

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

For MAULE M-5-180C
s/n's 8070C and up

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

DATE: JUN 13 1985

IT'S PERFORMANCE THAT COUNTS!

MAULE AEROSPACE TECHNOLOGY, INC.

AIRPLANE FLIGHT MANUAL

For MAULE M-5-180C
S/N's 8070C and Up

PAGE i

LOG OF REVISIONS

REV.	TO PAGES	DESCRIPTION	APPROVAL AND DATE

MAULE AEROSPACE TECHNOLOGY, INC.
AIRPLANE FLIGHT MANUAL

MAULE M-5-180C

(s/n 8070C-8094C)

Page ii

LOG OF SUPPLEMENTS

2

SUPP NO.	NO. OF PAGES	DESCRIPTION	APPROVAL DATE
-	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
2	2	Flight operation with either one (not both) of the Front doors removed .	08/20/02
-	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 per Maule Drawing 9177A .	12/16/05

AIRPLANE FLIGHT MANUAL

For MAULE M-5-180C
S/N's 8070C and Up

TABLE OF CONTENTS

<u>ITEM</u>	<u>PAGE</u>
COVER PAGE	
LOG OF REVISIONS.....	i
LOG OF SUPPLEMENTS.....	ii
TABLE OF CONTENTS.....	iii
SECTION I	
OPERATING LIMITATIONS	
Airspeed Limits.....	1
Power Plant Limitations.....	2
Maximum Weight.....	3
Center of Gravity Limits.....	3
Maneuvers.....	3
Flight Load Factors.....	3
Fuel Capacity.....	3
Unusable Fuel.....	3
Placards.....	3
SECTION II	
NORMAL OPERATING PROCEDURES	
Preflight Inspection.....	4
Operating Check Lists.....	6
Normal Flight Operations.....	9
SECTION III	
EMERGENCY PROCEDURES	
Emergency Procedures.....	11
Emergency Check Lists.....	12
SECTION IV	
WEIGHT AND BALANCE CONTROL	
Equipment List Required and Optional	
Weight and Balance Data Form	

AIRPLANE FLIGHT MANUAL

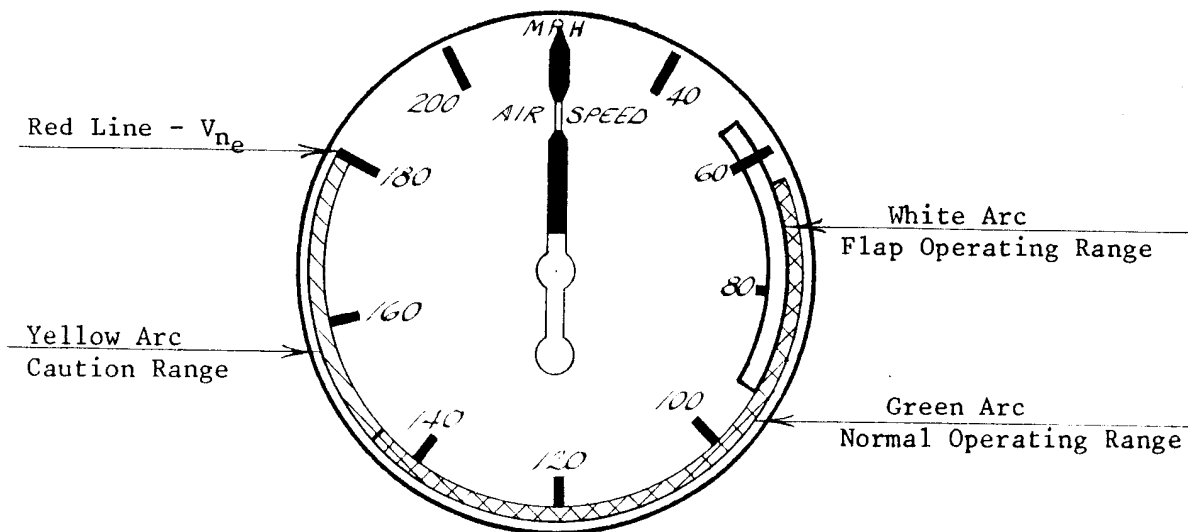
For MAULE M-5-180C
S/N's 8070C and Up

SECTION I
LIMITATIONS
FAA APPROVED
DATE: JUN 12 1985

SECTION I
OPERATING LIMITATIONS

AIRSPEED LIMITS: All airspeeds are calibrated airspeeds.

AIRSPEED INDICATOR MARKINGS:



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.

White Arc- Flap Operating Range, 53-94 mph (46-82K): Extends from full flap, power off stall speed at 2300 lbs. (V_{s0}) 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.

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:	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 Pres- sure, 25 psi.
	Red Radial - Maximum Operating Pres- sure, 115 psi.
Manifold Pressure:	Green Arc - Normal Operating Range, 14.5 to 29 ins. of Mercury.
Fuel Pressure:	Green Arc - Normal Operating Range, .5 to 8 psi.
	Red Radial - Minimum Pressure, .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.

AIRPLANE FLIGHT MANUAL

For MAULE M-5-180C
S/N's 8070C and Up

SECTION I
LIMITATIONS
FAA APPROVED

DATE: JUL 12 1985

MAXIMUM WEIGHT: 2300 Pounds

CENTER OF GRAVITY LIMITS: + 16.7 to + 20.5 inches @ 2300#

+ 12.6 to + 20.5 inches @ 1600# or less.

Straight Line Variation between points given.

Datum: Wing Leading Edge

NOTE: It is the responsibility of the airplane owner and the pilot to insure that the airplane is properly loaded. Refer to 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 SPINS PROHIBITED.

FLIGHT LOAD FACTORS: FLAPS UP - 3.8g positive to 1.5g Negative
FLAPS DOWN - 1.9g Positive.

FUEL CAPACITY: MAIN TANKS - 21.5 GAL. ea., OPTIONAL AUXILIARY TANKS- 11.5 GAL. ea.

UNUSABLE FUEL: 1.5 Gallons per main tank.

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

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) "

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

AIRPLANE FLIGHT MANUAL

For MAULE M-5-180C
S/N's 8070C and Up

SECTION II
NORMAL PROCEDURES
FAA APPROVED
DATE: JUN 12 1985

" 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 "

The following placards are located next to the fuel filler caps on the top of
the wing.

Inboard tanks: "FUEL - 100/130 OCTANE - 21.5 GAL "

Outboard tanks: (If installed) "FUEL -100/130 OCTANE - 11.5 GAL "

SECTION II

NORMAL OPERATING PROCEDURES:

PREFLIGHT INSPECTION:

Before entering aircraft.....REMOVE CONTROL LOCKS

INTERIOR:

- 1. All Electrical Switches.....OFF
- 2. Master Switch.....ON
- 3. Fuel Gauges.....CHECK INDICATIONS
- 4. Master Switch.....OFF
- 5. 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 left step.....DRAIN TO CHECK FOR WATER
- 2. Left Flap.....CHECK HINGES & CONTROL
ATTACHMENT

NOTE: Main Fuel tank drains (Lowest part of the 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.

AIRPLANE FLIGHT MANUALFor MAULE M-5-180C
S/N's 8070C and UpSECTION II
NORMAL PROCEDURES
FAA APPROVED
DATE: JUN 12 1985

3. Aileron.....CHECK HINGES & CONTROL ATTACHMENT
4. Wing Top.....CHECK FOR WRINKLES AS INDICATION OF INTERNAL DAMAGE
5. Wing Main & Aux Fuel Tank Drains.....DRAIN TO CHECK FOR WATER (2)
6. Wing Tip and Nav. Light.....CHECK FOR DAMAGE
7. Auxiliary Fuel Tanks.....VISUALLY CHECK QUANTITY
8. Landing Light.....CHECK FOR DAMAGE
9. Wing Tiedown.....REMOVE
10. Stall Warning Switch.....CHECK FOR FREEDOM OF MOVEMENT
11. Main Fuel Tank.....VISUALLY CHECK QUANTITY
12. Left Main Gear.....CHECK TIRE INFLATION AND BRAKE LINE SECURITY
13. Bottom left side of cowl.....DRAIN GASCOLATOR (1)
14. Top Cowl; Oil access Door.....CHECK OIL QUANTITY: 5 Qts. Min., 8 Qts. Max.
15. Propeller.....CHECK LEADING EDGE FOR DAMAGE
16. Air Inlets.....CHECK FOR FOREIGN OBJECTS, INSPECT VISIBLE CONNECTIONS AND COMPONENTS
17. Right Landing Gear.....CHECK TIRE INFLATION AND BRAKE LINE SECURITY
18. Right Wing and Controls.....INSPECT SAME AS LEFT WING
- 18a. Wing Main & Aux Fuel Tank Drains.....DRAIN (2)
19. Right Fuselage side and top.....INSPECT FOR WRINKLES AS INDICATION OF INTERNAL DAMAGE

- 20. Right Stabilizer.....CHECK ATTACHMENT POINTS
AND STRUT
- 21. Right Elevator.....CHECK HINGE POINTS
- 22. Rudder.....CHECK HINGE POINTS, CONTROL
ATTACHMENTS, NAV. LIGHT
- 23. Tailwheel.....CHECK INFLATION, ATTACHMENTS,
REMOVE TIE-DOWN
- 24. Left Elevator.....CHECK TAB CONTROLS AND ALL
HINGE POINTS
- 25. Left Stabilizer.....CHECK ATTACHMENT AND STRUT
- 26. Left Fuselage side and bottom.....CHECK FOR WRINKLES AS INDI-
CATION OF INTERNAL DAMAGE

OPERATING CHECK LISTS:

BEFORE STARTING:

- 1. Seat Belts.....FASTEN
- 2. Flaps.....UP
- 3. Circuit Breakers.....CHECK

STARTING:

- 1. Mixture Control.....FULL RICH
- 2. Primer Pump.....AS REQUIRED
- 3. Throttle.....CRACK OPEN
- 4. Propeller Control.....FULL INCREASE
- 5. Master Switch.....ON
- 6. Propeller Area.....CHECK & WARN CLEAR
- 7. Parking or Toe Brakes.....ON

AIRPLANE FLIGHT MANUAL

For MAULE M-5-180C
S/N's 8070C and Up

SECTION II
NORMAL PROCEDURES
FAA APPROVED
DATE: JUN 12 1985

8. Starter Switch.....TWIST FULL RIGHT TO ENGAGE
9. After Starting.....CHECK OIL PRESSURE

CAUTION

IF OIL PRESSURE DOES NOT EXCEED 25 psi WITHIN 30 SECONDS, SHUT DOWN ENGINE.

10. Alternator Switch.....ON
11. Anti-Collision Light.....ON
12. Radios and other Electricals.....AS REQUIRED
13. Parking Brake.....OFF

WARNING

IN EVENT OF ENGINE FIRE DURING START, MIXTURE-FULL LEAN, THROTTLE OPEN, CONTINUE CRANKING SEVERAL REVOLUTIONS, ACCOMPLISH ENGINE EMERGENCY SHUT DOWN. MASTER SWITCH OFF.

ENGINE CHECK:

1. Parking Brake.....ON, IF DESIRED
2. Throttle.....INCREASE TO 2000 RPM
3. Magnetos.....SWITCH TO RIGHT, BOTH, LEFT, BOTH, CHECKING RPM DROPS

CAUTION

MAXIMUM RPM DROP IS 175 RPM.
MAXIMUM ALLOWABLE DIFERENTIAL IS 50 RPM.

4. Propeller Control.....RETARD FULLY UNTIL RPM DROP IS NOTED. REPEAT.
5. Carburetor Heat Control.....PULL ON

NOTE

NORMAL RPM DROP WITH CARBURETOR HEATER ON IS 150

6. Engine Gauges.....CHECK IN GREEN

AIRPLANE FLIGHT MANUAL

For MAULE M-5-180C
S/N's 8070C and Up

SECTION II
NORMAL PROCEDURES
FAA APPROVED
DATE: JUN 12 1985

7. Carburetor Heat Control.....PUSH OFF
8. Throttle.....RETARD TO IDLE

BEFORE TAKEOFF:

1. Fuel Selector.....ON FULLEST TANK
2. Flaps.....AS DESIRED
3. Trim Control.....TAKEOFF POSITION
4. Flight Controls.....CHECK FOR FREEDOM AND FULL TRAVEL
5. Mixture Control.....FULL RICH (EXCEPT AT HIGH ALTITUDE AIRPORTS)
6. Propeller Control.....FULL INCREASE
7. Carburetor Heat Control.....OFF
8. Vacuum Gauge.....CHECK IN GREEN
9. Engine Instruments.....RECHECK IN NORMAL RANGE
10. Fuel Gauges.....RECHECK QUANTITY
11. Avionics.....AS DESIRED
12. Altimeter.....SET
13. Directional Gyro.....SET
14. Seatbelts.....RECHECK FASTENED
15. Doors.....CLOSED AND LOCKED

LANDING CHECKLIST:

1. Mixture Control.....FULL RICH (EXCEPT AT HIGH ALTITUDE AIRPORTS)
2. Fuel Selector Valve.....ON FULLEST TANK
3. Propeller Control.....FULL INCREASE
4. Flaps.....AS REQUIRED

AIRPLANE FLIGHT MANUAL

For MAULE M-5-180C
S/N's 8070C and Up

SECTION II
NORMAL PROCEDURES
FAA APPROVED
DATE: JUN 12 1985

5. Carburetor Heat Control.....ON WHEN AT IDLE
6. Seat Belts.....TIGHTEN
7. Trim.....AS REQUIRED

SHUT DOWN CHECKLIST:

1. Avionics.....OFF
2. Anti-Collision Light.....OFF
3. All Other Electrical Switches.....OFF
4. Flaps.....UP
5. Parking Brake.....ON, IF DESIRED

TO STOP ENGINE:

6. Mixture Control.....FULL LEAN
7. Magnetq Switch (After Prop Stops),...OFF
8. Master Switch.....OFF

NORMAL FLIGHT OPERATIONS:

FLAP SETTINGS:

Normal Takeoff - 0° (No flaps) 20° (First notch) flaps permissible for takeoff.

Short, Rough, Soft Field Takeoff- 40° (Second Notch) until safely airborne, then retract to 20°.

Normal Climb - 0°

Best Angle Climb - 20°

Landing - 40° (0° or 20° permissible).

Climbing:

Best rate of climb - 90 mph CAS, no flaps

Best angle of climb - 75 mph CAS, 20° flaps.

AIRPLANE FLIGHT MANUAL

For MAULE M-5-180C
S/N's 8070C and Up

SECTION II
NORMAL PROCEDURES
FAA APPROVED
DATE: JUN 12 1985

CAUTION

CLIMB BELOW 90 MPH ONLY AS NECESSARY AND CHECK CYLINDER HEAD TEMPERATURE FREQUENTLY WHEN DOING SO.

RUDDER TRIM:

Rudder trim can be adjusted in the right direction only. It is most useful during takeoff and climb to reduce the right rudder pedal load and is to be used at the pilot's discretion.

STALLS:

- Stalls are clean and predictable, with little or no pre-stall buffet. Loss of altitude prior to recovery from a stall may be as much as 200 feet. The red stall warning light on the instrument panel will illuminate at 5 to 10 mph above the stall speed.

CAUTION

THE STALL WARNING LIGHT IS INOPERATIVE WHEN THE MASTER SWITCH IS OFF.

LANDINGS AND TAKEOFFS:

Maximum demonstrated 90° crosswind component is 14 mph.

FUEL SYSTEM:

Fuel is fed only from the main (inboard) tanks, and is controlled by the selector valve on the left kick panel. Optional wing tip tanks (if installed) 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 .4 gallons per minute, or approximately one half hour 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 less than 1/2 full.

DOOR-OFF OPERATION:

This aircraft may be operated 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
2. Maximum bank angle - 30°
3. Maximum Yaw angle - 10°
4. No smoking permitted
5. Limit flight to VFR conditions

NOISE LEVEL:

No determination has been made by the Federal Aviation Administration that the noise level of this airplane is, or should be acceptable or unacceptable for operation at, into, or out of any airport. The noise level obtained during certification, per FAR-36, was dBA 72.32. This was determined under the following conditions: Gross Wt. 2300#, 2600 RPM, Full Throttle.

USE OF CARBURETOR 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 carb. heat until the manifold pressure returns to normal, then full cold.

Traffic Pattern:

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

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

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 UNDER THESE CONDITIONS.

SECTION III

EMERGENCY PROCEDURES:SPIN RECOVERY:

Intentional spins are prohibited. If the aircraft inadvertently enters a spin, immediately use opposite rudder and neutral ailerons, followed closely by down elevator, for recovery.

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 practicable and investigate the electrical system malfunction before further flight.

ENGINE EMERGENCY SHUT DOWN:

1. Mixture.....FULL LEAN
2. Fuel Selector.....OFF
3. Ignition Switch.....OFF



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

EMERGENCY CHECK LISTS:

ENGINE FAILURE:

1. Mixture Control.....FULL RICH



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

2. Fuel Selector Valve.....ON FULLEST TANK
3. Boost Pump.....ON
4. Propeller Control.....FULL INCREASE



PROPELLER MAY NOT WINDMILL BELOW 70 MPH.

5. Auxiliary Tank Pump.....ON FOR TANK FEEDING ENGINE, IF AUXILIARY TANK HAS FUEL.

FORCED LANDING:

1. Airspeed.....MAINTAIN AIRCRAFT CONTROL
2. Flaps.....UP FOR BEST GUIDE, AS NECESSARY FOR LANDING
3. Seat Belts.....TIGHTEN
4. Loose Objects.....STOW
5. Fuel Selector Valve.....OFF
6. Master and Magneto Switches.....OFF JUST PRIOR TO LANDING

ENGINE FIRE IN FLIGHT:

1. Fuel Selector.....OFF
2. Throttle.....FULL OPEN
3. Magneto Switch.....OFF
4. Cabin Vent and Heat Controls.....CLOSED
5. Window Vents.....CLOSED
6. LAND AS SOON AS PRACTICABLE.