

F.A.A. APPROVED

AIRPLANE FLIGHT MANUAL

MOONEY MARK 20C

MOONEY AIRCRAFT, INC.

Louis Schreiner Field - Kerrville, Texas

Serial No. _____

Registration No. _____

APPROVED /s/ H. H. Slaughter
Chief, Engineering & Mfg. Branch
Federal Aviation Agency
Southwest Region

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FOREWORD

This Manual has been prepared for the guidance of flight personnel who operate the Mooney Mark 20C. It is hoped that all pilots will read the Manual thoroughly and use it as a ready reference.

It should be pointed out that the limitations in the Manual are mandatory and that the Manual must be kept in the airplane at all times.

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MOONEY M20C
FLIGHT MANUAL
Mooney Aircraft, Inc.

LOG OF REVISIONS

<u>Revision</u>	<u>Page</u>	<u>Date</u>	<u>FAA Approval</u>
A	4	8-10-62	
B	1	11-9-62	/s/ J.D. Ludwig
C	6	4/17/63	J A Ludwig

OPERATING LIMITATIONSPower Plant Limitations

Engine - Lycoming Model O-360-A1D
Lycoming Model O-360-A1A
Limit for all Operations - 2700 RPM, 180 HP
No continuous operation in the range of 2000 RPM to 2250 RPM
Maximum Allowable Cylinder Head Temperature - 500 Degrees F.

Fuel - 91/96 Octane Aviation Gasoline, 48 Gal. Usable Capacity;
24 gal. each tank.
Full Rich Mixture required for prolonged M/C power operation at
S/L in climb.
Auxiliary Electric Fuel Pump Provided (Use for take-off and landing)

Oil - 8 Quart Capacity
Maximum Allowable Oil Temperature 245 Degrees F.

Propeller - Hartzell
Hub HC-C2YK-1
Blades 7666-2
Diameter 74 inches

Propeller - McCauley
Hub 2D34C53-A
Blades 74E-0
Diameter 74 inches

Stall warning indicator is inoperative with master switch off.

Airspeed Limitations

Never Exceed Speed	189 MPH C.A.S.
Maximum Structural Cruising Speed	150 MPH C.A.S.
Maximum Maneuvering Speed	132 MPH C.A.S.
Maximum Gear Operating Speed	120 MPH C.A.S.
Maximum Gear Extended Speed	120 MPH C.A.S.
Maximum Flap Operating Speed	100 MPH C.A.S.

Instrument Dial Markings

Airspeed Serial No. 1852, 1940 and on

Radial Red Line - 189 MPH	(Never Exceed Speed Which is the Maximum Safe Airspeed)
Yellow Arc - 150 to 189 MPH	(Denotes Range of Speeds in Which Operations Should Be Conducted with Caution and Only in Smooth Air)
Green Arc - 70 to 150 MPH	(Denotes Normal Operating Speed Range)
White Arc - 63 to 100 MPH	(Denotes Speed Range in Which Flaps May be Safely Lowered)

Tachometer Serial No. 1852, 1940 and on

Radial Red Line (Rated)	2700 RPM
Green Arc - Narrow (Rated Operating Range)	2300 to 2700 RPM
Green arc - Wide (Recommended Operating Range)	2300 to 2500 RPM
Red Arc - Narrow (No Continuous Operation in this Range)	2000 to 2250 RPM

Cylinder Head Temperature Serial No. 1852, 1940 and on

Radial Red Line (Maximum)	500 Degrees F.
Green Arc (Operating Range)	350 to 500 Degrees F.

Oil Pressure Serial No. 1852, 1940 and on

Radial Red Line (Minimum)	60 PSI
Radial Red Line (Maximum)	85 PSI
Green Arc (Operating Range)	60 to 85 PSI

Turn & Bank Voltmeter Serial No. 1852, 1940 & on

Red radial line (minimum)
Green arc (operating range)

10 volts
10 to 14 volts

Vacuum Warning Lights in Artificial Horizon

"High" light
"Low" light

5.0 inches of Hg.
3.5 inches of Hg.

Fuel Pressure

Radial Red Line (Minimum)	0.5 PSI
Radial Red Line (Maximum)	6.0 PSI
Green Arc-Wide (Desired Range)	2.5 to 3.5 PSI
Green Arc-Narrow (Normal Operating Range)	.5 to 6.0 PSI

Oil Temperature

Radial Red Line (Maximum)	245 Degrees F.
Green Arc (Operating Range)	100 to 245 Degrees F.

Flight Load Factors

- Maximum Positive Load Factors - 3.8
 Maximum Negative Load Factory - No inverted maneuvers approved

Gross Weight and Center of Gravity Limitations

Maximum Weight - 2575 pounds

Center of Gravity

- Most Forward - 42 Inches (15% MAC) Gear Down, 2100 Pounds
 Forward Gross - 46.5 Inches (22.6% MAC) Gear Down, 2575 Pounds
 Rear Gross - 49.0 Inches (26.8% MAC) Gear Down, 2575 Pounds

Datum - Center Line of Nose Gear Attachment Bolts. (Airplane Sta. 0)
 33 Inches Forward of Wing Leading Edge at Wing Sta. 59.25.
 (Inboard Edge of Stall Strip)

- Warning: See Weight and Balance Section for Loading Schedule
 Note: The front seat positions can adversely effect C.G. limitations at most rearward loading. Allowable baggage weight dictated by seat positions.

Placards

- (1) This Airplane Must Be Operated As A Normal Category Airplane In Compliance With The Approved Airplane Flight Manual. All Acrobatics, Maneuvers, Including Spins, Are Prohibited.
- (2) Maximum Speed, Landing Gear Extended - 120 MPH
 Maximum Speed for Operation Of Landing Gear - 120 MPH
- (3) (On Storm Window) Do Not Open Above 150 MPH
- (4) Load In Accordance With Loading Schedule
 Maximum Baggage Limit - 120 Pounds
- (5) Cowl Flap-Pull To Open-Do Not Open Above 150 MPH
- (6) In Case of Engine Fire Turn Cabin Heater OFF
- (7) Pull To Retract Flaps
- (8) Retract Flaps After Landing
- (9) WARNING: Do Not Exceed 10 Pounds in This Compartment. See Aircraft Loading Schedule Data for Baggage Compartment Allowable.

General

Landings when 90° crosswind component is more than 17 MPH not recommended.

OPERATING PROCEDURESPre-Flight

Check Oil (6 Qts. Minimum)
Check Fuel & Secure Filler Caps
Drain Gascolator and 3 Quick Drains
Inspect Airplane for Defects

Starting

Check to Assure Gear is LOCKED
Fasten Seat Belts
Fuel Valve ON (Right or Left Main)
Master Switch ON
Mixture Rich
Auxiliary Fuel Pump ON for Pressure Build Up, Then OFF
Brakes Set
Clear Prop Visually & Verbally
Pump Throttle to Prime
Engage Starter-Return Magneto Switch to Both After Start
Check Oil Pressure After Engine Starts
Open Cowl Flaps

Take-Off

Check Controls for Freedom and Proper Operation
Check Fuel Quantity & Pressure Gauges
Check Instruments
Set Trim to Take-off Position
Check Cowl Flaps
Set Wing Flaps to 15°
Turn ON Auxiliary Fuel Pump
Check Mags at 1500 RPM
Check Carb. Heat-Return to OFF
Check Governor & Prop Operation at 2200 RPM
Governor Control Full Forward
Secure Window & Door
Apply Full Throttle

After Take-Off

Gear UP
Initial Climb-out at 95 MPH (Minimum Speed for Cooling and Speed
for Best R/C at Sea Level with Gear Up and Flaps in Take-off Position)
Turn OFF Auxiliary Fuel Pump
Normal Cruise 2400 PRM and 24" Manifold Pressure
Close Cowl Flaps When Cruise Speed is Attained

Cruise

After Reaching Cruise Altitude Mixture May Be Leaned
Monitor Cylinder Head Temperature

Before Landing

Fuel Selector to Tank with Most Fuel
Turn ON Auxiliary Fuel Pump
Mixture Rich
Carb. Heat ON (When Needed)
Reduce Speed to 120 MPH
Gear DOWN and LOCKED
Governor Control Full Forward
Apply Flaps at 100 MPH
Trim As Necessary

After Landing

Open Cowl Flaps
Retract Flaps After Clearing Runway

Stopping

Reduce RPM to 1000
Mixture Full Lean (Idle Cut-off)
Magneto Switches OFF (After Engine Stops)
Master Switch OFF

Manually Starting the Engine

In the event it becomes necessary to prop start the engine due to low battery, the following procedure is to be followed:

1. As the engine is "propped", hold the magneto switch in the "start" position, but do not push the magneto switch. This operates the starter vibrator and furnishes retarded spark to the engine.
2. When the engine starts, release the switch to the "both" position.