TEST REQUIREMENTS DOCUMENT OUTLINE

I. TEST PROGRAM OVERVIEW
   a) Program Overview and Objectives
   b) Program Schedule: Test Date and Duration
      i) The current planned test dates include
         (1) Model Preparation Room – 2 weeks of single shift operation starting XX
         (2) 11x11-Ft TWT – XX week of double shift operation starting XX
         (3) 9x7-Ft SWT – XXweek of double shift operation starting XX

II. TEST OBJECTIVES AT AMES
   a) Type of Test
      i) Force and Moment
      ii) Dynamic Data
      iii) Etc.
   b) Pressure Data Requirements
      i) Static, Dynamic
   c) Run Schedule (Run Matrix)
      i) Mach and Reynolds number range and tolerances required
      ii) Run or Configuration Priorities
      iii) Model Configuration Codes
      iv) Expected Loads
      v) Flow Angularity Runs
      vi) Angle Schedule Requirements
         (1) Angle ranges and increments
            (a) Are these angle ranges the same for every Mach number? If not, provide different schedules and increments. Example: Alpha Schedule A1: -5 to 5 degrees by 1 deg.
         (2) Angle Schedule Type: Sweep or Move Pause
         (3) Tolerance required
   d) Test Support, Contacts, Addresses & Phone Numbers

III. MODEL & HARDWARE DESCRIPTION
   a) Support System Hardware
      i) Ames Supplied and Customer Supplied
   b) Model Description and Scale
      i) Reference Area, Span, Chord
      ii) Model cross sectional areas and sting cavity area
      iii) Inlet capture and nozzle exit areas
      iv) Body and wing volumes for blockage
      v) Top and side planform areas for starting loads
   c) Control Surfaces
      i) Hinge Moment requirements, Load fixtures available, etc. Manual and/or remote - Power and signal conditioning, control and feedback
   d) Parts/Drawings list
   e) Boundary Layer Transition
      i) Location, size and spacing

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      ii) Who will supply and apply the transition
- f) Loads Sources & Estimates
- g) Model Instrumentation
- h) Model Leveling surface
  - i) Size and dimensions
  - ii) Functional at phi = 0°, 90° 180°, and 270° (where applicable)
  - iii) Functional at all alpha ranges (where applicable)
  - iv) AMS attachment pattern to be added to the level plate (drawing is available)
  - v) Reference surface for beta
- i) Model Check loading
  - i) Single point checkload performed in MPR and repeated in test section
  - ii) Requirements to load the model beyond single point load
    - (1) Provide load points on model

IV. INSTRUMENTATION
- a) Balance
  - i) Description, Capacity, Calibration, Backup, Pinhole to be used (to attach balance to model).
  - ii) Required accuracies (force and coefficients)
  - iii) Balance to Body Angles
  - iv) Balance to sting relationship
- b) Angle of Attack Source(s) and Locations
  - i) We have QFlex™ Model QA2000 sensors that can be used in the model and also can be placed on the support for base mounted sources. Accuracy of approximately 0.005º.
  - ii) The Support System Knuckle Sleeve Encoder outputs are also used as base angle sources. The accuracy of the Knuckle Sleeve Encoders is 0.05º.
- c) Pressure Instrumentation, Type, and Port Assignments
- d) Thermocouples, Strain Gages, Accelerometers, Position Indicators, Fouling Strip & Other
- e) Flow Visualization requirements
- f) Model Photo & Video
  - i) Required still and video recording equipment
  - ii) Digital Cameras available for use by customer
  - iii) Professional Installation images will be provided for one model configuration

V. DATA PROCESSING
- a) Acquisition Parameters
  - i) Point duration. For example:
    - (1) 1 second for move-pause data
    - (2) 0.5 second for continuous sweep
- b) Equations and Corrections
  - i) Test Dependent Equations and Parameters (supplied by Customer)
    - (1) ARC data system standard equations will be used. Tunnel conditions, balance, angles, weight tares, pressures measurements
  - ii) Aerodynamic Coefficients

TEST REQUIREMENTS DOCUMENT OUTLINE

    (1) Corrections
- (a) Base and Cavity – Body Axis
- (b) Stream Angle (where applicable)
- (c) Buoyancy (where applicable) – Body Axis
- (d) Wall interference (TWICS) – Stability Axis
- (e) Duct Corrections – Table look up or curve fits of duct calibrations provided by customer

    (2) Coefficient set definitions (examples below)
- (a) Uncorrected
- (b) Corrected for base and cavity only
- (c) Corrected for buoyancy only
- (d) Fully Corrected – Base, cavity. Buoyancy, wall interference

c) Customer Nomenclature list
- i) These are for the Data Transfer files provided to the customer for each run during the test. Please also provide the file format (.csv, .dat, etc)
- ii) Include Name, description and units for each term
- iii) Comprehensive List of Parameters

d) Computer Requirements in the Control Room and any special programs required on these computers

VI. SECURITY

a) Classification
- i) Model and Data: Supply required markings for test information and data
- ii) Installation and Configuration Photos