Consider the piston cylinder in your car. Let’s consider what really happens as it is operating.

Let’s analyze it! But first, some assumptions...

### Air Standard Assumptions

1. Working fluid is ____________
2. and it behaves as an ____________ ______________.
3. The system is ____________. (We are ignoring intake and exhaust strokes.)
4. Combustion is modeled as an ____________ ____________ ____________.
5. All processes are ____________ ____________.

### Cold Air Standard Assumptions

Same as air standard assumptions with
Our best first guess at this cycle using these assumptions is the Otto Cycle.

Some other definitions:

\[ r_c = \frac{1}{...} \]

\[ \Delta V = \text{...} \]

\[ V_{\text{min}} = \text{...} \]

\[ (\text{MEP}) \cdot \Delta V = \text{...} \]

<table>
<thead>
<tr>
<th>Cold air standard</th>
<th>Air standard</th>
</tr>
</thead>
</table>