Flight Lesson: Single Engine Ops

Vmc and Drag Demo

Objectives:

1. exhibit knowledge of the elements related to Vmc
2. exhibit knowledge of the elements related to Single Engine Flight Principles
3. can properly fly a Vmc demo
4. can properly fly a drag demo

Schedule:

Activity	Est. Time
Ground	1.0
Air	1.5
Debrief	0.25
Total	2.75

Recommended Readings:

AFH	Chapter 12: 12-27 to 12-31
POH	Section 3: Engine Out Proc.

Elements Ground:

- **Vmc**
  - what is Vmc?
    - ten considerations of Vmc
      - Power, propellor, trim, CG, weight, gear, flaps, cowl flaps, height above ground, max 5˚ bank
    - what is our real Vmc?
  - aerodynamic considerations
  - environmental considerations
  - Vmc vs Vs
  - when to recover
    - first sign of loss of control
    - stall indication (including horn)
  - procedure
    - >5000 ft AGL, see Elements Air
- **Drag Demo**
  - purpose
  - drag order
  - entry configuration
    - flaps & gear up
    - zero thrust: 8”, prop at feather detent
    - establish Vyse in level flight
    - attempt each drag configuration and note corresponding descent rates
  - procedure

Elements Air:

- **Vmc Demo**
  - instructor demonstration
    - gear up, flaps up, pumps on
    - mixtures, props forward
    - throttles reduced to slow aircraft
    - one engine-idle, one engine full
    - establish Vyse
    - increase back pressure to slow one kt/sec
    - at first signs recover with:
      - good throttle to idle
      - reduce AoA
      - add 1/2 throttle to Vsse, then full throttle
      - recover to straight and level
  - student demonstration
- **Drag Demo**
  - instructor demonstration
    - zero thrust, flaps & gear up@Vyse
    - drag configs:
      - > Vyse & < Vyse
      - gear down
      - flaps down
      - gear & flaps down
      - prop forward/throttle idle
        - i.e. windmilling prop

Drag Demo Table	
Configuration	**Descent Rate**
> Vyse	
< Vyse	
gear down	
flaps down	
gear & flaps down	
windmilling propellor	