Acceptance Test Data Sheets

For

Skyryse Flight OS LEMA TPX 325

|  |  |
| --- | --- |
| LEMA Assembly Part Number | Serial Number |
|  | 12 |

6.1. **Visual Examination of the Product**

UUT conforms to the requirements of paragraph 6.1 Unhandled Type: Void

6.2 **Weight**

UUT weight should not exceed 10 lbs actual weight Unhandled Type: Void lbs

**6.3 Bonding**

Bonding resistance

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
|  | **Expected** | **Tolerance** | **Simplex** | **Duplex** |
|  | (mOhms) | (mOhms) | (mOhms) | (mOhms) |
| Motor End Cap is ≤ 2.5 milliOhm | 2.500000 mOhms | 0.500000 mOhms | 0.000000 mOhms | 0.000000 mOhms |
| Solenoid housing  is ≤ 2.5 milliOhm | 2.500000 mOhms | 0.500000 mOhms | 0.000000 mOhms | 0.000000 mOhms |
| Encoder cover  is ≤ 2.5 milliOhm | 2.500000 mOhms | 0.500000 mOhms | 0.000000 mOhms | 0.000000 mOhms |

6.4 Resistance and Inductance Test (motor and solenoid)

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
|  | **Expected** | **Tolerance** | **Connector J1** | **Connector J2** | **Connector J3** |
| Pins | Resistance (Ohms) | Resistance (Ohms) | Resistance (Ohms) | Resistance (Ohms) | Resistance (Ohms) |
| E to F is Ohms | 0.212000 mOhms | 0.021200 mOhms | 0.000000 mOhms | 0.000000 mOhms | 0.000000 mOhms |
| F to G Ohms | 0.212000 mOhms | 0.021200 mOhms | 0.000000 mOhms | 0.000000 mOhms | 0.000000 mOhms |
| G to E | 0.212000 mOhms | 0.021200 mOhms | 0.000000 mOhms | 0.000000 mOhms | 0.000000 mOhms |
| A to L | 6.550000 mOhms | 0.440000 mOhms | 0.000000 mOhms | 0.000000 mOhms | 0.000000 mOhms |
| G,F,E,A,L tied together to chassis grounds. Apply 500VDC | 5000000.000000 mOhms | 0.000000 mOhms | 0.000000 mOhms | 0.000000 mOhms | 0.000000 mOhms |

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
|  | **Expected** | **Tolerance** | **Connector J1** | **Connector J2** | **Connector J3** |
|  |  |  | Inductance(mH) | Inductance(mH) | Inductance(mH) |
| E to F | 0.155000 mOhms | 0.023250 mOhms | 0.000000 mH | 0.000000 mH | 0.000000 mH |
| F to | 0.155000 mOhms | 0.023250 mOhms | 0.000000 mH | 0.000000 mH | 0.000000 mH |
| G to E | 0.155000 mOhms | 0.023250 mOhms | 0.000000 mH | 0.000000 mH | 0.000000 mH |
| A to L | 22.000000 mOhms | 3.300000 mOhms | 0.000000 mH | 0.000000 mH | 0.000000 mH |

6.5 **Power ON UUT Checks**

Confirm all sensors are reporting nominal values and no faults reported

|  |  |  |
| --- | --- | --- |
| Sensor | Value | Pass/Fail |
| Motor 1 | 0 | Pass |
| Motor 2 | 0 | Pass |
| Motor 3 | 0 | Pass |
| M1 | -207 | Failed |
| M2 | -288 | Failed |
| M3 | -383 | Failed |
| Faults 1 | 0 | Failed |
| Faults 2 | 0 | Failed |
| Faults 3 | 0 | Failed |

**6.6 Configure ETC???**

1. Set up list of parameters to record as follows: TBD
2. Initiate control configuration
3. Record test software version

6.7 **Functional Check Out**

6.7.1 **MCE1, MCE 2, MCE3 Power Up**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Description | Ballnut position | Actual Amps | Pass/Fail | |
| MCE 1 reports values for Ballnut position and motor current | 0 | Unhandled Type: Void | Position | Current |
| Pass | Unhandled Type: Void |
| (Simulated) FCC/reports values for M1(QPS) | -207 | Unhandled Type: Void | Failed | Unhandled Type: Void |
| MCE 2 reports values for Ballnut position and motor current | 0 | Unhandled Type: Void | Pass | Unhandled Type: Void |
| (Simulated) FCC/reports values for M2(QPS) | -288 | Unhandled Type: Void | Failed | Unhandled Type: Void |
| MCE 3 reports values for Ballnut position and motor current | 0.0021 | Unhandled Type: Void | Pass | Unhandled Type: Void |
| (Simulated) FCC/reports values for M3(QPS) | -383 | Unhandled Type: Void | Failed | Unhandled Type: Void |

6.7.2 **N1 and N2 Extend Mechanical Stops and MCE Rigging**

**Step 6.7.2.1** **Extend using M1/N1**

|  |  |  |
| --- | --- | --- |
| Description | Value | Pass/Fail |
| N1 extend stop engaged (M1 current saturated) | 0 | Failed |
| MCE 1 Motor Current 5 +/- 0.3 AMPS | 6.0113 Amps | Failed |
| N1 velocity linear and constant within 0.2 ± TBD ins/sec | Unhandled Type: Void | Unhandled Type: Void |
| Delta between Motor 1 and M1 is < TBD ins | Unhandled Type: Void | Unhandled Type: Void |
| Motor 1 and M1 are smooth throughout the stroke | Unhandled Type: Void | Unhandled Type: Void |
| N1 retracted 1.976 ins from extend stop |  |  |
| N1 is Rigged |  |  |

**Step 6.7.2.2** **Extend using M2/N2**

|  |  |  |
| --- | --- | --- |
| Description | Value | Pass/Fail |
| N2 extend stop engaged (M2 current saturated) | 0 | Failed |
| MCE2 Motor Current | 6.0113 Amps | Failed |
| N2 velocity linear and constant within 0.2 ± TBD ins/sec | Unhandled Type: Void | Unhandled Type: Void |
| Delta between Motor 2 and M2 is < TBD ins | Unhandled Type: Void | Unhandled Type: Void |
| Motor 2 and M2 are smooth throughout the stroke | Unhandled Type: Void | Unhandled Type: Void |
| N1 retracted 1.976 ins from extend stop |  |  |
| N1 is Rigged |  |  |

**Step 6.7.2.2(/1).1** **N1 and N2 Rigging**

|  |  |  |  |
| --- | --- | --- | --- |
| **Description** | **MCE1** | **MCE2** | **MCE3** |
| Desired State a | <COMMAND> | <COMMAND> | <COMMAND> |
| Actual State a | 2 | 42 | 0 |
| State a Pass/Fail | Failed | Failed | Failed |
| Fault a | 1024 | 1024 | 1024 |
| Fault a Pass/Fail | Pass | Pass | Pass |
| Desired State a | <COMMAND> | <COMMAND> | <COMMAND> |
| Actual State b | 42 | 2 | 40 |
| State b Pass/Fail | Failed | Pass | Failed |
| Fault b | 1024 | 0 | 1024 |
| Fault b Pass/Fail | Pass | Pass | Pass |
| Desired State c | <COMMAND> |  | <COMMAND> |
| Actual State c | 2 | 0 |
| State c Pass/Fail | Failed | Pass |
| Fault c | 0 | 0 |
| Fault c Pass/Fail | Pass | Pass |

6.7.3 **N1 and N2 Stroke Check**

|  |  |  |
| --- | --- | --- |
| Description | Actual Value | Pass/Fail |
| N1 and N2 at Null |  |  |
| Pin to pin Length is 16.732 +/- TBD (ins) |  |  |
| N1 at +1.725 ins from Null N2 at -0.575 ins from Null (using M1 and M2 motor) |  |  |
| N1 at -0.575 ins from Null N2 at +1.725 ins from Null (using M1 and M2 motor) |  |  |
| N2 at -0.575 ins from Null (using M2 Motor) |  |  |
| N2 at +1.725 ins from Null (using M3 Motor) |  |  |
| N2 at -0.575 ins from Null (using M3 Motor) |  |  |

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Description | Expected | Tolerance | Motor 1 | Motor 2 | Motor 3 |
| Constant Velocity |  |  |  |  |  |
| Delta between Motor Position and M position is less than +/- TDB |  |  |  |  |  |
| Standard Deviation |  |  |  |  |  |

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Description | Expected Difference from Test rig encoder | Tolerance | Difference from Test rig encoder | Pass/Fail |
| Motor1 position + Motor 2 position = test rig encoder |  |  | Unhandled Type: Void | Unhandled Type: Void |
| Motor1 position + Motor 3 position = test rig encoder |  |  | Unhandled Type: Void | Unhandled Type: Void |
| M1 position + M2 position = test rig encoder |  |  | Unhandled Type: Void | Unhandled Type: Void |
| M1 position + M3 position = test rig encoder |  |  | Unhandled Type: Void | Unhandled Type: Void |
| Difference between Motor 2 position and Motor 3 position is < TBD ins |  |  | Unhandled Type: Void | <RESULTS> |
| Difference between M2 position and M3 position is < TBD ins |  |  | Unhandled Type: Void | Unhandled Type: Void |
| Difference between Motor 1 position and M1 position is < TBD ins |  |  | Unhandled Type: Void | Unhandled Type: Void |
| Difference between Motor 2 position and M2 position is < TBD ins |  |  | Unhandled Type: Void | Unhandled Type: Void |
| Difference between Motor 3 position and M3 position is < TBD ins |  |  | Unhandled Type: Void | Unhandled Type: Void |

**6.7.4 Brake Release Test**

**Step d –** LEMA reaches commanded position

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Description | Expected | Tolerance | Position | Pass/Fail |
| MCE1 /Motor 1 +/- TDB inches |  |  | <RESULTS> | <RESULTS> |
| MCE2 /Motor 2 |  |  | <RESULTS> | <RESULTS> |

**6.7.5 Performance Test – unloaded operation (one channel operation)**

**6.7.5.1.1 MCE 1 - Step Response Test**

**The result for motor one is shown below:**

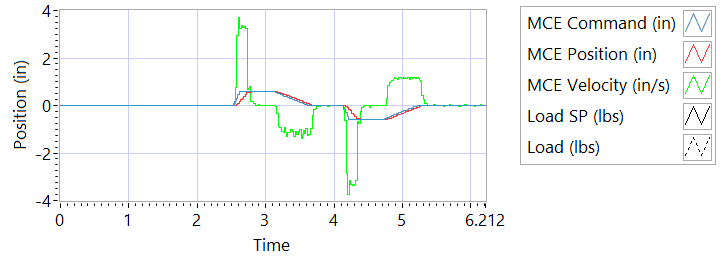
****

Figure - Results for Motor One

**Step d Extension**

|  |  |  |
| --- | --- | --- |
| Description | Actual Speed / Time | Pass/Fail |
| No Load speed is 2.7 to 3.3 in/sec | 3.0142 | True |
| Time to achieve 80% of the specified stroke (+ 0.575 ins) is 170+9/-9 ms seconds | 184 | Unhandled Type: Void |

**Step e Retraction**

|  |  |  |
| --- | --- | --- |
| Description | Actual Speed / Time | Pass/Fail |
| No Load speed is 2.7 to 3.3 in/sec | -0.0033 | Failed |
| Time to achieve 80% of the specified stroke (- 0.575 ins) is 170+9/-9 ms seconds | 687 | Failed |

**6.7.5.1.2 MCE 1 - Frequency Response**

**Step d**

|  |  |  |  |
| --- | --- | --- | --- |
| **Frequency** | **Phase** | **Max phase** | **Pass/Fail** |
| 0.10 HZ | 175.535828 | -5.000000 | True |
| 0.50 HZ | -174.373688 | -10.000000 | Failed |
| 1.00 HZ | 128.099030 | -20.000000 | True |
| 2.00 HZ | 3.570906 | -30.000000 | True |
| 3.00 HZ | 72.144875 | -50.000000 | True |
| 4.00 HZ | -134.515549 | -60.000000 | Failed |
| 5.00 HZ | -62.116253 | -70.000000 | True |

6.7.5.2.1 **MCE 2 - Step Response Test**

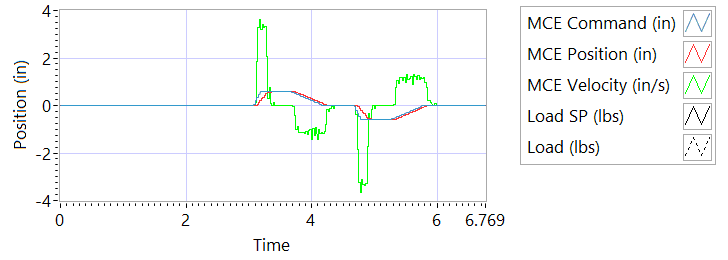
****

Figure - Results for Motor Two

**Step d Extension**

|  |  |  |
| --- | --- | --- |
| Description | Actual Speed / Time | Pass/Fail |
| No Load speed is 2.7 to 3.3 in/sec | 3.1648 | True |
| Time to achieve 80% of the specified stroke (+ 0.575 ins) is 170+9/-9 ms seconds | 188 | Failed |

**Step e Retraction**

|  |  |  |
| --- | --- | --- |
| Description | Actual Speed / Time | Pass/Fail |
| No Load speed is 2.7 to 3.3 in/sec | -0.0064 | Failed |
| Time to achieve 80% of the specified stroke (- 0.575 ins) is 170+9/-9 ms seconds | 719 | Failed |

6.7.5.2.2 **MCE 2 - Frequency Response Test**

**Step d**

|  |  |  |  |
| --- | --- | --- | --- |
| **Frequency** | **Phase** | **Max phase** | **Pass/Fail** |
| 0.10 HZ | 178.528580 | -5.000000 | True |
| 0.50 HZ | -171.522568 | -10.000000 | Failed |
| 1.00 HZ | 136.890244 | -20.000000 | True |
| 2.00 HZ | 34.341824 | -30.000000 | True |
| 3.00 HZ | 96.072464 | -50.000000 | True |
| 4.00 HZ | -105.610512 | -60.000000 | Failed |
| 5.00 HZ | -53.698219 | -70.000000 | True |

6.7.5.3.1 **MCE 3 – Step Response Test**

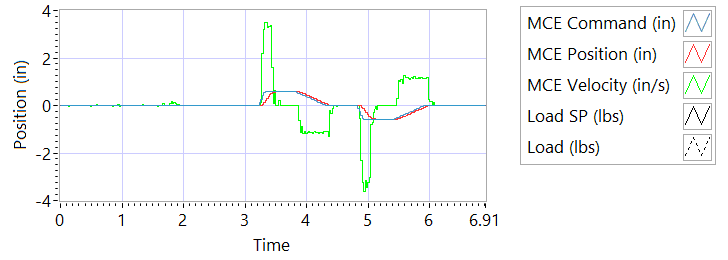
****

Figure - Results for Motor Three

**Step d Extension**

|  |  |  |
| --- | --- | --- |
| Description | Actual Speed / Time | Pass/Fail |
| No Load speed is 2.7 to 3.3 in/sec | 3.2313 | True |
| Time to achieve 80% of the specified stroke (+ 0.575 ins) is 170+9/-9 ms seconds | 188 | Failed |

**Step e Retraction**

|  |  |  |
| --- | --- | --- |
| Description | Actual Speed / Time | Pass/Fail |
| No Load speed is 2.7 to 3.3 in/sec | -0.0082 | Failed |
| Time to achieve 80% of the specified stroke (+ 0.575 ins) is 170+9/-9 ms seconds | 725 | RESULTS |

6.7.5.3.2 **MCE 3 Frequency Response Test**

**Step d**

|  |  |  |  |
| --- | --- | --- | --- |
| **Frequency** | **Phase** | **Max phase** | **Pass/Fail** |
| 0.10 HZ | 178.290298 | -5.000000 | True |
| 0.50 HZ | -171.547424 | -10.000000 | Failed |
| 1.00 HZ | 136.338196 | -20.000000 | True |
| 2.00 HZ | 15.445012 | -30.000000 | True |
| 3.00 HZ | 112.064621 | -50.000000 | True |
| 4.00 HZ | -178.290848 | -60.000000 | Failed |
| 5.00 HZ | 157.312424 | -70.000000 | True |

6.7.6 **Performance Test – Loaded Operation**

6.7.6.1 **Step and Frequency Response Test - Loaded**

6.7.6.1.1 **MCE1 – Step Response Test**

**Step j – 225 lbf tension**

|  |  |  |
| --- | --- | --- |
| Description | Actual Speed | Pass/Fail |
| speed between 2.07 and 2.53 in/sec | SPEED | RESULTS |
| Time to achieve 80% of the specified stroke (+ 0.575 ins) is 170 +9/-9 ms | TIME | RESULTS |

**Step k – 225 lbf tension**

|  |  |  |
| --- | --- | --- |
| Description | Actual Speed | Pass/Fail |
| speed between 2.07 and 2.53 in/sec | SPEED | RESULTS |
| Time to achieve 80% of the specified stroke (- 0.575 ins) is 170 +9/-9 ms | TIME | RESULTS |

**Step n – 225 lbf compression**

|  |  |  |
| --- | --- | --- |
| Description | Actual Speed | Pass/Fail |
| speed between 2.07 and 2.53 in/sec | SPEED | RESULTS |
| Time to achieve 80% of the specified stroke (+ 0.575 ins) is 170 +9/-9 ms | TIME | RESULTS |

**Step o – 225 lbf compression**

|  |  |  |
| --- | --- | --- |
| Description | Actual Speed | Pass/Fail |
| speed between 2.07 and 2.53 in/sec | SPEED | RESULTS |
| Time to achieve 80% of the specified stroke (- 0.575 ins) is 170 +9/-9 ms | TIME | RESULTS |

6.7.6.1.2 **MCE 1 – Frequency Response Test**

**Step d – 225 lbf Tension**

|  |  |  |  |
| --- | --- | --- | --- |
| **Frequency** | **Phase** | **Max phase** | **Pass/Fail** |
| 0.1 Hz |  |  |  |
| 0.5 Hz |  |  |  |
| 1 Hz |  |  |  |
| 2 Hz |  |  |  |
| 3 Hz |  |  |  |
| 4 Hz |  |  |  |
| 5 Hz |  |  |  |

**Step h – 225 lbf Compression**

|  |  |  |  |
| --- | --- | --- | --- |
| **Frequency** | **Phase** | **Max phase** | **Pass/Fail** |
| 0.1 Hz |  |  |  |
| 0.5 Hz |  |  |  |
| 1 Hz |  |  |  |
| 2 Hz |  |  |  |
| 3 Hz |  |  |  |
| 4 Hz |  |  |  |
| 5 Hz |  |  |  |

6.7.6.1.3 **MCE 2 – Step Response Test**

**Step j – 225 lbf tension**

|  |  |  |
| --- | --- | --- |
| Description | Actual Speed | Pass/Fail |
| speed between 2.07 and 2.53 in/sec | SPEED | RESULTS |
| Time to achieve 80% of the specified stroke (+ 0.575 ins) is 170 +9/-9 ms | SPEED | RESULTS |

**Step k – 225 lbf tension**

|  |  |  |
| --- | --- | --- |
| Description | Actual Speed | Pass/Fail |
| speed between 2.07 and 2.53 in/sec | SPEED | RESULTS |
| Time to achieve 80% of the specified stroke (- 0.575 ins) is 170 +9/-9 ms | SPEED | RESULTS |

**Step n – 225 lbf compression**

|  |  |  |
| --- | --- | --- |
| Description | Actual Speed | Pass/Fail |
| speed between 2.07 and 2.53 in/sec | SPEED | RESULTS |
| Time to achieve 80% of the specified stroke (+ 0.575 ins) is 170 +9/-9 ms | TIME | RESULTS |

**Step o – 225 lbf compression**

|  |  |  |
| --- | --- | --- |
| Description | Actual Speed | Pass/Fail |
| speed between 2.07 and 2.53 in/sec | SPEED | RESULTS |
| Time to achieve 80% of the specified stroke (- 0.575 ins) is 170 +9/-9 ms | TIME | RESULTS |

6.7.6.1.4 **MCE 2 – Frequency response Test**

**Step d – 225 lbf Tension**

|  |  |  |  |
| --- | --- | --- | --- |
| **Frequency** | **Phase** | **Max phase** | **Pass/Fail** |
| 0.1 Hz |  |  |  |
| 0.5 Hz |  |  |  |
| 1 Hz |  |  |  |
| 2 Hz |  |  |  |
| 3 Hz |  |  |  |
| 4 Hz |  |  |  |
| 5 Hz |  |  |  |

**Step h – 225 lbf Compression**

|  |  |  |  |
| --- | --- | --- | --- |
| **Frequency** | **Phase** | **Max phase** | **Pass/Fail** |
| 0.1 Hz |  |  |  |
| 0.5 Hz |  |  |  |
| 1 Hz |  |  |  |
| 2 Hz |  |  |  |
| 3 Hz |  |  |  |
| 4 Hz |  |  |  |
| 5 Hz |  |  |  |

6.7.6.1.5 **MCE 3 – Step Response Test**

**Step j – 225 lbf tension**

|  |  |  |
| --- | --- | --- |
| Description | Actual Speed | Pass/Fail |
| speed between 2.07 and 2.53 in/sec | SPEED | RESULTS |
| Time to achieve 80% of the specified stroke (+ 0.575 ins) is 170 +9/-9 ms | SPEED | RESULTS |

**Step k – 225 lbf tension**

|  |  |  |
| --- | --- | --- |
| Description | Actual Speed | Pass/Fail |
| speed between 2.07 and 2.53 in/sec | SPEED | RESULTS |
| Time to achieve 80% of the specified stroke (- 0.575 ins) is 170 +9/-9 ms | SPEED | RESULTS |

**Step n – 225 lbf compression**

|  |  |  |
| --- | --- | --- |
| Description | Actual Speed | Pass/Fail |
| speed between 2.07 and 2.53 in/sec | SPEED | RESULTS |
| Time to achieve 80% of the specified stroke (+ 0.575 ins) is 170 +9/-9 ms | TIME | RESULTS |

**Step o – 225 lbf compression**

|  |  |  |
| --- | --- | --- |
| Description | Actual Speed | Pass/Fail |
| speed between 2.07 and 2.53 in/sec | SPEED | RESULTS |
| Time to achieve 80% of the specified stroke (- 0.575 ins) is 170 +9/-9 ms | TIME | RESULTS |

6.7.6.1.6 **MCE 3 – Frequency Response Test**

**Step d – 225 lbf Tension**

|  |  |  |  |
| --- | --- | --- | --- |
| **Frequency** | **Phase** | **Max phase** | **Pass/Fail** |
| 0.1 Hz |  |  |  |
| 0.5 Hz |  |  |  |
| 1 Hz |  |  |  |
| 2 Hz |  |  |  |
| 3 Hz |  |  |  |
| 4 Hz |  |  |  |
| 5 Hz |  |  |  |

**Step h – 225 lbf Compression**

|  |  |  |  |
| --- | --- | --- | --- |
| **Frequency** | **Phase** | **Max phase** | **Pass/Fail** |
| 0.1 Hz |  |  |  |
| 0.5 Hz |  |  |  |
| 1 Hz |  |  |  |
| 2 Hz |  |  |  |
| 3 Hz |  |  |  |
| 4 Hz |  |  |  |
| 5 Hz |  |  |  |

**6.7.7 Holding Load Test**

6.7.7.1 Brake OFF, LEMA Output Locked

|  |  |  |  |
| --- | --- | --- | --- |
| MCE | Output force, lbf | Output force, Pass/Fail | Position feedback signals (all sensors) Pass/Fail |
| MCE 1, 6.7.8.1.1 step i – extend 0.2 in | FORCE | RESULTS | RESULTS |
| MCE 1, 6.7.8.1.1 step k - retract 0.2 in | FORCE | RESULTS | RESULTS |
| MCE 2, m step i – extend 0.2 in | FORCE | RESULTS | RESULTS |
| MCE 2, m step k - retract 0.2 in | FORCE | RESULTS | RESULTS |
| MCE 3 m step i – extend 0.2 in | FORCE | RESULTS | RESULTS |
| MCE 3 m step k - retract 0.2 in | FORCE | RESULTS | RESULTS |

**6.7.7.2 Brake ON, LEMA Output Free**

|  |  |  |
| --- | --- | --- |
| MCE | 12.6 Amps for 3-5 sec | Position feedback signals (all sensors) |
| MCE 1, 6.7.8.2.1 step I – extend 0.2 in | RESULTS | RESULTS |
| MCE 1, 6.7.8.2.1 step k - retract 0.2 in | RESULTS | RESULTS |
| MCE 2, 6.7.8.2.2 6.7.8.2.3 step i – extend 0.2 in | RESULTS | RESULTS |
| MCE 2, m step k - retract 0.2 in | RESULTS | RESULTS |
| MCE 3 m step i– extend 0.2 in | RESULTS | RESULTS |
| MCE 3 m step k - retract 0.2 in | RESULTS | RESULTS |

**6.7.7.3 Brake Release test**

**Step d –** LEMA reaches commanded position

|  |  |
| --- | --- |
|  | Pass/Fail |
| MCE1 /Motor 1 | RESULTS |
| MCE2 /Motor 2 | RESULTS |

6.7.8 **Backlash**

6.7.8.1 **Simplex Brake 1 – ON; Duplex brake 2 – OFF**

|  |  |  |
| --- | --- | --- |
| Load (lbf) | Backlash (ins) | Pass/Fail |
| Step e +/- 100 lbf (motor 2 and motor 3 ZERO position) | INCHES | RESULTS |
| Step h, Total backlash | INCHES | RESULTS |
| Step f 322 lbf tension followed by 322 lbf compression | INCHES | RESULTS |
| All channels feedback signals (Motor 1, Motor 2, Motor 3, M1, M2 and M3 remain within allowable limits | INCHES | RESULTS |

6.7.8.2 **Simplex Brake 1 – OFF; Duplex Brake 2 – ON**

|  |  |  |
| --- | --- | --- |
| Load (lbf) | Backlash (ins) | Pass/Fail |
| Step e +/- 100 lbf (motor 1 holding ZERO position) | INCHES | RESULTS |
| Step h, Total backlash | INCHES | RESULTS |
| Step f, 322 lbf tension followed by 322 lbf compression | INCHES | RESULTS |
| All channels feedback signals (Motor 1, Motor 2, Motor 3, M1, M2 and M3 remain within allowable limits | INCHES | RESULTS |

6.7.8.3 **Both Brakes OFF**

|  |  |  |
| --- | --- | --- |
| Load (lbf) | Backlash (ins) | Pass/Fail |
| Step e +/- 100 lbf (both motors holding ZERO position) | INCHES | RESULTS |
| Step h, Total backlash | INCHES | RESULTS |
| Step f 322 lbf tension followed by 322 lbf compression | INCHES | RESULTS |
| All channels feedback signals (Motor 1, Motor 2, Motor 3, M1, M2 and M3 remain within allowable limits | INCHES | RESULTS |