NOTE

Visually check airplane for general condition during walk-around inspection. In cold weather, remove even small accumulations of frost, ice or snow from wing, tail and control surfaces. Also, make sure that control surfaces contain no internal accumulation of ice or debris. Prior to flight, check that pitot heater (if installed) is warm to touch within 30 seconds of battery and pitot heat switches on. If a night flight is planned, check operation of all lights, and make sure a flashlight is available. Check the surrounding area for debris which may be drawn into or blown about by the propeller. If necessary, position the airplane to avoid creating a hazard to buildings, vehicles or persons by the propeller blast

WARNING

When turning on the master switch, using an external power source, or pulling the propeller through by hand, treat the propeller as if the ignition switch were on. Do not stand, or allow anyone else to stand within the arc of the propeller, since a loose or broken wire, or a component malfunction, could cause the propeller to rotate.

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PREFLIGHT INSPECTION

CABIN

1. Documents/Hobbs/Tach/Squawks—CHECK
2. For IFR **VOR 30 Day Accuracy Entry** – CHECK
3. Pilot's Operating Handbook and **Flyaway Book**--IN AIRPLANE
4. **Landing Gear Lever—DOWN**
5. Control Wheel Lock—REMOVE
6. Ignition Switch--OFF place keys on glare shield
7. **Avionics Master Switch—OFF**
8. Circuit Breakers—IN
9. **Master Switch—ON**
10. Flashing Beacon--ON / CHECK
11. Fuel Quantity Indicators--CHECK FUEL QUANTITY
12. Fuel Selector Valve--**CHECK, Movement. left, right, off, SET TO BOTH**
13. Flaps—EXTEND
14. Exterior and Interior Lights (for night flight)—CHECK
15. **Master Switch—OFF**
16. Static Pressure Alternate Air Source Valve (if installed)—OFF
17. Baggage Door-- CHECK, Lock with Key.

EMPENNAGE

1. Rudder Gust Lock—REMOVE (if installed)
2. Tail Tie-Down—DISCONNECT
3. Control Surfaces--CHECK freedom of movement and security
4. Trim Tab—CHECK for security
5. Antennas—CHECK for security and general condition

RIGHT WING Trailing Edge

1. Flap--CHECK for security and damage
2. Aileron--CHECK freedom of movement and security

RIGHT WING

1. Wing Tip and Lights--CHECK
2. Wing Tie-Down--DISCONNECT
3. Main Wheel/Tire--CHECK brakes, tire condition/inflation, chocks
4. Fuel Sample--CHECK for water, sediment, proper fuel grade & color before first flight of the day and after each refueling. If water or

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contamination is observed, additional draining of tank sumps will be required until clean sample is confirmed.
5. Fuel Quantity--CHECK VISUALLY for desired level
6. Fuel Filler Cap—SECURE **(this should be a vented cap)**
7. Cabin Vent—CHECK

NOSE

1. Engine Oil Level--CHECK, **do not operate with less than seven quarts**. Fill to eight quarts for extended flight
2. Fuel Strainer--DRAIN before first flight of the day and after each refueling. Pull out strainer knob for about four seconds to clear strainer of water / sediment. If water, contamination is observed, additional fuel should be drained from strainer until sample is clear of water and contamination. CHECK STRAINER DRAIN CLOSED
3. Propeller and Spinner--CHECK for nicks and security
4. Engine Cooling Air Inlets—CLEAR of obstructions, check for cylinder cooling baffle integrity, oil leaks, alternator belt security and tension.
5. Cowling--CHECK FOR SECURITY
6. Landing/Taxi Lights--CHECK condition and cleanliness
7. Carburetor Air Filter--CHECK for restrictions, dust, or foreign matter
8. Nose Wheel Strut and Tire--CHECK condition, inflation, and security
9. Nose Tie-Down--DISCONNECT, remove chocks
10. Static Ports --CHECK for stoppage both sides

LEFT WING Leading Edge

1. Pitot Tube Cover--REMOVE, check opening for stoppage
2. Fuel Tank Vent Opening--CHECK for stoppage
3. Stall Warning Opening--CHECK for stoppage. To check operation, place a handkerchief over the vent opening and apply suction; a sound from the warning horn will confirm system operation
4. Wing Tie-Down--DISCONNECT
5. Wing Tip and Lights--CHECK

LEFT WING

1. Fuel Quantity--CHECK VISUALLY for desired level
2. Fuel Filler Cap—SECURE **(this should be a vented cap)**
3. Fuel Sample--CHECK for water, sediment, proper fuel grade & color before first flight of the day and after each refueling. If water or

contamination is observed additional draining of tank sumps will be required until clean sample is observed.
4. Cabin Vent—CHECK
5. Main Wheel/Tire--CHECK brakes, tire condition/inflation, chocks

LEFT WING Trailing Edge

1. Aileron--CHECK freedom of movement and security
2. Flap--CHECK for security and damage

SECTION 4
NORMAL PROCEDURES

SPEEDS FOR NORMAL OPERATION

Unless otherwise noted, the following speeds are based on a maximum weight of 3100 pounds and may be used for any lesser weight. However, to achieve the performance specified in Section 5 for takeoff distance, the speed appropriate to the particular weight must be used.

	K IAS
Takeoff, Flaps Up:	
Normal Climb Out	70-80
Short Field Takeoff, Flaps 20°, Speed at 50 Feet	55
Enroute Climb, Gear and Flaps Up:	
Normal, Sea Level	90-100
Best Rate of Climb, Sea Level	88
Best Rate of Climb, 10,000 Feet	74
Best Angle of Climb, Sea Level	64
Best Angle of Climb, 10,000 Feet	66
Landing Approach:	
Normal Approach, Flaps Up	70-80
Normal Approach, Flaps 40°	65-75
Short Field approach, Flaps 40°	63
Balked Landing:	
Maximum Power, Flaps 20°	75
Maximum Recommended Turbulent Air Penetration Speed:	
3100 Lbs	112
2550 Lbs	101
2000 Lbs	89
Maximum Demonstrated Crosswind Velocity:	
Takeoff or Landing	18 Knots

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BEFORE STARTING ENGINE

1. Surrounding Area--CHECK FOR PERSONNEL AND HAZARDS; REMOVE CHOCKS AND TOW BAR. IF REQUIRED MOVE AIRCRAFT TO AVOID PROPWASH ON PARKING AREA/HANGAR
2. Preflight Inspection--COMPLETE
3. Seats--ADJUST AND LOCK
4. Seat Belts and Shoulder Harnesses--ADJUST and LOCK
5. Passengers--BRIEFED
6. Fuel Selector Valve—CHECK BOTH
7. Electrical Switches – CHECK OFF
8. Autopilot—CHECK OFF
9. Circuit Breakers--RECHECK IN
10. **Avionics Master Switch – CHECK OFF**

CAUTION

AVIONICS MASTER SWITCH MUST BE OFF DURING ENGINE START TO PREVENT POSSIBLE DAMAGE TO AVIONICS

11. Flashing Beacon Switch--RECHECK ON
12. Brakes--TEST and SET

STARTING ENGINE

1. Mixture—RICH
2. Propeller – HIGH RPM
2. Carburetor Heat--COLD
3. Prime—PUMP Throttle (once or twice in warm temperatures or six to eight pumps in cold weather). LEAVE THROTTLE OPEN 1/4 INCH.
4. Master Switch—ON
5. Propeller Area--CLEAR
7. Ignition Switch--START (release when engine starts), set 1000 RPM Minimum, LEAN FOR TAXI TO MINIMIZE FOULING
8. Oil Pressure--CHECK
9. Flashing Beacon and Navigation Lights--ON as required
10. **Avionics Master Switch - ON**
11 Radios -- SET & CHECK OPERATION.
12 Electrical Equipment--ON as required

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13 Transponder -- SQUAWK STBY
14 Flaps--RETRACT

TAXI CHECK

1. Radio— **Contact FSS and Activate Flight Plan** prior to taxi
2. TAXI- REQUEST Taxi Clearance or announce intentions
2. Brakes--CHECK during initial movement
3. Maintain 1000 RPM minimum and lean mixture during taxi to reduce plug fouling
3. Nose Wheel Steering--CHECK
4. Ailerons--POSITION for crosswind taxi
5. Magnetic Compass, Directional Gyro, Turn Coordinator—CHECK

BEFORE TAKEOFF

1. Parking Brake--SET
2. Seats, Seat Belts, Shoulder Harnesses--CHECK SECURE
3. Cabin Doors and Windows--CLOSED and LOCKED
4. Flight Controls--FREE, and CORRECT
5. Flight Instruments--SET (Attitude Ind, Directional Gyro, Altimeter)
6. Primer--IN and LOCKED
7. Fuel Quantity--CHECK
8. Fuel Selector Valve--RECHECK ON BOTH
6. Mixture--RICH (below 3000 feet)
7. Auxiliary Fuel Pump—ON (Check for rise in fuel pressure, then) OFF
8. Elevator and Rudder Trim --SET FOR TAKEOFF
9. High/Low Voltage Light and Alternator Function—CHECK
10. Throttle--1700 RPM
    a. Magnetos--CHECK (RPM drop should not exceed 175 RPM on either magneto or 50 RPM differential between magnetos)
    b. Propeller—CYCLE from high to low RPM: return to high RPM (full in)
    c. Carburetor Heat--CHECK for RPM drop
    d. Engine Instruments and Ammeter—CHECK
    e. Suction Gauge—CHECK
11. Throttle--1000 RPM Minimum- Relean mixture for extended taxi
12. **Autopilot—PREFLIGHT CHECK (See autopilot POH supplement)**

13 Navigation Lights and Strobes--ON as required

14 Flaps--AS REQUIRED
15 Throttle Friction Lock—ADJUST
16 Radios (comm and nav)--SET, Call Tower for Takeoff Clearance or announce takeoff intentions.
17 Transponder --SET CODE & SQUAWK ALTITUDE
18 Record Time Off

LINE-UP CHECK

1. **Taxi into position –Perform Visual Check of runway final approaches for conflicting Traffic**.
2. Compass and Directional Gyro Heading—CHECK
3. Landing / Taxi Lights--AS REQUIRED
4. Brakes—RELEASE

TAKEOFF

NORMAL TAKEOFF

1. Wing Flaps— 0 to 20 degrees
2. Carburetor Heat—COLD
3. Throttle--FULL OPEN --**2400 rpm- Confirm Max MP, RPM and Oil pressure early in takeoff roll**
4. Elevator Control--LIFT NOSE WHEEL (at 50 KIAS)

NOTE

WHEN NOSE WHEEL IS LIFTED, THE GEAR MOTOR MAY RUN 1-2 SECONDS TO RESTORE HYDRAULIC PRESSURE.

5. Climb Speed—70 KIAS (flaps 20 Degrees) 80 KIAS (flaps UP)
6. Brakes—APPLY Momentarily when airborne
7. Landing Gear—RETRACT in climbout
8. Wing Flaps-- RETRACT

SHORT FIELD TAKEOFF

1. Wing Flaps--20°
2. Carburetor Heat--COLD
3. Brakes—APPLY
4. Mixture--RICH (above 3000 feet LEAN to obtain maximum RPM)

5. Throttle--FULL OPEN – **2400--Confirm Max RPM and Oil pressure early in takeoff roll.**
6. Brakes--RELEASE
7. Elevator Control--SLIGHTLY TAIL LOW
8. Climb Speed-55 KIAS (until all obstacles are cleared)
9. Landing Gear—RETRACT after obstacles are clear.
10. Accelerate to normal climb or (Vy) if required.
11. Wing Flaps—RETRACT slowly after obstacle.

SOFT FIELD TAKEOFF

1. Wing Flaps--20°
2. Carburetor Heat--COLD
3. Use ROLLING TAKEOFF Technique
4. Throttle--FULL OPEN - **Confirm Max RPM and Oil pressure early in takeoff roll**
5. Elevator Control--LIFT AIRCRAFT off ground as soon as practical
6. LEVEL AIRCRAFT just above runway surface
6. ACCELERATE to Appropriate Airspeed for Climb
7. Landing Gear—RETRACT after obstacles are clear.
8. Wing Flaps--RETRACT slowly after reaching 60 KIAS

NORMAL CLIMB

1. Airspeed—90-100 KIAS
2. Power—23 INCHES MP and 2400 RPM
3. Fuel Selector Valve--BOTH
3. Mixture—FULL RICH (above 3000 feet, LEAN to obtain maximum RPM)
4. Cowl Flaps—OPEN as required to control cylinder head temps

MAXIMUM PERFORMANCE CLIMB

1. Airspeed—88 KIAS at sea level to 74 KIAS at 10,000 ft
2. Power—FULL THROTTLR AND 2400 RPM
3. Fuel Selector Valve—BOTH

4. Mixture—FULL RICH (above 3000 feet, LEAN to obtain maximum RPM)
5. Cowl Flaps— FULL OPEN

CRUISE

1. Power—15-23 INCHES MP, 2100-2400 RPM (no more than 75% power)
2. Elevator and Rudder Trim (if installed)--ADJUST
3. Mixture--LEAN
4. Cowl Flaps—CLOSED
5. Directional Gyro--CHECK / SET

DESCENT

1. Power--AS DESIRED
2. Carburetor Heat--AS REQUIRED (to prevent carburetor icing)
3. Mixture—ENRICH as required for smooth operation
4. Cowl Flaps—CLOSED
5. Fuel Selector Valve—BOTH
6. Flaps—AS Desired (0-1O degrees below 140 KIAS, 10-40 degrees below 95 KIAS)

BEFORE LANDING

1. Seats, Seat Belts, Shoulder Harnesses--SECURE
2. Fuel Selector Valve—BOTH
3. Landing Gear – DOWN (Below 140 KIAS)
4. Landing Gear—CHECK (Observe main gear down and green indicator light illuminated)
5. Mixture—RICH
6. Carburetor Heat--ON (apply full heat before reducing power)
7. Propeller—HIGH RPM

8. Autopilot-- OFF

LANDING

NORMAL LANDING

1. Airspeed--65-70-80 KIAS (flaps up)
2. Wing Flaps--AS DESIRED (0° - 10° below 140 KIAS, 10° - 40° below 95 KIAS)
3. Airspeed—65-75 KIAS (flaps down)
4. Trim—ADJUST
5. Touchdown--MAIN WHEELS FIRST
6. Landing Roll--LOWER NOSE WHEEL GENTLY
7. Braking--MINIMUM REQUIRED

SHORT FIELD LANDING

1. Airspeed 70-80 KIAS (flaps up)
2. Wing Flaps—40 degrees (Below 95 KIAS)
3. Airspeed—MAINTAIN 63 KIAS
4. Trim—ADJUST
5. Power--REDUCE to idle after clearing obstacle
6. Touchdown--MAIN WHEELS FIRST
7. Brakes--APPLY HEAVILY
8. Wing Flaps—RETRACT for maximum effectiveness

SOFT FIELD LANDING

1. Airspeed 70-80 KIAS (flaps up)
2. Wing Flaps—40 degrees (Below 95 KIAS)
3. Airspeed—MAINTAIN 63 KIAS
4. Trim—ADJUST
5. Power—AS REQUIRED on final approach and through touchdown (Approx 1400-1500 RPM)
6. Touchdown—SOFTLY on main wheels. Maintain nose high attitude with minimum weight on nose wheel through roll-out
7. Brakes—NONE unless absolutely necessary

BALKED LANDING

1. Power—FULL THROTTLE and 2400 rpm
2. Carburetor Heat--COLD
3. Wing Flaps—RETRACT TO 20°
4. Climb Speed--75 KIAS
5. Wing Flaps-- RETRACT slowly after reaching 75 KIAS.
6. Cowl Flaps--OPEN

AFTER LANDING

1. Wing Flaps--UP
2. Carburetor Heat—COLD
3. Cowl Flaps—OPEN
4. Transponder—STBY
5. Strobe Lights—OFF
6. Landing/Taxi Lights—OFF (as required at night)
7. Radio Call--TAXI INSTRUCTIONS / ANNOUNCE INTENTIONS
8. Close Flight Plan after Tower frequency release

AIRCRAFT SHUTDOWN AT THE FUEL TANKS FOR REFUELING AS REQUIRED BY SOP.

1. Parking Brake—SET as required
2. Flight Plan--CLOSED
4. **Avionics Master Switch – OFF**
5. Electrical Equipment –OFF
6. **Autopilot—CHECK OFF**
7. Mixture--IDLE CUT-OFF
8. Ignition Switch--OFF remove keys and place on glare shield
9. Master Switch—OFF
10. Fuel Selector –**SET to RIGHT OR LEFT**
11. Chock Airplane –CHECK
12. Connect Fueling Grounding Wire –CHECK
13. Unlock Pump –TURN ON
14. Position Ladder and Fuel Hose-CHECK

15. Fuel—TO BOTTOM OF FILLER NECK ONLY (34.5 gallons each tank)
16. After Refueling –NOTE fuel quantity for log
17. Replace hose at pump, lock pump, get keys, move hose to safe area.
18. Disconnect and roll up Grounding wire- CHECK
19. Remove Chocks- CHECK
20. Attach tow bar, and move aircraft to parking position-CHECK

SECURING AIRPLANE

1. Parking Brake—SET as required
2. Tiedown Wings, then tighten tail tiedown -CHECK
3. Chock Main wheel- CHECK
4. Hobbs, Tach, fuel and Squawks--RECORD
5. Control Lock—INSTALL
6. Clean Cabin, Store Belts, Replace Sun Screens and Covers –CHECK
7. Collect Keys and Airplane Book, pilot gear –CHECK
8. Lock Doors and Baggage compartment
9. Log Aircraft back in—CHECK. Note Squawks, fuel, oil, and flight time.
10. Return keys to Key box - CHECK

SECTION 3
EMERGENCY PROCEDURES

AIRSPEEDS FOR EMERGENCY OPERATION

	K IAS
Engine Failure After Takeoff:	
Wing Flaps Up	70
Wing Flaps Down	65
Maneuvering Speed:	
3100 Lbs	112
2550 Lbs	101
2000Lbs	89
Maximum Glide:	
3100 Lbs	80
2550 Lbs	72
2000Lbs	64
Precautionary Landing With Engine Power	65
Landing Without Engine Power:	
Wing Flaps Up	75
Wing Flaps Down	65

OPERATIONAL CHECKLISTS

ENGINE FAILURES

ENGINE FAILURE DURING TAKEOFF RUN

1. Throttle--IDLE
2. Brakes--APPLY HEAVILY
3. Wing Flaps--RETRACT
4. Mixture--IDLE CUTOFF
5. Ignition Switch--OFF
6. Master Switch--OFF

ENGINE FAILURE IMMEDIATELY AFTER TAKEOFF

1. Airspeed-- 70 KIAS (flaps up)
   65 KIAS (flaps down)
2. Mixture--IDLE CUTOFF
3. Fuel Selector Valve--OFF
4. Ignition Switch--OFF
5. Wing Flaps--AS REQUIRED (40 degrees recommended)
6. Master Switch--OFF

ENGINE FAILURE DURING FLIGHT

1. Airspeed-- 80 KIAS (Adjust to gross weight if required)
2. Carburetor Heat--ON
3. Fuel Selector Valve--BOTH
4. Mixture--RICH
5. Master Switch--ON
6. Ignition Switch--BOTH (or START if prop is stopped)
7. Primer--IN and LOCKED
8. Radio--TRANSMIT "MAYDAY" CALL 121.5 MHz
9. Transponder—7700

FORCED LANDINGS

EMERGENCY LANDING WITHOUT ENGINE POWER

1. Airspeed-- 70 KIAS (flaps UP)
   65 KIAS (flaps DOWN)
2. Mixture--IDLE CUTOFF
3. Fuel Selector Valve—OFF
4. Ignition Switch—OFF
5. Landing Gear—DOWN (UP if terrain is rough or soft)
6. Wing Flaps--AS REQUIRED (40° recommended)
7. Seat Belts—FASTENED
8. Doors—UNLATCH PRIOR TO TOUCHDOWN
9. Master Switch—OFF when landing is assured
10. Touchdown--SLIGHTLY TAIL LOW
11. Brakes--APPLY HEAVILY

PRECAUTIONARY LANDING WITH ENGINE POWER

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1. Airspeed--65 KIAS
2. Wing Flaps 20°
3. Selected Field--FLY OVER, noting terrain and obstructions, then retract flaps upon reaching a safe altitude and airspeed
4. Radios and Electrical Switches—OFF
5. Autopilot—OFF
6. Landing Gear—DOWN (UP if terrain is rough or soft)
7. Wing Flaps--40° (on final approach)
8. Airspeed--65 KIAS
9. Avionics Power-- OFF
10. Master Switch—OFF
11. Seat Belts--FASTENED
12. Doors--UNLATCH PRIOR TO TOUCHDOWN
13. Touchdown--SLIGHTLY TAIL LOW
14. Ignition Switch—OFF
15. Brakes--APPLY HEAVILY

DITCHING

1. Radio--TRANSMIT MAYDAY on 121.5 MHz , giving location and intentions and SQUAWK 7700
2. Heavy Objects --SECURE OR JETTISON
3. Approach--High Winds, Heavy Seas--INTO THE WIND
   Light Winds, Heavy Swells--PARALLEL TO SWELLS
4. Wing Flaps--30°-40 degrees recommended
5. Power--ESTABLISH 300 FPM DESCENT AT 60 KIAS

NOTE
If no power is available, approach at 70 KIAS (flaps up)
or 65 KIAS with 10° flaps

6. Cabin Doors--UNLATCH
7. Touchdown--LEVEL ATTITUDE AT ESTABLISHED RATE OF DESCENT
8. Face--CUSHION at touchdown with folded coat

9. Airplane--EVACUATE through cabin doors. If necessary, open window and flood cabin to equalize pressure so doors can be opened.
10. Life Vests and Raft—INFLATE

FIRES

DURING START ON GROUND

1. Cranking--CONTINUE to get a start which would suck the flames and accumulated fuel through the carburetor and into the engine.

If Engine Starts:

2. Power--1700 RPM for a few minutes
3. Engine--SHUT DOWN and inspect for damage

If Engine Fails to Start:

4. Throttle--FULL OPEN
5. Mixture--IDLE CUT-OFF
6. Cranking--CONTINUE
7. Fire Extinguisher--OBTAIN
   (have ground attendants obtain if not installed)
8. Engine--SECURE
   a. Master Switch--OFF
   b. Ignition Switch--OFF
   c. Fuel Selector Valve--OFF
9. Fire--EXTINGUISH using fire extinguisher, wool blanket or dirt
10. Fire Damage--INSPECT, repair damage or replace damaged components or wiring before conducting another flight

ENGINE FIRE IN FLIGHT

1. Mixture--IDLE CUT-OFF
2. Fuel Selector Valve--OFF
3. Master Switch--OFF
4. Cabin Heat and Air--OFF (except overhead vents)

5. Airspeed--100 KIAS (If fire is not extinguished, increase glide speed to find an airspeed which will provide an incombustible mixture)
6. Forced Landing--EXECUTE (as described in Emergency Landing without Engine Power)

ELECTRICAL FIRE IN FLIGHT

1. Master Switch--OFF
2. Avionics Power Switch--OFF
3. All Other Switches (except ignition switch)--OFF
4. Vents / Cabin Air / Heat--CLOSED
5. Fire Extinguisher--ACTIVATE (if available)

WARNING
AFTER DISCHARGING AN EXTINGUISHER IN A CLOSED CABIN, VENTILATE THE CABIN

If fire appears out and electrical power is necessary for continued flight:

6. Master Switch--ON
7. Circuit Breakers--CHECK for faulty circuit, do not reset
8. Radio Switches--OFF
9. Avionics Power Switch--ON
10. Radios / Electrical Switches--ON one at a time, with delay after each until short circuit is located
11. Vents / Cabin Air / Heat--OPEN when it is ascertained that fir e is completely extinguished

CABIN FIRE

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

WARNING
AFTER DISCHARGING AN EXTINGUISHER IN A CLOSED CABIN, VENTILATE THE CABIN

4. Land the airplane as soon as possible to inspect for damage

WING FIRE

1. Navigation Light Switch--OFF
2. Pitot Heat Switch (if installed) --OFF

3. Strobe Light Switch (if installed) -- OFF

NOTE

PERFORM A SIDE SLIP TO KEEP FLAMES AWAY FROM FUEL TANK AND CABIN, AND LAND AS SOON AS POSSIBLE USING FLAPS ONLY AS REQUIRED ON FINAL APPROACH.

ICING

INADVERTENT ICING ENCOUNTER

1. Turn pitot heat switch ON (if installed)
2. Turn back or change altitude to obtain an outside temperature that is less conducive to icing
3. Pull cabin heat control full out and open defroster outlets to obtain maximum windshield defroster airflow. Adjust cabin air control to get maximum defroster heat and airflow
4. Open the throttle to increase engine speed and minimize ice build-up on propeller blades
5. Watch for signs of carburetor air filter ice and apply carburetor heat as required. An unexplained loss in engine speed could be caused by carburetor ice or air intake filter ice. Lean the mixture for maximum RPM if carburetor heat is used continuously
6. Plan a landing at the nearest airport. With an extremely rapid ice build-up, select a suitable “off airport” landing site
7. With an ice accumulation of 1/4 inch or more on the wing leading edges, be prepared for a significantly higher stall speed.
8. Leave wing flaps retracted. With a severe build-up on the horizontal tail, the change in wing wake airflow direction caused by wing flap extension could result in loss of elevator effectiveness.
9. Open left window and, if practical, scrape ice from a portion of the windshield for visibility in the landing approach
10. Perform a landing approach using a forward slip, of necessary for improved visibility
11. Approach at 85-95 KIAS depending upon the amount of the accumulation

12 Perform a landing in a level attitude

STATIC SOURCE BLOCKAGE

(Erroneous Instrument Reading Suspected)

1. Alternate Static Source Valve--PULL ON
2. Airspeed—CRUISE 50 ft higher and approach 30 ft higher than normal

LANDING WITH A FLAT MAIN TIRE

1. Approach--NORMAL
2. Touchdown--GOOD TIRE FIRST, hold airplane off flat tire as long as possible
3. Directional Control—MAINTAIN using brake on good wheel as required

LANDING GEAR MALFUNCTION PROCEDURES

LANDING GEAR FAILS TO RETRACT

1. Master Switch—ON
2. Landing Gear Lever—CHECK (lever full up)
3. Landing Gear and Gear Pump Circuit Breakers—IN
4. Landing Gear Lever—RECYCLE
5. Gear Motor—CHECK operating (ammeter load and noise)

LANDING GEAR FAILS TO EXTEND

1. Landing Gear Lever—DOWN
2. Emergency Hand Pump—EXTEND HANDLE, and PUMP (perpendicular to handle until resistance becomes heavy—about 20 cycles).
3. Gear Down Light—ON
4. Pump Handle—STOW

GEAR UP LANDING

1. Landing Gear Lever—UP
2. Landing Gear and Gear Pump Circuit Breakers—IN
3. Runway—SELECT longest hard surface or smooth sod runway available
4. Wing Flaps—40 degrees (on final approach)
5. Airspeed—65 KIAS
6. Doors—UNLATCH prior to touchdown
7. Avionics and Master Switches—OFF when landing is assured
8. Touchdown—SLIGHTLY TAIL LOW
9. Mixture—IDLE CUT-OFF
10. Ignition Switch—OFF
11. Fuel Selector Valve—OFF
12. Airplane—EVACUATE

LANDING WITHOUT POSITIVE INDICATION OF GEAR LOCKING DOWN

1. Before Landing Checklist—COMPLETE
2. Approach—NORMAL (full flap)
3. Landing Gear and Gear Pump Circuit Breakers—IN
4. Landing—TAIL LOW as smooth as possible
5. Breaking—MINIMUM necessary
6. Taxi—SLOWLY
7. Engine—SHUTDOWN before inspecting gear

LANDING WITH A DEFECTIVE NOSE GEAR (or flat nose Tire)

1. Movable Load—TRANSFER to baggage area.
2. Passenger—MOVE to rear seat
3. Before Landing Checklist—COMPLETE
4. Runway—HARD SURFACE OR SMOOTH SOD
5. Wing Flaps—40 degrees
6. Cabin Doors-- UNLATCH prior to touchdown
7. Avionics and Master Switches—OFF when landing is assured
8. Touchdown—SLIGHTLY TAIL LOW
9. Mixture—IDLE CUT-OFF
10. Ignition Switch—OFF
11. Fuel Selector Valve—OFF

12. Elevator Control—HOLD NOSE OFF GROUND as long as possible
13. Airplane—EVACUATE as soon as it stops

LANDING WITH A FLAT MAIN TIRE

1. Approach—NORMAL (full flap)
2. Touchdown—GOOD TIRE FIRST, hold airplane off flat tire as long as possible with aileron controls.
3. Directional Control—MAINTAIN using brake on good wheel as required

ELECTRICAL POWER SUPPLY SYSTEM MALFUNCTIONS

OVERVOLTAGE LIGHT ILLUMINATES

1. Avionics Master Switch—OFF
2. Master Switch—OFF (both sides)
3. Master Switch—ON
4. Overvoltage Light—OFF
5. Avionics Master Switch -- ON

If Light Illuminates again:

6. Alternator Circuit Breaker—PULL (Aircraft will be running on battery reserve only, leaving alternator on on will draw down battery quicker)
7. Nonessential Electrical Equipment—OFF
8. Flight--TERMINATE as soon as practical

AMMETER INDICATES DISCHARGE

NOTE

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

1. Avionics Master Switch--OFF
2. Alternator Circuit Breaker--CHECK IN

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3. Master Switch--OFF (both sides)
4. Master Switch--ON
5. Low Voltage Light--CHECK OFF
6. Avionics Master Switch--ON

If Low Voltage Light Illuminates Again:

7. Alternator—OFF (Left side of master switch)
8. Non-essential Radio and Electrical Equipment--OFF
9. Flight--TERMINATE as soon as practical

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