

Drawbacks of a Simple Carburetor:

(A) Fundamental drawbacks:

- ① A simple carburetor provides the required A/F ratio only at one throttle position. At the other throttle positions the mixture is either leaner (Throttle is opened less) ^{at the throat is small} or richer (if Throttle is opened more) due to P.R. DIFFERENTIAL.
 (too lean at low speeds at part open throttle), Vacuum
- ② It produces a progressively rich mixture at increased Air flow rate and at higher altitudes where air density ^{tends to be} reduced.

(B) Other drawbacks:

1. It cannot supply rich mixture at cold start.
2. It cannot supply rich mixture reqd. for idling.
3. It cannot supply extra fuel during acceleration.
4. Automatic control of Air & fuel according to the required conditions is not possible.

Explanation of fundamental drawback →

Since the Throttle regulates the amount of air flowing up the venturi tube, it also checks the quantity of fuel issuing from the nozzle by regulating the vacuum at the throat.

- At low engine speed with part^{ally} open throttle → Vacuum at throat is small so lean mixture.
- At high engine speeds → Vacuum at throat is high hence rich mixture.