



Welcome



Northern California Soaring Association

2018 Annual Safety Meeting

John Scott

Today's Agenda



Topic	Presenter	Duration
Welcome	John Scott	3
Safety Incidents & Discussion	John Scott	10
Glider Tie Down Procedures	Mike Mayo	10
Power Flarm and ADSB for Dummies	Ramy Yanez	40
BREAK		10
Safety in Mountain Flying	John Scott	30
Crash in the Whites	Larry Suter	10
Personal Minimums and Maxims for Aeronautical Decision Making	Larry Suter	20
BREAK		10
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Welcome

Safety Incidents &
Discussion

John Scott

Safety Incidents



Collision of 16Y and TG

- Cause - **Distraction**
- Lesson Learned #1 – **Attentiveness, Limited Tow Plane visibility**
- Lesson Learned #2 – **Ops Intersection is “Grand Central Station”**
- Lesson Learned #3 – **Gravel pads will help with glider parking**

Safety Incidents



Landing Straight Ahead

- Fatal accident at ASI (2004)
- KP incident at ASI (XC Camp; 2008)
- “Balleka” Fatal accident in England (2016)

- T/O Incident at ASI this year (2017)



In the event of a rope break, immediately push the nose over to achieve a “Recovery Attitude”.

- ✓ Quickly regain lost airspeed
- ✓ Improve view over the nose

Think about your emergency procedures before you T/O.

This includes the option of landing straight ahead.

This is especially important when taking off in strong winds.

Lastly ----- Crash Flat !!

Safety Discussion



New mandatory radio call;

“Byron Tow Plane, glider XXX is ready for takeoff”

- We can see that “Slack is out”
- Our tow plane has poor rear view visibility
- We cannot see “Wagging Rudder”
- We cannot reliably see “Wing is Up” or “Wing Runner Signal”

Safety Discussion



Glider Towing with a Golf Cart

- Should really be done with 3 people; 3rd to stop.
 - *Asphalt versus Dirt*
 - *Downwind*
 - *Downhill*
- The tow rope should be longer than the length of a wing.
- Wing Walker should be on the downwind side, or, the wing coming closest to obstructions.
- Tow at walking speed.
- Unhook the glider immediately after stopping.

Glider Tie Down Procedures

Mike Mayo

Power Flarm and ADSB for Dummies

Ramy Yanez

Break Time

10 minutes

Safety in Mountain Flying

John Scott

Air Sailing

Safety in Mountain Flying

John J. Scott



Ridge Flying



This talk is about both Mountain and Ridge flying.

Here, our ridges are the faces of mountains.

Ridge Flying



We tend to associate “Ridge” flying with the orographic effect of wind being lifted upward by a mountain or ridge.

But sometimes, with just a slight amount of wind, we will feel valley thermals being pushed against the ridge face and then experience combined effect orographic and thermal lifting.

Even with no wind, significant thermal lift may be generated at the base and along the face of the mountain and following the gullies upward.

There are multiple reasons to “Fly the Ridge”

Beware the Dangers



The “West” has a higher incident rate of people hitting mountains.

Although none of these people intentionally hit the mountain, all of these people intentionally got close.

More susceptible to rough air, gusts, and sink.

- *Close to ground; both laterally and vertically*
- *Flying at slower speeds*
- *No proper horizon*
- *Stronger visual illusions*

Ridge Flying Rules

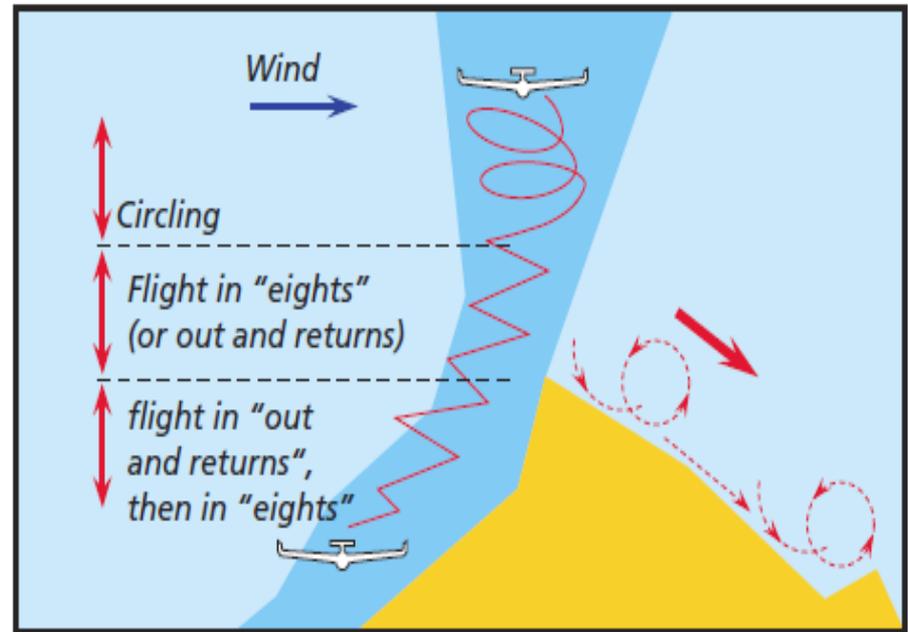
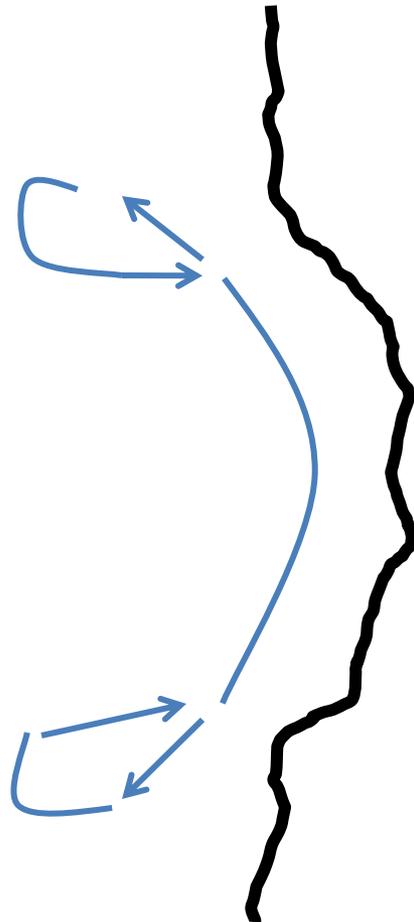


The harder the wind is blowing ... the more important these precautions !!

Precautions

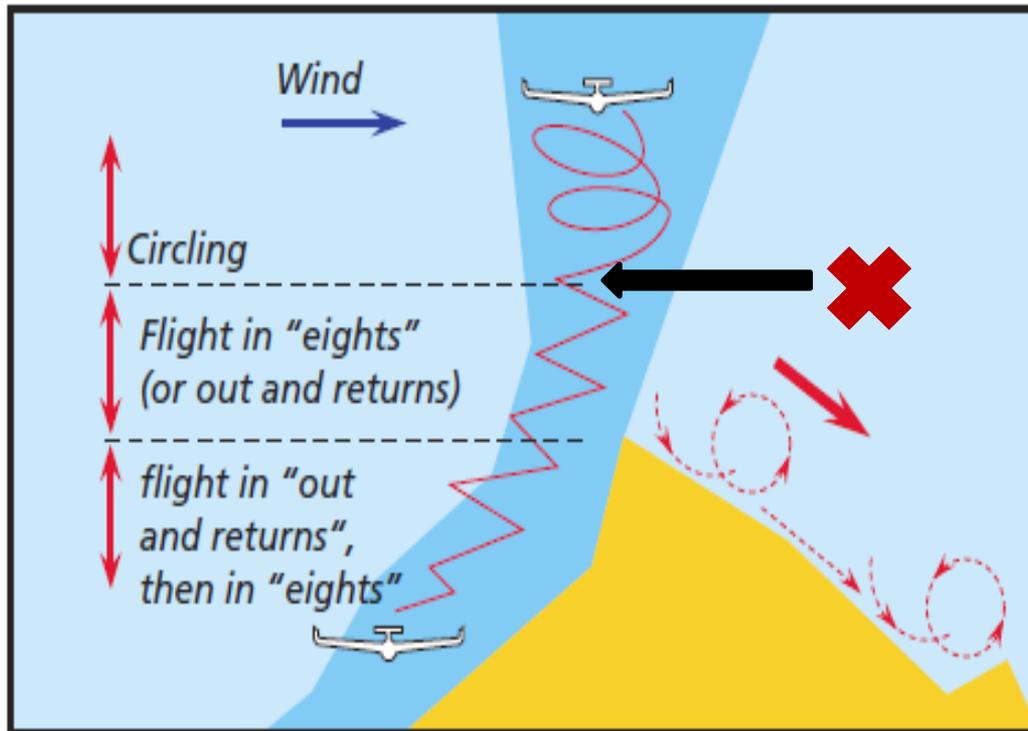
- Maintain extra speed (55+ to 70 Kts; Best L/D)
- Always have an escape plan; be ready to “BAIL”
- Approach at shallow angles (30-45 degrees)
- Climb using “Out & Return” or “Figure 8” maneuvers
- Maintain visual vigilance – eyes outside
- “Circling” below the ridgeline may be a bad idea
- Fly coordinated; Trust your instincts on proximity

Precautions



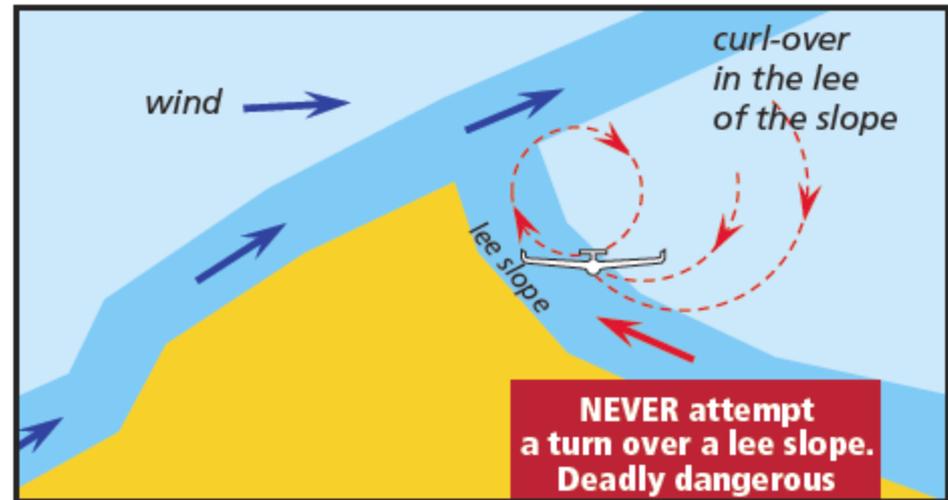
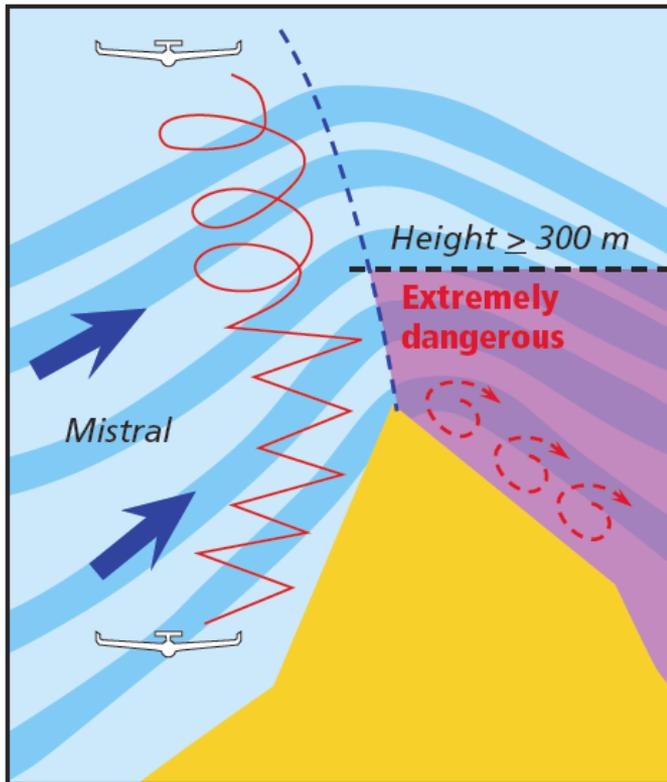
Always turn away from the mountain.
Use O&R or Figure 8 maneuvers to turn.

Precautions



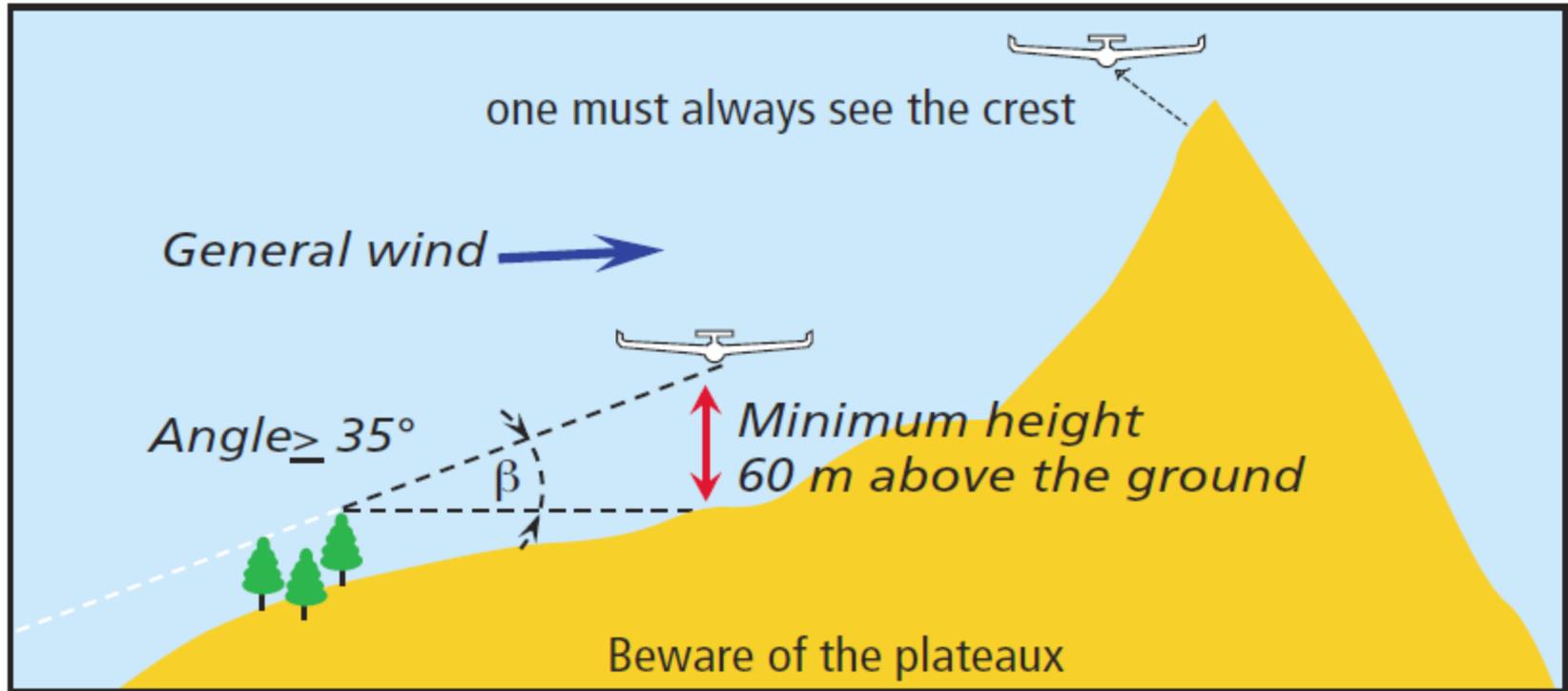
Don't drift
downwind of
the crest.

Precautions



As the winds get stronger, the Lee Side gets more dangerous. Rotor, turbulence, and downdraft may await you.

Precautions



Substitute Horizon



The presence of a mountain prevents you from seeing the true horizon.

The absence of a horizon can lead to “fixation” on improper visual references (mountain features, wing tips, vicinity of the wall). This can lead to uncoordinated flight or improper pitch/bank attitudes.

Need to generate a “substitute horizon” which is a mental image of where the horizon would be if you could see it.

Done by using visual references that exist in other parts of your 360° view and then extrapolating the image.

Oxygen



Remember the rules?

- > 14,000'; Required
- > 12,500' + 30 minutes; Required

These are the legal requirements.

Many people turn on their oxygen at 10,000' to be prudent.

These altitudes are not hard to achieve at Air Sailing!

Collision Avoidance



Do Not Stay in the Blind Spot of another glider

(Remember, he might decide to “Bail”)

Eyes outside 95% of time

Clear your turns

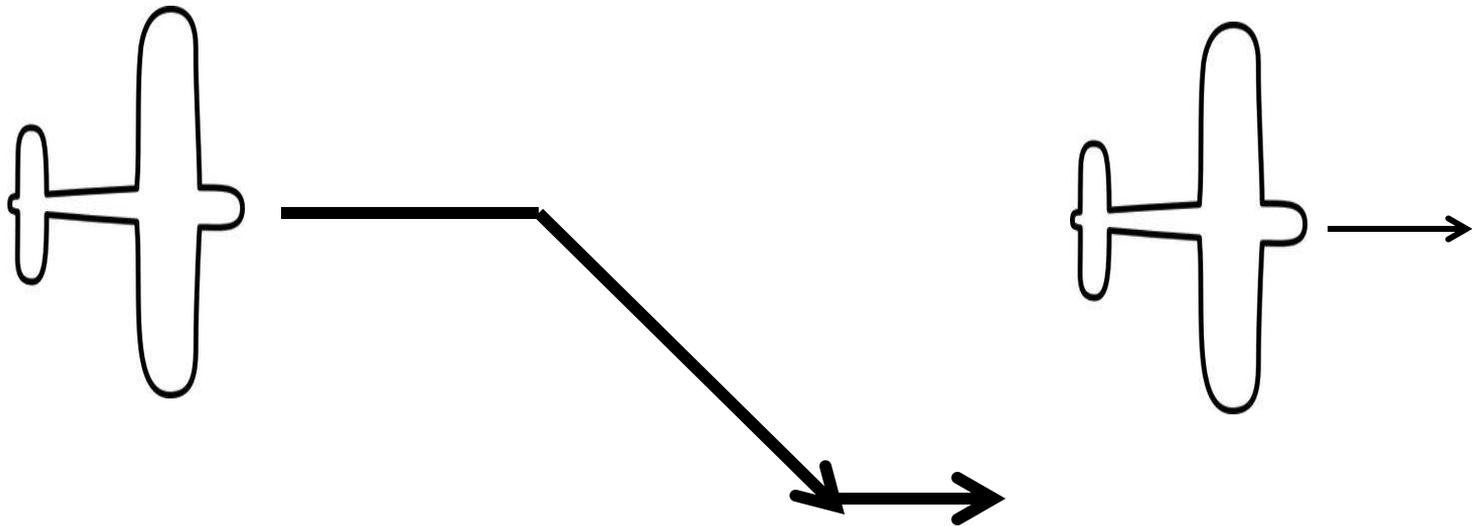
Right of Way Rules

FARs and Ridge Rules are not the same !!

Collision Avoidance



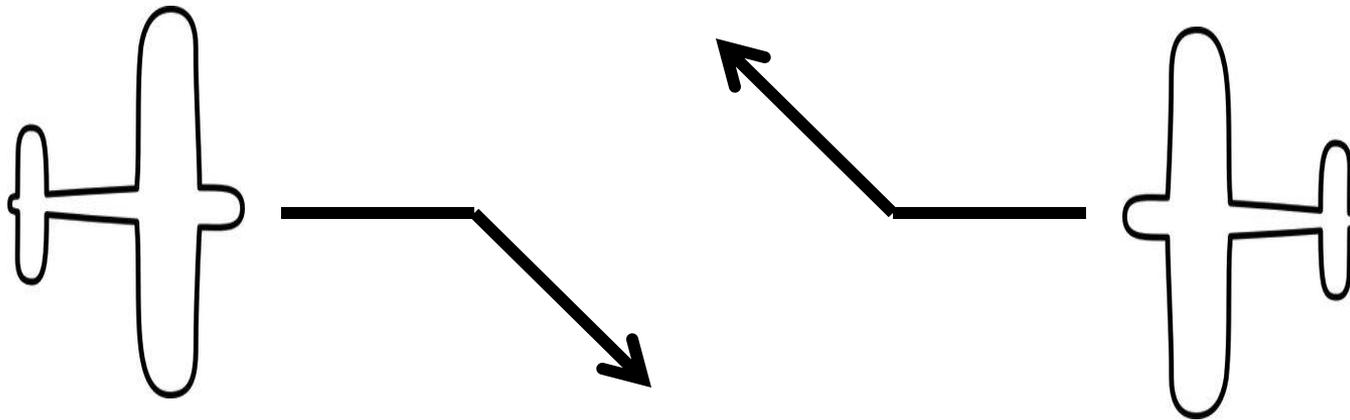
FARs --- Overtake slower traffic on the right.



Collision Avoidance



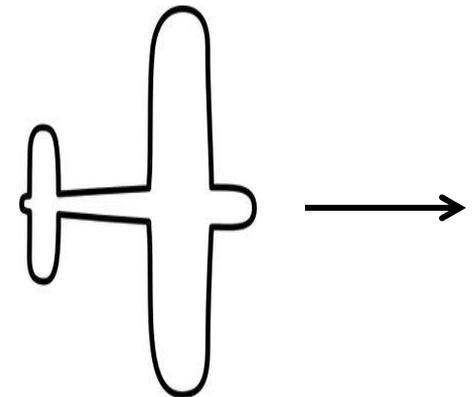
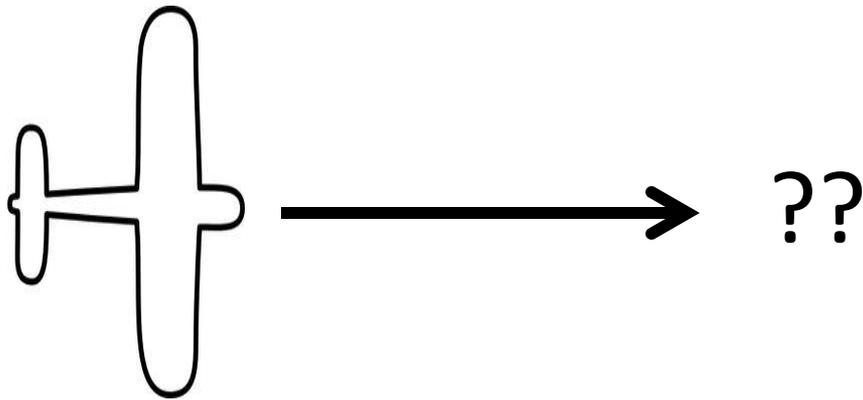
FARs --- Yield to converging traffic by turning to the right.



Collision Avoidance



Ridge



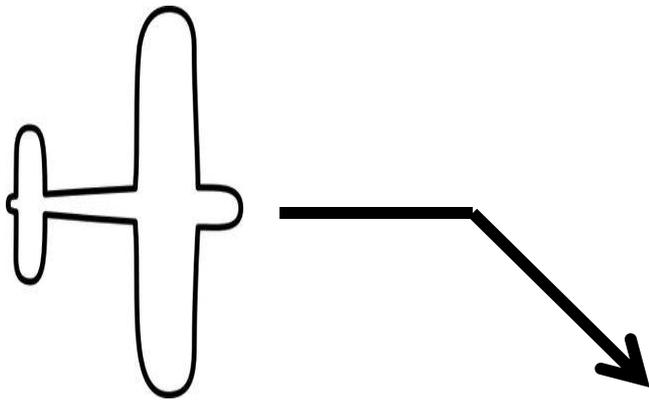
You can't pass left (mountain side).
You can't pass right (outside).

You can't pass !!

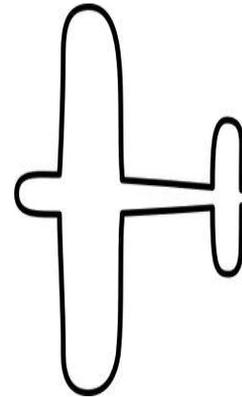
Collision Avoidance



Ridge



??



Don't turn right
Don't turn left
Don't climb

Dive !!

Safety in Mountain Flying

THE END

Crash in the Whites

Personal Minimums and Maxims for Aeronautical Decision Making

Larry Suter

Break Time

10 minutes

“Defense in Depth”

Hotellier Connectors

John Scott

Defense in Depth



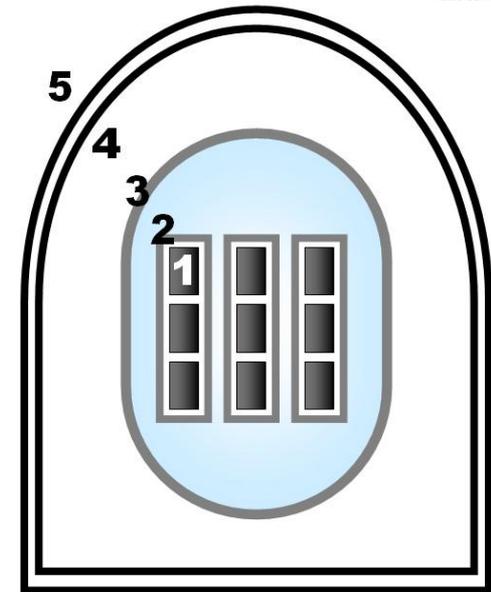
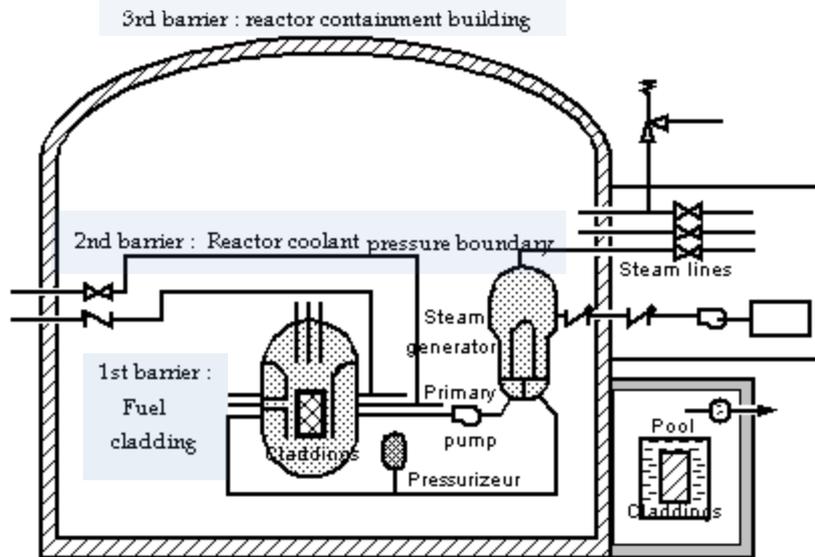
Within the study of Safety and Accident Avoidance the term “Defense in Depth” is often used.

The term is somewhat overused as it means slightly different things to different people.

Defense in Depth

Within the Nuclear Community it can refer to successive layer of physical barriers.

Pekka Tuominen '06
Public Domain

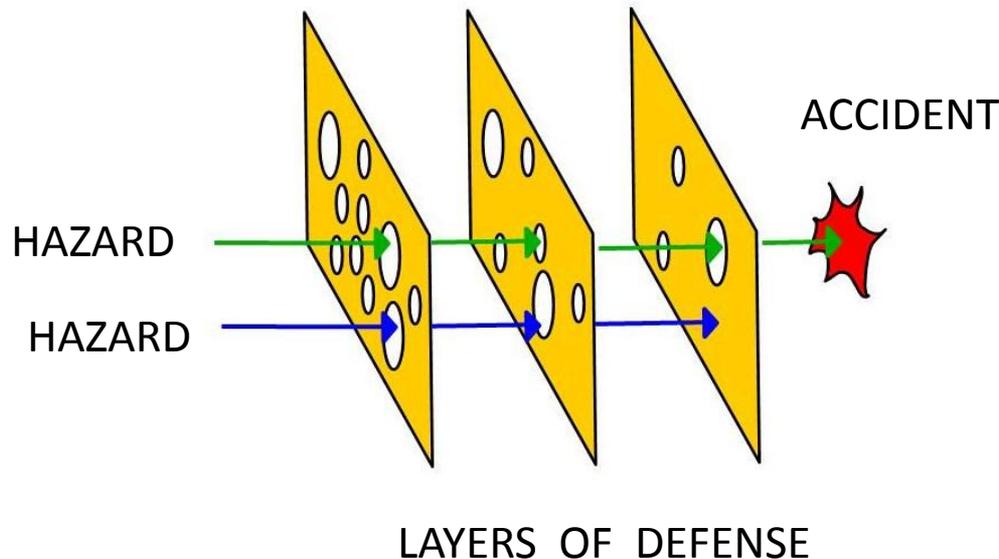


Once defeated, they stay defeated.



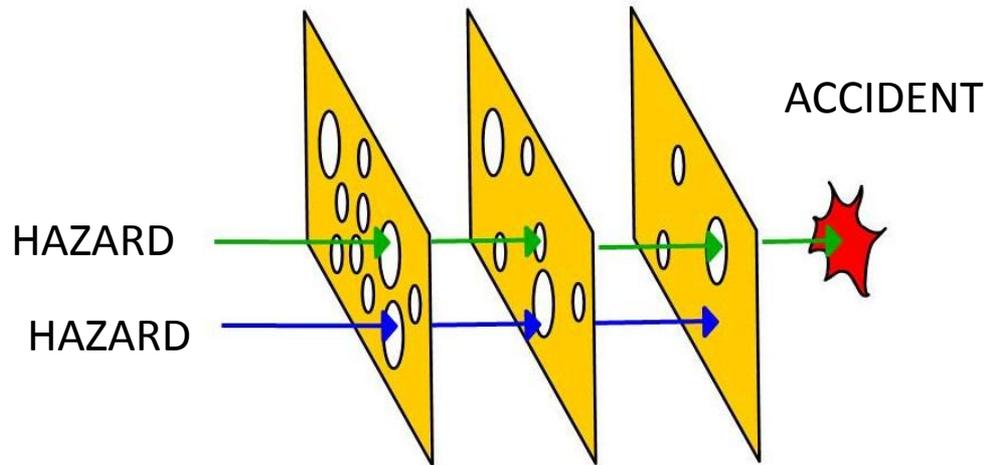
Defense in Depth

Within the aviation community, the Reason's Model is a commonly used approach to examine accident prevention. It is also referred to as the "Swiss Cheese" model of accident causation.



The model shows "holes" in each barrier to reflect the fact that no control is perfect. This is especially true when considering human factors.

Defense in Depth



“Barriers” or “Controls”

The greater the number of barriers the more “Depth” there is to the “Defense”.

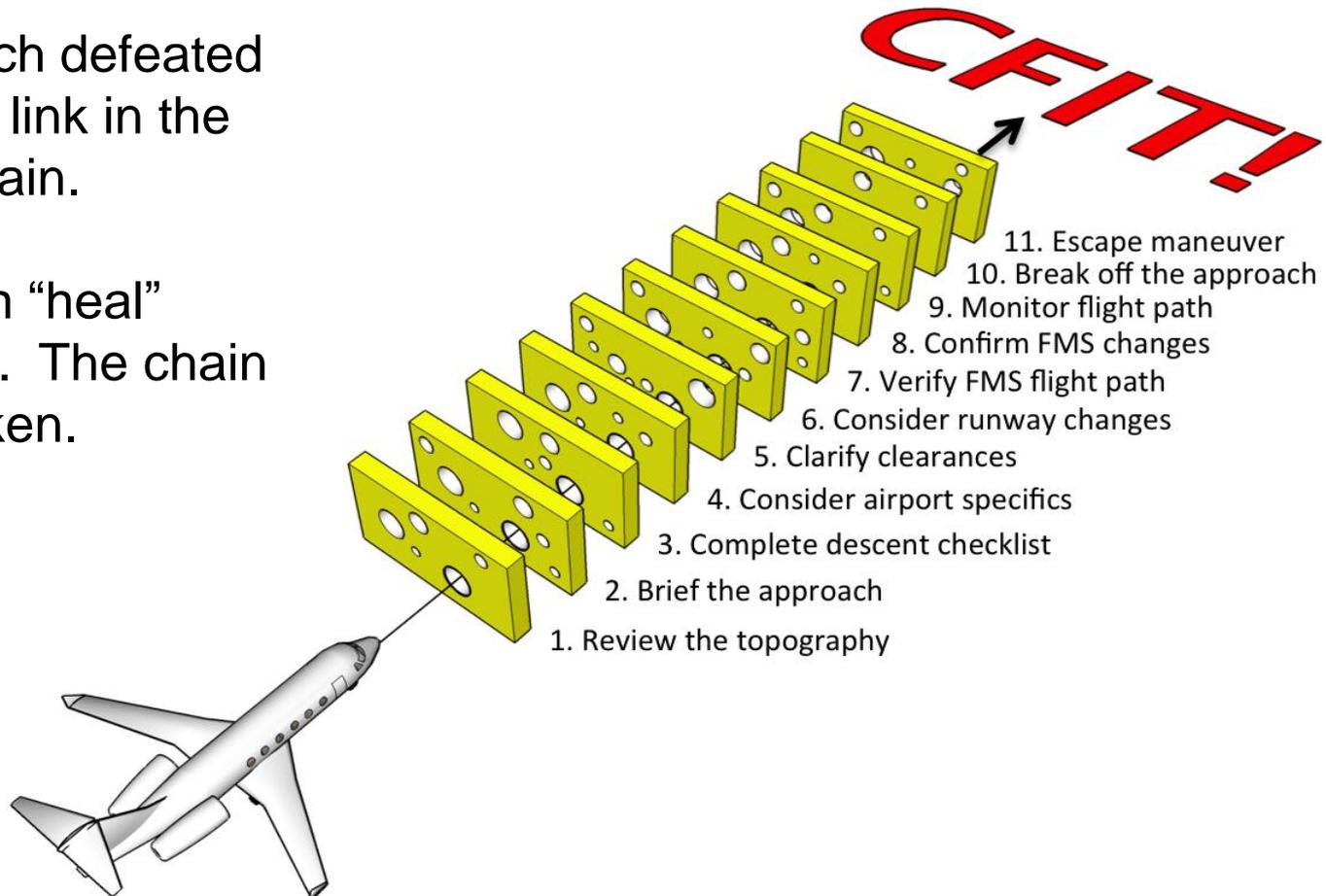
Controls can be Engineering or Administrative.

Defense in Depth



Think of each defeated barrier as a link in the accident chain.

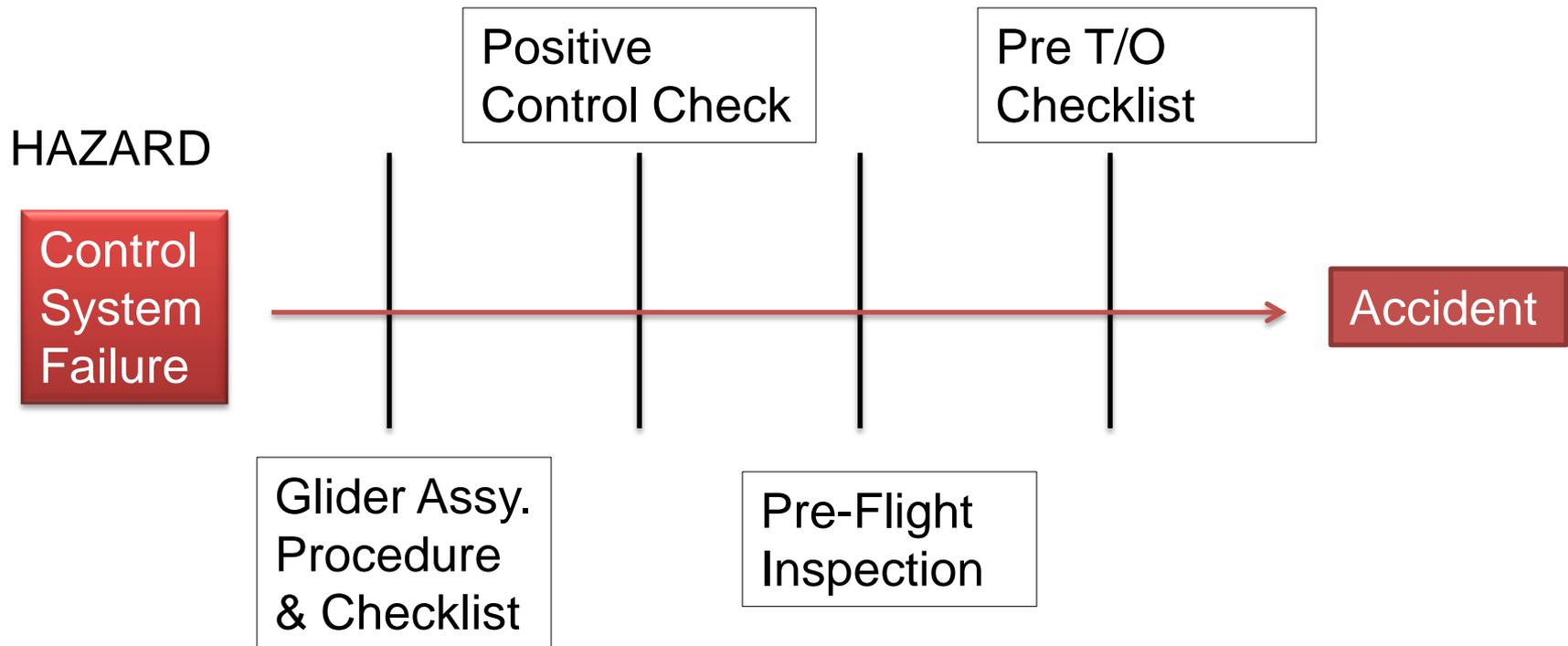
Barriers can “heal” themselves. The chain can be broken.



Defense in Depth



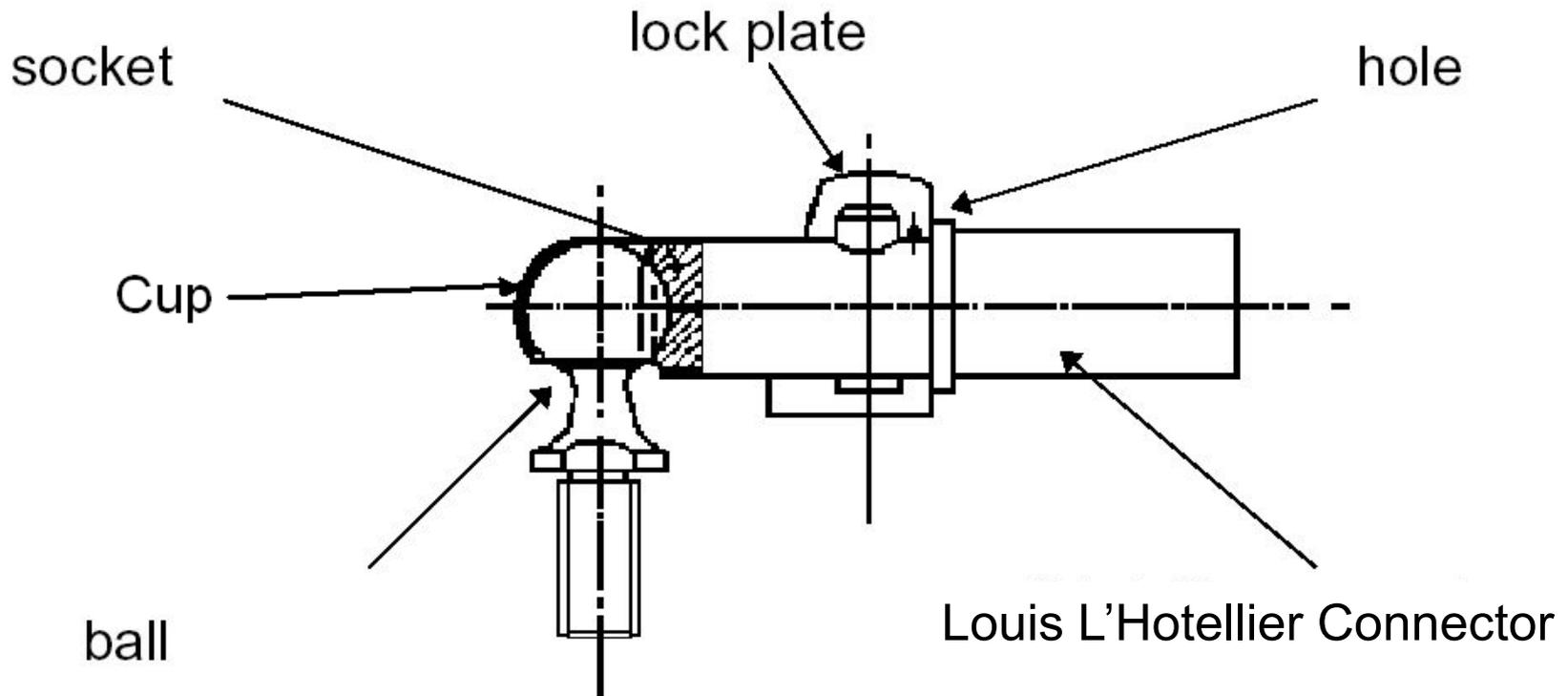
Here is our glider example.



Defense in Depth



Unfortunately, these layers of defense aren't always enough !



Defense in Depth



Advantages

Allow “kinematic” operation (linear to rotational).

Cost effective, compact, quick and easy to connect.

Disadvantages

Injured or killed too many glider pilots.

Hotellier connector can be “partially installed” allowing a defeat of all four (4) protective layers.

This connection status is unstable and will either “fall on” or “fall off” when vibrated or loaded.

Defense in Depth



Hotellier connectors are used on a number of the older gliders.

The Pegasus (1981) was about the last glider to use a Hotellier connector on the elevator.

**ALL OF OUR GROBS
HAVE THESE
CONNECTORS !!**

Manufacturer	Models
Alexander Schleicher	ASK21, ASK23, ASW 12, ASW15, ASW15B, ASW17, ASW19, ASW19B, S 12, AS-K13.
Centrair, S.N	101, 101A, 101P, 101AP, and 201B.
Eiravion	PIK 20, PIK 20B, and PIK 20D.
Glaser Dirks	DG100, DG400, and DG-500M.
Burkhart Grob	G102 Astir CS, G102, G103 Twin Astir, G103 Twin II, G103A Twin II Acro, G103C Twin III SL, G109, and G109B.
Intreprinderea ICA (Lark).	IS-28B2 and IS-29D2.
Rolladen Schneider ...	LS1-f and LS3-a.
Schempp-Hirth	Cirrus, Std. Cirrus, Nimbus 2, Nimbus 2B, Janus, Discus a, Ventus a/16.6.

ASW20A,B

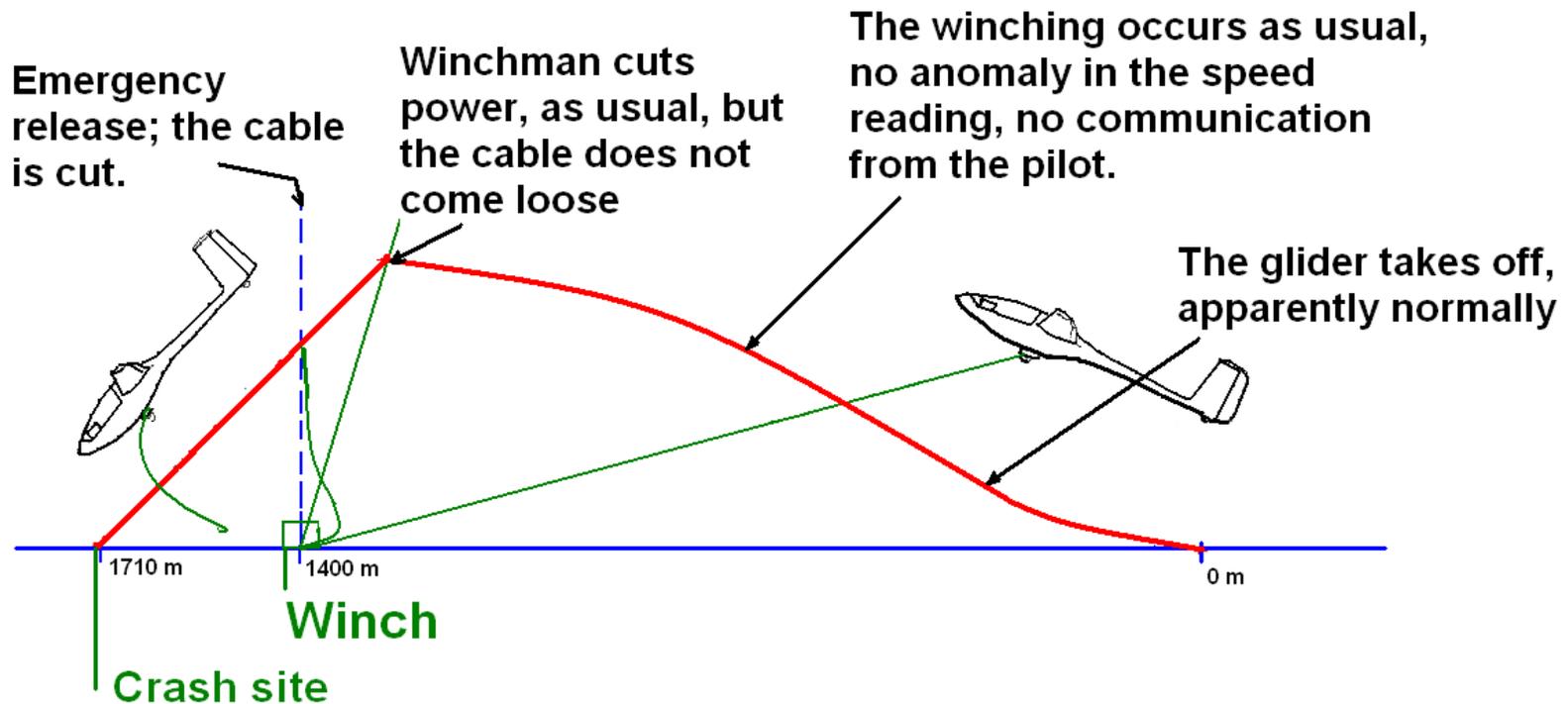
Defense in Depth



Elevator Connection

- Hard to Reach
- Hard to Manipulate
- Hard to See
- Hard to Verify

Defense in Depth



The "Classic" and too often repeated accident scenario

Defense in Depth



The accident scene.

Defense in Depth



Another fatal accident. One of many for Hotellier connectors.

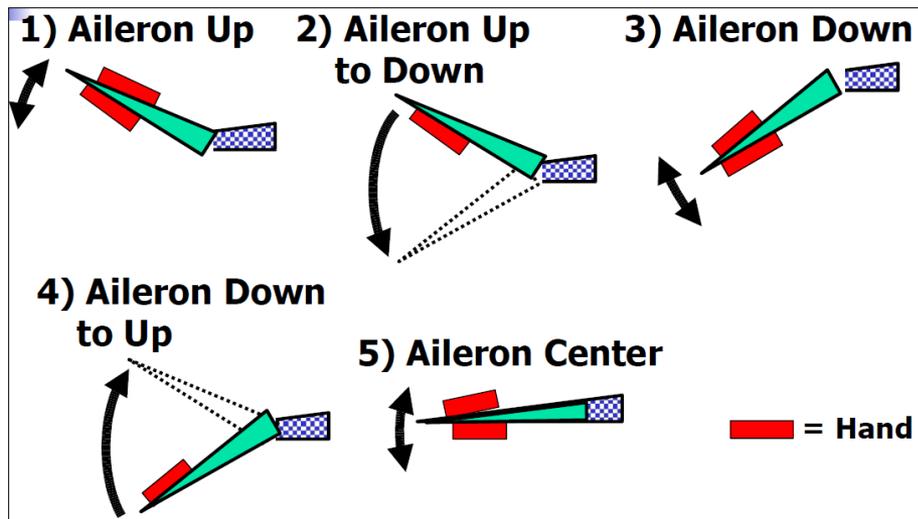


Defense in Depth

Many pilots have survived these crashes. *Smart or Lucky ??*

Q: Why didn't you do a "Positive Control Check?"

A: "I did !!" "But there was no one around so I did it by myself."



A "Positive Control Check" requires 2 people so that force can be applied to the mechanism.

Parachute Story !

Defense in Depth



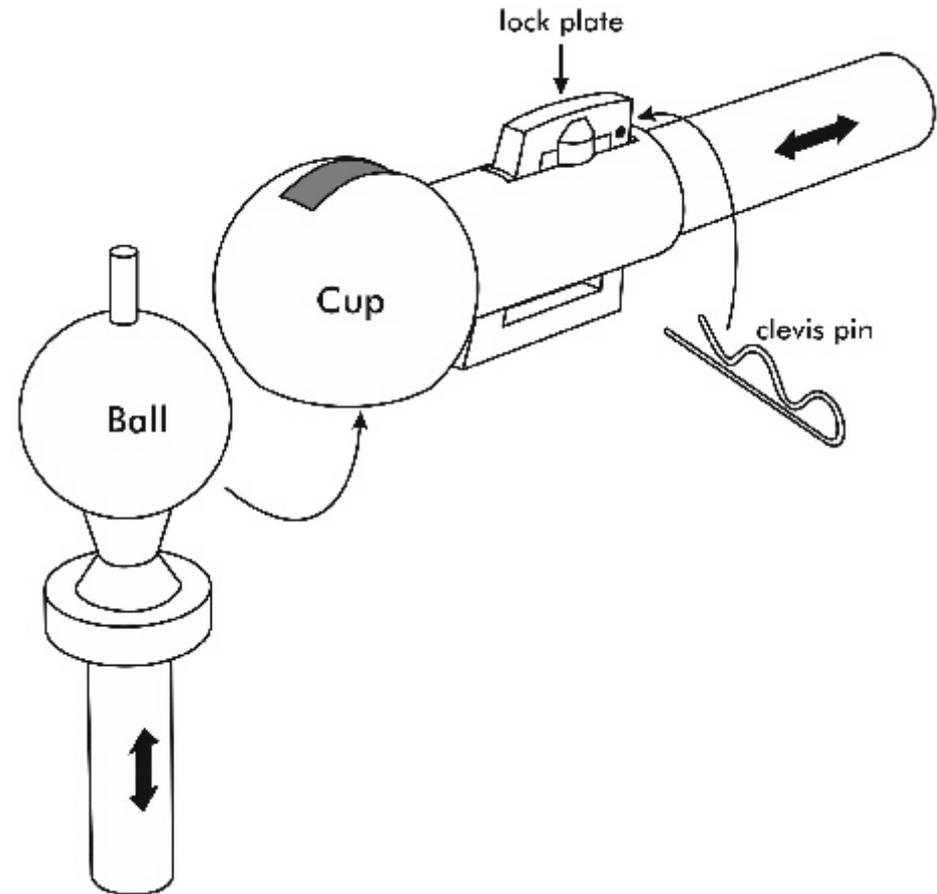
Defense-in-Depth Solution:

Add another layer of defense that requires a “Clevis Pin” be installed.

This ensures that the mechanism is fully closed.

There are ADs in Europe and the US that require this.

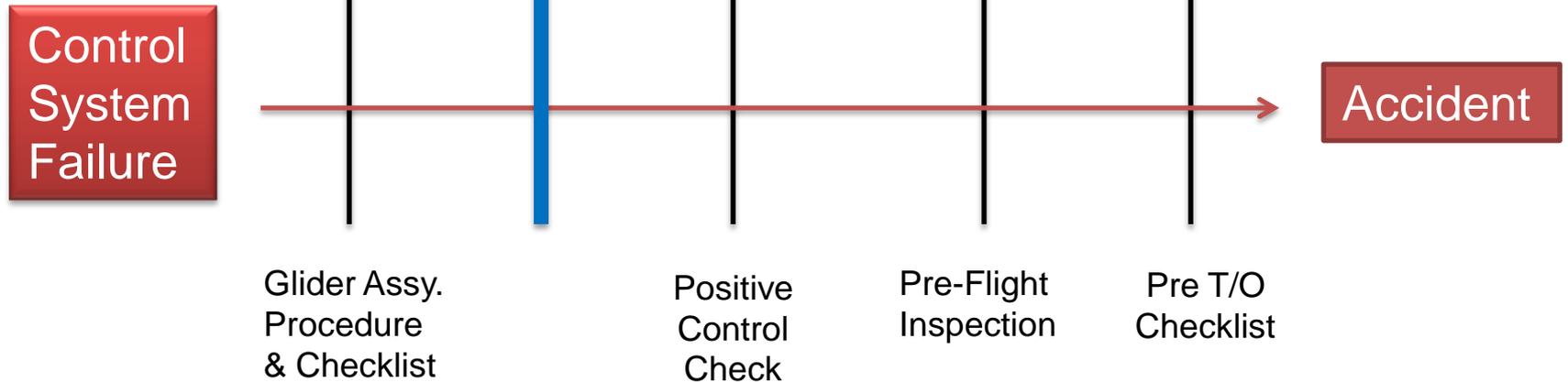
The ADs also require that a placard be installed.



Defense in Depth



Hotellier connectors
must be safety pinned.



The added layer of defense guarantees discovery.

The End

The End

Thanks for Coming !