

Practical project

[Engineering](#)



Practical project Operation of a reciprocating engine of an aircraft

Reciprocating engine, also called the internal combustion engine, has seven components with each serving a specific function (Arcoumanis & Kamimoto, 2009). The most important components are the cylinders, pistons and valve operating mechanism. The reciprocating engine functions on a four stroke cycle, that is, the intake, compression, power and exhaust strokes.

To start the engine, turn on the auxiliary fuel pump in case the aircraft is equipped with such. Position the mixture control in an idle cut off state. Open the throttle to a position that can provide an average of 1100 rpm. Set the preheat control in a stalemate position to avoid damage and fire in the event that a backfire happens. Start the propeller and energize the engine starter after the propeller has rotated at least twice. Turn the primer switch on sporadically to start the engine. Once the engine start running, hold the primer for some time and at the same instant opening the throttle gradually to obtain a smooth running. After the engine starts to operate smoothly, open the mixture control to the full rich level. Observe the engine's rpm indicator to identify any drop of rpm. A drop in rpm shows that the engine has started receiving additional fuel from the carburetor and therefore one can release the primer. To shut down the engine, turn off all the fuel pumps and set the gas mixture to cut off position. This is necessary for draining the engines to shut them down automatically. Essentially, following the above-discussed process will lead to a safer start and shutdown of the reciprocating engine.

Reference:

Arcoumanis, C., & Kamimoto, T. (2009). Flow and combustion in reciprocating engines. Berlin: Springer.

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