Cessna 172R/S Pilot's Checklist

with GPS and KAP 140 single-axis autopilot

WARNING

Do not operate this aircraft unless you have read and understood the *Pilot's Operating Handbook* for this model & all applicable supplements.

This checklist is not a substitute for *POH* knowledge.

Normal Procedures

Further procedure details are in the *Pilot's Operating Handbook* section 4.

Preflight Cockpit

Cockpit Area

1. Pitot Cover and Control Wheel Lock .....Removed
2. Aircraft Log Pre-Flight Entry .....Completed
3. Airworthiness and Registration Certificates.....Displayed
4. Fire Extinguisher .....Checked
5. Pilot's Operating Handbook and GPS Quick Reference.....Available

Lower Panel

6. Magnetos .....Off
7. Master (Alt/Bat).....On
8. Circuit Breakers (Main & Avionics).....Checked in
9. Beacon, Landing, Taxi, Nav, Strobe Lights .....Tested
10. Pitot Heat .....Tested
11. Electrical Switches.....Off
12. Avionics Master.....On
13. Flaps .....Extended Full
14. Alt Static Air .....Off

Pedestal

15. Fuel Shutoff Valve .....Open
16. Fuel Selector .....Both

Avionics Stack

17. Avionics Cooling Fan.....Checked (audible)
18. GPS Self-test & Database Dates.....Checked

19. Transponder Code.....VFR
20. Autopilot .....Engaged and overpowered

Pilot's Side

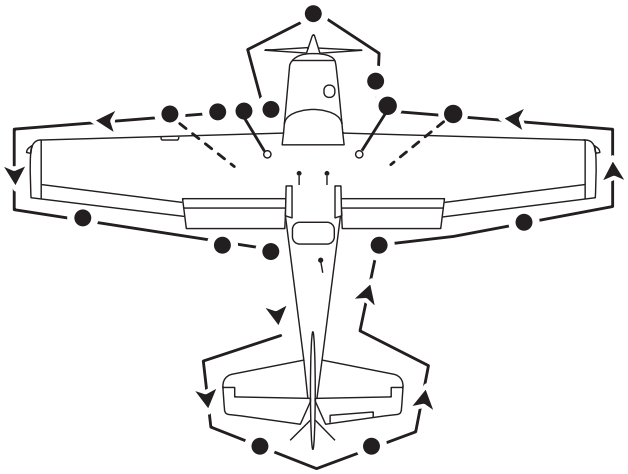
21. Annunciator Panel Switch .....Tested
22. Clock.....[Set]
23. Fuel Qty .....[Checked]

Lower Panel (again)

24. Avionics Master.....Off
25. Master (Alt/Bat).....Off

"Preflight Cockpit check complete"

Preflight Exterior



Empennage

1. Antennas .....Securely attached and in good condition
2. Elevator.....Moves freely and securely attached
3. Rudder.....Moves freely and securely attached
4. Rudder Gust Lock (if installed) .....Removed
5. Tail Tie-Down.....Disconnected
6. Elevator Trim Tab .....Securely attached

Right Wing Trailing Edge

7. Flap .....Securely attached and in good condition
8. Aileron.....Moves freely and securely attached

Right Wing Leading Edge

9. Wing Tie-Down.....Disconnected
10. Fuel Tank Sump Quick Drain Valves ....Sampled & checked fuel (5 points)
11. Main Wheel Tire.....Inflated and in good condition
12. Fuel Quantity.....Checked visually
13. Fuel Filler Cap .....Vent unobstructed and cap secure

Nose

14. Engine Oil Level.....[5–8 qt]
    ⚠ (Avoid used engine oil—possible carcinogen. Wash off with soap.)
15. Engine Oil Dipstick/Filler Cap .....Secure
16. Fuel Strainer Quick Drain Valve .....Sampled & checked fuel
17. Engine Cooling Air Inlets .....Clear of obstructions
18. Propeller & Spinner.....Free of nicks and securely attached
19. Air Filter .....Clean
20. Nose Wheel Strut.....Inflated
21. Nose Wheel Tire.....Inflated and in good condition
22. Left Static Source Opening.....No blockage

Left Wing Leading Edge

23. Fuel Quantity.....Checked visually
24. Fuel Filler Cap .....Vent unobstructed and cap secure
25. Pitot Tube, Stall Warning,& Fuel Tank Vent.....No blockage
26. Landing & Taxi Lights.....Cover in good condition and clean
27. Wing Tie-Down.....Disconnected
28. Fuel Tank Sump Quick Drain Valves ....Sampled & checked fuel (5 points)
29. Main Wheel Tire.....Inflated and in good condition

Left Wing Trailing Edge

30. Aileron.....Moves freely and securely attached
31. Flap .....Securely attached and in good condition

Baggage Area

32. Baggage Door .....Latched

"Preflight Exterior check complete"

Before Start

Before Start

1. Tie-Downs, Chocks, and Tow Bar.....Removed
2. Seats & Seat Belts.....Adjusted & locked
3. Master (Alt/Bat).....On
4. Beacon.....On
5. Avionics Master.....Off
6. Fuel Shutoff Valve .....Open
7. Fuel Selector .....Both

"Before Start check complete"

Start

See *POH* section 4, Amplified Procedures subsection, for start procedures.

Start type:	Normal	Hot	Flooded
Prime	Yes	No	No
Mixture	Cut-Off	Cut-Off	Cut-Off
Throttle	1/4 inch	1/4 inch	Half to full open

Priming: If engine is not warm: Throttle open 1/4 inch. Fuel pump on. Mixture rich. Await stable fuel flow indication. Mixture cut-off. Fuel pump off.

As engine starts, **immediately** mixture to full rich, throttle to 1000 rpm.

Starter cycle limits: crank 10 sec — cool 20 sec — crank 10 sec — cool 20 sec — crank 10 sec — cool **10 min** — repeat once, then get assistance.

After Start

After Start

1. Oil Press .....Checked
   (Shutdown engine if oil pressure not normal within 30 seconds of start.)
2. Ammeter .....Positive (charging)
3. (if skyBeacon-equipped or sunset–sunrise) Nav Lights .....On
   If skyBeacon-equipped, nav lights must be on (day & night) for ADS-B out.
4. Avionics Master.....On
5. Flaps.....Up
6. Mixture .....Leaned for ground operations
   (Set throttle to 1200 rpm. Lean for max rpm. Reset throttle to 1000 rpm.)
7. GPS Startup Pages.....Acknowledged
8. Transponder.....ALT mode / [Code set]
9. Instruments.....[Set]

"After Start check complete"

Run-Up

Run-Up

1. Seats, Seat Backs & Seat Belts ..... Secure & upright
2. Cabin Doors ..... Closed & locked
3. Flight Controls ..... Free & correct
4. Mixture ..... Full Rich
5. Checked at 1800 rpm:
   - 5.a. Magneto Check ..... Complete
     (Check drop less than 150 rpm. Less than 50 rpm difference between magnetos.)
   - 5.b. Oil Temp & Press ..... Checked
   - 5.c. Vac ..... Checked
   - 5.d. Alternator Check ..... Complete
   - 5.e. Voltmeter ..... [27.5–28.8 V]
   - 5.f. Annunciator Panel ..... Clear (none lit)
6. Throttle ..... Idle checked
7. Throttle Friction Lock ..... Set
8. Mixture ..... Leaned for ground operations
9. Autopilot ..... Disengaged
10. (if skyBeacon-equipped or sunset–sunrise) Nav Lights ..... On
    If skyBeacon-equipped, nav lights must be on (day & night) for ADS-B out.
11. Elevator Trim ..... Take-off position
12. Fuel Shutoff Valve ..... Open
13. Fuel Selector ..... Both
14. Nav ..... Set
15. CDI Navigation Source ..... [GPS/VLOC]
16. Transponder ..... ALT mode / [Code set]
17. Instruments ..... [Set]
18. Instruments & GPS ..... Review warning, caution, or advisory indications
19. Fuel Qty ..... [Checked]

"Run-up check complete"

Cessna 172R/S Pilot's Checklist (GPS, KAP 140 1-axis)

Brief Takeoff *(ready for TO)*

Threats: What are our threats this takeoff?
Plan: • Runway • Type (speeds, flaps) • Abort pt & proc • Climb speeds, power • Initial heading & altitude • Return • Route (ODP, SID) • Nav setup
Countermeasures: Extra actions or considerations to manage threats.

Normal Takeoff: **flaps up**
- Rotation ..... **55 KIAS**
- Takeoff (to 50 ft) ..... **75 KIAS**

Short Field Takeoff: **flaps 10°**
- Rotation ..... **51 KIAS**
- Takeoff (to clear obs.) ..... **57 KIAS**
- Flaps up when clear, > 60 KIAS

Soft Field Takeoff: **flaps 10°**
- Rotation ..... **ASAP**
- Takeoff (to clear obs.) ..... **57 KIAS**
- Takeoff (no obstacles) ..... **75 KIAS**
- Flaps up when clear, > 60 KIAS

Initial climb (50–1000 ft) ... **78 KIAS**
En route climb ..... **80–86 KIAS**

Before Takeoff

Before Takeoff *(entering runway)*

1. Flaps ..... [Up or 10°]
2. (If installed) Air Conditioning ..... Off
3. Mixture ..... (at or below 3000 density alt.) Full Rich
   (above 3000 density alt.) Leaned (for max rpm at full throttle)
4. Landing & Strobe Lights ..... On

"Before Takeoff check complete"

After Takeoff

After Takeoff *(roughly 200 ft AGL)*

1. Flaps ..... Check up
2. (above 3000 density alt.) Mixture ..... Leaned
3. Landing Light ..... Off

"After Takeoff check complete"

Cruise

Cruise *(after level-off)*

1. Taxi Light ..... Off (Leave on in high traffic areas)
2. Throttle ..... [Cruise power]
3. Mixture ..... Leaned
4. Fuel Qty ..... [Checked]

"Cruise check complete"

APICC

Pre-Maneuver Check (APICC) *(before a training maneuver)*

Altitude, **P**osition, **I**nstruments, **C**learing turns, **C**onfigure

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Descent *(before leaving cruise)*

Descent

1. Taxi Light.....On
2. Nav & Comm.....Set
3. CDI Navigation Source.....[GPS/VLOC]
4. Instruments.....[Set]
5. Fuel Qty.....[Checked]
6. Seats, Seat Backs & Seat Belts.....Secure & upright

"Descent check complete"

(IFR) Approach *(setting up approach)*

Approach

1. Landing & Taxi Lights.....On
2. Fuel Selector.....Both
3. Approach Procedure (in GPS).....Loaded
4. CDI Navigation Source.....[GPS/VLOC]
5. Instruments.....[Set]
6. Timer.....Ready

"Approach check complete"

Brief Approach / Landing *(after ATIS and set up)*

Threats: What are our threats this approach / landing?
Plan–Instrument approach: • Proc title & rev • NoPT?, No FAF?, Straight-in/Sidestep/Circle? • FAF alt, step downs, DH/MDA • Lighting • MAP • Radios
Plan–VFR landing: • Runway • Pattern direction, altitude, & entry • Type (speeds, flaps) • Lighting • Go-around • Radios
Countermeasures: Extra actions or considerations to manage threats.

Instrument approach.....**90 KIAS**	Final (normal).....**65 KIAS**
Pattern (downwind).....**85 KIAS**	Final (no flaps).....**70 KIAS**
	Final (short field).....**62 KIAS**
	Go-around (initial).**(172R) 55 KIAS**
	(172S) 60 KIAS

At each waypoint in an instrument approach, do the 5 Ts, as applicable:
Turn (course)–**T**ime (start timer)–**T**wist (OBS)–**T**hrottle (descend)–**T**alk (radio)

Cessna 172R/S Pilot's Checklist (GPS, KAP 140 1-axis)

Before Landing *(abeam touchdown point/at FAF)*

Before Landing

1. Flaps.....10°
2. (If installed) Air Conditioning.....Off
3. Mixture.....Full Rich
4. Fuel Selector.....Both
5. Autopilot.....Disengaged

"Before Landing check complete"

After Landing *(clear of runway)*

After Landing

1. Flaps.....Up
2. Mixture.....Leaned for ground operations
3. Landing & Strobe Lights.....Off

"After Landing check complete"

Shutdown

Shutdown

1. Transponder code.....VFR
2. (if activated) Flight plan.....Closed
3. Avionics Master.....Off
4. Mixture.....Cut-Off
5. Throttle.....Closed
6. Magnetos.....Off
7. Electrical Switches.....Off
8. Master (Alt/Bat).....Off
9. Fuel Selector.....Left or Right
10. Control Wheel Lock.....Installed

"Shutdown check complete"

Securing

Securing

1. Aircraft Log.....Completed
2. Equipment Discrepancies.....Reported & logged
3. Panel, Radio, Pedestal, Glareshield, & Map Lights.....Full dim
4. Master (Alt/Bat).....Off
5. Chocks/tie-downs, Pitot cover, and Sunshades.....Installed
6. Parking brake.....Released (after chocks/tie-downs installed)
7. Cockpit and cabin.....Clean and free of trash

"Securing check complete"

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Abnormal Procedures

Further procedure details are in the *Pilot's Operating Handbook* section 3.

Static Source

Static Source Blockage (Erroneous Instrument Reading Suspected)

1. **ALT STATIC AIR Valve .....PULL ON**
2. CABIN HT and CABIN AIR Knobs .....PULL ON
3. Vents .....CLOSED
4. Airspeed.....Refer to POH Section 5, Figure 5-1 (Sheet 2) "Airspeed Calibration, Alternate Static Source" correction chart

Flat Tire

Landing with Flat Main Tire

1. Approach .....NORMAL
2. Wing Flaps.....30°
3. Touchdown.....GOOD MAIN TIRE FIRST (Hold airplane off flat tire as long as possible with aileron control)
4. Directional Control .....MAINTAIN (Using brake on good wheel as required)

Landing with Flat Nose Tire

1. Approach .....NORMAL
2. Wing Flaps .....AS REQUIRED
3. Touchdown .....ON MAINS (Hold nose wheel off the ground as long as possible)
4. Elevator (when nose wheel touches down) ...Maintain FULL UP until stop

Ammeter Full Scale

Ammeter Shows Excessive Rate of Charge (Full Scale)

1. MASTER Switch (ALT Only) .....OFF

CAUTION

With the alternator side of the master switch off, compass deviations of as much as 25 degrees may occur.

2. Nonessential Electrical Equipment .....OFF
3. Flight.....TERMINATE as soon as practical

Cessna 172R/S Pilot's Checklist (GPS, KAP 140 1-axis)

Low Voltage

Low Voltage Annunciator (VOLTS) / Ammeter Discharge

NOTE

Illumination of VOLTS on the annunciator panel may occur during low RPM conditions with an electrical load on the system such as during a low RPM taxi. Under these conditions, the annunciator will go out at higher RPM. The master switch need not be recycled since an over-voltage condition has not occurred to deactivate the alternator system.

1. Avionics Master Switch .....OFF
2. Alternator Field Circuit Breaker (ALT FLD).....CHECK IN
3. Master Switch.....OFF (both sides)
4. Master Switch .....ON
5. Low Voltage Annunciator (VOLTS) .....CHECK OFF
6. Avionics Master Switch.....ON

If low voltage annunciator (VOLTS) illuminates again:

7. Alternator .....OFF
8. Nonessential Radio and Electrical Equipment .....OFF
9. Flight.....TERMINATE as soon as practical

Vacuum Failure

Vacuum System Failure

Vacuum Annunciator Illuminates (L VAC) or (VAC R)

CAUTION

If vacuum is not within normal operating limits, partial panel procedures may be required for continued flight.

1. Vacuum Gage.....CHECK

Fuel Vapor

Excessive Fuel Vapor (Fuel Flow Stabilization Procedures)

(If flow fluctuations of 1 GPH or more or power surges occur.)

1. Auxiliary Fuel Pump Switch.....ON
2. Mixture .....ADJUST for smooth operation
3. Fuel Selector Valve .....SELECT OPPOSITE TANK if symptoms continue
4. Auxiliary Fuel Pump Switch.....OFF after fuel flow has stabilized

GPS DR/LOI

GPS Loss of Signal ("DR" or "LOI" Indicated)

1. Navigation source .....Use alternative means of navigation, if available

If no other navigation source available and "DR" is displayed, use GPS temporarily en route. No terminal or approach procedures will be available.

2. (If in IMC) Route .....Toward visual meteorological conditions (VMC)

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Emergency Procedures

Further procedure details are in the *Pilot's Operating Handbook* section 3.
Items in **boldface** are immediate action items which should be memorized.

Engine Failure During Takeoff Roll

1. **Throttle .....IDLE**
2. **Brakes .....APPLY**
3. Wing Flaps .....RETRACT
4. Mixture .....IDLE CUTOFF
5. Magnetos Switch.....OFF
6. Master Switch .....OFF

Engine Failure Immediately After Takeoff

1. **Airspeed .....172R: 65 KIAS (flaps UP) / 60 KIAS (flaps DOWN)**
   172S: 70 KIAS (flaps UP) / 65 KIAS (flaps DOWN)
2. Mixture .....IDLE CUTOFF
3. Fuel Shutoff Valve .....OFF (Pull Full Out)
4. Magnetos Switch.....OFF
5. Wing Flaps .....AS REQUIRED
6. Master Switch .....OFF
7. Cabin Door.....UNLATCH
8. Land.....STRAIGHT AHEAD

Engine Failure In Flight (Restart Procedures)

1. **Airspeed .....172R: 65 KIAS 172S: 68 KIAS**
2. **Fuel Shutoff Valve.....ON (push full in)**
3. **Fuel Selector Valve .....BOTH**
4. **Auxiliary Fuel Pump Switch .....ON**
5. **Mixture .....RICH (if restart has not occurred)**
6. Magnetos Switch .....BOTH (or START if propeller is stopped)

NOTE

If the propeller is windmilling, the engine will restart automatically within a few seconds. If the propeller has stopped (possible at low speeds), turn the Magnetos switch to START, advance the throttle slowly from idle and lean the mixture from full rich as required for smooth operation.

7. Auxiliary Fuel Pump Switch .....OFF,
   Back ON if fuel flow drops to zero

Engine Failure

Forced Landing

Cessna 172R/S Pilot's Checklist (GPS, KAP 140 1-axis)

Emergency Landing without Engine Power

1. Pilot and Passenger Seat Backs .....MOST UPRIGHT POSITION
2. Seats and Seat Belts .....SECURE
3. Airspeed.....172R: 65 KIAS (flaps UP) / 60 KIAS (flaps DOWN)
   172S: 70 KIAS (flaps UP) / 65 KIAS (flaps DOWN)
4. Mixture .....IDLE CUTOFF
5. Fuel Shutoff Valve .....OFF (Pull Full Out)
6. Magnetos Switch.....OFF
7. ELT .....ACTIVATE (if rescue needed)
8. Wing Flaps.....AS REQUIRED (30° recommended)
9. Master Switch .....OFF (when landing is assured)
10. Doors.....UNLATCH PRIOR TO TOUCHDOWN
11. Touchdown.....SLIGHTLY TAIL LOW
12. Brakes.....APPLY HEAVILY

Precautionary Landing with Engine Power

1. Pilot and Passenger Seat Backs .....MOST UPRIGHT POSITION
2. Seats and Seat Belts .....SECURE
3. Airspeed .....65 KIAS
4. Wing Flaps.....20°
5. Selected Field.....FLY OVER, noting terrain and obstructions,
   then retract flaps upon reaching a safe altitude and airspeed
6. Avionics Master Switch and Electrical Switches .....OFF
7. ELT .....ACTIVATE (if rescue needed)
8. Wing Flaps .....30° (on final approach)
9. Airspeed .....172R: 60 KIAS 172S: 65 KIAS
10. Master Switch .....OFF
11. Doors.....UNLATCH PRIOR TO TOUCHDOWN
12. Touchdown.....SLIGHTLY TAIL LOW
13. Magnetos Switch.....OFF
14. Brakes.....APPLY HEAVILY
15. Mixture .....IDLE CUTOFF

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Ditching

1. Radio.....TRANSMIT MAYDAY on 121.5 MHz, giving location and intentions and SQUAWK 7700
2. Heavy Objects (in baggage area) .....SECURE or JETTISON (if possible)
3. Pilot and Passenger Seat Backs .....MOST UPRIGHT POSITION
4. Seats and Seat Belts .....SECURE
5. Wing Flaps .....20°–30°
6. Power .....ESTABLISH 300 FT/MIN DESCENT AT 55 KIAS

NOTE

If no power is available, approach at 172R: 65 KIAS 172S: 70 KIAS with flaps up or at 172R: 60 KIAS 172S: 65 KIAS with 10° flaps.

7. Approach.....High Winds, Heavy Seas—INTO THE WIND
   Light Winds, Heavy Swells—PARALLEL TO SWELLS
8. ELT .....ACTIVATE
9. Cabin Doors .....UNLATCH
10. Face .....CUSHION at touchdown with folded coat
11. Touchdown .....LEVEL ATTITUDE AT ESTABLISHED RATE OF DESCENT
12. Airplane.....EVACUATE through cabin doors. If necessary, open window and flood cabin to equalize pressure so doors can be opened.
13. Life Vests and Raft.....INFLATE WHEN CLEAR OF AIRPLANE

Cessna 172R/S Pilot's Checklist (GPS, KAP 140 1-axis)

Engine Fire During Start

1. **Magnetos Switch...START, continue cranking to get a start which would suck the flames and accumulated fuel into the engine.**

If engine starts:

2. Power .....172R: 1700 RPM 172S: 1800 RPM for a few minutes
3. Engine .....SHUTDOWN and inspect for damage

If engine fails to start:

4. **Throttle .....FULL OPEN**
5. **Mixture .....IDLE CUTOFF**
6. **Cranking.....CONTINUE**
7. **Fuel Shutoff Valve .....OFF (Pull Full Out)**
8. **Auxiliary Fuel Pump Switch.....OFF**
9. Fire Extinguisher.....OBTAIN
10. Master Switch .....OFF
11. Magnetos Switch.....OFF
12. Parking Brake.....RELEASE
13. Airplane.....EVACUATE
14. Fire .....EXTINGUISH using fire extinguisher, wool blanket, or dirt
15. Fire Damage .....INSPECT, REPAIR or REPLACE

Engine Fire In Flight

1. **Mixture.....IDLE CUTOFF**
2. **Fuel Shutoff Valve .....Pull Out (OFF)**
3. **Auxiliary Fuel Pump Switch.....OFF**
4. **Master Switch.....OFF**
5. Cabin Heat and Air.....OFF (except overhead vents)
6. Airspeed .....100 KIAS
   (If fire is not extinguished, increase glide speed to find an airspeed—within airspeed limitations—which provides an incombustible mixture).
7. Emergency Landing Without Engine Power checklist.....EXECUTE

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Electrical Fire In Flight

1. **Master Switch.....OFF**
2. **Vents, Cabin Air, Heat.....CLOSED**
3. **Fire Extinguisher.....ACTIVATE**
4. Avionics Master Switch.....OFF
5. All Other Switches (except Magnetos switch).....OFF

WARNING

After discharging fire extinguisher and ascertaining that fire has been extinguished, ventilate the cabin.

6. Vents/Cabin Air/Heat.....OPEN when it is ascertained that fire is completely extinguished

If fire has been extinguished and electrical power is necessary for continuance of flight to nearest suitable airport or landing area:

7. Master Switch.....ON
8. Circuit Breakers.....CHECK for faulty circuit, do not reset
9. Radio Switches.....OFF
10. Avionics Master Switch.....ON
11. Radio/Electrical Switches.....ON one at a time until short circuit is found

Cabin Fire In Flight

1. **Master Switch.....OFF**
2. **Vents/Cabin Air/Heat.....CLOSED (to avoid drafts)**
3. **Fire Extinguisher.....ACTIVATE**

WARNING

After discharging fire extinguisher and ascertaining that fire has been extinguished, ventilate the cabin.

4. Vents/Cabin Air/Heat.....OPEN when it is ascertained that fire is extinguished
5. Flight.....Land the airplane as soon as possible to inspect for damage

Wing Fire In Flight

1. **Landing/Taxi Light Switches.....OFF**
2. **Navigation Light Switch.....OFF**
3. **Strobe Light Switch.....OFF**
4. **Pitot Heat Switch.....OFF**

NOTE

Perform a sideslip to keep the flames away from the fuel tank and cabin. Land as soon as possible using flaps only as required for final approach and touchdown.

Inadvertent Icing Encounter

1. **Pitot Heat Switch.....ON**
2. **180 degree turn.....INITIATE**
3. **Cabin Heat.....MAXIMUM**
4. **Windshield Defrost.....MAXIMUM**
5. Cabin Air Control.....AS REQUIRED for max defrost
6. Throttle.....INCREASE
7. Air Intake Filter Ice.....MONITOR for SIGNS
8. Throttle & Mixture.....MAXIMUM RPM
9. Flight.....Land at NEAREST AIRPORT or suitable off airport landing site
10. Wing Flaps.....LEAVE RETRACTED
11. Windshield on Approach.....SCRAPE if practical
12. Approach Speed.....65–75 KIAS
13. Landing.....Perform in LEVEL ATTITUDE

NOTE

Open the throttle to increase engine speed and minimize ice build-up on propeller blades. An unexplained loss in engine speed could be caused by ice blocking the air intake filter, or, in extremely rare instances, ice completely blocking the fuel injection air reference tubes. Plan a landing at the nearest airport. With an extremely rapid ice build-up, select a suitable off airport landing site. With an ice accumulation of 1/4 inch or more on the wing leading edges, be prepared for significantly higher stall speed.