**10 October 2016 OCU ATP FORCE LIMIT VIBRATION**

UUT Description: OCU, PN 1F67700-1, SN 0034

Test Documents: ATP1F67700-1 ENVTP1F67700-1

Personnel: C. Young, S. Brock, J. Ebbing

Fixtures: OCU Interface Plate drawing 987917

(32) ½”-13 X 1 ¾”

Tightened to 50 ft-lbs.

(4) Custom mounting bolts

Tightened to Pre-load Values

**1100**

**Setup Z-AXIS**

* Flipped shaker armature to vertical position.
* Installed interface plate (987917).
* Install cable support table
* Recalled controlled random vibration profile.
* Reconfigured controller setup.
* Setup vibration protection monitor.
* Remove abort limits from software.

**1301**

**Z AXIS FORCE LIMIT OCU EQUALIZATION:**

* Ran random vibe on the bare fixture.
* Started at -20dB.
* Worked manually to full level.
* Duration of 1 minute.
* No anomalies.
* Reapplied summed channel and individual force channels limits.

**1315**

**Z- Axis Force Limit Setup:**

* Installed custom bolts for OCU.
* Set Height of bolt - 1.85 inch above the surface, inserted centering sleeves.
* Placed force sensor on the bolts and taped in place.
* Taped down the accelerometer and force gage cables to the fixture.
* Placed UUT on the bolt/force sensor.
* Placed UUT on the bolt/force sensor.
* Preload is desired to be 4500lbs.per foot
* 1.5 volt and reset, 3 times (1500lbs) for a total preload of 4500lbs per foot.
* Force sensor 1 is front right near the **control 1 and J105.**
* Force sensors progress in a clockwise fashion.
* Response accelerometers progress in the same manner.
* Connected cables to the UUT.
* Took photographs of the test setup.

**1504**

**Z-AXIS FORCE LIMIT OCU WEIGHT CHECK:**

* Started random vibe.
* Started at -20dB. Stopped after ~ 1 minute, exported data to test folder.
* Check of adjustment at -20dB

**1532**

**Z-AXIS FORCE LIMIT VIBE:**

Ran random vibe.

* Started at -20dB.
* Stepped to full level manually.
* One point out at 20Hz.
* Point was 0.24dB under the lower tolerance.
* The width was less than 3 Hz wide.
* Documented on 995 #AD24212.
* No UUT Anomalies

**Z-Axis Force Limit Vibe Time at Level:**

|  |  |
| --- | --- |
| Test Level,  (-dB) | Time (m:sec) |
| -20 (wgt chk) | 2:02 |
| -20 | 2:04 |
| -12 | 0:06 |
| -9 | 0:10 |
| -6 | 0:13 |
| -3 | 0:12 |
| 0 | 1:00 |

* **Frequency Mode 1 = 1100Hz Level = 0.0003585**

11 October 2016

0800

**X Axis Setup**

* **Rotate shaker armature to horizontal position.**
* Installed interface plate (987917) on slip table.
* Install cable support table
* Recalled controlled random vibration profile.
* Reconfigured controller setup.
* Setup vibration protection monitor.
* Remove abort limits from software.

0905

**X-AXIS FORCE LIMIT OCU EQUALIZATION:**

* Ran random vibe on the bare fixture.
* Started at -20dB.
* Worked manually to full level.
* Duration of 1 minute.
* No anomalies.
* Reapplied summed channel and individual force channels limits.
* Installed custom bolts for OCU.
* Set Height of bolt - 1.85 inch above the surface, inserted centering sleeves.
* Placed force sensor on the bolts and taped in place.
* Taped down force gage cables to test fixture.
* Force limit breakpoints scaled by dividing by 100 due to limitation of vibe controller.
* Charge amplifier is 1000lbs per Volt or 1mV/lb.
* Vibe controller sensitivity set to 10mV/lb.
* Hence force rms is reduced by a factor of 10.
* Placed UUT on the bolt/force sensor.
* Placed grade 9, 1/4” washer on the bolts.
* Preload is desired to be 4500lbs.per foot
* 1.5 volt and reset, 3 times (1500lbs) for a total preload of 4500lbs per foot.
* Force sensor 1 is front right near the control 1 and J107.
* Force sensors progress in a clockwise fashion.
* Connected cables to the UUT.
* Took photographs of the test setup.

959

**X-AXIS OCU WEIGHT CHECK:**

* Started at -20dB. Stopped after ~ 1 minute, exported data to test folder.
* Check of adjustment at -20dB

1015

**X-AXIS FORCE LIMIT VIBE:**

* Ran random vibe.
* Started at -20dB.
* Stepped to full level manually.
* Duration of 1 minute at full level.
* No Anomalies

**X-Axis Force Limit Vibe Time at Level:**

|  |  |
| --- | --- |
| Test Level, | Time |
| -20 (wgt chk) | 3:02 |
| -20 | 1:18 |
| -12 | 0:12 |
| -9 | 0:13 |
| -6 | 0:12 |
| -3 | 0:14 |
| 0 | 1:00 |

* **Frequency Mode 1 = 555Hz Level = 0.0001497**
* Post vibe functional test complete.
* Removed UUT from interface plate.

1130

**Y Axis Setup**

* Installed interface plate (987917).
* Install cable support table
* Recalled controlled random vibration profile.
* Reconfigured controller setup.
* Setup vibration protection monitor.
* Remove abort limits from software.

1304

**Y-AXIS FORCE LIMIT OCU EQUALIZATION:**

* Ran random vibe on the bare fixture.
* Started at -20dB.
* Worked manually to full level.
* Duration of 1 minute.
* No anomalies.
* Reapplied summed channel and individual force channels limits.

1310

**Y Axis Force Limit Setup**

* Installed custom bolts for OCU.
* Set Height of bolt - 1.85 inch above the surface, inserted centering sleeves.
* Placed grade #9, 1/4” washer on the bolts.
* Placed force sensor on the bolts and taped in place.
* Taped down force gage cables to the fixture.
* Placed UUT on the bolt/force sensor.
* Preload is desired to be 4500lbs.per foot
* 1.5 volt and reset, 3 times (1500lbs) for a total preload of 4500lbs per foot.
* Force sensor 1 is front right near the control 1 and J105.
* Force sensors progress in a clockwise fashion.
* Connected cables to the UUT.
* Took photographs of the test setup.

1350

**Y-AXIS OCU WEIGHT CHECK:**

* Started at -20dB. Stopped after ~ 2 minute, exported data to test folder.
* Check of adjustment at -20dB
* Adjusted PSD curve
* Notify system operator and pause for pretest completion.

1411

**Y-AXIS FORCE LIMIT VIBE:**

Ran random vibe.

* Started at -20dB.
* Stepped to full level manually.

**Y-Axis Force Limit Vibe Time at Level:**

|  |  |
| --- | --- |
| Test Level,  (-dB) | Time (m:sec) |
| -20 wgt chk | 2:02 |
| -20 | 1:33 |
| -12 | 0:15 |
| -9 | 0:14 |
| -6 | 0:13 |
| -3 | 0:14 |
| 0 | 1:00 |

* **Frequency Mode 1 = 340Hz Level = 0.002865**
* **Frequency Mode 2 = 640Hz Level = 0.01558**
* Post vibe functional test complete.
* Removed UUT from interface plate.

**Test Complete**