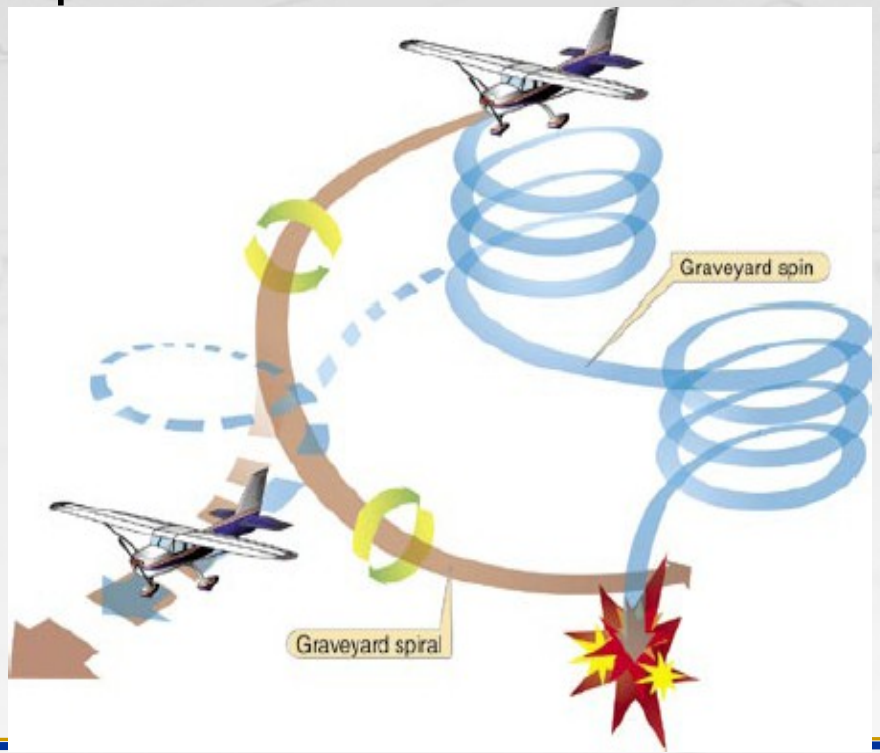
Exercise 14
Spiral
Dives

What you will learn:

- ✓ The recognition of the conditions which could lead to a spiral dive
- ✓ The recognition of the spiral dive
- ✓ How to recover from a spiral dive with minimum loss of altitude and within airframe stress tolerances.

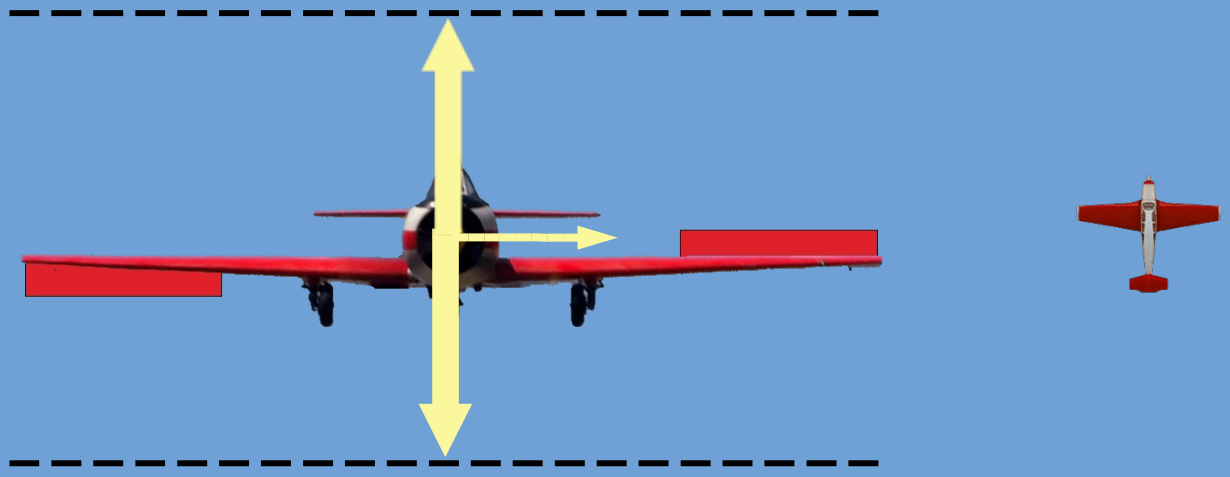
Theories and Definitions:

- ✓ What is a Spiral Dive
- ✓ How a Spiral Dive Can Occur
- ✓ Spins vs. Spiral Dives: similarities & differences.



What is a Spiral Dive:

- From the FTM: “a steep descending turn in which airspeed, rate of descent and wing loading increase rapidly”



What happens if a plane rolls into a bank and no back pressure and/or power is used?

Which wing is travelling faster?

Which wing is producing more lift?

How a Spiral Dive Can Occur:

- ✓ Improper entry into a steep turn

  Improper entry into a spin or control relaxation during a spin

  Disorientation (e.g., flying into cloud).

Spin vs. Spiral Dives:

	SPIN	SPIRAL
Airspeed	low	increasing rapidly
Rate of Rotation	high **(~200° per second)**	moderate
Control Responsiveness	mushy, sloppy controls	effective controls
Altitude	rapid loss	rapid loss

Spiral Dive: During

- ✓ Loss of Altitude (the trees are getting bigger)
- ✓ Rotation (moderate rate)
- ✓ Increase in airspeed (can be seen and heard).

What will you observe during the spiral dive?

Spiral Dive: Recovery

- ✓ Power to idle
- ✓ Level wings (coordinated ailerons & rudder)

  Ease out of the dive
- ✓ Add power once airspeed is in the white arc and climb to the original altitude

Instruments in a Spiral Dive

Increasing rapidly

Rapid altitude loss

Miniature airplane shows direction of spiral

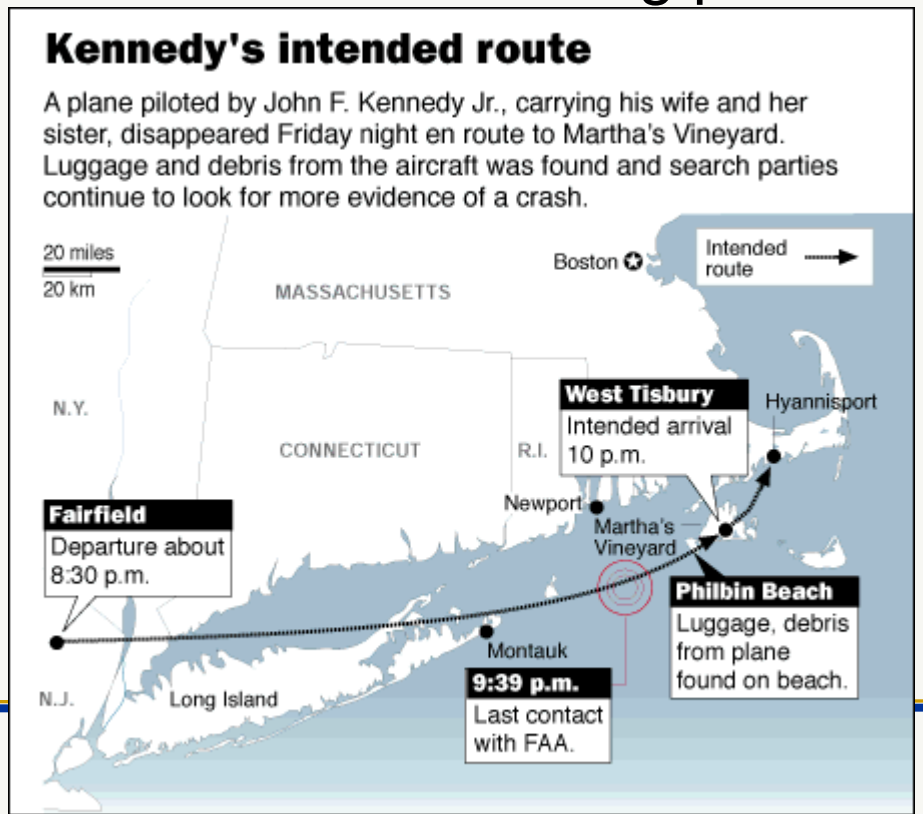
NOT RELIABLE!

SAFETY

- Entry and recovery must be accomplished within aircraft's published structural limits such as VNE (in practice, we will avoid exceeding Va)
- Recoveries must be completed before 2000' AGL
- Wings **MUST** be level before pulling out of the dive
- Just as for spin: ensure no flaps before entry!

Conclusion

- ✓ Knowing how to recognize, prevent, and recover from a spiral is crucial
- ✓ Disorientation in clouds commonly results in a spiral: procedures learned today will be applied later, during the instrument training portion of your course



QUESTIONS?