

OPERATING

AIRCRAFT



CHECKLISTS

CESSNA 172

This checklist has been developed specifically for the National Flight Academy. It is designed for use with all models of the Cessna 172 aircraft. While operations in all these aircraft are similar, there are some significant differences between each model. It is intended that this checklist be completed by the student and flight instructor, with reference to the Pilot's Operating Handbook of the specific aircraft that they will be flying. This checklist is only a quick-reference list of items that must be completed for each phase of flight. For more detailed information on operating the aircraft and its systems, refer to the aircraft's Pilots Operating Handbook.

PREFLIGHT INSPECTION

CABIN		
1.	Required Documents	IN AIRCRAFT
	a. Airworthiness Certificate	
	b. Registration	
	c. Operating Limitations (Placards, Instrument Markings, Pilot's Operating Handbook)	
	d. Weight and Balance Data	
2.	Parking Brake	SET
3.	Fire Extinguisher	CHARGED
4.	Hobbs and Tachometer	RECORDED
5.	Control Wheel Lock	REMOVE
6.	Ignition Switch	OFF
7.	Avionics Power Switch	OFF
8.	Master Switch	ON
9.	Avionics Power Switch (if installed)	ON
10.	Avionics Cooling Fan (if installed)	CHECK (Audibly)
11.	Avionics Power Switch (if installed)	OFF
13.	Low-Vacuum Light (if installed)	ON
12.	Fuel Quantity Indicators	CHECK
13.	Exterior Lights (Generally Only Before Night Flight)	CHECK
14.	Master Switch	OFF
15.	Fuel Selector Valve	BOTH
16.	Static Pressure Alternate Source Valve	OFF
27.	Baggage Door	LOCKED

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, nor allow anyone else to stand, within the arc of the propeller. A loose or broken wire, or a component malfunction could cause the propeller to rotate.

EMPENNAGE		
1.	Empennage	CHECK
2.	Rudder Gust Lock	REMOVE
3.	Tail Tie Down	DISCONNECT
4.	Tail Control Surfaces and Trim Tab	CHECK
RIGHT WING TRAILING EDGE		
1.	Flap	CHECK
2.	Aileron	CHECK
3.	Lights Assembly	CHECK
RIGHT WING		
1.	Wing Tie Down	DISCONNECT
2.	Main Wheel, Tire and Brake	CHECK
3.	Fuel Sump	DRAIN
4.	Fuel Quantity	VISUALLY CHECK
5.	Fuel Filler Cap	SECURED
NOSE		
1.	Engine Oil Quantity (See Pilot's Operating Handbook for minimum oil quantities.)	CHECK
2.	Oil Filler Cap	SECURE
3.	Fuel Strainer	DRAIN
4.	Oil Access Door	CLOSED
5.	Fuel Selector Drain	DRAIN
6.	Propeller and Spinner	CHECK
7.	Engine Cooling Air Inlets and Cowl Plugs	CLEAR
8.	Carburetor Air Filter (if carburetor equipped)	CHECK
9.	Nose Wheel, Tire and Strut	CHECK
10.	Nose Tie Down	DISCONNECT
11.	Static Source Opening	CHECK
12.	Landing Light (if installed)	CHECK
LEFT WING		
1.	Fuel Quantity	VISUALLY CHECK
2.	Fuel Filler Cap	SECURED
3.	Fuel Sump	DRAIN
4.	Main Wheel Tire & Brakes	CHECK
5.	Pitot Tube Cover	REMOVE
6.	Fuel Tank Vent Opening	CHECK
7.	Stall Warning Opening	CHECK
8.	Wing Tie Down	DISCONNECT
9.	Landing Light (if installed)	CHECK
LEFT WING TRAILING EDGE		
1.	Aileron	CHECK
2.	Flap	CHECK

BEFORE STARTING ENGINE		
1.	Preflight Inspection	COMPLETE
2.	Passenger/ Egress Briefing	COMPLETE
3.	Seats, Belts, Harnesses	ADJUST & LOCK
4.	Fuel Selector Valve	BOTH
5.	Avionics Power Switch	OFF
CAUTION: Avionics power must be off to prevent damage during engine start.		
6.	Electrical Switches	OFF
7.	Circuit Breakers	IN
8.	Brakes	TEST & SET
STARTING ENGINE (Carbureted)		
1.	Mixture	RICH
2.	Carburetor Heat	COLD
3.	Throttle	OPEN ¼" TO ½"
4.	Prime	AS REQUIRED
5.	Master Switch	ON
6.	Flashing Beacon	ON
7.	Propeller Area	CLEAR
8.	Ignition Switch	START
9.	Oil Pressure	CHECK
10.	Starter	DISENGAGED
11.	Avionics	ON
12.	Radios (Tower/CTAF)	SET
13.	Transponder	ALT
NOTE		
If engine has been over primed, start with throttle ¼ to ½ open. Reduce throttle to idle when engine starts.		
See Page 6 for Fuel Injected Aircraft and for the TAXI Checklist		

STARTING ENGINE (Fuel Injected)

1.	Throttle	OPEN
2.	Master Switch	ON
3.	Fuel Pump	ON
4.	Mixture (until stable fuel flow indication)	RICH / LEAN
5.	Flashing Beacon	ON
6.	Propeller Area	CLEAR
7.	Ignition Switch	ON
8.	Mixture (advance when engine starts)	RICH
9.	Oil Pressure	CHECK
10.	Starter	DISENGAGED
11.	Avionics	ON
12.	Radios (Tower/CTAF)	
13.	Transponder	ALT

TAXIING

1.	Brakes	CHECK
2.	Gyro Instruments and Compass	CHECK

BEFORE TAKEOFF		
1.	Parking Brake	SET
2.	Doors and Windows	CLOSED & LOCKED
3.	Seat, Seat Belts and Harnesses	SECURE
4.	Flight Controls	FREE & CORRECT
5.	Flight Instruments-DG, Horizon, Turn Coordinator, Airspeed, VSI	CHECK
6.	Altimeter	SET
NOTE The directional indicator should be rechecked during engine run up to avoid compass deviation errors that may occur below 1200 RPM.		
6.	Fuel Selector Valve	BOTH
7.	Mixture	RICH
8.	Elevator/Rudder Trim	TAKEOFF
9.	Throttle 1700 RPM (Caution; Some models may run up at 1800 RPM)	
	a. Magnetos (See Pilot's Operating Handbook for maximum RPM drop and difference.)	CHECK
	b. Carburetor Heat (If Equipped)	CHECK
	c. Engine Instruments	CHECK
	d. Ammeter	CHECK
	e. Suction Gage	CHECK
10.	Throttle	IDLE CHECK
11.	Throttle	800-1000 RPM
12.	Throttle Friction Lock	ADJUST
13.	Elevator Trim	SET
14.	Radios (Tower / CTAF)	SET
15.	Crew Briefing	COMPLETE
16.	Strobe Lights	ON
17.	Transponder (If not already ON-ALT)	ON (ALT) AND SET
18.	Landing or Pulse Light	ON AS DESIRED
19.	Parking Brake	RELEASE
TAKEOFF		
NORMAL TAKEOFF		
1.	Wing Flaps	0° to 10°
2.	Carburetor Heat (If Equipped)	COLD
3.	Throttle	FULL OPEN
4.	Elevator Control	ROTATE AT _____ KIAS
5.	Climb Speed	_____ KIAS
6.	Flaps (if down)	UP

SHORT FIELD TAKEOFF		
1.	Wing Flaps	10°
2.	Carburetor Heat (If Equipped)	COLD
3.	Brakes	APPLY
4.	Throttle	FULL OPEN
5.	Mixture (Above 3000', LEAN to obtain maximum RPM)	FULL RICH
6.	Brakes	RELEASE
7.	Elevator Control	SLIGHTLY TAIL LOW
8.	Climb Speed (V_x until obstacles are cleared, then V_y)	V_x _____
9.	Flaps	UP (after $>V_x + 5$ Kts)
CLIMB		
ENROUTE CLIMB		
1.	Airspeed	_____ KIAS
2.	Throttle	FULL OPEN
3.	Mixture (Above 3000', LEAN to obtain maximum RPM)	RICH
CRUISE		
1.	Power (No more than 75% power is recommended)	2100-2700 RPM
2.	Elevator Trim	ADJUST
3.	Mixture	LEAN
DESCENT		
1.	Fuel Selector Valve	BOTH
2.	Mixture	ENRICHEN
3.	Power	AS DESIRED
4.	Carburetor Heat (If Equipped)	AS REQUIRED
BEFORE LANDING		
1.	Crew Briefing	COMPLETE
2.	Seats, Seat Belts, Harnesses	SECURE
3.	Fuel Selector Valve	BOTH
4.	Mixture	RICH
5.	Carburetor Heat (If Equipped)	ON

LANDING		
NORMAL LANDING		
1.	Airspeed	_____ KIAS (Flaps Up)
2.	Flaps (0 – 10 _____ KIAS) (10 – 30 _____ KIAS)	AS DESIRED (<V _{FE})
3.	Airspeed	_____ KIAS (Flaps Down)
4.	Trim	ADJUST
5.	Touchdown	MAIN GEAR FIRST
6.	Landing	Roll LOWER NOSE GENTLY
7.	Braking	MINIMUM REQUIRED
SHORT FIELD LANDING		
1.	Airspeed	_____ KIAS (Flaps Up)
2.	Wing Flaps	FULL (<V _{FE})
3.	Airspeed	1.3 x V _S _____
4.	Trim	ADJUST
5.	Power	REDUCE (After Obstacle Cleared)
6.	Touchdown	MAIN GEAR FIRST
7.	Brakes	APPLY HEAVILY
8.	Flaps	RETRACT (For Maximum Braking)
GO-AROUND/ BALKED LANDING		
1.	Throttle	FULL OPEN
2.	Carburetor Heat (If Equipped)	COLD
3.	Flaps	SET TO 20°
4.	Climb Speed	V _x _____
5.	Flaps	10° UNTIL OBSTACLES CLEARED THEN SLOWLY TO 0

AFTER LANDING

1.	Flaps	UP
2.	Carburetor Heat (If Equipped)	COLD
3.	Strobe Lights and Pulse Light	OFF
4.	Transponder (Current FAA desire to remain at ON-ALT)	ALT
5.	Trim	RESET

ENGINE SHUTDOWN & SECURING AIRPLANE

1.	Parking Brake	SET
2.	Throttle	800-1000 RPM
3.	121.5/ELT	CHECK
4.	Avionics Power	OFF
5.	Electrical Switches (except beacon)	OFF
6.	Magneto Grounding	CHE
7.	Mixture	IDLE CUTOFF
8.	Ignition Switch	OFF
9.	Master Switch	OFF
10.	Control Lock	INSTALL
11.	Fuel Selector Valve	RIGHT TANK
12.	Hobbs and Tach Times	RECORD

EMERGENCY PROCEDURES

AIRSPEEDS FOR EMERGENCY OPERATION

ENGINE FAILURE AFTER TAKEOFF

Wing Flaps Up _____ KIAS

Wing Flaps Down _____ KIAS

Maneuvering Speed (V_A):

_____ Lbs. _____ KIAS

_____ Lbs. _____ KIAS

_____ Lbs. _____ KIAS

Best Glide Speed

_____ KIAS

Precautionary Landing with Power

_____ KIAS

Landing without Engine Power:

Wing Flaps Up _____ KIAS

Wing Flaps Down _____ KIAS

EMERGENCY ENGINE SHUTDOWN

1.	Mixture	IDLE CUTOFF
2.	Fuel Selector Valve	OFF
3.	Ignition Switch	OFF
4.	Master Switch	OFF
5.	Parking Brake	SET

EMERGENCY EGRESS

1.	Headset	REMOVE
2.	Seat Belts and Harnesses	UNFASTEN
3.	Rear Seat Occupants	EXIT NEAREST DOOR
4.	Front Right Seat Occupant	EXIT RIGHT DOOR
5.	Pilot (Left Seat)	EXIT RIGHT DOOR

WARNING While abandoning the aircraft, use caution for other aircraft, spinning propellers, and any other obstructions.

ENGINE FAILURES

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	BEST GLIDE ____ KIAS (Flaps Up) ____ 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 PROCEDURE)

1.	Airspeed	BEST GLIDE ____ KIAS (Flaps Up) ____ KIAS (Flaps Down)
2.	Carburetor Heat	ON
3.	Fuel Selector Valve	BOTH
4.	Mixture	RICH
5.	Ignition Switch	BOTH (OR START, IF PROP STOPPED)
6.	Primer	IN & LOCKED

FORCED LANDINGS

EMERGENCY LANDING WITHOUT ENGINE POWER

1. Airspeed	BEST GLIDE
	_____ KIAS (Flaps Up)
	_____ 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
7. Seats, Belts, Harnesses	SECURE
8. Doors	UNLATCHED
9. Touchdown	SLIGHTLY TAIL LOW
10. Brakes	APPLY HEAVILY

PRECAUTIONARY LANDING WITH POWER

1. Seats, Belts, Harnesses	SECURE
2. Airspeed	BEST GLIDE + 5 KTS.
3. Wing Flaps	20°
4. Selected Field	FLY OVER
NOTE While flying over the selected field take note of terrain and obstructions. Retract flaps upon reaching a safe altitude and airspeed.	
5. Electrical Switches	OFF
6. Wing Flaps	FULL (ON FINAL)
7. Airspeed	_____ KIAS
8. Master Switch	OFF
9. Doors	UNLATCHED
10. Touchdown	SLIGHTLY TAIL LOW
11. Mixture	IDLE CUTOFF
12. Ignition Switch	OFF
13. Brakes	APPLY HEAVILY

DITCHING		
1.	Radio	TRANSMIT MAYDAY
2.	Transponder	7700
3.	Heavy Objects	SECURE OR JETTISON
4.	Approach:	
	High Winds, Heavy Seas	INTO THE WIND
	Light Winds, Heavy Swells	PARALLEL TO SWELLS
5.	Flaps	20° TO FULL
6.	Power	300 FPM DESCENT AT BEST GLIDE – 10 KTS.
NOTE If no power is available, approach at Best Glide speed with flaps up or at Best Glide minus 5 Kts. With 10° flaps.		
7.	Cabin Door	UNLATCH
8.	Touchdown	LEVEL ATTITUDE
9.	Face	CUSHION/PROTECT
10.	Airplane	EVACUATE
11.	Life Vests and Raft	INFLATE

FIRES

DURING START ON GROUND

1. Cranking	CONTINUE
IF ENGINE STARTS	
2. Power	1700 RPM FOR A FEW MINUTES
3. Engine	SHUTDOWN
4. Fire Damage	INSPECT
IF ENGINE FAILS TO START	
5. Throttle	FULL OPEN
6. Mixture	IDLE CUTOFF
7. Cranking	CONTINUE
8. Fire Extinguisher	OBTAIN
9. Engine	SECURE
a. Master Switch	OFF
b. Ignition Switch	OFF
c. Fuel Selector Valve	OFF
10. Fire	EXTINGUISH
11. Fire Damage	INSPECT

ENGINE FIRE IN FLIGHT

1. Mixture	IDLE CUTOFF
2. Fuel Selector Valve	OFF
3. Master Switch	OFF
4. Cabin Heat and Air	OFF
5. Airspeed	100 KIAS OR MORE
6. Forced Landing (w/o Power)	EXECUTE

ELECTRICAL FIRE IN FLIGHT

1. Master Switch	OFF
2. Avionics Power Switch	OFF
3. All Other Switches	OFF
4. Vents/Cabin Air	CLOSED
5. Fire Extinguisher (After discharging a fire extinguisher within a closed cabin, ventilate the cabin.)	ACTIVATE
If fire appears out and electrical power is necessary for flight:	
6. Master Switch	ON
7. Circuit Breakers	CHECK FOR FAULT (Do not reset)

8.	Radios	OFF
9.	Avionics Power	ON
10.	Radios	ON (One at a time)
11.	Vents/Cabin Air	OPEN
CABIN FIRE		
1.	Master Switch	OFF
2.	Vents/Air/Heat	OFF
3.	Fire Extinguisher (After discharging a fire extinguisher within a closed cabin, ventilate the cabin.)	USE (If needed)
4.	Land	AS SOON AS POSSIBLE
SMOKE AND FUME ELIMINATION		
1.	Cabin Heat and Cabin Air	BOTH OFF
2.	Air Vents	OPEN
3.	Windows	OPEN
WING FIRE		
1.	Pitot Heat Switch	OFF
2.	Navigation Light Switch	OFF
3.	Strobe Light Switch	OFF
NOTE Perform a side slip 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.	Pitot Heat	ON
2.	Cabin Heat	FULL ON
3.	Defroster Outlets	OPEN
4.	Throttle	OPEN TO INCREASE PROP SPEED
5.	Turn back or change altitude to obtain an outside air temperature that is less conducive to icing.	
6.	Watch for signs of carburetor air filter icing 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.	
7.	Plan a landing at the nearest airport. With an extremely rapid ice build-up, select a suitable "off-airport" landing site.	
8.	With an ice accumulation of 1/4 inch or more on the wing leading edges, be prepared for significantly higher stall speed.	
9.	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.	
10.	Open left window and, if practical, scrape ice from a portion of the windshield for visibility while landing.	
11.	Perform a landing approach using a forward slip, if necessary, for improved visibility.	
12.	Approach 5 to 10 knots faster, depending upon the amount of ice accumulation.	
13.	Perform a landing in level attitude.	

STATIC SOURCE BLOCKAGE

1.	Alternate Static Source Valve	PULL ON
2.	Airspeed	CONSULT TABLE (POH, Section 5)

LANDING WITH FLAT MAIN TIRE

1.	Approach	NORMAL
2.	Touchdown	GOOD TIRE FIRST
3.	Rollout	HOLD FLAT TIRE OFF AS LONG AS POSSIBLE

NOTE If possible, in crosswind conditions, land with the flat tire on the downwind side

ELECTRICAL POWER MALFUNCTIONS

EXCESSIVE RATE OF CHARGE

1.	Alternator	OFF
2.	Alternator Circuit Breaker	PULL
3.	Nonessential Equipment	OFF
4.	Flight	TERMINATE AS SOON AS PRACTICAL

LOW-VOLTAGE LIGHT ILLUMINATES DURING FLIGHT

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

TOTAL LOSS OF OIL PRESSURE

Engine Power	REDUCE
Landing (Use minimum power required to reach designated touchdown spot.)	SELECT SUITABLE LANDING SITE

NOTE If a total loss of oil pressure is accompanied by a rise in oil temperature, there is good reason to suspect an engine failure is imminent.