

Milestone	Completion date	
Brausch specimen set – transfer function EDM to crack	30 Sep 2007	Presentation at ASIP 2007
Model development/validation on Brausch specimen set		
Rainbow fitting/Cessna Demo		

Specimen set:

- set of notch and crack specimens being manufactured at NDI Program Office
 - o Al 7075-T6
- Note NIAR is developing a bolt hole set based on an A-10 issue, specimens completed ~ spring 2007
 - o Inputs to NIAR by early 2007

Task	Notes		
Obtain information about sample preparation			
Characterize samples	<ul style="list-style-type: none"> - size cracks somehow, if needed - notch sizes - CT characterization of a subset 		
Define inspection techniques	<ul style="list-style-type: none"> - designate 2-3 notch specimens as master gauge set - TWO types of inspections: <ul style="list-style-type: none"> 1. need to automate, control as many parameters as possible to eliminate superfluous variability 2. “depot/field” types of inspections??? Surface scan eddy 		

	current for surface breaking cracks, UT angle beam for far side cracks		
Obtain, Characterize inspection equipment	<ul style="list-style-type: none"> - standard ET equipment - people developing models need to provide their requirements 		
Inspect	<ul style="list-style-type: none"> - perform sufficient inspections to develop ahat vs a curves for both notch and crack specimens - 		
Model	<ul style="list-style-type: none"> - provide information to modelers - modelers to return data for analysis: results in terms of response ahat vs a - sensitivity studies: shape, contacts 		
Analyze	<ul style="list-style-type: none"> - 		
Deliverables	<ul style="list-style-type: none"> - transfer functions between notch and crack based on experimental data, both slope and noise - validated models, ability to model a new situation based on EDM and then use this data to transfer to crack - validate ability to do XFN/FMA 		
DONE INTERMEDIATE STEP WE ARE STILL DOING MORE			

$$\sigma (\text{total}) = \sigma (\text{human factors}) + \sigma (\text{notch to crack}) + \sigma (\text{crack variability}) + \sigma (\text{the rest})$$

Phase 2 – Multilayer inspection problem: C-130 and Cessna wing

Task	Notes		
Obtain information about sample preparation			
Characterize samples	<ul style="list-style-type: none"> - size cracks somehow, if needed - notch sizes - CT characterization of a subset 		
Define inspection techniques	<ul style="list-style-type: none"> - designate 2-3 notch specimens as master gauge set - TWO types of inspections: <ol style="list-style-type: none"> 1. need to automate, control as many parameters as possible to eliminate superfluous variability 2. “depot/field” types of inspections??? Rainbow fitting inspections????\ 		
Obtain, Characterize inspection equipment			
Inspect	<ul style="list-style-type: none"> - perform sufficient inspections to develop ahat vs a curves for both notch and crack specimens - 		
Model	<ul style="list-style-type: none"> - provide information to modelers - modelers to return data for analysis: results in terms of response ahat vs a - sensitivity studies? 		
Analyze	<ul style="list-style-type: none"> - 		
Deliverables	<ul style="list-style-type: none"> - transfer functions between notch and crack based on experimental data, both slope and noise - validated models, ability to model a new situation based on 		

	EDM and then use this data to transfer to crack - validate ability to do XFN/FMA		
DONE INTERMEDIATE STEP WE ARE STILL DOING MORE			