

NCREE North Lab Shaking Table Evaluation Schedule (Jan 8-12)-RevA

- I. Servo-valve Valve Balance Tests & Correction 1.5 Days**
- A. Time Required is from Monday, January 8 to noon of Tuesday, January 9
 - B. Measure each of 20 Servo-valves pressure curve
 1. Adjust Servo-valve spool zero for pressure curve offset $> \text{abs}(0.1)$ Volt
 2. Collect data for report plotting
- II. Check Servo-Valve Tuning and Match Axes to ± 2.0 degrees Phase Match 0.5 Day**
- A. Time Required is Tuesday, January 9 Afternoon
 - B. Measure each of 20 Servo-valves tuning from 1-70 Hz
 1. Tune each axis valves to a phase match of ± 2.0 degrees
 2. Verify each Servo-valve does not have magnitude of response > 1.5
 3. Collect data for report plotting
- III. Check Each of 12 Actuator's Friction over at least 80% of stroke 0.5 Day**
- A. Time Required is Wednesday, January 10 Morning
 - B. Run Triangular waveforms on each axis in displacement with large amplitude
 1. Measure actuator friction over 80% of the stroke range
 2. Check for large variation in actuator force (e.g. 50%)
 3. Collect data for report plotting
- IV. Check X, Y, and Z Axis Total Harmonic Distortion 0.5 Day**
- A. Time Required is Wednesday, January 10 Afternoon
 - B. Run THD Tests on each axis for 1, 2, 3, 5, and 10 Hz
 1. Run THD tests at 1, 2, 3, 5, and 10 Hz
 2. Check for normal range of THD at each frequency relative to Oil Column Frequency.
 3. Collect data for report plotting
- V. Check X, Y, and Z Axis Maximum Velocity at Mid-Range Frequencies 0.5 Day**
- A. Time Required is Thursday, January 11 Morning
 - B. Run Large Amplitude Sine Waves to Minimize Acceleration to Check Velocity
 - C. Check Performance for ability of Servo-valves to open fully on demand
 1. Check for table velocity to be consistent with Servo-valve opening
 2. Collect data for report plotting
- VI. Check All Axes Tuning from 1-50 Hz 0.5 Day**
- A. Time Required is Thursday, January 11 Afternoon
 - B. Tune all axes from 1-50 Hz at low acceleration levels (0.1 G & 20 deg/sec² RMS)
 1. Check for unusual resonances not expected for bare table
 2. Check for inability to attain reasonably flat response
 3. Collect data for report plotting

VII. Check All HPC Functions used for Table System

0.5 Day

- A. Time Required is Friday, January 12 Morning
- B. Check all of the normal options of the HPC functions with respect to the Table
- C. Check all auxiliary functions, e.g. static lift

VIII. Review of Test Results and Prediction of Future Performance

0.5 Day

- A. Review all of the tests with NCREE personnel and elicit any comments about how well the system is performing relative to past history.

This series of tests should confirm how well the system has maintained its health since the last inspection about 2 years ago. It will also test more of the actual table performance to benchmark this performance for future evaluation.