RBSP EFW Spin Plane Boom Deployment Procedure

RBSP_EFW_SOC_100
Revision A
10 Aug 2012

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Date: 2012.09.11 15:04:18 -07'00'

Spacecraft (circle one) **A** **B**

Start Date: _____

End Date: _____

Record svn revision number _____

Record data location filename _____

Test Conductor: _____

Procedure Results Reviewed:

Systems Engineering: _____

Quality Assurance: _____

Revision History:

Revision	Author	Notes
A	Ludlam, Bonnell	Initial Flight Release. Reflective of EFW deploy proc discussions with Project GNC, Mission Ops, and EFW team, 8 Aug 2012; 15 Aug 2012.

1. Scope

This procedure is used to deploy the Spin Plane Boom Sensors 9Spheres and Fine Wires) on orbit.

2. Precautions

This procedure is run in close collaboration with the RBSP Guidance and Control Team at APL.

3. Equipment Required

Record a list of non calibrated equipment used e.g. laptop computer

Equipment	Serial Number
GSE Laptop	
Good Luck Talisman of Choice	

4. Set Up – NOTE: COMPLETE THIS STEP FOR EACH SECTION OF THE DEPLOY AS NEEDED.

4.1. ☐ Start EFW GSE Laptop computer

4.2. ☐ Start GSEOS.

4.3. ☐ Connect to the MOC.

4.4. ☐ Record activity in GSE log on GSE computer.

5. EFW Instrument Check – NOTE: COMPLETE THIS STEP FOR EACH SECTION OF THE DEPLOY AS NEEDED.

5.1. ☐ Record current from S/C Telemetry _____ (range 340-390mA)

5.2. ☐ Verify FSW running. Record version _____

5.3. ☐ Verify receipt of APID 0x267 and 0x263 HSK on GSE.

5.4. ☐ Verify receipt of APID 0x243 and 0x244 ESVY and VSVY on GSE.

5.5. ☐ Verify ESVY and VSVY Science data are nominal for deploy state and environment.

5.6. ☐ Verify SPB temperatures are within operational limits:

5.6.1. IEM.SEC_16.PANEL_2_TEMP: _____ (-25 C TO +55 C)

5.6.2. IEM.SEC_16.PANEL_4_TEMP: _____ (-25 C TO +55 C)

5.7. ☐ Verify all EFW HSK is within ranges – no yellow or red limits.

5.8. ☐ Verify instrument is configured in operational mode 1

5.9. ☐ Verify EMFISIS is configured to monitor E-field data during deploy operations and that Real Time TM table is 8.

6. SPB Door Opening

6.1. ☐ Request S/C power on SPB Pyro Safety Bus A (Primary).

6.1.1. ☐ Record current on supply _____ (expected 0 mA)

6.1.2. ☐ Record voltage on supply _____ (expected 22-34V)

6.2. **DOOR 1 OPENING**

6.2.1. ☐ Record S/C spin rate _____ (expected **7.0** RPM)

6.2.2. ☐ Obtain S/C approval to open SPB door 1.

6.2.3. ☐ Record date and time _____

6.2.4. ☐ Start script to open SPB door 1 : SPB_OPEN(boom=1)

6.2.5. ☐When the script prompts, check the HSK for ACTSELECT reads SPB1_DOOR and ACTTIME reads 0.5 seconds.

6.2.6. ☐ Fire actuator.

6.2.7. ☐ Record current on supply _____ (expected 1.3A – 1.4A).

6.2.8. ☐ Verify both lights on the HSK 0x267 packet show SPB 1 doors open (LED off)

6.2.9. ☐ Record S/C spin rate _____ (expected **7.0** RPM)

6.2.10. ☐ Note any change of state in EFW Survey V1 science data here:

_____

6.3. **DOOR 2 OPENING**

6.3.1. ☐ Record S/C spin rate _____ (expected **7.0** RPM)

6.3.2. ☐ Obtain S/C approval to open SPB door 2.

6.3.3. ☐ Record date and time _____

6.3.4. ☐ Start script to open SPB door 2 : SPB_OPEN(boom=2)

6.3.5. ☐When the script prompts, check the HSK for ACTSELECT reads SPB2_DOOR and ACTTIME reads 0.5 seconds.

6.3.6. ☐ Fire actuator.

6.3.7. ☐ Record current on supply _____ (expected 1.3A – 1.4A).

6.3.8. ☐ Verify both lights on the HSK 0x267 packet show SPB 2 doors open (LED off)

6.3.9. ☐ Record S/C spin rate _____ (expected **7.0** RPM)

6.3.10. ☐ Note any change of state in EFW Survey V2 science data here:

_____

6.3.11.

6.4. **DOOR 3 OPENING**

6.4.1. ☐ Record S/C spin rate _____ (expected **7.0** RPM)

6.4.2. ☐ Obtain S/C approval to open SPB door 3.

6.4.3. ☐ Record date and time _____

6.4.4. ☐ Start script to open SPB door 3 : SPB_OPEN(boom=3)

6.4.5. ☐When the script prompts, check the HSK for ACTSELECT reads SPB3_DOOR and ACTTIME reads 0.5 seconds.

6.4.6. ☐ Fire actuator.

6.4.7. ☐ Record current on supply _____ (expected 1.3A – 1.4A).

6.4.8. ☐ Verify both lights on the HSK 0x267 packet show SPB 3 doors open (LED off)

6.4.9. ☐ Record S/C spin rate _____ (expected **7.0** RPM)

6.4.10. ☐ Note any change of state in EFW Survey V3 science data here:

_____

6.5. **DOOR 4 OPENING**

6.5.1. ☐ Record S/C spin rate _____ (expected **7.0** RPM)

6.5.2. ☐ Obtain S/C approval to open SPB door 4.

6.5.3. ☐ Record date and time _____

6.5.4. ☐ Start script to open SPB door 4 : SPB_OPEN(boom=4)

6.5.5. ☐When the script prompts, check the HSK for ACTSELECT reads SPB4_DOOR and ACTTIME reads 0.5 seconds.

6.5.6. ☐ Fire actuator.

6.5.7. ☐ Record current on supply _____ (expected 1.3A – 1.4A).

6.5.8. ☐ Verify both lights on the HSK 0x267 packet show SPB 4 doors open (LED off)

6.5.9. ☐ Record S/C spin rate _____ (expected **7.0** RPM)

6.5.10. ☐ Note any change of state in EFW Survey V4 science data here:

_____

6.6. ☐ Request S/C power off SPB Pyro Safety Bus A (Primary).

6.6.1. ☐ Record current on supply _____ (expected 0mA)

6.6.2. ☐ Record voltage on supply _____ (expected 0V)

7. INITIAL DEPLOY OF SPB SPHERES TO 4.9 M RADIUS

7.1. ☐ Request S/C power on SPB Pyro Safety Bus A (Primary).

7.1.1. ☐ Record current on supply _____ (expected 0mA)

7.1.2. ☐ Record voltage on supply _____ (expected 22-34V)

7.2. **BOOM-1and BOOM-2 (EFW-X, SCI-U) DEPLOY**

7.2.1. ☐ Record date and time _____

7.2.2. ☐ Initial S/C spin rate _____ (expected **7.0** RPM)

7.2.3. ☐ Expected final S/C spin rate _____ (expected **6.92** RPM)

7.2.4. ☐ Expected total boom stroke (m, clicks) _____ (4.0 m, 84 clicks)

7.2.5. ☐ Expected total deploy time (s) _____ (606 s)

7.2.6. ☐ Obtain S/C approval to deploy SPB wire for 10 clicks.

7.2.7. ☐ Start script to deploy SPB X spheres 10 clicks :

SPB_DEPLOY_BOOM(boom= 'X', leng= 10)

7.2.8. ☐ When script prompts with the pop up window, check the command is to deploy the X Pair Both 10 clicks and start the deployment.

7.2.9. ☐ Record current on supply _____ (expected 275-325mA)

7.2.10. ☐ Verify in HSK APID 0x267 that DEPLIMIT =10, DLENA and DLENB are counting up and stop at 10.

7.2.11. ☐ Record S/C spin rate _____ (expected **7.0** RPM)

7.2.12. ☐ Obtain S/C approval to deploy SPB wire for 74 clicks.

7.2.13. ☐ Record date and time _____

7.2.14. ☐ Start script to deploy SPB X spheres 74 clicks :

SPB_DEPLOY_BOOM(boom= 'X', leng= 74)

7.2.15. ☐ When script prompts with the pop up window, check the command is to deploy the X Pair Both 74 clicks and start the deployment.

7.2.16. ☐ Record current on supply _____ (expected 275-325mA)

7.2.17. ☐ Verify in HSK APID 0x267 that DEPLIMIT =74, DLENA and DLENB are counting up and stop at 74.

7.2.18. ☐ Record S/C spin rate _____ (expected **6.92** RPM)

7.3. **BOOM-3 and BOOM-4 (EFW-Y, SCI-V) DEPLOY**

7.3.1. ☐ Record date and time _____

7.3.2. ☐ Initial S/C spin rate _____ (expected **6.92** RPM)

7.3.3. ☐ Expected final S/C spin rate _____ (expected **6.85** RPM)

7.3.4. ☐ Expected total boom stroke (m, clicks) _____ (4.0 m, 84 clicks)

7.3.5. ☐ Expected total deploy time (s) _____ (606 s)

7.3.6. ☐ Obtain S/C approval to deploy SPB wire for 10 clicks.

7.3.7. ☐ Start script to deploy SPB Y spheres 10 clicks :

SPB_DEPLOY_BOOM(boom= 'Y', leng= 10)

7.3.8. ☐ When script prompts with the pop up window, check the command is to deploy the Y Pair Both 10 clicks and start the deployment

7.3.9. ☐ Record current on supply _____ (expected 275-325mA)

7.3.10. ☐ Verify in HSK APID 0x267 that DEPLIMIT =10, DLENA and DLENB are counting up and stop at 10.

7.3.11. ☐ Record S/C spin rate _____ (expected **6.92** RPM)

7.3.12. ☐ Obtain S/C approval to deploy SPB wire for 74 clicks.

7.3.13. ☐ Record date and time _____

7.3.14. ☐ Start script to deploy SPB Y spheres 74 clicks :

SPB_DEPLOY_BOOM(boom= 'Y', leng= 74)

7.3.15. ☐ When script prompts with the pop up window, check the command is to deploy the Y Pair Both 74 clicks and start the deployment.

7.3.16. ☐ Record current on supply _____ (expected 275-325mA)

7.3.17. ☐ Verify in HSK APID 0x267 that DEPLIMIT =74, DLENA and DLENB are counting up and stop at 74.

7.3.18. ☐ Record S/C spin rate _____ (expected **6.85** RPM)

7.4. ☐ Request S/C power off SPB Pyro Safety Bus A (Primary).

7.4.1. ☐ Record current on supply _____ (expected 0mA)

7.4.2. ☐ Record voltage on supply _____ (expected 0V)

8. DEPLOY OF SPB SPHERES TO 7.9-M RADIUS

8.1. ☐ Request S/C power on SPB Primary Deployment Service.

8.1.1. ☐ Record current on supply _____ (expected 0mA)

8.1.2. ☐ Record voltage on supply _____ (expected 22-34V)

8.2. **BOOM-1 AND BOOM-2 (EFW-X, SCI-U) DEPLOY**

8.2.1. ☐ Record date and time _____

8.2.2. ☐ Initial S/C spin rate _____ (expected **6.85** RPM)

8.2.3. ☐ Expected final S/C spin rate _____ (expected **6.73** RPM)

8.2.4. ☐ Expected total boom stroke (m, clicks) _____ (3.0 m, 63 clicks)

8.2.5. ☐ Expected total deploy time (s) _____ (455 s)

8.2.6. ☐ Obtain S/C approval to deploy SPB wire for 63 clicks.

8.2.7. ☐ Start script to deploy SPB X spheres 63 clicks :

SPB_DEPLOY_BOOM(boom= 'X', leng= 63)

8.2.8. ☐ When script prompts with the pop up window, check the command is to deploy the X Pair Both 63 clicks and start the deployment.

8.2.9. ☐ Record current on supply _____ (expected 275-325mA)

8.2.10. ☐ Verify in HSK APID 0x267 that DEPLIMIT =63, DLENA and DLENB are counting up and stop at 63.

8.2.11. ☐ Record S/C spin rate _____ (expected **6.73** RPM)

8.3. **BOOM-3 AND BOOM-4 (EFW-Y, SCI-V) DEPLOY**

8.3.1. ☐ Record date and time _____

8.3.2. ☐ Initial S/C spin rate _____ (expected **6.73** RPM)

8.3.3. ☐ Expected final S/C spin rate _____ (expected **6.61** RPM)

8.3.4. ☐ Expected total boom stroke (m, clicks) _____ (3.0 m, 63 clicks)

8.3.5. ☐ Expected total deploy time (s) _____ (455 s)

8.3.6. ☐ Obtain S/C approval to deploy SPB wire for 63 clicks.

8.3.7. ☐ Start script to deploy SPB Y spheres 63 clicks :

SPB_DEPLOY_BOOM(boom= 'Y', leng= 63)

8.3.8. ☐ When script prompts with the pop up window, check the command is to deploy the Y Pair Both 63 clicks and start the deployment

8.3.9. ☐ Record current on supply _____ (expected 275-325mA)

8.3.10. ☐ Verify in HSK APID 0x267 that DEPLIMIT =63, DLENA and DLENB are counting up and stop at 63.

8.3.11. ☐ Record S/C spin rate _____ (expected **6.61** RPM)

8.4. ☐ Request S/C power off SPB Pyro Safety Bus A (Primary).

8.4.1. ☐ Record current on supply _____ (expected 0mA)

8.4.2. ☐ Record voltage on supply _____ (expected 0V)

NOTE: BETWEEN SECTIONS 8 AND 9, A SPIN-UP MANEUVER TO UNFURL THE SPB FINE WIRES WILL OCCUR, WITH THE RESULT THAT ALL THE SPB SPHERES WILL START SECTION 9 AT A RADIUS OF 10.9 M FROM OBSERVATORY Z AXIS AND THE OBSERVATORY SPIN RATE WILL BE 14.00 RPM.

9. DEPLOY OF SPB SPHERES TO 15.9-M RADIUS

9.1. ☐ Request S/C power on SPB Pyro Safety Bus A (Primary).

9.1.1. ☐ Record current on supply _____ (expected 0mA)

9.1.2. ☐ Record voltage on supply _____ (expected 22-34V)

9.2. **BOOM-1 AND BOOM-2 (EFW-X, SCI-U) DEPLOY**

9.2.1. ☐ Record date and time _____

9.2.2. ☐ Initial S/C spin rate _____ (expected **14.00** RPM)

9.2.3. ☐ Expected final S/C spin rate _____ (expected **13.24** RPM)

9.2.4. ☐ Expected total boom stroke (m, clicks) _____ (5.0 m, 105 clicks)

9.2.5. ☐ Expected total deploy time (s) _____ (758 s; 12:38)

9.2.6. ☐ Obtain S/C approval to deploy SPB wire for 105 clicks.

9.2.7. ☐ Start script to deploy SPB X spheres 105 clicks :

SPB_DEPLOY_BOOM(boom= 'X', leng= 105)

9.2.8. ☐ When script prompts with the pop up window, check the command is to deploy the X Pair Both 105 clicks and start the deployment.

9.2.9. ☐ Record current on supply _____ (expected 275-325mA)

9.2.10. ☐ Verify in HSK APID 0x267 that DEPLIMIT =105, DLENA and DLENB are counting up and stop at 105.

9.2.11. ☐ Record S/C spin rate _____ (expected **13.24** RPM)

9.3. **BOOM-3 AND BOOM-4 (EFW-Y, SCI-V) DEPLOY**

9.3.1. ☐ Record date and time _____

9.3.2. ☐ Initial S/C spin rate _____ (expected **13.24** RPM)

9.3.3. ☐ Expected final S/C spin rate _____ (expected **12.57** RPM)

9.3.4. ☐ Expected total boom stroke (m, clicks) _____ (5.0 m, 105 clicks)

9.3.5. ☐ Expected total deploy time (s) _____ (758 s; 12:38)

9.3.6. ☐ Obtain S/C approval to deploy SPB wire for 105 clicks.

9.3.7. ☐ Start script to deploy SPB Y spheres 105 clicks :

SPB_DEPLOY_BOOM(boom= 'Y', leng= 105)

9.3.8. ☐ When script prompts with the pop up window, check the command is to deploy the Y Pair Both 105 clicks and start the deployment

9.3.9. ☐ Record current on supply _____ (expected 275-325mA)

9.3.10. ☐ Verify in HSK APID 0x267 that DEPLIMIT =105, DLENA and DLENB are counting up and stop at 105.

9.3.11. ☐ Record S/C spin rate _____ (expected **12.57** RPM)

9.4. ☐ Request S/C power off SPB Pyro Safety Bus A (Primary).

9.4.1. ☐ Record current on supply _____ (expected 0mA)

9.4.2. ☐ Record voltage on supply _____ (expected 0V)

10. DEPLOY OF SPB SPHERES TO 20.9-M RADIUS

10.1. ☐ Request S/C power on SPB Pyro Safety Bus A (Primary).

10.1.1. ☐ Record current on supply _____ (expected 0mA)

10.1.2. ☐ Record voltage on supply _____ (expected 22-34V)

10.2. **BOOM-1 AND BOOM-2 (EFW-X, SCI-U) DEPLOY**

10.2.1. ☐ Record date and time _____

10.2.2. ☐ Initial S/C spin rate _____ (expected **12.57** RPM)

10.2.3. ☐ Expected final S/C spin rate _____ (expected **11.68** RPM)

10.2.4. ☐ Expected total boom stroke (m, clicks) _____ (5.0 m, 105 clicks)

10.2.5. ☐ Expected total deploy time (s) _____ (758 s; 12:38)

10.2.6. ☐ Obtain S/C approval to deploy SPB wire for 105 clicks.

10.2.7. ☐ Start script to deploy SPB X spheres 105 clicks :

SPB_DEPLOY_BOOM(boom= 'X', leng= 105)

10.2.8. ☐ When script prompts with the pop up window, check the command is to deploy the X Pair Both 105 clicks and start the deployment.

10.2.9. ☐ Record current on supply _____ (expected 275-325mA)

10.2.10. ☐ Verify in HSK APID 0x267 that DEPLIMIT =105, DLENA and DLENB are counting up and stop at 105.

10.2.11. ☐ Record S/C spin rate _____ (expected **11.68** RPM)

10.3. **BOOM-3 AND BOOM-4 (EFW-Y, SCI-V) DEPLOY**

10.3.1. ☐ Record date and time _____

10.3.2. ☐ Initial S/C spin rate _____ (expected **11.68** RPM)

10.3.3. ☐ Expected final S/C spin rate _____ (expected **10.91** RPM)

10.3.4. ☐ Expected total boom stroke (m, clicks) _____ (5.0 m, 105 clicks)

10.3.5. ☐ Expected total deploy time (s) _____ (758 s; 12:38)

10.3.6. ☐ Obtain S/C approval to deploy SPB wire for 105 clicks.

10.3.7. ☐ Start script to deploy SPB Y spheres 105 clicks :

SPB_DEPLOY_BOOM(boom= 'Y', leng= 105)

10.3.8. ☐ When script prompts with the pop up window, check the command is to deploy the Y Pair Both 105 clicks and start the deployment

10.3.9. ☐ Record current on supply _____ (expected 275-325mA)

10.3.10. ☐ Verify in HSK APID 0x267 that DEPLIMIT =105, DLENA and DLENB are counting up and stop at 105.

10.3.11. ☐ Record S/C spin rate _____ (expected **10.91** RPM)

10.4. ☐ Request S/C power off SPB Pyro Safety Bus A (Primary).

10.4.1. ☐ Record current on supply _____ (expected 0mA)

10.4.2. ☐ Record voltage on supply _____ (expected 0V)

11. DEPLOY OF SPB SPHERES TO 25.9-M RADIUS

11.1. ☐ Request S/C power on SPB Pyro Safety Bus A (Primary).

11.1.1. ☐ Record current on supply _____ (expected 0mA)

11.1.2. ☐ Record voltage on supply _____ (expected 22-34V)

11.2. **BOOM-1 AND BOOM-2 (EFW-X, SCI-U) DEPLOY**

11.2.1. ☐ Record date and time _____

11.2.2. ☐ Initial S/C spin rate _____ (expected **10.91** RPM)

11.2.3. ☐ Expected final S/C spin rate _____ (expected **10.01** RPM)

11.2.4. ☐ Expected total boom stroke (m, clicks) _____ (5.0 m, 105 clicks)

11.2.5. ☐ Expected total deploy time (s) _____ (758 s; 12:38)

11.2.6. ☐ Obtain S/C approval to deploy SPB wire for 105 clicks.

11.2.7. ☐ Start script to deploy SPB X spheres 105 clicks :

SPB_DEPLOY_BOOM(boom= 'X', leng= 105)

11.2.8. ☐ When script prompts with the pop up window, check the command is to deploy the X Pair Both 105 clicks and start the deployment.

11.2.9. ☐ Record current on supply _____ (expected 275-325mA)

11.2.10. ☐ Verify in HSK APID 0x267 that DEPLIMIT =105, DLENA and DLENB are counting up and stop at 105.

11.2.11. ☐ Record S/C spin rate _____ (expected **10.01** RPM)

11.3. **BOOM-3 AND BOOM-4 (EFW-Y, SCI-V) DEPLOY**

11.3.1. ☐ Record date and time _____

11.3.2. ☐ Initial S/C spin rate _____ (expected **10.01** RPM)

11.3.3. ☐ Expected final S/C spin rate _____ (expected **9.25** RPM)

11.3.4. ☐ Expected total boom stroke (m, clicks) _____ (5.0 m, 105 clicks)

11.3.5. ☐ Expected total deploy time (s) _____ (758 s; 12:38)

11.3.6. ☐ Obtain S/C approval to deploy SPB wire for 105 clicks.

11.3.7. ☐ Start script to deploy SPB Y spheres 105 clicks :

SPB_DEPLOY_BOOM(boom= 'Y', leng= 105)

11.3.8. ☐ When script prompts with the pop up window, check the command is to deploy the Y Pair Both 105 clicks and start the deployment

11.3.9. ☐ Record current on supply _____ (expected 275-325mA)

11.3.10. ☐ Verify in HSK APID 0x267 that DEPLIMIT =105, DLENA and DLENB are counting up and stop at 105.

11.3.11. ☐ Record S/C spin rate _____ (expected **9.25** RPM)

11.4. ☐ Request S/C power off SPB Pyro Safety Bus A (Primary).

11.4.1. ☐ Record current on supply _____ (expected 0mA)

11.4.2. ☐ Record voltage on supply _____ (expected 0V)

12. DEPLOY OF SPB SPHERES TO 30.9-M RADIUS

12.1. ☐ Request S/C power on SPB Pyro Safety Bus A (Primary).

12.1.1. ☐ Record current on supply _____ (expected 0mA)

12.1.2. ☐ Record voltage on supply _____ (expected 22-34V)

12.2. **BOOM-1 AND BOOM-2 (EFW-X, SCI-U) DEPLOY**

12.2.1. ☐ Record date and time _____

12.2.2. ☐ Initial S/C spin rate _____ (expected **9.25** RPM)

12.2.3. ☐ Expected final S/C spin rate _____ (expected **8.43** RPM)

12.2.4. ☐ Expected total boom stroke (m, clicks) _____ (5.0 m, 105 clicks)

12.2.5. ☐ Expected total deploy time (s) _____ (758 s; 12:38)

12.2.6. ☐ Obtain S/C approval to deploy SPB wire for 105 clicks.

12.2.7. ☐ Start script to deploy SPB X spheres 105 clicks :

SPB_DEPLOY_BOOM(boom= 'X', leng= 105)

12.2.8. ☐ When script prompts with the pop up window, check the command is to deploy the X Pair Both 105 clicks and start the deployment.

12.2.9. ☐ Record current on supply _____ (expected 275-325mA)

12.2.10. ☐ Verify in HSK APID 0x267 that DEPLIMIT =105, DLENA and DLENB are counting up and stop at 105.

12.2.11. ☐ Record S/C spin rate _____ (expected **8.43** RPM)

12.3. **BOOM-3 AND BOOM-4 (EFW-Y, SCI-V) DEPLOY**

12.3.1. ☐ Record date and time _____

12.3.2. ☐ Initial S/C spin rate _____ (expected **8.43** RPM)

12.3.3. ☐ Expected final S/C spin rate _____ (expected **7.74** RPM)

12.3.4. ☐ Expected total boom stroke (m, clicks) _____ (5.0 m, 105 clicks)

12.3.5. ☐ Expected total deploy time (s) _____ (758 s; 12:38)

12.3.6. ☐ Obtain S/C approval to deploy SPB wire for 105 clicks.

12.3.7. ☐ Start script to deploy SPB Y spheres 105 clicks :

SPB_DEPLOY_BOOM(boom= 'Y', leng= 105)

12.3.8. ☐ When script prompts with the pop up window, check the command is to deploy the Y Pair Both 105 clicks and start the deployment

12.3.9. ☐ Record current on supply _____ (expected 275-325mA)

12.3.10. ☐ Verify in HSK APID 0x267 that DEPLIMIT =105, DLENA and DLENB are counting up and stop at 105.

12.3.11. ☐ Record S/C spin rate _____ (expected **7.74** RPM)

12.4. ☐ Request S/C power off SPB Pyro Safety Bus A (Primary).

12.4.1. ☐ Record current on supply _____ (expected 0mA)

12.4.2. ☐ Record voltage on supply _____ (expected 0V)

NOTE: BETWEEN SECTIONS 12 AND 13, A SPIN-UP MANEUVER WILL OCCUR, WITH THE RESULT THAT THE OBSERVATORY WILL START SECTION 13 AT A SPIN RATE OF 11.06 RPM.

13. DEPLOY OF SPB SPHERES TO 35.9-M RADIUS

13.1. ☐ Request S/C power on SPB Pyro Safety Bus A (Primary).

13.1.1. ☐ Record current on supply _____ (expected 0mA)

13.1.2. ☐ Record voltage on supply _____ (expected 22-34V)

13.2. **BOOM-1 AND BOOM-2 (EFW-X, SCI-U) DEPLOY**

13.2.1. ☐ Record date and time _____

13.2.2. ☐ Initial S/C spin rate _____ (expected **11.06** RPM)

13.2.3. ☐ Expected final S/C spin rate _____ (expected **10.04** RPM)

13.2.4. ☐ Expected total boom stroke (m, clicks) _____ (5.0 m, 105 clicks)

13.2.5. ☐ Expected total deploy time (s) _____ (758 s; 12:38)

13.2.6. ☐ Obtain S/C approval to deploy SPB wire for 105 clicks.

13.2.7. ☐ Start script to deploy SPB X spheres 105 clicks :

SPB_DEPLOY_BOOM(boom= 'X', leng= 105)

13.2.8. ☐ When script prompts with the pop up window, check the command is to deploy the X Pair Both 105 clicks and start the deployment.

13.2.9. ☐ Record current on supply _____ (expected 275-325mA)

13.2.10. ☐ Verify in HSK APID 0x267 that DEPLIMIT =105, DLENA and DLENB are counting up and stop at 105.

13.2.11. ☐ Record S/C spin rate _____ (expected **10.04** RPM)

13.3. **BOOM-3 AND BOOM-4 (EFW-Y, SCI-V) DEPLOY**

13.3.1. ☐ Record date and time _____

13.3.2. ☐ Initial S/C spin rate _____ (expected **10.04** RPM)

13.3.3. ☐ Expected final S/C spin rate _____ (expected **9.19** RPM)

13.3.4. ☐ Expected total boom stroke (m, clicks) _____ (5.0 m, 105 clicks)

13.3.5. ☐ Expected total deploy time (s) _____ (758 s; 12:38)

13.3.6. ☐ Obtain S/C approval to deploy SPB wire for 105 clicks.

13.3.7. ☐ Start script to deploy SPB Y spheres 105 clicks :

SPB_DEPLOY_BOOM(boom= 'Y', leng= 105)

13.3.8. ☐ When script prompts with the pop up window, check the command is to deploy the Y Pair Both 105 clicks and start the deployment

13.3.9. ☐ Record current on supply _____ (expected 275-325mA)

13.3.10. ☐ Verify in HSK APID 0x267 that DEPLIMIT =105, DLENA and DLENB are counting up and stop at 105.

13.3.11. ☐ Record S/C spin rate _____ (expected **9.19** RPM)

13.4. ☐ Request S/C power off SPB Pyro Safety Bus A (Primary).

13.4.1. ☐ Record current on supply _____ (expected 0mA)

13.4.2. ☐ Record voltage on supply _____ (expected 0V)

14. DEPLOY OF SPB SPHERES TO 40.9-M RADIUS

14.1. ☐ Request S/C power on SPB Pyro Safety Bus A (Primary).

14.1.1. ☐ Record current on supply _____ (expected 0mA)

14.1.2. ☐ Record voltage on supply _____ (expected 22-34V)

14.2. BOOM-1 AND BOOM-2 (EFW-X, SCI-U) DEPLOY

14.2.1. ☐ Record date and time _____

14.2.2. ☐ Initial S/C spin rate _____ (expected **9.19** RPM)

14.2.3. ☐ Expected final S/C spin rate _____ (expected **8.34** RPM)

14.2.4. ☐ Expected total boom stroke (m, clicks) _____ (5.0 m, 105 clicks)

14.2.5. ☐ Expected total deploy time (s) _____ (758 s; 12:38)

14.2.6. ☐ Start script to deploy SPB X spheres 105 clicks :

SPB_DEPLOY_BOOM(boom= 'X', leng= 105)

14.2.7. ☐ When script prompts with the pop up window, check the command is to deploy the X Pair Both 105 clicks and start the deployment.

14.2.8. ☐ Record current on supply _____ (expected 275-325mA)

14.2.9. ☐ Verify in HSK APID 0x267 that DEPLIMIT =105, DLENA and DLENB are counting up and stop at 105.

14.2.10. ☐ Record S/C spin rate _____ (expected **8.34** RPM)

14.3. BOOM-3 AND BOOM-4 (EFW-Y, SCI-V) DEPLOY

14.3.1. ☐ Record date and time _____

14.3.2. ☐ Initial S/C spin rate _____ (expected **8.34** RPM)

14.3.3. ☐ Expected final S/C spin rate _____ (expected **7.64** RPM)

14.3.4. ☐ Expected total boom stroke (m, clicks) _____ (5.0 m, 105 clicks)

14.3.5. ☐ Expected total deploy time (s) _____ (758 s; 12:38)

14.3.6. ☐ Obtain S/C approval to deploy SPB wire for 105 clicks.

14.3.7. ☐ Start script to deploy SPB Y spheres 105 clicks :

SPB_DEPLOY_BOOM(boom= 'Y', leng= 105)

14.3.8. ☐ When script prompts with the pop up window, check the command is to deploy the Y Pair Both 105 clicks and start the deployment

14.3.9. ☐ Record current on supply _____ (expected 275-325mA)

14.3.10. ☐ Verify in HSK APID 0x267 that DEPLIMIT =105, DLENA and DLENB are counting up and stop at 105.

14.3.11. ☐ Record S/C spin rate _____ (expected **7.64** RPM)

14.4. ☐ Request S/C power off SPB Pyro Safety Bus A (Primary).

14.4.1. ☐ Record current on supply _____ (expected 0mA)

14.4.2. ☐ Record voltage on supply _____ (expected 0V)

15. DEPLOY OF SPB SPHERES TO 45.9-M RADIUS

15.1. ☐ Request S/C power on SPB Pyro Safety Bus A (Primary).

15.1.1. ☐ Record current on supply _____ (expected 0mA)

15.1.2. ☐ Record voltage on supply _____ (expected 22-34V)

15.2. **BOOM-1 AND BOOM-2 (EFW-X, SCI-U) DEPLOY**

15.2.1. ☐ Record date and time _____

15.2.2. ☐ Initial S/C spin rate _____ (expected **7.64** RPM)

15.2.3. ☐ Expected final S/C spin rate _____ (expected **6.94** RPM)

15.2.4. ☐ Expected total boom stroke (m, clicks) _____ (5.0 m, 105 clicks)

15.2.5. ☐ Expected total deploy time (s) _____ (758 s; 12:38)

15.2.6. ☐ Obtain S/C approval to deploy SPB wire for 105 clicks.

15.2.7. ☐ Start script to deploy SPB X spheres 105 clicks :

SPB_DEPLOY_BOOM(boom= 'X', leng= 105)

15.2.8. ☐ When script prompts with the pop up window, check the command is to deploy the X Pair Both 105 clicks and start the deployment.

15.2.9. ☐ Record current on supply _____ (expected 275-325mA)

15.2.10. ☐ Verify in HSK APID 0x267 that DEPLIMIT =105, DLENA and DLENB are counting up and stop at 105.

15.2.11. ☐ Record S/C spin rate _____ (expected **6.94** RPM)

15.3. ☐ Request S/C power off SPB Pyro Safety Bus A (Primary).

15.3.1. ☐ Record current on supply _____ (expected 0mA)

15.3.2. ☐ Record voltage on supply _____ (expected 0V)

15.4. **BOOM-3 AND BOOM-4 (EFW-Y, SCI-V) DEPLOY**

15.4.1. ☐ Record date and time _____

15.4.2. ☐ Initial S/C spin rate _____ (expected **6.94** RPM)

15.4.3. ☐ Expected final S/C spin rate _____ (expected **6.36** RPM)

15.4.4. ☐ Expected total boom stroke (m, clicks) _____ (5.0 m, 105 clicks)

15.4.5. ☐ Expected total deploy time (s) _____ (758 s; 12:38)

15.4.6. ☐ Obtain S/C approval to deploy SPB wire for 105 clicks.

15.4.7. ☐ Start script to deploy SPB Y spheres 105 clicks :

SPB_DEPLOY_BOOM(boom= 'Y', leng= 105)

15.4.8. ☐ When script prompts with the pop up window, check the command is to deploy the Y Pair Both 105 clicks and start the deployment

15.4.9. ☐ Record current on supply _____ (expected 275-325mA)

15.4.10. ☐ Verify in HSK APID 0x267 that DEPLIMIT =105, DLENA and DLENB are counting up and stop at 105.

15.4.11. ☐ Record S/C spin rate _____ (expected **6.36** RPM)

15.5. ☐ Request S/C power off SPB Pyro Safety Bus A (Primary).

15.5.1. ☐ Record current on supply _____ (expected 0mA)

15.5.2. ☐ Record voltage on supply _____ (expected 0V)

16. DEPLOY OF SPB SPHERES TO 50-M RADIUS

16.1. ☐ Request S/C power on SPB Pyro Safety Bus A (Primary).

16.1.1. ☐ Record current on supply _____ (expected 0mA)

16.1.2. ☐ Record voltage on supply _____ (expected 22-34V)

16.2. **BOOM-1 AND BOOM-2 (EFW-X, SCI-U) DEPLOY**

16.2.1. ☐ Record date and time _____

16.2.2. ☐ Initial S/C spin rate _____ (expected **6.36** RPM)

16.2.3. ☐ Expected final S/C spin rate _____ (expected **5.90** RPM)

16.2.4. ☐ Expected total boom stroke (m, clicks) _____ (4.1 m, 86 clicks)

16.2.5. ☐ Expected total deploy time (s) _____ (622 s; 10:22)

16.2.6. ☐ Obtain S/C approval to deploy SPB wire for 86 clicks.

16.2.7. ☐ Start script to deploy SPB X spheres 86 clicks :

SPB_DEPLOY_BOOM(boom= 'X', leng= 86)

16.2.8. ☐ When script prompts with the pop up window, check the command is to deploy the X Pair Both 86 clicks and start the deployment.

16.2.9. ☐ Record current on supply _____ (expected 275-325mA)

16.2.10. ☐ Verify in HSK APID 0x267 that DEPLIMIT =86, DLENA and DLENB are counting up and stop at 86.

16.2.11. ☐ Record S/C spin rate _____ (expected **5.90** RPM)

16.3. ☐ Request S/C power off SPB Pyro Safety Bus A (Primary).

16.3.1. ☐ Record current on supply _____ (expected 0mA)

16.3.2. ☐ Record voltage on supply _____ (expected 0V)

16.4. **BOOM-3 AND BOOM-4 (EFW-Y, SCI-V) DEPLOY**

16.4.1. ☐ Record date and time _____

16.4.2. ☐ Initial S/C spin rate _____ (expected **5.90** RPM)

16.4.3. ☐ Expected final S/C spin rate _____ (expected **5.50** RPM)

16.4.4. ☐ Expected total boom stroke (m, clicks) _____ (4.1 m, 86 clicks)

16.4.5. ☐ Expected total deploy time (s) _____ (622 s; 10:22)

16.4.6. ☐ Obtain S/C approval to deploy SPB wire for 86 clicks.

16.4.7. ☐ Start script to deploy SPB Y spheres 86 clicks :

SPB_DEPLOY_BOOM(boom= 'Y', leng= 86)

16.4.8. ☐ When script prompts with the pop up window, check the command is to deploy the Y Pair Both 86 clicks and start the deployment

16.4.9. ☐ Record current on supply _____ (expected 275-325mA)

16.4.10. ☐ Verify in HSK APID 0x267 that DEPLIMIT =86, DLENA and DLENB are counting up and stop at 86.

16.4.11. ☐ Record S/C spin rate _____ (expected **5.50** RPM)

16.5. ☐ Request S/C power off SPB Pyro Safety Bus A (Primary).

16.5.1. ☐ Record current on supply _____ (expected 0mA)

16.5.2. ☐ Record voltage on supply _____ (expected 0V)

Congratulations -- You have now successfully deployed both sets of EFW SPB booms.