

Subsystem/ Function Name: Strain Measurement system/ Telemetry System
 Date Completed:
 Performed By: Thomas Klaben, Luke Kranz, David Haller, Adam Johnson, John Dong
 Tested By: Thomas Klaben, Luke Kranz, David Haller, Adam Johnson, John Dong

S1, S2, S3, S16 TEST PLAN

Concluded Condition of meeting Engineering Specifications S1	
Concluded Condition of meeting Engineering Specifications S2	
Concluded Condition of meeting Engineering Specifications S3	
Concluded Condition of meeting Engineering Specifications S16	

I. TESTING SPECIFICATION

Specification Number	Importance	Source	Function	Specification (Metric)	Unit of Measure	Marginal Value	Ideal Value	Comments/Status
S1	9	PRP	Strain Meas	Calibration	% Accuracy	5%	2.5%	The gauge must be able to read proper strains
S2	9	PRP	Strain Meas	Life Cycle	Hours	20	60	The gauge has to last for at least 1 full test cycle, which could reach several months (20 hours of testing time)
S3	1	PRP	Strain Meas	Gauge Size	mm ²	100	16	
S16	3	PRP	Strain Meas	Gauge Placement	% Gauge Measurement	10	5	Placement of gauge on blade must be uniform

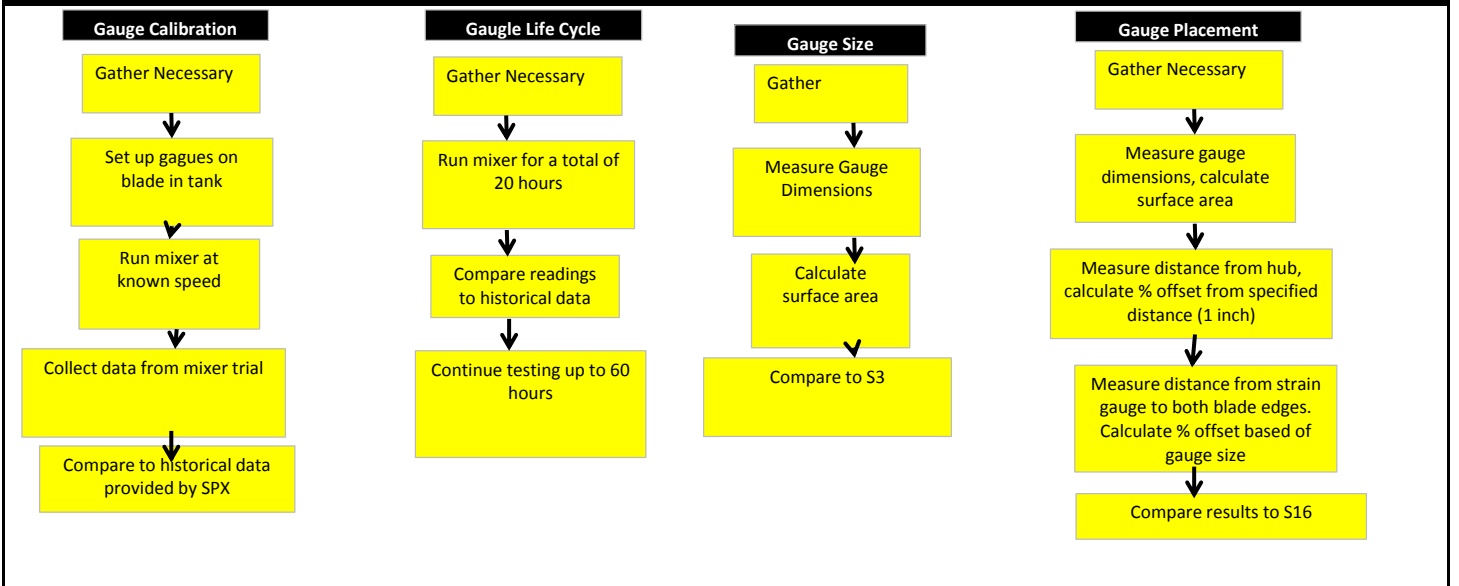
II. EQUIPMENT REQUIRED

Specification Number	Equipment or Instrumentation required
S1	Impeller, Motor, Power Supply, Transmitter, Receiver, Computer, Strain Gauges, Mounting Equipment, Wires
S2	Impeller, Motor, Power Supply, Transmitter, Receiver, Computer, Strain Gauges, Mounting Equipment, Wires
S3	Strain Gauge, Ruler
S16	Mounted Strain Gauge, Ruler

III. DATA COLLECTION STRATEGY

Specification Number	Data acquisition strategy
S1	Calibrate data collection system. Turn impeller at a known speed; collect data through telemetry system. Compare collected data to historical data collected by SPX. Confirm that collected data is within 5% of historical data.
S2	Once gauges are properly mounted, run impeller for 20 hours. If the gauges are still intact, continue test up to 60 hours to determine max gauge life; over 20 hour life cycle yields a passing result.
S3	Measure strain gauge with ruler to determine if gauge is within specification.
S16	Measure strain gauge with ruler, and measure the dimensions from the hub and each edge of the blade. Check to make sure measurements are within specification.

III. TESTING FLOWCHART



IV. RAW DATA ACQUISITION

V. RESULTS

VI. CONCLUSION