

LDO Console Handbook

DM4/Ascent/Descent Dynamics Branch

January 12, 2004

Rev A, PCN1

Verify that this is the correct version before use.



National Aeronautics and
Space Administration

Lyndon B. Johnson Space Center
Houston, Texas

Johnson Space Center Work Instruction	LDO Console Handbook	
	DM-CH-02	Rev. A, PCN-1
	Date: 01/12/04	Page CH-1

Change Record

Rev.	Date	Originator/Phone	Description
Basic	1/13/98	DM44/Barbara Conte 483-1961	Initial Release
Rev A	04/14/00	DM44/Barbara Conte 483-1961	format revision
Rev A PCN-1	01/12/04	DM44/Barbara Conte 483-1961	Update references; use of LRFE; L-3 day PMBT update; add LDO Console Notes appendix

Johnson Space Center Work Instruction	LDO Console Handbook	
	DM-CH-02	Rev. A, PCN-1
	Date: 01/12/04	Page CH-2

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Johnson Space Center Work Instruction	LDO Console Handbook	
	DM-CH-02	Rev. A, PCN-1
	Date: 01/12/04	Page i

LDO Console Handbook

January 12, 2004

Process Owner

Approved by

DM4/Chief, Ascent/Descent Dynamics Branch

Johnson Space Center Work Instruction	LDO Console Handbook	
	DM-CH-02	Rev. A, PCN-1
	Date: 01/12/04	Page ii

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Johnson Space Center Work Instruction	LDO Console Handbook	
	DM-CH-02	Rev. A, PCN-1
	Date: 01/12/04	Page iii

Table of Contents

1.INTRODUCTION.....	1
2.REFERENCES.....	1
3.PERSONNEL TRAINING AND CERTIFICATION.....	1
4.RESPONSIBILITIES.....	1
5.PROCEDURE.....	1
6.APPENDIX A – IPS DIRECTORY INFORMATION.....	1
7. APPENDIX B – LDO CONSOLE NOTES.....	1

Johnson Space Center Work Instruction	LDO Console Handbook	
	DM-CH-02	Rev. A, PCN-1
	Date: 01/12/04	Page iv

This page intentionally left blank

Johnson Space Center Work Instruction	LDO Console Handbook	
	DM-CH-02	Rev. A, PCN-1
	Date: 01/12/04	Page 1

1.INTRODUCTION

This document defines the Loads and DOLILU Officer (LDO) duties and procedures. Section 5 contains the checklists which provide a quick reference for all necessary information pertaining to the various procedures and steps that must be performed for safe flight operations by the LDO.

Johnson Space Center Work Instruction	LDO Console Handbook	
	DM-CH-02	Rev. A, PCN-1
	Date: 01/12/04	Page 2

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Johnson Space Center Work Instruction	LDO Console Handbook	
	DM-CH-02	Rev. A, PCN-1
	Date: 01/12/04	Page 1

2.REFERENCES

The current versions of the following documents shall be used as reference for this handbook.

- USA005303 Ascent Descent Flight Design Configuration Management Plan
- NSTS 08329 Vol. VIII -- DOLILU Operational Support Plan
- USA003377 Integrated Planning System Day-Of-Launch I-Load Update Multi-Purpose Support Room Configuration Management Plan
- JSC11534 JSC/MCC/FADS-BNS and CCAFS Operational Communications DOLILU ICD for Mission Control Center Systems

Johnson Space Center Work Instruction	LDO Console Handbook	
	DM-CH-02	Rev. A, PCN-1
	Date: 01/12/04	Page 2

This page intentionally left blank

Johnson Space Center Work Instruction	LDO Console Handbook	
	DM-CH-02	Rev. A, PCN-1
	Date: 01/12/04	Page 1

3.PERSONNEL TRAINING AND CERTIFICATION

The DM Certification and Training Requirements document for the Loads and DOLILU Officer shall be used as the training and certification guideline for this position.

Johnson Space Center Work Instruction	LDO Console Handbook	
	DM-CH-02	Rev. A, PCN-1
	Date: 01/12/04	Page 2

This page intentionally left blank

Johnson Space Center Work Instruction	LDO Console Handbook	
	DM-CH-02	Rev. A, PCN-1
	Date: 01/12/04	Page 1

4.RESPONSIBILITIES

The Loads and DOLILU Officer (LDO) performs the bulk of the tasks formerly performed by the Launch Systems Evaluation and Advisory Team (LSEAT). Individuals providing support in this capacity shall be trained and certified by the Flight Design and Dynamics Division of MOD.

1. Coordinate balloon release requirements with SMG.
2. Verify readiness of wind measurement system, JSC Ascent Support Team, MSFC Environments Team, and DOLILU IV&V Team.
3. Ensure consistent processing configurations per L-8 day TDDP plus PCN's as appropriate at all support locations.
4. Monitor launch countdown activities for LDO schedule impacts.
5. Maintain status of all LDO supporting operations.
6. Monitor execution of trajectory simulations and system assessments.
7. Resolve Loads and or DOLILU processing problems, as required.
8. Monitor operations and adjust projected LOADS / DOLILU decision time, as required.
9. Verify that the generation of DOLILU I-Loads is consistent with certification groundrules and the launch day environment.
10. Verify correctness of the overall Loads and DOLILU assessment, including accuracy of load indicator and q-plane assessments, DOLILU QA rule assessment, and DOLILU IV&V assessment.
11. Evaluate inputs from MSFC environments, JSC LOADS / DOLILU assessment and USA Systems Integration (BNA IV&V assessment) using LSEAT Decision Process documented in section 6 of the LSEAT ISP to determine GO / NO GO recommendation.
12. Keep FDO and GPO informed of processing status.
13. Monitor DOLILU uplink status.
14. Inform FDO & GPO of LOADS / DOLILU processing GO/NO GO recommendation.
15. Work through MOD position to communicate processing status to the MMT, on an as needed basis.
16. Direct additional wind data measurements and processing, as required.
17. Direct implementation of contingency procedures, as required.
18. Recommend suspension of DOLILU operations, if anomalous conditions impact acceptability of the DOLILU generation and/or evaluation.

Johnson Space Center Work Instruction	LDO Console Handbook	
	DM-CH-02	Rev. A, PCN-1
	Date: 01/12/04	Page 2

19. Document operational problems using the Mission Information System Anomaly reporting process and publish a post flight DOLILU operations summary.

Johnson Space Center Work Instruction	LDO Console Handbook	
	DM-CH-02	Rev. A, PCN-1
	Date: 01/12/04	Page 1

5.PROCEDURE

Prior to System Checkout

- Identify and review all applicable PRCBD's ≈L - 4 weeks
- Schedule balloon requirements with SMG
- Attend DOSS Working Group meetings as required
- Determine requirement for TCDT participation
- Give inputs for FRR pitch to lead FDO for MOD FRR
- Inspect mission build for ≈L - 3 weeks
- Review L-3 week system checkout results
- Advise FDO/GPO of any significant deviations or updates found in the L-3 wk checkout ≈L - 1 week
- Review applicable PRCBD's, SR's & CO's
- Check status of OMS Assist dump change & ramp dump redesign for uplink
- Coordinate L-2 Day System Checkout with Ascent Support & FCR team
- Verify balloon schedule with SMG
- Create and distribute LDO timeline and MMT timeline
- Review L-8 day TDDP plus PCN's as appropriate (PMBT, weight changes, etc.)
- Check delivery status of Asct99 I-load uplink product ≈L - 3 day
- Set up LDO Summary Package
- Verify KSC LCC fax and voice numbers
- Assemble required Console Documentation
 - console handbook
 - L-8 day TDDP
 - DOLILU II QA rules (NSTS 08329 vol VI)
 - applicable Orbiter q-plane plots (Orbiter SODB Vol. VII)
 - ET Zero Margin Squatcheloids
 - wind persistence and systems dispersion knockdown plots
 - DOLILU Operational Support Plan (NSTS 08329 vol VIII)

Johnson Space Center Work Instruction	LDO Console Handbook	
	DM-CH-02	Rev. A, PCN-1
	Date: 01/12/04	Page 2

System Checkout

~L-2 days	<p><u>Console Initialization</u> Activate DVIS Panel Enter position and sign-on <Enter> Select appropriate page Verify loops on DVIS panel (TLM for all): DOLILU Coord, FD2, Landing Field Prime 2, MPSR Dyn A, MPSR Dyn B, Staff Eng, SSPO, LSEAT Coord, AFD Conf 1</p>
	<p><u>Workstation Configuration:</u> Verify prime IPS fileserver _____ Enter userid and password Select Activity - STS-xx MIS _____ Open XTERM windows Remote login to IPS rlogin (<i>ipsID</i>) -l (<i>userid</i>); <i>ipsID</i>= mpsr4 mps3 mps4_0x; x=1-3 Display output to WS disp <i>WS</i>; <i>WS</i> = ips-mps16 Setup in LDO and L- dir (<i>alias</i> \$FLT3, \$FLT4)</p>
	<p><u>Verify Console Documentation</u> console handbook L-8 day TDDP DOLILU II QA rules (NSTS 08329 vol VI) applicable Orbiter q-plane plots (Orbiter SODB Vol. VII) ET Zero Margin Squatcheloids wind persistence and systems dispersion knockdown plots DOSP</p>

Johnson Space Center Work Instruction	LDO Console Handbook	
	DM-CH-02	Rev. A, PCN-1
	Date: 01/12/04	Page 3

Review L-2 day results

- √ facility status and note any concerns or issues
- √ data transfer line checkout results
- √ wind forecast
- √ MSFC environment group wind measurement process summary and predictions (205 544-9184)
- √ LOADS package (2 hr persistence)
 - √ in-plane & out-of-plane wind plots and note extreme wind features wrt 95%, 99% boundaries
 - √ Mach plots (q, q- α , q- β , α , β)
 - √ min dispersed q margin, max undispersed q
 - √ wind profile and mean wind trajectory plots for reasonableness
 - √ ascent loads summary (Max +/- %) for anomalous conditions
 - √ peak values on indicator, squatchaloid plots
 - √ peak values on ORBABQ plots & summary
 - α , β vector, q disp., peak q%, peak α - β
 - √ margins performance prediction (verify σ lvl.) (check hold time for reasonableness)
 - √ I-load summary
- √ DIVDT/DIVPLT package
 - √ traj. signature w.r.t. wind profile
 - throt. up/down: HW→___/; TW→_/
 - DQ logic: HW→+ Δ q; TW→- Δ q
 - final SAR pitch & yaw for reasonableness
 - √ throt. bucket: hi q = 72%, lo q = 67%
 - √ T_REF_AD \approx 17 sec
 - √ no unexpected min. throt. logic activation
 - √ possible SAR q β steering (inc. > 39° ONLY and q β after SAR greater than 500 psf)
 - looks like two step SAR - yaw then pitch - {PSI(1) thru PSI(5) are equal and THETT(2) \neq THETT(3)}
 - √ staging and MECO conditions for reasonableness (compare to mean wind trajectory)
 - √ DIVDT limits for exceedences
 - √ DIVDT plots for reasonableness (wrt wind and the mean wind traj plots)
- √ BNA IV&V compare
 - C: USA SI(DOLILU COORD)

Coordinate any issues or actions with FCR/MPSR team

- Prepare MMT Summary Report of any anomalous condition
- Notify DOLILU Ops status to MOD, Asc. FD (email)

Johnson Space Center Work Instruction	LDO Console Handbook	
	DM-CH-02	Rev. A, PCN-1
	Date: 01/12/04	Page 4

ARD Confidence Run

	~L- 1 day	<u>Verify DOLILU Transfer Test Results with GPO</u>
		<u>Verify Facility Status with IPS</u>

Johnson Space Center Work Instruction	LDO Console Handbook	
	DM-CH-02	Rev. A, PCN-1
	Date: 01/12/04	Page 5

DOL Checklist

L- 6:30	<p><u>Console Initialization</u> Activate DVIS Panel Enter position and sign-on <Enter> Select appropriate page Verify loops on DVIS panel (TLM for all): DOLILU Coord, FD2, Landing Field Prime 2, MPSR Dyn A, MPSR Dyn B, Staff Eng, SSPO, LSEAT Coord, AFD Conf 1</p> <p>Workstation Configuration: Verify prime IPS fileserver _____ Enter userid and password Select Activity - STS-xx MIS _____ Open XTERM windows Remote login to IPS rlogin (ipsID) -l (userid); ipsID= mpsr4 mpsr3 mpsr4_0x; x=1-3 Display output to WS disp WS; WS = ips-mpsr16 Setup in LDO and L- dir (alias \$FLT3, \$FLT4)</p> <p><u>Verify Console Documentation</u> console handbook L-8 day TDDP DOLILU II QA rules (NSTS 08329 vol VI) applicable Orbiter q-plane plots (Orbiter SODB Vol. VII) ET Zero Margin Squatcheloids wind persistence and systems dispersion knockdown plots DOSP</p>
L- 6:15	<p><u>L-06:15HR Jimsphere (JIM1) Release</u> <i>Note release time</i> _____</p>
L- 6:00	<p><i>Upper winds forecast from SMG</i></p>
L- 5:10	<p><u>L-06:15HR Jimsphere (JIM1) Termination</u> <i>Note termination time/alt.</i> _____ <i>Note any data interpolations</i> _____ _____</p>
L- 4:55	<p><u>Monitor DOLILU COORD for QA Completion & I-Load Xfer to BNA</u></p> <ul style="list-style-type: none"> <input type="checkbox"/> DADS complete <input type="checkbox"/> ascent support preliminary QA <input type="checkbox"/> JSC processing complete <input type="checkbox"/> BNA DOLILU transfer complete _____ <input type="checkbox"/> abort support final QA _____

Johnson Space Center Work Instruction	LDO Console Handbook	
	DM-CH-02	Rev. A, PCN-1
	Date: 01/12/04	Page 6

L- 4:45	<p><u>MSFC Wx Brief</u></p> <p><u>Wind Persistence</u> Hr. Change: _____ I-P component _____ O-O-P component _____</p> <p><u>Envelope Exceedence</u> I-P component Alt. _____ O-O-P component Alt. _____</p> <p><u>Max. Shear</u> Alt. _____ ft Mag. _____ fps Interval Ht. _____ ft % of design _____ %</p> <p><u>Wind Profile</u> Max. I-P comp. _____ fps @ Alt. _____ Max O-O-P comp. _____ fps @ Alt. _____ Max speed. _____ fps @ Alt. _____ Direction _____ deg.</p> <p>Discussion:</p>
L- 4:35	<p><u>Monitor DOLILU COORD for Processing Completion & Data Xfer to BNA</u></p> <p><input type="checkbox"/> <i>JSC <> BNA data transfer complete</i></p> <p><input type="checkbox"/> <i>Preferred launch time from FDO (rendezvous flights)</i></p>

Johnson Space Center Work Instruction	LDO Console Handbook	
	DM-CH-02	Rev. A, PCN-1
	Date: 01/12/04	Page 7

L- 4:30

L-04:30HR Jimsphere (JIM2)Release

Note release time _____

L-06:15HR Loads and DOLILU Review

Confirm correct L- directory

Print LDO QA data

⇒ Access: . winds

√ LOADS data (2 hr persistence)

√ peak values on ORBABQ plots & summary

α-β vector, q disp., peak q%, peak α-β

√ Mach plots (q, q-α, q-β, α, β) in Loads Package

√ min dispersed q margin, max undispersed q
compare with wind profile

√ top load indicator bar chart

√ ascent loads summary (Max +/- %)

√ peak values on indicator, squatchaloid plots for MMT pkg.

ET/SRB _____

Orbiter _____

√ PERFORMANCE data

√ margins performance prediction (σ level, hold time)

σ level _____

APM _____

Hold time _____

√ launch window for rendezvous flights

√ DIVDT/DIVPLT package

√ traj. signature w.r.t. wind profile

throt. up/down: HW→___/; TW→_/

DQ logic: HW→+Δq; TW→-Δq

final SAR pitch & yaw

√ throt. bucket: hi q = 72%, lo q = 67%

√ T_REF_AD ≈ 17 sec

√ no unexpected min. throt. logic activation

√ possible SAR qβ steering (inc. > 39° ONLY and

qβ after SAR greater than 500 psf)

looks like two step SAR - yaw then pitch -

{PSI(1) thru PSI(5) are equal and

THETT(2)≠THETT(3)}

√ staging and MECO cond. for reasonableness

√ DIVDT limits for exceedences

√ I-load summary

Johnson Space Center Work Instruction	LDO Console Handbook	
	DM-CH-02	Rev. A, PCN-1
	Date: 01/12/04	Page 8

L- 4:25	<input type="checkbox"/> JSC <> BNA Loads data fax transfer complete _____
L- 4:20	<u>Monitor DOLILU COORD for DOLILU Comparison</u> <input type="checkbox"/> BNA QA complete <input type="checkbox"/> DOLILU comparison complete
L- 4:15	<u>USA SI Report</u> C: USA SI(DOLILU COORD) Verify BNA comparison C: FDO (MPSR DYN A) Provide results of L-6:15 <u>Prepare L-06:15 LDO package to MMT</u> Print LDO Summary Package => <input type="checkbox"/> Access: . ldo_set dp L-xx file with status <ul style="list-style-type: none"> • Loads & DOLILU processing summary chart • In-plane and out-of-plane wind plots • ORBABQ plots Conditional (add'l data as required) Fax data to the MMT
L- 3:45	<u>LDO to MOD Status Briefing</u> C: MOD (LSEAT Coord) Provide results of L-6:15 <i>L-6:15 hr Traj package to FD (Winds plots, Margins)</i> <i>2 copies to FD, 1 copy to MOD</i>
L-3:30	<u>MOD to MMT Status Briefing (on SSPO)</u>
L-3:25	<u>L-04:30HR Jimsphere (JIM2) Termination</u> <i>Note termination time/alt. _____</i> <i>Note any data interpolations _____</i> <u>L-03:25HR Jimsphere (JIM3) Release</u> <i>Note release time _____</i>
L-3:15	<u>L-03:25HR PLOAD Report Evaluation</u> √ L-minus time on PLOAD summary page (-3:25) √ TDDP load matches L-8 day TDDP √ delta load for reasonableness (plot consistency and ambient conditions)
L-3:10	<u>Monitor DOLILU COORD for QA Completion & I-Load Xfer to BNA</u> <input type="checkbox"/> DADS complete <input type="checkbox"/> ascent support QA <input type="checkbox"/> BNA transfer complete _____ <input type="checkbox"/> abort support final QA _____

Johnson Space Center Work Instruction	LDO Console Handbook	
	DM-CH-02	Rev. A, PCN-1
	Date: 01/12/04	Page 9

L-3:00

MSFC Wx Brief

Wind Persistence

Hr. Change: _____
 I-P component _____
 O-O-P component _____

Envelope Exceedence

I-P component Alt. _____
 O-O-P component Alt. _____

Max. Shear

Alt. _____ ft
 Mag. _____ fps
 Interval Ht. _____ ft
 % of design _____ %

Wind Profile

Max. I-P comp. _____ fps @ Alt. _____
 Max O-O-P comp. _____ fps @ Alt. _____
 Max speed. _____ fps @ Alt. _____
 Direction _____ deg.

Discussion:

L- 2:50

Monitor DOLILU COORD for Processing Completion & Data Xfers

- JSC processing complete*
- I-load transfer to the MCC _____*
- JSC <> BNA data transfer complete*
- Traj. Data transfer to ROCC complete _____*

L- 2:45

L-04:30HR Loads and DOLILU Review

Confirm correct L- directory

Print LDO QA data

⇒ □ Access: . winds

√ LOADS data (2 hr persistence)

√ peak values on ORBABQ plots & summary
 α - β vector, q disp., peak q%, peak α - β

√ Mach plots (q, q- α , q- β , α , β) in loads package

√ min dispersed q margin, max undispersed q
 compare with wind profile

√ top load indicator bar chart

√ ascent loads summary (Max +/- %)

√ peak values on indicator, squatchaloid plots for MMT pkg.

ET/SRB _____

Orbiter _____

√ PERFORMANCE data

√ margins performance prediction (σ level, hold time)

σ level _____

APM _____

Hold time _____

√ launch window on rendezvous flights

√ DIVDT/DIVPLT package

√ traj. signature w.r.t. wind profile

throt. up/down: HW→___/; TW→_/

DQ logic: HW→+ Δ q; TW→- Δ q

final SAR pitch & yaw

√ throt. bucket: hi q = 72%, lo q = 67%

√ T_REF_AD \approx 17 sec

√ no unexpected min. throt. logic activation

√ possible SAR q β steering (inc. > 39° ONLY and

q β after SAR greater than 500 psf)

looks like two step SAR - yaw then pitch -

{PSI(1) thru PSI(5) are equal and

THETT(2) \neq THETT(3)}

√ staging and MECO cond. for reasonableness

√ DIVDT limits for exceedences

√ I-load summary

√ Wind plots

√ in-plane & out-of-plane wind plots

Johnson Space Center Work Instruction	LDO Console Handbook	
	DM-CH-02	Rev. A, PCN-1
	Date: 01/12/04	Page 11

L- 2:40	<i>JSC <> BNA Loads data fax transfer complete.</i>
L- 2:35	<u>Monitor DOLILU COORD for DOLILU Comparison</u> <input type="checkbox"/> <i>BNA QA complete</i> _____ <input type="checkbox"/> <i>DOLILU comparison complete</i> _____
L- 2:30	<u>USA SI Report</u> C: USA SI(DOLILU COORD) Verify BNA comparison C: FDO (MPSR DYNA) Provide results of L-4:30 <u>Prepare L-04:30 LDO package to MMT</u> Print LDO Summary Package => <input type="checkbox"/> Access: . ldo_set dp L-xx file with status <ul style="list-style-type: none"> • Loads & DOLILU processing summary chart • In-plane and out-of-plane wind plots • ORBABQ plots Conditional (add'l data as required) Fax data to the MMT
L- 2:20	<u>L-03:25HR Jimsphere (JIM3) Termination</u> <i>Note termination time/alt.</i> _____ <i>Note any data interpolations</i> _____
L- 2:15	<u>LDO to MOD Status Briefing</u> C: MOD (LSEAT Coord) Provide results of L-4:30 <u>L-02:15HR Jimsphere (JIM4) Release</u> <i>Note release time</i> _____ <i>L-4:30 hr Traj package to FD (Winds plots, Traj Pkg Margins)</i> <i>2 copies to FD, 1 copy to MOD</i>
L- 2:00	<u>MOD to MMT Status Briefing (on SSPO)</u> <u>Monitor DOLILU COORD for I-load Cmd Gen/Ver</u>
L-1:10	<u>L-02:15HR Jimsphere (JIM4) Termination</u> <i>Note termination time/alt.</i> _____ <i>Note any data interpolations</i> _____ <u>L-70MIN Jimsphere (JIM5) Release</u> <i>Note release time</i> _____
L- 0:50	<u>Monitor DOLILU COORD for Processing Completion & Data Xfer to BNA</u> <input type="checkbox"/> <i>JSC processing complete</i> _____ <input type="checkbox"/> <i>JSC <> BNA data transfer complete</i> _____

Johnson Space Center Work Instruction	LDO Console Handbook	
	DM-CH-02	Rev. A, PCN-1
	Date: 01/12/04	Page 12

L- 0:40 **L-02:15HR Loads and DOLILU Review**

Confirm correct L- directory

Print LDO QA data

⇒ □ Access: . winds

√ LOADS data (2 hr persistence)

√ peak values on ORBABQ plots & summary

α-β vector, q disp., peak q%, peak α-β

√ Mach plots (q, q-α, q-β, α, β) in Loads package

√ min dispersed q margin, max undispersed q
compare with wind profile

√ top load indicator bar chart

√ ascent loads summary (Max +/- %)

√ peak values on indicator, squatchaloid plots for MMT pkg.

ET/SRB _____

Orbiter _____

√ Short LOADS package (3.5 hr wind persistence)

√ peak values on ORBABQ plots & summary

α-β vector, q disp., peak q%, peak α-β

√ Mach plots (q, q-α, q-β, α, β)

√ min dispersed q margin, max undispersed q
compare with wind profile

√ top load indicator bar chart

√ ascent loads summary (Max +/- %)

√ peak values on indicator, squatchaloid plots

√ PERFORMANCE data

√ margins performance prediction (σ level, hold time)

σ level _____

APM _____

Hold time _____

√ launch window on rendezvous flights

√ DIVDT package

√ within limits and “Go”

√ Wind plots

√ in-plane & out-of-plane wind plots

note extreme wind features

√ wind wrt 95%, 99% boundaries

Johnson Space Center Work Instruction	LDO Console Handbook	
	DM-CH-02	Rev. A, PCN-1
	Date: 01/12/04	Page 13

L- 0:37	<i>Margins Update to FDO (for rendezvous flights)</i>																																				
L- 0:35	<p><u>MSFC Wx Brief</u></p> <table border="0"> <tr> <td><u>Wind Persistence</u></td> <td></td> <td><u>Envelope Exceedence</u></td> <td></td> </tr> <tr> <td>Hr. Change:</td> <td>_____</td> <td>I-P component Alt.</td> <td>_____</td> </tr> <tr> <td>I-P component</td> <td>_____</td> <td>O-O-P component Alt.</td> <td>_____</td> </tr> <tr> <td>O-O-P component</td> <td>_____</td> <td></td> <td></td> </tr> </table> <table border="0"> <tr> <td><u>Max. Shear</u></td> <td></td> <td><u>Wind Profile</u></td> <td></td> </tr> <tr> <td>Alt.</td> <td>_____ ft</td> <td>Max. I-P comp.</td> <td>_____ fps @ Alt. _____</td> </tr> <tr> <td>Mag.</td> <td>_____ fps</td> <td>Max O-O-P comp.</td> <td>_____ fps @ Alt. _____</td> </tr> <tr> <td>Interval Ht.</td> <td>_____ ft</td> <td>Max speed.</td> <td>_____ fps @ Alt. _____</td> </tr> <tr> <td>% of design</td> <td>_____ %</td> <td>Direction</td> <td>_____ deg.</td> </tr> </table> <p>Discussion:</p> <p><u>LDO to MOD Status Briefing</u> C: MOD (LSEAT Coord) Provide results of L-2:00</p>	<u>Wind Persistence</u>		<u>Envelope Exceedence</u>		Hr. Change:	_____	I-P component Alt.	_____	I-P component	_____	O-O-P component Alt.	_____	O-O-P component	_____			<u>Max. Shear</u>		<u>Wind Profile</u>		Alt.	_____ ft	Max. I-P comp.	_____ fps @ Alt. _____	Mag.	_____ fps	Max O-O-P comp.	_____ fps @ Alt. _____	Interval Ht.	_____ ft	Max speed.	_____ fps @ Alt. _____	% of design	_____ %	Direction	_____ deg.
<u>Wind Persistence</u>		<u>Envelope Exceedence</u>																																			
Hr. Change:	_____	I-P component Alt.	_____																																		
I-P component	_____	O-O-P component Alt.	_____																																		
O-O-P component	_____																																				
<u>Max. Shear</u>		<u>Wind Profile</u>																																			
Alt.	_____ ft	Max. I-P comp.	_____ fps @ Alt. _____																																		
Mag.	_____ fps	Max O-O-P comp.	_____ fps @ Alt. _____																																		
Interval Ht.	_____ ft	Max speed.	_____ fps @ Alt. _____																																		
% of design	_____ %	Direction	_____ deg.																																		
L- 0:30	<u>MOD to MMT Status Briefing (on SSPO)</u>																																				
L- 0:09	<p><u>Redirect L+15m Balloon (JIM6) for DOLILU Evaluation</u> (if required due to potential of extended launch hold) C: Houston Winds (Landing Field Prime 2) Coordinate any required adjustment of JIM6 release time to support extended launch window DOLILU evaluation and request additional balloon release for reconstruction at L+ 0:15</p> <p><i>PLOAD assessment for reconstruction</i></p>																																				
L- 0:05	<p><u>L-70MIN Jimsphere (JIM5) Termination</u> (will be tracked to termination only if L-0:09 hold is extended) <i>Note termination time/alt.</i> _____ <i>Note any data interpolations</i> _____ _____</p>																																				
L- 0:00	<i>Launch</i>																																				

Johnson Space Center Work Instruction	LDO Console Handbook	
	DM-CH-02	Rev. A, PCN-1
	Date: 01/12/04	Page 14

L+ 0:10

L-70MIN Loads and DOLILU Review

(if required due to potential of extended launch hold)

Confirm correct L- directory

Print LDO QA data

⇒ Access: . winds

√ LOADS data (2 hr persistence)

√ peak values on ORBABQ plots & summary
 α - β vector, q disp., peak q%, peak α - β

√ Mach lots (q, q- α , q- β , α , β) in Loads package

√ min dispersed q margin, max undispersed q
 compare with wind profile

√ top load indicator bar chart

√ ascent loads summary (Max +/- %)

√ peak values on indicator, squatchaloid plots for MMT pkg.

ET/SRB _____

Orbiter _____

√ Short LOADS package (3.5 hr wind persistence)

√ peak values on ORBABQ plots & summary
 α - β vector, q disp., peak q%, peak α - β

√ Mach plots (q, q- α , q- β , α , β) in Loads package

√ min dispersed q margin, max undispersed q
 compare with wind profile

√ top load indicator bar chart

√ ascent loads summary (Max +/- %)

√ peak values on indicator, squatchaloid plots

√ PERFORMANCE data

√ margins performance prediction (σ level, hold time)

σ level _____

APM _____

Hold time _____

√ launch window on rendezvous flights

√ DIVDT package

√ within limits and "Go"

√ Wind plots

√ in-plane & out-of-plane wind plots

Johnson Space Center Work Instruction	LDO Console Handbook	
	DM-CH-02	Rev. A, PCN-1
	Date: 01/12/04	Page 15

L+ 0:15	<i>L+00:15HR Jimsphere JIM6 Release (for reconstruction)</i>
L+0:30	<p><u>MSFC Wx Brief</u></p> <p><u>Wind Persistence</u> Hr. Change: _____ I-P component _____ O-O-P component _____</p> <p><u>Envelope Exceedence</u> I-P component Alt. _____ O-O-P component Alt. _____</p> <p><u>Max. Shear</u> Alt. _____ ft Mag. _____ fps Interval Ht. _____ ft % of design _____ %</p> <p><u>Wind Profile</u> Max. I-P comp. _____ fps @ Alt. _____ Max O-O-P comp. _____ fps @ Alt. _____ Max speed. _____ fps @ Alt. _____ Direction _____ deg.</p> <p>Discussion:</p> <p><u>LDO to MOD Status Briefing</u> C: MOD (LSEAT Coord) Provide results of L-70</p>
L+0:35	<u>MOD to MMT Status Briefing (on SSPO)</u>

Johnson Space Center Work Instruction	LDO Console Handbook	
	DM-CH-02	Rev. A, PCN-1
	Date: 01/12/04	Page 1

6. Appendix A – IPS Directory Information

Description	Location	Access
Peak ORBABQ points - tabulated	/Orbabq_output/orbabq_peak	dp
ORBABQ plots	/Orbabq_output/orbabq_ps	gs
Loads Package	/Loadplot_output/loadpl.ps	gs
DADS trajectory summary	/Divdt_output/divdt_trjsum	dp
Top 10 DIVDT rules	/Divdt_output/divdt_topten	dp
All DIVDT rules plus I-loads	/Divdt_output/divdt_detail	dp
DIVDT plots	/Divplt_output/divplt_epak_ps	gs
Performance margin and drainback	/Marc_output/marc_mpsum_01	dp
Rendezvous summary	/Marc_output/marc_rnsum_01	dp
In-plane wind plot	/svds_output/svds_15_in_trj.ps	gs
Out-of-plane wind plot	/svds_output/svds_15_out_trj.ps	gs

7. Appendix B – LDO Console Notes

<p><u>L-4:45 MSFC Wx Brief</u></p> <table style="width: 100%;"> <tr> <td style="width: 50%; vertical-align: top;"> <p><u>Wind Persistence</u></p> <p>Hr. Change: _____</p> <p>I-P component _____</p> <p>O-O-P component _____</p> </td> <td style="width: 50%; vertical-align: top;"> <p><u>Envelope Exceedence</u></p> <p>I-P component Alt. _____</p> <p>O-O-P component Alt. _____</p> </td> </tr> <tr> <td style="vertical-align: top;"> <p><u>Max. Shear</u></p> <p>Alt. _____ ft</p> <p>Mag. _____ fps</p> <p>Interval Ht. _____ ft</p> <p>% of design _____ %</p> </td> <td style="vertical-align: top;"> <p><u>Wind Profile</u></p> <p>Max. I-P comp. _____ fps @ Alt. _____</p> <p>Max O-O-P comp. _____ fps @ Alt. _____</p> <p>Max speed. _____ fps @ Alt. _____</p> <p>Direction _____ deg.</p> </td> </tr> </table>	<p><u>Wind Persistence</u></p> <p>Hr. Change: _____</p> <p>I-P component _____</p> <p>O-O-P component _____</p>	<p><u>Envelope Exceedence</u></p> <p>I-P component Alt. _____</p> <p>O-O-P component Alt. _____</p>	<p><u>Max. Shear</u></p> <p>Alt. _____ ft</p> <p>Mag. _____ fps</p> <p>Interval Ht. _____ ft</p> <p>% of design _____ %</p>	<p><u>Wind Profile</u></p> <p>Max. I-P comp. _____ fps @ Alt. _____</p> <p>Max O-O-P comp. _____ fps @ Alt. _____</p> <p>Max speed. _____ fps @ Alt. _____</p> <p>Direction _____ deg.</p>	Discussion:
<p><u>Wind Persistence</u></p> <p>Hr. Change: _____</p> <p>I-P component _____</p> <p>O-O-P component _____</p>	<p><u>Envelope Exceedence</u></p> <p>I-P component Alt. _____</p> <p>O-O-P component Alt. _____</p>				
<p><u>Max. Shear</u></p> <p>Alt. _____ ft</p> <p>Mag. _____ fps</p> <p>Interval Ht. _____ ft</p> <p>% of design _____ %</p>	<p><u>Wind Profile</u></p> <p>Max. I-P comp. _____ fps @ Alt. _____</p> <p>Max O-O-P comp. _____ fps @ Alt. _____</p> <p>Max speed. _____ fps @ Alt. _____</p> <p>Direction _____ deg.</p>				
<p><u>L-3:00 MSFC Wx Brief</u></p> <table style="width: 100%;"> <tr> <td style="width: 50%; vertical-align: top;"> <p><u>Wind Persistence</u></p> <p>Hr. Change: _____</p> <p>I-P component _____</p> <p>O-O-P component _____</p> </td> <td style="width: 50%; vertical-align: top;"> <p><u>Envelope Exceedence</u></p> <p>I-P component Alt. _____</p> <p>O-O-P component Alt. _____</p> </td> </tr> <tr> <td style="vertical-align: top;"> <p><u>Max. Shear</u></p> <p>Alt. _____ ft</p> <p>Mag. _____ fps</p> <p>Interval Ht. _____ ft</p> <p>% of design _____ %</p> </td> <td style="vertical-align: top;"> <p><u>Wind Profile</u></p> <p>Max. I-P comp. _____ fps @ Alt. _____</p> <p>Max O-O-P comp. _____ fps @ Alt. _____</p> <p>Max speed. _____ fps @ Alt. _____</p> <p>Direction _____ deg.</p> </td> </tr> </table>	<p><u>Wind Persistence</u></p> <p>Hr. Change: _____</p> <p>I-P component _____</p> <p>O-O-P component _____</p>	<p><u>Envelope Exceedence</u></p> <p>I-P component Alt. _____</p> <p>O-O-P component Alt. _____</p>	<p><u>Max. Shear</u></p> <p>Alt. _____ ft</p> <p>Mag. _____ fps</p> <p>Interval Ht. _____ ft</p> <p>% of design _____ %</p>	<p><u>Wind Profile</u></p> <p>Max. I-P comp. _____ fps @ Alt. _____</p> <p>Max O-O-P comp. _____ fps @ Alt. _____</p> <p>Max speed. _____ fps @ Alt. _____</p> <p>Direction _____ deg.</p>	Discussion:
<p><u>Wind Persistence</u></p> <p>Hr. Change: _____</p> <p>I-P component _____</p> <p>O-O-P component _____</p>	<p><u>Envelope Exceedence</u></p> <p>I-P component Alt. _____</p> <p>O-O-P component Alt. _____</p>				
<p><u>Max. Shear</u></p> <p>Alt. _____ ft</p> <p>Mag. _____ fps</p> <p>Interval Ht. _____ ft</p> <p>% of design _____ %</p>	<p><u>Wind Profile</u></p> <p>Max. I-P comp. _____ fps @ Alt. _____</p> <p>Max O-O-P comp. _____ fps @ Alt. _____</p> <p>Max speed. _____ fps @ Alt. _____</p> <p>Direction _____ deg.</p>				
<p><u>L-0:40 MSFC Wx Brief</u></p> <table style="width: 100%;"> <tr> <td style="width: 50%; vertical-align: top;"> <p><u>Wind Persistence</u></p> <p>Hr. Change: _____</p> <p>I-P component _____</p> <p>O-O-P component _____</p> </td> <td style="width: 50%; vertical-align: top;"> <p><u>Envelope Exceedence</u></p> <p>I-P component Alt. _____</p> <p>O-O-P component Alt. _____</p> </td> </tr> <tr> <td style="vertical-align: top;"> <p><u>Max. Shear</u></p> <p>Alt. _____ ft</p> <p>Mag. _____ fps</p> <p>Interval Ht. _____ ft</p> <p>% of design _____ %</p> </td> <td style="vertical-align: top;"> <p><u>Wind Profile</u></p> <p>Max. I-P comp. _____ fps @ Alt. _____</p> <p>Max O-O-P comp. _____ fps @ Alt. _____</p> <p>Max speed. _____ fps @ Alt. _____</p> <p>Direction _____ deg.</p> </td> </tr> </table>	<p><u>Wind Persistence</u></p> <p>Hr. Change: _____</p> <p>I-P component _____</p> <p>O-O-P component _____</p>	<p><u>Envelope Exceedence</u></p> <p>I-P component Alt. _____</p> <p>O-O-P component Alt. _____</p>	<p><u>Max. Shear</u></p> <p>Alt. _____ ft</p> <p>Mag. _____ fps</p> <p>Interval Ht. _____ ft</p> <p>% of design _____ %</p>	<p><u>Wind Profile</u></p> <p>Max. I-P comp. _____ fps @ Alt. _____</p> <p>Max O-O-P comp. _____ fps @ Alt. _____</p> <p>Max speed. _____ fps @ Alt. _____</p> <p>Direction _____ deg.</p>	Discussion:
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	JIM1	JIM2	JIM3	JIM4	JIM5	LRFE4	LRFE5
Release							
Term.							
Altitude							
Interp.							

Flight _____

Date _____

L-6:15

L-4:30

L-2:15

Johnson Space Center Work Instruction	LDO Console Handbook	
	DM-CH-02	Rev. A, PCN-1
	Date: 01/12/04	Page 2

fax to MMT/status to MOD	L-3:45 /	L-2:15 /	L-0:35 /
status to MMT	L-3:30 /	L-2:00 /	L-0:30 /
Overall			
Facility			
Environment			
persistence			
shear			
consistency			
DOLILU			
generation (inc. Abort Support okay)			
QA rule assessment			
DOLILU II q-planes			
IV&V			
Loads			
Orbiter L/I - max			
q-planes			
ET / SRB			
max indicator			
Zero Margin			
QA checklist:			
Winds			
DOLILU			
Traj QA			
abort support			
wind vs I-Load			
QA rules			
DIVDT top ten			
DIVDT detail			
DIVDT trjsum			
DIVPLT review			
DOLILU II verification space			
peak			
post script			
Loads / Orbiter			
loadplot			
top L/I			
q-planes orbabq_peak			
orbabq_ps			
Loads / ET-SRB			
top indicator			
zero margin squatcheloid			
MARC			
APM (w/PLOAD?)			
hold time			