

Ground Checklists and Information

N73146

| Preflight | |
|---|-----------------|
| Fuel | |
| Magnetos | OFF |
| Fuel quantity | CHECK VISUALLY |
| Fuel sumps | DRAIN |
| Left wing, right wing, fuel strainer. Inspect for contamination. | |
| Fuel filler caps | SECURE |
| Cabin | |
| Pitot cover | REMOVE |
| ARROW Documents | VERIFY |
| Master | ON |
| Flaps | EXTEND |
| Fuel gauges | CHECK QUANTITY |
| Lights | CHECK |
| Tach time | RECORD |
| Pitot heat | TEST |
| Master | OFF |
| Fire extinguisher | SECURE |
| Control lock | REMOVE |
| Empennage | |
| Rudder gust lock | REMOVE |
| Control surfaces | CHECK |
| Freedom of movement and security | |
| Right | |
| Main wheel tire | CHECK INFLATION |
| Aileron | CHECK |
| Freedom of movement and security | |
| Nose | |
| Engine oil level | CHECK |
| Minimum 6 quarts | |
| Propeller, spinner | CHECK |
| For nicks and security | |
| Landing light | CHECK CLEAR |
| Air filter | CHECK CLEAR |
| Nosewheel & strut | CHECK INFLATED |
| Static source | CHECK CLEAR |
| Left | |
| Main wheel tire | CHECK INFLATION |

| Light Gun Signals | |
|-------------------------------------|--|
| Aircraft on the Ground | Aircraft in Flight |
| Cleared for takeoff | Cleared to land |
| Cleared for taxi | Return for landing (to be followed by steady green at the proper time) |
| STOP | Give way to other aircraft and continue circling |
| Taxi clear of the runway in use | Airport unsafe, do not land |
| Return to starting point on airport | Not applicable |
| Exercise extreme caution | Exercise extreme caution |

| Preflight (continued) | |
|----------------------------------|-------------|
| Fuel tank vent | CHECK CLEAR |
| Pitot tube | CHECK CLEAR |
| Stall warning | TEST |
| Aileron | CHECK |
| Freedom of movement and security | |
| Final | |
| Flight Circle | DISPATCH |
| Tach, Hobbs times | RECORD |
| Baggage door | LOCK |
| Chocks | REMOVE |
| Tie-downs | REMOVE |

| Securing | |
|-------------------|----------|
| Control lock | INSTALL |
| Tie-downs, chocks | APPLY |
| Vents, windows | CLOSE |
| Pitot cover | APPLY |
| Tach, Hobbs times | RECORD |
| Flight Circle | CHECK IN |
| Doors | LOCK |

| Speeds | | KIAS |
|--|-----------|-------|
| Best glide (V _G) | | 65 |
| Best angle of climb (V _X) | Sea level | 64 |
| | 10,000 ft | 62 |
| Best rate of climb (V _Y) | Sea level | 78 |
| | 10,000 ft | 68 |
| Landing approach | Flaps up | 60-70 |
| | Flaps 40 | 55-65 |
| Normal takeoff climb | | 70-80 |
| Short-field takeoff climb | Flaps up | 59 |
| | Flaps 10 | 55 |
| Normal enroute climb | Sea level | 80-90 |
| | 10,000 ft | 70-80 |
| Design maneuvering speed (V _A) | 2300 lbs | 97 |
| | 1950 lbs | 89 |
| | 1600 lbs | 80 |

Operating Checklists

N73146

| Start | |
|--|---------------|
| Before Start | |
| Preflight inspection | COMPLETE |
| Passenger briefing | COMPLETE |
| Brakes | TEST and SET |
| Seats, belts, harnesses | SECURE |
| Fuel valve | BOTH |
| Radios, electrical equipment | OFF |
| Circuit breakers | CHECK IN |
| Beacon switch | ON |
| Engine Start | |
| Mixture | RICH |
| Carburetor heat | COLD |
| Prime | AS REQUIRED |
| Throttle | OPEN 1/8 INCH |
| Master | ON |
| Propeller area | CLEAR |
| Ignition switch | START |
| Release when engine starts | |
| Oil pressure | CHECK |
| If no pressure in 30 seconds, shutdown | |
| Mixture | GROUND LEAN |
| Before Taxi | |
| Avionics | ON |
| Headset | ON |
| Flaps | RETRACT |
| Transponder | VERIFY ALT |
| Weather | OBTAIN |
| Altimeter | SET |
| EFB Setup | AS DESIRED |
| Navigation, landing lights | ON |

| Run-up | |
|------------------------------------|------------------------|
| Instruments | CHECK and SET |
| VOR check | IF NEEDED |
| Brakes | SET |
| Doors and windows | CLOSED, LOCKED |
| Flight controls | FREE and CORRECT |
| Fuel valve | BOTH |
| Mixture | RICH (below 3000 feet) |
| Throttle | 1700 RPM |
| Magnetos | CHECK |
| Max drop 125 RPM, max diff. 50 RPM | |
| Engine gauges, ammeter | CHECK |
| Vacuum gauge | CHECK |
| Gyroscopic instruments | CHECK |
| Carburetor heat | TEST |
| Idle | TEST |
| Mixture | GROUND LEAN |
| Throttle friction | ADJUST |

| Before Takeoff | |
|------------------------------------|------------------------|
| Radios, navigation, instruments | SETUP |
| Takeoff briefing | COMPLETE |
| Beacon, navigation, landing lights | ON |
| Carburetor heat | AS REQUIRED |
| Flaps | 0-10° |
| Trim | TAKEOFF |
| Fuel valve | BOTH |
| Fuel quantity | CHECK |
| Mixture | RICH (below 3000 feet) |

| Climb | |
|----------|-----------------------------|
| Airspeed | 70-90 KIAS |
| Throttle | FULL |
| Mixture | RICH (lean above 3000 feet) |

| Cruise | |
|---------|----------------------|
| Power | 2200-2700 RPM (≤75%) |
| Trim | ADJUST |
| Mixture | LEAN (for max RPM) |

| Descent | |
|-----------------|-------------|
| Mixture | RICH |
| Power | AS DESIRED |
| Carburetor heat | AS REQUIRED |

| Before Landing | |
|-----------------|-------------------------|
| Fuel valve | BOTH |
| Mixture | RICH |
| Carburetor heat | ON |
| Airspeed | 60-70 KIAS (flaps UP) |
| Flaps | AS DESIRED |
| Airspeed | 55-65 KIAS (flaps DOWN) |

| Balked Landing | |
|-----------------|----------------|
| Throttle | FULL |
| Carburetor heat | COLD |
| Flaps | 20° |
| Airspeed | 55 KIAS |
| Flaps | RETRACT slowly |

| After Landing | |
|-----------------|-------------|
| Flaps | UP |
| Carburetor heat | OFF |
| Mixture | GROUND LEAN |

| Shutdown | |
|------------------------------|---------|
| Brakes | SET |
| Tach time | RECORD |
| Radios, electrical equipment | OFF |
| Mixture | CUT-OFF |
| Magnetos | OFF |
| Master | OFF |

Engine Failures, Abnormal Landings

| Engine Failure During Takeoff Run | |
|-----------------------------------|---------|
| Throttle | IDLE |
| Brakes | APPLY |
| Flaps | RETRACT |
| Mixture | CUT-OFF |
| Magnetos | OFF |

| Engine Failure Shortly After Takeoff | |
|--------------------------------------|--|
| Airspeed | Flaps up: 65 KIAS Flaps down: 60 KIAS |
| Mixture | CUT-OFF |
| Fuel valve | OFF |
| Magnetos | OFF |
| Flaps | AS REQUIRED |
| Master | OFF |

| Engine Failure During Flight | |
|------------------------------|--|
| Airspeed | 65 KIAS |
| Carburetor heat | ON |
| Fuel valve | BOTH |
| Mixture | RICH |
| Magnetos | BOTH |
| Primer | (START if prop stopped) IN and LOCKED |

| Forced Landing With Engine Failure | |
|------------------------------------|--|
| Airspeed | Flaps up: 65 KIAS Flaps down: 60 KIAS |
| Mixture | CUT-OFF |
| Fuel valve | OFF |
| Magnetos | OFF |
| Flaps | AS REQUIRED 40° recommended |
| Master | OFF |
| Doors | UNLATCH BEFORE TOUCHDOWN |
| Touchdown | SLIGHTLY TAIL LOW |
| Brakes | APPLY HEAVILY |

| Precautionary Landing | |
|-----------------------------|---|
| Flaps | 20° |
| Airspeed | 60 KIAS |
| Selected field | FLY OVER |
| | Note terrain/obstructions. Retract flaps upon reaching a safe altitude and airspeed. |
| Radios, electrical switches | OFF |
| Flaps | 40° (on final approach) |
| Airspeed | 60 KIAS |
| Master | OFF |
| Doors | UNLATCH BEFORE TOUCHDOWN |
| Touchdown | SLIGHTLY TAIL LOW |
| Magnetos | OFF |
| Brakes | APPLY HEAVILY |

| Ditching | |
|---------------------------|---|
| Radio | MAYDAY on 121.5 MHz Give location, intentions |
| Heavy objects | SECURE or JETTISON |
| Flaps | 20°-40° |
| Power | 300 FT/MIN DESCENT AT 55 KIAS If no power available, approach flaps up 65 KIAS or flaps 10° 60 KIAS |
| Strong wind, heavy seas: | LAND INTO WIND |
| Light wind, heavy swells: | LAND PARALLEL TO SWELLS |
| Doors | UNLATCH |
| Touchdown | LEVEL ATTITUDE at established rate of descent |
| Face | CUSHION at touchdown with coat |
| Airplane | EVACUATE |
| Life vests/raft | INFLATE |

| Landing Without Elevator Control | |
|----------------------------------|---|
| Trim | FOR LEVEL FLIGHT at 60 KIAS, flaps 20° |
| Approach | Control glide angle using power, do not change trim. |
| Flare | USE NOSE-UP TRIM & POWER |
| Touchdown | THROTTLE IDLE |

Fires, Icing, Flat Tire, Electrical

| Engine Fire During Start On Ground | |
|--|---|
| Cranking | CONTINUE |
| If engine starts: | |
| Power | 1700 RPM for a few minutes |
| Engine | SHUTDOWN |
| If engine fails to start: | |
| Throttle | FULL OPEN |
| Mixture | CUT-OFF |
| Cranking | CONTINUE for 2-3 minutes |
| Fire extinguisher | OBTAIN |
| Master | OFF |
| Magnetos | OFF |
| Fuel valve | OFF |
| Fire | EXTINGUISH Use fire extinguisher, seat cushion, wool blanket, or dirt. If practical, try to remove air filter if it is ablaze. |
| Both cases: inspect and repair damage before conducting another flight. | |

| Engine Fire in Flight | |
|---|---|
| Mixture | CUT-OFF |
| Fuel valve | OFF |
| Master | OFF |
| Cabin heat & air | OFF (except overhead vents) |
| Airspeed | 100 KIAS If fire is not extinguished, increase glide speed to find an airspeed which will provide an incombustible mixture |
| Forced Landing With Engine Failure checklist | EXECUTE |

| Electrical Fire in Flight | |
|--|---|
| Master | OFF |
| All other switches (except magnetos) | OFF |
| Vents/cabin air/heat | CLOSE |
| Fire extinguisher | USE |
| If fire appears out and electrical power is necessary to continue flight: | |
| Master | ON |
| Circuit breakers | CHECK (do not reset faulty circuit) |
| Radio/electrical switches | ON One at a time with delay after each until short circuit is localized |
| Vents/cabin air/heat | OPEN (when fire completely extinguished) |

| Cabin Fire | |
|-------------------------------|--|
| Master | OFF |
| Vents/cabin air/heat | CLOSED (to avoid drafts) |
| Fire extinguisher | USE WARNING: After discharging extinguisher within a closed cabin, ventilate cabin |
| Land ASAP, inspect for damage | |

| Wing Fire | |
|---|-----|
| Nav lights | OFF |
| Pitot heat | OFF |
| NOTE: Sideslip to keep flames away from fuel tanks and cabin. Land ASAP using flaps only as required. | |

| Inadvertent Icing Encounter | |
|---|--|
| Pitot heat | ON |
| Turn back or change altitude to obtain an OAT less conducive to icing. | |
| Cabin heat | FULL ON |
| Defroster | OPEN |
| Cabin air | ADJUST Maximize defroster heat and airflow |
| Throttle | OPEN |
| Carburetor/air filter icing | MONITOR Apply carb heat as required, lean mixture for maximum RPM if used continuously |
| Land | NEAREST AIRPORT With very rapid ice build-up, select suitable off-airport landing site |
| With ≥ 1/4 inch ice on the leading edges, prepare for significantly higher stall speed | |
| Flaps | LEAVE RETRACTED |
| Open left window and scrape ice from windshield, if necessary for visibility | |
| Forward slip if necessary for visibility | |
| Approach speed | 65-75 KIAS Depending on level of accumulation |
| Landing | Perform in level attitude |

| Static Source Blockage | |
|-------------------------------|---|
| Alternate static source valve | PULL ON |
| Airspeed | Use calibration table in POH section 5 |

| Landing With a Flat Main Tire | |
|-------------------------------|--|
| Approach | NORMAL |
| Touchdown | GOOD TIRE FIRST Hold flat tire off ground as long as possible |

| Over-Voltage Light Illuminates | |
|--|------------------|
| Master | OFF (both sides) |
| Master | ON |
| If over-voltage light illuminates again: | |
| Flight | TERMINATE ASAP |

| Ammeter Shows Discharge | |
|-----------------------------------|--------------------------------|
| Alternator | OFF |
| Nonessential electrical equipment | OFF |
| Flight | TERMINATE as soon as practical |