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Global Reach

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Composites and their future impact on aviation

Aircraft Builders Council, Boston 2011

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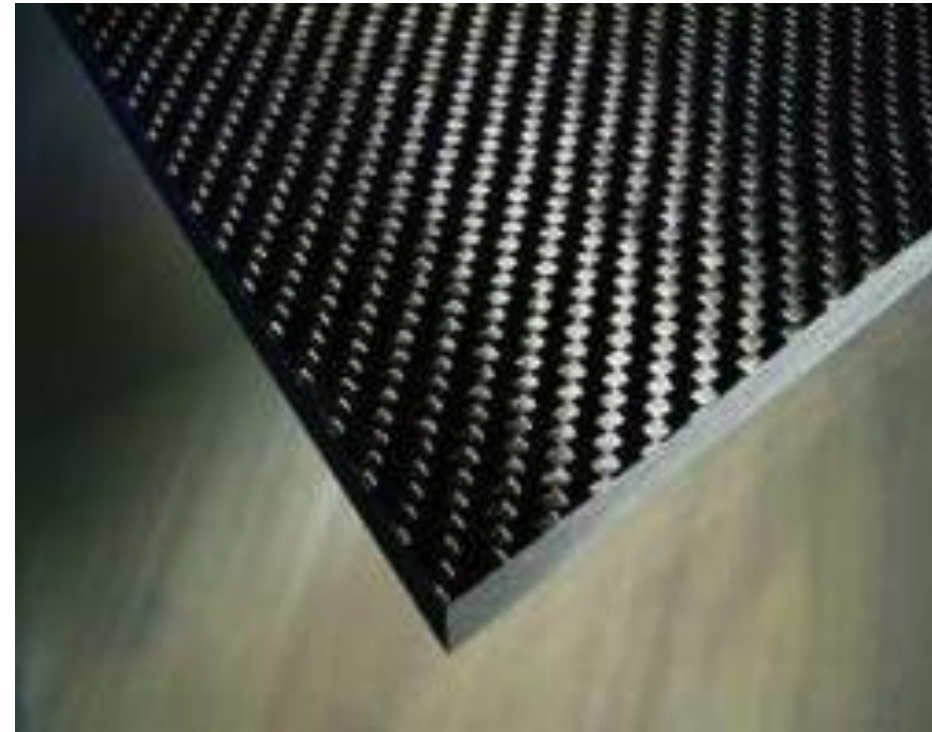
SHOULD WE BE AFRAID?

...we have been here before



What are carbon composite materials?

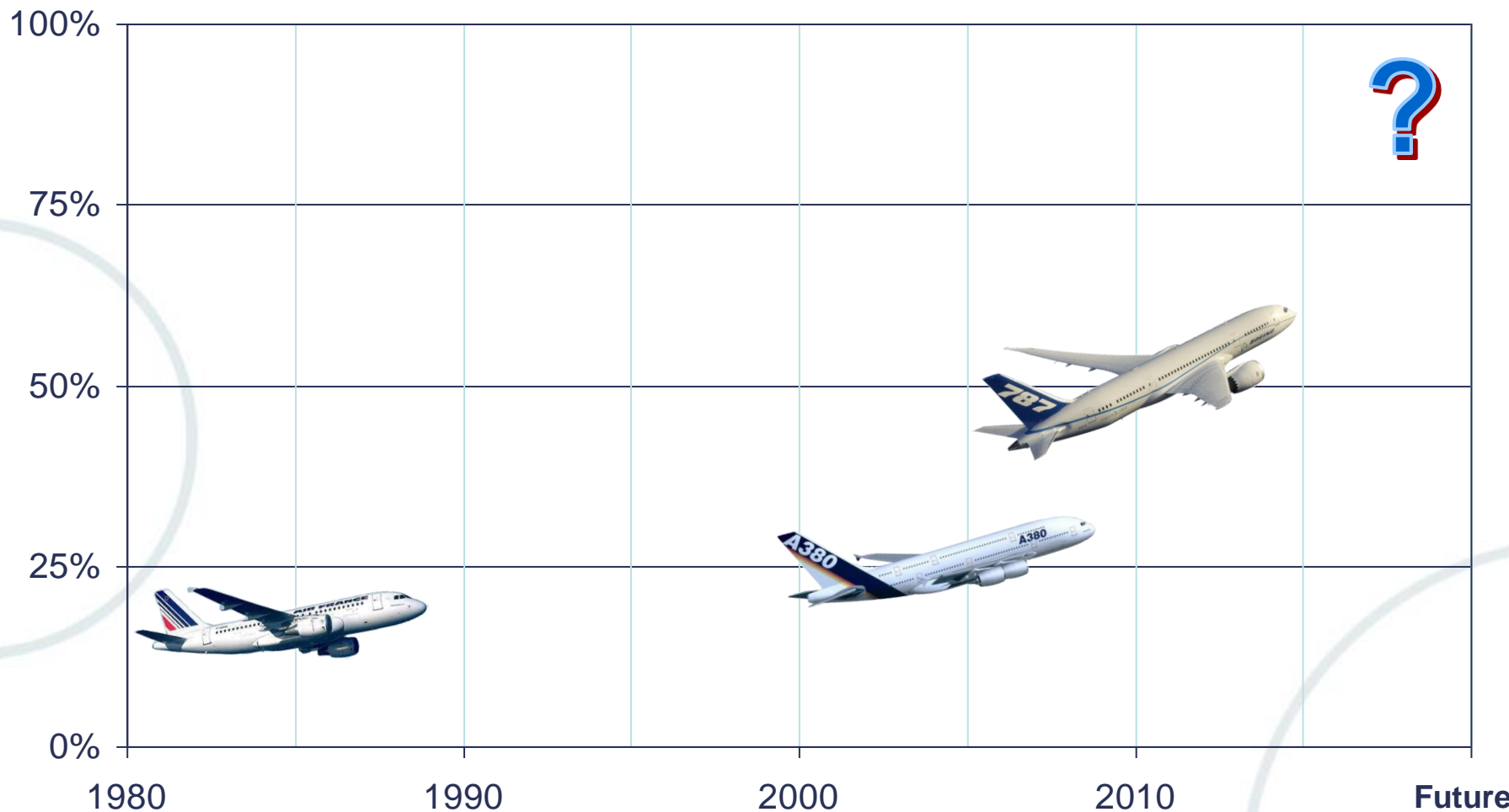
- Two or more separate materials including carbon and epoxy resin
- The combination of the resin and fibres bonded together produces a very tough and stable material



its been around for a while



and now it is becoming more prominent in aviation



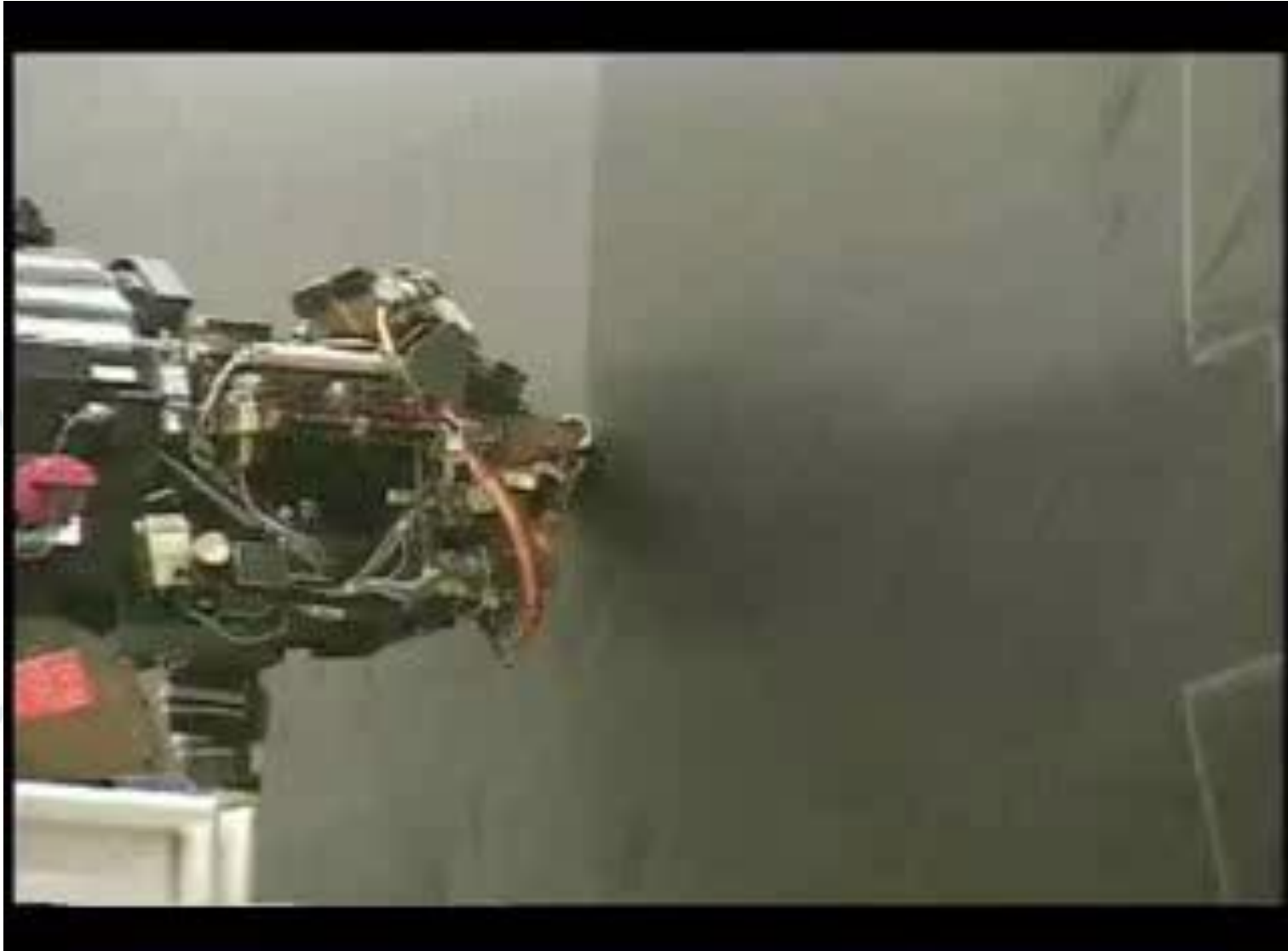
What does this mean for our industry?

BENEFITS

- Lighter in weight for same strength
- Less corrosion
- Advanced design flexibility
- Lower maintenance costs
- Less fatigue & longer life

CONSIDERATIONS

- More complex construction
- Damage potentially harder to detect/repair
- Potential unknowns - extreme exposure



Damage

- Ground Impact
 - Catering Trucks
 - Cargo Loading Equipment
 - Passenger Steps
- Lightning and Hail Strike Defects
- Tail Scrape / Compression
- Runway Excursion / Overrun



Minor Damage

- Newly developed technology
 - Bonded Composite Repairs
 - Typically < 1 hour to apply and certify
 - Temporary (time limited repair solution)
 - Small patch type of repair, limited structural affect

Major Damage

- Component / structural replacement
- Specialised repairs
 - External patching
 - Skin insert

Repair Considerations

- Operators will be able to carry out repairs
- Training to use new tooling and processes
- Specialist techniques required
 - Carbon rework
 - Paint Stripping
 - Material resourcing

So....should we be afraid?

- We have been here before
- There is a steep learning curve
- Aviation technology and progression will continue
- We each have a part to play

Thank you
for listening



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