N98819 CHECKLISTS

Original Issue – 20 August 1984

Airspeed limitations in KIAS

Vne	158 (also max window open speed)
Vno	127
Va	99 @ 2400lbs
	92 @ 2000lbs
	82 @ 1600lbs
Vfe	110 @ 10 degrees
	85 @ 10-30 degrees

Weight limits (Normal Category) – *Utility data in POH*

Maximum ramp weight:	2,407 lbs.
Maximum t/o weight:	2,400 lbs.
Maximum lndg weight:	2,400 lbs.
Baggage area 1:	120 lbs.
Baggage area 2:	50 lbs. (Max areas 1+2 combined is 120lbs)

Airspeeds for ***EMERGENCY OPERATION*** in KIAS

Engine failure after takeoff:

Wing flaps up	65
Wing flaps down	60

Maneuvering speed (and maximum turbulent air penetration speed):

2400 lbs.	99
2000 lbs.	92
1600 lbs.	82

Maximum glide 65

Precautionary landing with engine power - 60

Landing without engine power:

Flaps up	65
Flaps down	60

Speeds

Chandelle entry – 105 knots

Lazy Eights entry – 105 knots

Steep turns entry – 95 knots

Spins – slow deceleration

Stalls (except whip stalls) – slow deceleration

Vy	76 KIAS sea level/71@10,000 ft.
Vx	60 KIAS sea level/65@10,000 ft.
Vbg	65 KIAS
Va	99 KIAS

Max crosswind velocity – 15 knots

Vso	33 KIAS
Vs1	44 KIAS

Preflight inspection

1 - Cabin

1. POH – AVAILABLE IN THE AIRPLANE
2. Parking brake – SET
3. Control wheel lock – REMOVE
4. Ignition switch – OFF
5. Avionics power switch – OFF
6. Master switch – ON
7. Fuel quantity indicators – CHECK QUANTITY
8. Low-vacuum warning light – CHECK ON
9. Avionics power switch - ON
10. Avionics cooling fan – LISTEN for OPERATION
11. Avionics power switch – OFF
12. Master switch – OFF
13. Static pressure alternate source valve – OFF
14. Fuel selector valve – BOTH
15. Baggage door – CHECK, lock with key

2 - Empennage

1. Rudder gust lock – REMOVE
2. Tail tie-down – DISCONNECT
3. Control surfaces – CHECK freedom of mvt. & security

3 - Right wing trailing edge

1. Aileron – CHECK freedom of movement and security

4 - Right wing

1. Wing tiedown – DISCONNECT
2. Main wheel tire – CHECK for proper inflation
3. Fuel tank sump – DRAIN & CHECK for water or contaminants and proper grade (more info in POH)
4. Fuel selector quick drain valve – DRAIN (Full description in POH)
5. Fuel quantity – CHECK VISUALLY for desired level
6. Fuel filler cap - SECURE

5 - Nose

1. Engine oil dipstick/filler cap – CHECK oil level then dipstick/filler cap SECURE. Do not operate with less than 5 quarts. Fill to 7 quarts for extended flight.
2. Fuel strainer drain knob – PULL OUT AND CHECK for water, contaminants and proper grade fuel. (full description in POH)
3. Propeller and spinner – CHECK for nicks and security
4. Engine cooling air inlets – CLEAR of obstructions
5. Carburetor air filter – CHECK for restrictions by dust or other foreign matter.
6. Nose wheel strut and tire – CHECK proper inflation
7. Nose tiedown – DISCONNECT
8. Static source opening – CHECK FOR STOPPAGE

6 - Left wing

1. Fuel quantity – CHECK visually for desired level
2. Fuel filler cap – SECURE
3. Fuel tank sump quick-drain valve – DRAIN (detailed description in POH)
4. Main wheel tire – CHECK for proper inflation

7 - Left wing leading edge

1. Pitot tube cover – REMOVE and CHECK for stoppage
2. Fuel tank vent opening – CHECK for stoppage
3. Stall warning opening – CHECK for stoppage. To check the system, 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. Landing lights – CHECK for condition and cleanliness of cover

Left wing trailing edge

1. Aileron – CHECK for freedom of mvt. and security

Before starting engine

1. Proper inspection – COMPLETE
2. Passenger brief – COMPLETE
3. Seats, seatbelts, shoulder harnesses – ADJUST + LOCK
4. Brakes – TEST and SET
5. Avionics power switch – OFF
   The avionics power switch must be OFF during engine start to prevent possible damage to avionics.
6. Circuit breakers – CHECK IN
7. Electrical equipment, Autopilot (if installed) – OFF
8. Fuel selector valve – BOTH

Starting engine

1. Prime – AS REQUIRED
   (2 to 6 strokes; none if engine warm)
2. Carburetor heat – COLD
3. Throttle – OPEN 1/8th inch
4. Mixture – RICH
5. Propeller area – CLEAR
6. Master switch – ON
7. Ignition switch – START (release when engine starts)
8. Oil pressure – CHECK
9. Starter – CHECK DISENGAGED
10. Avionics power switch – ON
11. Navigation lights and flashing beacon – ON (as req'd)
12. Radios – ON

Before takeoff

1. Parking brake – SET
2. Seats, seatbelts, shoulder harnesses – CHECK SECURE
3. Cabin doors – CLOSED and LOCKED
4. Flight controls – FREE and CORRECT
5. Flight instruments – CHECK and SET
6. Fuel quantity – CHECK
7. Primer – IN AND LOCKED
8. Mixture – RICH
9. Fuel selector valve – RECHECK BOTH
10. Elevator trim – SET for takeoff
11. Throttle – 1700 RPM
    a. Magnetos - CHECK (max drop 125 RPM and 50 RPM differential)
    b. Carb heat – CHECK (for RPM drop)
    c. Suction gauge – CHECK
    d. Engine instruments/ammeter – CHECK
12. Throttle – 1000 RPM or LESS
13. Throttle friction lock – ADJUST
14. Strobe lights – AS DESIRED
15. Radios and avionics – SET
16. Autopilot (if installed) – OFF
17. Wing flaps – SET for takeoff (see takeoff checklists)
18. Brakes – RELEASE

Normal takeoff

1. Wing flaps – 0 to 10 degrees
2. Carburetor heat – COLD
3. Throttle – FULL OPEN
4. Elevator control – LIFT NOSE WHEEL (at 55 KIAS)
5. Climb speed – 70-80 KIAS

Short field takeoff

1. Wing flaps – 10 degrees
2. Carburetor heat – COLD
3. Brakes – APPLY
4. Throttle – FULL OPEN
5. Mixture – RICH (lean above 3000 feet for max RPM)
6. Brakes – RELEASE
7. Elevator control – SLIGHTLY TAIL LOW
8. Climb speed – 56 KIAS (until all obstacles cleared)

Enroute climb

1. Airspeed – 70-85 KIAS
   If a max. performance climb is necessary, use speeds shown in the Rate of Climb chart in section 5 of POH)
2. Throttle – FULL OPEN
3. Mixture – RICH (lean above 3,000 ft. for max. RPM)

Cruise

1. Power – 2100-2700 RPM (no more than 75% rec.)
2. Elevator trim – ADJUST
3. Mixture – LEAN

Descent

1. Fuel – BOTH
2. Power – AS DESIRED
3. Mixture – ADJUST for smooth operation
   (full rich for idle power)
4. Carburetor heat – FULL HEAT AS REQUIRED

Before landing

1. Seats, seatbelts, shoulder harnesses – SECURE
2. Fuel selector valve – BOTH
3. Mixture – RICH
4. Carburetor heat – ON (apply before reducing power)
5. Autopilot (if installed) – OFF

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Normal landing

1. Airspeed – 65-75 KIAS (flaps up)
2. Wing flaps – AS DESIRED
3. Airspeed – 60-70 KIAS (flaps down)
4. Touchdown – MAIN WHEELS FIRST
5. Landing roll – LOWER NOSE GENTLY
6. Braking – MINIMUM REQUIRED

Short field landing

1. Airspeed – 65-75 KIAS (flaps up)
2. Wing flaps – FULL DOWN (30 degrees)
3. Airspeed – 61 KIAS (until flare)
4. Power – REDUCE to idle after clearing obstacle
5. Touchdown – MAIN WHEELS FIRST
6. Brakes – APPLY HEAVILY
7. Wing flaps – RETRACT

Balked landing

1. Throttle – FULL OPEN
2. Carburetor heat – COLD
3. Wing flaps – RETRACT TO 20 DEGREES
4. Climb speed – 55 KIAS
5. Wing flaps
    a. 10 degrees until obstacle cleared
    b. RETRACT after reaching safe altitude + 60 KIAS

After landing

1. Carburetor heat – COLD
2. Wing flaps – UP

Securing airplane

1. Parking brake – SET
2. Avionics power switch, electric equip., autopilot – OFF
3. Mixture – IDLE CUT-OFF (pulled full out)
4. Ignition switch – OFF
5. Master switch – OFF
6. Control lock – INSTALL

Engine failure during takeoff roll

1. Throttle – IDLE
2. Brakes – APPLY
3. Wing flaps – RETRACT
4. Mixture – IDLE CUTOFF
5. Ignition switch – OFF
6. Master switch – OFF

Engine failure immediately after takeoff

1. Airspeed – 65 KIAS (flaps up) or 60 KIAS (flaps down)
2. Mixture – IDLE CUTOFF
3. Fuel selector valve – OFF
4. Ignition switch – OFF
5. Wing flaps – AS REQUIRED
6. Master switch – OFF

Engine failure during flight (restart procedures)

1. Airspeed – 65 KIAS
2. Carburetor heat – ON
3. Fuel selector valve – BOTH
4. Mixture – RICH
5. Ignition switch – BOTH (or START if prop stopped)
6. Primer – IN and LOCKED

Emergency landing w/o engine power

1. Seats, seat belts, shoulder harnesses - SECURE
2. Airspeed – 65 KIAS (flaps up) 60 KIAS (flaps down)
3. Mixture – IDLE CUTOFF
4. Fuel selector – OFF
5. Ignition switch – OFF
6. Wing flaps – AS REQUIRED (30 recommended)
7. Master switch – OFF
8. Doors – UNLATCH BEFORE TO TOUCHDOWN
9. Touchdown – SLIGHTLY TAIL LOW
10. Brakes – APPLY HEAVILY

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Precautionary landing w/ engine power

1. Seats, seat belts, shoulder harnesses - SECURE
2. Wing flaps – 20 degrees
3. Airspeed – 60 KIAS
4. Selected field – FLY OVER, noting terrain and Obstructions, then retract flaps upon reaching a safe Altitude and airspeed.
5. Avionics power switch and electrical switches – OFF
6. Wing flaps – 30 degrees (on final approach)
7. Airspeed – 60 KIAS
8. Master – OFF
9. Doors – UNLATCH BEFORE TOUCHDOWN
10. Touchdown – SLIGHTLY TAIL LOW
11. Ignition switch – OFF
12. Brakes – APPLY HEAVILY

Ditching

1. Radio – 'mayday' on 121.5, giving location and Intentions and SQUAWK 7700 on transponder
2. Heavy objects (in baggage) – SECURE OR JETTISON
3. Seats, seat belts, shoulder harnesses - SECURE
4. Approach - High wind, heavy seas – INTO WIND
   Light winds, heavy swells – PARALLEL TO SWELLS
5. Wing flaps – 20 to 30 degrees
6. Power – ESTABLISH 300 FT/MIN DESCENT at 55 KIAS
7. Cabin doors – UNLATCH
8. Touchdown – LEVEL ATTITUDE AT ESTABLISHED RATE OF DESCENT
9. Face – CUSHION at touchdown with folded coat
10. Airplane – EVACUATE through cabin doors.
    If necessary, open window to flood cabin and equalize pressure so doors can be opened
11. Life vests and raft – INFLATE

Fire during start on ground

1. Cranking – CONTINUE (sucks flames inside)
2. If starts, power to 1700 RPM for a few minutes
3. Engine – SHUTDOWN and inspect for damage
4. If fails to start - 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
    i. Master switch – OFF
    ii. Ignition – OFF
    iii. Fuel selector valve – OFF
9. Fire – EXTINGUISH w/ fire extinguisher, blanket or dirt
10. Fire damage – INSPECT AND REPAIR before nxt 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. Vents/Cabin Air/Heat – CLOSED
3. Fire extinguisher – ACTIVATE (if available) then Ventilate the cabin
4. Avionics power switch – OFF
5. All other switches (except ignition switch) – OFF

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

6. Master switch – ON
7. Circuit Breakers – CHECK for faulty circuit, don't reset
8. Radio switches – OFF
9. Avionics power switch – ON
10. Radio/electrical switches – ON one at a time, with delay after each until short circuit is localized.
11. Vents, cabin air, heat – OPEN when it is ascertained that the fire is completely extinguished.

Cabin fire

1. Master switch – OFF
2. Vents/Cabin air/heat – CLOSED (to avoid drafts)
3. Fire extinguisher – ACTIVATE then ventilate
4. Land airplane as soon as possible to inspect damage

Wing fire

1. Landing/taxi light switches – OFF
2. Pitot heat switch – OFF
3. Navigation light switch – OFF
4. Strobe light switch – OFF

Perform a sideslip to keep flames away from fuel tank and cabin, and land as soon as possible using flaps only as required by final approach and touchdown

Inadvertent icing encounter

1. Turn pitot heat switch ON
2. Turn back or change altitude to obtain an outside air 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 buildup 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 carb. Ice or air intake filter ice. Lean the mixture for maximum RPM, if carb heat is used continuously.
6. Plan a landing at the nearest airport. With an extremely rapid ice build-up, select suitable "off airport" landing site.
7. With an ice accumulation of ¼ inch or more on the wing leading edges, be prepared for significantly higher stall speed.
8. Leave wing flaps retracted. With severe ice build-up on the horizontal tail, the change in wing wake airflow direction caused by wing flap extension could result in a loss of elevator effectiveness.
9. Open left window and, if practical, scrape ice from a portion of the windshield for visibility in landing apch.
10. Perform a landing approach using a forward slip, if necessary, for improved visibility.
11. Approach at 65 to 75 KIAS depending upon the amount of the accumulation.
12. Perform a landing in level attitude

Static source blockage

1. Static pressure alternate source valve – PULL ON
   In an emergency on airplanes not equipped with an alternate static source, cabin pressure can be supplied to the static pressure instruments by breaking the glass in the face of the vertical speed indicator.
2. Airspeed – Consult approp. calibration table Sect. 5

Landing with a flat main tire

1. Approach – NORMAL
2. Touchdown – GOOD TIRE FIRST, hold airplane off flat tire as long as possible.

Ammeter shows excessive rate of charge (full deflection)

3. Alternator – OFF
4. Alternator circuit breaker – PULL
5. Nonessential electrical equipment – OFF
6. Flight – TERMINATE as soon as practical

Low voltage light illuminates during flight (discharge)

Illumination of the low-voltage light may occur during low RPM conditions with an electrical load on 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 power switch – OFF
2. Alternator circuit breaker – CHECK IN
3. Master switch – OFF (both sides)
4. Master switch – ON
5. Low voltage light – CHECK OFF
6. Avionics power switch – ON

   If low-voltage light illuminates again:
7. Alternator – OFF
8. Nonessential Radio and Electrical Equipment – OFF
9. Flight – TERMINATE as soon as practical