N98825 SOP

DFC STANDARD OPERATIONS PROCEDURE

1985 CESSNA 172P s/n 17276364

Issue 1.10 1 September 2011

IMPORTANT WARNING

This SOP is intended for use with N98825.
It is not, however, an authoritative document. Full reference must be made to the individual FAA APPROVED AIRPLANE FLIGHT MANUAL / PILOT's OPERATING HANDBOOK as amended.

By using this SOP, the pilot assumes all responsibilities pertained to the safe operation of the aircraft. No warranties are made concerning this SOP, either implied or expressed. This SOP is not a substitute for any operation manual which coincides with each specific aircraft. DFC pilots consent and completely understand to, and agree upon, that the DFC bears no liability, responsibility for death, injuries, damage to property, for the use of this SOP. No guarantees are made to the pilot on the degree of accuracy of the information contained in this product.

FOR EMERGENCIES, refer to chapter 3 of the APPROVED AIRPLANE FLIGHT MANUAL.

Current FAA, DFS and local procedures may also be relevant, as are the DFC Operating Rules.

Color Code:

- **Blue: DFC Wording**
- **Red: Warnings**
- **Black: Extracts from the original 1985 Skyhawk Information Manual**

Extracts from the DFC Operating Rules:

1.8.1. The Pilot in Command is responsible for the security and safety of the Aircraft and equipment. On checkout flights the CFI is PIC.

1.8.5. Aircraft will be flown from the left seat. The only exception to this rule is for DFC Flight Instructors or other Pilots who have a "Right Seat" checkout and logbook endorsement from a DFC Instructor.

1.9.1. Non Club Members may be carried in Club Aircraft provided they sign a liability waiver form.

1.9.2. Under no circumstances will the Pilot charge passengers for the flight. This does not prevent a Pilot from sharing the operating cost of the Aircraft with the passengers in accordance with the relevant FAA rules.

2.1.1. The Aircraft engine must be shut down before loading or unloading passengers or luggage.

2.1.2 The beacon light will be switched on at all times the engine is running.

2.1.3 Smoking is not permitted in and within 50 feet of any Aircraft.

2.2.1. Passengers must be unloaded during refuelling operations.

2.2.2. Smoking is not permitted during refuelling or in the refuelling area.

2.2.3. The Aircraft must be grounded during refuelling operations.

2.2.5. Pilots will take a fuel sample before flight and after refuelling to check for contamination by water or debris.

2.3.4. At the end of each flight the Aircraft will be tied down, the gust lock installed, the Pitot tube cover fitted and the doors locked.

2.4.1. Aircraft will not be taxied to within 10 feet of a building or other stationary object unless directed by a suitably qualified person on the ground using hand signals.

2.4.2. Aircraft will be taxied slowly in congested areas and no faster than a brisk walk elsewhere – maximum 5 km/h.

2.4.3. Pilots must exercise extreme care when taxying at all times and especially when on unimproved or rough areas. On unimproved areas Pilots must taxi slowly with the control wheel full aft.

2.4.4. When surface winds exceed 20 Knots from any direction, DFC Aircraft will not be flown or taxied.

2.5.1. The area will be properly cleared of any foreign objects or persons before starting the engine.

2.5.2. DFC Aircraft will not be hand propped.

2.5.3. Jump starting using the auxiliary power socket shall follow the procedure in the AAFM.

2.5.4. Care will taken not to direct the prop wash against other Aircraft or property.

2.6.1. During the winter months, all frost and snow must be removed from the Aircraft before flight. If the Aircraft is pre-heated in a hanger it must be thoroughly dried before flight.

2.6.2. Ensure the seat is properly locked in a comfortable position prior to taxi and takeoff.

2.6.3. Pilots must visually clear the airspace before performing manoeuvres.

2.6.4. Pilots must exercise particular caution when other Aircraft are operating in the traffic pattern.

2.6.5. Touch and Go landings are not encouraged.

2.6.6. During Takeoff and Landing, the landing light shall be switched on.

2.6.7. The Rotating Beacon and Strobe lights shall be switched on during the flight.

2.6.8. It is the Pilot's responsibility to ensure adequate separation from other aircraft and that it is safe to takeoff or land.

2.6.9 For every flight, the PIC is required to calculate fuel requirements, based on consumption, distance, speed, headwind, weather, etc.

2.6.10. For every flight leaving the traffic pattern, the PIC is required to obtain the most recent weather information prior to takeoff and to carry proof of obtaining this information with him in the plane. In addition, flight planning must be carried giving the intended route of the flight, frequencies, fuel, weight and balance etc.

2.6.11 For all flights in a DFC aircraft, the following fuel reserves must be observed:

Day VFR and IFR/VMC	45 Minutes
Night VFR	90 Minutes
IFR/IMC	90 Minutes

2.6.12. Single Pilot flights by properly qualified Pilots on an Instrument Flight Plan in IMC are not encouraged.

3.1.3. A competent, qualified operator must be seated at the controls with seat belt and shoulder harness fastened before the Aircraft engine is started.

3.1.4. The engine run-up will be carried out, headed into the wind, at the threshold of the active runway or other designated area prior to every takeoff. During run-up Pilots should avoid directing the prop wash towards other aircraft or property.

3.1.5. Aircraft must never be started in a hanger.

3.2.1. Pilots must check the oil & fuel levels before each flight and add oil & fuel as required and specified in the operators handbook. The fuel tanks should not be filled at the end of every flight.

3.3.1. All takeoffs must start at the beginning of the active runway. It is not permissible, for example, to takeoff in DFC Aircraft from one of the taxiways in the middle of the runway at Egelsbach. An exception to this rule is when operating under tower control, where an intersection take off would still leave at least 1000 m available.

3.3.2. Except for traffic pattern operations, DFC Aircraft will not be operated below 1000 feet above ground.

3.3.3. Practice forced landings will only be carried out with a DFC Instructor on board. They will be terminated at a minimum altitude of 800 feet above ground.

3.3.4. Aerobatic manoeuvres, apart from those in the Commercial Pilot syllabus, are strictly prohibited in DFC Aircraft. This includes spins, loops and rolls.

3.3.5. If a flight plan is required for the proposed flight the Pilot is responsible for filing it, opening it and making sure it has been closed at the end of the flight.

3.3.6. All flights will be carried out in accordance with FAA and German rules of the air.

3.3.8. Only DFC members are allowed to act as "Pilot in Command" in club Aircraft.

3.3.9. Only registered DFC Flight Instructors are allowed to give any sort of instruction in DFC Aircraft.

3.3.10. Taxying and flight with known or reported Inoperative Equipment that comprises safety such as brakes, controls, control surfaces, miss-firing engine, damaged propeller, communication and navigation equipment is prohibited. Taxying and flight with Inoperative Equipment as listed in FAR 91.205 (minimum equipment) is prohibited. Ferry flights to the maintenance shop for repair of such equipment must be endorsed by a Board Member or the Maintenance Officer.

3.5.3. Pilots must comply with all FAA and German regulations with regard to Night Flying, especially the requirement for Flight Plans, fuel reserves and Weather minimums. In addition, all Pilots who intend to carry out Night Flying must have had a check-out with a DFC Instructor within the past 90 days.

3.6.1. The following weather limitations shall be observed:
DAY VFR
1500 ft Minimum Ceiling, **5 km** Minimum Visibility, **20 Knots** Maximum Wind, **10 Knots** Maximum Cross-Wind Component
NIGHT VFR
2500 ft Minimum Ceiling, **10 km** Minimum Visibility, **20 Knots** Maximum Wind, **10 Knots** Maxmum Cross-Wind Component

5.2.1. Pilots must note any technical or maintenance problems that need correction or repair in the appropriate column on the log sheet. In order to inform the Maintenance Officer and / or the next Pilot, be specific in the write-up. Clearly state what is wrong and give as much background information as is possible. If the Aircraft should be grounded, place a clear warning on the pilot seat and in the locker.

5.2.2. Only the recognised DFC Maintenance Officer can sign off write-ups. This means that there will be no further flights until the sign-off is completed.

5.2.3. If the Pilot believes the Aircraft is unsafe to fly for any reason the General Manager must be immediately informed and a note left in the Aircraft describing the problem.

5.3.2. The parking brake should not be used in the permanent DFC parking places as the chocks and tie-down ropes are adequate to secure the Aircraft.

6.3.2. If an off Airport landing is necessary, the Pilot should use caution in selecting the landing area. Many areas are surrounded by obstacles and are unsuitable for landing.

6.3.3. Pilots will not take off after an emergency or precautionary landing without specific instructions from the General Manager or a member of the Board of Governors. The only people authorised to release the aircraft for flight is the Maintenance Officer.

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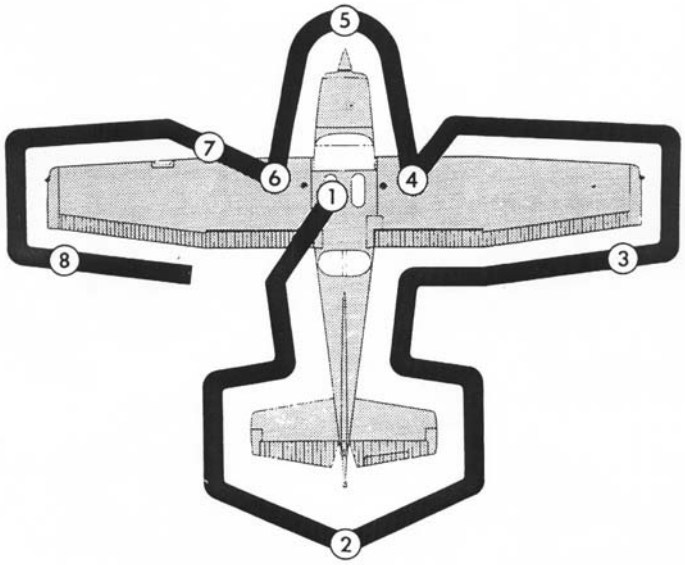


NOTE

Visually check airplane for general condition during walk-around inspection. Use of the refueling steps and assist handles (if installed) will simplify access to the upper wing surfaces for visual checks and refueling operations. 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 accumulations of ice or debris. Prior to flight, check that pitot heater (if installed) is warm to touch within 30 seconds with battery and pitot heat switches on. If a night flight is planned, check operation of all lights, and make sure a flashlight is available.

Figure 4-1. Preflight Inspection

INTRODUCTION

Section 4 provides checklist and amplified procedures for the conduct of normal operation. Normal procedures associated with optional systems can be found in Section 9.

SPEEDS FOR NORMAL OPERATION

Unless otherwise noted, the following speeds are based on a maximum weight of 2400 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.

Takeoff:	
Normal Climb Out	70-80 KIAS
Short Field Takeoff, Flaps 10°, Speed at 50 Feet	56 KIAS
Enroute Climb, Flaps Up:	
Normal, Sea Level	75-85 KIAS
Normal, 10,000 Feet	70-80 KIAS
Best Rate of Climb, Sea Level	76 KIAS
Best Rate of Climb, 10,000 Feet	71 KIAS
Best Angle of Climb, Sea Level	60 KIAS
Best Angle of Climb, 10,000 Feet	65 KIAS
Landing Approach:	
Normal Approach, Flaps Up	65-75 KIAS
Normal Approach, Flaps 30°	60-70 KIAS
Short Field Approach, Flaps 30°	61 KIAS
Balked Landing:	
Maximum Power, Flaps 20°	55 KIAS
Maximum Recommended Turbulent Air Penetration Speed:	
2400 Lbs	99 KIAS
2000 Lbs	92 KIAS
1600 Lbs	82 KIAS
Maximum Demonstrated Crosswind Velocity:	
Takeoff or Landing	15 KNOTS

PREFLIGHT INSPECTION

(0) OUTSIDE

1. Cowl Plugs, Pitot Cover, Chocks & Tow Bar — REMOVE

(1) CABIN

1. Pilot's Operating Handbook — AVAILABLE IN THE AIRPLANE
2. Pilot certificate, Medical, Pilot Logbook — ON BOARD
3. FAR 61.57 (90 day rules, IPC) — VERIFY
4. Flight Planning — ON BOARD
5. Weather Report — ON BOARD
6. Weight & Balance — VERIFY to be within limits
7. Aircraft Performance & Fuel — VERIFY to be within limits
8. Runway Lengths — DETERMINED
9. Emergency Equipment — AS REQUIRED
10. Other Documents (ARROW) — ON BOARD
11. Hobbs and Tach readings — NOTE
12. Parking Brake — SET
13. Control Wheel Lock — REMOVE
14. Ignition Switch — OFF
15. Keys — KEY OUT & ON INSTRUMENT COWLING
16. Mixture, Throttle — CLOSED
17. All Electric Switches (except Beacon) — OFF
18. Avionics Power Switch — OFF
19. Instruments, Glass, Compass — CHECK
20. Battery Master Switch — ON

WARNING: When turning on 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, nor 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.

21. Fuel Quantity Indicators — CHECK QUANTITY
22. Low-Vacuum Warning Light — CHECK ON
23. Avionics Power Switch — ON
24. Avionics Cooling Fan — CHECK AUDIBLY FOR OPERATION
25. Avionics Power Switch — OFF
26. Standby Vacuum Pump — ON, CHECK SUCTION, OFF
27. Flaps — DOWN
28. Beacon, strobes, landing, taxi & Nav Lights — CHECK
29. Pitot Heat (Remove Pitot Cover!) — CHECK
30. All Electrics — OFF
31. All Master Switches — OFF
32. Static Pressure Alternate Source Valve — CHECK, then OFF
33. CO-Monitor — CHECK
34. Fuel Selector Valve — BOTH

(2) EMPENNAGE

1. Rudder Gust Lock — REMOVE
2. Tail Tie-down Hook — CHECK CONDITION, DISCONNECT
3. Control Surfaces — CHECK freedom of movement and security
4. Empennage — VISUALLY CHECK

(3) RIGHT WING Trailing Edge

1. Aileron — CHECK freedom of movement and security
2. Aileron – bolts, balance weights, movement — CHECK
3. Flap – bolts, fixing, movement, actuator rod — CHECK

(4) RIGHT WING

1. Wing Tie-Down and chocks — DISCONNECT
2. Main Wheel Tire — CHECK for proper inflation (28 psi)
3. Brakes — CHECK
4. Fuel Tank Sump Quick-Drain Valve -- DRAIN at least a cupfull of fuel (using sampler cup) to check for water, sediment, and proper fuel grade before first flight of day and after each refueling. If water is observed, take further samples until clear and then gently rock wings and lower tail to the ground to move any additional contaminents to the sampling points. Take repeated samples from **all** fuel drain points until all contamination has been removed.
5. Fuel Selector Quick-Drain Valve (located on bottom of fuselage) – DRAIN at least a cupful of fuel (using sampler cup) to check for water, sediment, and proper fuel grade before first flight of day and after each refueling. If water is observed, take further samples until clear and then gently rock wings and lower tail to the ground to move any additional contaminents to the sampling points. Take repeated samples from **all** fuel drain points until all contamination has been removed.
6. Fuel Quantity — CHECK VISUALLY for desired level
7. Fuel Filler Cap — SECURE
8. Wing Tip – lights, strobes — CHECK
9. Wing Leading edge — CHECK
10. Wing Upper surface & Antennae — CHECK

(5) NOSE

1. Engine Oil Dipstick / Filler Cap -- CHECK oil level, then check dipstick / filler cap. SECURE. Do not operate with less than five quarts. Fill to seven quarts for extended flight.
2. Fuel Strainer Drain Knob -- PULL OUT for at least four seconds to clear strainer of possible water and sediment before first flight of day and after each refueling. Do not drain onto the ground, fire hazard! Return drain knob full in and check strainer drain CLOSED. If water is observed, perform further draining at **all** fuel drain points until clear and then gently rock wings and lower tail to the ground to move any additional contaminents to the sampling points. Take repeated samples from **all** fuel drain points until all contamination has been removed.
3. Engine Compartment VISUALLY CHECK
4. Cowling VISUALLY CHECK UPPER&LOWER FASTENERS
5. Propellor & Spinner CHECK for nicks and security
6. Cowl Plugs, Chocks & Tow Bar REMOVE
7. Alternator Belt & Engine Compartment from front CHECK
8. Engine Cooling Air Inlets CLEAR of obstructions
9. Carburetor Air Filter -- CHECK for restrictions by dust or other foreign matter
10. Nose Wheel Strut and Tire -- CHECK for proper inflation (34 psi tire, 45 psi strut)
11. Nose Wheel Strut – function and steering rods CHECK
12. Nose Tie-Down and chocks DISCONNECT
13. Static Source Opening (left side of fuselage) -- CHECK for stoppage.
14. External Power Socket cover SECURE

(6) LEFT WING

1. Fuel Quantity CHECK VISUALLY for desired level
2. Fuel Filler Cap SECURE
3. Fuel Tank Sump Quick-Drain Valve -- DRAIN at least a cupfull of fuel (using sampler cup) to check for water, sediment, and proper fuel grade before first flight of day and after each refueling. If water is observed, take further samples until clear and then gently rock wings and lower tail to the ground to move any additional contaminents to the sampling points. Take repeated samples from **all** fuel drain points until all contamination has been removed.
4. Main Wheel Tire CHECK for proper inflation (28 psi)
5. Brakes CHECK

(7) LEFT WING Leading Edge

1. Pitot Tube Cover REMOVE and check opening for stoppage
2. Fuel Tank Vent Opening CHECK for stoppage
3. Stall Warning Opening -- CHECK for stoppage. To check the system, place a clean handkerchief over the vent opening and apply suction; a sound from the warning horn will confirm system operation.
4. Wing Tiedown and chocks DISCONNECT
5. Landing Lights CHECK for condition and cleanliness of cover
6. Wing Leading edge CHECK
7. Wing Tip – lights, strobes CHECK

(8) LEFT WING Trailing Edge

1. Aileron CHECK freedom of movement and security
2. Aileron – bolts, balance weights, movement CHECK
3. Flap – bolts, fixing, movement, actuator rod CHECK
4. Baggage Door SECURED
5. Baggage Door -- CHECK, lock with key if child's seat is to be occupied

BEFORE STARTING ENGINE

1. Exterior Preflight Inspection COMPLETE
2. Passenger Briefing COMPLETE
3. Seats, Seat Belts, Shoulder Harnesses ADJUST an LOCK
4. Brakes TEST and SET
5. Avionics Power Switch OFF

   CAUTION: The avionics power switch must be OFF during engine start to prevent possible damage to avionics.
6. Circuit Breakers CHECK IN
7. Electrical Equipment OFF
8. Alternate Static Source OFF
9. Fuel Selector BOTH
10. *IFR Flights* *REQUEST STARTUP CLEARANCE*
11. *Master Switch, Radio, Avionics Power Switch* *OFF*

STARTING ENGINE

1. Prime -- AS REQUIRED (2 to 6 strokes; none, if engine is warm).
2. Carburetor Heat — COLD
3. Throttle — OPEN 1/8 INCH
4. Mixture — RICH
5. Beacon — ON
6. Battery Master Switch — ON
7. Ammeter — TEST
8. Propeller Area — CLEAR
9. Ignition Switch — START (release when engine starts).
10. Throttle — ADJUST for 1000 RPM or less.
11. Oil Pressure — CHECK
12. Starter -- CHECK DISENGAGED (if starter were to remain engaged, ammeter would indicate full scale charge with running at 1000 rpm).
13. Primer — IN AND LOCKED
14. Engine Instruments — CHECK
15. Alternator Master — ON
16. Mixture — LEAN FOR TAXI
17. Navigation Lights and Flashing Beacon — ON as required
18. Avionics Power Switch — ON
19. Transponder (7000) — SET MANUALLY TO STANDBY
20. Radios, Avionics, Audio Panel, Intercom — 5x ON AND SET
21. Garmin 430: Verify Date Period, Program Flight Plan — SET
22. Flaps — RETRACTED
23. Heading Indicator — SET TO COMPASS
24. Parking Brake — CHECK OFF
25. Request taxi (C172, SoB, Loc., IFR/VFR, Dest.) — COPY
26. *IFR Clearance* — *REQUEST AND COPY*

BEFORE TAXI

WARNING: The following TAXI CHECKS shall be checked during Taxi. For safety reasons, memorise them and work from memory only.

1. Brakes — CHECK
2. Set Flight Controls — FOR WIND
3. Magnetic Compass — CHECK (FLUID FULL,SWINGS FREELY±10°)
4. Airspeed Indicator — CHECK (ZERO)
5. Attitude Indicator — CHECK (SET, MAX. 5° IN TURNS)
6. Turn Coordinator — CHECK (SHOWS TURNS,RACE FULL;BALL)
7. Heading Indicator — CHECK (SHOWS TURNS)
8. VSI — CHECK (ZERO)
9. Altimeter — CHECK (+/- 75')

BEFORE TAKEOFF

1) Taxi Checks — COMPLETE
2) Point Prop. Blast away from other Planes & Property — CHECK
3) Nosewheel Straight — CHECK
4) Throttle — 1000 RPM
5) Parking Brake — SET
6) Cellphone, Handy (incl. Passengers) — VERIFY OFF
7) Flight Controls — FREE AND CORRECT
8) Flight Instruments — CHECK and SET
9) Fuel Quantity — CHECK
10) Primer — IN AND LOCKED
11) Fuel Selector Valve — RECHECK BOTH
12) Elevator Trim — SET for takeoff
13) Throttle — 1700 RPM
    a) Oil Pressure — CHECK
    b) Magnetos -- CHECK first right, then left (RPM drop should not exceed 125 RPM on either magneto or 50 RPM differential between magnetos).
    c) Carburetor Heat — CHECK (for RPM drop)
    d) Suction Gage — CHECK
    e) Engine Instruments and Ammeter — CHECK
14) Throttle fully back — CHECK ENGINE IDLE RPM
15) Throttle — 1000 RPM or LESS
16) Throttle Friction Lock — ADJUST
17) Wing Flaps — SET for takeoff (see Takeoff checklist)
18) Attitude Indicator — CHECK
19) Radio and Avionics — FREQUENCIES SET
20) Cabin Doors and Windows — CLOSED and LOCKED
21) Seats, Seat Belt and Shoulder Harnesses — SECURED
22) Mixture (Lean for DA above 3000 ft) — RICH or as required
23) SQUAWK Code — CHECK
24) Strobe Lights — ON
25) Landing Light — ON
26) Circuit Breakers — CHECK
27) Brief (Vrot=55, Vx=60, Vy=76, Departure, Power loss) — BRIEF
28) Time — NOTE
29) Brakes release — CHECK
30) Taxi to Hold Short Line — TAXI, BRAKE
31) Switch to INFO or TWR frequency — SWITCH
32) Report Ready for Dep.(*Exit Point, Copy T/O Clrnce)* — COPY
33) Pilot Flying — I HAVE CONTROL

TAKE-OFF

NORMAL TAKEOFF

1. Heading Indicator — COMPARE with RWY Heading
2. Wing Flaps – 0 - 10 degrees — SET
3. Carburetor Heat — COLD
4. MixtureRICH (above 3000 feet,LEAN to obtain maximum RPM)
5. Throttle — CAREFULLY FULL OPEN
6. Engine Gauges + RPM — CHECK
7. Ailerons — SET for Wind
8. Right Rudder — APPLY as necessary
9. Elevator Control Wheel — LIFT NOSE WHEEL (at 55 KIAS)
10. Climb Speed — 70 – 80 KIAS
11. Wing Flaps — RETRACT after reaching 500 ft

SHORT FIELD TAKEOFF

1. Heading Indicator — COMPARE with RWY Heading
2. Wing Flaps – 10 degrees — SET
3. Carburetor Heat — COLD
4. Brakes — APPLY
5. Throttle — CAREFULLY FULL OPEN
6. MixtureRICH (above 3000 feet,LEAN to obtain maximum RPM)
7. Engine Gauges + RPM — CHECK
8. Brakes — RELEASE
9. Ailerons — SET for Wind
10. Right Rudder — APPLY as necessary
11. Elevator Control — SLIGHTLY TAIL LOW
12. Climb Speed — 56 KIAS (until all obstacles are cleared)
13. Wing Flaps — RETRACT slowly after reaching 60 KIAS

CRUISE

1. Power 2100 - 2700 RPM (no more than 75% is recommended)
2. Elevator Trim — ADJUST
3. Engine & Electrical Gauges — CHECK
4. Landing Light — OFF
5. Circuit Breakers — CHECK
6. Heading Indicator — COMPARE with Compass
7. Mixture — LEAN (75 F below Peak EGT)

ENROUTE CLIMB

1. Airspeed — 70 – 85 KIAS

NOTE: If a maximum performance climb is necessary, use speeds shown in the Rate Of Climb chart in Section 5 of AFM.

2. Throttle — FULL OPEN
3. Mixture RICH (above 3000 ft., LEAN to obtain maximum RPM)

DESCENT; BEFORE REACHING IAF

1. Heading IndicatorCOMPARE with Compass while in Level Flight
2. Approach Chart READY
3. Approach Sequence and Missed Approach BRIEF
4. ATIS (if applicable) COPIED
5. VORs, ILS, NDB, DME, GPS TUNED IN AND IDENTIFIED
6. Tower Frequency IN SECOND RADIO (STDBY)
7. Marker Beacon Receiver CHECK AND ON

DESCENT; REACHING FAF

1. Fuel Selector Valve BOTH
2. Power AS DESIRED
3. Mixture ADJUST for smooth operation (full rich for idle power)
4. Carburetor Heat -- FULL HEAT AS REQUIRED (to prevent carburetor icing)

BEFORE LANDING

1. Seats, Seat Belts, Shoulder Harnesses SECURE
2. Fuel Selector Valve BOTH
3. Mixture RICH
4. Carburetor Heat ON (apply full heat before reducing power)
5. Landing Lights and Strobes ON
6. Airspeed 90 – 80 – 70 KIAS
7. Flaps SET as required

LANDING

BALKED LANDING

1.	Trottle	FULL OPEN
2.	Carburetor Heat	COLD
3.	Wing Flaps	RETRACT TO 20 °
4.	Positive Rate of Climb	ESTABLISH
5.	Climb Speed	55 KIAS
6.	Wing Flaps	10° (until obstacles are cleared)
7.	Wing Flaps -- RETRACT (after reaching a safe altitude and 60 KIAS)	
8.	Radio	REPORT
9.	Landing Light	OFF

NORMAL LANDING

1.	Airspeed	65 – 75 KIAS (flaps UP)
2.	Wing Flaps -- AS DESIRED (0°-10° below 110 KIAS, 10°-30° below 85 KIAS)	
3.	Airspeed	60 – 70 KIAS (flaps DOWN)
4.	Wind Correction	BANK into Wind
5.	Touchdown	MAIN WHEELS Wind Side FIRST
6.	Landing Roll	LOWER NOSE WHEEL GENTLY
7.	Braking	MINIMUM REQUIRED

SHORT FIELD LANDING

1.	Airspeed	65 – 75 KIAS (flaps UP)
2.	Wing Flaps	FULL DOWN (30°)
3.	Airspeed	61 KIAS (until flare)
4.	Power	REDUCE to idle after clearing obstacle
5.	Wind Correction	BANK into Wind
6.	Touchdown	MAIN WHEELS Wind Side FIRST
7.	Brakes	APPLY HEAVILY
8.	Wing Flaps	RETRACT

AFTER LANDING

1.	Active Runway	CLEAR
2.	Carburetor Heat	COLD
3.	Mixture	LEAN FOR TAXI
4.	Wing Flaps	UP
5.	Strobes, Pitot Heat	OFF
6.	Lights	AS REQUIRED
7.	Transponder	SET MANUALLY TO STANDBY
8.	Trim	RESET NEUTRAL
9.	Radio Calls	AS REQUIRED

SECURING AIRPLANE

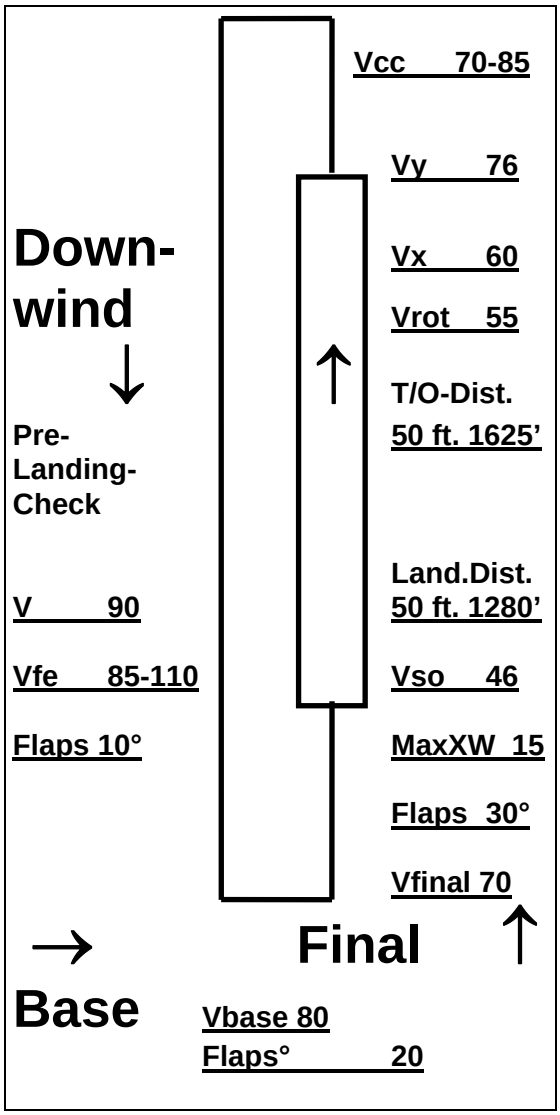
1.	Parking Brake	SET AS REQUIRED
2.	Throttle	1000 RPM
3.	Radio	121.5 CHECK ELT
4.	Radios and Avionics	6 x OFF
5.	Avionics Power Switch	OFF
6.	Electrical Equipment (except Beacon)	OFF
7.	Mixture	IDLE CUT OFF (pulled full out)
8.	Ignition Switch	OFF
9.	Key	OUT and placed on Instrument Cowling
10.	All Master Switches	OFF
11.	Hobbs and Tach	NOTE
12.	Control Lock	INSTALL
13.	Pitot Cover	INSTALL
14.	Cowl Plugs	INSTALL
15.	Front Window Heat Shield	INSTALL
16.	Cabin Air Vents (all 3)	CLOSE
17.	Belongings and Keys	REMOVED
18.	Master Switch	VERIFY OFF
19.	Windows and Doors	CLOSED
20.	Doors and Baggage Door	LOCKED
21.	Chocks, Tie Down, Towing handle	AS REQUIRED
22.	**Close Flight Plan if required**	

PERFORMANCE CHART

Registration	N98825
Type	C172 P
Chart Date	1.5.02

Max. Weight	2400 lb
Max. Weight	1090 kg
Fuel Gal L/R	**20/20**
Fuel Lits L/R	**75/75**
Cruise Gal/h	**8.6**
Climb Gal/h	**12**
Serv.Ceiling	**13000'**
Voltage	**24**

Speeds in	**KIAS**
Vne	**158**
Vno	**127**
Va	**82-99**
Vs flaps up	51(44)
Vso	46(33)
Vfe	**85(110)**
Vx	**60**
Vy	**76**
Best Glide	**65**
Vr short fld	**50**



EMERGENCY

FOR FULL LIST OF EMERGENCY PROCEDURES, SEE APPROVED AIPLANE FLIGHT MANUAL (AAFM) !!!!!

ENGINE FAILURE DURING FLIGHT (RESTART PROCEDURES)

1.	**Airspeed**	**65 KIAS**
2.	**Carburetor Heat**	**ON**
3.	**Fuel Selector Valve**	**BOTH**
4.	Look for Emergency Landing Field	DECIDE
5.	Mixture	RICH
6.	Ignition Switch	BOTH (or START if propeller is stopped)
7.	Primer	IN and LOCKED

If time permits

8.	Master Switch	CHECK ON
9.	Mixture	RICH
10.	Throttle	OPEN
11.	Ignition Switch	RESTART

EMERGENCY LANDING WITHOUT ENGINE POWER

12.	Radio last Frequ. Or 121.5 Emergency freq. *Who, Where, Situation*	MAYDAY
13.	Transponder 7700	SET
14.	Seats, Seat Belts Shoulder Harnesses	SECURE
15.	Airspeed	65 KIAS (Flaps UP)
16.	Airspeed	60 KIAS (Flaps DOWN)
17.	Mixture	IDLE CUT-OFF
18.	Fuel Selector Valve	PUSH DOWN AND ROTATE TO OFF
19.	Ignition Switch	OFF
20.	Throttle	CLOSE
21.	Wing Flaps	AS REQUIRED (30° recommended)
22.	Master Switch	OFF
23.	Doors	UNLATCH PRIOR TO TOUCHDOWN
24.	Touchdown	SLIGHTLY TAIL LOW
25.	Brakes	APPLY HEAVILY

Emergencies by their nature are not standard, and this Check list can only provide a guide to the appropriate actions - In an Emergency:

PILOT JUDGEMENT SHOULD DICTATE PILOT ACTIONS !!

INTRODUCTION

Section 3 provides checklist and amplified procedures for coping with emergencies that may occur. Emergencies caused by airplane or engine malfunctions are extremely rare if proper preflight inspections and maintenance are practiced. Enroute weather emergencies can be minimized or eliminated by careful flight planning and good judgment when unexpected weather is encountered. However, should an emergency arise, the basic guidelines described in this section should be considered and applied as necessary to correct the problem. Emergency procedures associated with ELT and other optional systems can be found in Section 9.

AIRSPEEDS FOR EMERGENCY OPERATION

Engine Failure After Takeoff:	
Wing Flaps Up	65 KIAS
Wing Flaps Down	60 KIAS
Maneuvering Speed:	
2400 Lbs	99 KIAS
2000 Lbs	92 KIAS
1600 Lbs	82 KIAS
Maximum Glide	65 KIAS
Precautionary Landing With Engine Power	60 KIAS
Landing Without Engine Power:	
Wing Flaps Up	65 KIAS
Wing Flaps Down	60 KIAS

OPERATIONAL CHECKLISTS

Procedures in the Operational Checklists portion of this section shown in **bold-faced** type are immediate-action items which should be committed to memory.

ENGINE FAILURES

ENGINE FAILURE DURING TAKEOFF ROLL

1. **Throttle -- IDLE.**
2. **Brakes -- APPLY.**

3. Wing Flaps -- RETRACT.
4. Mixture -- IDLE CUT-OFF.
5. Ignition Switch -- OFF.
6. Master Switch -- OFF.

ENGINE FAILURE IMMEDIATELY AFTER TAKEOFF

1. **Airspeed -- 65 KIAS (flaps UP).**
   60 KIAS (flaps DOWN).
2. Mixture -- IDLE CUT-OFF.
3. Fuel Selector Valve -- PUSH DOWN AND ROTATE TO 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 propeller is stopped).
6. Primer -- IN and LOCKED.

FORCED LANDINGS

EMERGENCY LANDING WITHOUT ENGINE POWER

1. Seats, Seat Belts, Shoulder Harnesses -- SECURE.
2. Airspeed -- 65 KIAS (flaps UP).
   60 KIAS (flaps DOWN).
3. Mixture -- IDLE CUT-OFF.
4. Fuel Selector Valve -- PUSH DOWN AND ROTATE TO OFF.
5. Ignition Switch -- OFF.
6. Wing Flaps -- AS REQUIRED (30° recommended).
7. Master Switch -- OFF.
8. Doors -- UNLATCH PRIOR TO TOUCHDOWN.
9. Touchdown -- SLIGHTLY TAIL LOW.
10. Brakes -- APPLY HEAVILY.

PRECAUTIONARY LANDING WITH ENGINE POWER

1. Seats, Seat Belts, Shoulder Harnesses -- SECURE.
2. Wing Flaps -- 20°.
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° (on final approach).
7. Airspeed -- 60 KIAS.
8. Master Switch -- OFF.
9. Doors -- UNLATCH PRIOR TO TOUCHDOWN.
10. Touchdown -- SLIGHTLY TAIL LOW.
11. Ignition Switch -- OFF.
12. Brakes -- APPLY HEAVILY.

DITCHING

1. Radio -- TRANSMIT MAYDAY on 121.5 MHz, giving location and intentions and SQUAWK 7700 if transponder is installed.
2. Heavy Objects (in baggage area) -- SECURE OR JETTISON.
3. Seats, Seat Belts, Shoulder Harnesses -- SECURE.
4. Approach -- High Winds, Heavy Seas -- INTO THE WIND.
   Light Winds, Heavy Swells -- PARALLEL TO SWELLS.
5. Wing Flaps -- 20° - 30°.
6. Power -- ESTABLISH 300 FT/MIN DESCENT AT 55 KIAS.

NOTE

If no power is available, approach at 65 KIAS with flaps up or at 60 KIAS with 10° flaps.

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 and flood cabin to equalize pressure so doors can be opened.
11. 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 -- SHUTDOWN 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 -- PUSH DOWN AND ROTATE TO 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 -- PUSH DOWN AND ROTATE TO 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).

WARNING

After discharging an extinguisher within a closed cabin, 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, do not 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 fire 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 within a closed cabin, ventilate the cabin.

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

WING FIRE

1. **Landing/Taxi Light Switches -- OFF.**
2. **Pitot Heat Switch (if installed) -- OFF.**
3. **Navigation Light Switch -- OFF.**
4. **Strobe Light Switch (if installed) -- OFF.**

NOTE

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

ICING

INADVERTENT ICING ENCOUNTER

1. **Turn pitot heat switch ON** (if installed).
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 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 significantly higher stall speed.
8. Leave wing flaps retracted. With a 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 the landing approach.
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
(Erroneous Instrument Reading Suspected)

1. **Static Pressure Alternate Source Valve (if installed) -- PULL ON.**

NOTE

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 appropriate calibration tables in Section 5.

LANDING WITH A FLAT MAIN TIRE

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

ELECTRICAL POWER SUPPLY SYSTEM MALFUNCTIONS

AMMETER SHOWS EXCESSIVE RATE OF CHARGE (Full Scale Deflection)

1. Alternator -- OFF.
2. Alternator Circuit Breaker -- PULL.
3. Nonessential Electrical Equipment -- OFF.
4. Flight -- TERMINATE as soon as practical.

LOW-VOLTAGE LIGHT ILLUMINATES DURING FLIGHT (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 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.