Guidance for Personal Operations Manuals

Jack Olcott

PRESIDENT
GENERAL AERO COMPANY. INC.

TABLE OF CONTENTS

Guidance for Personal Operations Manuals

By Jack Olcott
President, General Aero Company

Being a proficient pilot—one whose flying is highly professional—is fun. It's personally satisfying, significantly less stressful, and more efficient than taking the airlines, and it is a great source of pride.

Flying professionally is not about being paid to fly. Payment for flying is simply a career choice. The pilot who is professional flies competently, efficiently, and safely, thereby obtains utility and satisfaction from operating an aircraft.

Pilots who fly professionally accept responsibility for participating in the National Airspace System, and demonstrate their proficiency by applying the full extent of their knowledge, skill, and attitude. They are also diligent in protecting their passengers and people on the ground. They plan with sufficient knowledge and foresight to be prepared for the conditions likely to be encountered. They learn about the equipment that carries them aloft and allows them to enjoy the beauty of flight and reach their destination swiftly. They master the skills needed to use their aircraft and avionics appropriately. They know how to evaluate the environment in which they will operate and how to compensate for weather's vicissitudes. They realize that all things mechanical can fail, and through training they are ready for the improbable.

In essence, they develop a personalized system for managing the risks and rewards associated with their operations, thereby producing a safe, effective, and enjoyable aviation experience. A big part of this personalized system is made manifest by creating an operations manual. While operations and specifications (sometimes called "ops specs") manuals are gospel for the airlines, charter operations, and many corporate flight departments, owner-operators seldom make the effort to develop their own. They should, for many good reasons

A Personalized Document

An operations manual documents procedures for each aspect of flight from planning to post-flight duties, and is mandated for all commercial operators. It specifies precisely how flight activities are managed and controlled, and its preparation and use is a best practice of professional aviators. Appropriately tailored to individual needs, it can and should be a staple of the non-salaried aviator who wishes to fly professionally. Unlike the hefty manuals of commercial operators or large corporations, however, the personal ops manual (POM) is concise and pragmatic. Yet it is effective in organizing flight activities around standards of behavior that maximize utility and minimize risk.

Although the term *operational control* is heard most often in connection with charter flights, it applies to all forms of aviation and is defined as exercising authority over initiating, conducting, and terminating a flight. As the pilot of an aircraft you own or rent, you have operational control and are responsible for the flight's safety and compliance with applicable federal aviation regulations, including pilot training, aircraft airworthiness, how the aircraft is serviced, and how the flight is conducted. Your personal operations manual is an effective aid in exercising appropriate and effective operational control over your aviation activities.

Flying, whether done for fun, personal travel, or business purposes, is a process. Like all processes, it has a start point, an outcome or end point, and procedures along the process path. The purpose of a personal operations manual is to map that process and document the standard operating procedures that produce the desired outcome safely, efficiently, and comfortably for all parties.

A personal operations manual promotes consistency, which is the key to safety and satisfaction. By documenting and following standard operating procedures (SOPs), a pilot is more likely to be prepared, act appropriately, recognize potential problems, respond to abnormal or emergency situations, and achieve the desired outcome.

Personal Operations Manual Outline

Section 1—Personal Objectives

The purpose of a personal operations manual is to assist you in managing your aviation activities, whether you are a renter pilot or an owner. The place to start is creating your own statements of vision, mission and values (often called governing principles).
A vision statement should capture your personal objectives as a pilot in a short, easily remembered and directive sentence. The words express what you wish to achieve throughout your life-long involvement with aviation. A mission statement is focused on shorter-term objectives, such as what you strive to accomplish on each flight. Values statements identify the principles that govern your aviation activities.

Vision, mission, and values identify your overall attitude toward aviation. They provide guidance when you face choices, they keep you focused on successfully outcomes, and they shape the culture you live as someone who flies professionally.

Remember, culture is the way you act when no one is looking.

Example:

Vision: To seek and use knowledge that enables me to conduct my aviation activities safety, enjoyably, and responsibly.

Mission: To plan and conduct each flight within the standards set forth in my personal operations manual.

Values: Commitment: I commit to follow the best practices and standard operating procedures presented in my personal operations manual

Consistency: Because consistency is the hallmark of flying professionally, promotes safety, and adds certainty and enjoyment to flying, I will conduct my flight operations in accordance with my POM.

Checklists: I will use checklists for all aspects of my operations.

Planning: All operations will be planned in sufficient detail and with sufficient timeliness to assure that I know what I must do before circumstances require immediate, ad hoc actions.

Readiness: By accessing my situation with respect to workload, weather, aircraft status and potential emergencies, and by considering "What If" scenarios, I will be ready for all possibilities.

Statements of vision, mission, and values must express what you believe and are willing to follow even when tempted to take shortcuts. They are highly personal products of your inner approach to being an aviator, and they must be crafted in a fashion that enables easy recall.

For example, the first letters of the five values stated above are CCCPR, which can easily be recalled as C^3PR, using the familiar initials CPR as a memory jog.

.

Section 2—Date-Centric Approach

Since many aspects of owning and operating an aircraft have a periodic character, the next step in organizing your Personal Operations Manual is made with a calendar. Unless the FAA succeeds in mandating re-registration of aircraft every three years, aviation activities fall within a two-year cycle. For example, a third-class medical certificate and a flight review are required every 24 months, as are transponder and static system checks. Annual inspections and second-class medical certificates physicals are needed every 12 calendar months, first-class medicals and a minimum level of instrument activity come due every six months, and night and PIC currency have a 90-day cycle.

Approach plates typically have a 56-day cycle, and navigational data cartridges usually have a 28-day refresh rate.

Exercising the responsibilities of operational control—initiating, conducting, and terminating a flight—focuses on a time frame of about a week when weather planning and personal contingencies are considered.

Organizing your POM around calendar events enables you to identify and manage the risks that affect your safety of flight. For example, inadequate planning or using out-of-date materials is a safety risk. Outlining what steps are necessary, including an assurance that updates are done in a timely manner, allows you to manage planning risks.

Equally important, following a date-centric approach to managing your flight operations significantly increases the likelihood of a pleasurable flight. You eliminate that uneasy feeling that you are missing something when you discover in flight that your charts have expired or the nav database is out of date.

Example of a date-centric operations checklist:

DATE-CENTRIC OPERATIONS OUTLINE

MONTHS	ACTIVITY	DATE DUE	DATE DONE
24	Flight review		
	Transponder check		
	Altimeter check		
	Third class medical		
12	Aircraft annual inspection (AI)		
	Personal review of AI with maintenance provider		
	Second class medical (nominal case)		
	Annual recurrent training (mandatory)		
	Review of aviation activities with insurance broker		
	Insurance renewal		
	Renewal of data subscriptions		
	Overall audit of your aviation activities		

6	Audit of IFR currency
	Recurrent training (desired)
3	Audit of takeoff and landing currency
	Audit of night currency
1	Review currency of charts
	Review logbooks (pilot and aircraft)
	Complete new AOPA ASF online course
	Review completed AOPA ASF online courses
	Review pilot's operating handbook for aircraft
	Review emergency check lists POH
	Review manuals for avionics and equipment
	Review FARs (Part 61 and Part 91)
	Review Aeronautical Information Manual (AIM)
	Ongoing aviation reading (e.g. AOPA PILOT)
DAYS	
28	Refresh data cards
14	Insert Jeppesen revisions if used
7	Overview of route, facilities and weather pattern
	Status of aircraft
	Preliminary weight and balance calculation
	Preliminary performance calculation
	Status of navigation & approach data
	Status of pilot
4	Begin weather tracking for flight
3 and 2	Continue weather tracking
Day prior	Detailed review of facility's current status
	Review pilot status (fatigue, stress, distractions)
	Check weather, compare with previous tracking
	Check routing
	Check approach facilities and procedures
	Consider "what if" scenarios
	Prepare flight plan
	Review personal items needed for successful flight
	Assess areas of potential risk
Day of	Check weather
	Check notams

	Final weight and balance calculation
	Final performance calculation
	Check facility, departure and arrival
	Prepare trip log (AOPA Internet Flight Planner)
	File flight plan
	Arrive at airport 60 minutes prior to ETD
	Preflight completed 30 minutes prior to ETD
	Review takeoff and departure "what ifs"
	Complete pre-taxi checklist
	Contact clearance delivery
	Maintain checklist discipline
Post	
Flight	Secure aircraft
	Conduct post flight inspection
	Inform maintenance provider of discrepancies
	Complete trip log
	Complete pilot and aircraft logs
	Review administrative items (see Section 9)

Section 3—Maintenance

This area is simple. Establish a relationship with a maintenance shop that is qualified to work on your aircraft, have the shop manager track your aircraft records using a system such as ADLog, and follow the outline of routine service and inspection items listed in your date-centric operations outline. You may require identifying one shop for airframe work and another for avionics. Whatever the specialty, identify a contact and establish a relationship before servicing is needed, so that you can address maintenance issues as soon as they surface. Report all discrepancies immediately following the flight to the shop you list in your personal operations manual.

Example:

All airframe and engine items, whether routine inspections or discrepancies, with be addressed by Syrek-Mee. Avionics servicing will be handled by C&W Avionics. Annual inspections will be scheduled two months in advance. Oil will be changed at 50-hour intervals, and 100-hour inspections will be conducted unless they are accomplished in conjunction with the annual inspection. All airworthiness directives (ADs) and factory issued service bulletins (SBs) will be sent upon receipt to Syrek-Mee or C&W Avionics, as appropriate. Discrepancies will be brought to the attention of the appropriate shop immediately following the flight where the problem was discovered. The aircraft will be washed at least once every two months.

Following all maintenance, including annual inspections, I will review the work accomplished and inspect the finished product, because as pilot and owner I am ultimately responsible for the airworthiness of my aircraft. At that time I will audit those calendar items, such as mandatory checks of transponder and altimeter, required by the FARs.

Section 4—Training and Personal Preparedness

Flying professionally entails being prepared with the knowledge and skill required to accomplish flights successfully, without anxiety or extraordinary effort. Acquiring sufficient knowledge begins on the ground by understanding the fundamentals of the aviation system:

- Basic physics of flight—lift, weight, power, and drag and the role that the balance of these forces plays in safe and successful flight
- Natural operating environment—effects of temperature, altitude, and runway surface (e.g., hard, grass, soft, contaminated, sloping) on performance, as well as weather conditions, such as visibility, ceiling, turbulence, icing and frost on routine operations
- Institutional operating environment—FARs, nomenclature of the aviation community, character of the airspace, airport protocol, and the responsibilities of the aviator as a citizen within the aviation community

Most flight schools sell reference books appropriate for such reviews. A popular publication combines the *Aeronautical Information Manual* (AIM) with appropriate FARs.

With this foundational knowledge in hand, ground training continues with an understanding of the aircraft you are operating and its equipment such as avionics. The pilot's operating handbook is a must read, as are the operating manuals that accompany all avionics equipment and specialty devices ranging from sophisticated EGT monitors to simple stop watch/approach timers. If a device is installed in your aircraft, know how it operates and be prepared to employ all its capabilities.

Particularly in the area of avionics we are tempted simply to install and fly, learning by trial and error as we venture aloft. But that is the hard way, it is ineffective, and it can lead to equipment problems and operational mishaps. Take the time to read first and then fly—that's the professional approach, and it makes life easier.

Flying professionally is more than reading and remembering, however. It's also about possessing the skill to use in the air what you learned on the ground. Even the most experienced aviator needs to refresh his or her flying skills. Salaried pilots—those who receive monitory compensation for their work as airline or charter pilots—refresh their skills every six months, as do many corporate pilots. (Under special circumstances some airline pilots refresh every nine months.) A session with a capable flight instructor at six-month intervals makes good sense for the nonsalaried aviator who wants to fly professionally.

Your personal operations manual should contain a training section describing briefly your approach to maintaining knowledge and skill. Note: The flight review, formerly known as a biennial flight review, or BFR, is not training—it is more aptly described as a test or requirement. Training, both on the ground and in the air, prepares you for the flight review.

Applying knowledge and skill requires the pilot to be physically and mentally prepared. While a third class medical certificate is appropriate for most private flying, being medically certified to second-class medical certificate standards is a worthy challenge as well as often being desirable for insurance purposes.

Holding a valid medical is necessary but not sufficient for safe and enjoyable flight. The pilot also must be sufficiently rested, uncompromised by medication (legal or prescribed), and able to concentrate on the task of flying. Weighty distractions and emotional baggage, regardless of their source, can overload the most knowledgeable and skilled aviator. Lack of sleep, or flying after a "big night on the town," adds work to even the simplest piloting task.

Salaried pilots flying for the airlines or charter operators have specific limitations of their duty time (the period where they are expected to be available for flying) and the actual time they can be at the controls. Although complicated by the way in which flight and duty time are measured, in essence FAR Part 135, which applies to on-demand (i.e., charter) operations, limits duty time for a one-pilot crew to 14 hours and flight time to eight hours within any 24 hours. Those regulations are a good starting point for all aviators who want to fly professionally.

Example:
In-flight or simulator-based training with a certificated flight instructor will be taken twice a year, once within 30 days prior to insurance renewal and a second session approximately six months later. Every fourth flight with a CFI will also cover the requirements of a flight review, provided four sessions are completed within 24 months of the previous flight review. Each month, preferably on the first weekend of the month, one AOPA Air Safety Foundation online course will be completed, including certificate issuance. Unless covered by the AOPA ASF online course, the POH and avionics operating guides for my aircraft also will be reviewed at that time. Monthly issues of

AOPA Pilot and other publications will be culled for articles relevant to standard operating procedures and safety as well as how to obtain more utility and enjoyment from my aircraft operation and ownership.

I will fly only when I am sufficiently rested and able to focus on the tasks and responsibilities of being an aviator. I will plan my trips so that the nominal duty time between my final weather check prior to flight and the termination of my flight, with aircraft shutdown at the destination ramp, does not exceed 14 hours of duty time and nine hours of flight time in any 24-hour period. Following a 14-hour duty day and nine hours PIC, I will rest for a minimum of 12 hours. If the total number of PIC flight hours does not exceed eight hours during a 14-hour duty day, the minimum rest period during a 24-hour period will be 10 hours. If extraordinary circumstances require flight in excess of nine hours and duty time in excess of 14 hours duty time during any 24-hour period, I will rest for a minimum of 24 hours before again serving as PIC.

At all times I will strive to honestly assess my capabilities, limitations, and distractions.

Section 5—Flight Planning

Today's general aviation aircraft and avionics systems are extremely capable and impressively reliable. Engines rarely fail and equipment redundancy reduces the likelihood of in-flight emergencies. Today's avionics for light aircraft have more capability than expensive flight management systems found only in airliners and business jets a decade ago. Global Positioning Satellites provide precise navigation and in many cases obstacle alerts. Communications satellites and relatively inexpensive receivers link pilots to weather and airport data. Today's technology tempts even the most prudent pilot to delay flight and contingency planning until the last minute, relying on hardware and electrons to lead the way between departure and destination through challenging skies and across hostile terrain.

The pilot who flies professionally knows better. Any mechanical system can fail; any navigational infrastructure can become inoperative; all communications can be compromised to the level of being useless. Pilots are always prepared by planning each flight and considering all "what ifs."

Flight planning starts with a status review as presented in your Date-Centric Operations Outline. Is your recent experience commensurate with the flight you are contemplating vis a vis PIC status, night landings, and IFR requirements? Does your aircraft have a current certificate of airworthiness, and are squawks following the most recent flight resolved? Are navigational data cards valid for instrument flight and up-to-date for all operations? Navigation materials must also be current. In addition to being illegal under most circumstance, operating with expired navigation charts and data add a level of uncertainty that is distracting and discomforting as well as unprofessional.

A preliminary check of the aircraft's anticipated weight and balance and performance a week prior to departure guards against last-minute surprises as well as the temptation to ignore an overload situation or improper balance. With planning, your fuel quantity and load distribution can be adjusted to assure adequate performance and balance. You must know as soon as possible if the proposed loading exceeds your aircraft's capabilities to accomplish the intended trip, and make the necessary adjustments such a informing your passengers about baggage limitations. While your aircraft's pilot's operating handbook contains graphs to calculate weight and balance, several aftermarket software packages and planning aids also are available from commercial vendors. Using a Microsoft Excel spreadsheet, you can easily prepare your own weight and balance calculator.

Familiarize yourself with the POH pages that address aircraft performance for normal and emergency operations. Know your aircraft's runway requirements at its maximum gross weight for zero wind and sea level conditions at standard temperature (15 degree Celsius) as well as at high and hot conditions (5,000 foot altitude and 25 degrees Celsius). Determine how personal techniques that differ from those specified in the POH affect performance. For example, more runway length is needed if you routinely use a higher

liftoff speed that specified in the POH for takeoff. While not a substitute for detailed planning, knowing these performance limits is useful.

If your aircraft has not flown for a protracted period, a preflight inspection several days prior to your planned departure can save you the disappointment of discovering a grounding discrepancy, such as significant hangar rash or the damage caused by an errant ground vehicle, an hour before you plan to leave.

Weather greatly influences the utility, fun, and safety of flight. It can add great anxiety to a potentially enjoyable trip, particularly if we wait until the last minute before considering the effects of current and forecast conditions.

Weather is the most frequent probable cause for fatal accidents involving general aviation pilots. Yet few if any pilots have ever been caught by bad weather. Certainly today's typical GA aircraft flies faster than weather systems move. Pilots experience weather problems because they choose to fly into conditions that prove to be unsuitable for their equipment, knowledge and/or skill.

The more we know about the weather that we are likely to encounter, the more we can set a realistic itinerary and have an enjoyable flight. The character of weather systems, which generally move from west to east, foretell the conditions a pilot is likely to experience on the day of intended departure. For example, fast-moving cold fronts bring more violent weather than slow moving warm fronts, and a stagnant area of high pressure can spawn a wide expanse of low visibility and fog. More significantly, prog charts such those as found on AOPA Online provide a reasonable idea of what weather is likely to occur about the time of your anticipated departure and what might be encountered en route. Knowing what to expect reduces anxiety and adds enjoyment to your flight. Furthermore, such planning reduces the risk of venturing into untoward weather conditions.

Develop a rhythm for planning such as outlined in your Date-Centric Operations Outline, starting several days prior to your intended departure. Establish a system that works for you and follow it consistently.

Example:
Trip planning starts one week prior to the intended departure date, following the outlined presented in the Date-Centric Operation Outline, presented below:

7 days	Overview of route, facilities and weather pattern
	Status of aircraft
	Preliminary weight & balance calculation using my Excel spreadsheet
	Preliminary performance calculation
	Status of navigation & approach data, including nav cards
	Status of pilot
4	Begin weather tracking for flight
3 and 2	Continue weather tracking
Day Prior	Detailed review of facility's current status
	Review pilot status (fatigue, stress, distractions)
	Check weather, compare with previous tracking
	Check routing
	Check approach facilities and procedures
	Consider "what if" scenarios
	Prepare flight plan
	Review personal items needed for successful flight
	Assess areas of potential risk
Day of	Check weather
	Check notams
	Final weight & balance calculation
	Final performance calculation
	Check facility, departure and arrival
	Prepare trip log using AOPA Internet Flight Planner
	File flight plan
	Arrive at airport 60 minutes prior to ETD
	Preflight completed 30 minutes prior to ETD

Review takeoff and departure "what ifs"
Complete pre-taxi check list
Contact clearance delivery
Maintain checklist discipline

All flights will be planned according to the outline. If modifications to timing or subjects covered are needed, the outline will be edited and documented accordingly and the new sequence will be followed. Consistence in planning will be maintained.

Section 6—Operations

The lowest level of regulatory oversight applies to pilots who are not carrying passengers or cargo for compensation or hire, such as when you are taking your family somewhere in your personal aircraft. While such a laissez faire approach may seem appealing, it must be treated with caution.

Compare the limitations that apply to your personal flights with your family to those that regulate the carriage of your family by a charter operator. Pilots conducting flights in accordance with FAR Part 135 (i.e., charters) are prohibited from attempting a takeoff when the weather at the departure airport is less than the authorized IFR landing minimums unless there is an alternate airport with suitable weather within one hour's flying time at normal cruise. A departure also is prohibited unless the latest weather report or forecast at the destination airport will be at or above IFR approach minimums at the estimated time of arrival. While pilots operating in accordance with FAR Part 91 are free to takeoff as they please, the prudent operator should not abuse that privilege.

Fatigue is another area where charter pilots are constrained and private operators are free to set their own standards. For Part 135 operations, fatigue is monitored by limiting flight and duty time according to a combination of factors that are rather convoluted. Basically, a pilot flying charter without a copilot is limited to eight hours of flight time and 14 hours of duty time (time during which the pilot is available for flight) within a 24-hour period.

If flight time in excess of eight hours results from special circumstance such as weather delays once the flight has been dispatched, the pilot must extend his or her rest time from 10 hours between assignments to as much as 16 hours if flight time is extended by one hour.

Pilots flying for hire must hold at least a second class medical certificate (i.e., take a physical every 12 months) and captains of scheduled commuter operations must be certified as Airline Transport Pilots, and are required to hold a first class medical certificate (i.e., take a physical every six months). Aviators who fly in accordance with FAR Part 135 require recurrent training every six months.

Whether you are carrying your family, your friends, or just yourself, the standards that you follow should be no less safe than when the same flight was under the control of a charter company. While your aircraft may be outfitted comparably to or possibly better than the equipment flown by the typical charter provider, there is a high probably that the salaried pilot has more recent experience. Thus there is little justification for the typical owner or renter pilot opting to ignore the more stringent oversight of FAR Part 135. Whether or not you choose to follow all or some of the regulations that govern commercial aviation is your call, but you should make your decision based upon knowledge of those FAR and a careful assessment of what rules are relevant to your operations.

Multiengine jet aircraft and multiengine large propeller-driven transports are designed with performance that mitigate against the risks associated with an engine failure during takeoff. They are required to use runways that enable the aircraft to accelerate to a particular speed (known as V_1, or decision speed) and then brake to a stop on the runway if an engine were to fail at precisely V_1. Faster than V_1, jet and large prop transports can achieve a safe climb with one engine inoperative. In other words, jet and transport-category propeller aircraft demonstrate the ability to stop on the runway if an engine fails below V_1 speed and continue the takeoff if an engine fails at speeds faster than V_1.

The typical owner pilot flying multiengine propeller aircraft does not have such protection against engine failure on takeoff. But he or she can compensate for the loss of an engine, even flying a single, by runway and airport selection. The possibility of an engine failure must be considered during pre-takeoff planning. Include provisions for such planning within your personal ops manual, and consider *what if an engine fails* as an SOP for all takeoffs.

While FAR Part 91 contains no such requirements, charter flights cannot be dispatched at night or under IFR when weather reports indicate that thunderstorms or other potentially hazardous conditions that can be detected with airborne equipment may be reasonably expected en-route, unless the aircraft has airborne thunderstorm detection equipment in working order. Pilots who wish to fly like professionals are well advised to make contingency plans when thunderstorms are reported along the intended route of flight.

Unlike pilots conducting personal, not-for-hire flights, charter operators can initiate an IFR approach only if the weather reported at the destination airport is at or above authorized minimums. Furthermore, charter pilots flying turbine equipment with fewer than 100 hours as PIC in aircraft type are required to increase the approved minimum descent altitude (MDA) or decision height (DH) by 100 feet and visibility by one-half mile. For the personal pilot who flies infrequently, increasing approach minimums is prudent and professional.

What you take from FAR Part 135 for your personal operations and what you choose to reject is up to you. Give the options careful consideration and incorporate your decisions within your personal operations manual.

Example:
Checklist procedures will be followed for all transitions between phases of flight as listed below. Check lists for those phases marked with an asterisk can be recited from memory, but all others must be accomplished with reference to printed material or electronic representation on an aircraft's multifunction or navigation display screen. All checklists,

including emergency procedures, will be in accordance with the pilot's operating handbook and FAA-approved airplane flight manual.

- Preflight* (Note: the aircraft itself serves as an outline for preflight tasks. Fuel and oil are visually checked prior to each flight)
- Pre Start*
- Post Start*
- Pre Taxi*
    - Taxi light will be on for all ground operations
    - Heater off for all ground activities unless external temperature requires extraordinary operation
- Before Takeoff
    - Aircraft will be stopped with parking brake set prior to embarking on Before Takeoff checklist
    - Each item on the Before Takeoff checklist will be completed in sequence—no item will be skipped or deferred
    - "What-if" considerations, including emergency procedures in the event of an engine failure during the takeoff, will be reviewed
    - Note: Minimum visibility one-half mile, minimum ceiling 200 feet unless a 4,000-foot runway with weather at or above approach minimums is available within 30 minutes flying time. Under no circumstances will takeoff be attempted when three runways lights are not visible from the cockpit with the aircraft in takeoff position.
    - Landing lights on upon receiving takeoff clearance and prior to entering the active runway
    - Note: Pitot heat on whenever visible moisture is present
    - Note: Heater off for take-off
- Takeoff roll*
    - Allow aircraft to roll forward on the runway centerline to check wheel alignment prior to applying full power
    - Check fuel pressure at full throttle

    - Be alert to reduce power to idle upon the first indication of engine malfunction prior to liftoff
    - Accelerate to a target airspeed (i.e. V_R or V_{XSE}—best single-engine angle of climb speed) prior to liftoff, initiate climb, positive rate noted and then retract gear.
    - Note that electing to lift off at V_{XSE} rather than V_{SSE} (in multiengine airplanes, the minimum safe single-engine speed) can add approximately 15 percent to the required runway length
    - With gear fully retracted and a safe climb speed established, plan to continue climb in the event of engine malfunction unless sufficient runway remains to extend gear and land.
- Engine Failure Immediately After Takeoff, Gear Up*
    - Maintain directional control
    - Bank 5 degrees into good engine
    - Climb straight ahead
    - Check Gear Up: Mixture, Prop, Throttle full forward, Identify (dead foot, dead engine), Boost Pump on for dead engine, Feather if engine fails to respond
    - When aircraft is under full control, close cowl flaps on dead engine
- Engine Failure above 1,000 feet agl or when reaching 1,000 feet agl
    - Consult checklist
- After Takeoff * (positive climb rate, gear up, flaps up, boost pumps off, power reduction at 500 feet, Pulse Light off departing traffic pattern)
- Climb* (maintain 25 inches of manifold pressure, 2,500 rpm and 18.7 gallons per hour as throttles are adjusted to compensate for loss of manifold pressure with altitude. Observe altitude where full throttle is required, which should be between 4,000 and 5,000 feet. Observe oil, cylinder head temperature, and exhaust gas temperature during climb.)
- Cruise* (set cruise power, initially at 20 inches of manifold press and 2,400 rpm; cowl flaps closed. Engage autopilot, use power slide rule to determine manifold pressure for 23 gallons per hour at cruise altitude and temperature.

Monitor EGT to achieve optimum lean setting and fuel flow of 12 gph on Shadin fuel flow instrument. Anticipate 157 knots IAS)

  - Note: Prop anti-ice will be applied prior to entering clouds with temperatures below 2 degrees Celsius
  - Action will be initiated to extricate the aircraft from any condition that results in ice buildup on any surface. There will be no attempt to prolong flight when ice accumulation is observed.

- Rough air penetration* (set power and attitude for 157 knots IAS)
- Descent* (reduce manifold pressure by 3 inches, advance mixtures to maintain 10 gph, continue to adjust throttles and mixture to maintain manifold pressure 3 inches below cruise power setting and fuel flow at 10 gph. Anticipate 500 feet per minute descent at 170 knots indicated.)
- In Range* (minimum 10 miles from initial approach fix, fuel status, altimeter setting, ATIS, approach charts available, situation accessed)
- Initial Approach* (plan descent to reach desired approach altitude five miles prior to beginning approach procedures. Maintain manifold pressure 3 inches below cruise power setting. Maintain initial approach altitude as aircraft slows to 140 knots, lower flaps to 15 degrees, carefully guarding against extending flaps beyond that approach flap setting. Look for and adjust power as required to maintain 110 knots. Prior to entering traffic pattern or crossing initial approach fix, lower gear at 110 knots, apply pressure to brakes to check hydraulics, advance manifold pressure to 20 inches to maintain altitude and at or above blueline airspeed while in level flight)
- Final Approach* (no approach will be initiated unless ceiling is reported to be 100 feet above DH, pulse lights on, heater off)
- Landing* (gas, undercarriage down with brakes checked, mixtures rich, props high rpm, and flaps fully down no later than when lined up on final. “See the runway, see three green and full flaps.”)
- Post Landing* (touch nothing while on runway)
- Clear of Active* (contact ground control after clearing active but prior to entering taxiway, landing lights off, taxi light on, flap lever felt, flaps up, cowl

flaps open, radar tilt full up, radar gain maximum, radar switch off, pitch trim reset for takeoff)

- Shutdown* (taxi light off, avionics master off, mixtures idle cutoff, alternators off, master switch off. Note: always leave rotating beacon switch on)
- Final Shutdown Checklist
- Control lock engaged*
- Cabin door and baggage doors locked when aircraft is unattended*
- Post-flight Walkaround*
- Fuel Request*

Before departing aircraft, fill out purpose of flight in the trip log. Note items to be squawked and items to be watched on subsequent flights. Note flight time (actual elapse time from takeoff to landing) and add 10 minutes for posting in pilot log.

Section 7—Emergency Operations

Pilots who fly professionally regularly prepare for events that rarely occur, so that they will not be startled by emergencies. They mentally review initial procedures for situations where time is insufficient to reference the appropriate checklist, such as an engine failure immediately after lift-off. A checklist is always used, however, once the aircraft is fully under control. Performance–critical (for example, engine failure at low airspeed or altitude) emergencies warrant immediate action, followed by checklist review. An in-flight fire also demands immediate action to shut off fuel to the burning engine, or use of a hand extinguisher if cockpit materials are ignited. Otherwise, the AFM checklist should be consulted.

The pilot who flies professionally should refer to the aircraft's approved checklist during monthly reviews of the pilot's operating handbook.

Also, take time to consider the areas of risk associated with the particular way you manage and operate your aircraft. Are there actions that are likely to be ignored, such a keeping your charts current or maintaining your knowledge of how special equipment

that is rarely used functions? Are you likely to be rushed or distracted prior to a flight? If so, recognize those risk factors and adjust your procedures to minimize such behavior.

Example:
In accordance with my Date-Centric Operations Outline, I will review the Emergency Procedures contained in Section III of the Beechcraft Baron B55 pilot's operating handbook. I will also review my schedule of commitments to identify potential factor that might add to the risks of future flights and detract from the enjoyment that can be obtained from a well-planned and managed flight experience. Lessons learned from previous flights also will be assessed and applied as appropriate to future activities.

Section 8—Administrative

Whether you own an aircraft or are a renter, aviation represents a significant investment. You invest considerable time learning to fly and maintaining the knowledge a skill to fly professionally. Aircraft ownership is a source of great pride that comes at a significant cost: initial purchase, routine maintenance, annual inspections and insurance, for example, plus the actual cost of operation.

Check the resale price of your aircraft quarterly. Such awareness of the used aircraft market enables you to manage your aviation assets as an aviation professional. Communicate regularly with your insurance broker to determine trends and to make him or her aware of your commitment to being professional in your activities.

Audit your aviation activities yearly, as noted in the Date-Centric Operations Outline. Know where the important documents related to ownership, training records insurance, manuals and other reference material are stored.

Example:
As indicated in my Date-Centric Operation Outline, I will audit the status of my current aviation activities, including aircraft ownership, recurrent training and risk management, during the first week of the new year, and I will do an update on that audit quarterly

thereafter, during the first week of each new quarter. My personal operations manual will be revised as needed as the result of lessons learned from flights and from systemic audits. Revisions to this POM will be recorded herein.

DATE REVIEWED	DESCRIPTION OF CHANGE

Summary

Preparing a personal operations manual is a valuable exercise that enables you to obtain more utility and enjoyment from your flying. It encourages you to approach your flying as a process that starts with the desire to obtain utility, pleasure and fulfillment from your activities as an aviator, and concludes the process with a successful and safe flight. Each procedural step along the process path is documented.

Preparing a personal operations manual clears out the cobwebs, clarifies your operational procedures, identifies areas where additional knowledge and skill are useful, and adds enjoyment, fulfillment, and safety to your flying. It may even help you when it comes time to renew or upgrade your insurance.

Your personal operations manual captures your approach toward aviation by exhibiting a flying culture that considers the options, manages the risks, leaves nothing to chance and maximizes enjoyment by being prepared. The POM is a sign of the aviator who flies like a professional.