

NORMAL PROCEDURES CHECKLIST

PA-46-350P, MALIBU MIRAGE

FOR REFERENCE ONLY
NOT FOR FLIGHT

WEIGHT LIMITS

Maximum Ramp Weight	4358 LB
Maximum Takeoff Weight	4340 LB
Maximum Landing Weight	4123 LB
Maximum Zero Fuel Weight	4123 LB
Maximum Baggage (100 lb each compartment)	200 LB

FUEL LIMITATIONS

Minimum Aviation Fuel Grade	100LL /100
Total Capacity	122 U.S. GAL.
Unusable Fuel	2 U.S. GAL.
Usable Fuel	120 U.S. GAL.
Fuel Imbalance	10 gallons.

OPERATING ALTITUDE LIMITATIONS

Flight above 25,000 feet pressure altitude is not approved. Flight up to and including 25,000 feet is approved if equipped with avionics in accordance with FAR 91 or FAR 135.

CABIN PRESSURIZATION LIMITS

Pressurized flight operation approved at maximum cabin differential pressure of 5.5 psi.
Pressurized landing not approved.

AIR CONDITIONING SYSTEM LIMITATIONS

AIR COND switch in OFF position for takeoffs and landings.

NOTE

BLOWER LOW or BLOWER HIGH switch may be selected

ELECTRIC AUXILIARY CABIN HEATER LIMITATIONS

Both alternators must be functioning.
The low voltage monitor system and annunciator must be functional.
The Vent/Defog Fan must be operational for heater ground operation.
Maximum ambient temperature for heater operation is 20°C (68°F).

AIRSPEEDS FOR SAFE OPERATIONS

Best Rate of Climb Speed	110 KIAS
Best Angle of Climb Speed	81 KIAS
Turbulent Air Operating Speed (See Subsection 2.3)	133 KIAS
Landing Final Approach Speed (Full Flaps)	77 KIAS
Maximum Demonstrated Crosswind Velocity	17 KTS
Maximum Flaps Extended Speed	
10°	165 KIAS
20°	130 KIAS
Full Flaps (36°)	116 KIAS

AIRSPEED LIMITATIONS

Never Exceed Speed (VNE)	198 KIAS
Do not exceed this speed in any operation.	
Maximum Structural Cruising Speed (Vno)	168 KIAS
Do not exceed this speed except in smooth air and then only with caution.	
Design Maneuvering Speed (Va)	
Do not make full or abrupt control movements above this speed.	
At 4340 LBS. Gross Weight	133 KIAS
At 2450 LBS. Gross Weight	100 KIAS

CAUTION

Maneuvering speed decreases at lighter weight as the effects of aerodynamic forces become more pronounced. Linear interpolation may be used for intermediate gross weights. Maneuvering speed should not be exceeded while operating in rough air.

Maximum Speed for Pneumatic Boot Inflation.	178 KIAS
Maximum Flaps Extended Speed (VFE)	
Do not exceed this speed at the given flap setting.	
10°	165 KIAS
20°	130 KIAS
36°	116 KIAS
Maximum Landing Gear Extension Speed (VLO)	165 KIAS
Do not exceed this speed when extending the landing gear.	
Maximum Landing Gear Retraction Speed (VLO)	126 KIAS
Do not exceed this speed when retracting the landing gear.	
Maximum Landing Gear Extended Speed (VLE)	195 KIAS
Do not exceed this speed with the landing gear extended.	

POWER PLANT LIMITATIONS

Engine: one Textron Lycoming Model No. TIO-540-AE2A

Engine Operating Limits

Maximum Engine Speed	2500 RPM
Maximum Oil Temperature	245 °F
Maximum Cylinder Head Temperature	500 °F
Maximum Turbine Inlet Temperature	1750 °F
Maximum Manifold Pressure	
To 20,600 feet	42 inHg
20,600 to 25,000 feet	42 inHg -1.6 per 1000 foot increase
Propellers Hartzell (3 Blade) HC-I3YR-1E/7890K	

Preflight Checklists

COCKPIT

Control wheel	release restraints
Parking Brake	SET
Gear Handle	DOWN
All Switches	OFF
Magneto Switches	OFF
Radio Master Switch	OFF
Mixture	IDLE CUT-OFF
Battery Master Switch	ON

CAUTION

Fuel imbalance limitation: 10 US Gal

Fuel Gauges	check QUANTITY & IMBALANCE
Annunciator Panel	CHECK
Switch Panel	CHECK
FUEL PRESS Annunciator	ON
Oxygen Light (if installed)	CHECK
Stall Warning System	TEST
Flaps	EXTEND
Battery Master Switch	OFF
Primary Flight Controls	PROPER OPERATION
Trim	NEUTRAL
Static System	DRAIN
Alternate Static System	CHECK NORMAL POSITION
Emergency Exit	CHECK
Windows	check CLEAN
Required Papers	check ON BOARD
Baggage	STOW PROPERLY - SECURE

EMPENNAGE

Antennas	CHECK
Surface Condition	CLEAR OF ICE, FROST, SNOW
Left Static Port	CLEAR
Alternate and Pressurization Static Ports	CLEAR
Elevator	CHECK
Elevator Trim Tab	CHECK
Rudder	CHECK
Static Wicks	CHECK
Tie Down	REMOVE
Right Static Port	CLEAR

RIGHT WING

Surface Condition	CLEAR OF ICE, FROST, SNOW
Flap and Hinges	CHECK
Aileron and Hinges	CHECK
Static Wicks	CHECK
Wing Tip and Lights	CHECK
Fuel Tank	CHECK supply; visually - SECURE CAP
Fuel Tank Vent	CLEAR
Tie Down and Chock	REMOVE
Main Gear Strut	PROPER INFLATION (3.44 +/- 0.25 in.)
Tire	CHECK
Brake Block and Disc	CHECK

CAUTION

When draining any amount of fuel, care should be taken to ensure that no fire hazard exists before starting engine.

Fuel Tank Sump	DRAIN and CHECK for water, sediment and proper fuel
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NOSE SECTION

General Condition	CHECK
Fuel Filter Sump	DRAIN and CHECK for water, sediment and proper fuel
Cowling	SECURE
Windshield	CLEAN
Propeller and Spinner	CHECK
Air Inlets	CLEAR
Landing Light	CHECK
Chock	REMOVE
Nose Gear Strut	PROPER INFLATION (1.65 ± 0.25 in.)
Nose Wheel Tire	CHECK
Engine Baffle Seal	CHECK
Oil	CHECK QUANTITY
Oil Filler/Dipstick Cap	PROPERLY SEATED and SECURE
Cowl Oil Door	CLOSED
Tow Bar	STOW properly - SECURE
Baggage Door	CLOSE and SECURE

LEFT WING

Surface Condition	CLEAR of ICE, FROST, SNOW
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CAUTION

When draining any amount of fuel, care should be taken to ensure that no fire hazard exists before starting engine.

Fuel Tank Sump	DRAIN and CHECK for water, sediment
Tie Down and Chock	REMOVE
Main Gear Strut	INFLATION (3.44 +/- 0.25 INCH
Tire.	CHECK
Brake Block and Disc	CHECK
Pitot Head	HOLES CLEAR
Fuel Tank	CHECK supply; visually - SECURE CAP
Fuel Tank Vent	CLEAR
Wing Tip and Light	CHECK
Aileron and Hinges	CHECK
Flap and Hinges	CHECK
Static Wicks	CHECK

MISCELLANEOUS

Oxygen System (if installed)	CHECK MASKS and HOSES
Battery Master Switch	ON
Flaps	RETRACT
Interior Lighting	ON and CHECK
Pitot Heat Switch	ON
Stall Warning Heat Switch	ON

CAUTION

Care should be taken when an operational check of the heated pitot head and heated lift detector is being performed. The units become very hot. Ground operation should be limited to three minutes to avoid damaging the heating elements.

Exterior Lighting Switches	ON and CHECK
Pitot	CHECK - WARM
Stall Warning Heat	CHECK WARM
All Lighting Switches	OFF
Pitot Heat Switch	OFF
Stall Warning Heat Switch	OFF
Battery Master Switch	OFF
Passengers	BOARD
Door	CLOSE and LATCH

WARNING

Do not initiate any flight if all four door pin indicators are not green and/or the DOOR AJAR annunciator is lit.

Door Pins	all INDICATORS GREEN
Seats	adjusted and locked in position
Seat Belts and Harness	FASTEN/ADJUST;CHECK inertia reel

Before Starting Engine Checklist

BEFORE STARTING ENGINE

Parking Brake	SET
Propeller Control	FULL INCREASE
Fuel Selector	DESIRED TANK
Circuit Breakers	check IN
Radios	OFF
Alternators	ON
Cabin Altitude Selector	SET
Altitude Rate Control	SET
Cabin Pressurization Control	SET
Cabin Pressure Dump/Normal Switch	NORM
Induction Air Control	CHECK then PRIMARY

Engine Start Checklist

ENGINE START - GENERAL

CAUTION Do not attempt flight if there is no indication of alternator output.	
CAUTION The STARTER ENGAGE annunciator will illuminate during engine cranking. If the annunciator remains lit after the engine is running, stop the engine and determine the cause.	
CAUTION If a positive oil pressure is not indicated within 30 seconds following an engine start, stop the engine and determine the trouble. In cold weather it will take a few seconds longer to get a positive oil pressure indication.	
NOTE Starter manufacturers recommend that starter cranking periods be limited to 30 seconds with a two minute rest period between cranking periods. Longer cranking periods will shorten the life of the starter.	

NORMAL START - COLD ENGINE

Throttle	1/2 INCH OPEN
Battery Master Switch	ON
Emergency (EMERG) Fuel Pump	OFF
Mixture	RICH - then IDLE CUT-OFF
NOTE The amount of prime depends on engine temperature. Familiarity and practice will enable the operator to estimate the amount of prime required.	

Magneto Switches	ON
Starter	ENGAGE
Mixture (when engine fires)	ADVANCE
Throttle	ADJUST
Oil Pressure	CHECK
Alternators	CHECK AMMETER
Gyro Suction	CHECK

NORMAL START - HOT ENGINE

Throttle	1/2 INCH OPEN
Battery Master Switch	ON
Emergency (EMERG) Fuel Pump	OFF
Mixture	IDLE CUT-OFF
Magneto Switches	ON
Starter	ENGAGE
Mixture (when engine fires)	ADVANCE
Throttle	ADJUST
Oil Pressure	CHECK
Alternators	CHECK AMMETER
Gyro Suction	CHECK

ENGINE START WHEN FLOODED

Throttle	OPEN FULL
Battery Master Switch	ON
Emergency (EMERG) Fuel Pump	OFF
Mixture	IDLE CUT-OFF
Magneto Switches	ON
Starter	ENGAGE
Mixture (when engine fires)	ADVANCE
Throttle	RETARD
Oil Pressure	CHECK
Alternators	CHECK AMMETER
Gyro Suction	CHECK

ENGINE START WITH EXTERNAL POWER SOURCE

Battery Master Switch	OFF
Alternators	OFF
All Electrical Equipment	OFF
External Power Plug	INSERT in receptacle
Proceed with normal start.	

NOTE For all normal operations using an external power source, the battery master switch should be OFF, but it is possible to use the ship's battery in parallel by turning the battery master switch ON. This will give longer cranking capabilities, but will not increase amperage.	
CAUTION Care should be exercised because if the ship's battery has been depleted, the external power supply can be reduced to the level of the ship's battery. This can be tested by turning the battery master switch ON momentarily while the starter is engaged. If cranking speed increases, the ship's battery is at a higher level than the external power supply.	

Throttle	LOWEST POSSIBLE RPM
External Power Plug	DISCONNECT from receptacle
Baggage Door	CLOSED and SECURE
Battery Master Switch	ON
Voltmeter	CHECK
Alternators	ON
Ammeters	CHECK
Throttle	ADVANCE to 1000 RPM
Oil Pressure	CHECK
Gyro Suction	CHECK

Before Taxiing Checklist

BEFORE TAXIING

CAUTION

Do not operate engine above 1200 RPM with cabin doors open.

Throttle	1000 to 1200 RPM
Radio Master Switch	ON
Environmental System	AS DESIRED
Supplemental Electric Heater	AS DESIRED

Taxiing Checklist

TAXIING

Taxi Area	CLEAR
Chocks	REMOVED
Parking Brake	RELEASED
Propeller Control	FULL INCREASE
Throttle	APPLY SLOWLY
Brakes	CHECK
Steering	CHECK
Flight Instruments	CHECK

NOTE

During taxi, if low voltage annunciator comes on, increase engine RPM if possible to retain adequate battery charging.

Ground Check Checklist

GROUND CHECK

CAUTION

Alternate air is unfiltered. Use of alternate air during ground or flight operations, when dust or other contaminants are present, may result in engine damage from particle ingestion.

Parking Brake	SET
Propeller Control	FULL INCREASE
Throttle	2000 RPM
Magnetos	max. drop 175 RPM
- max. diff. 50 RPM	
Gyro Suction	CHECK (within normal operating range)

NOTE

Refer to paragraph "Icing Information", prior to any flight operations. (Takeoff, cruise, landing, etc.) If flight into icing conditions (in visible moisture below +5 °C) is anticipated, conduct a preflight check of the ice protection systems as shown in the 'ice protection' paragraph.

Ice protection equipment	CHECK AS REQUIRED
Voltmeter	CHECK
Ammeters	CHECK
Oil Temperature	CHECK
Oil Pressure	CHECK
Propeller Control	EXERCISE – then FULL INCREASE
Fuel Flow	CHECK
Throttle	RETARD
Annunciator Panel	PRESS-TO-TEST
Switch Panel	PRESS-TO-TEST

Before Takeoff Checklist

BEFORE TAKEOFF

Battery Master Switch	ON
Emergency (EMERG) Fuel Pump	ON
Alternators	ON - CHECK AMMETERS
Flight Instruments	CHECK
Engine Gauges	CHECK
Pressurization Controls	SET
Fuel Selector	PROPER TANK
Induction Air	PRIMARY

WARNING

Refer to paragraph "Icing Information", prior to any flight operations. (Takeoff, cruise, landing, etc.) If flight into icing conditions (in visible moisture below +5 °C) is anticipated or encountered during climb, cruise or descent, activate the aircraft ice protection system:.

INDUCTION AIR	ALTERNATE
PITOT HEAT switch	ON
S. WRN HEAT switch	ON
WSHLD LO switch	ON (WSHLD HI in actual ice)
PROP HEAT switch	ON
DEFROST knob	OUT
VENT/DEFOG BLWR switch	ON, if additional defrost is desired
SURFACE DEICE switch	activate after 1/4 to 1/2 inch accumulation
Relieve propeller unbalance (if required) by exercising propeller control briefly. Repeat as required.	

Seat Backs	ERECT
Seats	ADJUSTED& LOCKED IN POSITION
Armrests	STOWED
Mixture	FULL RICH
Propeller Control	FULL INCREASE
Belts/Harness	FASTENED/ADJUSTED
Empty Seats	SEAT BELTS SNUGLY FASTENED
Flaps	SET
Trim	SET
Controls	FREE
Door	LATCHED
Air Conditioner	OFF
Parking Brake	RELEASED

Takeoff Checklist

NORMAL TECHNIQUE

NOTE	
Takeoffs are normally made with full throttle. However, under some off standard conditions, the manifold pressure indication can exceed its indicated limit at full throttle. Limit manifold pressure to 42 in. Hg maximum.	
NOTE	
During landing gear operation, it is normal for the HYDRAULIC PUMP annunciator light to illuminate until full system pressure is restored.	

NORMAL TECHNIQUE

Flaps	0 ° to 10 °
Trim	SET
Power	SET TO MAXIMUM
Liftoff	80-85 KIAS
Climb Speed	90-95 KIAS
Landing Gear (when straight ahead landing on runway not possible)	UP
Flaps	RETRACT

0 ° FLAP TAKEOFF PERFORMANCE

Flaps	0 °
Trim	SET
Brakes	APPLY
Power	SET TO MAXIMUM
Brakes	RELEASE
Liftoff	78 KIAS
Obstacle Clearance Speed	91 KIAS
Landing Gear	UP

SHORT FIELD TAKEOFF PERFORMANCE

NOTE	
Gear warning will sound when the landing gear is retracted with the flaps extended more than 10°.	
Flaps	20 °
Trim	SET
Brakes	APPLY
Power	SET TO MAXIMUM
Brakes	RELEASE
Liftoff	69 KIAS
Obstacle Clearance Speed	80 KIAS
Landing Gear	UP
Flaps	RETRACT as speed builds thru 90 KIAS

Climb Checklist

MAXIMUM CONTINUOUS POWER CLIMB

Mixture	FULL RICH
Propeller Speed	2500 RPM
Manifold Pressure	MAXIMUM CONTINUOUS POWER
Climb Speed	
Best Angle (short duration only)	81 KIAS
Best Rate	110 KIAS
Pressurization Controls	SET
Emergency (EMERG) Fuel Pump	OFF at safe altitude

CRUISE CLIMB

Manifold Pressure	35 IN. HG
Propeller Speed	2500 RPM
Mixture	32 GPH
Climb Speed	125 KIAS
Pressurization Controls	SET
Emergency (EMERG) Fuel Pump	OFF at safe altitude

Cruise Checklist

CRUISE

WARNING
Operation above 25,000 ft is not approved.

CAUTION

To maintain lateral balance, alternate between right and left fuel tanks. Suggested is that alternate tanks be selected in 20 gallon (approximately 60 minute) increments. Fuel imbalance limitation: 10 US Gal

Cruise Power	SET per power table
Mixture	ADJUST
Pressurization Controls	CHECK

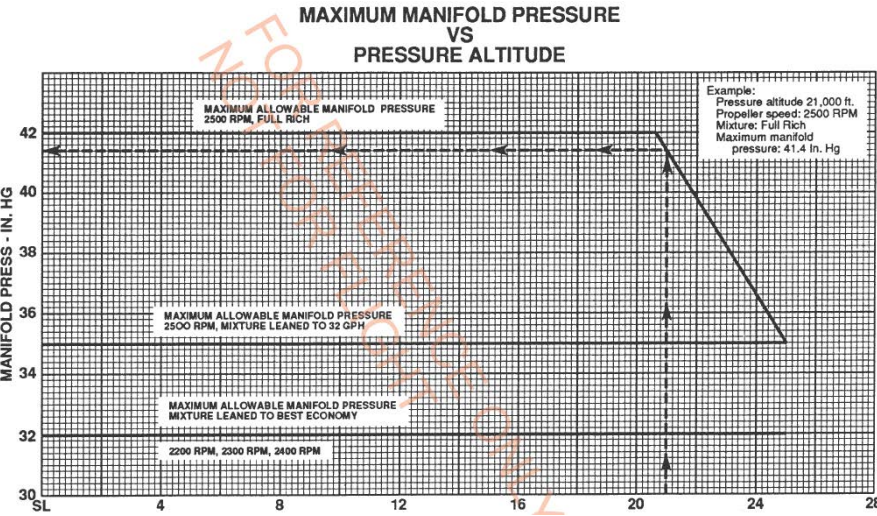
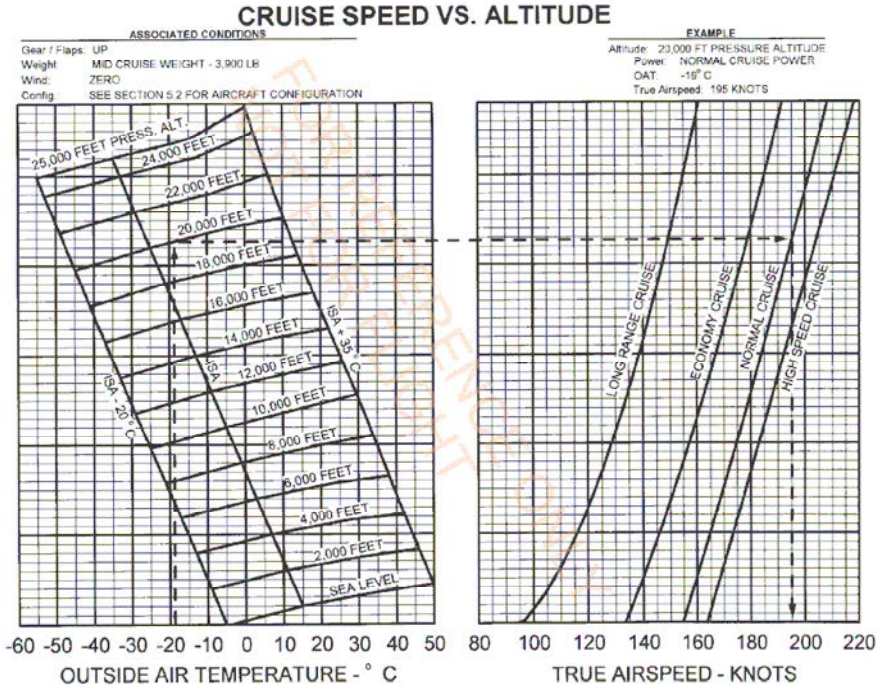
Always use the TIT gauge for leaning.
NOTE Do not exceed 1750°F TIT
The maximum permissible cylinder head temperature for all operations is 500°F. To obtain maximum service life of engine components, cylinder head temperature should not exceed 435°F during cruise operation.
Adjust cylinderhead temperatures by reducing power, adjusting the mixture, or any combination of these methods.

POWER SETTING TABLE

	RPM	Man. Press.	Approx. Fuel Flow @ 20,000 ft	TIT
High Speed Cruise	2500	32" Hg	20 GPH	Lean to Peak
Normal Cruise	2500 2400	29" Hg 30" Hg	18 GPH	Lean to Peak
Economy Cruise	2400 2200	25" Hg 26" Hg	15 GPH	Lean to Peak
Long Range Cruise	2200	20" Hg	11 GPH	Lean to Peak

The higher rpm settings should be used at altitudes above 20,000 ft.

The cruise speeds are shown at mid-cruise weight, 3900 pounds. The speed differential for weight is 0.7 knots per 100 pounds, faster at lighter weights and slower at heavier weights.



Descent Checklist

NORMAL DESCENT

Power	CRUISE
Mixture	CRUISE SETTING
Airspeed	AS REQUIRED
Pressurization Controls	SET
Altimeter	SET
Windshield Defrost	AS REQUIRED

REDUCED POWER DESCENT

Throttle	AT or ABOVE 20 in. Hg.
Mixture	MAINTAIN 1350 TIT
Propeller Speed	CRUISE SETTING
Pressurization Controls	SET
Altimeter	SET
Windshield Defrost	AS REQUIRED

Approach And Landing Checklist

APPROACH AND LANDING

Seat Backs	ERECT
Seats	ADJUSTED & LOCKED IN POSITION
Armrests	STOWED
Belts/Harness	FASTEN/ADJUST
Emergency (EMERG) Fuel Pump	ON
Cabin Pressure	DEPRESSURIZED
Fuel Selector	PROPER TANK
Mixture	RICH
Propeller Control	SET
Gear	DOWN - 165 KIAS max.

NOTE
During landing gear operation it is normal for the HYDRAULIC PUMP annunciator light to illuminate until full system pressure is restored.

Flaps	SET
Trim (RUDDER)	SET TO NEUTRAL
Air Conditioner	OFF
Toe Brakes	DEPRESS to check

WARNING
After pumping several times, if one or both toe brakes are inoperative, DO NOT attempt landing on a short field.

NORMAL TECHNIQUE

Flaps	UP to FULL DOWN
Airspeed	80 - 85 KIAS (flaps down) 95 KIAS (flaps up) AS REQUIRED
Throttle	AS REQUIRED
After touchdown: Brakes	AS REQUIRED

SHORT FIELD TECHNIQUE

Flaps	FULL DOWN
Airspeed	78 KIAS
Throttle	AS REQUIRED
Over obstacle: Throttle	REDUCE TO IDLE
After touchdown: Brakes	MAXIMUM

Go-around Checklist

GO-AROUND

Mixture	FULL RICH
Propeller Control	FULL INCREASE
Throttle	FULL POWER
Control Wheel	back pressure to ROTATE to CLIMB ATTITUDE
Airspeed	80 KIAS
Gear	UP
Flaps	RETRACT SLOWLY
Trim	AS REQUIRED

After Landing Checklist

AFTER LANDING

Induction Air Control	PRIMARY
Flaps	RETRACT
Air Conditioner	AS DESIRED
Radar	OFF
Emergency (EMERG) Fuel Pump	OFF
Strobe Lights	OFF
Landing Taxi Lights	AS REQUIRED

Stopping Engine Checklist

STOPPING ENGINE

Radios and Electrical Equipment	OFF
External Lights	OFF
Air Conditioner	OFF
Propeller Control	FULL INCREASE
Throttle	CLOSED until a decided decrease in CHT
Throttle	1000 RPM for approx. 30 seconds
Mixture	IDLE CUT-OFF
Magnetos	OFF
Alternators	OFF
Battery Master Switch	OFF

Mooring Checklist

MOORING

Parking Brake	SET
Control Wheel	SECURED with belts
Flaps	FULL UP
Wheel Chocks	IN PLACE
Tie Downs	SECURE

ICING INFORMATION

"THE FOLLOWING WEATHER CONDITIONS MAY BECONDUCTIVE TO SEVERE IN-FLIGHT ICING"

Visible rain at temperatures below 0 degrees Celsius ambient air temperature.

Droplets that splash or splatter on impact at temperature below 0 degrees Celsius ambient air temperature.

"PROCEDURES FOR EXITING THE SEVERE ICING ENVIRONMENT"

These procedures are applicable to all flight phases from takeoff to landing. Monitor the ambient air temperature. While severe icing may form at temperatures as cold as -18 degrees Celsius, increased vigilance is warranted at temperatures around freezing with visible moisture present. If the visual cues specified in the Limitations Section of the AFM for identifying severe icing conditions are observed, accomplish the following:

- Immediately request priority handling from Air Traffic Control to facilitate a route or an altitude change to exit the severe icing conditions in order to avoid extended exposure to flight conditions more severe than those for which the airplane has been certificated.
- Avoid abrupt and excessive maneuvering that may exacerbate control difficulties.
- Do not engage the autopilot.
- If the autopilot is engaged, hold the control wheel firmly and disengage the autopilot.
- If an unusual roll response or uncommanded roll control movement is observed, reduce the angle-of-attack.
- Do not extend flaps when holding in icing conditions. Operation with flaps extended can result in a reduced wing angle-of-attack, with the possibility of ice forming on the upper surface further aft on the wing than normal, possibly aft of the protected area.
- If the flaps are extended, do not retract them until the airframe is clear of ice.
- Report these weather conditions to Air Traffic Control.

CABIN PRESSURIZATION SYSTEM

Cabin pressurization system controls, gauges and switches are located to the right of the pilots control wheel shaft.

The cabin pressurization system controls, gauges and switches are as follows:

- (a) Cabin Altitude Controller with Rate of Change Control
- (b) Cabin Pressure Altitude/Differential Pressure/Rate of Climb Gauge
- (c) Cabin Pressure Dump/Normal Switch
- (d) Cabin Pressurization Control

Prior to starting engine, check the operation of the cabin pressurization control. Note that a firm effort is required to move the lever out of either the outside air or the pressurized air position. If little effort is required to move the lever, be suspicious of a broken control cable. If a cable is broken, the air control valve may have failed in either the open or closed position. If failed open, pressurized flight will not be possible, but unpressurized flight will be possible. If failed closed, pressurized flight would be possible but should not be attempted, as it would not be possible to bring in fresh air should contamination occur.

Set ***cabin*** altitude (outer scale) on the cabin altitude controller to 500 feet above the field pressure altitude before takeoff. (Cabin pressurization will begin as the cabin passes through the altitude selected.) If no further adjustments are made, cabin altitude will remain at the selected altitude until maximum cabin differential (5.5 PSI) is reached, at which time the cabin altitude will begin to climb until at 25,000 feet aircraft pressure altitude the cabin pressure altitude will be approximately 8000 feet.

For flight below an airplane altitude of 12,500 feet, the cabin altitude control should be left at the takeoff setting. For flight above 12,500 feet, at which point maximum differential will be achieved, smoother operation will result by setting the ***cabin*** altitude (outer scale) on the cabin altitude controller to 500 feet above field elevation for takeoff. Once the cabin has begun to pressurize and the controller has captured isobaric control, reset the ***aircraft*** altitude (inner scale) on the cabin altitude controller to 500 feet above the cruise altitude and adjust the cabin rate of climb as desired. The normal 9 o'clock position should provide a cabin rate of climb of approximately 500 feet per minute. No additional adjustment should be required prior to descent unless cruise altitude is changed, at which point the ***aircraft*** altitude (inner scale) should be reset to 500 feet above the new cruise altitude.

To descend for landing be certain that the selected ***cabin*** altitude (outer scale) is higher than the pressure altitude of the landing field. Shortly after letdown is initiated, set the ***cabin*** altitude (outer scale) to 500 feet above the pressure altitude of the landing field and adjust the rate of control high enough to allow the cabin to descend to the landing setting before the aircraft descends to that altitude. For normal letdown the rate knob should be at the normal 9 o'clock position. A higher setting should be selected for rapid descents so that the aircraft altitude does not catch up with the cabin altitude.

WARNING

Do not land with aircraft pressurized.

To repressurize while in flight push the pressurization control in and set the cabin pressure dump/normal switch to NORM.

ICE PROTECTION SYSTEM

The Piper Malibu is approved for flight into known icing conditions when equipped with the complete Piper Ice Protection System. Operating in icing conditions of Continuous Maximum and Intermittent Maximum as defined in FAR 25, Appendix C has been substantiated; however, there is no correlation between these conditions and forecasts of reported "Light, Moderate and Severe" conditions. **Flight into severe icing is not approved.**

Icing conditions can exist in any clouds when the temperature is below freezing; therefore it is necessary to closely monitor outside air temperature when flying in clouds or precipitation. Clouds which are dark and have sharply defined edges usually have high water content and should be avoided whenever possible. **Freezing rain must always be avoided.**

Pneumatic boots must be cleaned regularly for proper operation in icing. The exterior surfaces of the aircraft should be checked prior to flight.

Do not attempt flight with frost, ice or snow adhering to the exterior surfaces of the aircraft or landing gear.

Prior to dispatch into forecast icing conditions all ice protection equipment should be functionally checked for proper operation.

PREFLIGHT

CAUTION

To avoid possible windshield distortion during ground operations, or during testing, do not position the WSHLD HEAT switch to HIGH for more than 20 seconds.

(a) A check of the heated propeller should be performed by pressing "prop heat" button on switch panel. The green lamp in the "prop heat" button will start to flash rapidly for 30 seconds indicating the heater is in the "on" cycle.

After 30 seconds, the flash rate is reduced, indicating the heater is in the "off" cycle. The green lamp will continue to flash at the slower flash rate as long as the aircraft is on the ground or until the pilot deselects "prop heat" on the switch panel.

CAUTION

Care should be taken when an operational check of the heated pitot head and heated lift detector is being performed. The units become very hot.

(b) A check of the heated pitot head and lift detector should be performed by turning the S. WRN HEAT and PITOT HEAT switches ON and touching the units.

(c) The surface boots should be checked prior to flight for damage and cleanliness. If necessary, damage should be repaired and boots cleaned prior to flight. An operational check of the boot system should be performed during engine run-up at 2000 RPM as follows:

(1) Actuate the momentary SURFACE DE-ICE switch - the boots will inflate through three phases: empennage, lower wing and upper wing with a duration of approximately six seconds per phase. The surface boot system then remains off until the switch is activated again. A green SURFACE DE-ICE annunciator light will remain on for approximately eighteen seconds.

(2) Visually check to insure that the boots have fully deflated to indicate proper operation of the vacuum portion of the pneumatic boot pump system.

(d) An operational check of the heated windshield may be done only if the ambient temperature of the windshield is **less** than 115°F (46°C), and the engine is running. To accomplish the check, turn one alternator OFF. Then, while observing the operating alternator's ammeter, press WSHLD LO to ON, a load increase of approximately 13 amps will be seen on aircraft ammeter. Press WSHLD HI to ON, a load increase of 10 additional amps indicates normal operation. Press WSHLD HI and WSHLD LO switches to the OFF position.

(e) Check the operation of both alternators by observing that both ammeters indicate an output.

(f) During engine run-up, check that both vacuum pumps are operating by observing that both the left and right vacuum inop. Annunciators are extinguished.

