

BEFORE TAKEOFF — CIGAR	
Controls	free & correct
Airspeed indicator.....	0, or wind speed
Attitude indicator	centered
Altimeter	set to ATIS
Turn coordinator.....	level & ball centered
Heading indicator	mag. compass
Vertical speed indicator.....	0
Fuel selector	both
Elevator trim.....	takeoff
Mixture	full rich
RUN - UP :	
- Primer	in & locked
- Oil pressure / temp.....	in green, warm
- Brakes	apply
- Throttle.....	1700 RPM
- Suction gauge	in green, 5 psi
- Ammeter.....	positive load
- Magnetos	125 drop / 50 diff.
- Carburetor heat	100 drop
- Throttle.....	< 1000 RPM
- Throttle friction.....	tighten
Radios / Nav / XPDR	set, ALT + SQWK
Doors / Windows / Belts	secure
HOLDING SHORT	
Fuel selector	both
Elevator trim.....	takeoff
Carburetor heat	off
Mixture	full rich below 3,000 ft
Flaps	0° to 10°
Dep. briefing	T.O. abort plan & turn dir.
I WILL LOSE THE ENGINE, I WILL PUSH IMMEDIATELY	
ON RUNWAY	
TIME	NOTE
Lights	strobe & landing on
Camera.....	XPDR ALT / H.I. to rwy hdg
Action	full throttle > 2270 RPM
NORMAL TAKEOFF	
Rotate (V _R)	50 - 55 KIAS
Lift-off (V _X)	60 - 65 KIAS
Climb-out (V _Y)	70 - 85 KIAS
Flaps	raise at safe altitude
CLIMB	
Climb-out (V _Y)	70 - 85 KIAS
Landing light.....	off, as needed
Flight plan	open

CRUISE	
Throttle	2200-2700 RPM (<75% MCP)
Elevator trim	adjust to cruise speed
Fuel selector	both
Mixture	lean above 3,000 ft
Circuit breakers	in
Landing light	off, as needed
Engine instruments	in green
Instruments	check, H.I. to compass
DESCENT — A MICE ATM	
Altimeter	set to ATIS
App. briefing	complete
Mixture	richen
Carburetor heat	as required
Instruments	check, H.I. to compass
BEFORE LANDING — GUMPFs	
Seat belts	adjust & secure
Fuel selector	both
Landing light	on
Carburetor heat	on
Mixture	full rich below 3,000 ft
Flaps	as required
DMMS	70 KIAS
Short Final	flaps down, 60 - 70 KIAS
GO-AROUND	
Throttle	full open
Carburetor heat	off
Flaps	retract to 20°
Airspeed	55 KIAS
Flaps	10° until obstacles cleared
CLEAR OF RUNWAY	
Elevator trim	takeoff
Flaps	up
Carburetor heat	off
Mixture	lean for taxi
Lights	strobe & landing off
Radios / XPDR	set, ALT + SQWK
ENGINE SHUTOFF	
TIME	STOP TIMER
Lights (except beacon)	off
Avionics master switch	off
Mixture	cut-off
Ignition switch	off, remove key
Master switch	off
Fuel selector	left or right
Control lock	install
Pitot cover	install

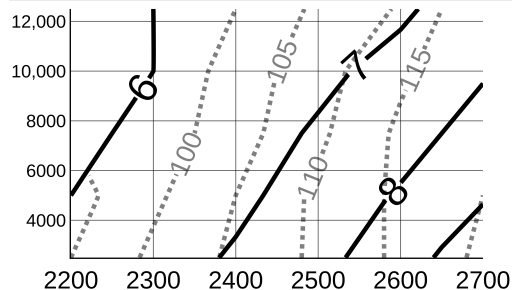
ACRONYMS

CIGAR: Controls, Instruments, Gas, Attitude (Takeoff Trim), Run-up

A MICE ATM: ATIS; Marker beacons (ON+TEST), Identify (set radios + nav); Course (set final or next approach course; Entry type (full or straight-in approach approach? Course reversal? Vectors?); Altitudes (current, FAF, DA/MDA); Time (FAF to MAP); Missed approach procedure briefed.

GUMPFS: Gas; Undercarriage, Mixture, Prop, Flaps, Safety Belts

CRUISE PERFORMANCE



MAXIMUM GLIDE

RANGE in NM @ 65 KIAS, FLAPS UP

AGL	Zero Wind	20 kt. Headwind	40 kt. Headwind
10,000	15	11	6.4
9000	13.5	9.9	5.8
8000	12	8.8	5.1
7000	10.5	7.7	4.5
6000	9	6.6	3.9
5000	7.5	5.5	3.2
4000	6	4.4	2.6
3000	4.5	3.3	1.9
2000	3	2.2	1.3
1000	1.5	1.1	0.6

AIRSPEEDS (KIAS @ GROSS WEIGHT)

	En route climb, sea level. At 10,000 ft.	80 - 90 70 - 80
V _S	Stall speed, flaps up.	49
V _{S0}	Stall speed, flaps down.	43

EN ROUTE WEATHER

1800wxbrief (Leidos Flight Service)

- **Input:** Route / flight plan
- **Output:** "Standard Brief," en route METAR, TAF, Winds Aloft

VERIFY EFB & PHONE WEATHER IS UP-TO-DATE!!!

AIRCRAFT PERFORMANCE

Performance requirements along route

C172 Performance App

- **Input:** Route leg, weight and balance data, latest METAR for departure and destination, en route altitude, en route temperature, en route headwind/tailwind, and desired cruise power setting (% MCP)
- **Verify:** Weight and balance in limits, winds at departure and destination in limits
- **Output:** V_R, V_X, V_Y, departure wind components, cruise power RPM, estimated fuel used, ETE, destination wind components

OTHER EMERGENCY

EXCESSIVE RATE OF CHARGE: turn both sides of master switch OFF, then ON. If light comes on again, terminate flight.

INSUFFICIENT RATE OF CHARGE: Nonessential electric OFF. Terminate flight.

RADIO OUT: Check circuit breakers & VOLUME. Recycle alternator switch. If in B, C, or D airspace, squawk 7600. Terminate flight.

TWR SIGNALS	ON GROUND	IN FLIGHT
Steady Green	Cleared To Takeoff	Cleared To Land
Flashing Green	Cleared To Taxi	Return For Landing
Steady Red	STOP	Yield & Continue Circling
Flashing Red	Taxi Clear of Landing Area	Airport Unsafe — Do Not Land
Flashing White	Return To Starting Point	—
Alternating Red & Green	Use Extreme Caution	Use Extreme Caution

PREFLIGHT — CABIN

- Pitot cover remove
- Papers (A.R.O.W.) valid
- Control lock remove
- Ignition switch off, keys on dash
- Avionics master & elec. off
- Circuit breakers in
- Master switch on
- Gyros no unusual noise
- Fuel gauges note level
- Flaps lower in stages
- Avionics master switch on
- Navigational instruments (IFR) :**
 - Marker beacons test hi / low
 - VOR test
 - GPS database valid / self test OK
 - Transponder test, set ALT + 1200
- Radios copy ATIS
- Avionics master switch off
- Pitot verify cover off
- Pitot heat on, test, off
- Lights (beacon, strobe, nav) all working
- Master switch off
- ADHRS mount, secure battery
- EFB (inc. phone) mount, secure battery, connect ADHRS, reset level, update weather from Internet display taxi diagram
- Windshield clean

PREFLIGHT — NOSE

- Spinner check for security, no cracks
- Propeller check for nicks, max. 1/8"
- Cooling air intake free of restrictions
- Carburetor air filter free of restrictions
- Muffler check for security
- Landing light(s) check condition & clean
- Nose wheel strut inspect & check inflation
- Tire check wear & inflation
- Static source opening check for stoppage

PREFLIGHT — LEFT WING

- Fuel tank check quantity & secure cap
- Tire inspect for wear & inflation
- Brakes inspect for leaks & pad wear
- Pitot tube check intakes (2) clear
- Fuel vent clear
- Tie down remove
- Wingtip check lights, rivet line & shake
- Aileron check hinges, pushrod, counterweights & movement
- Flaps check pushrod & movement
- Fuel drain check fuel quality

PREFLIGHT — EMPENNAGE

- Fuselage no structural damage
- Elevator hinges, links & counterweights
- Rudder hinges, links & counterweights
- Antennae no damage
- Tie down remove

PREFLIGHT — RIGHT WING

- Fuel drain check fuel, paper napkin test
- Flaps hinge, pushrod & movement
- Aileron hinge, pushrod & counterweight
- Wingtip lights, rivet line & shake wing
- Tie down remove
- Tire inspect for wear & inflation
- Brakes inspect for leaks & pad wear
- Fuel tank check quantity & secure cap

PREFLIGHT — NOSE RIGHT

- Oil level no less than 6 quarts
- Fuel strainer check fuel quality
- Airplane free to roll & no bald-spots
- Overall FINAL WALK-AROUND,**
no openings, no forgotten objects

BEFORE STARTING ENGINE

- Preflight inspection COMPLETE
- Seat & seat belts secure
- Fuel selector both
- Avionics master switch off
- Circuit breakers in
- Brakes test and set

STARTING ENGINE

- Mixture full rich
- Carburetor heat off
- Prime as required (< 3 strokes)
- Primer in & locked
- Throttle open 1/8 inch
- Rotating beacon on
- Master switch on
- Brakes set
- Propeller area "CLEAR"
- Ignition start (30s, 2m intervals)
- Throttle < 1000 RPM
- Oil pressure green in 30 sec, or stop

TIME START TIMER

BEFORE TAXIING

- Mixture lean for taxi
- Flaps retract
- Heading indicator (H.I.) mag. compass
- Avionics master switch on
- Radios / Nav / XPDR on, set, ALT + 1200
- Communications as required
- Brakes test