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 15, 2026.

STARTING THE CHEROKEE 140

Cherokee 140 · 1975 Cruiser · Lycoming O-320 · Engine start

© 2026 FLY Aviation, LLC · Training aid only, not flight instruction

AT A GLANCE

The start numbers for our 1975 Cruiser, from its owner's manual (POM) as used in the Transition Guide. Check every one against the POM in the airplane.

Item	Cold engine	Hot engine	Flooded
Fuel selector	Fullest tank	Fullest tank	Fullest tank
Throttle	Open about 1/4 inch	Open about 1/2 inch	FULL open
Electric fuel pump	ON	ON	OFF
Mixture	FULL RICH	FULL RICH	IDLE CUT-OFF
Prime	1 to 3 strokes, only if it won't fire in 5–10 seconds	None	None
Start	Key to START (turn and push in)	Key to START	Crank; when it fires, mixture in, throttle back

- **Oil pressure** rising within **30 seconds** or shut down.
- **Warm-up** 800 to 1,200 RPM.
- **Cranking:** no more than 30 seconds at a time, then let the starter cool for 2 minutes.

© 2026 FLY Aviation, LLC · Training aid only, not flight instruction

BEFORE START

1. **Preflight complete.** Fuel sampled from each tank sump and the fuel strainer, oil checked, tie-downs, chocks and the pitot cover off.
2. **Belts on.** Door closed and both latches done: the top latch is the one people forget.
3. **Parking brake ON.** Pull the hand lever and press the knob.
4. **Avionics, lights and other electrical OFF.** Starter current spikes can damage radios.
5. **Carb heat COLD.**
6. **Fuel selector on the fullest tank.** The Cherokee feeds from one tank at a time, never both.

© 2026 FLY Aviation, LLC · Training aid only, not flight instruction

COLD START

1. **Throttle** open about 1/4 inch.
2. **Master ON.**
3. **Electric fuel pump ON.** Listen for it and watch the fuel pressure come up into the green.
4. **Mixture FULL RICH.**
5. **Propeller area clear.** Look, call "Clear!" out the window, and wait a moment.
6. **Starter:** turn the key to START and push it in.
7. **If it hasn't fired in 5 to 10 seconds,** stop, prime 1 to 3 strokes, and try again. The Cherokee often starts without priming, so prime only when it needs it. Lock the primer after use.
8. **When it starts,** release the key to BOTH and set 800 to 1,000 RPM.

© 2026 FLY Aviation, LLC · Training aid only, not flight instruction

HOT START

The engine and intake are still warm, and fuel is already vaporized. Priming will flood it.

1. **Throttle** open about 1/2 inch, a little more than a cold start, to let more air in.
2. **Master ON, fuel pump ON, mixture FULL RICH.**
3. **No prime.**
4. **Clear, then START.**

- If it catches and dies, or won't fire, treat it as flooded.

© 2026 FLY Aviation, LLC · Training aid only, not flight instruction

FLOODED ENGINE

Signs: a strong fuel smell, weak coughing starts, black smoke, or fuel dripping from under the cowl.

1. **Electric fuel pump OFF.** Don't add more fuel.
2. **Mixture IDLE CUT-OFF.**
3. **Throttle FULL open.**
4. **Crank.** With no fuel going in, the starter blows the extra fuel out.
5. **When it fires,** push the mixture to FULL RICH and pull the throttle back to idle at once. The throttle is wide open; be ready.
6. **Fuel pump back ON** once it is running smoothly.

© 2026 FLY Aviation, LLC · Training aid only, not flight instruction

AFTER START

1. **Oil pressure** rising within 30 seconds, or shut down.
2. **Throttle** 800 to 1,000 RPM, then warm up at 800 to 1,200 RPM.
3. **Ammeter** showing a charge.
4. **Avionics ON, radios set, lights as needed.**
5. **Fuel pump** stays on for taxi and takeoff. You will check the engine-driven pump during the taxi or run-up (pump off, pressure stays green, pump back on).

© 2026 FLY Aviation, LLC · Training aid only, not flight instruction

COLD-WEATHER STARTS IN MICHIGAN

Cold oil is thick, the battery has less cranking power, and fuel doesn't vaporize well. Most engine wear happens in the first seconds after a cold start.

- **Preheat** when the engine has cold-soaked at about 10 to 20 °F (–12 to –7 °C) or below. Lycoming's guidance is about 10 °F; many shops use 20 °F. Use our shop's number and the more conservative one. The details are in Winter Flying in Michigan.
- **Don't over-prime, and never prime by pumping the throttle.** On a float carburetor, pumping the throttle can pool raw fuel in the intake, where a backfire can start an induction fire.
- **If the starter turns slowly,** stop. Preheat or charge the battery rather than draining it.
- **Warm up** until the oil temperature is moving and the engine takes throttle smoothly before the run-up.

© 2026 FLY Aviation, LLC · Training aid only, not flight instruction

ENGINE FIRE DURING START

Usually from over-priming. Fuel in the intake catches fire on a backfire.

1. **If it hasn't started:** mixture IDLE CUT-OFF, throttle OPEN, and **keep cranking** to pull the fire into the engine.
2. **If it has started:** keep it running. Then shut down and have it inspected.
3. **If the fire continues more than a few seconds:** fuel selector OFF, fuel pump OFF, magnetos and master OFF. Get out with the fire extinguisher and fight it from outside, or walk away.

- This is also on the Cherokee Flow Cards. Know it before every start, and especially every winter start.

© 2026 FLY Aviation, LLC · Training aid only, not flight instruction

CHEROKEE 140 AND CESSNA 172 COMPARED

If you learned on a 172, these are the habits to replace.

Item	Cherokee 140	Cessna 172N/P
Fuel selector	Fullest **single** tank	BOTH
Electric fuel pump	**ON** for the start (and takeoff, landing and tank switches)	None
Prime, cold engine	Only if it won't fire in 5–10 seconds: 1 to 3 strokes	2 to 6 strokes before cranking
Throttle, cold start	About 1/4 inch	1/8 inch
Throttle, hot start	About 1/2 inch	1/8 inch
Flooded start	Pump OFF, mixture cut-off, throttle full, crank	Mixture cut-off, throttle full, crank, then normal start
Run-up	2,000 RPM, 175 drop, 50 difference	1,700 RPM, 125 drop, 50 difference
Door	Top latch and side latch	Two doors, one latch each

The 172 version is in Starting the Cessna 172.

© 2026 FLY Aviation, LLC · Training aid only, not flight instruction

SELF-CHECK

- **Where does the fuel selector go for the start?**
  On the fullest single tank. The Cherokee never feeds from both tanks at once.

- **Is the electric fuel pump on or off for a normal start?**
  ON. It goes OFF only for a flooded start, and back on once the engine runs smoothly.

- **When do you prime a cold engine?**
  Only if it hasn't fired after 5 to 10 seconds of cranking. Then 1 to 3 strokes, and lock the primer.

- **How far do you open the throttle for a hot start, and why more than a cold start?**
  About 1/2 inch. The intake is already full of fuel vapor, so it needs more air.

- **Describe the flooded start.**
  Pump off, mixture idle cut-off, throttle full open, crank. When it fires, mixture rich and throttle to idle right away, then pump back on.

- **How long can you crank before resting the starter?**
  About 30 seconds, then let it cool for 2 minutes.

- **Why not prime by pumping the throttle?**
  On a float carburetor it pools raw fuel in the intake, and a backfire can start an induction fire.

- **Flames from the cowl and the engine hasn't started. What do you do?**
  Mixture idle cut-off, throttle open, keep cranking. If the fire continues more than a few seconds: fuel off, pump off, mags and master off, and get out with the extinguisher.

- **Oil pressure isn't rising 30 seconds after the start. What now?**
  Shut down and find out why. Running without oil pressure can ruin the engine in minutes.

© 2026 FLY Aviation, LLC · Training aid only, not flight instruction

SOURCES

- Piper Cherokee Cruiser (PA-28-140, 1975) Pilot's Operating Manual, as used for the numbers in our Cherokee 140 Transition Guide: starting, warm-up and run-up.
- Piper and Lycoming guidance on priming, flooded starts and preheat.
- Our Cherokee 140 Transition Guide, Cherokee Flow Cards and Winter Flying in Michigan.
- Every airplane is different. Use the POM and checklist in our airplane, and fly with your CFI.

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.

© 2026 FLY Aviation, LLC · Training aid only, not flight instruction