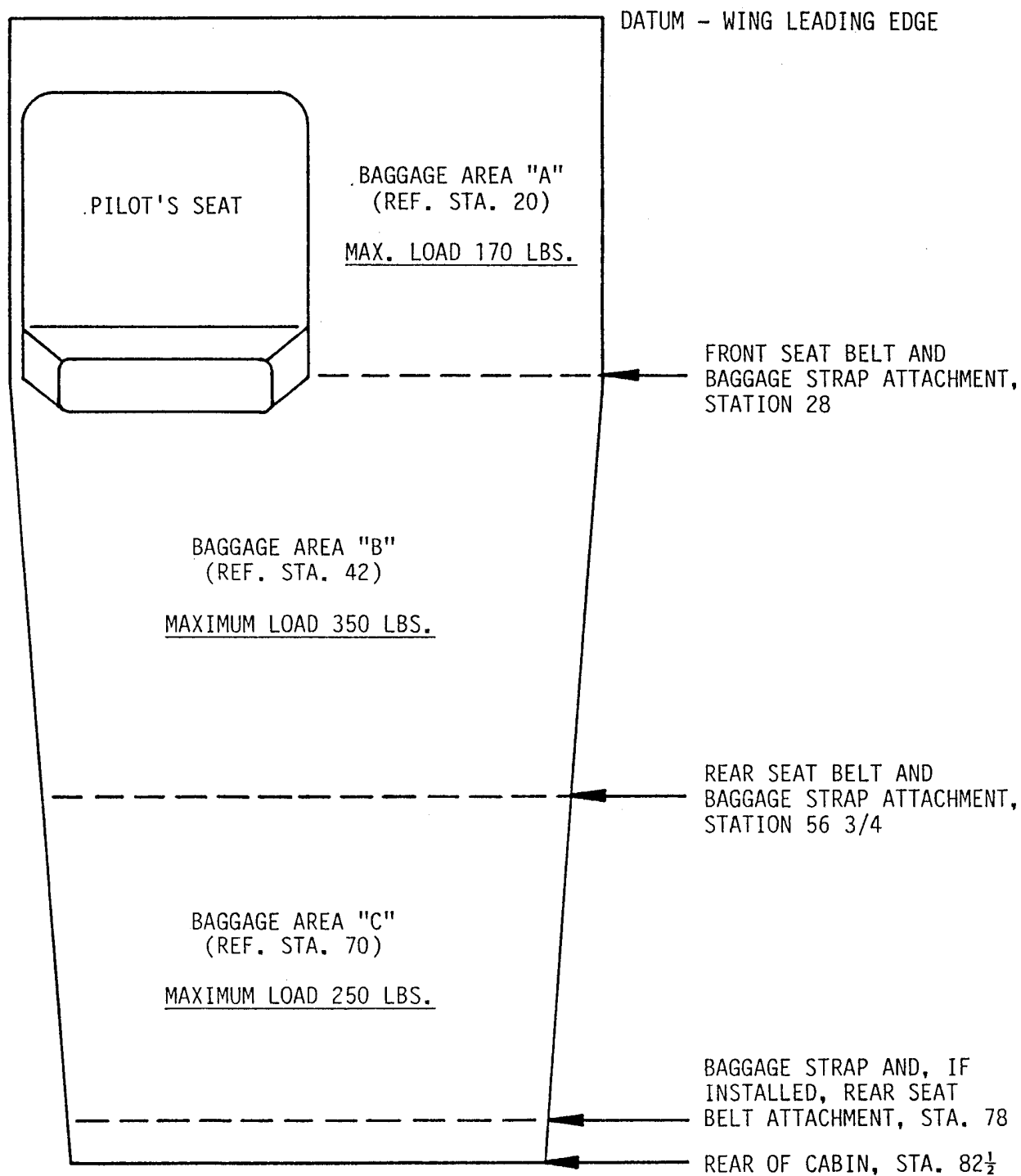
1. Add weight to be carried to the licensed empty weight of the aircraft.
2. Find moments of item to be carried by using the above loading graph and add these moments to the empty moment of the aircraft. Divide total moment by total weight for aircraft C.G. location.
3. Using the C.G. location for Step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

LOADING CHART





STRUCTURAL CAPACITY CHART



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 this manual to the Service Dept. 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 or in earlier airplanes, on the door post on the pilot's side toward the bottom. 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 Service Dept. 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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