Suppose we have a fixed volume, $V$, containing 1 mole of $\mathrm{NO}_{2}$ at pressure $p_{0}$.

Piston
Suppose all the

$$
2 \mathrm{NO}_{2}(\mathrm{~g}) \rightarrow \mathrm{N}_{2}(\mathrm{~g})+2 \mathrm{O}_{2}(\mathrm{~g})
$$

If $T$ remains the same, what would happen to $p$ ?
A. It would remain the same.
B. It would be 1.5 X as big.
C. It would double.

## Heat sink $T$

D. It would decrease but not by half.
E. It would increase but not double.

If we pull the pins holding the piston in place, the gases would expand until the pressures are equal. What would the new volume be?
A. $V_{0}$
B. $2 / 3 V_{0}$
C. $3 / 2 V_{0}$
D. Between A and B
E. Between A and C


Heat sink $T$
 (spark?)


Remove pins. Piston expands until pressures match


