

## **Goddard Space Flight Center**

**Task:** Probability of Detection (POD) Demonstration Transferability: Phase II

### **Center Point of Contact:**

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### **Objectives:**

NASA Special Level POD demonstration tests are typically performed on flat plates of a single material containing fatigue cracks with aspect ratios between 0.3 and 0.5. In many cases, the inspectors that pass the demonstration tests use (transfer) the NDE technique to inspect different materials and part geometries and for varying types of flaws. The objective of the task is to investigate several of the factors that may influence the transferability of POD demonstration tests.

### **Technical Methodology/Approach:**

An existing set of 30 6061-T6 aluminum crack panels will be used to create parts with a square tube and pocket type geometries. These same aluminum crack panels were used in a study of the effect of penetrant sensitivity level on POD. Hence, we should be able to directly compare the POD for flat panels versus larger parts with more complex geometries.

### **Customers:**

James Webb Space Telescope

Global Precipitation Measurement Mission

### **Recent Accomplishments:**

The design and layout of the parts is completed.

### **Benefits/Payoffs:**

A final report will provide recommendations on how best to transfer typical flat panel POD demonstration test results to more complex inspection situations. These findings will help align NASA with the approach adopted by the US Air Force.

### **Status:**

The fabrication of the probability of detection test specimens is on hold pending the release of sufficient funding through the continuing resolutions.

**Future Work:**

Complete the fabrication of the POD demonstration test specimens. These specimens will then be inspected by the same in-house and vendor inspectors that inspected the individual panels in a previous study.