



Training Bulletin 09-03
Hot Weather Operations &
C-182 G1000 Starter Limitations
08/07/09

Very often an engine can be very difficult to start, especially with higher temperatures in the summer months. To help combat several issues that we are having with starting the C-182 please review the information taken from C-182 POH. Also, consider these procedures while starting the C-172R models as well, as they too are fuel injected.

In cooler weather, the engine compartment temperature drops off rapidly following engine shutdown and the injector nozzle lines remain nearly full of fuel.

In warmer weather, engine compartment temperatures may increase rapidly following engine shutdown, and fuel in the lines will vaporize and escape into the intake manifold. Hot weather starting procedures depend considerably on how soon the next engine start is attempted. Within the first 20 to 30 minutes after shutdown, the fuel manifold is adequately primed and the empty injector nozzle lines will fill before the engine dies. However, after approximately 30 minutes, the vaporized fuel in the manifold will have nearly dissipated and some slight priming could be required to refill the nozzle lines and keep the engine running after the initial start. Starting a hot engine is facilitated by advancing the mixture control promptly to 1/3 open when the engine starts, and then smoothly to full rich as power develops.

If the engine does not continue to run, set the FUEL PUMP switch to the ON position temporarily and adjust the throttle and/or mixture as necessary to keep the engine running. In the event of over priming or flooding, set the FUEL PUMP switch to OFF, open the throttle 1/2 to full open, and continue cranking with the mixture in the idle CUTOFF position (pull full out). When the engine fires, smoothly advance the mixture control to full rich and retard the throttle to desired idle speed.

If the engine is under primed (most likely in cold weather with a cold engine), it will not start at all, and additional priming will be necessary.

After starting, if the oil pressure gauge does not begin to show pressure within 30 seconds in warmer temperatures and approximately one minute in very cold weather, stop the engine and find the cause before continued operation. Lack of oil pressure can cause serious engine damage.

Please review the started limitations for the C-182, G-1000. Please ensure that all starter limitations are followed during engine starts.

Taken from the POH, page 4-26

Operate the starter motor for 10 seconds followed by a 20 second cool down period. This cycle can be repeated two additional times, followed by a ten minute cool down period before resuming cranking. After cool down, operate the starter motor again, three cycles of 10 seconds followed by 20 seconds of cool down. If the engine still does not start, try to find the cause.

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LEANING FOR GROUND OPERATIONS:

For all ground operations, after starting the engine and when the engine is running smoothly:

1. Set the throttle control to 1200 RPM
2. Lean the mixture for maximum RPM
3. Set the throttle control to an RPM appropriate for ground operations (800 to 1000 RPM recommended).

NOTE: If ground operations will be required after the BEFORE TAKEOFF checklist is completed, lean the mixture again (as described above) until ready for the TAKEOFF checklist.