HAMPTON AIRFIELD

CESSNA-172 STANDARD PROCEDURES AND FLIGHT MANUVERS

10/29/2019 v1.61

(NOTE: FOR INFORMATION ONLY - CONSULT PILOT'S OPERATING HANDBOOK - POH)

STARTING THE ENGINE:

1. Preflight	Complete
2. Primer	As required
3. Carb heat	Cold (forward)
3. Throttle	Open 1/8 inch
4. Mixture	Full rich (forward)
5. Propeller Area	Visually clear
6. Master Switch	On
7. Beacon Light	On
7. Ignition Switch	Turn key to "start" after engine starts release to "both"
8. Oil Pressure/Amp Meter	Check

TRAFFIC PATTERN -- TAKEOFF

NORMAL TAKEOFF:

1. Climb straight out on departure leg
2. At 500' AGL a. If leaving the pattern turn 45° left (Right if RHP)
   b. If remaining in the pattern turn 90°left to crosswind leg then another 90'°Left onto Down Wind leg.
   c. Continue climbing to traffic pattern altitude (TPA)

NOTE: ALL LEGS SHOULD BE MADE AT A DISTANCE FROM THE AIRPORT THAT WILL ALLOW A POWER OFF GLIDE TO THE RUNWAY

TAKE OFFS— THREE DIFFERENT TYPES

NORMAL:

1. Flaps	Up
2. Carb Heat	Cold
3. Throttle	Smoothly apply full power
4. Engine instruments	Check in the green
5. Allow a/c to accelerate to 60mph	Apply light back pressure
6. Climb Speed	80 mph

SHORT FIELD:

1. Flaps	Up
2. Carb Heat	Cold
3. Brakes	Hold
4. Throttle	Smoothly apply full power (forward)
5. Engine instruments	Check in the green
6. Brakes	Release
7. Allow a/c to accelerate in a level attitude to 55 mph then rotate smartly to a climb attitude slightly higher than normal take off attitude.	
8. Climb Speed	Vx = 70 mph until clear of obstacles
9. When clear of obstacles	Normal climb speed of 80mph

SOFT FIELD:

1. Flaps	10 degrees
2. Carb Heat	Cold
3. Stick	Sufficient back to hold nose wheel UP
4. Throttle	Smoothly apply full power (forward)
5. Engine instruments	Check in the green
6. Allow a/c to accelerate and lift off in ground effect then <u>immediately</u> lower nose to stay within ground effect. (5-15 feet off the ground)	
7. Climb Speed	70 mph until 300 feet AGL
8. At 300 feet AGL	Flaps up & accelerate to normal climb speed of 80mph

ENROUTE CLIMB:

1. Raise nose to approx. 10° above horizon (80mph)
2. Full Power
3. Mixture: Full Rich
4. Control airspeed with pitch
5. Trim for zero stick force

LEVEL-OFF from CLIMBS & DECENTS:

1. Nose to horizon (bottom of wing parallel to horizon.)
2. As speed increases trim to relieve stick forces
3. At approx. 100 mph
4. Set power to cruise – approx. 2300 rpm
5. (NOTE: Some pilots may choose to set power then trim.)
6. Mixture above 3,000' Lean as necessary
7. Landing lights As required
8. Engine instruments Check in the green

DECENT FROM CRUISE:

1. Descent checklist
2. Carb heat ON
3. Power 2000 rpm
4. Allow nose to drop approx. 10° & descend at cruise speed
5. Trim for desired speed/rate of descent
6. Perform normal level off at desired altitude
7. Note: Approach Traffic Pattern at 1700rpm/80mphNormal

BEFORE LANDING CHECK: (BEFORE ENTERING PATTERN)

1. Get landing info – prior to 10sm out ATIS/ASOS/UNICOM
2. Fuel selector Both
3. Carb Heat ON
4. Mixture Full Rich
5. Landing Lights As required
6. Seatbelts/Shoulder Harness ON

TRAFFIC PATTERN – LANDING

NOTE: ALL LEGS SHOULD BE MADE AT A DISTANCE FROM THE AIRPORT THAT WILL ALLOW A POWER OFF GLIDE TO THE RUNWAY!

NORMAL LANDING:

1. At midfield Carb Heat ON
2. Abeam the touch down point smoothly reduce power to idle
3. Hold nose level to horizon to prevent a descent as aircraft slows down
4. Trim nose up four strokes
5. When a/s is below 100mph (Vfe/white arc) extend flaps to 10 ° (a count of three.)
   TARGET AIR SPEED IS NOW 70 MPH
6. When touch down point is approx. 45° behind - turn 90°left on Base Leg
7. On Base Leg extend flaps to 20 ° (another count of three)
   "Flaps down nose down" air speed still @ 70mph
   CONSENTRATE ON: "RUNWAY/AIRSPEED (70MPH)/PITCH"
8. As you approach the extended runway centerline, turn onto Final Leg
9. When runway is assured apply full flaps. Use power to control rate of descent. Use pitch to control air speed. Minimum speed on final 60mph
   TARGET SPEED IS NOW 60-65 MPH

NOTE: If gusty conditions add full gust + ½ headwind but not more than 15 mph

ROUND OUT & FLARE:

1. At approx. 10-15' above runway begin to smoothly add backpressure on the yoke to slow the descent BUT NOT CLIMB
2. Touchdown on the main gear with nose in approx. the climb pitch attitude.
3. Increase the backpressure but allow the nose to settle to the runway
4. Use minimum braking OR brake as necessary but hold the yoke back.

SHORT FIELD LANDING: Same as Normal Landing with following exception:

1. Aiming point is slightly short of intended touch down point
2. ON FINAL:
   a. Power to idle
   b. Flaps confirm 40°
   c. Airspeed max 65mph
3. ROUND OUT & FLARE
   a. At approx. 10-15 feet begin to add backpressure
   b. Touch down main wheels first
   c. Gently lower nose
   d. Retract flaps apply full brakes – hold yoke full back

NOTE: DO NOT LOCK BREAKS OR SKID TIRES

SOFT FIELD LANDING: Same as Normal Landing with following exception:

4. ON FINAL:
   a. Power as necessary to achieve soft touchdown.
   b. Flaps – 40 °degrees
   c. Airspeed – 65 mph
5. ROUND OUT & FLARE:
   a. At approx. 10-15' begin to add backpressure
   b. Touch down main wheels first
   c. Hold back pressure to hold nose wheel off the ground until aircraft slows to a stop

WHEN CLEAR OF RUNWAY AND AFTER PASSING "STOP BAR"

AFTER LANDING CHECK: "FLOW"

1. Fuel -- BOTH
2. Trim – TRIM FOR TAKEOFF
3. Carb Heat – COLD
4. Throttle – 1000 RPM
5. Mixture – RICH
6. Flaps – UP
7. Engine Instruments -- CHECKED
8. Lights & Strobes – AS REQUIRED

GO AROUND:

1. FULL THROTTLE
2. CARB HEAT – OFF
3. PITCH TO "NAIL" THE HORIZON
4. FLAPS – 20 ° (COUNT OF 4 AND OFF)
5. AT 70 MPH & POSITIVE RATE OF CLIMB
6. PITCH TO NORMAL CLIMB – FLAPS UP
7. TRIM FOR NORMAL CLIMB

FLIGHT MANUEVERS:

SLOW FLIGHT/MCA (aka: minimum controllable airspeed)

INITIAL:

1. CLEAR AREA
2. Carb Heat –ON
3. Reduce Power – 1900 +/- 100 RPM
4. Maintain constant altitude to bleed off air speed
5. When aircraft has slowed to Vfe 100 mph – FLAPS 10 °
6. While holding altitude allow air speed to slow to 65 mph (1.2xVso=65mph) & trim to relieve stick pressure

USE POWER TO CONTROL ALTITUDE & VERTICAL SPEED AND PITCH TO CONTROL AIR SPEED
RUDDER TO MAINTAIN COORDINATION

ADVANCED:

7. Lower flaps to 20 ° – TRIM & POWER TO HOLD ALT/SPEED
8. Lower flaps to 40 ° – TRIM & POWER TO HOLD ALT/SPEED

NOTE: ALL TURNS DURING MCA MUST BE MADE WITH SHALLOW BANKS (15 °OR LESS)

RECOVERY:

1. While maintaining altitude and heading smoothly add full power/carb heat OFF
2. Flaps – RETRACT SLOWLY IN 10 DEGREE INCREMENTS – UP before 100 MPH
3. Allow aircraft to accelerate to normal cruise speed.

DECENDING TURN:

1. Clear area around and below,
2. Carb heat –- ON
3. Reduce power to IDLE/AS REQUIREED and hold altitude. TRIM
4. AT 70 MPH roll into a 20° bank and maintain a 70 MPH descending turn

Approx. 50' from selected altitude, roll wings level, add power, raise nose and resume cruise flight.

CLIMBING TURN:

1. Clear area
2. While raising nose increase to full power and roll into a 20' banked turn
3. Allow air speed to decelerate to Vy 80 mph
4. Upon reaching assigned altitude/heading roll wings level/nose to horizon & allow aircraft to accelerate to cruise speed then reduce power to cruise RPM.

STEEP TURNS: 360 ° (or 720 °for advanced training) **2,500' AGL MINIMUM ALTITUDE**

1. Clear the area
2. Reduce power as necessary to slow to Va 112 mph
3. While maintaining altitude roll into a 45 ° bank turn.
4. When rolling past 30 ° add power and increase backpressure to hold altitude.
5. Approx. 20 °before assigned heading begin rolling out, forward pressure to control altitude.

FLIGHT MANUEVERS: (Continued)

STALLS:

APPROACH TO LANDING STALL: (aka: Power off stall) **2,500 AGL MINIMUM ALTITUDE**

1. Clear area.
2. Carb heat ON
3. Reduce power 1500 rpm to reduce speed
4. Maintain constant altitude to bleed off airspeed
5. When aircraft has slowed to Vfe (100 mph) or less extend flaps to 10 °
6. Further reduce power to 1400 rpm. At 70 mph lower flaps to 20 °
7. When aircraft has slowed to 60 mph lower flaps to 30' then 40 °
8. Maintain attitude and heading until stall occurs
9. HOLD NEUTRAL AILERONS & WINGS LEVEL WITH RUDDER

RECOVERY:

1. Reduce the angle of attack by releasing the backpressure on the yoke.
2. Apply FULL POWER & CARB heat OFF. Pitch to "NAIL" THE HORIZON.
3. FLAPS UP to 20 °
4. Allow airspeed to reach 70 mph then start a climb.
5. When a positive rate of climb is established, retract flaps to 10 °then 0°
6. Climb at 80 mph to assigned altitude.

DEPARTURE STALL: (aka: POWER ON STALL) **2,500 AGL MINIMUM ALTITUDE**

1. Clear area.
2. Carb heat ON
3. Power 1500 rpm
4. Maintain constant altitude and heading, allow aircraft to slow to 60mph
5. (NO FLAPS)
6. Slowly raise nose and as airspeed bleeds off add power to 2300 rpm.
7. Continuously pitch up maintaining heading until the first indication of a stall.
8. HOLD NEUTRAL AILERONS & WINGS LEVEL WITH RUDDER

RECOVERY:

1. Lower nose to horizon and allow aircraft to accelerate.
2. Verify full power and carb heat off.
3. At Vx 70 mph start a slight climb to assigned altitude.
4. Accelerate to cruise air speed

GROUND REFERENCE MANUVERS:

PROCEDURES FOR ALL GROUND REFERENCE MANUEVERS:

1. Altitude 800' to 1000' AGL
2. Area and altitude that allows a safe power off landing
3. Airspeed: No greater than Va (112 mph)
4. Power 2200 rpm
5. Flaps Up
6. Maximum bank 45 °

RECTANGLER PATTERNS:

1. Clear the area.
2. Choose a rectangle or square field OR use the airport runway.
3. Enter down wind and establish a "crab" or heading that will "track" parrell to the field.
4. Maintain the same distance from the filed on all four legs by establishing heading (crab) that will cause a track parrel to the field
5. Adjust angle of bank (and rate rate of turn) based on groundspeed

TURNS ABOUT A POINT:

1. Clear area
2. Choose a reference point
3. Enter downwind
4. Maintain a constant distance, altitude and air speed while flying around the designated point by increasing and decreasing the angle of bank as the ground speed increases and decreases.

"S" TURNS ACROSS A ROAD/POWER LINE/BEACH:

1. Clear the area
2. Choose a reference line that is perpendicular to the wind
3. Enter downwind
4. Maintain two half circles of equal distance from each side of the reference line by increasing or decreasing the bank as the ground speed increases and decreases.
5. Maintain constant altitude, airspeed and distance.

EMERGENCY PROCEDURES: **AVIATE – NAVIGATE – COMMUNICATE !!**

ENGINE FIRE IN FLIGHT:

A: Fuel Selector Valve -----OFF
B: Mixture------IDLE CUT-OFF
C: Master Switch ___OFF
(PEFORM AFTER LANDING "FLOW" plus PRIMER)
D: Cabin Heat and AIR--- OFF (EXCEPT OVERHEAD VENTS)
E: Airspeed —120 mph. If fire is not extinguished, increase glide speed to find an airspeed, which will provide an incombustible mixture.

ELECTRICAL FIRE (OR SMOKE) IN FLIGHT:

A: Master Switch ----OFF
B: All Radio/Electrical Switches ----OFF
C: Vents/Cabin Air/Heat ---- CLOSED
E: Fire Extinguisher –ACTIVATE (if available)

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

F: Master Switch ----ON
G: Circuit Breakers – CHECK for faulty circuit, do not reset.
H: Electrical/Radio Switches -- ON (one at a time, with delay after each until short circuit is localized
I: Vents/Cabin Air/Heat – OPEN (If fire is out)

ENGINE FAILURE AFTER TAKE OFF:

LESS THAN 800 'AGL - FIND SUITABLE LANDING SPOT STRAIGHT AHEAD
MORE THAN 800' AGL – **CONSIDER** TURN INTO WIND AND RETURN TO FIELD

A: Airspeed – 80 mph – BEST GLIDE

B: Mixture –IDLE CUT-OFF
C: Fuel Selector Valve –OFF
E: Ignition Switch – OFF
F: Wing Flaps – AS REQUIRED (40 ° RECOMMENDED)
G: Master Switch –OFF

ENGINE FAILURE DURING FLIGHT:

A: Airspeed – 80 mph
B: Carburetor Heat – ON
C: Fuel Selector Valve –BOTH
D: Mixture – RICH
E: Ignition Switch – BOTH (or START if propeller is stopped)
F: Primer – IN & LOCKED

FORCED LANDING (WITHOUT POWER)

A: Airspeed – 75 MPH (Flaps UP)
70 MPH (Flaps DOWN)
B: Mixture –IDLE CUT-OFF
C: Fuel Selector Valve –OFF
E: Ignition Switch – OFF
F: Wing Flaps – AS REQUIRED (40' RECOMMENDED)
G: Master Switch –OFF
H: Doors – UNLATCH PRIOR TO TOUCHDOWN
I: Touchdown Attitude– LAND SLIGHTLY TAIL LOW
J: Brakes – APPLY HEAVILY

CESSNA 172M (MODLE "M") INFORMATION SHEET

(NOTE: FOR INFORMATION ONLY - CONSULT PILOT'S OPERATING HANDBOOK!)

MAX GROSS WEIGHT: 2300# (ALL AIRCRAFT)
MAX BAGGAGE WEIGHT: 120# (TOTAL FOR BOTH COMPARTMENT AREAS)
CG & MOMENT (CENTER OF GRAVITY RANGE) ***SEE POH***
FUEL CAPACITY: ALL = 42GAL (38 USABLE) **EXCEPT:** N5178R = 52gal. 48 USABLE
RANGE: ***SEE POH***
ENGINE: Lycoming 0-320, 150hp, 4-cylinder, carburetor, air/oil cooled
ELECTRICAL SYSTEM: one 12volt battery with 14-volt alternators.
FUEL: 100LL (light blue color)
OIL: 8 quarts maximum - 5 quarts minimum (target level = 6qts)
FLAPS: Fowler flap, electrically operated with 10, 20, 30, 40-degree indications.

EMPTY WEIGHT & USEFUL LOAD:

	EMPTY WEIGHT	USEFUL LOAD
N172ML =	1476.39 #	823.00 #
N8961V =	1466.10 #	833.90 #
N5178R =	1439.00 #	861.00 #
N64EF =	1459.50 #	840.50 #

AIRSPEEDS:

Vx	70mph	best angle of climb or descent
Vy	80mph	best rate of climb or descent
Vfe	100mph	white arc (flap operating speed)
Va	112mph	design maneuvering speed
Vno	145mph	yellow arc (normal operating speed)
Vne	182mph	red line (never exceed speed)

STALLING SPEEDS POWER OFF:

Vs1	57mph	clean
Vso	49mph	flaps extended

(NOTE: N172ML & N8961V ARE STOL AIRCRAFT—STALL SPEEDS MAY BE LESS!!!)

C-I-G-A-R-S -- this is a generic checklist

ALWAYS USE SHIPS CHECKLIST!!!

BEFORE TAKE OFF:

1. "C" - controls free and correct			
2. "I" - Instruments	a. Flight instruments		Checked & set
	b. Radios		Set
3. "G" – Gas	a. Fuel selector		On both
	b. Primer		Locked
	c. Quantity		Checked
4. "A" – Attitude	a. Trim		Set for take off
	b. Flaps		Set for take off (normal/short – up) (Soft ---------- 10 °)
5. "R" – Run up	a. Bakes	As required	
	b. Throttle	1700rpm	
	c. Mags	Left/right	max drop 125, 50 between
	d. Carb heat	Pull on/off,	rpm drop & rise
	e. Engine instruments & suction		in then green
	f. Throttle	Return to 1000 rpm	
6. "S" - Safety	g. Seatbelts/doors & windows/traffic pattern		