Composite Modification Workshop
Discussion of Challenges: Materials and Processes

Wichita, KS
August 22-23, 2017
Relevant Regulations for M&P

- 2x.601 General
- 2x.603 Materials
- 2x.605 Fabrication Methods
- 2x.609 Protection of Structure
- 2x.613 Material Strength Properties and Design Values
Challenges: Materials & Processes

For modifications to existing structure:

1. Define what you are working with
   - Reverse engineer material
   - Reverse engineer process
   - Reverse engineer design values

2. Define new material to be added
   - Material definition / control
   - Material process definition / control
   - Generate design values

Can/Should we provide “how to”?

How much definition and control?
Challenges: Materials & Processes

For modifications to existing structure:

3. Determine compatibility with new material and process
   - Surface preparation, if applicable
   - Effect of new cure cycle, if applicable
   - Process control for drilling and similar procedures
   - Protection of structure
   - NDI procedures (in-process)
Challenges: Materials & Processes

For new parts:

- Relatively straight-forward – not much is affected by the application being a “modification” versus any new design criteria
  - Few differences from AC 20-107B
  - Material specification, process specification, protection of structure, NDI

- Unique information in design allowables (§ 2x.613)
  - Use of A- or B-basis
  - Point design allowables
  - Data necessary to support certification by test versus certification by analysis supported by test
For installation:

- Only additional unique consideration is protection of structure, i.e. galvanic corrosion
Question for Audience – M&P Breakout

• Are there any M&P related concerns we do not address at all, or not in the correct section?