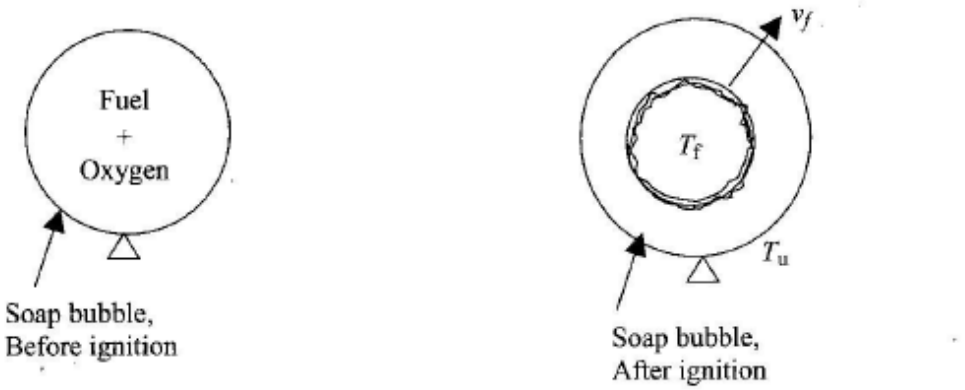
JQ.4.2.Setup

September 23, 2014

(4.2) The burning velocity,S_u, can be determined by a technique that measures the speed pf a spherical flame in a soap bubble. This process is shown below.



The flame front moves at a speed $v_f = 6m/s$.
The temperature in the burnt region is $T_f = 2400K$.
The temperature in the unburnt region is $T - u = 300K$.
The burned gas is at rest.
Determine the burning velocity, S_u. (Hint: draw a control volume around the flame and write the conservation of mass equation
Setup:
Consider a frame of reference in which the flame front is at rest. This requires subtracting off the observed flame velocity from all other velocities in the problem.

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