

Leaning a Cessna 172M

You should lean the Cessna 172 anytime you are operating on the ground (to prevent spark plug fouling) and during cruise flight above 3,000 feet. Leaning the mixture optimizes fuel efficiency, maintains proper engine temperatures, and prevents carbon buildup on your spark plugs.

1. During Taxi and Run-Up

When: Before taxiing and during your engine run-up, especially in warm weather or at high-density altitude airports. **Why:** The engine operates at a lower power setting during ground ops, causing the fuel-air mixture to be excessively rich. This leaves lead deposits on your spark plugs. **How:** Pull the mixture out until the engine begins to stumble, then enrich it just enough so the engine runs smoothly.

2. During Cruise Flight

When: Anytime you are in straight-and-level cruise flight, typically above 3,000 feet MSL. **Why:** As air density decreases with altitude, less air is entering the engine. Leaning ensures the ratio of fuel to air remains correct. **How:** With an EGT gauge: Slowly lean the mixture until you reach Peak Exhaust Gas Temperature (EGT). Then, enrich the mixture until the gauge drops by about 50°F to 100°F on the rich side of peak. Without an EGT gauge: Slowly lean the mixture until you hear the engine start to run rough or you notice an RPM drop. Then, slowly push the mixture control in until the engine runs smoothly again.

Crucial Safety Tips:

Never lean at 75% power or higher (e.g., during takeoff or a full-power climb) unless specifically outlined in your POH (Pilot's Operating Handbook) for high-density altitude takeoffs. Always remember to push the mixture full rich before descending or entering the traffic pattern for landing.