Training aid only, not flight instruction. Review it with your CFI and get their approval before you use it in training or in the airplane. Check every number against the POH and current FAA sources. Last reviewed Nov 7, 2026.

CHEROKEE 140 TRANSITION GUIDE

Cherokee 140 · For pilots coming from the Cessna 172

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HOW TO USE THIS GUIDE

This guide prepares a pilot with Cessna 172 time for dual lessons in our Cherokee. It is not a substitute for your CFI or for the airplane's own POH. Our airplane is a 1975 PA-28-140 Cherokee Cruiser with a 150 hp Lycoming O-320-E3D.

- **The POH in the airplane and its placards win.** Numbers here come from the published 1974–77 Cruiser manual and our airplane's records. Before your first flight, check each number against the POH on board and write in any that differ.
- **Check what units the airspeed indicator shows.** Piper changed from mph to knots around 1976, so a 1975 airplane may read mph, knots, or both. Speeds below are given both ways. Fly the units on your ASI.
- Read it in order once. After that, use the speeds table and the pattern section as your cockpit flash cards.

Flying it as a student pilot

Your insurance policy and the FARs both apply, and the stricter one wins.

- **Insurance:** read the policy before your first lesson. Many policies, ours included, require a qualifying CFI to approve every student flight in advance, solo flights included, and a CFI checkout for pilots new to the make and model.
- **The CFI must qualify under the policy.** Confirm with the insurance broker before your first lesson, and give your CFI a copy of the policy.
- **Solo endorsement:** a student solo endorsement is for a specific make and model and lasts 90 days (14 CFR 61.87). A C172 endorsement does not cover the Cherokee. Your CFI endorses you for the PA-28-140 after dual in it.
- **No passengers** while you hold a student certificate (14 CFR 61.89). The right seat is your CFI.
- **Solo cross-countries** need their own endorsements (14 CFR 61.93).
- **Your pilot profile** to the insurer states your student status and exact hours. A wrong answer can void coverage.

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THE AIRPLANE AT A GLANCE

The Cruiser is a two-tank, fixed-pitch, carbureted 150 hp trainer. Its governing manual is Piper Pilot's Operating Manual 761 555, which covers serials 28-7425001 through 28-7625275, including 1975 Cruisers.

Item	1975 Cherokee Cruiser
Model	1975 PA-28-140 Cherokee Cruiser
Engine	Lycoming O-320-E3D, 150 hp at 2700 RPM, float carburetor
Propeller	Sensenich M74DM fixed pitch, 74 in. Static RPM limit 2275–2425 at 2150 lb
Fuel	Two 25 gal wing tanks, 50 gal total, 48 usable. 100LL (placard). Selector: LEFT / RIGHT / OFF, no BOTH
Oil	8 qt sump maximum
Max gross	2150 lb normal category, 1950 lb utility
Weight and balance	Use the current W&B in the airplane. Ours (2006): empty 1,391 lb, useful load 766 lb
Flaps	Manual lever ("Johnson bar") between the seats: 0, 10, 25, 40 degrees
Annunciator	ALT, OIL, VAC lights with press-to-test (S/N 7525001 and up)
Stall warning	Light and horn
Brakes	Toe brakes plus hand lever; parking brake is on the hand lever

Brief before every flight

- **Read the squawk list and recent maintenance entries.** An inoperative item can limit how you fly: an inoperative strobe, for example, means day VFR only.
- **Log tach out and in** every flight.
- **Throttle placard: do not advance quicker than 3 seconds.** That applies to takeoff and go-around.
- **VAC light below about 1000 RPM is normal.** It should go out during run-up.
- **Never prime by pumping the throttle.** On a float carburetor it can pool fuel in the intake and start an induction fire. Know the engine-fire-during-start procedure before every start.

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- **Nothing loose on the back shelf.** It goes forward into your head in a sudden stop.
- **Check the fire extinguisher** is on board and charged.

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C172 TO CHEROKEE: WHAT CHANGES

The biggest change is fuel. You manage one tank at a time, and the electric pump is on for takeoff, landing and tank switches. Most transition mistakes are habits carried over from the 172.

Area	Your C172 habit	Cherokee 140
Fuel feed	Gravity, selector on BOTH	Engine-driven pump plus electric boost pump. LEFT or RIGHT only, no BOTH
Electric fuel pump	None (carbureted 172)	ON for takeoff, landing and every tank switch (an AFM limitation)
Tank management	Set and forget	Switch about every hour to keep it balanced (POM: first tank 1 hr, then the other)
Fuel drains	Several sumps under the wings	3 points: each tank's quick drain, plus the gascolator on the lower left firewall, drained with the pump ON and each tank selected in turn
Airspeed units	Usually knots	Original POM and ASI are in **mph**. Confirm what yours shows
Flaps	Electric switch, slow	Manual lever, instant: 10/25/40. Lever spring-loads to UP, so ease it down, don't drop it
Pitch	Elevator, panel trim wheel	All-moving **stabilator** with anti-servo tab. Trim wheel is on the floor between the seats. Lighter, more sensitive in pitch
Doors	Two doors	One door, right side. Upper latch AND lower latch. Step only on the black walkway, flap fully UP
Wing in the way	Blocks view in turns and of traffic above	Blocks view below. Lift a wing to look before turning in the pattern
Landing	Floats, high-wing ground effect is modest	Low wing enters ground effect early. Extra speed means a long float; too slow with full flaps means a fast sink. Fly the numbers
Steering	Nose wheel via pedals	Same, plus a hand brake lever. Feet low on the pedals (torque tube) until you want toe brakes
Run-up	1700 RPM (most 172s)	**2000 RPM**, 175 max drop, 50 max difference, vacuum 5.0 ± 0.1 in. Hg

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Area	Your C172 habit	Cherokee 140
Fuel check	Climb a ladder	Stand on the wing walk. Fill to the top of the neck for 50 gal (the tab marks 36 gal)

The five things to rehearse in your chair

1. Fuel selector position and feel (left sidewall, ahead of your seat). OFF needs the button pressed.
2. Pump ON before takeoff, landing and tank switches. Off at cruise; watch fuel pressure when you turn it off.
3. Flap lever positions by feel, without looking.
4. Trim wheel location and direction. Set slightly aft of neutral for takeoff.
5. Door: top latch first, check both before you taxi. A door that pops open on takeoff is noisy but not dangerous. Fly the airplane, then land and fix it.

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V-SPEEDS AND KEY NUMBERS

Memorize the five you use every flight: rotate 60, Vx 78, Vy 89, best glide 80, and approach 85 minus 3 per notch of flap (all mph). Speeds are from POM 761 555 at 2150 lb; Vx and Vy drop slightly at lighter weights. Knots are converted and rounded.

Speed	mph	kt	Notes
Vso, stall, full flaps	55	48	Bottom of white arc, power off, gross
Vs1, stall, flaps up	64	56	Bottom of green arc
Rotate (normal)	60	52	POM operating tip; lift off at 50–60 with light back pressure
Rotate (short or soft, flaps 25)	55–60	48–52	Soft field: off as soon as possible, then accelerate in ground effect
Vx, best angle	78	68	Older 1960s Cherokee 140 manuals say 74; that number is not for the 1974–77 Cruiser
Vy, best rate	89	77	About 630 fpm at gross, sea level. Older manuals say 85
Cruise climb	100	87	Better cooling and view over the nose
Best glide	80	70	POM, at gross
Approach, flaps up	85	74	POM
Approach, flaps 10 / 25 / 40	82 / 79 / 76	71 / 69 / 66	POM: subtract 3 mph per notch
Touchdown	55–65	48–56	Nose high, hold the nose wheel off
Vfe, flaps extended max	115	100	Top of white arc, all flap settings
Va, maneuvering	129	112	At 2150 lb. Lower when lighter. Use in turbulence
Vno, max structural cruise	140	121	Top of green arc
Vne, never exceed	171	148	Red line
Door-open slow-down	100	87	POM open-door procedure

Other limits worth knowing cold

- **Stall in a bank (flaps up):** 66 mph at 20°, 73 at 40°, 80 at 50°, 91 at 60°. A stall can cost up to 200 ft.

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- **Load factor:** +3.8 g normal category, +4.4 utility. No inverted maneuvers. Spins prohibited in normal category.
- **ASI error:** at low speed the indicator reads low with flaps up (60 IAS = 66 CAS). POM speeds are calibrated, so near the bottom of the envelope your indicated speed is a few mph lower than the book number.
- **Max demonstrated crosswind:** not stated in the POM. Ask your CFI to set a crosswind limit for your solo flights.
- **Service ceiling:** 10,950 ft at gross.

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ENGINE, RPM AND FUEL

With a fixed-pitch prop, RPM is your power gauge. For flight planning, use 2700 redline, about 2400–2450 for cruise, and 8.5–9 gal/hr. Watch the gauges.

Gauge limits (AFM)

Gauge	Green (normal)	Limits
Tachometer	500–2700 RPM	Red line 2700
Oil temperature	75–245 °F	Red line 245 °F
Oil pressure	60–90 psi	Yellow 25–60; red lines 25 and 90
Fuel pressure	0.5–8 psi	Red lines 0.5 and 8
Vacuum	5.0 ± 0.1 in. Hg at 2000 RPM	Reads low at low RPM (VAC light below ~1000 RPM is normal)

Power settings

Phase	RPM	Source and notes
Start, warm-up	800–1200	POM. Oil pressure within 30 seconds or shut down
Run-up	2000	POM ground check
Takeoff and climb	Full throttle	Static RPM should be 2275–2425. Lower means a sick engine or a bad tach; abort
Cruise, 75%	~2400–2450 (more as you climb)	About 8.4 gal/hr, 124 mph TAS at sea level. Exact RPM from POM power chart, p. 9-4
Cruise, 60%	2180 at sea level; 2265 at 3,500 ft; 2345 at 7,000 ft	POM (Flite Liner 60% tach decal). About 110 mph TAS
Pattern downwind	~2100–2200	Typical Cherokee 140 practice for about 90–100 mph. Confirm with your CFI
Abeam the numbers	~1500, then adjust	Typical practice. Adjust to hold the approach speeds

Mixture and carb heat

- Full rich for takeoff and landing. Lean at 75% power or less. To lean: pull until rough, then enrich until smooth.

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- Always enrich before adding power. On a long descent you may need to lean a little to keep it running smoothly, then go full rich for the landing sequence.
- **Carb heat is all or nothing.** Partial heat can be worse than none. Roughness or a slow RPM drop means carb ice: full heat, expect it to get rougher first, wait up to a minute.
- The POM says not to use carb heat on approach unless there are signs of icing. Michigan humidity makes low-power carb icing common, so many instructors use it whenever power comes back below the green. Agree on a technique with your CFI. Either way, carb heat must be OFF for any full-power go-around.

Fuel management

- **Planning numbers:** 48 gal usable. At 9 gal/hr that is about 5.3 hours to dry tanks. Plan to land with at least an hour of fuel left.
- **Tank switching:** pump ON, switch, confirm fuel pressure, pump OFF. The POM pattern is the first tank for 1 hour, then the other until nearly empty, then back to the first. Simpler: switch on the hour and write down the time.
- **Take off and land on the fullest tank.**
- **Unporting:** a tank that isn't full can uncover its outlet in prolonged slips or skids (more than about 2,000 ft of altitude loss), in extreme maneuvers, or in hard running turns onto the runway. Avoid long slips on a low tank.
- **If the engine quits from an empty tank,** a refill can take up to 10 seconds after switching. Keep the pump on and wait.
- **Oil:** check every flight, 8 qt maximum. Confirm with maintenance which oil is in the engine and what to add.

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PREFLIGHT WALKAROUND

Walk the loop the POM diagram shows: cabin, then wings, tail and nose. Items specific to the Cherokee are in bold.

1. **Cabin**
    - Documents on board (AROW): airworthiness, registration, POM/AFM with weight and balance. Logbooks stay off the airplane.
    - Control lock / seat-belt gust lock off. Master ON: fuel gauges (both tanks), **stall warning: lift the vane on the left wing leading edge and check the light and horn**, lights. Master and mags OFF.
    - **Tach reading written down.**
    - Flaps: check full travel, then leave UP if you'll step on the wing.
    - Trim set near neutral. Fuel selector on a tank, not OFF.
    - **Nothing loose on the back shelf.** Baggage secured, 200 lb max.
2. **Fuel and sumps**
    - **Visually check both tanks** standing on the walkway. Full is the top of the filler neck (50 gal); the tab inside the neck is 36 gal. Caps secure, vents open.
    - **Sump 3 points:** each tank's drain (bottom inboard rear corner of each tank) and the **gascolator** (lower left firewall, under the cowl). Drain the lines by selecting each tank in turn with the electric pump on while draining the gascolator. Look for blue 100LL, no water, no debris.
3. **Left wing**
    - Flap and aileron: hinges, rod ends, free play. Leading edge, tip, nav light.
    - **Pitot tube under the left wing:** cover off, holes clear.
    - Main gear: strut extended about 4.5 in., tire 24 psi, brake disc and pads, hydraulic leaks, tie-down off.
4. **Fuselage and tail**
    - Static port, antennas. **Stabilator:** full travel, the anti-servo tab moves the same way as the stabilator trailing edge. Hinges, rudder, tail tie-down off.

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5. **Right wing**
    - Same as left (no pitot). Fresh-air inlet in the leading edge is clear.
6. **Nose**
    - Oil 6–8 qt (8 maximum); dipstick seated.
    - Prop and spinner: nicks, cracks, security. Cowling fasteners. Air inlets clear (birds).
    - Fuel and oil leaks, exhaust.
    - Nose strut extended about 3.25 in.; nose tire 24 psi. **Shimmy damper and torque links:** secure, no leaks.
    - Alternator belt tension.
7. **Getting in**
    - Step only on the black walkway on the right wing, flaps fully UP.
    - Controls free and correct. Door closed with the **top latch** engaged. Belts and harness on; tug the inertia reel to check it locks.

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START, TAXI AND RUN-UP

Start with the pump on and mixture full rich, warm up at 800–1200 RPM, and run up at 2000 RPM. Then do the engine-driven fuel pump check before takeoff, which a 172 never asks of you.

Before start

1. Preflight complete, belts on, door latched (top latch).
2. Parking brake ON (pull the hand lever, press the knob).
3. Avionics, lights and other electrical OFF (protects radios during cranking).
4. Carb heat COLD. Fuel selector on the fullest tank.

Start (POM)

Step	Cold engine	Hot engine	Flooded
Throttle	Open ~1/4 in.	Open ~1/2 in.	FULL open
Master	ON	ON	ON
Electric fuel pump	ON	ON	OFF
Mixture	FULL RICH	FULL RICH	IDLE CUT-OFF
Prime	1–3 strokes only if it won't fire in 5–10 s	None	None
Start	Key, turn and push in	Key, turn and push in	Crank; when it fires, mixture in, throttle back

- **Never prime by pumping the throttle** unless your CFI has shown you how, and know the fire procedure first. If you see flames or smoke from the cowl during the start, keep cranking (or keep it running) to draw the fire into the engine.
- Crank for 30 seconds at most, then rest 2 minutes.
- After start: 800–1000 RPM, **oil pressure rising within 30 seconds** or shut down. Ammeter showing a charge. Avionics ON, lights as needed.

Taxi

- Release the parking brake by pulling the hand lever back and letting it swing forward.

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- Steer with the pedals (linked to the nose wheel). Toe brakes for tight turns. Keep your feet low on the pedals.
- Brake check right away. Go easy: Cherokee nose wheels can oscillate under very hard braking.
- **Engine-driven fuel pump check:** while taxiing (or at run-up), switch the electric pump OFF and watch fuel pressure stay in the green. Then pump back ON.
- Strobes off near other airplanes. Flight instruments: turn needle and ball, heading indicator and compass move correctly.

Run-up (POM ground check, into the wind, nose clear)

1. Parking brake ON, stick held back, fuel on the fullest tank, mixture rich.
2. Throttle to **2000 RPM.**
3. Mags: BOTH to R, back to BOTH, then L, back to BOTH. **Drop no more than 175 RPM on either; no more than 50 RPM difference.** A small drop is good; no drop at all means a possibly hot mag. Report it.
4. **Vacuum 5.0 ± 0.1 in. Hg** at 2000. VAC light out.
5. Oil temperature and pressure in the green (temperature can be low on the first flight; pressure is what matters).
6. Annunciator: press to test ALT, OIL, VAC.
7. Carb heat ON: RPM drops; OFF: it returns. Don't sit on carb heat; the air is unfiltered.
8. Ammeter showing a charge.
9. Idle check: throttle to idle, engine runs smoothly. Then back to about 1000 RPM.

Before takeoff (POM cockpit placard)

1. **Fuel on the proper (fullest) tank.**
2. **Electric fuel pump ON.**
3. Engine gauges green.
4. Flaps set: UP for normal, 25° (second notch) for short or soft.
5. Carb heat OFF.
6. Mixture full rich (lean only at high-elevation fields).

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7. Seat backs up, belts and harness fastened, empty seat belts secured.
8. **Trim set, slightly aft of neutral.**
9. Controls free and correct.
10. **Door latched, top and bottom.**
11. Transponder ALT, lights and strobes ON, heading indicator set to the runway.

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TAKEOFF, CLIMB AND CRUISE

For a normal takeoff: flaps up, throttle in over 3 seconds, rotate at about 60 mph with light back pressure, climb at 89 (Vy) or 100 en route. Over-rotating is the classic Cherokee mistake. If you yank it off early, it hangs on the back of the power curve.

Normal takeoff

1. Line up on the centerline, heading indicator checked, pump ON.
2. **Throttle smoothly to full, taking at least 3 seconds (panel placard).** Check RPM 2275–2425 and oil pressure green early in the roll.
3. Right rudder for P-factor, a bit less than the 172 needs.
4. **About 60 mph:** ease back and let it fly itself off. With the trim set slightly aft, it needs very little pull.
5. Lower the nose a little to accelerate to **89 mph (Vy).** Climb at 100 mph once clear of obstacles, for cooling and visibility.
6. At 1,000 ft AGL or above: pump OFF, check fuel pressure green, gauges green.

Short field (POM)

- Flaps **25° (second notch).** Hold brakes, full power, check the gauges, release.
- Rotate at **55–60 mph.** Climb at **78 mph (Vx)** until clear of the obstacle.
- Then accelerate to 89, and raise the flaps slowly (one notch at a time).

Soft field (POM)

- Flaps **25°.** Keep rolling; don't stop on the soft surface. Full back pressure to get the nose wheel light.
- Lift off at the lowest possible speed. **Level off in ground effect** and accelerate to 78 (obstacle) or 89.
- Raise the flaps slowly as you climb.

Climb

- Vy 89 mph gives about 630 fpm at gross and sea level, less on a hot day or when heavy.

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- Watch oil temperature on long climbs. If it is rising, use 100 mph cruise climb. The Cherokee has no cowl flaps.
- Shallow S-turns in the climb help you see traffic over the nose.

Cruise

1. Level off, let it accelerate, then set power: about 2400–2450 RPM for 75%, or 2200–2350 for 60% (see the power table).
2. Trim. The floor trim wheel is more sensitive than the 172's; small inputs.
3. Lean the mixture (rough, then enrich to smooth).
4. Note the time; **switch tanks about every hour** (pump ON, switch, check pressure, pump OFF).
5. Rough air: slow to 129 mph (Va) or less when heavy, less when light. Stay out of the yellow arc (above 140 mph) unless the air is smooth.
6. Expect about 105–115 kt (120–130 mph) TAS. That is similar to a 172 on a little less fuel.

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PATTERN, FLAPS AND LANDING

Fly a stabilized profile: 85 mph abeam with flaps 10, 80 on base with flaps 25, about 75 on final with flaps 40, touchdown at 55–65. If you're fast, the Cherokee floats in ground effect; if you're slow with full flaps and no power, it sinks hard. Speeds are mph (knots in brackets). The RPMs are typical starting points; refine them with your CFI.

Position	Power	Flaps	Speed	Do
Entering downwind	~2100–2200 RPM	Up	90–100 (78–87)	**GUMPS / landing check:** fuel on fullest tank, **pump ON**, mixture rich, seat backs up, belts on, carb heat as briefed
Abeam the numbers	~1500 RPM	**10°** once below 115	85 (74)	Trim. Start descending
Turn to base (45° past the numbers)	As needed	**25°**	80 (70)	Lift a wing and look for traffic on final. Low wing blocks your view below
Final	As needed for path	**40°** (or 25° in gusts/crosswind)	75–80 (65–70)	Stabilized by 300 ft AGL. Carb heat OFF if it was on (go-around ready)
Over the fence	Idle or nearly so	Full	~70 (61)	Aim point steady, don't push extra speed in
Flare and touchdown	Idle	Full	55–65 (48–56)	Mains first, nose high; hold the nose wheel off, then lower it
Rollout	Idle	Flaps UP before braking	—	Back pressure while braking. Brake gently (nose wheel oscillation)

Flap technique

- **Below 115 mph (white arc) for any flap setting.** Lowering them slower is gentler on the system.
- The lever is fast. Every notch causes a pitch change, so retrim after each one.
- Push the release button and **ease the lever down.** It is spring-loaded up; letting go dumps all the flaps at once.
- Flaps are locked only when fully UP. Never step on a flap that isn't up.

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Landing like a Cherokee pilot

- **You sit about 3 ft lower** than in a 172. The runway comes up sooner in your picture, so flare later and lower than feels natural.
- **Speed control is everything.** Each 5 mph extra means a noticeable float in ground effect. With the stubby "Hershey bar" wing, too slow and power off with flaps 40 gives a high sink rate. Carry a little power to the flare if you're unsure.
- **Crosswind:** wing low into the wind, opposite rudder. The low wing gives less tip clearance than a 172, so use only the bank you need. In gusty or strong crosswinds, use less flap (25°) and a little more speed (POM).
- **Short field:** full flaps, power to hold the approach path, touch down near 55–65 mph, retract flaps, back pressure and brakes.
- **Soft field:** flaps 25–40, a touch of power in the flare, hold the nose off as long as you can, no hard braking.
- **Avoid long, steep slips on a low tank** (unporting risk, see the fuel section).

Go-around

1. **Full power smoothly (3 seconds),** carb heat OFF, right rudder.
2. Pitch to stop the descent and hold about 75–80 mph.
3. **Flaps from 40 to 25 right away.** Then to 10, then up as the speed builds past 78 to 89, retrimming each time.
4. Positive climb: climb at 89 (Vy), sidestep to the right of the runway if traffic is there, and fly the pattern again.

After landing

- Clear of the runway: flaps UP, pump OFF, carb heat COLD, strobes and landing light off, transponder as required.

Shutdown (POM)

1. Parking brake ON, avionics and electrical OFF.
2. Idle about 1000 RPM briefly. Mags check (dead-cut check) if your CFI wants it.
3. **Mixture to IDLE CUT-OFF;** throttle full aft after the engine stops.

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4. Mags OFF, key out, master OFF.
5. **Record tach in and out** in the aircraft log. Control lock on, tie down or hangar, pitot cover on.

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EMERGENCIES

Most Cherokee engine stoppages are fuel: the wrong tank, an empty tank or carb ice. For a 172 pilot the new memory item is **switch tanks and turn the pump ON.** All of this is from the POM.

Engine failure in flight (memory items)

1. **Pitch for 80 mph (best glide)** and trim. Pick a field.
2. **Fuel selector: the other tank.**
3. **Electric fuel pump: ON.**
4. **Mixture: RICH.**
5. **Carb heat: ON.**
6. Gauges: look for the cause. Primer locked. No fuel pressure means check the selector is on a tank with fuel.
7. If time: mags L, R, BOTH; try different throttle and mixture settings. A tank switch can take up to 10 seconds to restore power.
8. Once it's running: carb heat OFF, pump OFF.

Power-off landing: aim to be at about 1,000 ft AGL on downwind of your field. Lose extra height by widening the pattern, flaps or slipping. Touch down as slowly as possible with full flaps. When committed: **ignition OFF, master OFF, fuel selector OFF, mixture IDLE CUT-OFF, belts tight**, unlatch the door. Radio 121.5, squawk 7700.

Engine failure on takeoff

- Runway left: close the throttle and land straight ahead.
- No runway: hold a safe airspeed, make only shallow turns to avoid obstacles, and use full flaps for touchdown when you can.
- Enough altitude to troubleshoot: fuel other tank, pump ON, mixture rich, carb heat ON.

Engine roughness

1. **Carb heat FULL ON** (it gets rougher first). Wait up to a minute.
2. Mixture for smoothest running.
3. Pump ON. Switch tanks (contaminated fuel).

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4. Gauges. Mags L, R, BOTH. If one mag runs fine, stay on it at reduced power and land at the nearest airport.

Fire

- **Engine fire during start:** if it hasn't started, mixture IDLE CUT-OFF, throttle OPEN, keep cranking to pull the fire in. If it has started, keep it running. If the fire continues more than a few seconds: fuel OFF, mixture cut-off, master and mags OFF, get out, use an external extinguisher.
- **Engine fire in flight:** fuel selector OFF, throttle CLOSED, mixture IDLE CUT-OFF, heat and defroster OFF, land immediately.
- **Electrical fire (smoke in cabin):** master OFF, vents OPEN, cabin heat OFF, land as soon as possible.

Gauges and systems

Problem	Action
Loss of oil pressure, partial	Land as soon as possible
Loss of oil pressure, complete	Head for the nearest airport, expect the engine to quit, keep altitude, don't change power. Consider an off-airport landing while you still have power if temperatures rise or you see oil smoke
High oil temperature	Land as soon as practical. A steady, rapid rise means land at the nearest airport and watch oil pressure
Loss of fuel pressure	Pump ON, selector on the fullest tank. If the tank is not empty, land as soon as practical
Alternator failure (zero on ammeter, ALT light)	Turn on a load (landing light) to confirm zero. Reduce load, check ALT FIELD breaker, ALT switch OFF for 1 second then ON. Still zero: ALT OFF, minimum load, land as soon as practical. You are on battery
Vacuum failure (VAC light, gauge low)	Attitude and heading indicators will fail. Use the turn coordinator, compass and any backup attitude source (an iPad with an AHRS receiver)
Overvoltage (~16.5 V+)	The relay trips the alternator. Reset with ALT OFF 1 second, ON. Repeats: reduce load and land
Circuit breaker popped	Wait 2–5 minutes before one reset

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Door opens in flight

This is common in Cherokees if the top latch isn't fully engaged. It is loud but the airplane flies normally. **Fly the airplane first.** If it happens on takeoff, continue the climb, fly the pattern and land. To close it in flight: slow to 100 mph, vents closed, storm window open. Upper latch open: just latch it. Lower latch open: open the top latch, push the door out, pull it shut hard, latch the top. A slip toward the door helps.

Inadvertent spin

Throttle IDLE, full opposite rudder, control wheel full forward, rudder neutral when rotation stops, then pull out smoothly. Spins are prohibited in normal category.

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WEIGHT, BALANCE AND PERFORMANCE

Our Cruiser is a two-adults-and-fuel airplane, not a four-seater. On the 2006 numbers, full fuel leaves about 466 lb for people and bags. Do a real W&B every time you carry a passenger. The empty weight has gone up since 2006 (paint, interior, avionics), so the real margin is smaller until the new W&B is done at the annual.

Loading math (2006 W&B: empty 1,391 lb, useful load 766 lb)

Fuel load	Fuel weight (6 lb/gal)	Left for people and bags
Full, 50 gal	300 lb	466 lb
Tab, 36 gal	216 lb	550 lb
30 gal (about 3 hr plus reserve)	180 lb	586 lb

- Two 200 lb adults with full fuel leaves 66 lb for headsets, flight bag and anything else. While you're a student pilot, the second adult is your CFI; you can't carry passengers.
- **Baggage:** 200 lb max at station 117 (100 lb at station 133 with the Piper 66671 modification). Nothing loose on the shelf.
- **CG limits (normal category):** datum is 78.4 in. ahead of the wing leading edge. Forward limit 84.0 in. at 1,650 lb, 85.9 at 1,975, 88.4 at 2,150. Aft limit 95.9 in. at all weights.
- **Utility category** (steep turns, chandelles, lazy eights per the AFM): 1,950 lb max, CG 84.0–86.5, **no rear passengers or baggage.**
- The Cruiser was sold as a 2-seat airplane with rear seats optional. Check which yours has.

Book performance at 2150 lb, sea level, standard day (POM)

Item	Value
Takeoff ground roll, flaps up	800 ft
Takeoff over 50 ft obstacle, flaps up	1,700 ft
Rate of climb at Vy	631 fpm
Landing roll, flaps down	535 ft
Cruise, 75% power at sea level	124 mph TAS, 8.4 gal/hr
Cruise, 75% at 7,000 ft, best economy	126 mph TAS
Service ceiling	10,950 ft

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- These numbers are for a new airplane flown by a test pilot. Add at least 50% for planning, more on grass, wet runways or hot days.
- **Density altitude hurts:** a 150 hp airplane at gross on a 90 °F day climbs noticeably worse. Use the POM charts (pp. 9-2 takeoff, 9-3 climb, 9-11 landing) with the day's density altitude.
- Speeds assume wheel fairings installed. Without them, subtract about 3 mph from cruise.

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TRAINING PLAN, SELF-QUIZ AND SOURCES

Plan on dual lessons in the Cherokee until your CFI is ready to endorse you for solo in the PA-28-140. Expect at least 3 lessons, more if the Cherokee's landings take time to click. Do the ground work below first so the flight time goes to stick and rudder.

Training plan with your CFI

- Pick a CFI who qualifies under the insurance policy. Confirm with the broker and give the CFI a copy of the policy.
- Send your pilot profile to the insurer: student pilot, total hours, hours in make and model, medical.
- Read the POH in the airplane: limitations (section 3), emergencies (4), operating instructions (7), operating tips (8). Note any differences from this guide.
- Confirm the ASI units (mph or knots) and mark this guide to match.
- Sit in the airplane 20 minutes: fuel selector, pump, flap lever, floor trim, door latches, hand brake, by feel.
- Lesson 1: preflight with the CFI, start, run-up, 3–4 takeoffs and landings, a go-around, a tank switch in cruise.
- Lesson 2: slow flight, power-on and power-off stalls (the warning comes on 5–10 mph above the stall), steep turns at or below 129 mph, a simulated engine failure with the full flow (fuel, pump, mixture, carb heat), no-flap and short/soft-field landings, crosswind.
- Lesson 3: pattern work in the conditions you'll fly solo, emergencies in the pattern, a go-around from the flare.
- Solo endorsement for the PA-28-140 in your logbook (14 CFR 61.87). It lasts 90 days.
- Before every solo: the CFI's approval of that flight, per the policy. Write down who approved it and when.
- Later: cross-country dual and the solo cross-country endorsements (14 CFR 61.93).

Self-quiz (answers in the sections above)

1. What are Vx, Vy, best glide and Vfe in mph?

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2. When must the electric fuel pump be on?
3. What are the run-up RPM, the max mag drop and the max difference?
4. What vacuum reading do you expect, and at what RPM?
5. What is the static RPM range at full throttle? What do you do if it's below that?
6. List the engine-failure memory items in order.
7. How many sump points, and how do you drain the fuel lines?
8. What is the approach speed with flaps 40?
9. With two 190 lb adults, how much fuel can you carry on the 2006 numbers?
10. Why avoid a long slip on a low tank?
11. Your door pops open at 200 ft after takeoff. What do you do?

Sources

- Piper PA-28-140 Cherokee Cruiser Pilot's Operating Manual 761 555, Rev. 16 (S/N 28-7425001 to 28-7625275): limits, speeds, procedures, emergencies, W&B and performance.
- Piper Cherokee 140 Owner's Handbook, performance and procedures section (NTSB docket copy): earlier PA-28-140 data, used for comparison only.
- Transition tips gathered from pilot community discussions and the Piper Owner Society. The RPM numbers for pattern work are typical practice, not POM figures.

Training aid only, not flight instruction. The POH in the airplane and its placards win: check every number against them, and fly with your CFI.

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