Standard Operating Procedures

5.1 General

Standard Operating Practices (SOP's) have been developed for Hatcher Aviation. These SOP's should help clarify the duties required of each Hatcher Aviation crewmember. Standardized procedures enhance safety and efficiency by establishing performance targets and effective crew communication techniques, which are the most important aspects of effective Crew Resource Management (CRM). A strong emphasis has been placed on flight crew standardization, cockpit awareness, situational awareness, crew communications and aircraft levels of automation. The established procedures have been divided into the following five (5) areas:

a. General Operations
b. Checklist Management
c. FMS/Auto-pilot/Flight Director/Avionics Management
d. Takeoff and Approach Briefings
e. Standard Call Outs

Each area will define the actions expected from each crewmember under normal ground and flight operations. This should facilitate and improve communications among crewmembers and ensure that one crewmember is always responsible for aircraft control and that both crewmembers are aware of both lateral and vertical navigation guidance of the aircraft during all phases of flight.

5.1.1 PIC's Authority

The PIC assigned to a flight, shall have exclusive and final authority in accordance with FAR 91.3 as to whether or not the aircraft shall proceed to any destination, or undertake any flight. The PIC shall not be overruled by any passenger or executive, nor disciplined for well-considered decisions having to do with weather, mechanical condition of the airplane or other hazards. He should utilize all available resources in making decisions related to flight. The other crewmembers should be brought into all discussions concerning the operation of the aircraft as it relates to weather, mechanical condition or other hazards.
The PIC has the final authority on all decisions relating to the operation of the aircraft.

5.1.2 Crew Resource Management (CRM)

Experience has shown that adherence to SOP's helps to enhance individual and crew cockpit situational awareness and will allow a higher performance level to be attained. Our objective is for standards to be agreed upon prior to flight and then adhered to, such that maximum crew performance is achieved and maintained; effective CRM dictates that both pilots be made aware of any actions taken by the other pilot.

The following is a listing of performance standards that we are striving to achieve.

5.1.2.1 Situational Awareness

a. Accomplishes appropriate pre-flight planning
b. Sets and monitors targets
c. Stays ahead of the aircraft by preparing for expected or contingency situations
d. Monitors weather, aircraft systems, instruments, and ATC communications
e. Shares relevant information with the rest of the crew
f. Uses advocacy / inquiry to maintain / regain situational awareness
g. Recognizes error chain clues and takes action to break links in the chain
h. Communicates objectives and gains agreement when appropriate
i. Uses effective listening techniques to maintain / regain situational awareness

5.1.2.2 Stress

a. Recognizes symptoms of stress in self and others
b. Maintains composure, calmness, and rational decision making under stress
c. Adaptable to stressful situations / personalities
d. Uses stress management techniques to reduce effects of stress
e. Maintains open, clear lines of communication when under stress

5.1.2.3 Communication

a. Establishes open environment for interactive communications
b. Conducts adequate briefings to convey required information
c. Recognizes and works to overcome barriers to communications
d. Operational decisions are clearly stated to other crewmembers and acknowledged
e. Crewmembers are encouraged to state their own ideas, opinions, and recommendations
f. Crewmembers are encouraged to ask questions regarding crew actions
g. Assignment of blame is avoided. Focuses on WHAT is right, not WHO is right
h. Keeps feedback loop active until operational goal / decision is achieved
i. Conducts debriefings to correct substandard / inappropriate performance and to reinforce desired performance

5.1.2.4 Synergy and Crew Concept

a. Ensures that group climate is appropriate to operational situation
b. Coordinates flight crew activities to achieve optimum performance
c. Uses effective team building techniques
d. Demonstrates effective leadership and motivation techniques
e. Uses all available resources
f. Adapt leadership style to meet operational and human requirements

5.1.2.5 Workload Management

a. Communicates crew duties and receives acknowledgement
b. Sets priorities for crew activities
c. Recognizes and reports overloads in self and in others
d. Eliminates distractions in high workload situations
e. Maintains receptive attitude during high workload situations
f. Uses other crewmember
g. Avoids being a “one-man show”

5.1.2.6 Decision Making

a. Anticipates problems in advance
b. Uses SOPs in decision making process
c. Seeks information from all available resources when appropriate
d. Avoids biasing source of information
e. Considers and weighs impact of alternatives
f. Selects appropriate courses of action in a timely manner
g. Evaluates outcome and adjusts / reprioritizes
h. Recognizes stress factors when making decisions and adjusts accordingly
i. Avoids making a decision and then going in search of facts that support it

5.1.2.7 Advanced/Automated Cockpits

a. Follows automation related SOPs
b. Specifies pilot and copilot duties and responsibilities with regard to automation
c. Verbalizes and acknowledges entries and changes in flight operation
d. Verifies status and programming of automation
e. Selects appropriate levels of automation
f. Programs automation well in advance of maneuvers

5.1.3 Transfer of Aircraft Control

One pilot shall always be dedicated exclusively to controlling the aircraft. When aircraft control is transferred, the pilot assuming control shall state, “I have controls”. The pilot relinquishing control shall confirm. “You have the controls”. During abnormal or emergency situations, the Pilot Flying (PF) shall always designate which pilot is to control the aircraft and which pilot will attend to the problem.

5.1.4 Minimum Aircraft Crew

The Trip PIC for each flight shall be responsible for all aspects of the flight. The other flight crewmember will be designated as the SIC and will perform the duties as assigned by the PIC and in this manual. The term, “Pilot Flying” (PF) and “Pilot not Flying” (PNF) refer to the individual actually controlling the aircraft at the time an action is required and the individual not controlling the aircraft at a specific point, respectively.

5.1.4.1 Crew Complement

Company aircraft shall be operated with properly rated and current assigned trip PIC and assigned trip SIC (If required) occupying these flight crewmember positions. In the event that additional flight crewmembers are carried for relief, they must also be rated and current with respect to the intended crew position.

Indications of substandard performance levels or any indication of a negative effect on the safety, quality of flight operations or fellow flight operation personnel will not be acceptable and will receive particular scrutiny. The Director of Aviation will conduct this review.

5.1.5 Flight Crew Qualifications

As part of their technical job qualifications, all pilots are expected to be knowledgeable of the provisions of the Federal Air Regulations (FARs) and the International Civil Aviation Organization (ICAO), as well as the procedures outlined in the Aeronautical Information Manual (AIM) and the International Flight Information Manual (IFIM). To the extent possible, this section will not repeat information contained in those regulations and procedural documents.

It is the responsibility of each individual to ensure that all required licenses, certificates and ratings are in force before acting as crew on Hatcher Aviation aircraft. Any suspected or known medical condition that might affect an assignment is to be brought to the attention of the Director of Aviation immediately.

All flight crewmembers shall meet the training and competency requirements specified in Chapter 7 (and or insurance requirements) prior to acting as flight crew.

5.1.6 Required Documents and Equipment

The following items shall be carried by each flight crewmember during all flight operations:

a. Current FAA airmen certificate
b. Current FAA medical certificate
c. For international trips, valid passport, plus applicable visas or travel cards
d. A picture ID, i.e. passport and driver's license

5.1.7 Checklists

The consistent and standardized use of checklists will assist crewmembers in completing their tasks in a safe and efficient manner and reduce the possibility of missing a required action. Checklists will be used by crewmembers on all flights to accomplish normal, abnormal and emergency operating procedures.

5.1.8 Background on Checklist Philosophy and Design

The major function of the checklist is to ensure that the crew will properly configure the aircraft for flight, and maintain this level of accuracy throughout the flight. Generally, the checklist is intended to achieve the following nine objectives:

a. Aid the pilot in recalling the process of configuring the aircraft.
b. Provide a standard foundation for verifying aircraft configuration that will defeat any reduction in the flight crew's psychological and physical condition.
c. Provide convenient sequences for motor movements and eye fixations along the cockpit panels.
d. Provide a sequential framework to meet internal and external cockpit operational requirements.
e. Allow mutual supervision (cross checking) among crewmembers.
f. Enhance a team (crew) concept for configuring the aircraft by keeping all crewmembers "in the loop".
g. Dictate the duties of each crewmember in order to facilitate optimum crew coordination as well as logical distribution of cockpit workload.
h. Serve as a quality control tool by flight department management with respect to flight crew evaluations.
i. Promote a positive "attitude" toward the use of the checklist.

One of the most important aspects of good cockpit management is the proper utilization of the checklist. The success attained by flight crews in the execution of normal as well as abnormal and emergency procedures is attributable to the reliability of the "Challenge and Response" checklist method. Another factor that has an effect on checklist performance is the relationship between the speed of performing the checklist and the accuracy of the check. Research has shown there is a very definite relationship between speed of performing the checklist and the error-rate. Therefore, if the pilot scans the appropriate panels rapidly because of time pressure, the accuracy of his perception will suffer and the probability of error will increase. This can be called the Speed / Accuracy Tradeoff.

As far as checklist design is concerned, by using a top to bottom order of checking panels and items, the design of the checklist can accommodate population stereotype of order and sequence (top to bottom is a common arrangement), as well as some bio-mechanical considerations (it is less fatiguing to move the arms and the head from above to below than vice- versa).

The use of appropriate flow patterns in conducting the checklist procedure can aid the process in the following ways:

a. Standardization of the checklist flow among pilots
b. Making the checklist sequence run parallel to the initial set up flow- patterns (which are done before "running" the checklist), and thereby simplifying the learning process and the daily use of the checklist process
c. Making the checklist actions logical and consistent (as opposed to intermittent) in the motor movement of the head, arms and hands

In addition to visual verification of the check item, motor movement such as touching controls and displays (“muscle memory” as some name it) is also an effective enhancement for the verification process. The use of the hand to guide the eye while using the flow pattern can substantially aid the checklist procedure by combining the mental sequencing process with motor movements. Furthermore, the use of the hand and finger to direct the eye to an alphanumeric display or control can aid in fixating the eyes on the specific item and prevent the eyes from wandering away from that indicator.

Some of the important lessons learned during past aviation history is for the pilot flying (PF) to call for the task checklist at the appropriate time and that very critical items should be completed first on the task checklist, and not last.

“**CRITICAL ITEMS**” means any aircraft configuration setting or change that if not set correctly would adversely affect the aircraft operation. These items will appear in larger BOLD print on the checklist and must be verified by BOTH pilots before continuing the checklist.

“**CHALLENGE RESPONSE**” Items circled will be a CHALLENGE from the PNF with a proper RESPONSE from the pilot flying (PF).

Any Checklist item that refers to equipment that may not be installed on all aircraft will be indicated by the checklist item appearing in ***italics***. Depending on the phase of flight, the checklist will either be a “**Do List**” or a “**Flow Verification List**” which is described later in this manual.

All checklist items should be done calmly and deliberately and at a pace where all items have been completed and verified as correct. The checklist should be read in a discernible, clear voice and the responses should be equally discernible and clear, answered as listed in the checklists or as required by standard operating practices. When an item being checked (such as hydraulic, cabin pressure, etc.) is not in the correct position it will be brought to the attention of the pilot flying (PF).

The checklist will only be started after a request from the pilot flying (PF). The pilot not flying (PNF) is not to initiate a checklist, but he should remind the pilot flying (PF) if he feels the request for it is overdue. The appropriate section will be called out, for example “After Takeoff Checklist”, after completion, the PNF will reply “After Takeoff Checklist - Complete”.

It is the intent to standardize flight deck procedures between aircraft types as much as practical. It is further recognized that type standardization may not always be practical; however, it is our intent to minimize the operational differences among types while maintaining the highest level of safety and effectiveness during the operation of our aircraft. Our company checklist will be used for normal flight operations. Bound or Electronic copies of all normal, abnormal, and emergency checklists are also kept aboard each aircraft for crewmember reference as the need arises for their use.

Company checklists will contain, in abbreviated form, all the information required by the **TRAINED FLIGHT CREW** to operate the aircraft safely in normal operations. The checklist will contain the minimum cues required for the trained crewmember to verify that the appropriate actions have been completed.
The checklists will be organized by the following operational segments:

• BEFORE START – POWER OFF	Flow Verification
• BEFORE START – POWER ON	
• POWERING AIRCRAFT BY OTHER THAN BATTERIES	
• QUICK TURN	
• BEFORE ENGINE START	Do List
• BEFORE TAXI	
• TAXI	
• BEFORE TAKEOFF	

• AFTER TAKEOFF	Flow Verification
• 18000 / CRUISE / STATION	
• DESCENT	
• 18000 DESCENT / APPROACH	
• BEFORE LANDING	
• AFTER LANDING	
• PARKING	Do List
• SHUTDOWN	

5.1.9 Checklist Methods

The two main methods for conducting company checklist are as follows:

a. Do List
b. Flow Verification List

There is no absolute boundary for each method, and combinations of these will be employed to meet the needs of our flight department. The “Do List” will be the most dominant method used while the aircraft is on the ground and the “Flow Verification List” will be the most dominant method used while airborne.

Checklist Conduct:

The process of conducting the checklist is divided into four steps:

a. Checklist initiation
b. Completion of “Do List” or “Flow Verification List”
c. Challenges and responses
d. Checklist completion

A description for each step is as follows:

CHECKLIST INITATION

The initiation of the checklist is the responsibility of the pilot flying (PF). When initiating the checklist, consideration must always be given to the various influences that could interrupt or otherwise induce errors into the checking procedure. These influences might include changes in ATC clearances, routings or other ATC communications, abnormal or emergency situations, or passenger requests / distractions. Checklist initiation provides a primary means of task pacing and crew management. The pilot not flying (PNF) is not to initiate a checklist, but he should remind the pilot flying if he feels the request for it is overdue.

DO LIST

In this method the checklist is used to lead and direct the crewmember in configuring the aircraft using a step-by-step approach. Using this method an item is read and then accomplished. All “DO LIST” checklist items will be by reference to (reading) the checklist. After the checklist is initiated the pilot not flying (PNF) will reference the checklist and accomplish each item in a step-by-step procedure. He will call out the item being accomplished and then give the proper response if it is his response. When he comes to an item that requires a RESPONSE from the pilot flying (PF), he will call out the CHALLENGE and wait for the PROPER RESPONSE. When all items on that checklist are completed he will announce “_____ CHECKLIST COMPLETE”.

FLOW VERIFICATION LIST

In a FLOW VERIFICATION LIST, these items are completed prior to the checklist being referenced. Since most of the airborne checks are completed in this manner the pilot flying (PF) will call for the appropriate checklist to be initiated and the pilot not flying (PNF) will complete the checklist by reference to the proper flow. **As the items are checked, he will call out the item being checked and respond with the proper response.** When he comes to an item that requires a RESPONSE from the pilot flying (PF), (designated by an asterisk *) he will call out the CHALLENGE and wait for the PROPER RESPONSE. When all items on that checklist are completed he will pick up the checklist and review the items to make sure nothing was omitted and then respond by announcing " CHECKLIST COMPLETE".

CHALLENGES AND RESPONSES

Circled numbers next to each checklist item that needs to be a CHALLENGE with a RESPONSE from the other pilot. "Challenge Response" means that the pilot not flying (PNF) will challenge the pilot flying (PF) who will reply with the correct response.

CHECKLIST COMPLETION

The final item (which is not printed on the checklist) to be accomplished on each phase of the checklist will be _____CHECKLIST COMPLETE". This call will be made by the pilot not flying (PNF) when all items on that checklist have been completed. Occasionally, it may become necessary to stop the progress of a particular checklist to accomplish other tasks. If any item cannot be completed, the checklist must be stopped at that item until it can be completed. Checklist items cannot be skipped. The checklist may then be restarted at an appropriate time at that item. IF ANY DOUBT EXISTS, THE ENTIRE CHECKLIST SEGMENT WILL BE RE-ACCOMPLISHED. In a few instances planned checklists "lines" are provided as a planned hold. In these instances, the pilot flying (PF) may request

_____checklist to the line". This will serve as an intermediate completion point. The remaining items will be called for and the checklist completed at the appropriate time.

5.1.9.1 System Operations Applying to Company Aircraft.

a. If icing warrant, when lined up for takeoff, set Pitot Heat On and wait until TAT reading is above 0°C before takeoff power is set. DO NOT leave Pitot On if takeoff is delayed.
b. If visible moisture is present, or the ceiling is below 2,000 feet, and the outside air temperature is below +10 degrees C, the engine anti-ice system will be turned on prior to takeoff.
c. During icing conditions on the ground, it may be necessary to turn the engine anti-ice ON temporarily prior to starting that engine. The temperature probes might be frozen which could cause an engine start malfunction.
d. If the oxygen bottle is shut off, no flow will be present at the masks. However, the existing system pressure will be indicated on the O2 quantity gauge.
e. Aircraft APU will be started after each landing.
f. After each landing the flaps will be fully retracted, With the exception of currency flights where setting at takeoff position is appropriate.
g. Switching the batteries “ON” should only be done to check fuel quantity or to expeditiously start the APU
h. When placing the bus-tie switch to flight normal a slight difference in amperage should be observed between the left and right buses.
i. Starting the engines will be performed using the following flow:
    i. Boost Pump-ON (Light Out)
    ii. Generators-ON
    iii. Bus-Tie Switch-TIED
    iv. Computers-AUTO
    v. Start Push Button-PUSH (1 second max)

5.1.10 Pilot Incapacitation

Flight crews will use the “two communications” rule as a means of detecting and responding to suspected subtle incapacitation. Any time the pilot flying the aircraft does not respond appropriately to two communications associated with a significant deviation from a standard operating procedure or a standard flight profile, the Pilot Not Flying will announce “I have control” and assume command of the flight.

As a guideline, the deviation callouts listed in 5.1.12.1 may be useful in detecting subtle incapacitation. Below 300’ the Flight Crew should adopt a one-communication rule for no response/deviation. Flight crews must understand the necessity for the communication rules to avoid difficulties in the transfer of command responsibilities, and that compliance is MANDATORY.

5.1.10.1 Deviation Callouts for All Approaches

If any of the following parameters are exceeded, the PNF will make the corresponding callout and verify that the pilot flying takes the appropriate corrective action. The pilot flying will acknowledge the callout verbally or with immediate corrective action.

Parameter	Limit	Callout
Airspeed	• Target speed minus 5 knots • Target speed plus 10 knots • Anytime below V_{ref}	"Airspeed"
Localizer	± 1 DOT	"Localizer"
Glideslope	± 1 DOT	"Glideslope"
Sink Rate	• 2000 fpm (when below 2000') • 1000 fpm (when below 1000') • Significant change when below 50'	"Sink Rate"

5.1.11 Use of Aircraft Lighting

Unless visibility is hindered due to meteorological conditions, aircraft lights should normally be set as follows:

a. Navigation lights on at all times when aircraft is powered
b. Beacon light on at engine start until engine shutdown
c. Taxi light should be used whenever the aircraft is in motion. Give consideration to avoid blinding other crew or line personnel at night. After Takeoff, once the gear is selected up, the PNF will select taxi light "OFF". When landing clearance is received, the PNF will select taxi light "ON".
d. Landing / Pulse lights on (after takeoff clearance is received). Pulse lights are to be used below FL180 with the exception for takeoff and landing at night.
e. Strobe Lights on when crossing an active/open runway, prior to taking the active runwayfor departure and remain on until clearing the landing runway.
f. Wing lights should be used when crossing an active/open runway, prior to taking the active runway for departure, remain on below FL180 until clearing the landing runway.

5.2 Preflight

5.2.1 Crew Reporting Time

The CREW is responsible for the aircraft being ready to depart at least 30 minutes prior to scheduled departure for domestic trips and one hour prior to international trips. Therefore, the minimum reporting time for a domestic trip is one hour prior to scheduled takeoff and two hours prior to a scheduled takeoff for an international trip.

When schedules cause difficulty in operating within maximum duty times, the assigned trip PIC is granted the authority to reduce the reporting time to accommodate duty time requirements, but only if other arrangements cannot be made and only to the extent that safety is not degraded. This might

include preflight planning the previous day or having other flight operation crewmembers make necessary flight preparations. The Director of Aviation shall be responsible for administering and monitoring duty limits and rests requirements so that flight crewmembers receive adequate rest and flight safety is maintained.

5.2.2 Crew Briefing

Prior to departure, the PIC is responsible for conducting a crew briefing. This briefing may occur before or after completing safety checks and other cabin inspections. Items to be reviewed include but are not limited to the following:

a. Sterile flight deck
b. Ground and flight delays
c. Unusual situations (e.g., MEL items)
d. Review Aircraft Discrepancy Folders
e. Enroute time
f. Enroute and destination weather
g. Destination city, airport and FBO
h. Passenger considerations will be discussed
i. Operational Risk Awareness

5.2.3 Crew Duties

5.2.3.1 Assigned Trip PIC

The Assigned Trip PIC is directly responsible for the safe and orderly conduct of the flight and is the final authority as to the operation of the aircraft.

Duties and responsibilities include but are not limited to:

a. File the required flight plans and enter requested fuel load in BART Copilot no later than 3 hours prior to the scheduled departure with the exception for short notice (pop up) trips.
b. Duties and responsibilities as described in 1.2.6.3 of this manual
c. Encouraging and using effective CRM in the management of the crew.
d. Conduct crew Briefing according to 5.2.2 of this chapter.
e. Placing/Coordinating catering orders according to passenger profiles or specific trip request, including crew meals
f. Supervision of crewmembers throughout the flight including flight preparation and completion of flight documentation.
g. Development of crewmembers in techniques, methods, and day-to-day activities in accordance with Hatcher Aviation Policy and Standard Operating Procedures.
h. Monitoring the crew's professional behavior.
i. Meeting the passengers as they arrive for departure, confirm destination, ground transportation requirements and escort to/from the aircraft as needed.
j. Communicating with passengers any weather, Air Traffic or Maintenance delays and Airport or FBO changes.
k. Coordinate maintenance service and repairs when away from home base with the Director of Maintenance or his designee
l. Assure that the Director of Maintenance or his designee is informed of any aircraft discrepancies.
m. Ensure required paperwork (including processing of receipts, etc.) is completed properly.
n. Conduct any required passenger briefing
o. Check Discrepancy and MEL Folders

While the completion of some of these items may, at the discretion of the assigned trip PIC, be delegated to the assigned trip SIC, the ultimate responsibility for the execution of each remains with the assigned trip PIC. The assigned trip PIC is responsible for employing command authority and professional skill to ensure the safe and successful completion of all flight operations.

5.2.3.2 Assigned Trip SIC

The Assigned Trip SIC is responsible to the PIC to assist in flight preparation and for the safe operation of the aircraft. The SIC will be prepared to assume the duties of the PIC if that person becomes physically incapacitated and is unable to perform those duties. In addition, the SIC is responsible for:

a. Preparing the aircraft cabin.
b. Preflight of cabin safety equipment.
c. Perform security check for suspicious items.
d. Assure stock items in sufficient quantities.
e. Ice is on boarded.
f. Appropriate beverages are chilling.
g. Assist passengers with their bags; assure they have all their personal items.
h. Check cabin for items left behind.
i. Cabin cleanup including dishes and linens.
j. Prepare cabin for next flight.
k. Check Discrepancy and MEL Folders
l. Prepare and send discrepancy email per 5.7.2

5.2.3.3 Crew Duties Away from Home Base

a. Coordinate with lead passenger to confirm departure time and date.
b. Unload passenger baggage
c. Check aircraft for any articles left behind
d. Install protective covers if required
e. Monitor refueling
f. Clean interior
g. Have lavatory serviced (if required)
h. Arrange for crew transportation/hotel (if required)
i. Disconnect batteries
j. Security of aircraft (consider use of hangar and coordinate with Director of Aviation, especially in high cost areas).
k. Advise FBO of crew hotel and requirements for departure. Also make sure they know towing procedures as well as servicing
l. Remove potable water and other liquids that may freeze (if required)
m. Remove AED for temperature extremes (hot or cold)
n. Chock aircraft
o. Release parking brake
p. Check aircraft and lock it
q. Remove items affected by a hot cabin

5.2.4 Preflight Checks

5.2.4.1 Home

It is the responsibility of the Director of Maintenance to ensure maintenance inspections are completed as required; the Assigned Trip PIC is responsible for ensuring that the aircraft is released for flight by maintenance.

5.2.4.2 Aircraft Preflight Inspection

Prior to the first flight of the day, the assigned trip SIC shall conduct a thorough preflight of the aircraft in accordance with the manufacturer's recommended preflight checklist. On continuing flights, one crewmember shall perform an inspection of sufficient detail to ensure the aircraft is in an airworthy condition.

If the aircraft has been serviced or towed, particular attention should be paid to the service caps and doors, nose gear steering or tow links, and other areas of the aircraft that are particularly susceptible to being damaged during towing or servicing.

5.2.4.3 Flight Deck Preflight

The Flight Deck preflight checklist and aircraft setup should be completed at least 30 minutes before the scheduled departure time.

5.2.5 Fuel Procedure

Aircraft refueling will be supervised by Hatcher Aviation Pilots or Maintenance personnel and will ensure aircraft is properly grounded.

5.2.5.1 Fuel Contamination Precautions

If fuel is obtained from and unknown source or there is any reason to question the quality of the fuel, it should be checked during the pre-flight check. A reasonable quantity of fuel should be drawn from the lowest point in the fuel system into a clear glass jar. A "clear and bright" visual test should be made to establish that the fuel is completely free of visible solid contamination and water (including any resting on the bottom or sides of the container), that the fuel possesses an inherent brilliance and sparkle in the presence of light and that it exhibits the proper kerosene smell.

5.2.5.2 Grounding Requirements

Grounding prevents sparks by equalizing or draining the electric potentials and should safely dissipate any static or stray electricity that has built up in the aircraft or service vehicle(s). Flight Department personnel responsible for fueling aircraft will ensure grounding of the fuel service vehicle, equipment, hose nozzle, funnels, filters through which fuel passes to the aircraft before fueling begins.

5.2.6 Fueling with Passengers on Board

Aircraft may be fueled with passengers on board, embarking or disembarking, under the following conditions;

a. One flight crewmember remains near the aircraft to immediately communicate with and assist in the evacuation of passengers in an emergency.
b. When refueling with passengers embarking, onboard or disembarking, two-way communication shall be maintained by a suitable means between the ground crew supervising the refueling and the qualified personnel onboard the aircraft.
c. All exits are clear of obstruction and available for passenger evacuation.
d. The aircraft engines are not running, APU can be operating but not started during the fueling.
e. Electrical power supplies are not being connected or disconnected, and any equipment likely to produce sparks or arcs are not being used.
f. Smoking is not permitted in the aircraft or in the vicinity of the aircraft.
g. Fueling is suspended when there are lightning discharges within 5 miles of the aircraft.
h. Known high-energy equipment such as High Frequency (HF) radios are not operated.

5.2.7 APU Operation

The APU is normally used to meet operational requirements; discretion should be used in the length of time it is in operation. Normally, it will not be started more than one hour prior to scheduled departure. The APU must not be started while fueling the aircraft, however, if already in operation it may continue.

Flight department personnel trained with APU operations and emergency procedures will continually monitor the APU while in operation.

5.2.8 Flight Crewmember EFB configuration during Flight

Hatcher Aviation has incorporated the paperless cockpit concept therefore, it is vitally important for pilots to be able to access information quickly and accurately, while conducting their flight deck duties. It is expected that each crewmember be familiar and proficient, with the use of their EFB. This is particularly important using ForeFlight.

The following items are the minimum information that is expected to be running and available for easy access from the Home bar for the duration of the flight on both pilot's EFB's.

a. ForeFlight: Create a route for the flight segment using the Route planner consisting of at least the departure and arrival airports, to be used during the flight.
b. Aircraft Electronic Performance Program

Other information you may want readily available such as:

a. AirNav website airport information for airports of intended landing.
b. Boeing website noise information for airports of intended landing.
c. Any other information you consider important to conduct your flight safely.

5.2.9 EFB Guidelines

a. Both EFB's normally should be programmed with Departure, Destination, and Alternate airports prior to taxi.
b. EFB operation by the crew during all phases of flight should be limited to either the PNF or PF, using extra caution to avoid simultaneous “heads down” situations.
c. Before descending below 10000 AGL, every effort should be made to have the EFB's set with the Terminal and Approach procedures for the destination airport.
d. In the event of single EFB operation, the crew must print/obtain a paper copy of all Terminal and Approach charts required for completing the flight.

5.2.10 Flight Clearance

a. The SIC will obtain the flight clearance either through PDC or Radio call and make the read-back. The crew will review the clearance and ensure complete understanding.
b. The Flight Management System (FMS) will be programmed with the departure and route of flight. In addition, initial course, heading and altitude assignments will be entered.
c. The PIC normally will not proceed with ground operations until the flight clearance has been received, reviewed and is mutually understood.

5.2.10.1 VFR Departure

In circumstances where flight crews have communications difficulty and cannot receive an IFR clearance on the ground prior to departure, the aircraft may depart VFR if basic VFR minimums as per the FAR
91.155 are maintained until receiving an IFR clearance. At all times in the above circumstance special attention must be given to the minimum safe altitudes for direction of departure. This is especially true at night and in cases when there is a cloud ceiling above the departure airport area.

5.2.11 Cold Weather Operations

Department aircraft should be stored in a hangar when freezing precipitation or snow is anticipated. If the aircraft is exposed to accumulations of frost, ice or snow, the contamination will be removed in accordance with the aircraft manufacturer’s recommended procedures and industry-standard methods prior to flight. The aircraft should be preheated, when possible, prior to attempting to activate any of the aircraft systems. Cabin systems (water storage, lavatories, food and drink containers, coffee-makers, etc.) must be properly handled (removed and stored in heated area, serviced with anti-freeze, etc.) to prevent damage from freezing or during defrosting. Aircraft parked outside should be headed into the wind when possible to minimize the accumulation of frozen precipitation in the openings around flight control surfaces. Covers and plugs should be installed to protect the engine inlets from accumulation while the aircraft is parked. The parking brake must be released after the aircraft has been chocked to prevent damage due to temperature changes. Use caution when removing snow from tail to prevent aircraft tipping.

When departing from Little Rock and meteorological conditions warrant, the following standard guidelines will be used for dispatching aircraft. It is the Assigned Trip PIC’s responsibility to notify appropriate personnel as soon as possible if deicing is required.

Note Maintenance requests if the aircraft is de-iced prior to departing LIT and is to remain out for a couple of days, the crew should have the airplane washed if destination weather conditions and facilities permit. The crew should ensure all the standard overnight covers are installed on the airplane and must supervise the wash.

5.2.12 Aircraft Critical Surface Contamination

Where frost, ice or snow exists, the PIC shall not commence a flight unless the aircraft has been inspected to determine whether any frost, ice or snow is adhering to the critical surfaces as defined. Such inspection shall be carried out by:

a. The PIC;
b. A crewmember designated by the PIC; or
c. A person other than a crewmember, who:
    i. Is authorized by Hatcher Aviation
    ii. Has received training concerning surface contamination.

When any frost, ice, or snow is found adhering to any critical surface, the contaminant will be removed completely before any flight is attempted. The methods for removing frozen contaminant include:

a. The application of heat; i.e. warm hangar, solar heat (the sun), or the use of a heater;
b. The application of a deicing/anti icing fluid (hold over times for the fluid type and the environmental conditions should be consulted); or
c. Brushing

If a clean aircraft for departure cannot be assured, the only acceptable alternative is to cancel or postpone the flight until conditions are acceptable.

5.2.13 VOR Check

FAR 91.171 requires that each VOR system be checked within the preceding 30 days prior to use under Instrument Flight Rules. This check must be documented with a minimum of the date of the test, place, bearing error, and signature of the person completing the check.

5.3 Passenger and Cabin Safety Procedures

The primary objective of the Flight Operation is to transport its passengers as safely, efficiently, and comfortably as possible. Courteous service and professional conduct form the basis for relations with passengers. Review with the passengers:

a. Planned itinerary and ETE
b. Requested altitudes
c. Enroute and destination weather, including anticipated turbulence
d. Alternative plans if destination weather is marginal
e. Catering available
f. Comfort and convenience items of the aircraft
g. Passenger safety briefing (as required)

Passengers will always be escorted to and from the aircraft by a Hatcher Aviation employee at home base or by a crewmember while on the road and assisted with their luggage prior to and after flights.

Passengers should be kept advised of the flight's progress as necessary. Information regarding any known or imminent delays should be communicated to at least the principal passenger immediately. All safety related briefings and announcements will be made, regardless of passenger preference. These include:

a. Takeoff safety briefing for passengers who are not frequent travelers
b. Fasten seat belt prior to aircraft movement
c. Takeoff announcement
d. Fasten seat belt prior to entering turbulent areas or landing
e. Any safety of flight item

5.3.1 Aircraft Boarding and Ramp Procedures

a. Normally, all passengers will board and deplane through the lobby.
b. Aircraft shall be on the flight line 1 hour prior to departure time for domestic trips. Aircraft departing international shall be on the flight line 2 hours prior to departure time.
c. When a large number of passengers are departing in a close time frame, the passengers will be met and any bags will be collected and taken to the respective aircraft.
d. When aircraft are arriving with large numbers of passengers or with large amounts of baggage, maintenance or line personnel may let passengers pick bags up at the aircraft or at the main entrance to the respective building.
e. During special situations, such as aircraft parked long distances across the ramp, passengers running late, or boarding the aircraft in inclement weather, the passengers and their vehicle will be escorted onto the ramp and directed to their aircraft (as permitted by airport operations).
f. If it is necessary to board passengers with an engine operating, that engine must be opposite to the loading door so that passengers may approach the aircraft from the side with the engine shut down. If an engine is operating, one pilot must remain in the cockpit with the brakes set and the operating engines at idle power.

5.3.2 Stowage of Hand Luggage and Galley Equipment

Immediately prior to takeoff and landing the crew will visually check that galley equipment is securely stowed and the cabin is secure. In the event of moderate or greater in-flight turbulence, the crew will ensure that hand luggage, galley equipment, and other loose articles are securely stowed

5.3.3 Firearms

Firearms are not permitted aboard Hatcher Aviation' aircraft without prior approval of the Director of Aviation or the President. The carriage of sporting firearms requires that they be unloaded and are properly stowed in the baggage compartment. Ammunition will be stored in accordance with Hazardous Material Regulations.

Personal security weapons may be carried when authorized by the Director of Aviation. The Director of Aviation will ensure that the PIC has advance notification of such approval. The person or persons carrying the weapon must identify themselves to the PIC prior to boarding the aircraft.

When flying outside the United States, special considerations for the carriage and possession of firearms may be required.

5.3.4 Passenger Safety Briefing

In accordance with FAR Part 91.519, the PIC shall ensure that passengers are given a safety briefing appropriate to the passenger's needs and cover at least the items specified in this section. These briefings may be accomplished using the “Auto Briefer” if installed. As a minimum the briefings should address the following:

a. Prior to takeoff:
   i. When, where, why and how carry-on baggage is required to be stowed;
   ii. The fastening, unfastening, tightening and general use of seat belts;
   iii. When seat backs must be secured in the upright position and tables must be stowed;
   iv. The use and location of the passenger oxygen system including the location and use of oxygen masks;
   v. The location of emergency exits and for passengers seated next to an exit, how that exit operates;
   vi. The location, purpose of, and advisability of reading the safety features card;
   vii. The requirement to obey crew instructions regarding fasten seat belt signs and no smoking signs and the location of these signs;
   viii. The location of any emergency equipment the passengers may have a need for in an emergency situation such as the ELT, fire extinguisher, survival equipment (including the means to access if in a locked compartment), first aid kit, life jacket or flotation device and life raft;
   ix. Procedures for portable electronic devices;
   x. That cell phones and personal electronic devices must be turned off prior to takeoff; and

b. After takeoff, if not included in the pre takeoff briefing:
   i. The advisability of using seat belts during flight.

c. Inflight when the "Fasten Seat Belt" sign has been turned on for reasons of turbulence:
   i. When the use of seat belts is required; and
   ii. The requirement to stow carry-on baggage.

d. Prior to passenger deplaning, the safest direction and most hazard- free route for passenger movement away from the aircraft following deplaning, and any dangers associated with the aircraft type such as pitot tube locations, or engine intakes.

The standard safety briefing may be shortened or eliminated for regular/ recurring passengers, who are familiar with the aircraft, route and have repeated exposure (e.g. company president) to that type of flight.

In accordance with FAR 91.519, an oral briefing is not required if the assigned trip PIC determines that the passengers are familiar with the above items. Pilots frequently use this statement as a reason to not “inconvenience” the passengers in an effort to expedite departure. The information in the briefing is rarely used; however, there are numerous examples of the real inconvenience to passengers occurring when they were unable to exit a burning airplane. The guiding principle in this subject must always be, “can the passengers conduct an unassisted evacuation from the aircraft after an accident?”

5.3.4.1 Passenger Information Card

A Passenger Information Card shall be available at each passenger seat containing, in printed or picture form, information on at least the following safety features of the aircraft:

a. The location and operation of emergency exits;
b. The Location and use of passenger oxygen systems;
c. The location of life jackets and life rafts; and
d. The location of emergency equipment.

5.3.5 Passengers Requiring Special Attention

Hatcher Aviation aircraft will transport an incapacitated or disabled passenger if he is capable of caring for himself/herself without requiring unreasonable attention or assistance from the flight crew under normal operating conditions. If special attention is required, an attendant that will be responsible for and capable of providing the special care and attention must accompany the passenger. Passengers must be ambulatory or have an attendant present on the flight. Disabled persons, incapacitated persons or children shall be seated so as to facilitate orderly passenger exit or emergency evacuation via the emergency exit or cabin door.

5.3.6 Children and Infants' Seating

A child who has reached his second birthday must occupy a seat with a separate seat belt properly secured about him for taxi, takeoff, landing, and whenever the fasten seat belt sign is illuminated.

5.3.7 Baggage / Special Items

Any items carried on company aircraft must be able to fit through either the main cabin door, or baggage door of the aircraft and must be secured or tied down in accordance with the FAR's. Unaccompanied baggage/inter-office mail carried on international flights must have a designated passenger to process such items through customs inspection.

Special attention should be given to any additional baggage or extra travel items that arrive at the hangar prior to any flights.

5.3.8 Portable Electronic Devices

No person shall operate a personal radio transmitter, television receiver, cellular phone or any other electronic device known to emit electromagnetic or radio frequency emissions that could interfere with the aircraft navigation systems during flight.

Portable tape recorders, pacemakers, hearing aids, electric shavers, CD players and laptop computers are acceptable for use on board Department aircraft.

5.3.8.1 Battery Safety

The two types of batteries commonly used to power consumer PED's brought on aircraft are lithium batteries (disposable) and lithium-ion batteries (rechargeable). Both of these types are capable of ignition and subsequent explosion due to overheating. Overheating may be caused by shorting, rapid discharge or overcharging. Overheating results in thermal runaway, which is a chemical reaction within the battery causing the internal temperature and pressure to rise. The result is the release of flammable electrolyte from the battery and, in the case of disposable lithium batteries, the release of molten burning lithium.
Once one battery cell goes into thermal runaway, it produces enough heat to cause adjacent battery cells to also go into thermal runaway.

This produces a fire that repeatedly flares up as each battery cell in turn ruptures and releases its contents. Fighting a fire that contains either disposable or rechargeable lithium battery cells requires extinguishment of the fire and cooling of the remaining cells to stop the thermal runaway. Water is the most effective coolant. Halon replacement or water fire extinguishers should be used for initial knockdown of these fires, followed by immediate dousing with water from any available source.

5.3.8.2 Types of Lithium Batteries

a. AA Sized Lithium Batteries:

   i. Disposable - Lithium (non-rechargeable) cells are constructed with metallic lithium. Metallic lithium is extremely flammable and cannot be extinguished with the typical hand-held extinguishers found on board transport aircraft. However, the amount of metallic lithium in each AA sized battery is very small and will consume itself in less than one minute. Lithium cells will spray molten lithium as they burn, which can cause severe bodily harm and spread the fire. Do not treat a fire involving a small number of lithium batteries as a Class D fire.

   ii. Rechargeable - Lithium-ion (rechargeable) cells are constructed with a flammable electrolyte and have the same fire hazard as non-rechargeable cell.

b. Battery Pack (Multiple Larger) Lithium-ion Cells:

   i. Laptop computers and other battery operated devices are often powered by battery packs using multiple larger lithium-ion battery cells. The individual cells are not visible and are encased in a plastic housing.

5.3.8.3 Fire Fighting Involving Lithium Batteries

The technique for fighting a fire involving lithium batteries is the same, regardless if the battery is a disposable or rechargeable lithium battery or battery pack. The procedures consist of three phases:

a. Phase 1: Extinguish the fire
   i. Relocate passengers away from device
   ii. Utilize water, Halon or Halon replacement extinguisher or extinguish the fire and prevent its spread to additional flammable materials.

b. Phase 2: Cool remaining cells
   i. After extinguishing the fire, douse the device with water or other non-alcoholic liquids to cool the device and prevent additional battery cells from reaching thermal runaway

c. Phase 3: Containment
   i. If confident that the fire has been extinguished and batteries cooled to a safe level, consider placing the PED in the trash bin or ice container to further contain the event. When placing the PED into a container, ensure all flammable material has been removed, so not to aggravate the situation.
   ii. The crew should then make a determination on whether to continue the flight or divert to an alternate.

Warning

- Do not attempt to pick up and move a smoking or burning device. Bodily injury may result.
- Do not attempt to pick up and move a smoking or burning device. Bodily injury may result.
- Do not cover the device or use ice to cool the device. Ice or other materials insulate the device, increasing the likelihood that additional battery cells will reach thermal runaway.
- Only water or other non-alcoholic liquid can provide sufficient cooling to prevent reigniting or propagation of the fire to adjacent batteries. Water, though it may react with the tiny amount of lithium metal found in a disposable battery, is most effective at cooling remaining cells.
- Do not use fire resistant burn bags to isolate burning lithium type batteries. Transferring a burning appliance into a burn bag may be extremely hazardous. Do not attempt to move the device until you are certain the fire is extinguished and the device is cool.

5.4 Taxi/Takeoff

In keeping with our sterile cockpit policy, all personal electronic devices on the flight deck must be in silent mode prior to engine start.

5.4.1 Taxi Operations

The Before Taxi Checklist shall be complete prior to moving the aircraft. Taxi clearance should normally be obtained prior to any aircraft movement unless operationally necessary to move the aircraft within the "non-movement" area into a position where a taxi clearance can be obtained. Caution must be used to ensure that jet blast does not cause damage, injury, or annoyance to persons or property.

After Landing, unless otherwise directed by ATC, Exit the runway without delay at the first available taxiway. Taxi clear of the landing runway beyond the runway holding position markings associated with the landing runway, even if that requires the aircraft to protrude into or cross another taxiway or ramp area. Once all parts of the aircraft have crossed the runway holding position markings, the pilot must hold unless further instructions have been issued by ATC.

Professional taxi technique requires safe speed consistent with weather, visibility, and surface conditions. Braking and turns must be anticipated in order to maximize passenger safety and comfort.

5.4.2 Takeoff

Takeoffs should be made from the most operationally suitable runway giving consideration to traffic flow, noise abatement procedures and ATC requirements as long as neither safety nor aircraft limitations are violated. Intersection takeoffs are acceptable at the discretion of the flight crew.

Many factors are involved in planning a takeoff; runway conditions, runway length, noise abatement procedures, obstacle clearance, weather and alternate takeoff airports should all be considered and discussed in order to accomplish a safe departure. The use of a Performance Program is a valuable tool and provides performance numbers to operate by; but only if the aircraft is operated with accurate techniques. Rolling takeoffs negate computed BFL computations. Improper rotation angles and rates negate computed climb performance numbers

Setting the proper pitch with the Flight Director for takeoffs (if not prohibited by the Aircraft Flight Manual) is the accepted procedure. Correct Rotation; three degrees per second to the computed rotation angle is the established and desired procedure. This allows for passenger comfort while maintaining proper performance; which translates to a safe and pleasant departure.

5.4.3 Performance Data

The PIC is responsible for ensuring that all aircraft performance parameters are satisfactory for safe operation. These include:

a. Maximum gross takeoff weight
b. Runway limit
c. Second-segment climb
d. Obstacle clearance
e. Standard instrument departure climb requirements
f. Max brake energy

If takeoff performance data, as listed in the checklist tabs or Electronic performance program are not deemed satisfactory for determining aircraft performance, the data must be computed or checked using the Aircraft Flight Manual.

5.4.3.1 Takeoff Data/Performance

Prior to takeoff, the required V-speeds and TOSA will be calculated, entered and displayed on the PDU's using the departure phase of flight.

5.4.3.2 Guidance Panel/Flight Director Setup

For all departures, the Altitude Selector should be set to the clearance altitude. When vertically navigating a SID or RNAV SID, the Altitude Selector should be set to comply with any published "at", "at or above" or "at or below" altitude restrictions. Crews must review all altitude restrictions on the SID or RNAV SID along with the final or "top" altitude to determine the appropriate altitude to set. The guidance panel and flight director should normally be set for takeoff as follows:

a. TOGA Mode
    i. Flight Director
    ii. Speed Mode as required
    iii. Both Lateral and Vertical Modes "Off"
    iv. TOGA "Activated"

Note TOGA is de-selected when one of the following takes place.

- A new vertical mode is selected,
- when the crewmembers manually change the vertical guidance (Path Wheel),
- Automatically if the airplane reaches the ASEL

5.4.3.3 Flight Director Use

The Flight Director set up and departure procedure should be briefed as part of the Take-off briefing to ensure optimum and efficient use of crew resources during the normal take-off phase. This ensures crewmembers share the same situational awareness and associated plan of action.

a. Set heading Bug to Runway or Assigned heading prior to takeoff
b. At or Above 400' AFL selection of HDG/LNAV
c. At or Above TOSA Climb/VS/VNAV as required

In the event of an engine failure, minimum level-off height for flap retraction and acceleration to final climb speed is 1000 feet above ground level (AGL). In some cases, it may be necessary to extend the second segment climb to a nonstandard altitude in order to achieve obstacle clearance prior to level- off/acceleration.

5.4.4 Operations at Uncontrolled Airports

Company aircraft are sometimes required to land and takeoff from uncontrolled airports. The assigned trip PIC must ensure suitability of the airport. Traffic advisories should be requested from the CTAF frequency or local airport advisory. An overhead or downwind entry to the traffic pattern is recommended for traffic sighting. Pilots will turn Taxi Light ON after gear extension so as to configure the aircraft for maximum lighting upon arrival to the uncontrolled field.

When departing from an uncontrolled airport, broadcast departure intentions before taxiing and before taking the runway. Pilots should comply with the departure procedures for the airport including noise abatement procedures. Recommended procedures are:

a. Make frequent radio calls starting at least 15 nm from the airport of arrival.
b. Turn all exterior lights on. Dim interior lights as much as possible during night operation for better outside visibility.
c. Call the airport manager or FBO prior to departing on the trip to inquire about runway conditions, weather, NOTAM, runway lighting, obstacles or any possible hazards.
d. Review charts prior to flight and note minimum altitudes for terrain clearance.
e. Consider use of TCAS during taxi.

5.4.4.1 Communication/Broadcast Procedures

Communication/Broadcast Procedures		
Outbound	Before taxiing and before taxiing on the runway for departure	
Inbound	S tart i ng at least 15 miles out. Entering downwind, base and final. Leaving the runway	
Facility at Airport	Frequency Use	Instrument Approach
UNICOM Only (No Tower or FSS)	Published CTAF frequency (122.7; 122.8; 122.725; 122.975; or 123.00). If unable to contact UNICOM, use self-announce procedures on CTAF.	
No Tower, FSS, or UNICOM	Self-announce on MULTICOM Frequency 122.9.	Departing final approach fix (name) or on final approach segment inbound.
No Tower, FSS open	Communicate with FSS On CTAF Frequency	Approach completed/ terminated
FSS closed (No Tower)	Self-announce on CTAF.	
Tower or FSS not in operation		

5.4.5 Runway Incursion Prevention

The following procedures help prevent runway incursions:

a. Read back the taxi clearance including runway hold short instructions; PNF should write down complicated taxi instructions.
b. Both pilots should agree on the correct taxi clearance; If there is any doubt about the aircraft's specific position or clearance, the crew shall hold their position until receiving clarification.
c. Use of "progressive taxi" instructions;
d. During taxi, the PF will primarily concentrate on maneuvering the aircraft according to ATC instructions;
e. The PNF should use the taxi diagram to guide and follow the aircraft' progress via the taxi clearance;
f. before entering or crossing any runway,
    i. pilots shall turn on all aircraft lights in accordance with 5.1.13 of this manual
    ii. visually and verbally "clear left and right"
g. TCAS should be utilized during taxi to gain situational awareness of other traffic.

5.4.7 IFR Takeoff Minima

Unless lower takeoff minimums are specified on the applicable instrument approach procedure chart, takeoff weather minimums for company aircraft are:

a. 1/4-mile airport visibility
b. 1/4-mile Runway Visibility Value (RVV) or 600 RVR

In addition to the minimums specified herein, the pilot shall consider all of the factors affecting uncontrolled airport operations, (i.e., other aircraft, animals or personnel on the runway, debris, pavement damage, etc.) and increase the takeoff minimum as necessary. Special attention shall be given to the charted minimum climb rate for obstacle avoidance as applicable.

If RVR minimums for takeoff are prescribed in an instrument approach procedure, but RVR is not reported for the runway of intended operation, the RVR minimum shall be converted to ground visibility in accordance with the table below and shall be the visibility minimum for takeoff on that runway.

RVR (feet)	Visibility (statute miles)
600	1/4
2400	1/2
3200	5/8
4000	3/4
4500	7/8
5000	1
6000	1 1/4

If weather conditions at the time of takeoff are below the approved landing minimums, pilots will designate a takeoff alternate not more than one hour from the departure airport at normal cruise speed in still air with one engine inoperative. Before takeoff, the pilots shall determine from weather reports, forecasts and NOTAM that the takeoff alternate is at or above the landing minimums and is expected to remain so for the time period during which the takeoff alternate is required.

5.4.7.1 Marginal Conditions

Operations are not authorized under the following conditions:

a. Thunderstorms of Level 3 intensity or greater at the airport or in the planned departure or arrival path.
b. A takeoff alternate must be available when the weather is reported below the applicable approach minimums for the runway in use at the departure airport.
c. Flight through the heavy rain shaft extending below a thunderstorm that may indicate the presence of a micro-burst.
d. Hail is falling at the airport.
e. Braking action reported as “poor” or “NIL” on the operating runway.
f. Takeoffs or landings on “contaminated” runways that may cause aircraft performance to be marginal. Use the applicable information in AFM. If there is any question in your mind, don’t attempt it. (Err on the side of safety).
g. Crosswind or tailwind components exceeding the demonstrated or limited value in the AFM.
h. Snow or ice adhering to airframe, engine, or control surfaces.

5.4.8 Noise Abatement Procedures

It is the responsibility of the assigned trip PIC to check all available resources, to include flight publications and websites, to assure that the crew has any available airport noise abatement information. 14 CFR Part 36 requires the reporting of turbojet and large transport category aircraft certificated noise levels in units of Effective Perceived Noise Level in decibels (EPNdB).

The following data was reported to the Federal Aviation Administration in EPNdB by the aircraft manufacturer for noise certification purposes and are published in the Aircraft Flight Manuals.

Noise Levels EPNdB			
Aircraft	Take Off	Side Line	Approach
DA 900B	79.8	90.5	92.3
CJ4/M2	75.1	91.8	90.50

It should be noted that published certificated noise levels are determined at Maximum Takeoff and Maximum Landing weights.

NOTE: These noise levels are obtained with power cut-backs which is usually a power reduction of approximately 15 percent from takeoff thrust setting when a safe altitude is reached after takeoff.

Most airports and communities utilize a noise monitoring and analyses rating based on A/weighted decibels. This rating is identified with the symbol dB/A or just dB. This rating is derived using a combination of the following criteria:

a. Loudness of the sound
b. Length of time of the sound
c. How annoying the sound is to the average person
d. Size of the sound footprint
e. Number of noise events in a specific time period

If the symbols dB/A, or dB are used in the noise abatement procedure then the A/Weighted noise levels are the levels to which you are expected to comply. It should be specifically noted that the A-weighted noise levels in AC 36-3H are estimates calculated from the EPNdB data and do not represent actual certificated values.

NOTE: Each airport makes its own noise abatement procedures. The procedure could have different requirements and could use a noise measurement reported in EPNdB or in dB/A. The aircrew is required to understand the specific procedure and which noise measurement apply. The FAA considers the contractions dB/A and dB to both represent A/weighted noise levels when written in a noise abatement procedure.

When operating from an airport with noise abatement procedures in effect the profiles listed below will be the standard flight operation noise abatement operations procedures. When these procedures are used the aircraft will have a suitably quiet noise footprint and will have a decibel level that should not exceed published noise levels.

5.4.8.1 Noise Abatement Arrival Procedures

Inbound flight path should not require more than a 20-degree bank angle to follow noise abatement track.

a. Observe all airspeed limitations and ATC instructions.
b. Initial inbound altitude for noise abatement areas will be a descending path from 2500 feet AGL or higher. Maintain minimum airspeed (1 .3Vs+20 KIAS) with gear retracted and minimum approach flap setting.
c. At the final approach fix (FAF) in IMC or not more than 4 miles from runway threshold in VMC extend the landing gear. Final landing flap configuration should be delayed at pilot's discretion to enhance noise abatement, but must achieve a stabilized approach no lower than 1000' AFL in IMC or 500' AFL in VMC.
d. During landing use minimum reverse thrust consistent with safety for runway conditions and available length.

5.4.8.2 Noise Abatement Departure Procedures

Climb at maximum practical rate at V2+20 Knots indicated airspeed (KIAS) to 1000 feet above field level (AFL) with takeoff flap setting (Max deck angle not to exceed 20 degrees nose up).

a. At 1000 feet AFL, accelerate to final segment speed (VFS) while retracting flaps. Reduce to a quiet climb power setting while maintaining 1000 FPM maximum rate of climb and accelerate; airspeed not to exceed 190 KIAS until 3000 feet AFL. If ATC requires a level off prior to 3000 feet AFL, power must be reduced so as not to exceed 190 KIAS until at or above 3000 feet AFL. At 3000 feet AFL, resume normal climb schedule with gradual application of climb power.
b. At High Density airports, resume normal climb and speed reaching 1500' AFL.
c. Observe all airspeed limitations, required climb gradients and ATC instructions.

For a takeoff with an initial assigned altitude within 1,500' of the airport elevation (AAE), pilots may elect to climb at V2+20 in the takeoff configuration until necessary for level-off at the assigned altitude.

Note	It is the pilot flying's responsibility for safe aircraft operation. It is recognized that aircraft performance will differ with aircraft type and takeoff conditions; therefore, the pilot flying always has the latitude to determine whether takeoff thrust should be reduced prior to, during, or after flap retraction.

5.4.9 Takeoff Briefing

A takeoff briefing shall be conducted by the pilot flying (PF) prior to each takeoff. The phrase “Standard Briefing will be used along with any special conditions if required, i.e. Balanced Field Length limited, snow, ice, or wet runways.

The “Standard Briefing” consists of the following:

a. Pilot not flying (PNF) calls out airspeed alive/cross checked, 80 knots cross checked, V1, rotate, positive rate of climb.
b. Pilot not flying (PNF) monitors all engine instruments and annunciator panel during takeoff.
c. In the event of a malfunction prior to 80 knots either pilot may call ABORT.

Reasons to consider an abort after 80 knots and prior to V1:

a. Engine failure
b. Engine fire
c. Thrust reverser malfunction
d. Unexplained directional control problem
e. Trim “clacker”

If a malfunction occurs at or above V1, continue the takeoff; fly the assigned departure procedure or heading and if able climb to the briefed Takeoff safe altitude. At or above the Takeoff safe altitude the aircraft configuration should be cleaned as required. Where there is no immediate action required, it is advisable to complete a Normal checklist if in progress or due prior to calling for the Abnormal checklist.

When an abort is initiated the following will be accomplished:

a. Pilot Flying (PF) will apply brakes, bring the throttles to idle and deploy the Thrust Reverser.
b. Pilot Not Flying (PNF) will deploy the air brake and advise ATC of the situation and plan of action.

5.4.10 Abort Procedures

It is Hatcher Aviation policy that the PF will not question the "Abort" call of another crewmember, but will immediately reject the takeoff if he can safely do so. After the aircraft is safely stopped, the cause for the call-out can be discussed.

5.5 Enroute

Normal Operating Cruise Speeds	
Falcon 900B	300/.80 Mach
CJ4/M2	Normal Cruise Setting

5.5.1 Flight Crewmembers at Duty Station

Each crewmember is responsible for complying with FAR 91.105, which addresses flight crewmembers at duty station. The following additional procedures apply:

a. At least one crewmember will remain at their duty station while on the ground anytime an engine is running.
b. Each crewmember will wear seatbelts and shoulder harnesses while at their duty station while the aircraft is in motion.
c. Crewmembers are to remain at their duty station during all phases of flight unless the absence is necessary to attend to operational requirements of the aircraft or to satisfy physiological needs.
d. Each crewmember will notify the other prior to leaving their duty stations.
e. FAR 91.211 Supplemental Oxygen requirements must be strictly followed.

5.5.2 Weather Considerations

It is the PIC's responsibility to circumnavigate dangerous weather conditions when encountered enroute. If areas of severe weather cannot be circumnavigated, the PIC will give serious consideration to holding until conditions improve or landing the aircraft at an alternate destination. Passengers will be advised to fasten seat belts prior to encountering anticipated severe weather, and all loose objects in the cabin will be stowed.

Operation of company aircraft in hazardous weather is to be considered with the intent to avoid such conditions whenever possible. If circumstances require such operation, appropriate planning is required to guarantee a safe operation.

5.5.2.1 Thunderstorms

Precautions must be taken to avoid hail and turbulence in the vicinity of thunderstorms. Hail can be encountered in all directions from a storm, but it is usually on the downwind side. Do not fly under the anvil of storm cells, where hail is most likely. If possible, route deviations should be made well to the upwind side of a storm.

a. The following minimum lateral separation should be considered:
    i. Above 20,000 feet MSL - 20 miles
    ii. Below 20,000 feet MSL - 10 miles
b. Flights will not be flown into areas of known thunderstorm activity without a functioning weather radar system.

The aircraft will be operated at airspeeds recommended by the Aircraft Flight Manual. Flight crews will not operate Hatcher Aviation aircraft to or from an airport where thunderstorms of Level 3 intensity or greater are reported at the airport or the intended approach or departure course.

Flights requiring the use of weather radar or thunderstorm detection equipment shall operate with the understanding that it is company policy to use such equipment as an aid to the avoidance of severe weather associated with thunderstorms.

5.5.2.2 Wind Shear

Wind shear may create a severe hazard for aircraft within 1,000 ft AGL of a "micro burst", particularly during the approach to landing and in the takeoff phases. Because of the hazards associated with flying through and in the vicinity of these intense downdrafts, which on reaching the surface spread outward from the down flow center in all directions, the best defense is to avoid it altogether, as it could be beyond you or your aircraft's capability.

Pilots are to heed wind shear PIREPs as a previous pilot's encounter may be the only warning you will receive. On receiving such notice, alternate action such as delaying a departure or an arrival until the phenomena has passed is recommended.

If wind shear is encountered, prompt action is required. In all aircraft, the recovery could require full power and pitch attitude consistent with the maximum angle of attack for the aircraft. In addition, warn others as soon as possible by sending a PIREP to the closest air traffic services facility.

Wind shear conditions near the surface have been known to exist that makes it impossible for many types of aircraft to continue flight. Therefore, company aircraft shall not take off or land when known wind shear is present at the airport of intended operation that causes doubt in the capacity of the aircraft to sustain normal flight through the wind shear activity.

5.5.2.3 Turbulence

The PIC will include any information about anticipated turbulence in the preflight briefing, using National Weather Service terminology (light chop, light turbulence, moderate chop, moderate turbulence, severe turbulence, and extreme turbulence). Whenever possible, the PIC will advise the passengers of the anticipated time until turbulence may be encountered and the expected duration. Flights shall not proceed through areas in which turbulence of more than moderate intensity exists unless the flight crew cannot avoid those areas by weather radar references.

The flight crew will advise the passengers of the estimated time that turbulence will be encountered. The fasten seat belt signs will be turned on and an announcement will be made from the flight deck to advise passengers that turbulence is anticipated. If turbulence is encountered unexpectedly, the flight deck will turn the fasten seat belt sign on and make an announcement advising passengers to be seated immediately. For additional action, refer to the following chart.

5.5.2.4 Turbulence Intensity Criteria Chart

Turbulence Intensity Criteria			
Condition	**Airplane Reaction**	**Cabin Reaction**	**Crew Actions**
Light Chop	No appreciable changes in altitude or attitude. Slight, rapid and somewhat rhythmic bumpiness occurs.	Occupants may feel a slight strain against seat belts. Unsecured objects remain stable. Coffee is shaking slightly but not splashing out of cup. No difficulty in walking.	Seat belt signs on at PIC's option. Ensure passengers are seated. Verify seat belts fastened and infant/ child secure in passenger or child seat. Secure loose cabin, galley, and service items. Verify lavatory unoccupied.
Light Turbulence	Momentary, slight, erratic changes in altitude and attitude	Walking may be difficult. Coffee is shaking but not splashing out of cup.	
Moderate Chop	Moderate Turbulence Rapid bumps or jolts without appreciable changes in altitude or attitude.	Occupants feel definite strain against seat belt. Unsecured objects move about. Coffee is splashing out of cup; very difficult to walk.	Seat belt signs must be on. Ensure passengers are seated. Secure galley and galley items.
Moderate Turbulence	Changes in altitude or attitude occur, airspeed fluctuations occur.		
Severe Turbulence	Large, abrupt changes in altitude/attitude occur. Usually large airspeed fluctuations occur. Airplane may be momentarily out of control.	Occupants forced violently against seat belts. Unsecured objects tossed about or lifted from the floor. Walking is impossible as is standing without holding on to something for support.	Seat belt signs must be on. Ensure passengers are seated.
Extreme Turbulence	Airplane tossed violently about, very difficult to control; may cause structural damage.		

5.5.2.5 Wake Turbulence

All pilots shall be familiar with the wake turbulence procedures contained in the AIM, Chapter 7, Section 3 for information. Particular care must be used when following aircraft with a "heavy" designation as well as others such as the B-757 that are known to generate a stronger than normal wake. Extreme caution must be used to avoid the area below and behind a vortex generating aircraft.

5.5.3 Icing and Freezing Precipitation

The flight crew shall give careful consideration to all factors involved when operating into areas of known or anticipated areas of icing and assure that the aircraft anti-icing and de-icing systems are functioning properly. No person may continue to operate an aircraft enroute, or land an aircraft when in the opinion of the PIC icing conditions are expected or met that might adversely affect the safety of the flight.

Continued flight into areas of icing greater than moderate should be avoided. If icing conditions are encountered which have not been reported or forecast, it should be reported to the nearest Flight Service Station or Air Traffic Control unit. Because of the inherent dangers of flying in freezing precipitation, Hatcher Aviation will not operate into areas of reported severe icing conditions as defined by:

Severe Icing Conditions:	The rate of accumulation is such that deicing/anti-icing equipment fails to reduce or control the hazard. Immediate flight diversion is necessary.

Takeoff and Landing in freezing drizzle and light freezing rain is permitted with increased surveillance by the crew. For takeoff the most current holdover tables (HOT) and requirements for operating in these conditions must be used.

Icing Conditions, Ice covered runways require a considerable increase in runway length. That exact length is often difficult to predict. Aircraft operations on slush, snow, or ice-covered runways shall be conducted in accordance with the applicable provisions of the Aircraft Flight Manual. Under no circumstances shall operations be conducted when runway braking action is reported as “poor” or “NIL” on the runway intended to be used for that operation. Even when runways are usable, the taxiway conditions may prevent flight operations. Do not attempt to taxi on smooth or glare ice.

5.5.4 Sterile Flight Deck

For the purpose of this section, critical phases of flight include all ground operations involving taxi, takeoff and landing, and all other flight operations conducted below 10,000 feet, Critical phases also include the last 1,000 feet prior to leveling off during climbs and descents.

Flight crewmembers may not engage in, nor may any PIC permit, any activity during a critical phase of flight which could distract any flight crewmember from the performance of his duties.

These activities include but not limited to:

a. eating meals
b. engaging in nonessential conversations within the Flight Deck
c. engaging in nonessential communications between the cabin and Flight Crews
d. using personal electronic devices for nonrelated flight activity
e. reading publications not related to the proper conduct of the flight or safe operation of the aircraft

Internet usage by crew members is to be limited to appropriate flight or company related information. One pilot shall always be dedicated exclusively to controlling the aircraft (see the Transfer of Aircraft Control section).

5.5.5 Admission to Flight Deck

During cruise, passengers may be admitted to the flight deck to observe and ask questions. At the discretion of the PIC, passengers may observe takeoffs and landings, but must be briefed on sterile flight deck procedures and emergency egress during these critical times of flight.

5.5.6 Crew Meals

Flight crew meals should be consumed only during cruise flight. The possibility of food poisoning and resulting incapacitation make it inadvisable for pilots to eat the same menu selection. Different selections should always be provided for flight crewmembers.

5.5.7 No Smoking/Fasten Seat Belt Signs

The No Smoking and Fasten Seat Belt signs will be on whenever the aircraft is in motion on the ground and during takeoff and landing. It is the policy of Hatcher Aviation that smoking is not permitted on company aircraft. Therefore, the No Smoking sign will remain illuminated for the entire flight.

After takeoff the Fasten Seat Belt sign should remain on until the PIC is satisfied that no significant turbulence will likely be encountered. On arrival after the engines have been shut down, the Fasten Seat Belt sign will be turned off. This will signify that the passengers may deplane.

5.5.8 RVSM Operational Requirements

To operate in RVSM airspace:

a. Aircraft must have:
   i. Two independent altitude-measuring systems
   ii. One secondary surveillance radar altitude reporting transponder
   iii. One altitude alerting system
   iv. One automatic altitude control system
   v. Approval from FAA assuring accuracy

b. Aircrews (and contract pilots) must be trained in:
   i. Flight planning
   ii. Aircraft preflight
   iii. Procedures prior to RVSM airspace entry
   iv. In-flight procedures
   v. Post flight procedures

The following Procedures for Operation in all RVSM airspace will be followed.

5.5.8.1 Flight Planning

a. Verify that the assigned aircraft is approved for RVSM and that all required equipment is operating.
b. Annotate the flight plan to show that the aircraft and crew are approved and trained for RVSM operations.
c. Check current and forecast weather with an emphasis for turbulence that may affect RVSM operations.

d. Flight crewmembers will be thoroughly familiar with all contingency procedures in case of equipment failure while operating in RVSM airspace.

5.5.8.2 Aircraft Preflight

a. Review discrepancy log to ascertain that all equipment required for RVSM operations is working normally or the aircraft MEL allows flight into RVSM airspace.
b. During external preflight inspection pay particular attention to the static sources (especially the paint and skin condition around them) and all aircraft antennas.
c. Before takeoff set the aircraft altimeters to the local altimeter (QNH) setting and assure that the reading is within 75 feet of the known aircraft altitude above sea level and that the two primary altimeters are within 75 feet of each other.
d. All RVSM required equipment should be checked for normal operation prior to takeoff if a check of that system can be performed.

5.5.8.3 Procedures Prior to entering RVSM airspace

a. Assure that the altitude alerting system is working properly prior to entering RVSM airspace.
b. Engage the autopilot prior to Flight Level 280 and operate the autopilot at all times above Flight Level 280, to assure proper altitude control system operation.

5.5.8.4 RVSM In-Flight Procedures

a. Flight crews should comply with aircraft operating restrictions (if required for the specific aircraft group) related to RVSM airworthiness approval;
b. Emphasis should be placed on promptly setting the sub-scale on all primary and standby altimeters to 29.92 in. Hg/1013.2 (hPa) when passing the transition altitude and rechecking for proper altimeter setting when reaching the initial cleared flight level (CFL);
c. In flight it is essential that the aircraft be flown at the cleared flight level. This requires that particular care be taken to ensure that ATC clearances are fully understood and followed. Except in contingency or emergency situations, the aircraft should not intentionally depart from the cleared flight level without a positive clearance from ATC;
d. The pilot flying will adjust the rate of climb or descent to 1000 feet per minute or less for the last 1000 feet prior to level off altitude;
e. The pilot flying the aircraft will orally state when the aircraft begins to level at a RVSM altitude;
f. The Pilot Not Flying will confirm the level off. During cleared transition between levels, both crewmembers will ensure any altitude overshoot or undershoot does not exceed 150 feet.
g. The autopilot will be engaged at all times while operating in RVSM airspace. An automatic altitude-control system should be operative and engaged during level cruise, except when circumstances such as the need to re-trim the aircraft or turbulence require disengagement. In any event, adherence to cruise altitude should be done by reference to one of the two primary altimeters;
h. Both crewmembers will be aware of how any in-flight turbulence is affecting the aircraft altitude;
i. The altitude-alerting system should be operational

j. When leveling off at cruise altitude and at intervals of approximately one hour, crosschecks between the primary altimeters and the stand-by altimeter should be made. A minimum of two primary altimeters should agree within 200 feet or a lesser value if specified in the aircraft- operating manual. The one-hour station checks would be an opportune time for accomplishing this check. Failure to meet this condition shall require that the altimetry system be reported as unreliable and ATC notified. The difference between the primary and stand-by altimeters should be noted for use in contingency situations:
    i. The normal pilot scan of flight deck instruments should suffice for altimeter cross-checking on most flights,
    ii. At least the initial altimeter crosscheck in the vicinity of the point where Class II navigation is begun should be recorded (e.g., on coast out). The readings of the primary and standby altimeters should be recorded and available for use in contingency situations;
    iii. Normally, the altimetry system being used to control the aircraft should be selected to provide the input to the altitude-reporting transponder that is transmitting information to ATC; and
    iv. If the pilot is notified by ATC of an Actual Aircraft Deviation error that exceeds 300 feet then the pilot should take action to return to the cleared flight level as quickly as possible.

5.5.8.5 Post Flight Procedures

Discrepancy write-ups of RVSM required equipment must be clear and complete. The following information is important when making a write-up as it will assist maintenance in repairing the equipment:

a. Primary and secondary altimeter readings
b. Altitude selector settings
c. Subscale (Coleman window) setting on the altimeter
d. Autopilot used and differences if alternate autopilot is used
e. Altimeter readings if alternate static source selected
f. Air data computer selected and alternate uses
g. Transponder selected and alternate uses

5.5.9 Altitude Awareness

Crew coordination is essential in altitude management. Upon receiving a new altitude assignment from ATC, the PNF will read back the altitude to ATC, set the newly assigned altitude. The PF will confirm the altitude selected. As the autopilot captures the assigned altitude, the PF will state, “Altitude captured”. If there is any doubt about the proper altitude assignment by either flight crewmember, confirmation will be requested from ATC.

5.5.10 Automation Philosophy

Automated Flight Control Systems - Highly automated cockpits are the norm in aircraft today and does much to enhance safety, reduce crew workload, and improve operational capability. Pilots must maintain the skills required to operate all levels of automation and the skill to shift between levels when required. The level chosen should permit a comfortable workload and maintenance of situational awareness.

The following apply to the use of automation:

a. One pilot shall be dedicated exclusively to controlling the aircraft, regardless of the level of automation in use.
b. Both pilots must be aware of all settings and changes to the auto- flight systems.
c. Use of automation in high density areas is helpful and recommended, but never to the extent that tasks are allowed to interfere with outside vigilance.

The levels of automation below can be described in terms of Direct, Basic Tactical and Strategic employment.

5.5.10.1 Level One

No automation is employed. Autopilot, flight director and auto throttles are disconnected. With the exception of visual approaches and deliberate decisions to maintain flying proficiency, Level One is essentially a non- normal mode for advanced Flight Deck aircraft. It is, however, appropriate for any situation in which immediate, direct control of the aircraft flight path is necessary, including:

a. Suspicious, confusing or unexpected response from the automation or flight instrument displays
b. Wind shear recovery
c. Collision avoidance maneuvers, including a response to a TCAS or a PRM breakout instruction
d. Aircraft upset
e. GPWS terrain warning

5.5.10.2 Level Two

Airplane is being hand-flown with basic flight director guidance. This is the primary mode used for takeoff, initial departure, and landings.

5.5.10.3 Level Three

Autopilot may be in use. Flight director may be coupled to raw radio data or basic modes such as HDG or ALT. Aircraft speed and vertical/lateral flight paths are controlled through the Flight Guidance Control Panel (FGC) on a tactical basis. This level is appropriate when responding to ATC instructions in dynamic environments such as terminal operations, including close-in changes in the landing runway.

5.5.10.4 Level Four

Full use of automation in LNAV/VNAV operation. Flight director and autopilot are engaged. This is the primary level of automation for non- terminal operations of advanced Flight Deck aircraft. FMS is used for the control of both lateral and vertical flight paths on a strategic basis. Great care must be taken to maintain situational awareness. Monitoring and mode awareness are critical.

Use of the highest levels of automation during terminal operations must be limited to situations permitting advance preparation, review of FMS programming and complete crew briefings. Level Four is not appropriate when significant changes to route or landing runway have been issued by ATC. In those situations, pilots should revert, at least temporarily, to lower levels of automation.

5.5.10.5 Automation Policies

It is important for Flight Crewmembers to be proficient with all levels of automation and be able to recognize when a lower level of automation is necessary. For standardization purposes, the operation of the flight director computer, flight director and FMS will be performed as follows:

a. AUTO-PILOT ENGAGED: When operating with the autopilot engaged, all flight director mode selection (approach, Nav., etc.) and heading changes will be made by the pilot flying (PF). These functions may be delegated as necessary to the Pilot Not Flying (PNF) when operating in “high workload” environments. The pilot flying (PF) preferences should be clearly indicated during the preflight briefing or as conditions warrant.

b. AUTO-PILOT NOT ENGAGED: When operating with the autopilot not engaged; flight director mode selection (HDG, NAV, APP, etc.) will be made by the pilot not flying (PNF) under the direction of the pilot flying (PF), assignments of the HDG, ALT, Speed by ATC will be set by the pilot not flying (PNF) and verified by both crewmembers. These functions may be performed as necessary by the pilot flying (PF) when operating in “high workload” environments. The pilot flying (PF) preferences should be clearly indicated during the preflight briefing or as conditions warrant.

c. The Pilot Not Flying (PNF) will set up all communications and navigation frequencies. Because of the controls location, each crewmember will set their respective navigation course (ILS, VOR) unless otherwise communicated by the pilot flying (PF).

5.5.10.6 FMS Procedures

Before each flight, during the avionics setup the crew should check/set the following items. If a different speed is required, the crew should select manual speed and adjust as needed

a. Select the FMS Speeds and verify the following standard configuration:
    Climb: 260/.72
    ii. Descend: 300/.80/3.0
    iii. Departure: 200kts/4.0nm 2500 AGL

b. APPROACH
    i. Clean: 190
    ii. SF1: 180
    iii. SF2: 160
    iv. SF3: VAP

The pilot flying (PF) shall not divert his attention from aircraft control in order to make FMS inputs. The Pilot Not Flying (PNF) will be responsible for all inputs to the FMS as directed by the PF or as required to comply with ATC clearances and instructions. FMS inputs shall be visually verified by the PF in the waypoint list as being correct prior to being activated. When making FMS inputs, the PNF will hold at the “activate” prompt to allow the PF to confirm the modification is correct. The PF will then state “Activate”; The PNF activates the change and states LNAV available, the PF will confirm LNAV captured.

No changes in FMS programming or Flight Director Modes will be initiated without verbal communications and acknowledgment.

a. BEFORE STARTING THE ENGINES: All FMS programming should be accomplished prior to starting the engines. If a SID is part of the departure clearance, it will be reviewed by both crewmembers.
b. IFR APPROACH: The FMS approach programming and approach briefing should be completed and reviewed by both pilots before 10000 feet AGL. If possible, this operation should take place during low workload periods such as cruise flight.
c. VISUAL APPROACH: a visual approach should be backed up with any available instrument approach, an ILS being the first choice and a GPS second. In any other instances, the runway threshold with extended centerline will be selected.

As a final conclusion, it is important to keep in mind that without proper communication, situation and mode awareness can be compromised. Both crewmembers should have the same “mental picture” (both lateral and vertical) of the intended flight path of the airplane. A FMS flight plan review and a MFD display by reference to the longitudinal axis will enhance situational awareness. Unless advance preparation is available, any new ATC instructions such as runway change will probably require a lower level of automation. Attention to duty is the mark of a professional pilot and important to the safe operation of the aircraft. Periodic self-assessment as to the level of professionalism an airman is maintaining might take the form of a question: “Am I in the loop, out of the loop, or am I just wondering where the loop is (i.e.
Helmet Fire)?”

5.5.11 RNAV Operations

The following principles apply to all area navigation system (FMS, GPS, etc.) operations:

a. Pilots shall maintain proficiency in programming and operating their aircraft's area navigation system. Initial and recurrent training will include use of FMS for departure, enroute, arrival, holding, approaches, and missed approach operations.
b. Both pilots should never simultaneously become involved with area navigation system tasks.
c. Bearing and distance between each waypoint should be verified by crosscheck of charted information. Due to the differences in magnetic variation models, small differences in magnetic courses are acceptable.
d. The EFIS map display should have the active waypoint visible during departure and descent in order to provide effective position awareness. If an active waypoint is “off-scale” on the EFIS map, the crew should verify its position by reasonableness of bearing and distance and checking another source such as the chart or computer flight plan. When available, raw data should be tuned and displayed to maintain position awareness on long “direct” legs.
e. Avoid excessive heads-down time at low altitude for system operation. Raw data VOR, ILS, and ADF displays should be used in the traditional manner whenever necessary. When ATC issues close-in changes to route or runway, raw data should be tuned and displayed FIRST. Reprogramming of the FMS should not be attempted unless it can be accomplished in accordance with Flight Operations policies on waypoint entry, review and confirmation.
f. For departures, arrivals, and approaches, appropriate charts will be out of the flight kit, opened and available. During the enroute phase of flight, supporting documents should be readily available for use even though total auto-flight/FMS navigation may be in use. This practice promotes situational awareness, makes additional information readily available for route changes, and provides backup in the event of FMS failure.

5.5.12 EGPWS/TAWS

Controlled Flight into Terrain (CFIT) continues to be one of the greatest risks to safety of flight. The most effective tool for prevention has been shown to be the Ground Proximity Warning System (GPWS).

When a GPWS warning occurs the pilot flying (PF) must immediately, without hesitating to evaluate the warning, execute whatever pull up action is required to silence the warning and assure the crew of terrain clearance. This immediate pull up maneuver should be followed except in clear, daylight, visual meteorological conditions when the flight crew can immediately and unequivocally confirm a false GPWS warning.

Flight crews will use the terrain display function (on aircraft so equipped) tied to the MFD when terrain threats are a consideration and as described in the expanded checklist sections of the AFM.

5.5.13 Cockpit Voice Recorder (CVR)

The CVR as equipped shall be operated continuously from the time the electrical power is first applied to the time that the aircraft is shut down and the electrical power is removed.

No communications may be erased from the CVR from the time that the electrical power is applied for the purpose of flight. The CVR is a tool used exclusively for the purpose of investigating an

accident or incident. Any information gathered from the CVR is to be used only for that purpose and will not be released to anyone not involved in such investigations. Follow AFM procedures for disabling the CVR following an incident to preserve the data.

5.5.14 Flight Data Recorder (FDR)

The FDR as equipped, shall be operated continuously from the time the electrical power is first applied, to the time that the aircraft is shut down and the electrical power is removed.

The FDR is a tool used exclusively for the purpose of investigating an accident or incident. Any information gathered from the FDR is to be used only for that purpose and will not be released to anyone not involved in such investigations. Follow AFM procedures for disabling the FDR following an incident to preserve the data.

5.5.15 Traffic Collision Avoidance System (TCAS)

All TCAS operations should be in accordance with the Approved Flight Manual Supplement for the equipment. The ACAS II equipment, known as TCAS II, provides a last resort safety net designed to prevent mid-air collisions between aircraft. To achieve the full safety benefit of TCAS II, it is critical that pilots respond accurately and promptly to resolution advisories (RAs). Even in aircraft with a TCAS II onboard, the crew must continue to maintain a visual lookout to avoid collisions, because some aircraft, either do not transmit their altitude via the transponder and thus can only be the basis for a TA, or are invisible to the TCAS II system because they are not equipped with a transponder. Any time you comply with a RA be sure to use the correct phraseology.

The TCAS system shall be on at all times during flight as per FAR 91.221(b) in all meteorological conditions. “TA/RA” mode shall be selected unless the crew deems that the current situation, operating conditions, or TCAS limitations make use of “TA Only” mode desirable.

TCAS does not relieve the crew of their “see and avoid” responsibility under the FARs. Crewmembers must remain vigilant to the possibility that other aircraft may be flying in close proximity to their aircraft. Visual scanning along the aircraft flight path is required any time meteorological conditions permit.

During the departure/climb out phase of flight the TCAS shall be selected to “NORMAL” and the range shall be selected to no more than 20 miles (a lower range should be selected in congested airspace). This setting shall be held until in positive control airspace above FL 180.

During the enroute phase of flight, the TCAS system may be selected to any mode or range appropriate to the route and altitude being flown.

During the descent, approach, and landing phases of flight, the TCAS system shall be selected to “NORMAL” and the range shall be selected to no more than 20 miles (a lower range should be selected in congested airspace). This setting shall be initiated when descending out of positive control airspace below FL 180.

5.5.16 Supplemental Oxygen Equipment

The following precautions must be observed when oxygen is in use:

a. The PIC will ensure the "No Smoking" sign is illuminated and strictly observed whenever oxygen is being used.
b. Crewmembers will be familiar with the location and use of walk- around oxygen bottles.
c. Crewmembers will not leave their stations to administer to the passengers unless they use a walk-around oxygen bottle.

5.5.17 Flights Over Water

For flights over water more than 50 nautical miles from the nearest shore (beyond gliding distance from the nearest shore), aircraft shall be equipped with a life jacket or flotation device for each occupant.

For flights over water more than 30 minutes flying time or 100 nautical miles from the nearest shore, all aircraft must be equipped with:

a. A life jacket, having a survivor locator light, for each occupant of the aircraft;
b. Enough life rafts, each having a survivor locator light, a pyrotechnic signaling device anda survival kit, to accommodate all occupants of the aircraft;
c. A buoyant, water-resistant signaling device;
d. Radio communications equipment able to transmit to and receive from a surface facility, including:
    i. Two transmitters;
    ii. Two microphones;
    iii. Two headsets or one headset and one speaker;
    iv. Two receivers; and
    v. Two independent radio navigation units.

5.5.18 Microphones

Headsets or earpieces shall be used in lieu of speakers on all aircraft below the transition level.

5.6 Approach and Landing

5.6.1 Instrument Approach Procedures

When an instrument letdown to an airport is necessary, Hatcher Aviation aircraft will use a standard instrument approach procedure described in the Jeppesen/NOS Electronic Charts. The authorized Decision Altitude (DA) or Minimum Descent Altitude (MDA) is the highest of the following:

a. The DA or MDA prescribed by the approach procedure.
b. The DA or MDA for which the aircraft is equipped.

No aircraft will be operated below the published MDA or DH except in accordance with paragraph 5.6.14 of this manual. Approaches to airports where the reported visibility is below the visibility minimum on the approach chart are not authorized. If RVR reports are available, they shall be considered the controlling visibility reference. However, if the aircraft is established on the final approach segment (passed the FAF or established on the glide slope below the published GS intercept altitude) and the weather is then reported below the approach chart visibility value, the

approach may be continued to the missed approach point (MAP) and altitude at which point the requirements of Paragraph 5.6.14 must be met or a missed approach will be executed

5.6.1.1 Weather Restrictions

The PIC will comply with all FAR's and company guidance in regards to weather restrictions. In addition, approaches will not be flown when:

a. Wind or gusts exceed 50 knots.
b. Known wind shear reported on the runway or up to 2,000 ft above the surface that causes doubt as to the capability of the aircraft to sustain normal flight through the shear activity.
c. Crosswind component exceeds the demonstrated crosswind component in the AFM.
d. At Aspen, CO. (KASE) or Sun Valley, ID. (KSUN); during the period between one hour after official sunset and one hour before official sunrise.
e. At other airports under conditions that may be set by the Director of Aviation.

5.6.1.2 Mountainous Airport Operations

Mountainous airport operations present an increased risk, therefore additional planning and consideration is required to help mitigate these risks. Mountainous airports often have higher than normal approach minimums making fuel planning and non-standard alternate airport weather minimums a vital part of preflight planning. Many mountainous airports often have night time airport curfews and approach procedures that limit aircraft to day only use. Due to procedure design restrictions many approaches may not have straight-in approach minimums, limited to only certain categories of aircraft, and could have increased missed approach climb gradients. Pilots need to thoroughly review all approaches and arrival procedures in the preflight planning stage to identify issues as early as possible before the aircraft departs.

Additional Preflight planning considerations:

a. Steep descent angle straight-in approach maneuver.
b. Configuring the aircraft early to assist with steep descent angle approaches.
c. Flaps 2 landing configuration.
d. Missed Approach climb gradient restriction.
e. Missed Approach maximum turn radius and speed restrictions.
f. Procedures in the event of a low level balked landing.
g. Performance data listed in section 5.4.3.

Arrival:

It is the recommendation of Hatcher Aviation that the crew will use a published Instrument Approach Procedure (IAP) or a Charted Visual Flight Procedure (CVFP) to transition to the landing phase at mountainous airports regardless of the visual conditions.

Circling Only Minimums except for Aspen (KASE) where 4500/6 are authorized for arrival.

Due to procedure design restrictions, some straight-in procedures will only publish circling minimums. It is important to note that the fact that straight-in-minimums are not published does not preclude pilots from landing straight-in if they have the active runway in sight and have sufficient time to make a normal approach for landing. Under such conditions and when ATC has cleared them for landing on that runway, pilots are not expected to circle even though only circling minimums are published. If they desire to circle, they should advise ATC

Although Hatcher Aviation aircraft are category C; Company Policy is that all circling maneuvers are to be accomplished using Category D minimums.

If a straight-in approach only publishes circling minimums but does not publish category D minimums, the crew must be assured that weather conditions and terrain are sufficient to allow the aircraft to land straight-in without the need for a circling maneuver. If this cannot be assured, an alternate airport should be considered.

Departure:

One-Engine Inoperative Contingencies:

When higher than standard climb gradients are required due to obstacles surrounding the airport, there will be published Obstacle Departure Procedures (ODP) or Standard Instrument Departures (SID), to assist the pilot in maintaining obstacle clearance while transitioning to the En-Route structure. It should be noted that the departure procedure design, including climb gradients, does not take into consideration the performance of a particular aircraft; it only considers obstacle protection for all aircraft. Published Departure Procedures, design using both TERPS and ICAO standards, are based on all engines operating; contingency procedures in the event of engine failure or other emergency after V1 remain the operator's responsibility.

The following are acceptable methods of meeting these contingencies:

a. Assure that the aircraft takeoff weight is appropriate to meet the published ODP or SID climb gradient with one engine inoperative, for the conditions at time of departure.
b. Depart with weather conditions that will allow a climb with one engine inoperative to the Minimum Safe Altitude, Minimum En-Route Altitude or Minimum Off-Route Altitude in visual conditions, using see and avoid techniques for lateral and vertical obstacle clearance. This is **NOT** permitted at night.

When utilizing a published ODP or SID in mountainous areas, the recommended operating practices for company aircraft are:

a. When weather conditions are below 3SM visibility and/or 1000FT ceiling: depart at a weight and temperature that will allow the aircraft to meet or exceed the published TERPS/ICAO climb gradient. This is determined by using the AFM or the aircraft performance calculator EFB-Pro.
b. When weather conditions are between 3-5SM visibility and/or 1000FT-3000FT ceiling: Determine both the maximum takeoff weight to meet the published SID or ODP climb gradient using the AFM or the aircraft performance calculator EFB-Pro and the maximum takeoff weight published in the APG takeoff runway analysis report. The aircraft should be loaded so that the takeoff weight is not greater than approximately midway between the two takeoff weight values, at the time of departure.

5.6.1.3 General Procedures

Both members of the flight crew will monitor the performance of the aircraft and the actions of other crewmembers to ensure that all procedures are accomplished in a safe and effective manner.

While enroute the PNF will review with the PF:

a. The latest ATIS information (if available), destination weather, runway, type approach in use and NOTAM data as soon as practical.
b. Aircraft performance data and requirements.
c. Airport data to include elevations, obstacle location and heights, runway dimensions, lighting systems, taxiway layout and FBO location.
d. Brief the anticipated IMC or Visual approach to be flown with the PF.
e. Program all FMS to the extent possible for the approach to be flown.
f. Verify all navigation and communication frequencies at an appropriate time.
g. For both instrument and visual approaches, the PNF will tune in all available navigation aids and set them up to provide the aircrew with additional reference information for the approach.

5.6.1.4 Approach Category

The minimum approach category for Hatcher Aviation aircraft will be in accordance with the AFM.

5.6.2 IFR / IMC Approach Briefing

A full IFR approach briefing will be conducted whenever the reported or forecasted weather conditions are below VFR minimums or if an instrument approach is expected or requested. The instrument approach plate will be used for reference during the approach briefing. It is highly recommended that the autopilot be used during the crew briefing.

The crew briefing should include a discussion of at least the following for approaches in IMC in this recommended order:

a. Approach to be used
b. All navigation frequencies and the inbound courses verified
c. Pertinent altitudes, including the FAF altitude, step downs and minimums (DH / MDA)
d. Field elevation and TDZE
e. Minimum Safe Altitude (MSA)
f. The missed approach procedure, holding fix including entry to be used and pattern
g. Minimum visibility required for the approach
h. Target final approach speed
i. Additional additives as required by conditions.

After the actual approach to be flown is briefed, the (PF) will complete the remainder of the briefing concerning the conditions at the destination, such as wind, and possible alternate airport, runway contamination, icing, convective activity, anticipated turn off taxiway, etc. If the approach and landing do not present any unusual circumstances, the pilot flying (PF) will reply “Complete” when challenged by the pilot not flying (PNF) during the 18000 / DESCENT / APPROACH check.

The following is a Sample IMC Approach Briefing:

This will be an ILS approach to Runway 4L at Little Rock Ar. The localizer frequency is 110.3 and the inbound course is 045 degrees. We’ll cross Lasky at 1812 feet MSL down to the decision altitude of 508 feet MSL which is 250 feet on the radar altimeter. The airport elevation is 266 feet with a touchdown elevation of 258 feet. The MSA is 3300 feet in all quadrants. The missed approach procedure is climb to 1500 feet then a climbing left turn to 3500 feet outbound via the LIT VOR radial 303 to ROLAN intersection and hold. It will be a tear drop entry with right hand turns. The minimum required visibility is ¾ of a mile or 4000 RVR. Your Vref speed of 115 knots.

If the airport of intended landing is an uncontrolled airport the pilot not flying (PNF) will contact UNICOM and obtain the airport advisory information as soon as practical and if possible, monitor the frequency for traffic while inbound to the airport.

5.6.2.2 Circling Approach Briefing

In addition to the items included in the IFR Approach briefing described above, the following subjects will be briefed and discussed for circling approaches:

a. Approach Category: Use Category D minimums
b. Entry, direction and pattern of the circling maneuver.
c. Aircraft configuration during the circling approach
d. Speeds to be flown.
e. Missed approach procedure, if instrument conditions are encountered during the circle.

Note Special attention will be given to terrain and obstruction clearance altitudes, as shown on approach charts.

5.6.2.3 VFR / VMC Approach Briefing

A modified version of the IFR approach briefing will be used. The crew briefing should include but not limited to a discussion following in this recommended order:

a. Airport and runway to be used
b. Field elevation and pattern altitude
c. Pattern entry, i.e. “Overhead for a left downwind”
d. Course guidance (ILS backup, GPS or extended runway centerline)
e. Obstacles in the vicinity of the airport
f. Target final approach speed
g. Additional additives as required by conditions.

Note All visual approaches shall be backed up by an instrument approach if available.

The following is a sample of a Visual Approach Briefing:

This will be a visual approach to runway 4L at Little Rock, AR. The field elevation is 266 feet with a traffic pattern of 1800 feet. It will be a straight in approach backed up with the ILS. The localizer frequency is
110.3 with an inbound course of 045 There are several towers to the west of the inbound course. Your VREF speed is 115 knots.

5.6.3 Navigation, Radio and Visual Approach Guidance

Both electronic glideslope indications should be followed during VFR approaches as well as during IFR conditions. During IFR conditions, navigation station identifiers will also be verified by reception of the published aural identification signal. Station identifiers are accomplished by the code displayed on the PFD (i.e. the ILS 4L will display ILIT indicating the correct frequency is tuned).

Visual approach guidance such as VASI, PAPI, T-Bars, etc. will be followed when installed unless the use of such systems is not operationally feasible.

The Pilot not Flying (PNF) normally accomplishes communication radio tuning and air to ground

communications. Radio tuning should be coordinated so the previous radio frequency is maintained in another tuning head until contact is made on the new frequency.

All ATC instructions or clearances must be read back to ATC exactly as given by the controller. If there is any doubt, clarify with the controller. The PF shall then confirm the new clearance or instruction.
Crewmember radio procedures are a mark of airmen professionalism. Clever or “cool” is not necessarily the way you sound to others. The Aeronautical Information Manual is the final authority regarding acceptable radio phraseology. Do not use nonstandard terminology. This is an easy habit to fall into, but a bad one. It just causes confusion and unnecessary radio transmissions to clarify what you said. Use courtesy and exhibit a calm demeanor when communicating with ATC and other agencies. It never pays to become angry when dealing with anyone on the radio. Remember, we can’t see their radar screen and can’t know the complete traffic situation.

Navigation radios should be tuned by the pilot not flying (PNF) on direction or request of the pilot flying (PF). A navigation frequency shall not be changed without notifying the other pilot. The Pilot not Flying (PNF) will identify each navigational radio frequency when selected. Approach aid frequencies shall always be identified and compared with the approach chart with particular attention that the proper approach procedure has been selected. During NDB approaches the NDB radio should be monitored throughout the approach. Do not fail to reconfirm the frequencies and procedures if the controller changes an approach or a runway. Request an extended pattern or holding if necessary, to comply with a changed situation.

5.6.4 Display and Monitoring Requirements

Both pilots will display the approach in accordance with the Aircraft Flight Manual. Raw data is the final authority.

5.6.5 FMS/GPS Approach Operations

Situational awareness, briefings and communication are critical to successful execution of FMS/GPS approaches.

a. Crews should use all available radio navaids, but also should attempt to navigate using identical navigation displays.
b. FMS programming for the IAP and the approach briefing should be completed prior to arrival into the terminal area, preferably prior to descent. The CDU should be examined to confirm that all waypoints and course/distances contained in the database procedure, including the missed approach, conform to the printed chart. The approach chart is the final authority.
c. The PNF selects the database Instrument Approach Procedure (IAP), programs the FMS, reviews the entries and modifications with the PF.
d. Review should include crosscheck of individual leg course/distance as well as the vertical constraint and descent angle at each waypoint.
e. Proper setting of the Altitude Selector (ASEL) is critical to VNAV approach operations. Upon capturing an assigned altitude, Hatcher Aviation Investments Holdings LLC crews will preselect the next required altitude for the procedure. The PNF will set the ASEL as requested by the PF. After the final altitude on the approach is captured, the missed approach level off altitude will be selected in the ASEL window. Both pilots will confirm all settings verbally.

5.6.6 SBAS Approaches

There are three approved SBAS approach types:

a. Approaches that use LNAV for lateral guidance continue to operate the same as they currently do providing a 400 to 600 ft. minimum descent altitude. However, the lateral accuracy has been greatly increased because of the updated GNSS position data.
b. Approaches that use Baro-VNAV for vertical guidance provide a 350 to 400 ft. minimum descent altitude. These approaches are used when failures or faults prevent the use of full vertical guidance of a GNSS signal. The vertical guidance is based on barometric altimetry and is subject to pressure altitude and temperature variations which may require a correction factor.
c. LPV approaches are Localizer Performance with Vertical guidance approaches. They are an ILS look-alike approach, in that the FMS simulates the ILS glideslope using information found in the navigation database. Like an ILS, LPV approaches do not use barometric altimetry in their vertical glide path computations. LPV approaches are not subject to the same temperature and pressure variations as Baro-VNAV approaches. LPV is a minimum that provides near Category I decision altitudes of 200 to 300 ft.

5.6.7 VNAV for Non-Precision Approaches

VNAV can facilitate a stabilized, constant descent during non-precision approach operations. The stabilized descent is preferable to the traditional "dive and drive" descents previously associated with non- precision procedures. Pilots should be mindful that the VNAV path is based upon barometric air data and unlike an electronic glideslope, a VPATH is susceptible to corruption by altimetry errors. Also, it is critical to understand that descents below the MDA must be conducted visually, as obstacle clearance is not provided by the VPATH pointer below Minimum Descent Altitude (MDA). For straight in approach procedures; Hatcher Aviation has adopted the Continuous Descent Final Approach (CDFA) technique.

For approach procedures in the United States, where vertical navigation minimums (LPV or LNAV/VNAV) are not provided, Flight Crews shall add the mean vertical margin of 40 feet to the published MDA (H) and use the derived DA (H) to avoid descending below the MDA (H) in case of a Missed Approach.

> Note For approaches outside of the United States, Flight Crews will consult the appropriate States rules.

The following points must be taken into consideration:

a. The path characteristics vary, depending upon the design of the IFR procedure and most significantly, the location of the missed approach point (MAP) specified by the chart. Crews must ensure that the FMS computed glidepath is calculated to the threshold of the approach runway.
b. Crews must also consider intermediate level off restrictions inside the FAF and ensure that the computed glidepath does not result in descending below them.
c. While VNAV "guidance" often is displayed below MDA, it provides no guarantee of obstacle clearance. VASI/PAPI and other visual references should be used to establish and maintaina stabilized descent to the runway. Following VNAV guidance below MDA in IMC is never permitted.

d. Crosscheck of distance to TOD and VNAV pointers is required prior to the FAF; VNAV should not be used if pointers disagree by more than a half of a dot.
e. Altitude pre-selector (ASEL); is set to Missed Approach altitude once passing FAF.

5.6.8 Stabilized Approach

All Approaches should be stabilized by 1000' AGL. An approach is stabilized when the following criteria are met:

a. The aircraft is on the correct flight path
b. Only minor changes in heading/pitch are required to maintain the correct flight path
c. The airspeed is not greater than 20 knots above the approach speed and is not below the approach speed.
d. The aircraft is in the correct landing configuration.
e. Sink rate should be no greater than 1000 feet per minute
f. Power setting is appropriate for aircraft configuration.
g. All briefings and checklists have been completed.
h. ILS approaches must be within one dot of course and glideslope

On non-precision approaches and during circling maneuvers, it may not be possible to establish final landing configuration until later in the approach. In such instances, the pilot will stabilize the approach as soon as possible before landing. An approach that becomes destabilized below 1000 feet AGL under IMC conditions and 500 feet AGL for VMC conditions requires an immediate go-around. A stabilized approach is the safest profile and it is one of the most critical elements of a safe approach and landing operation.
The aircraft should be stabilized on profile prior to descending through the1000 feet above the touchdown zone in Instrument Meteorological Condition (IMC) or through 500 feet above Touchdown Zone Elevation (TDZE) in Visual Meteorological Conditions (VMC). Configuration, trim, speed, and glide path should be at or near the optimum parameters early in the approach to avoid distractions and conflicts as the airplane nears the threshold window. The electronic or visual glide path or an optimum safe glide path should be established and maintained. The airplane should be in the proper landing configuration, on the correct lateral and vertical track. Airspeed should be within the acceptable range specified in the AFM landing data. Airspeed control should assure that the aircraft will arrive at
50 feet above the landing surface at briefed Vref speed. It should be noted, as it applies to stabilized approaches, that following lateral and vertical tracks should require only normal bracketing corrections (i.e. small corrections in airspeed, rate of descent and variations from the lateral and vertical path). An approach that requires abnormal bracketing does not meet the stabilized approach concept, and a go- around should be initiated.

5.6.9 Side Steps and Circling Approaches

Side step or circling approaches are authorized, provided they are flown using a conservative philosophy. A side step or a circling approach will not be attempted in marginal conditions or if the crew has any reservations about the appropriateness or safety of the maneuver.

5.6.9.1 Side Step

A crew may request a side step maneuver to complete the landing phase of an approach on a parallel or conveniently aligned runway. Normally, the request will be made to the Tower controller after passing the marker. If approved for the side step, the crossover maneuver must be completed not lower than 500 feet AGL. Similar crew procedures should be used for the side step as those used for the circling approach.

5.6.9.2 Circling Approach

Flight crews will use the following guidance to supplement normal circling approach procedures:

Circling approaches are a demanding maneuver and shall be carefully briefed prior to commencement. The auto-pilot should be used in accordance with the AFM during the circling portion of the circling approach for better altitude control and pilot orientation. In no case will the pilot flying (PF) descend below the published MDA during the circling maneuver until such time as further descent is required to intercept a normal glide path for landing.

a. Category D circling minimums will be used for all Company aircraft.
b. One pilot must have continual visual reference with the airport. The pilot who can best maintain visual reference with the active runway should fly the initial portion of the circling approach. The full attention of the PF is required outside the aircraft to keep the runway in view and to position the aircraft for landing.
c. The PNF must closely monitor the instruments and call out any deviations in airspeed deviations of +5 knots and altitude deviations of +50 feet. He should also advise the PF of excessive bank angles or pitch attitudes.
d. Because the aircraft will be maneuvering, the crew may elect to delay configuring the aircraft for landing until established in the airport traffic pattern. Fly in accordance with the AFM procedures.
e. If the circling maneuver is being flown from the right seat, and the pilot in the left seat determines that the aircraft is in a position from which he can comfortably complete the visual approach to landing, he will call "I have control," and use prescribed procedures to take the controls. Following the transfer, the right seat pilot will monitor the approach, paying close attention to altitude, airspeed, angle of bank, and pitch attitude.
f. If instrument conditions are encountered during the circling maneuver, or if the PF loses visual contact with the airport environment, a missed approach shall be executed immediately. The PF will initiate a climb while turning the aircraft toward the landing runway. When established on the missed approach course for the instrument approach flown, the PF will complete the published missed approach procedure. Control will not be transferred during the missed approach, except for pilot incapacitation or a mechanical malfunction that requires the aircraft to be flown from the opposite side.

Circling approaches are not recommended under conditions of low ceilings and visibility or at night. They are prohibited when the ceiling and visibility are reported below 800 feet and 2 miles in daytime, 1000 feet and 3 miles in nighttime, or published landing minimums, whichever is greater.

5.6.11 Night Landing

When practical under existing traffic, wind, and runway conditions, a landing runway shall be selected that has ILS, VASI or other glideslope references available during all night operations. In

the absence of glideslope aids, a downwind entry and normal pattern is preferred. Straight-in approaches to runways over areas lacking lighted ground references and without glideslope reference are not recommended.

5.6.12 Precision Runway Monitor (PRM)

ATC procedures permit ILS instrument approach operations to dual or triple parallel runway configurations. Approaches designated as Simultaneous Close Parallel are also designated as PRM Approaches.

Parallel approach operations demand heightened pilot situational awareness. A thorough Approach Chart review should be conducted with, as a minimum, emphasis on the following approach chart information: name and number of the approach, localizer frequency, inbound localizer/azimuth course, glide slope intercept altitude, decision height, missed approach instructions, special notes/procedures, and the assigned runway location/ proximity to adjacent runways. Pilots will be advised that simultaneous ILS/ MLS or PRM approaches are in use. The close proximity of adjacent aircraft conducting these types of approaches mandates strict pilot compliance with all ATC clearances. Strict radio discipline is mandatory during parallel approach operations. This includes an alert listening watch and the avoidance of lengthy, unnecessary radio transmissions. Attention must be given to proper call sign usage to prevent the inadvertent execution of clearances intended for another aircraft. Use of abbreviated call signs must be avoided to preclude confusion of aircraft with similar sounding call signs. Pilots must be alert to unusually long periods of silence or any unusual background sounds in their radio receiver. A stuck microphone may block the issuance of ATC instructions by the final monitor controller during the approach.

Hatcher Aviation' pilots are certified for PRM approaches using the FAA training resources website www.faa.gov/training_testing/training/prm/. Documentation of its completion is maintained in the pilot's Training Folder.

5.6.13 Visual Descent Point (VDP)

A VDP should be calculated before flying any non- precision approach. The VDP is that point along the final approach course from which a 3-degree glideslope from the MDA allows a touchdown within the first 1000 feet of the landing runway. (VDPs are not applicable to circling approaches.) If an approach does not have a published VDP, use the following guidelines:

5.6.13.1 LOC/VOR/DME Approach

To calculate the distance of the VDP from the runway, multiply the height of the MDA above the airport by
0.003 (or multiply by 3 and divide by 1000). Use the answer (expressed in miles) and adjust the final approach DME by that amount

Example:	MDA	
	' MSL	2,000
	Field elevation	1,500
	' MSL Height of MDA above airport	500'
	AGL	
Calculation:	500 x .003 = 1.5 miles from the runway to VDP	

5.6.13.2 Timed Approach

To calculate the time from the FAF to the VDP on a timed approach, multiply the height of the MDA above the airport by 0.1. (Or divide by 10) and subtract the answer (expressed in seconds) from time-to-miss.
Using the example above:

Calculation: 500 x 0.1 = 50 seconds
Time to miss = 2:55
Time to VDP = 2:55 - :50 = 2:05

5.6.14 Requirements for Landing

Pilots may not operate an aircraft at any airport below the authorized MDA or continue an approach below the authorized DA unless:

a. The aircraft is continuously in a position from which a descent to a landing on the intended runway can be made at a normal rate of descent using normal maneuvers, and;
b. The flight visibility is not less than the visibility prescribed in the standard instrument approach being used; and
c. At least one of the following visual references for the intended runway is distinctly visible and identifiable to the pilot:
    i. The approach light system, except that the pilot may not descend below 100 feet above the touchdown zone elevation using the approach lights as a reference unless the red terminating bars or the red side row bars are also distinctly visible and identifiable.
    ii. The threshold.
    iii. The threshold markings.
    iv. The threshold lights.
    v. The runway end identifier lights.
    vi. The visual approach slope indicator.
    vii. The touchdown zone or touchdown zone markings.
    viii. The touchdown zone lights.
    ix. The runway or runway markings.
    x. The runway lights.

Pilots will immediately execute an appropriate missed approach procedure when either of the following conditions exists:

a. Whenever the previously mentioned requirements of this section are not met at either of the following times:
    i. When the aircraft is being operated below MDA; or
    ii. Upon arrival at the missed approach point, including a DA where a DA is specified and its use is required, and at any time after that until touchdown.
b. Whenever an identifiable part of the airport is not distinctly visible to the pilot during a circling maneuver at or above MDA, unless the inability to see an identifiable part of the airport results only from a normal bank of the aircraft during the circling approach.

5.6.15 Landing

Landings shall be conducted to the most operationally suitable runway giving consideration to traffic flow, noise abatement and ATC requirements as long as neither safety nor aircraft limitations are violated. A safe landing and a stabilized approach commences prior to takeoff. Adhering to the SOPs and the best practices for stabilized approaches will always be the first line of defense in preventing a runway overrun. The use of a Performance Program and ARINC performance is a valuable tool and provides performance numbers to operate by: but only if the aircraft is operated with accurate techniques. Non-stabilized approaches, excess airspeed, extended flares and delayed touchdowns all negate landing computations.

No aircraft shall depart unless its weight on arrival, allowing for normal consumption of fuel and oil in flight (in accordance with the landing distance in the Airplane Flight Manual for the elevation of the destination or alternate airport and the wind and weather conditions expected there at the time of landing), would allow a full stop landing at the intended destination airport within 60 percent of the effective length of runway from a point 50 feet above the intersection of the obstruction clearance plane and the runway. For the purpose of determining the allowable landing weight at the destination airport the following is assumed:

a. The airplane is landed on the most favorable runway in still air.
b. The airplane is landed on the most suitable runway considering the probable wind velocity and direction and the ground handling characteristics of the airplane, and considering other conditions such as landing aids and terrain."

Conditions at the destination airport may change between the time of departure and the time of arrival; therefore, the crew shall discuss and review the landing distance required after receipt of new weather reports at the intended airport of landing. If the airport and associated runway surface conditions are forecast to worsen, the crew shall develop an alternate plan of action in the event that a missed approach or go around becomes necessary.

5.6.16 Missed Approaches

5.6.16.1 Go-Around

Either pilot may command a go-around for any reason at any time. The PF needs only to call, "Going Around," and do so. When the PNF calls "Go Around," the PF must immediately execute the published missed approach procedure.

5.6.16.2 Missed Approach Procedures

Either pilot may be required to fly a missed approach, depending on when or for what reason the missed approach is initiated. The following procedures will apply, regardless of the seat the pilots are occupying.

a. The missed approach will be reviewed during the approach briefing. Both pilots must understand the published procedures and be familiar with initial missed-approach headings and altitudes.
b. Once the missed approach is initiated, the PF will fly the complete published approach. Control will not be transferred during the missed approach, except for pilot incapacitation or a mechanical malfunction that requires the aircraft to be flown from the opposite side.
c. The PNF performs ATC communication, tuning and identifying navaids, and running checklists. The PNF will monitor the missed approach procedures using the published approach plate.
d. Normal checklist call-outs concerning aircraft-configuration changes will be made by the PF and confirmed by the PNF.
e. The PF will confirm the flight director mode prior to engaging the autopilot.
f. If a transfer of control is required, the transfer will be made only under the following conditions:
    i. The aircraft is established at the final missed approach altitude.
    ii. All configuration changes have been completed.

Pilots generally have an expectation of landing when commencing an approach, even in marginal weather. In an attempt to avoid the “programmed to land” syndrome, the pilot flying (PF) should ready himself for a go around throughout the approach. The pilot flying (PF) should brief the pilot not flying (PNF) in the procedure for setting up the LNAV missed approach procedure. The pilot flying (PF) should expect to execute a missed approach unless his expectation is countered by a call indicating the runway environment is in sight.

The missed approach decision requires trained coordination within the flight crew. The Pilot not Flying (PNF) responsibility for callouts, especially during the precision approach, may mean that the aircraft is descending at low altitude with the Pilot not Flying (PNF) looking outside the cockpit for the runway. This procedure requires that the PF be acutely aware of altitude and the decision height.

It is always the responsibility of the Pilot not Flying (PNF) to be familiar with the missed approach procedure whether conducting an IMC or VMC approach. When the pilot flying (PF) initiates the missed approach, he may remember only the initial heading and altitude in the briefing. The Pilot not Flying (PNF) should ensure that the complete procedure is available to the pilot flying (PF).

5.6.17 CAT II and III Operations

CAT II or III approaches are not authorized.

5.7 Arrival

a. Prior to Arrival

The assigned PIC will review with other crewmember(s) the logistics needed upon arrival. An ETA email will be sent as early as possible prior to arrival with the following information and format. Follow up with either an AFIS message or radio call if there is no response from FBO or FBO email is not available.

To: FBO
CC
Subject
Message Body: ETA, passenger, transportation, baggage and aircraft service requirements Flights to KLIT Advise whether or not security is needed to meet the airplane.

b. Arrival at the destination

The passengers' needs are the first concern of the crew and every effort must be made to conveniently and expeditiously get the passengers on their way. It is the PIC’s responsibility to escort passengers from/to the aircraft to awaiting transportation. The PIC should also provide contact information to the lead passenger if necessary, to ensure passengers are able to contact the crew and provide any updates or additional information for the trip.

“Turning” the cockpit or securing the aircraft should be accomplished once the passenger needs are met and ensuring they depart the FBO safely.

5.7.1 Electronic Flight Log Procedures

The assigned trip PIC is responsible for entering flight log information into ForeFlight and sending the flight log to Maintenance.

5.7.2 Discrepancy Items

It is the responsibility of the assigned trip SIC to send a discrepancy email. List any discrepancies including a description of what happened, and what the crew did to troubleshoot. Number and list each discrepancy individually and be as specific as possible as this will help maintenance. If no discrepancies exist for the trip sequence, write “No Discrepancies”.

To	geoff@hatcheraviation.com
Subject	N131LG
Message Body	No Discrepancies. Thanks GH

5.7.2.1 MEL Items

For items that fail prior to departure, the crew will reference the MEL handbook to determine dispatch ability and comply with the procedures listed for any MEL item(s). Prior to departing, the Assigned Trip PIC will send an email to flight department personnel; the subject line will contain the entire tail number (in CAPS) along with MEL The main text of the message will describe the MEL item. Add any other information that would be helpful to maintenance in determining a fix for the problem; Complied with MEL procedures. Close the email with the crews' initials.

Note	If you are conducting a multiple leg trip, there is no need to send the same MEL item prior to each subsequent departure

TO	geoff@hatcheraviation.com
Subject	N131LG MEL (all CAPs) Message Body
	APU Fire Detect Fail. Maintenance complied with (M). APU will not be used.
	Thanks, GH

5.7.3 Closing Flight Plans

When operating in controlled airspace flight plans will normally be automatically closed by ATC. If there is any doubt, the PIC shall check with ATC upon arrival at destination to ensure that the flight plan has been closed.

5.7.4 Securing the Aircraft

All crewmembers share responsibility for securing the aircraft and contents during all layovers and preparing for the next flight.

Parking brakes will normally be released after the aircraft has been chocked. If strong winds are expected, brakes should be reset, all gear choked and assure the nose gear torque link is engaged. Pitot and static covers will be installed when conditions require. Crewmembers should restore the interior to preflight condition before leaving the aircraft. Seats and seat belts should be straightened, dishes, glassware and galley equipment cleaned and stored, waste materials discarded, and the lavatory serviced. Any liquids subject to freezing must be drained or removed if cold temperatures are expected.

All doors and access panels will be closed and locked before the crew departs the airport. Additional security precautions may be used, as described in the Security section of this manual.

The assigned trip PIC must ensure servicing of the aircraft. It is recommended that all outside covers be installed especially if inclement weather is in the forecast. During cold, inclement weather, drain water systems or if possible store the aircraft in a hangar.