EXPANDED NORMAL PROCEDURES CHECKLISTS

For Instructional Use Only

V/R AIRCRAFT ACCEPTANCE

This is a VERBAL RESPONSE checklist. Only the pilot completing the checklist needs to verbalize the item and the response.

The purpose of the Aircraft Acceptance checklist is to ensure the general airworthiness of the aircraft. This checklist must be completed on the First Flight of the day or when the Pilot in Command changes. It may also be conducted at any other time at the discretion of the Pilot in Command. The Pilot in Command will ensure the required checks are completed.

Maintenance Status……..……...CHECKED

Check the maintenance status of the aircraft in the aircraft clipboard. Ensure that all inspections have been completed and that none of the hour or calendar limits will be exceeded during your proposed flight or flights. Check the Discrepancy Report and ensure that there are no open discrepancies. Review previous discrepancies to assist you in conducting the preflight inspection and the flight. Consult with Dispatch and Maintenance to resolve any questions or concerns.

Aircraft Surfaces……...……...CLEAR

Walk around the aircraft and visually check the surfaces for frost, ice, snow or other debris. Make sure all contamination is removed from the aircraft prior to proceeding.

Windows……..……..CLEAN

Visually inspect all the windows for cleanliness. Remove any dirt or bugs by utilizing proper approved plastic window cleaning solutions. Do NOT use cleaning solutions with ammonia or alcohol bases. Use a soft, clean cloth for removal of the cleaning solution and dirt.

Emergency & Safety Equipment……..……CHECKED

Inspect the aircraft to ensure the required emergency equipment is onboard. This includes ELT, fire extinguisher (if installed), flashlights (if required), and appropriate publications including the POH and Sunrise Aviation C-172R Emergency Checklist.

Hobbs Meter……...…….....RECORDED

Verify that the reading on the Hobbs Meter matches the previously recorded Hobbs Meter time in the dispatch paperwork. Report any discrepancies PRIOR to departure to Dispatch.

Tachometer Time……RECORDED

Verify that the Tachometer time matches the previously recorded Tachometer time. Report any discrepancies PRIOR to departure to Dispatch.

Aircraft Documents……...CHECKED

Ensure that the Airworthiness Certificate, Aircraft Registration, FCC Radio Station Permit (International flights only) and Operation Limitations including current Weight and Balance information in the approved flight manual or Pilot's Operating Handbook are in the aircraft. Additionally, check for personal possession of Pilot and current Medical Certificates as well as acceptable government issued ID such as a driver's license.

Checklist……..…….……....COMPLETE

N/R EXPANDED PREFLIGHT INSPECTION

This is a NO-REPONSE checklist. No verbal response is required in the cockpit.

It is impossible to create a list that would cover all the items that might be checked during a Preflight Inspection. The inspection should begin as you approach the airplane. Does anything appear unusual? Are the wings or empennage contaminated with frost or ice? Remove Pitot Heat cover and Rudder Gust Lock (if installed). The Preflight Inspection list includes items normally checked. However, the pilot should be completely familiar with the aircraft *POH* including the sections on *Description and Operation of the Airplane and its Systems* (Section 7) and *Airplane Handling, Servicing and Maintenance* (Section 8) in addition to the *Amplified Normal Procedures portion* of Section 4. For the C172R, the Preflight Inspection is begun inside the cabin. After exiting the pilot's door, the inspection normally proceeds to the Empennage (tail of the airplane) and continues in a counter-clockwise direction. An illustration of the inspection path can be found in the POH on page 4-6. A complete Preflight Inspection is conducted prior to the first flight of the day and whenever the Pilot in Command changes. A walk-around will be conducted during turnarounds in accordance with the Preflight Inspection Checklist and Sunrise Aviation *Safety Procedures and Practices.*

Rudder Gust Lock (if installed)…….…….REMOVE

While starting the preflight preparation, ensure that the rudder gust lock (if installed) is removed. The rudder gust lock is a wood board located on the two sides of the vertical stabilizer and held on by a bolt and screw assembly.

Pitot Cover (if installed)…… ……..REMOVE

The pitot cover must be removed if installed. The pitot cover is located on the pitot tube. The pitot cover may be wrap-around cover with streamer marked "REMOVE BEFORE FLIGHT" or a simple tennis ball inserted over the pitot tube. The purpose of the pitot cover is to protect the pitot tube from getting any dust particles, bugs, water or any other content in the tube. If the pitot cover is not removed, the airspeed indicator will not work.

CABIN

Aircraft Acceptance Check……..……..COMPLETE

Complete the Aircraft Acceptance Checklist.

Parking Brake……...……SET

Apply and hold Toe Brakes while pulling on the parking brake handle with the lever in the down position until it clicks and locks in place.

Control Wheel Lock……..……..REMOVE

Remove the Control Lock by pulling up on the rod connecting it to the control wheel shaft. Do NOT remove by grabbing the flag and pulling up. Properly secure it in the cabin. The control wheel lock is used to prevent the ailerons and elevators from moving during windy days. A control lock is provided to lock the ailerons and elevator control surfaces in a neutral position and prevent damage to these systems by wind buffeting while the airplane is parked. The lock consists of a shaped steel rod with a red metal flag attached to it. The flag is labeled CONTROL LOCK, REMOVE BEFORE STARTING ENGINE. To install the control lock, align the hole in the top of the pilot's control wheel shaft with the hole in the top of the shaft collar on the instrument panel and insert the rod into the aligned holes. Proper installation of the lock will place the red flag over the ignition switch. In areas where high or gusty winds occur, a control surface lock should be installed over the vertical stabilizer and rudder to prevent the rudder from moving. This rudder control lock and any other type of locking device should be removed prior to starting the engine. Sunrise Aviation requires you to install the control wheel lock whenever the plane is parked. Dispatch will let you know when the rudder gust lock is required when the aircraft is parked.

Ignition Switch……..……..OFF

Verify the ignition switch is OFF. The ignition and starter operation is controlled by a rotary type switch located on the left switch and control panel. The switch is labeled clockwise, OFF, R, L, BOTH, and START. R indicates the right magneto and L indicates the left magneto. The key should not be put in the ignition switch until you are ready for actual engine start. Gently place the key on top of the top of the instrument panel so that it will be visible to anyone approaching the airplane and will be a confirmation that you are not about to start the engine. To prevent damage to the inside of the windshield,.no other objects like headsets or kneeboards should be placed on the top of the instrument panel

Avionics Master Switch…….……OFF

Verify that the Avionics Master Switch in the down (OFF) position.

Battery Master Switch……..…….ON

Place the Master Switch in the up (ON) position. The Master Switch is a split-rocker switch labeled MASTER. The term "Master Switch…ON" indicates that both sides of the switch should be moved to the "ON" position. The right side of the switch is labeled BAT and controls all electrical power to the airplane. It is labeled BAT for Battery. The left side, labeled ALT, controls the Alternator. Remain inside the cabin until completing the next several items. Just prior to "Master Switch Off", exit the airplane to visually verify actual fuel level, lights are operational, and the pitot heat (if installed) is operational.

Fuel Gauges……..…….....……CHECKED

Verify that the Fuel Gauges indicate a fuel level sufficient for the flight and as expected. If the fuel level is full, the gauges should accurately measure that level. Fuel Level must be confirmed during the walk-around inspection. After visually checking the actual fuel level, call Dispatch to order any additional fuel required for the flight. See the Sunrise Aviation *Safety Procedures and Practices manual* for guidance on minimum fuel requirements.

Low Fuel Annunciators……..……EXTINGUISHED

Verify that the Low Fuel Annunciators (L LOW FUEL R) are not displayed on the Annunciator Panel.

Avionics Master Switch……..…….....ON

Place the Avionics Master Switch in the up (ON) position.

Avionics Cooling Fan…….……...CHECK AUDIBLY

Listen for the fans as they turn on for operation.

Avionics Master Switch…….……OFF

Place the Avionics Master Switch in the down (OFF) position.

Alternate Static Source…….…….……OFF

Verify that the Alternate Static Source (RED) valve is in (OFF) position. The Alternate Static Source is used when the normal static source is blocked or when erroneous instrument (airspeed, altimeter, & VSI) readings are suspected due to water or ice in the line going to the normal static source. The alternated static source opens behind the panel inside the aircraft where the pressure is lower than outside. See POH pages 5-9 & 5-10 for airspeed inaccuracies with the Alternate Static Source on.

Annunciator Panel Switch…….……..……TEST

To test to annunciators panel warning lights, push the switch to the up (TST) position to aluminate all the warning lights. When the switch is released, all of the warning lights should extinguish EXCEPT for the "L VAC R" warning lights on the panel.

Fuel Selector Valve……..BOTH

Set the Fuel Selector to the "BOTH" position by turning the lever either to the left or right.

Fuel Shutoff Valve…….……...ON

Verify that the Fuel Shutoff Valve is in the ON (knob pushed fully in toward the panel) position.

Flaps……..……..DOWN

Place the flap handle in the full down (30°) position. Verify that both Flaps are in the full down position. Both flaps should extend without unusual sounds or delay.

Exterior / Cockpit Lights……..……CHECKED / OFF

All exterior lights are controlled by toggle switches in between the Battery Master Switch and Avionics Switch. The switches are ON in the up position and OFF in the down position. Turn on the beacon (or verify that it is already on), the navigation (position) lights, strobe lights, the landing light and taxi light. Exit the aircraft to visually check that all lights are on as selected. If the planned flight is IFR, see below before exiting the aircraft to check the lights. Have maintenance replace any required lights prior to the flight as required.

Pitot Heat…….……..CHECKED / OFF

If the flight is IFR, turn on the Pitot Heat prior to exiting the aircraft for the light check. Briefly touch the pitot tube to ensure that it is heating up. Do not touch if the pitot heat has been on for more than a minute. CAUTION: the Pitot Tube will become HOT when the Pitot Heat is turned ON. With the exception of this test, the pitot heat should not be left on while on the ground to prevent overheating the element and surrounding area. When re-entering the cabin, ensure that all electrical switches (except the beacon) including the pitot heat are off to prevent further drain on the battery. Leave the flaps down until after engine start.

Battery Master Switch……OFF

Place the Master Switch in the down (OFF) position.

Trim……..……..SET TAKEOFF

Make sure the elevator trim is positioned for takeoff. The elevator trim wheel is located underneath the throttle and mixture controls. Align the trim indicator with the takeoff marking. Verify the correct trim position by pulling back on the control wheel and observing the right side of the elevator for the correct position of the elevator trim (neutral). If a significant difference in the trim position is observed, consult with maintenance prior to flight.

FUSELAGE / EMPENNAGE

Baggage Compartment ……INSPECT

Exit the airplane and begin the exterior inspection. Verify that items placed in the baggage compartment are properly secured and they do not exceed the maximum weight limitations for Baggage Area 1 and/or 2. At KVQQ, there will be two buckets. One is used for windshield cleaning supplies. The other is for oil, funnel, and rags for checking the oil. To prevent contamination, do not combine the contents of the buckets together. At KOMN, ask the lineman for assistance.

Baggage Door…….…….…CLOSED / LOCKED

Close the baggage compartment door and ensure it is fully latched. Lock the latch by using the airplane's key.

Antennas……..……..…CHECKED

Verify the antennas are upright and attached correctly to the aircraft. The Communication antennas are located on the top front part of the fuselage right above where the pilot and passenger are seated. The ELT antenna is located on the back part of the fuselage in front of the empennage. The VOR antenna is located on top of the vertical stabilizer. On IFR aircraft, various other antennas may be attached. Consult with a flight instructor for assistance identifying these additional antennas. Report any damage immediately to maintenance.

Rudder Gust Lock……...……...REMOVED

If not already removed, remove the Rudder Gust Lock (typically 2 blocks of wood connected by a long bolt and nut assembly midway up the vertical stabilizer) if it is installed. Secure the Rudder Gust Lock in the baggage compartment of the aircraft or leave with Maintenance or Line personnel. The Rudder Gust Lock is used to keep the rudder from being damaged in high wind conditions while tied down on the ground. Failure to remove the Rudder Gust Lock will prevent the rudder from moving, may damage the rudder, and will impede turning while taxiing on the ground.

Elevator, Rudder & Trim Tab……...……CHECKED

Check for full freedom of movement (stop to stop) for both the Rudder and Elevator. Check for security of both control surfaces including all hardware. Report any missing hardware or screws even on end caps to Maintenance. Check for cracks or other possible damage. Check Elevator Trim Tab for security, damage and proper positioning according to the trim position in the cockpit. Make sure any ice, frost, or snow is removed from any control surfaces prior to flight.

Tie Down……..…….REMOVED

Disconnect the tie-down and secure the tie-down rope. Visually inspect the Tie Down Hook and surrounding area for damage. Report any new damage to Maintenance and have inspected and/or repaired prior to flight. While under the airplane and while proceeding to the right wing trailing edge, inspect the fuselage for damage and antennae for security.

RIGHT WING

Flap, Aileron & Hinges…….……CHECKED

Visually inspect the flap, aileron, and trailing edge of the right wing for any damage, security, and freedom of movement. Check the flap track for any signs of unusual wear. Check the flap control rod to ensure no binding is present. When checking the movement of the aileron, ensure no one is in the cockpit, or under the left (opposite) aileron while moving. Look at the control wheel to observe expected movement when the aileron is moved. Look to the other aileron for opposite movement. Check the aileron hinges for security. Check the aileron control rod to ensure no binding is present. Remove any ice, frost, or snow, or other contamination from the control surfaces prior to flight.

Wing Tip……..…...CHECKED

Check the position lights and the strobe light (if installed) to determine that they are secure and that there are no cracks or damage to them. Also check the surface of the wing tip to make sure there are no cracks or dents. Older cracks may have been fixed by use of a stop drill hole to prevent further propagation. Report any new cracks or damage to maintenance or whenever have a question about previous repairs.

Leading Edge……..……CHECKED

Check the leading edge of the wing to determine there are no dents or cracks on the airframe. Ensure that all inspection panels are properly secured with screws. Check for any fuel leakage by observing any liquid leaking or blue streaks indicating a previous leak.

Tie-Down…….DISCONNECT

Remove the tie-down and secure the tie-down rope.

Strut, Tire & Brake……..…….CHECKED

Visually inspect the strut, tire, and wheel assembly for wear, damage, missing hardware, or hydraulic leaks. No cords should be visible on tires. Inspect brake pads for wear. Call maintenance for guidance or repair/replacement when necessary. Remove any ice, snow, or dirt from the wheel, tire, and brake prior to flight. Inspect for proper tire inflation: 28 PSI.

Fresh Air Inlet …… ……...CLEAR

Verify there is no dust or dirt or other blockage in the fresh air inlet which is located on the leading edge of the wing at the fuselage.

Fuel Tank Sumps (5) …… ……..……..DRAIN

Before each flight and especially before the first flight of the day or after refueling, drain a sufficient amount of fuel into a fuel sampler from the wing drains to check for contamination and proper grade of fuel. Use an approved fuel strainer. 100LL should appear BLUE in the strainer. A clear color may indicate a mixture of fuel grades or possibly incorrect fuel. Avgas should smell like gasoline. Jet or diesel fuel will smell oily and leave an oily residue on your fingers. Place uncontaminated fuel back in the fuel tank. Place contaminated fuel in receptacle designed to hold contaminated fuel. Do NOT pour fuel on the ground. If a small amount of water is detected in the fuel (water is heavier than avgas and will appear as a bubble at the bottom of the strainer), dump the contaminated fuel as mentioned above (or use an approved straining device such as a GATS jar) and repeat until a clear sample is received. In the event of water contamination beyond a small amount, consult with maintenance. Do not fly the airplane if any visible water contamination is observed or suspected. Dirt or metal contamination will appear as dark or brown colors. Verify that the fuel drains are closed and not leaking fuel. Visually inspect around the drain for fuel leaks usually detectable by the blue residue from the 100LL fuel.

Fuel Level & Cap…….…..CHECKED/SECURE.

Check the fuel level in the tank by visually looking at the level to determine how much is actually in the tanks. The bottom edge of the fuel filler tab indicates 17.5 gals of usable fuel in each tank. Use a fuel gauge for a more precise recording of the fuel level if not full or at the tabs. Do NOT depart with tanks less than ½ full even for a local flight (see *Sunrise Aviation Safety Procedures and Practices Manual* for guidance). The fuel cap should be placed in the secured position (aligned for the least wind resistance). Both fuel caps should be vented. Inspect the cap to ensure the correct one is installed.

NOSE

Windshield……..…….CHECKED

Inspect the windshield (again) to make sure it is clear and clean.

Eng. Oil Level & Dipstick……..……CHECKED/SECURE

Check the engine oil level and dipstick located at the rear of the engine on the right ride. The filler cap/dipstick is accessible through an access door in the engine cowling. The engine should not be operated on less than 6 quarts of oil. The engine oil level when full is 8 quarts. Sunrise Aviation uses a variety of oil types depending on the aircraft and engine time. During the initial break-in period for the engine, mineral oil will be used. Otherwise, ashless dispersant oil either single grade or multi-grade might be used. Whenever you need to add oil on the ramp, request assistance from an instructor or maintenance personnel. At KVQQ, appropriate oil should be in the bucket in the baggage compartment. If a longer cross-country is planned that includes a refueling stop or layover, take several quarts with you on the trip.

Belly Fuel Drain (3)…… ……....……CHECKED

Take fuel sample at the belly fuel drains and inspect that sample as noted previously.

Cabin Air Inlet…….……CLEAR

Inspect the cabin air inlet located on the right side of the nose. The inlet should be clear of any objects that would restrict any air from entering the cabin. If the ventilating air door is closed, the cabin air knob is pushed in. To inspect the ventilating air door and cabin air knob for proper operation, pull the cabin air knob all the way out and check that the door is open and unobstructed.

Propeller & Spinner……...……CHECKED

The pilot should visually look at the spinner to determine it is secure and free from cracks. Any cracks or missing screws should be reported immediately to maintenance. Check that the ignition key is still out of the ignition switch by observing it on top of the instrument panel. Inspect the propeller for security by placing your hands at the inside of the propeller blades on opposite sides of the spinner and gently pulling forward. Always assume that the engine might start whenever you touch the propeller so keep your body away from the propeller's arc. Visually inspect the leading and trailing edges of both propeller blades for any nicks. If you run your hands along the leading or trailing edges remember that any nicks might include sharp edges that could cut your hand so be careful. Report any nicks not previously dressed to maintenance prior to any flight.

Alternator Belt…….……...……..……CHECKED

Visually inspect the alternator belt located in the very front portion of the aircraft. The belt should be secure without any fraying. Inspect the belt for proper tension.

Air Filter……...……...……...……..CLEAR

Inspect the air filter located in the center lower portion of the engine cowling. Check for security and blockage. Also check the condition of the air filter element. Report any problems observed to maintenance.

Nose Wheel & Strut……CHECKED

Visually inspect the nose wheel and strut assembly. Start from the top and work down the assembly. First check that the nose wheel steering linkage on both sides of the strut is secure. Check the nose wheel strut for proper inflation. The strut serves as a shock absorber which is composed of air and oil. Proper inflation should be about "4 fingers" on the strut. Report any under OR excessive over inflation to maintenance. Check the fork for any cracks or signs of damage. Check the security of the wheel. Check the tire for proper inflation and wear. Recommended tire pressure is 34 PSI. In cold weather climates, you will also need to ensure that the crankcase breather tube is free of ice or snow.

Static Source……CHECKED

Inspect the static source port located on the lower left side of the fuselage forward of the cabin. The static source opening should not be obstructed by paint, dirt, tape or any other object that would prevent air from entering the port. DO NOT run your hand over the opening as that may deposit dirt from your hand into the opening.

LEFT WING

Fresh Air Inlet……..……CLEAR

Determine there is no dirt or blockage in the fresh air inlet. The fresh air inlet is located on the leading edge of the wing close to the fuselage.

Fuel Tank Sumps (5) ……..……..…….DRAIN

Refer to the same procedure on the right wing.

Fuel Level and Cap……CHECKED/SECURE

Refer to the same procedure on the right wing.

Tie Down……REMOVED

Remove the tie-down and secure the tie down rope.

Stall Warning Inlet……CLEAR

The stall warning inlet must be clear for the stall warning indicator (horn) to work. To aurally check the stall warning horn, place a handkerchief over the stall warning inlet and suck in enough air to activate the horn.

Fuel Vent……..…….CLEAR

Verify that the fuel vent is clear. The fuel vent is a tube located behind the left strut. The fuel system venting is essential to system operation. Blockage of the venting system will result in a decreasing fuel flow and eventual engine stoppage. Venting is accomplished by an interconnecting line from the right fuel tank to the left tank. In Florida, insects, particularly "mud daubers" (a type of wasp that builds its nest with mud), will make their nests in any small opening like the fuel vent line or the pitot tube. Report any observed blockage to maintenance. It is normal for a small amount of fuel to be dripping through the fuel vent during hot days when the tanks are full.

Pitot Tube……CHECKED

Remove the pitot tube cover if still installed. The pitot tube must be checked to determine no dust, ice or other forms of blockage like mud from a mud dauber are in the pitot tube. The Airspeed Indicator will not work if the pitot tube is clogged.

Strut, Tire & Brake……CHECKED

Visually inspect the strut, tire & wheel assembly. Same as on the right side.

Leading Edge…….…..CHECKED

Same procedure as on the right wing.

Wing Tip…….…….CHECKED

Same procedure as the right wing tip.

Flap, Aileron & Hinges…….……..CHECKED

Same procedure as on the right wing. Remove any chocks securing the wheels prior to entering the aircraft for engine start.

Checklist……..……..COMPLETE

C/R BEFORE STARTING ENGINE

This is a CHALLENGE AND RESPONSE checklist. This checklist must be performed by both crewmembers when applicable.

A/C ACCEPTANCE CHECK……..…COMPLETE

Verify that all the items in the aircraft acceptance check were completed properly.

PREFLIGHT INSPECTION……..COMPLETE

Verify that all of the items in the preflight inspection were checked and ready for flight.

PASSENGER BRIEFING…….……..COMPLETE

The pilot must brief the passengers on how to use and operate their seatbelts, how to use and operate the door (emergency exit), any emergency equipment on board (if applicable), and what to do if an emergency happens. If two pilots are present, the briefing should also include positive exchange of flight controls, keeping vigilant for other traffic, and any other safety considerations for a flight. Below is an example of that Passenger Briefing. Students may find it convenient to bring a copy of this briefing along during the first few flights.

- This is a non-smoking flight.
- Keep your seat belt fastened during the entire flight and the shoulder harness fastened for takeoff and landing.
- To fasten the seat belt; place the metal tip into the buckle. Adjust the lap belt by pulling on the loose end of the belt.
- Do not open the door or window in flight unless directed to do so.
- Do not interfere with the flight controls unless a positive exchange of flight controls is used. If the controls are exchanged, the following will be stated. "You have the flight controls. I have the flight controls. You have the flight controls."
- There are two individual controls for fresh air for front passengers. One vent is located at the top right hand side of the windshield. The other is located on the right side midway down the panel. There is also a fresh air control on the panel in front of you (front seat passenger). Pull out the Cabin Air knob for fresh air. Push it in to shut off the fresh air. Rear passengers may adjust the air volume by using the vent above each side window.
- If you need cabin heat, pull out the cabin heat pull knob. The farther out you pull the knob the hotter the cabin heat.
- In case of an emergency landing, exit the airplane as soon as possible after the plane comes to a complete rest. To open the door, pull the lever toward you and push outward on the door. To close the door prior to flight, pull down on the lever.
- If you feel sick or uncomfortable please let me know.
- Any questions?

SEATS AND BELTS……..……CHECKED

Visually verify that all seat belts and shoulder harnesses are fastened properly including your own.

CIRCUIT BREAKERS…….….CHECKED

Verify the circuit breakers are all in. If one of the circuit breakers is out, it could indicate a malfunction of the connected equipment or a wiring fault. Most of the electrical circuits in this airplane are protected by "push-to-reset" circuit breakers mounted below the instrument panel. If any circuit breakers are "popped" it will be further out than the others. These circuit breakers "pop" upon detection of a fault. If a circuit breaker is out, consult with maintenance before deciding whether to reset. Resetting a circuit breaker may create a more adverse situation. Absolutely never reset a circuit breaker more than once after it "pops".

ELECTRICAL EQUIPMENT……..…..OFF

Verify all external lights and the Auxiliary Fuel Pump Switch are "OFF" (toggle switches in the down position), except for the Beacon.

AVIONICS SWITCH……..……OFF

Ensure that the Avionics Master Switch is in the down (OFF) position.

FUEL SELECTOR VALVE……..……..BOTH

Ensure that the Fuel Selector is set to the "BOTH" position.

FUEL SHUTOFF VALVE…….……...ON

Verify that the Fuel Shutoff Valve is in the ON (fully pushed in) position.

BEACON……..ON

Turn on the beacon or verify that the beacon toggle switch is "ON" (up position).

CHECKLIST……COMPLETE

C/R STARTING ENGINE

This is a CHALLENGE AND RESPONSE checklist.

THROTTLE……..……OPEN ¼ INCH

For a normal start, the throttle should be open about ¼ an inch. To accomplish this, pull the throttle fully aft and then move forward approximately ¼ inch. For all engine starts other than normal, consult the POH.

MIXTURE……...IDLE CUT OFF

Pull back on the mixture control to the idle cut off position.

PROPELLER AREA……CLEAR

Before starting the engine, loudly yell clear prop with the window open so people walking around the ramp know that the aircraft is starting and can remain a safe distance from the airplane. Visually look in all quadrants to ensure all other personnel on the ground are clear.

BATTERY MASTER SWITCH……..……ON

The battery master switch consists of two switches (the battery and the alternator switch). The pilot needs to turn on the battery master switch (both sides) prior to starting the engine.

AUXILARY FUEL PUMP SWITCH……ON

Turn ON the Auxiliary Fuel Pump Switch (up position).

MIXTURE……..RICH / IDLE CUTOFF

Advance the Mixture to RICH (full forward) and watch for the fuel pressure gauge to rise slightly for approximately 3 seconds. Then pull the Mixture back to IDLE CUTOFF (fully aft).

AUXILARY FUEL PUMP SWITCH……..……OFF

Turn OFF the Auxiliary Fuel Pump Switch (down position).

BRAKES……..HOLD

The brakes must be applied before the engine starts so the airplane will not roll forward when the engine is operating on the ground. The parking brake may remain engaged. Depress the top portion of each rudder pedal to engage the brakes manually. When two pilots are in the plane, both pilots should hold the brakes. If one pilot gets distracted in the cockpit such as to adjust the seat or retrieve an item from the baggage compartment, ensure the other continues to hold the brakes. Use the proper exchange of flight control technique.

IGNITION SWITCH……START

The Pilot in the left seat will need the key to crank the engine. Turn the key clockwise past the "both" position to initiate engine start. The pilot must continue to crank the engine through several revolutions. As soon as the engine starts, release the key and the ignition will return to the "both" position. If the engine fails to start after several seconds of cranking, release the key. Do not use the starter for more than 10 seconds without allowing a "cool-down" period. Upon attempting a new start, consider whether the engine needs additional priming or is actually flooded. Consult the POH for hot or flooded starts. If the engine does not start upon the second or third attempt, seek maintenance assistance to prevent running down the battery charge and overheating the starter.

MIXTURE…….....ADVANCE TO RICH

As the engine begins to run, advance the Mixture to RICH (full forward). If advancement of the Mixture is done too slow, the engine will cutoff and will not continue to stay running. Re-priming of the engine might be necessary before cranking the engine once more. If advancement of the Mixture is done too soon, the engine can become flooded and will not start. Follow the flooded start procedure. For hot starts, advance the mixture promptly to 1/3 open when the engine starts, and then smoothly to full rich as power develops.

THROTTLE (1000 RPM OR LESS)…….…...SET

As the engine starts, slowly adjust the throttle as required to maintain 1000 RPM or less. You may have to adjust the throttle several times as the engine warms up to maintain rpms in this range. In colder temperatures, you will likely need to leave the throttle at 1000 rpm to prevent the engine from quitting at a lower setting until the engine warms up.

OIL PRESSURE…….……CHECKED

Once the engine starts, the pilot needs to check the oil pressure gauge. After starting, if the oil pressure gauge does not begin to show pressure within 30 seconds in the summertime and about twice that long in very cold weather, stop the engine and investigate. Lack of oil pressure can cause serious engine damage. Minimum idling oil pressure is 20 PSI (lower red line). The normal operating range is 50 to 90 PSI (green arc). The maximum oil pressure is 115 PSI (upper red line).

NAVIGATION LIGHTS ……..….AS REQUIRED

For operations between sunset and sunrise, Navigation Lights (position lights) are required to be ON (up position). Other times, they can remain OFF.

AVIONICS MASTER SWITCH…….……ON

Place the Avionics Master Switch in the ON (up) position.

RADIOS…….…….....ON

Turn on all the radios and set the volumes to a comfortable level. Test and set the squelch level if it is manually adjustable. Test and set the intercom volume and intercom squelch to a comfortable level if two pilots are present.

FLAPS…….…RETRACTED

Place the flap selector in the full up position. Visually verify that both flaps are retracting normally without undue strain or noise and then that both flaps have fully retracted.

MIXTURE…….....LEAN

Set throttle to 1200, lean the mixture for maximum RPM, set throttle to 800 to 1000 RPM. Note position of mixture control for use in setting mixture during ground operations later in the flight.

AMMETER…….CHECKED

Visually check the ammeter across from the vacuum gauge to determine it is reading normally. During flap retraction, the ammeter should indicate that the battery is charging. If the ammeter indicates a discharge, shutdown the engine and seek maintenance assistance.

TRANSPONDER……...……STBY AND TESTED

Test the transponder by rotating the on/off selector to the test position and observing the reply light is on. Leave the transponder in the STBY (standby) position to warm-up during taxi. Do not leave in the on position or ALT position while on the ground unless located at a large airport that requires that setting. The transponder code should be set to 1200 for VFR flight unless another code has already been assigned for the flight. The Garmin transponders are self-testing.

RADIOS…….…...SET AND CHECKED

In aircraft equipped with a GPS, verify expiration date of the data card. In aircraft with an HSI, verify the conformity of the HSI with the GPS. Set GPS to local airport or enter Flight Plan.

Set the radio frequencies (both navigation and communication) to appropriate frequencies for the airport and intended flight. If at an airport with an ATIS or other automated weather broadcast, listen to that information now and copy for later recall.

CHECKLIST…….……...COMPLETE

C/R BEFORE TAXI

This is a CHALLENGE AND RESPONSE checklist.

FLIGHT INSTRUMENTS…….…….SET / CHECKED

Before taxiing, verify that the flight instruments are operational and set. The attitude indicator should be erect with the miniature airplane aligned with the artificial horizon (allow up to 5 minutes for the attitude indicator to be completely aligned with the horizon). Set the heading indicator to the current magnetic heading by observing the magnetic compass. Verify that the magnetic compass is full of fluid, floating freely, and not leaking. Set the altimeter to the current altimeter setting as received on the automated weather broadcast or set to field elevation. After setting the altimeter to the current altimeter setting, the altimeter should read within 75 feet of actual elevation at your location. Check the vertical speed indicator (VSI) for any variation from zero and note that as the zero setting. The airspeed indicator should read zero unless a significant headwind is present. The ball in the turn coordinator's inclinometer should be centered unless the airplane is on a slope.

TAXI BRIEFING……..……..COMPLETE

If at an airport with an operating control tower, call Ground Control for taxi clearance. Write down that clearance for later recall. Read back all clearances including crossing restrictions. If two pilots are present, both must have a taxi diagram. The Flying Pilot will brief the other pilot (PNF) on the taxi route assigned and any other safety considerations prior to aircraft movement.

LIGHTS……....AS REQUIRED

Set the lights as required by the conditions (day or night). During the day, the pilot should verify that the beacon is on prior to taxi. At night, the pilot should also select the landing or taxi light and position (nav) lights. If the only anti-collision light installed is a strobe light, leave off at night whenever in the vicinity of other aircraft, vehicles, or people on the ground to prevent creating a distraction or affecting the night vision of others. Turn on all lights as appropriate prior to takeoff.

TAXI AREA……..……CLEAR

Before taxi, the pilot (or both pilots if present) must visually check to make sure that the area is clear for taxiing. Observe left, center and right and listen for other radio calls that might indicate another aircraft is also ready for taxi or possibly already taxiing in your area. Continued vigilance during taxi should be observed. In confined areas, remember that even remaining on the taxiway centerline may not ensure clearance with other aircraft or obstacles.

BRAKES……..…….RELEASE

Release the parking brake by pulling the lever toward you, turning the lever parallel with the panel, and pushing the lever as far forward toward the panel as possible. Ensure that both pilots have engaged the toe brakes prior to releasing the parking brake. If the airplane does not move forward after slight application of power, check that the tie downs are released and the chocks for removal. Shutdown the airplane prior to exiting to investigate. Do not try to break free by adding excessive power.

CHECKLIST……..…….COMPLETE

C/R TAXI CHECK

This is a CHALLENGE AND RESPONSE checklist.

BRAKES & STEERING…….....CHECKED

Check the operation of the brakes by releasing the brakes, allowing the plane to move forward a small distance, and then gently depressing the brakes. It is not necessary to "slam" on the brakes. If done properly, this brake check would be barely perceptible to a passenger onboard. If two pilots are present, both should check for normal operation of the brakes on each side. Observe while taxiing that steering is operating normally. Use full rudder prior to engaging the brake on any one side for turning. Be careful not to "drag" the brakes while taxiing. Set the throttle to a setting low enough to ensure you do not have to use excessive braking.

INSTRUMENTS…….……CHECKED

Continue to scan the instruments to verify they are operating correctly. Prior to IFR flight, the instrument cockpit check is especially important. However, even for VFR flight it is recommended that the pilot do a complete instrument cockpit check prior to flight.

Here is an example:

- Magnetic Compass: turning freely and aligned with known headings
- Airspeed Indicator: zero indication
- Attitude Indicator: no more than 5° of bank during turns
- Altimeter: set to altimeter setting or field elevation and within 75 ft. of known elevation
- Vertical Speed Indicator (VSI): zero or note current reading as zero setting
- Heading Indicator: set to correct compass heading and indicating properly during turns
- Turn coordinator: no flag, miniature airplane turns in proper direction with turns, ball to the outside during turns
- Clock: set and working

CHECKLIST……..….COMPLETE

C/R BEFORE TAKEOFF

This is a CHALLENGE AND RESPONSE checklist. It is completed in segments. Once you get to a line, complete the checklist items "above the line."

PARKING BRAKE…….……SET

Where possible, align the aircraft such that whatever wind is present will help to cool the engine during run up (nose of aircraft into the wind). Be mindful of where the prop blast is aimed. Do not perform the run up with the propeller sending debris into any nearby aircraft or others following you. To engage the parking brake, while putting pressure on the toe brakes turn the lever in the middle below the yoke counterclockwise to the down position and pull it after until it clicks and locks into position. The pilot needs to hold the brakes while it is set before continuing the before takeoff check to make sure the airplane will not move forward on run up. If two pilots are present, both should hold the brakes during the run-up. Watch for creeping forward during run-up. If observed, reduce power and reset parking brake, or if parking brake is malfunctioning, just hold the toe brakes.

SEATBACKS……..….UPRIGHT

Ensure the Seatbacks are set in the upright and positioned properly for full rudder inputs while not being too far forward for comfort and movement of the control wheel. Ensure the seat is properly secured after any adjustments have been made.

SEAT BELTS……CHECKED / SECURED

Visually verify (again) that all seat belts and shoulder harnesses are fastened properly including your own.

DOORS……..…….CLOSED AND LOCKED

Verify that both doors are closed and locked by applying pressure to the inside of the doors to check. The black door levers must be in the horizontal (down) position to be locked.

FLIGHT INSTRUMENTS…….……..CHECK / SET

Verify again that the flight instruments are reading accurately. Recheck the heading indicator is set to the compass heading, the altimeter is set to the proper altimeter setting of field elevation, and the attitude indicator is functioning and set to level flight. If taxi has been delayed, recheck ATIS or AWOS for current information.

FUEL QUANTITY……...……CHECK

Ensure that the Fuel Quantity Gauges still display the proper amount of fuel for the flight. Ensure that the low fuel annunciator is not illuminated.

FLIGHT CONTROLS……..FREE AND CORRECT

Verify that the elevators, ailerons and rudder are operating normally. One recommended procedure to check the flight controls is to utilize a "box pattern" to ensure the flight controls are free and correct through the full range of movement. Pull the control wheel all the way back (aft) and observe visually that the elevators are in the up position. Turn the control wheel to the left and visually observe that the left aileron is the up position and the right aileron is in the down position. Push the control wheel all the way forward and visually observe that the elevators are now in the down position. While holding the control wheel forward, turn the control wheel completely to the right and observe that the right aileron is up and the left aileron is down. While holding the control wheel turned to the right, pull the control wheel fully back (aft) and again observe that the elevators have moved to the up position. Neutralize the control wheel. Observe during the entire movement of the control wheel whether there is any binding or restriction of movement. If any is present, seek maintenance assistance prior to flight.

During the first few flights, you may also find it convenient to use the "thumbs up" method while checking the ailerons. Place both hands on the control wheel with each thumb up. When you turn the control wheel in each direction the top thumb will point to the aileron that should be in the up position. The other aileron should, therefore, be down.

Check the freedom and correct movement of the rudder by first depressing the left rudder pedal and then the right rudder pedal. The rudder should move left and then right.

Continue to hold both brakes during all of these checks.

FUEL SHUTOFF VAVLE…….……...ON

Verify that the Fuel Shutoff Valve is in the ON (Forward) position.

FUEL SELECTOR VAVLE…….…..BOTH

Set the Fuel Selector to the "BOTH" position.

ELEVATOR TRIM…….……TAKEOFF

Check that the elevator trim is set for takeoff. The indicator should be aligned with the white mark indicated for takeoff. Verify the proper position of the elevator trim tab by pulling back on the control and observing the right side of the elevator verifying that the elevator trim tab is aligned parallel with the rest of the elevator.

- **Complete the checklist verification for BEFORE TAKEOFF ABOVE THE LINE *NOW*.**

ENGINE CHECK

MIXTURE……...RICH

Before doing the run-up at 1800 RPM, the mixture needs to be set in the full rich (forward) position.

THROTTLE……..……...1800 RPM

Check the oil temperature gauge to ensure that the temperature is in the green arc (100°F to 245°F). Typically, the taxi time is more than sufficient for the oil temperature to reach normal settings. In our more typical warmer temperatures, precautions should be made to keep ground time to a minimum to avoid over heating the engine. Advance the throttle to 1800 RPM. Adjust the friction lock to hold that RPM setting. Hold the brakes and look outside to make sure the airplane is not moving forward. Continue during the entire run-up to observe for forward aircraft movement. Refer to the POH for cold weather operations and oil temperature.

SUCTION GAUGE…….……CHECKED

Check the Vacuum gauge to make sure it is reading correctly. The suction gage is located on the left side of the instrument panel adjacent to the ammeter. The normal operating range is 4.5 to 5.5 in. HG. A suction reading below this range may indicate a system malfunction or improper adjustment, and in this case, maintenance assistance should be requested. At power settings lower than 1800 RPM the suction gauge may show readings on the low end of the normal range and this is acceptable.

ENGINE GAUGES & AMMETER……..……...CHECKED

Verify the engine gauges and the ammeter are reading normal (within the green arcs).

- oil pressure (50 to 90 PSI which is the range of the green arc)

- oil temperature (100°F to 245°F which is the range of the green arc). In extremely cold temperatures, consult the POH for additional guidance.

- Ammeter (positive charge)

MAGNETOS……..…….CHECKED

The pilot must check both the left and right magnetos to make sure both are working normally. Test the right magneto first by turning the ignition switch two clicks to the left and observing the drop in RPM on just the RIGHT magneto. Do this slowly to avoid actually inadvertently shutting the ignition off. Turn the ignition switch back two clicks to the right and observe normal, 1800 RPM in the BOTH position. Adjust the throttle as necessary to get 1800 RPM. Turn the ignition switch one click to the left and observe the drop in RPM on just the LEFT magneto. Return the switch to BOTH and you should again observe 1800 RPM. RPM drop should not exceed 150 RPM on either magneto or show greater than 50 RPM differential between magnetos. An absence of an RPM drop on any magneto may be indication of faulty grounding of one side of the ignition system and reason for return to maintenance. If an excessive drop in RPM is observed while checking an individual magneto along with a rough running engine, you may have spark plug fouling. You may attempt to clear the fouled plug(s) by increasing RPM to 2000 RPM and leaning the mixture. Run the engine in this configuration for no longer than 45 seconds and redo the magneto check. Continue to observe maximum oil temperature readings and discontinue if the engine reaches red line. If the RPMs continue to drop below acceptable limits after the single attempt at clearing the fouled plugs, return the aircraft to the ramp and seek maintenance assistance.

IDLE…….……...CHECKED

Adjust the throttle to idle by slowly reducing the power to its lowest setting (fully aft). The engine should continue to run. If the engine quits, return the aircraft to the ramp and seek maintenance assistance.

THROTTLE (1000 RPM OR LESS)…….……...SET

Set the throttle to 800-1000 RPM.

MIXTURE……LEAN

Once the run-up is done, lean out the mixture again for continued taxi.

- **Complete checklist verification for ENGINE CHECK *NOW*.**

AFTER ENGINE CHECK

RADIOS……SET

Change Radio frequencies from ground to tower with Departure on standby as necessary.

NAV / GPS SWITCH……..……SET

Depending on how you are Navigating to your destination, make sure the GPS is set for either GPS or VLOC.

AUTOPILOT (IF INSTALLED)……..……..OFF

Verify that the Autopilot, if installed is not activated.

DEPARTURE BRIEFING……..….COMPLETE

Prior to takeoff, the Pilot Flying must brief other crew members regarding the flight. This briefing should include emergency procedures in case of engine failure, initial routing and altitude, and any weather or other special safety considerations. After briefing the crewmember (if present) notify any passenger (if present) that you are about to takeoff.

Below is an example of a Departure Briefing:

Our destination today is the Gainesville Regional Airport in Gainesville, Florida. If the engine fails prior to liftoff, I will reduce power and stop on the remaining runway. If the engine fails after liftoff and prior to 1000 ft AGL, I will maintain aircraft control, establish pitch attitude for 65 KIAS and land straight ahead using shallow turns as necessary to avoid obstacles. If the engine fails at or above 1000 ft AGL, I will establish a pitch attitude for 65KIAS, select the most suitable landing site, and head for that site, including the possibility of returning to the airport. We expect to takeoff Rwy 36 and then depart the local area to the southwest. After clearing Class D airspace as observed by prominent landmarks, I will climb to my final cruise altitude of 4500. Our initial on-course heading is 220°. I have set a course matching that in the #1 VOR which is set on VQQ frequency 117.9. We will open the flight plan on 122.2 and then call JAX Approach Control for flight following on 123.8. The weather today is VFR with no significant clouds and no forecasted turbulence. Any questions?

If the flight is being conducted under IFR, additional briefing items should include assigned altitudes, departure procedures, assigned routes, clearance limits, transponder code, etc.

Departure Briefings done on additional takeoffs on the same day with the same crew and in the same aircraft may omit portions of the briefing (such as the emergency procedures) that have not changed since the last Departure Briefing by stating "as previously briefed."

BRAKES……..……..RELEASE

Release pressure on the brakes prior to continuing taxi to the active runway.

Checklist……....COMPLETE

V/R LINE UP

This is a VERBAL RESPONSE checklist. Only the pilot completing the checklist needs to verbalize the item and the response.

Flaps (0-10 degrees)…….....SET/CHECKED

Verify the type of takeoff being conducted (normal, short, or soft). For a normal takeoff, flaps are normally set at 0°. For a short field or soft field takeoff, flaps are normally set at 10°.

Heading Indicator and Compass…….……..CHECKED

Check again that the heading indicator is aligned with the magnetic compass.

- **Complete checklist verification for LINE UP ABOVE THE LINE.**

AFTER CLEARED ONTO RUNWAY

Pilots desiring more time to complete the following items prior to takeoff, particularly new student pilots, may accomplish them prior to being cleared onto the runway. Students practicing a crew environment should follow the checklist as written.

Mixture……..……RICH

Adjust the mixture control to the RICH position.

Transponder…….……ON/ALT

Set the transponder to the ON and ALTitude encoding position if not automatic. The Garmin transponders will automatically cycle to altitude encoding as the aircraft accelerates.

Landing Light…….……..ON

Turn the landing light ON for takeoff. The toggle switch for the landing light is the third toggle switch from the light switch panel. If the strobe lights (if equipped) are not yet turned on, turn them on as well. The beacon should remain on.

Time Off…….....…NOTE

Once cleared for takeoff and prior to moving forward, the pilot needs to make a written note of the time off. If forgotten, make a mental note of the time off and record when safe to do so.

Checklist…….....COMPLETE

V/R CLIMB

This is a VERBAL RESPONSE checklist. Only the pilot completing the checklist needs to verbalize the item and the response.

- For a normal takeoff, lift the nose wheel at 55 KIAS.

Flaps (after reaching 60 KIAS)……..…...RETRACTED

After takeoff when the airspeed reaches 60 KIAS and at a safe altitude past any obstacles, retract the flaps. Visually verify that both flaps retracted normally. Adjust pitch as the flaps retract to maintain airspeed.

Engine Gauges…….CHECKED

Verify that all of the engine gauges are still reading in the green. Check oil pressure, oil temperature, ammeter, and suction gauge. All should be in the green arc or normal operating range.

Airspeed……..……70-85 KIAS

At a safe altitude, pitch to the selected climb speed appropriate for the conditions. Normal initial climb speed is 60 to 79 KIAS. Enroute climb is normally 70 to 85 KIAS. These speeds should be planned prior to the flight. Best rate of climb at sea level at gross weight is 79 KIAS. Select best angle of climb if obstacles are present: 60 KIAS. Extended climbs at speeds lower than best rate of climb speed should be of short duration to improve engine cooling. Continue to monitor engine gauges during the climb especially if best rate of climb or slower airspeeds are needed.

Mixture…….SET

During the climb, the mixture should be full rich below 3000 feet. Above 3000 feet, the mixture may be leaned for smoother operation and to obtain maximum RPM. If the mixture is not leaned above 3000 feet, the climb rates, time, and fuel used in the Time, Fuel, and Distance to Climb charts will not be accurate. Observe engine temperatures and reduce pitch attitude and enrichen mixture if temperatures approach redline.

Checklist……....COMPLETE

V/R CRUISE

This is a VERBAL RESPONSE checklist. Only the pilot completing the checklist needs to verbalize the item and the response.

Throttle (75% power or less)……..SET

Normal cruising is performed between 55% and 75%. Upon reaching the designated altitude, pitch for cruise attitude, allow the airspeed to accelerate to normal cruising speed, and then select the predetermined cruise power setting. Do not exceed 2400 RPM. For flight training activities, a cruise setting at 55% to 60% power is recommended while transitioning to and from the practice area (1800-2100 RPM).

Mixture…….…….LEAN

After leveling off and setting the power, the pilot needs to lean the mixture. When cruising at 75% power or less, including when below 3000', to achieve the recommended lean mixture fuel consumption figures in the POH, the mixture should be leaned using the EGT gauge. Best Economy is Peak EGT. The Recommended Lean mixture is achieved at 50° Rich of Peak EGT. See page 4-26 to 4-28 of the POH and section 5. Use Recommended Lean mixture when cruising to and from the practice areas.

Trim……..SET

After leveling off, the pilot should trim the aircraft to level flight. As the plane accelerates, the trim will need to be adjusted again for level flight. All control forces should be trimmed off so the airplane maintains level flight even if the pilot's attention is diverted. Adjust the trim again whenever any power changes are made.

Landing Light……..OFF

The landing light switch should be placed in the OFF position.

Heading Indicator/Compass……..CHECKED

Check that the heading indicator is still aligned with the magnetic compass. A good rule of thumb is to check it again every 15 minutes in flight.

Checklist……..……..COMPLETE

V/R DESCENT

This is a VERBAL RESPONSE checklist. Only the pilot completing the checklist needs to verbalize the item and the response.

Power……SET

Set a power reduction for the descent to achieve approximately the same airspeed while in cruise. This will help the engine to keep up the cylinder heads temperature. Avoid long power off descents.

Mixture……ADJUST

As you make your descent from cruising altitude, gradually richen the mixture. Once below 3000 feet, mixture can be set to full rich if descent is made to a landing.

Altimeter……SET

Set the altimeter to the current altimeter setting as received on the automated weather broadcast.

NAV / GPS SWITCH……SET

Depending on how you are Navigating to your destination, make sure the GPS is set for either GPS or VLOC.

Fuel Selector Valve……BOTH

Set the Fuel Selector to the "BOTH" position.

Flaps……SET

Normally, VFR descents are made with zero flaps. Flaps can be added if the rate of descent needs to be increased while trying to maintain certain airspeed as in an emergency descent. Do not use flaps when airspeeds are above 110 KIAS. Use only 10° of flaps from above 85 KIAS and 110 KIAS or below.

Checklist……COMPLETE

C/R BEFORE LANDING

This is a CHALLENGE AND RESPONSE checklist.

SEATBACKS……UPRIGHT

Ensure the Seatbacks are set upright and positioned properly for full rudder inputs. Also ensure the seat is properly secured after adjustments have been made.

SEATS & BELTS……CHECKED

Check your own seat belt and shoulder harness and ensure it is still secure and remind your passengers to do the same.

FUEL SHUTOFF VALVE……ON

Verify that the Fuel Shutoff Valve is in the ON (Forward) position. There would be no reason other than an actual emergency that would cause you to turn the fuel selector OFF in the C172. However, it may be possible for someone to inadvertently snag the lever and pull it out during flight. This checklist item is also good practice for flying more advanced aircraft that have more complicated fuel systems that need attention during cruise and before landing.

FUEL SELECTOR VALVE……BOTH

Set the Fuel Selector to the "BOTH" position.

MIXTURE……RICH

Set the mixture to the full rich position prior to landing and prior to any increase in power beyond the cruise setting at lower altitudes.

LANDING LIGHT……ON

Turn on the landing light prior to getting close to the airport even during daytime conditions. Use of the landing light increases the chances other pilots will see you especially in head on situations on while you are on final approach.

AIRSPEED……...SET

Maintain proper pitch, power, and configuration to attain appropriate airspeeds for flying the traffic pattern and landing. Do not put the flaps down to 10° unless airspeed is at or below 110 KIAS or 20-30° unless airspeed is at or below 85 KIAS. With flaps down, the manufacturer recommends 60 to 70 KIAS on final approach for a normal landing. We recommend 65 KIAS on final approach with full flaps for the normal landing. In gusty conditions, consider adding airspeed on final and even reducing the flap setting. Increase final approach airspeed by ½ the gust factor. Consult the *Sunrise Aviation C172R Maneuvers Guide* for more information on calculating gust factor. For a short field or soft field landing, use 62 KIAS and full flaps on final approach with whatever adjustments are needed for gusty wind conditions.

AUTOPILOT (IF INSTALLED)……..…..OFF

Verify that the Autopilot, if installed is not activated.

CHECKLIST……....COMPLETE

C/R GO AROUND

This is a CHALLENGE AND RESPONSE checklist. The manufacturer calls this checklist the "Balked Landing."

THROTTLE……..……FULL

Apply full power (full open throttle) as the first step in executing a go around. Remember that announcing the go around or missed approach is important, BUT communication only should happen after the airplane is climbing, in a safe attitude, and at a safe altitude, unless two pilots are present and PF and PNF duties have been clearly established regarding flying duties vs. communication responsibilities.

FLAPS……....……RETRACT TO 20°

If flaps are fully extended (30°), reduce the flaps immediately to 20° to attain a climb configuration. If flaps are already set at 20°, 10°, or 0°, leave the flaps in that configuration until attaining a safe airspeed and altitude.

AIRSPEED……55 KIAS

Select a pitch attitude that will maintain 55 KIAS with the current flap setting (20° or less) at full power. Verify airspeed at 55 KIAS.

FLAPS……10° UNTIL OBSTACLES CLEARED

At a safe altitude, and upon reaching a safe airspeed (55 KIAS or higher) with a positive rate of climb indicated by the Vertical Speed Indicator, retract the flaps to 10°.

FLAPS…….……RETRACTED

Upon reaching 60 KIAS and a safe altitude, fully retract the flaps. Adjust pitch and trim to maintain proper attitude and airspeed as the flap settings are changed. Pitch for best rate of climb airspeed (79 KIAS at SL) then follow normal traffic pattern or departure procedures.

CHECKLIST……..……..COMPLETE

V/R AFTER LANDING

This is a VERBAL RESPONSE checklist. Only the pilot completing the checklist needs to verbalize the item and the response.

Brakes……..……...APPLY

Apply the brakes as necessary after landing consistent with safety and after exiting the active runway. Make sure that you are completely off the runway and past any hold short lines before stopping. After stopping, continue with the after landing checklist. Make a radio call as necessary after clearing the runway.

Time On……NOTE

Make a written note of the time that you landed.

External Lights……..…..AS REQUIRED

Turn off the landing light in daytime or leave on at night and turn on taxi light. Strobe lights can also be turned off at this time. A sure sign that an after landing checklist was NOT used is an aircraft taxiing to the ramp in the daytime with the landing light on!

Throttle (1000 RPM or less)……...……SET

Set the throttle to 800 to 1000 RPM. Adjust the throttle as necessary during taxi to minimize braking.

Mixture……..LEAN

Lean the mixture as previously described.

Flaps……..RETRACT

Retract the flaps to the zero degree position.

Transponder…….STANDBY

The switch on the transponder should be placed in the standby position and squawk 1200 if not already.

The Garmin transponder will automatically cycle to the ground position.

Checklist……COMPLETE

V/R PARKING

This is a VERBAL RESPONSE checklist. Only the pilot completing the checklist needs to verbalize the item and the response.

Parking Brake…..……SET

Set the parking brake and hold the toe brakes while completing this checklist before exiting the aircraft.

Radios, Electrical and Lights……..……...OFF

Turn the lights, and electrical equipment off. You should leave the beacon on.

Avionics Master Switch……..OFF

Leave the individual radios on, but turn the Avionics Master Switch OFF (down position).

Magnetos……...……GROUND CHECKED

With the throttle at the idle position, turn the ignition switch momentarily to the OFF position and verify that the engine would quit running in that position. Immediately and smoothly return the ignition switch to the BOTH position so that the engine does not actually quit. If the engine RPM do not significantly decrease during this check indicating that if left in the off position the engine would quit, report the condition to maintenance.

Mixture……...IDLE CUT OFF

Pull back on the mixture control to the idle cut off position. Wait until the propeller completely stops before proceeding to the next item on the checklist.

Ignition Switch……..……...OFF

Turn the ignition switch to the off position. Remove the key and return the key with the dispatch documents.

Master Switch……..……OFF

Turn the master switch off. Ensure that both sides of the switch are in the OFF (down) position.

Brakes……...……RELEASE

Release the parking brake and release the toe brakes by releasing the pressure on the rudder pedals.

Control Lock……...…..INSTALLED

Install the control wheel lock. The lock consists of a shaped steel rod with a red metal flag attached to it. The flag is labeled CONTROL LOCK, REMOVE BEFORE STARTING ENGINE. To install the control lock, align the hole in the top of the pilot's control wheel shaft with the hole in the top of the shaft collar on the instrument panel and insert the rod into the aligned holes. Do not hold the "flag" portion of the control wheel lock while doing this as it may break. Proper installation of the lock will place the red flag over the ignition switch. The control wheel lock and any other type of locking device should be removed prior to starting the engine.

Fuel Selector Valve…….LEFT OR RIGHT

Place the Fuel Selector to the "LEFT OR RIGHT" position by turning the lever either to the left or right.

Hobbs Meter…….....RECORDED

Record the time from the Hobbs Meter on the Tach Sheet. If any portion of the time in tenths is showing the next highest number, put down the higher number.

Tachometer Time……...…..RECORDED

Record the time from the Tachometer on the Tach Sheet. Check this time against any maintenance due times and alert Dispatch or Maintenance if times are close. Though 100 hour times are allowed to be exceeded by up to 10 hours under certain circumstances, Airworthiness Directive times may not be exceeded unless operating under a Special Flight Permit.

Pitot Cover (if applicable)……...……INSTALLED

Sunrise Aviation does not typically use a Pitot Cover. However, if one is available for your particular aircraft, install it over the pitot tube to prevent foreign matter and insects from becoming lodged inside.

Rudder Gust Lock (if applicable)……..…….....INSTALLED

In gusty conditions, or as directed by Dispatch, install the rudder gust lock.

Tie Downs……...…..SECURED

Secure all three of the tie-downs. Do not leave the aircraft unless either the tie downs are secure or the wheels are chocked (light winds only). Read the Sunrise Aviation *Safety Procedures and Practices Manual* for more guidance on tie downs, chocks, and winds.

Checklist……....…COMPLETE