

Test Procedures – Specs Verification C

Goal

To conduct tests in order to verify that design of apparatus and test procedures are in compliance with Customer Needs 1-6, 8-12, 14-21, 23-24.

Curvilinear Track Attachment

Apparatus

Apparatus setup for curvilinear experiment

Stop Watch

Apparatus components for Curvilinear experiment

Procedure

1. Attach Track to horizontal beam (Part #: BD01).
2. Run Curvilinear experiment consecutively for a period of five minutes
3. Snap track off
4. Re-Attach Track to horizontal beam (Part #: BD01).
5. Repeat steps 2-4 for (TBD) cycles
6. Check for degradation of track or note any performance loss

Centripetal Acceleration Motor

Apparatus

Apparatus setup for Centripetal Acceleration experiment

Stop Watch

Procedure

1. Connect the Centripetal Acceleration Apparatus to a power source
2. Accumulate 4000 minutes of performance split evenly among speeds
3. Check for motor degradation

Pendulum Bearings

Apparatus

Apparatus setup for the Pendulum experiment

Largest Pendulum mass

Protractor

Procedure

1. Set up the pendulum with the largest mass at the furthest length in order to put the maximum amount of torque on the bearings

2. Oscillate pendulum for (TBD) cycles while keeping the release angle constant
3. Check for Degradation of the bearings due to change in oscillation count from the constant release angle.

Spring

Apparatus

Apparatus setup for the Spring-mass experiment

Largest spring mass

Ruler

Procedure

1. Set up Spring-Mass experiment with the largest mass
2. Measure K value
3. Stretch spring to (TBD) Length 3800 times
4. Measure K value again
5. Determine if value in K is acceptable

Sliding Mechanism

Apparatus

Apparatus setup for the experiment with most mass attached to the sliding mechanism

Ruler

Procedure

1. Set up the experiment that has the largest mass attached to the sliding mechanism
2. Measure the height of the sliding mechanism
3. Run the experiment 5 consecutive times
4. Measure the height of the sliding mechanism to check for slip.
5. Move the sliding mechanism to another height
6. Repeat steps 1-5 for a (TBD) number of times

EM1

Apparatus

Apparatus setup for the experiment that takes up the largest area in the room

Protractor

Ruler

Procedure

1. Set up the experiment that has the largest area in the room
2. Designate an edge of the table as the starting view point (0 degree mark)

3. Check visibility of the entire experiment from 4 feet away from the apparatus
4. Rotate Clockwise around the apparatus to a viewing angle that is 45 degrees from the previous viewpoint
5. Check Visibility of the entire experiment again.
6. Continue to rotate every 45 degrees until the first viewpoint had been reached
7. Determine if the entire experiment is viewable from 5 consecutive view points