**SPEEDS (KIAS)**

**BEST GLIDE...71 @ FLAPS 0°**

MAX XWIND:

FLAPS 0°...16KTS / 35°...11KTS
Vso => 40  Vs1 => 50  Vr => 46
Vx (15°) => 51  Vy (15°) => 61
Va =>105@1320#
Vno => 120  Vne => 145

**PREFLIGHT**

FUEL...... CHECK LEFT & RIGHT CALL FOR FUEL IF REQUIRED
Aircraft Documents.......AROW Flight Controls
............................FREE & CORRECT Main Pins.................SECURE Ignition....................OFF BRS....................PIN REMOVED
All Switches Except Beacon
............................OFF BAT Breaker.................ON Flaps..........................35° Lights.....CHECK for NIGHT OPS BAT Breaker.................OFF Fuel Shut Off Valve.......OPEN Left Main Landing Gear...CHECK (ALL tire pressures 29 – 31.9 psi) Antennas.................CHECK LEFT Baggage Compartment
............................CLOSED & LATCHED Static Port (belly)........CLEAR Fuselage (Left Side).....CHECK Horizontal Stabilizer......CHECK Trim Tab.........................CHECK Vertical Stabilizer.........CHECK Rudder.................CHECK Dorsal Fin.......................CHECK Fuselage (Right Side)......CHECK RIGHT Baggage Compartment
............................CLOSED & LATCHED Right Flap.......................CHECK Right Aileron.................CHECK Right Wing Tip.................CHECK Right Fuel Vent.................CLEAR Right Wing Leading Edge.CHECK Right Pitot tube..............CLEAR Right Bell Crank............CHECK Right Tie Down..............REMOVE Right Filler Cap...............SECURE Right Main Gear.............CHECK Right Cowling...............SECURE Propeller.....................SECURE Spinner.........................CHECK Air Inlet......................CLEAR Windscreen..................CLEAN Left Cowling...............SECURE Burping Oil System
............................TURN PROP IN NORMAL DIRECTION UNTIL GURLING SOUND HEARD Oil Level...FLAT PART OF STICK Coolant Level ............CHECK Nose Gear Assembly.....CHECK Fuel Sump.................CHECK Left Filler Cap...............SECURE Left Leading Edge...........CHECK Left Pitot tube..............CLEAR Left Tie Down..............REMOVE Left Bell Crank.............CHECK Left Wing Tip.................CHECK Left Fuel Vent.................CLEAR Left Aileron.................CHECK Left Flap.........................CHECK

**BEFORE ENGINE START**

Preflight Inspection...COMPLETE Passenger Briefing...COMPLETE Seats and Belts........SECURE ALTIMETER.................CONFIRM OIL TEMP.................ABOVE 120°F THROTTLE.................4000 RPM ENGINE GAUGES...........GREEN MAG CHK........MAX DROP 300 ALARM LIGHTS.................OFF CARB HEAT.................CHECK THROTTLE...........IDLE TRIMS(3)..........................SET BRS
......VERIFY PIN OUT; BRIEF USE DEPARTURE BRIEFING
............................COMPLETE

**BEFORE TAKEOFF CHECK**

FLAPS....................SET 15° LANDING LIGHT...........ON POSITION LIGHT...........ON TRANSPOINTER................ALT Emerg. Procedures...........REVIEW Time Up............................START ROTATE..................46 KIAS CLIMB....................61 KIAS ABOVE 400 AGL.FLAPS UP (~6°) CLIMB.................71 KIAS

**RUNUP CHECK**

PARKING BRAKE.............ON DOORS........CLOSED & LATCHED CONTROLS........FREE & CORRECT ALTIMETER.................CONFIRM OIL TEMP.................ABOVE 120°F THROTTLE.................4000 RPM ENGINE GAUGES...........GREEN MAG CHK........MAX DROP 300 ALARM LIGHTS.................OFF CARB HEAT.................CHECK THROTTLE...........IDLE TRIMS(3)..........................SET BRS
......VERIFY PIN OUT; BRIEF USE DEPARTURE BRIEFING
............................COMPLETE

**BEFORE TAXI CHECK**

AVIONICS..................ON INTERCOM..................ON LIGHTS.............AS REQUIRED WING FLAPS.............UP (~6°) TRANSPOINTER...........GND/SBY ATIS (120.55 @ KSTS)....RECORD ALTIMETER.............SET BRAKES...........CHECK ON TAXI
### NORMAL TAKEOFF
- **Rotate**: 46 KIAS
- **Climb**: 61 KIAS
- **Above 400’agl... Flaps Up (-6°)**
- **Climb**: 71 KIAS

### SHORT-FIELD TAKEOFF
- **Flaps**: 15°
- **Landing Light**: ON
- **Position Light**: ON
- **Transponder**: ALT
- **Brakes**: Release
- **Rotate**: 41 KIAS
- **Climb**: 51 KIAS
  - (until clear of obstacle)
- **Climb**: 61 KIAS
- **Flaps**: RETRACT

### SOFT FIELD TAKEOFF
- **Flaps**: 15°
- **Landing Light**: ON
- **Position Light**: ON
- **Transponder**: ALT
- **Elevator**: Full AFT
- **Throttle**: OPEN SLOWLY
- **Use Caution to Not Strike Tail!**
- **Liftoff**: Slowest Poss. Airspeed
- **Accelerate while in ground effect**
- **Climb**: 61 KIAS
- **Flaps**: RETRACT

### CLIMB CHECK (1000AGL)
- **Flaps**: CHECK UP (-6°)
- **Pitch for**: 80 KIAS
- **Monitor Oil Temps During Climb**: REDUCE POWER IF NEEDED
- **Do Not Allow Oil Temp Into Red Arc**

### CRUISE CHECK
- **Throttle**: SET (4800 to 5100)
- **Trim**: Monitor
- **Engine Gauges**: Monitor

### DESCENT CHECK
- **Power**: AS DESIRED
- **ATIS**: RECORD
- **Altimeter**: SET
- **Carb Heat**: AS REQUIRED
- **Cruise/Position Lights**: ON AUTOPILOT
- **Seats/Belts**: SECURE

### FINAL LANDING CHECK
- **Downwind**: 4200 RPM/85 KIAS ABEAM
- **3300 RPM/0° Flaps**: 80 KIAS
- **Base**: 15° FLAPS/75 KIAS
- **Final**: 15° FLAPS/55-60 KIAS

### PRE-MANEUVER CHECK
- **Clearing Turns**: DO
- **Landing Light**: ON
- **Power**: AS REQUIRED
- **Emergency Field**: Pick

### AFTER LANDING CHECK
- **Flaps**: RETRACT
- **Trim**: ADJUST
- **Transponder**: STBY
- **Landing Light**: OFF
- **Position Lights**: OFF

### NORMAL LANDING
- **Airspeed**: 60 (Flaps 15)
- **Crosswind**: INPUT

### SOFT FIELD LANDING
- **Airspeed**: 52 KTS
- **Flaps**: Down (30°)
- **Touchdown**: MAINS first
- **Add power to keep nose-wheel off the ground, hold elevator aft**
- **Brakes**: MINIMAL

### SHORT-FIELD LANDING
- **Airspeed**: 52 KTS
- **Flaps**: Down (30°)
- **Power**: IDLE
- **Touchdown**: MAINS first
- **Brakes**: RETRACT
- **Elevator**: FULL AFT

### GO-AROUND
- **Throttle**: FULL POWER
- **Pitch**: LEVEL
- **Flaps**: 15°
- **Climb**: 52 KTS
- **Continue climb as in normal takeoff**
- **Offset**: RIGHT/LEFT

### AFTER LANDING CHECK
- **Flaps**: RETRACT
- **Trim**: ADJUST
- **Transponder**: STBY
- **Landing Light**: OFF
- **Position Lights**: OFF

### SHUTDOWN
- **Parking Brake**: ON
- **Hobbs Time**: RECORD
- **All Switches Except Beacon**: OFF
- **Gen Breaker**: PULL OUT
- **Ignition Key**: REMOVE
- **Bat Breaker**: PULL OUT
- **Fuel Shut Off**: REMOVE
- **BRS**: LOCK (PIN IN)
- **Parking Brake**: OFF TO MOVE AIRCRAFT
- **Trash**: REMOVE
- **Doors/Windows**: LOCKED
- **Tie-Downs**: SECURE
- **Flight Plan**: CLOSE

### HOT START
- **Choke**: CLOSED (FULL FORWARD)
- **Then as in Normal Start**

### Flooded Start
- **Choke**: CLOSED (FULL FORWARD)
- **Then as in Normal Start**
**EMERGENCY PROCEDURES**

**ENGINE FAILURE - TAKEOFF**

**ON GROUND**

THROTTLE / IDLE (APPLY IGNITION / OFF)

FUEL VALVE / CLOSED

ENOUGH RUNWAY TO LAND?

THROTTLE / IDLE (AS REQUIRED)

BRAKES

APPLY AFTER LANDING

NO RUNWAY REMAINING?

LANDING FIELD

...WITHIN ±30° HDG

FLAPS / AS REQUIRED

FUEL VALVE / CLOSED

BAT & GEN BREAKER

PULL OFF

DOORS / UNLOCKED

**ENGINE FAILURE - IN FLIGHT**

AIRSPEED / 71 KIAS

BEST FIELD FOR LANDING

IF NO SUITABLE LANDING AREA PLAN TO DEPLOY BRS

CHECK EVERYTHING: CARB HEAT / PULL ON FUEL AMOUNT / CHECK L/R FUEL SHUT OFF / OPEN IGNITION / L–R BOTH

DECLARE EMERGENCY

...RADIO & SQUAWK 7700

PROCEED TO EMERGENCY LANDING CHECKLIST

**ENGINE ROUGHNESS**

FUEL VALVE / OPEN

ENGINE GAUGES / CHECK MAGNETO SWITCH

...L THEN R THEN BOTH

IF OPERATION IS SATISFACTORY ON EITHER MAGNETO, PROCEED ON THAT MAGNETO AT REDUCED POWER TO THE NEAREST AIRPORT

IF ROUGHNESS PERSISTS – PREPARE FOR POWER OFF LANDING

**PRECAUTIONARY LANDING WITH ENGINE POWER**

LANDING FIELD...CHOOSE SAFETY HARNESS...TIGHT

SECURE OBJECTS IN COCKPIT

TRANSMIT EMERGENCY RADIO CALL

FLAPS / AS REQUIRED

AIRSPEED / AS REQUIRED

MASTER SWITCH

...BAT AND GEN OFF DOORS...UNLOCK

FLARE 3 FT ABOVE GROUND OR TREE TOPS

TAIL LOW TOUCHDOWN ELT...CHECK TRANSMITTING

**LOSS OF COOLANT**

THROTTLE / REDUCE CHT...MAINTAIN BELOW 150 °C

LANDING

...AS SOON AS POSSIBLE AT SUITABLE AIRFIELD

**EXCEED MAX COOLANT TEMPERATURE**

THROTTLE / REDUCE AIRSPEED...INCREASE COOLANT TEMP...CHECK

IF TEMP REMAINS HIGH:

PRECAUTIONARY LANDING

...AS SOON AS PRACTICABLE

**INADVERTANT SPIN**

AILERON CONTROLS / NEUTRAL

RUDDER

OPPOSITE ROTATION DIRECTION

ROTATION...STOPPED ELEVATOR

...RELEASE BACK PRESSURE AFTER ROTATION IS STOPPED

THROTTLE...RETARD ELEVATOR

SMOOTH RECOVER FROM DIVE

IF UNABLE TO RECOVER, DEPLOY BRS

**DEPLOY BRS**

ENGINE

...STOP WITH IGNITION KEY

BRS

...PULL HANDLE WITH FORCE TO THE VERY END

EXTRACTOR

...CONFIRM STARTED, DEPLOY AGAIN WHEN NOT STARTED

FUEL VALVE...OFF

SAFETY HARNESS...TIGHT

EMERGENCY RADIO CALL

...TRANSMIT MASTER SWITCH

...BAT AND GEN OFF

PROTECTIVE POSITION

...TAKEN BEFORE GROUND CONTACT

AFTER TOUCHDOWN

...CHECK ELT TRANSMITTING
<table>
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<td>THROTTLE ..........MODERATE POWER LEVEL</td>
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<td>ENGINE SPEED ..........NOT OVER OR UNDER</td>
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<td>LANDING AIRFIELD ..........LONG RUNWAY</td>
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<td>ANGLE OF ATTACK ..........REDUCE THROTTLE ..........REDUCE OIL PRESSURE ..........CHECK OIL TEMP ..........CHECK IF IN LIMITS</td>
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<td>SIDE SLIP TO HOLD FLAMES OR SMOKE AWAY FROM CABIN</td>
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