STS-129 / ULF3

FD 06 Execute Package

MSG	Page(s)	Title
044A	1 - 14	FD06 Flight Plan Revision
045	15 - 16	FD06 Mission Summary
046	17	FD05 MMT Summary
047	18 - 19	FD06 Transfer Message
048	20 - 32	4.330 ELC2 On S3LO Release, Walkoff to MBS1 and MNVR to MT Translation
049	33	FD06 Crew Choice Downlink
051A	34	FD06 EVA Deltas

Approved by FAO:
Gail Hansen

Last Updated: Nov 21 2009 8:32 AM GMT
***JEDI** (**J**oint **E**xecute package **D**evelopment and **I**ntegration), v3.0*

MSG INDEX

MSG NO.	TITLE
MSG044	FD06 Flight Plan Revision
MSG045	FD06 Mission Summary
MSG046	FD05 MMT Summary
MSG047	FD06 Transfer Message
MSG048	4.330 ELC2 On S3LO Release, Walkoff To MBS1 And Mnvr To MT Translation
MSG049	Crew Choice Downlink
MSG050	FD07 PAO Look Ahead
MSG051	FD06 EVA Deltas

1. Post-Sleep Cryo Config

For today's Post-Sleep cryo config, O2 Tanks 1, 3, and 4 and H2 Tanks 1 and 5 will be active. A 'S68 O2 TK P 4' msg may be received while performing the A11 actions since O2 Tank 4 pressure is currently below its pre-conditioned FDA limit due to slow destratification in the tank.

R1 O2,H2 MANF VLV TK1 (two) - OP (tb-OP)
O2 TK3 HTRS A,B (two) - AUTO

NOTE
May receive a 'S68 O2 TK P 4' msg
when TK4 HTRS O2 taken to AUTO

A11 CRYO TK4 HTRS O2 A,B (two) - AUTO

A15 CRYO TK5 HTR O2 A - OFF

Pre-Sleep Cryo Config

√MCC for deltas prior to configuring for Pre-Sleep.

For tonight's Pre-Sleep cryo config, Manifold 2 will be closed with O2 Tanks 2 and 5 and H2 Tanks 2 and 4 active.

A15 CRYO TK5 HTR O2 A - AUTO
HTRS H2 A,B (two) - OFF

A11 CRYO TK4 HTRS O2 A,B (two) - OFF
H2 A,B (two) - AUTO

R1 O2 TK3 HTRS A,B (two) - OFF
O2,H2 TK2 HTRS A,B (four) - AUTO
TK1 HTRS A,B (four) - OFF
MANF VLV TK2 (two) - CL (tb-CL)

2. For **DC Vacuum** use, the preferred outlet is **MO63P**, **J3**.

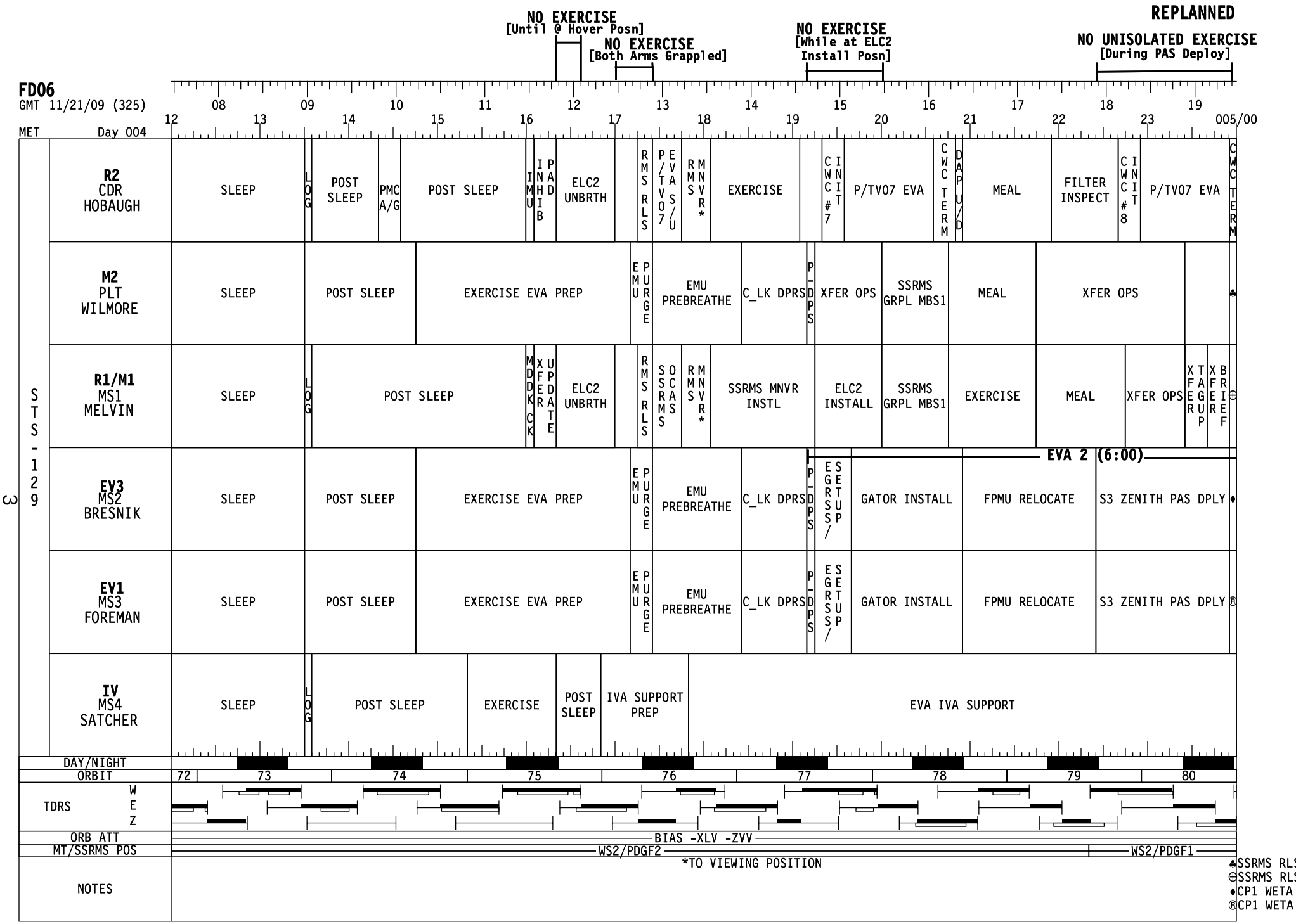
   Rationale: MO63P, J3 has been identified as the preferred outlet based on availability and power considerations.

3. <u>LiOH Cue Card Update</u>

   Do not perform the post-sleep LiOH changeout this morning. With the LiOH can that was installed last night, MCC will monitor ppCO2 levels to determine when the next can should be installed. An update to your LiOH cue card will be uplinked tomorrow.

4. EVA Big Picture Words
   For the exercise prebreathe protocol today, Nicole and Jeff are scheduled to help out as much as possible with the manual mode operation of CEVIS and to walk you through the rest of the Exercise EVA Prep procedure. MSG 051 will give you the additional hardware needed today along with the stowage locations. You will need to remove METOX canisters s/n 15 & 16 from CO2 Removal Receptacle before installing new the METOX canisters called out in MSG 051. There is an exercise constraint during ELC2 Un-Berth and Hand-off, but we expect that you will be done with the exercise portion of the protocol well before we get into that activity. Of note, we are taking 25 min of pad out of Exercise EVA Prep procedure to protect crew day length. We don't expect any issues with this because typically crews run about 30 min ahead in EVA prep activities. To free up some additional time today, we have removed the EMU Water Recharge during POST EVA. We have added that activity to FD07 before you do the EMU SWAP.

5. REPLACE PAGES 2-18 AND 2-20, 3-56 THROUGH 3-65.


REPLANNED
NO EXERCISE [Until @ Hover Posn]
NO EXERCISE [Both Arms Grappled]
NO EXERCISE [While at ELC2 Install Posn]
NO UNISOLATED EXERCISE [During PAS Deploy]
FD06
GMT 11/21/09 (325)
MET Day 004
08 09 10 11 12 13 14 15 16 17 18 19
12 13 14 15 16 17 18 19 20 21 22 23 005/00
STS-129
R2 CDR HOBAUGH
SLEEP
LOG
POST SLEEP
PMC A/G
POST SLEEP
IMU
INHIB
PAD
ELC2 UNBRTH
RMS RLS
P/TV07
EVA S/U
RMS MNVR*
EXERCISE
CWC #7
INIT
P/TV07 EVA
CWC TERM
DAP U/D
MEAL
FILTER INSPECT
CWC #8
INIT
P/TV07 EVA
CWC TERM
M2 PLT WILMORE
SLEEP
POST SLEEP
EXERCISE EVA PREP
EMU
PURGE
EMU PREBREATHE
C_LK DPRS
P-DPS
XFER OPS
SSRMS GRPL MBS1
MEAL
XFER OPS
♣
R1/M1 MS1 MELVIN
SLEEP
LOG
POST SLEEP
MDDK CK
XFER
UPDATE
ELC2 UNBRTH
RMS RLS
SSRMS
OCAS
RMS MNVR*
SSRMS MNVR INSTL
ELC2 INSTALL
SSRMS GRPL MBS1
EXERCISE
MEAL
XFER OPS
XFER
TAGUP
XFER
BRIEF
⊕
EV3 MS2 BRESNIK
SLEEP
POST SLEEP
EXERCISE EVA PREP
EMU
PURGE
EMU PREBREATHE
C_LK DPRS
P-DPS
EVA 2 (6:00)
EGRSS/
SETUP
GATOR INSTALL
FPMU RELOCATE
S3 ZENITH PAS DPLY
♦
EV1 MS3 FOREMAN
SLEEP
POST SLEEP
EXERCISE EVA PREP
EMU
PURGE
EMU PREBREATHE
C_LK DPRS
P-DPS
EGRSS/
SETUP
GATOR INSTALL
FPMU RELOCATE
S3 ZENITH PAS DPLY
®
IV MS4 SATCHER
SLEEP
LOG
POST SLEEP
EXERCISE
POST SLEEP
IVA SUPPORT PREP
EVA IVA SUPPORT
DAY/NIGHT
ORBIT
72 73 74 75 76 77 78 79 80
TDRS
W
E
Z
ORB ATT
BIAS -XLV -ZVV
MT/SSRMS POS
WS2/PDGF2
WS2/PDGF1
*TO VIEWING POSITION
NOTES
♣SSRMS RLS
⊕SSRMS RLS
♦CP1 WETA
®CP1 WETA

3

FD06
GMT 11/21/09 (325)
MET Day 005

NO UNISOLATED EXERCISE
[MT Translate]

REPLANNED

005/00 20 01 21 02 22 03 23 04 11/22 05 01 06 02 07 03 08 04 09 05 10 06 11 07 12

STS-129

| | | |

STS-129/ULF3 FD06

REPLANNED

GMT Date 11/21 (325) | W | TDRSE | Z | D/N | ORB | MET Day 004 | ATT | CDR HOBAUGH | PLT WILMORE | MS1 MELVIN | NOTES

FD06 EZ ACTIVITIES:
√OCAC FILTER & MDDK DUCT SCREEN
TEPC (STATUS CHECK)
(ORB OPS, CREW SYS)
HARD REBOOT ALL PGSCs EXCEPT:
STS-1(OCA ROUTER), STS-5(RPOP2)
AND STS-6(WLES)

Time	CDR HOBAUGH	PLT WILMORE	MS1 MELVIN
12:00	SLEEP	SLEEP	SLEEP
13:00			
14:00			
15:00			
16:00			

BIAS-XLV-ZVV

CDR HOBAUGH
- SLEEP LOGBOOK (SDBI 1634)
- POST-SLEEP ACTIVITY (ORB OPS, CREW SYS)
  On MCC GO: MO13Q AIRLK FAN A-ON
- PRIVATE MEDICAL CONFERENCE
  L9 PAYLOAD STATION A/G(two) - OFF
  Perform via A/G 2
- POST-SLEEP ACTIVITY (ORB OPS, CREW SYS)

PLT WILMORE
- POST-SLEEP ACTIVITY (ORB OPS, CREW SYS)
- ISS EVA SYSTEMS: 2.316 EXERCISE EVA PREP
  In step 3, remove METOX canisters s/n 15/16 and use new METOX canisters s/n 13/21.
  Ref. MSG 44, Item 4 and MSG 051

MS1 MELVIN
- SLEEP LOGBOOK (SDBI 1634)
- POST-SLEEP ACTIVITY (ORB OPS, CREW SYS)

3-56

FLT PLN/129/FLT

5

STS-129/ULF3 FD06

REPLANNED

GMT Date 11/21 (325) | W | TDRSE | Z | D/N | ORB | MET Day 004 | ATT | MS2 BRESNIK | MS3 FOREMAN | MS4 SATCHER | NOTES

08:00 | 09:00 | 10:00 | 11:00

12:00 | 13:00 | 14:00 | 15:00 | 16:00

72 | 73 | 74 | 75

BIAS - XLV - ZVV

SLEEP

POST-SLEEP ACTIVITY
(ORB OPS, CREW SYS)

ISS EVA SYSTEMS: 2.316 EXERCISE EVA PREP
In step 3, remove METOX canisters s/n 15/16 and use new METOX canisters s/n 13/21.
Ref. MSG 44, Item 4 and MSG 051

SLEEP

POST-SLEEP ACTIVITY
(ORB OPS, CREW SYS)

ISS EVA SYSTEMS: 2.316 EXERCISE EVA PREP
In step 3, remove METOX canisters s/n 15/16 and use new METOX canisters s/n 13/21.
Ref. MSG 44, Item 4 and MSG 051

SLEEP

SLEEP LOGBOOK (SDBI 1634)

POST-SLEEP ACTIVITY
(ORB OPS, CREW SYS)

EXERCISE

STS-129/ULF3 FD06

REPLANNED

GMT Date 11/21 (325) | W | TDRSE | Z | D/N | ORB | MET Day 004 | ATT

CDR HOBAUGH	PLT WILMORE	MS1 MELVIN	NOTES
IMU STAR OF OPPTY ALIGN (ORB OPS, GNC)	ISS EVA SYSTEMS: 2.316 EXERCISE EVA PREP In step 3, remove METOX canisters s/n 15/16 and use new METOX canisters s/n 13/21. Ref. MSG 44, Item 4 and MSG 051	CGBA and ABRS STATUS CK(Cue Card) CGBA only	
EVA 2 INHIBIT PAD (EVA, TIMELINES)		DAILY TRANSFER LIST UPDATE Ref. Transfer List & MSG 047	
ELC 2 UNBERTH (PDRS, ELC NOMINAL OPS) EXERCISE CONSTRAINT		ELC 2 UNBERTH (PDRS, ELC NOMINAL OPS) EXERCISE CONSTRAINT	**NO EXERCISE UNTIL @ HOVER POSITION**
	ISS EVA SYSTEMS: 1.220 EMU PURGE		**NO EXERCISE WHILE ELC 2 GRAPPLED BY SRMS & SSRMS**
ELC 2 UNGRAPPLE (PDRS, ELC NOMINAL OPS) Steps 1-3; EXERCISE CONSTRAINT		ELC 2 UNGRAPPLE (PDRS, ELC NOMINAL OPS) Steps 1-3; EXERCISE CONSTRAINT	
P/TV07 EVA (PHOTO/TV, SCENES) Setup	ISS EVA SYSTEMS: 1.225 EMU PREBREATHE	ROBOTICS: 1.310 ELC2 HANDOFF AND INSTALL Steps 3-5	UPDATE β21+MASK Box 20, 21, 29
ELC2 UNGRAPPLE (PDRS, ELC NOMINAL OPS) Step 4 (MNVR ELC2 VIEWING POS)		ELC2 UNGRAPPLE (PDRS, ELC NOMINAL OPS) Step 4 (MNVR ELC2 VIEWING POS)	
		ROBOTICS: 1.310 ELC2 HANDOFF AND INSTALL Steps 6-7 EXERCISE CONSTRAINT	
EXERCISE	ISS EVA SYSTEMS: CREWLOCK DEPRESS/REPRESS CUE CARD		
	ISS EVA SYSTEMS: CREWLOCK POST DEPRESS (CC)		**NO EXERCISE WHILE AT ELC 2 INSTALL POSITION**
SHUTTLE/ISS H2O CNTR FILL (ORB OPS, ECLS)INIT FILL #7 Ref. MSG 017	TRANSFER OPS Ref. Transfer List & MSG 047	S&M: 1.911 PAS NORMAL MATE Steps 6-17 Procedure Variables: PAS Site [N1]=1, initframe PPL ID [H]=02 Note: Speed of latch is: 1st stage=450 rpm 2nd stage=225 rpm 3rd stage=450 rpm EXERCISE CONSTRAINT	UPDATE β21+MASK Box 20, 21
P/TV07 EVA (PHOTO/TV, SCENES) Ops			

Time scale: 12:00, 13:00, 14:00, 15:00; 16:00, 17:00, 18:00, 19:00, 20:00

Ops: 75, 76, 77

BIAS-XLV-ZVV

7

STS-129/ULF3 FD06

REPLANNED

GMT Date 11/21 (325) | W | TDRSE | Z | D/N | ORB | MET Day 004 | ATT

MS2 BRESNIK	MS3 FOREMAN	MS4 SATCHER	NOTES
ISS EVA SYSTEMS: 2.316 EXERCISE EVA PREP In step 3, remove METOX canisters s/n 15/16 and use new METOX canisters s/n 13/21. Ref. MSG 44, Item 4 and MSG 051	ISS EVA SYSTEMS: 2.316 EXERCISE EVA PREP In step 3, remove METOX canisters s/n 15/16 and use new METOX canisters s/n 13/21. Ref. MSG 44, Item 4 and MSG 051	EXERCISE	
		POST-SLEEP ACTIVITY (ORB OPS, CREW SYS)	NO EXERCISE UNTIL @ HOVER POSITION
ISS EVA SYSTEMS: 1.220 EMU PURGE	ISS EVA SYSTEMS: 1.220 EMU PURGE	IVA SUPPORT PREP	NO EXERCISE WHILE ELC 2 GRAPPLED BY SRMS & SSRMS
ISS EVA SYSTEMS: 1.225 EMU PREBREATHE	ISS EVA SYSTEMS: 1.225 EMU PREBREATHE		
ISS EVA SYSTEMS: CREWLOCK DEPRESS/REPRESS CUE CARD	ISS EVA SYSTEMS: CREWLOCK DEPRESS/REPRESS CUE CARD	EVA IVA SUPPORT	
ISS EVA SYSTEMS: CREWLOCK POST DEPRESS (CC)	ISS EVA SYSTEMS: CREWLOCK POST DEPRESS (CC)		NO EXERCISE WHILE AT ELC 2 INSTALL POSITION
EGRESS/SETUP	EGRESS/SETUP		
GATOR INSTALL	GATOR INSTALL		

Time scale: 12:00, 13:00, 14:00, 15:00; 16:00, 17:00, 18:00, 19:00, 20:00

Ref. MSG 44, Item 4 and MSG 051 (MS2 BRESNIK)

Ref. MSG 44, Item 4 and MSG 051 (MS3 FOREMAN)

3-59

FLT PLN/129/FLT

8

STS-129/ULF3 FD06

REPLANNED

GMT — Date 11/21 (325) — W — TDRSE — Z — D/N — ORB — MET — Day 004 — ATT

CDR HOBAUGH	PLT WILMORE	MS1 MELVIN	NOTES
P/TV07 EVA (PHOTO/TV, SCENES) Ops	ROBOTICS: 1.320 ELC2 RELEASE, WALKOFF TO MBS PDGF1 AND MNVR TO MT TRANSLATION CONFIG Steps 1-4	ROBOTICS: 1.320 ELC2 RELEASE, WALKOFF TO MBS PDGF1 AND MNVR TO MT TRANSLATION CONFIG Steps 1-4	
SHUTTLE/ISS H2O CNTR FILL (ORB OPS, ECLS) Perform FILL TERMINATION After ELC2 Install, Perform Block A			
MEAL	MEAL	EXERCISE	
FILTER CLEANING (IFM, SCHEDULED MAINTENANCE) Inspect filters and clean as necessary. Ref. MSG 44, Item 2	TRANSFER OPS Ref. Transfer List & MSG 047	MEAL	
SHUTTLE/ISS H2O CNTR FILL (ORB OPS, ECLS) INIT FILL #8 Ref. MSG 017		TRANSFER OPS Ref. Transfer List & MSG 047	NO UNISOLATED EXERCISE DURING PAS DEPLOY (NO ERGOMETER, HC-1, OR VELO)
P/TV07 EVA (PHOTO/TV, SCENES) Ops		TRANSFER TAGUP Coordinate with transfer counterparts	
		TRANSFER BRIEF Call down status to MCC	
SHUTTLE/ISS H2O CNTR FILL (ORB OPS, ECLS) Perform FILL TERMINATION	ROBOTICS: 1.320 ELC2 RLSE, WALKOFF TO MBS PDGF1 & MNVR TO MT XLAT CONFIG Steps 5-8	ROBOTICS: 1.320 ELC2 RLSE, WALKOFF TO MBS PDGF1 & MNVR TO MT XLAT CONFIG Steps 5-8	

A √ A/FREE/VERN
PERMANENT DAP EDIT: A11: CA=7
A12: CA=7
B12: CA=7
B13: CA=7

Time scale: 16:00, 17:00, 18:00, 19:00; 20:00, 21:00, 22:00, 23:00, 00:00

Orbit: 78, 79, 80

BIAS-XLV-ZVV

STS-129/ULF3 FD06

REPLANNED

GMT Date 11/21 (325) | W | TDRS E | Z | D/N | ORB | MET Day 004 | ATT

78

79

80

BIAS-XLV-ZVV

MS2 BRESNIK	MS3 FOREMAN	MS4 SATCHER	NOTES
GATOR INSTALL	GATOR INSTALL		
FPMU RELOCATE	FPMU RELOCATE	EVA IVA SUPPORT	
S3 ZENITH/INBD PAS DEPLOY EXERCISE CONSTRAINT	S3 ZENITH/INBD PAS DEPLOY EXERCISE CONSTRAINT		**NO UNISOLATED EXERCISE DURING PAS DEPLOY (NO ERGOMETER, HC-1, OR VELO)**
INSTALL CP1 WETA	INSTALL CP1 WETA		

STS-129/ULF3 FD06

REPLANNED

GMT Date 11/21 (325) | W | TDRSE | Z | D/N | ORB | MET Day 005 | ATT

CDR HOBAUGH	PLT WILMORE	MS1 MELVIN	NOTES
SHUTTLE/ISS H2O CNTR FILL (ORB OPS, ECLS) Perform FILL TERMINATION	ROBOTICS: 1.320 ELC2 RLSE, WALKOFF TO MBS PDGF1 & MNVR TO MT XLAT CONFIG Steps 5-8	ROBOTICS: 1.320 ELC2 RLSE, WALKOFF TO MBS PDGF1 & MNVR TO MT XLAT CONFIG Steps 5-8	
CWC TRANSFER Transfer 2 CWCs to ISS [B] WCS CRADLE - AUTO INHIBIT Inspect hose block filter, change if req'd WCS CRADLE - AUTO			
ELC 2 UNGRAPPLE (PDRS, ELC NOMINAL OPS) Step 5 (PRECRADLE)		ELC 2 UNGRAPPLE (PDRS, ELC NOMINAL OPS) Step 5 (PRECRADLE)	
WCS FILTER CHECK [B] TV (ILL OPS)(P/TV, CC)ILL ON - A,D		PRLA CLOSE (ORB OPS, PRLA)	
	ISS EVA SYSTEMS: PRE REPRESS (CC)	CGBA and ABRS STATUS CK(Cue Card) CGBA only	
	ISS EVA SYSTEMS: CREWLOCK DEPRESS/REPRESS CUE CARD		
	POST EVA (EVA, POST EVA) DO not perform: EMU WATER RECHARGE and WATER FILL VERIF "IF REQD" blocks		
PRE-SLEEP ACTIVITY (ORB OPS, CREW SYS)		PRE-SLEEP ACTIVITY (ORB OPS, CREW SYS)	
NETMEETING VIDEO CONFERENCING (ORB OPS, PGSC) Private Medical Conference KU TDRW: 1:44 - 2:17 [C]			
PRE-SLEEP ACTIVITY (ORB OPS, CREW SYS) [C] Omit steps 1,2,3 Use A/G2 for Audio Inform MCC which PGSC will be used			
	PRE-SLEEP ACTIVITY (ORB OPS, CREW SYS)		

Time scale: 20:00, 21:00, 22:00, 23:00; 00:00, 01:00, 02:00, 03:00, 04:00

ATT: BIAS-XLV-ZVV

ORB: 80, 81, 82, 83

STS-129/ULF3 FD06

REPLANNED

GMT Date 11/21 (325) | W | TDRSE | Z | D/N | ORB | MET Day 005 | ATT | MS2 BRESNIK | MS3 FOREMAN | MS4 SATCHER | NOTES

GMT	MS2 BRESNIK	MS3 FOREMAN	MS4 SATCHER
00:00	INSTALL CP1 WETA	INSTALL CP1 WETA	EVA IVA SUPPORT
01:00	EVA CLEANUP & INGRESS	EVA CLEANUP & INGRESS	PRE-SLEEP ACTIVITY (ORB OPS, CREW SYS)
01:00	ISS EVA SYSTEMS: PRE REPRESS (CC)	ISS EVA SYSTEMS: PRE REPRESS (CC)	
01:00	ISS EVA SYSTEMS: CREWLOCK DEPRESS/REPRESS CUE CARD	ISS EVA SYSTEMS: CREWLOCK DEPRESS/REPRESS CUE CARD	
01:00	POST EVA (EVA, POST EVA) DO not perform: EMU WATER RECHARGE and WATER FILL VERIF "IF REQD" blocks	POST EVA (EVA, POST EVA) DO not perform: EMU WATER RECHARGE and WATER FILL VERIF "IF REQD" blocks	
02:00			ISS EVA SYSTEMS: 1.605 BSA BATTERY RECHARGE (TERM) Ref: STS-129 BATTERY RECHARGE CC
02:00			ISS EVA SYSTEMS: 1.605 BSA BATTERY RECHARGE (INIT) Ref: STS-129 BATTERY RECHARGE CC
03:00	PRE-SLEEP ACTIVITY (ORB OPS, CREW SYS)	PRE-SLEEP ACTIVITY (ORB OPS, CREW SYS)	PRE-SLEEP ACTIVITY (ORB OPS, CREW SYS)

Date: 11/21 (325); Day 005

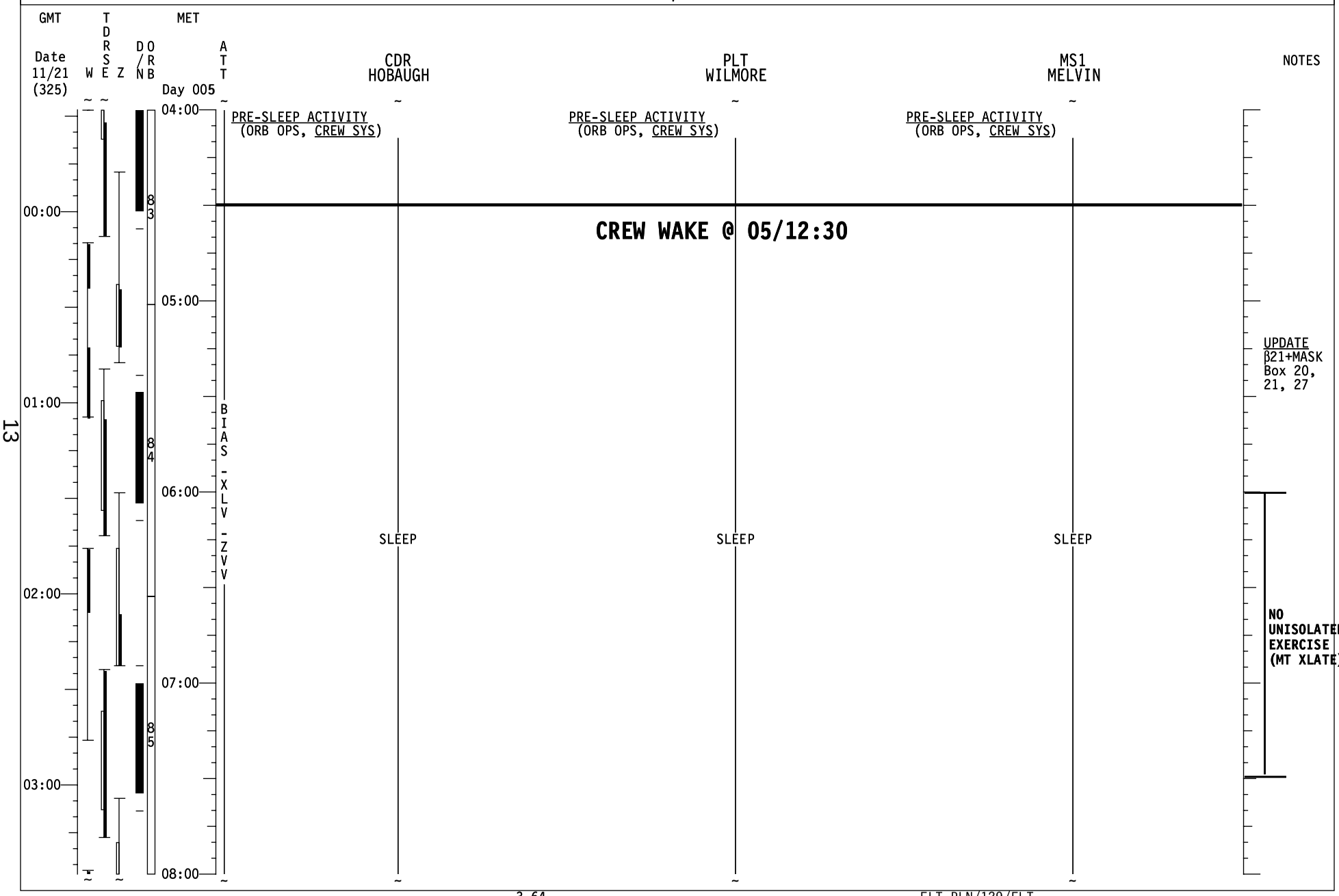
Time scale: 20:00, 21:00, 22:00, 23:00

ORB: 80, 81, 82, 83

BIAS-XLV-ZVV

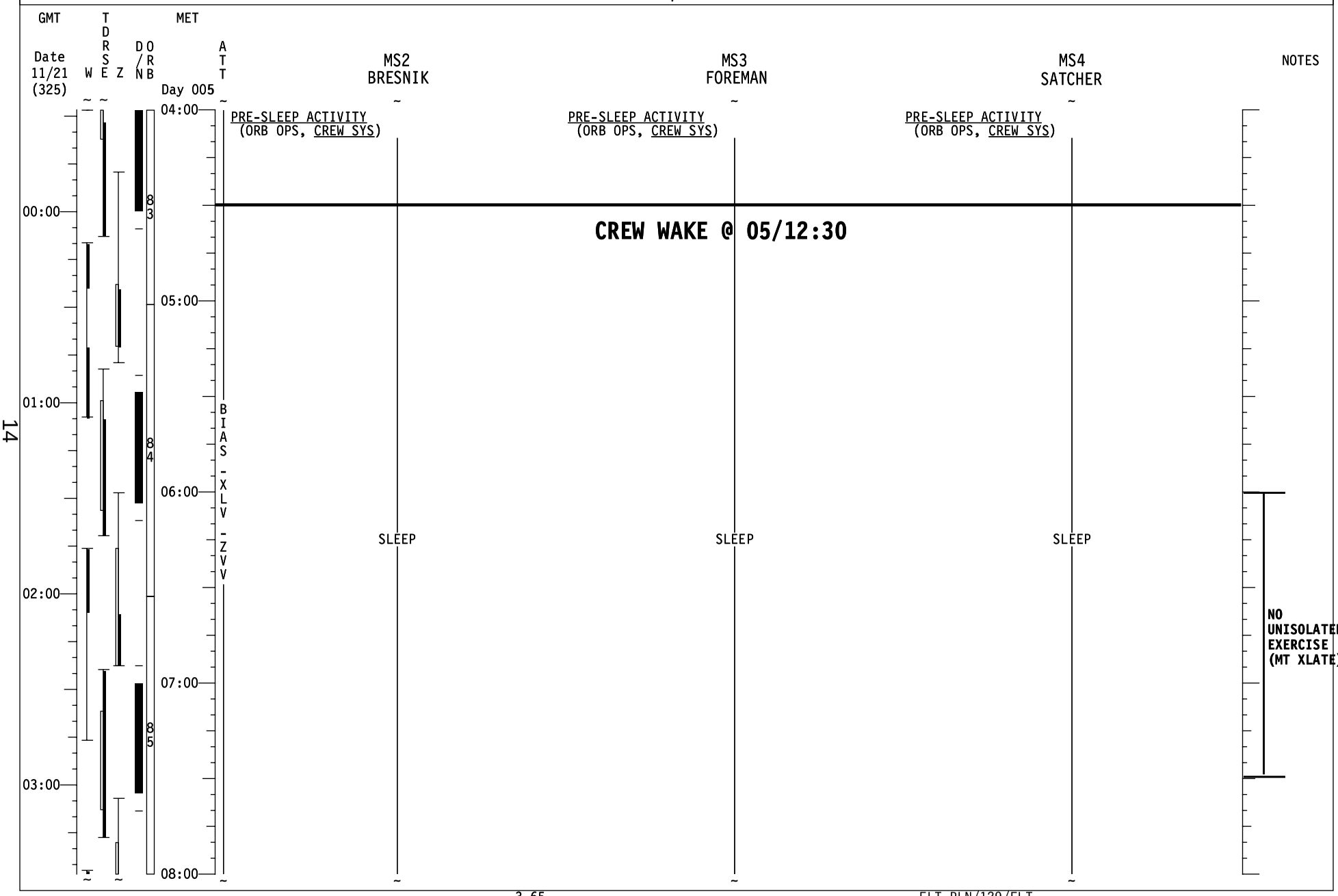
STS-129/ULF3 FD06

REPLANNED



STS-129/ULF3 FD06

REPLANNED



Good morning Atlantis! Look forward to another great day of EVA!
YOUR CURRENT ORBIT IS: 187 X 180 NM

NOTAMS: **TWO CHANGES (DELETED NTU & HNL)**

EDW - LAKEBED RWY 15/33 GREEN - ELS ONLY. RWY 18L - UNUSABLE.
NOR - LAKEBED RUNWAYS GREEN.
YQX - TACAN YQX CH74 OTS.
LAJ - TACAN LAJ45 OTS.
PTN - AIRFIELD CLOSED.
GUA - RWY 06R/24L CLOSED. RWY O6L REIL OTS.
KKI- RWY 15R/33L CLOSED. 15L/33R USABLE.
IKF - NOT USABLE. NO AGREEMENT.
BEN - NOT RECOMMENDED/NOT SUPPORTED.

NEXT 2 PLS OPPORTUNITIES:

EDW22 ORB 80 – 4/23:49 FEW300 7 280/09P15
NOR17 ORB 95 – 5/22:37 FEW200 7 150/05P08

OMS TANK FAIL CAPABILITY:

L OMS FAILS: NO
R OMS FAILS: NO

LEAKING OMS PRPLT BURN:

L OMS LEAK: ALWAYS BURN RETROGRADE
R OMS LEAK: ALWAYS BURN RETROGRADE

OMS QUANTITIES(%)

L OMS OX = 38.5 R OMS OX = 38.8
FU = 38.5 FU = 38.4

Subtract interconnect counter for current OMS quantities.

DELTA V AVAILABLE:

OMS	406 FPS
ARCS (TOTAL ABOVE QTY1)	37 FPS
TOTAL IN THE AFT	443 FPS
ARCS (TOTAL ABOVE QTY2)	70 FPS
FRCS (ABOVE QTY 1)	40 FPS
AFT QTY 1	85 %
AFT QTY 2	47 %

THERE ARE NO FAILURE/IMPACT/WORK AROUNDS FOR TODAY.

The FD05 MMT met to discuss mission progress. Congratulations on a very successful EVA #1. The vehicles continue to perform great and you are doing a tremendous job! The photos of the EVA gloves have been reviewed and have been cleared for use on subsequent EVAs. The procedures for returning the ED-V and the Distillation Assembly are almost ready and will be sent to you soon. Also, a plan to transfer 40 lbs of oxygen to the ISS via additional repress periods was approved. We are pleased to report success in processing water via the ISS WPA again (with work arounds) as well!

The root cause of the false fire and depress indications that interrupted your sleep last night are under investigation. No actual depress alarm was annunciated on the US side although the auto-response shut down ventilation. Initial investigation indicates it was initiated from the new MRM2 module's panel and our Russian colleagues are evaluating. The panel cannot be inhibited without impacting other systems. The alarm was inhibited in the US CCS software at the time and has since been set to a suppressed state so that it will be seen by the ground if it reoccurs. The state of the alarm (inh/sup/ena) in the US CCS does not impact the auto response flags in the system. As a secondary effect, the loss of ventilation in the Columbus module, was the likely cause of the false fire indication annunciated approx 10 min later, due to dust. The team has reviewed the risk of reoccurrence and the potential impacts to campout. Training and procedures will be used to manage the situation if required. For a depress indication during campout the A/L will be equalized automatically, breaking protocol. The team will talk with you to advise of the risk and to be prepared with mask ops to potentially minimize effects. If the protocol cannot be recovered the back-up plan is to use the exercise prebreathe protocol prior to the EVA.

Good Morning Leland and Mike,

It was wonderful seeing you on the downlink yesterday, you all look like you're having a great time. I also heard that you enjoyed some of Marsha's "dark matter" last night. You guys are doing very well on transfer and are 43% complete!

Transfer Notes

- **Item 421:** Thank you very much for the video and information about the contents of bag 421. Tracy has found you a new location and it will be in Bag A. We have updated this in your transfer list and it is one of your change pages.

- **Item 55:** You said in the calldown yesterday that you have this item but still need to find the 0.5 CTB on ISS. The only other location for this item was the MPLM, so the only location we have for you is NOD2O5_D.

- **Constrained Items:** I have listed some EVA constrained items below in your FD06 Choreography. These are constrained because we have their final location as the Crewlock. Since all the NOD1 Outfitting activities are complete and if you are still looking for transfer items, you can temp stow the items listed below in NOD1 and they will be stowed in the A/L after you depart.

The Transfer List Excel file, FD06_Transfer_List_STS129.xls, locations are:
- Shuttle: **C:\OCA-up\transfer** (KFX machine)
- Station: **K:\OCA-up\transfer**

FD06 Choreography
- **Item 732:** Transfer Passive Detector Pouch after the DOS-PASS-HW-INST activity
- **Generic Transfer Ops**
    - **Unconstrained items:**
        - **Resupply:** 29.5, 38, 54, 55, and 62
        - **Return:** 407, 409, 411, 418, 419, 420, 601, 731, 732, and 738
    - **Constrained Items:**
        - **Resupply:** 5, 6, 7, 8, 46, 49, and 50

Please incorporate uplink pages as follows (we've listed the updates in the order they printed out for you):

In the Transfer List **RESUPPLY** tab
Replace the following pages:
Resupply 14 and 17

In the Transfer List **RETURN** tab
Add the following pages:
Return 1, 2, 3, 4, 5, 6, and 11.

Changes to the Transfer List are detailed below:

MIDDECK RESUPPLY
Item 62 - update quantity
Item 803 - new item

MIDDECK RETURN
Item 400 - new notes
Item 401 - new notes
Item 410 - deleted notes
Item 411 - new final location
Item 421 - Bag A
Item 706 - updated notes
Item 707 - updated notes
Item 715 - updated temp stow location
Item 716 - updated temp stow location
Item 901 - new item
Item 902 - new item

FD07 Choreography
- **Items 29.1, 29.2, & 29.3:** Transfer CUCU items per CUCU TRANSFER & INSTALL activity

Have an excellent day and let us know if you have any questions!

- The STS-129 Transfer Team

NOTE
For all OCASes if the Joint Angles are incorrect after loaded, then **cmd** Cancel on the PCS and reload the correct destination.

1. SETUP
   Configure Cameras and overlays as required.

Monitor 1	Monitor 2	Monitor 3	V10L	V10R
22: Base Elbow (0, +10)	25: Tip LEE (fully zoomed out)	03: S1 Lower Outboard (-90, +55) 13: LAB Stbd Zenith (+30, +75)	Camera B (+45, +20)	SRMS Elbow (+95, -50)

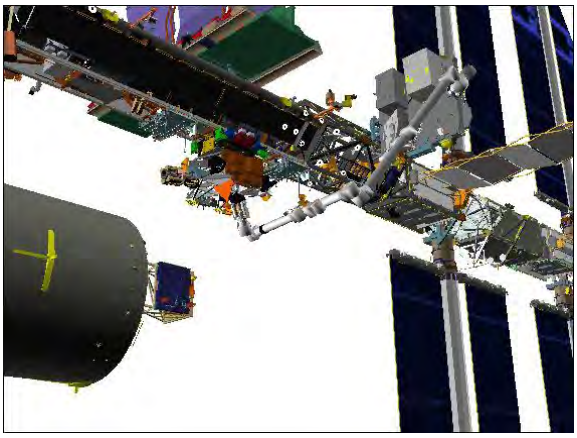


Figure 1.- ELC2 S3LO Install (Camera B: +45, +20).

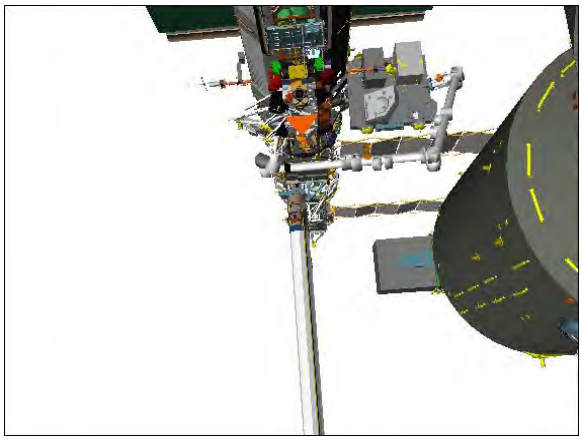


Figure 2.- ELC2 S3LO Install (SRMS Elbow: +95, -50).

Verify with **MCC-H** that Stbd SARJ is locked and clear for ELC2 Release.

PCS MSS: SSRMS: SSRMS

Verify Loaded Parameters – √
Verify 'Loaded Parameters' (two) – ELC2 Install, SR Held

Verify 'Unloaded Parameters' (two) – LEE Tip, SR Held

√Display – S3>ELC2 Install S3LO

√Command – SSRMS>Internal

√Vernier

MSS: SSRMS: Rate: SSRMS Rate

Set 'Scale' 'Vernier' Rate Scale: 1.0 (Verify 1.0)

Verify SSRMS at ELC2 S3LO Install position (within 5 cm/1 deg).

SR	SY	SP	EP	WP	WY	WR
+170.2	+57.7	+127.9	+77.9	-87.6	-160.3	+245.5
X	Y	Z	Pitch	Yaw	Roll	
0	0	0	0.0	0.0	0.0	
FOR	Loaded – ELC2 Install, SR Held					
Disp	S3>ELC2 Install S3LO					

2. ELC2 RELEASE

NOTE
The following maneuver will bring the SSRMS Base Boom within 32in of MBS PDGF1. This clearance can be monitored with the Base Elbow Camera or the S1 Lower Outboard Camera at (+10, -30).

2.1 Release Setup

MSS: SSRMS: MSS Safing: MSS Safing

cmd 'SSRMS' Remove (Verify Not Safed)

DCP BRAKES SSRMS → OFF (Verify OFF)

2.2 SSRMS Limp

PCS MSS: SSRMS: Limp: SSRMS Limp

cmd All Limp (Verify Limp – blue)

MSS: SSRMS: SSRMS

Verify all joints – Limped

2.3 Auto Release

Verify with **MCC-H** - Payload and PDGF power inhibits have been confirmed

MSS: SSRMS: Tip LEE: SSRMS Tip LEE

cmd Release ▶ Automatic ▶ Slow (Verify Speed – Slow)

Verify '**Confirm or Terminate**' prompt.

cmd Confirm (Verify RHC Trigger Hot icon)

Verify LEE Mode – Auto Release

RHC TRIGGER → press (momentarily)

PCS Verify 'Umbilical' Demate – blue (10 s max)
Verify 'Latch' Unlatch − blue (65 s max)
Verify 'Carriage' Retract – gray (90 s max)
Verify 'Snare' Open – blue (12 s max)
Verify 'Carriage' Derigidize − blue
Verify 'Carriage' Extend – blue (90 s max)

2.4 <u>SSRMS Backoff</u>

MSS: SSRMS: Limp: SSRMS Limp

cmd None Limp (Verify Standby – blue)

MSS: SSRMS: SSRMS

Change Display▶S3▶ELC2 PVGF1 S3LO (Verify S3▶ELC2 PVGF1 S3LO)

Enter Mode – Manual (Verify blue)

MSS: SSRMS: SSRMS Manual: Joint Lock: Joint Lock

cmd Shoulder Roll (Verify SR – Locked)

THC/ RHC Maneuver SSRMS to ELC2 S3LO Backoff position (within 5 cm/1 deg).

Locked						
SR	SY	SP	EP	WP	WY	WR
+170.2	+55.2	+129.2	+65.0	-75.2	-161.4	+247.8
X	Y	Z	Pitch	Yaw	Roll	
-150	0	0	0.0	0.0	0.0	
FOR	Unloaded – LEE Tip, SR Held					
Disp	S3>ELC2 PVGF1 S3LO					

Give **MCC-H** '**GO**' to power ELC2

PCS MSS: SSRMS: SSRMS

Enter Mode – Standby (Verify blue)

3. JOCAS TO MBS PDGF 1 PRE-GRAPPLE

3.1 Setup

Configure Cameras and overlays as required.

Monitor 1	Monitor 2	Monitor 3	V10L	V10R
03: S1 Lower Outboard (+10, -30)	37: MBS Mast (+125, -15)	13: LAB Stbd Zenith (+30, +75)	Camera B (+45, +20)	SRMS Elbow (+95, -50)

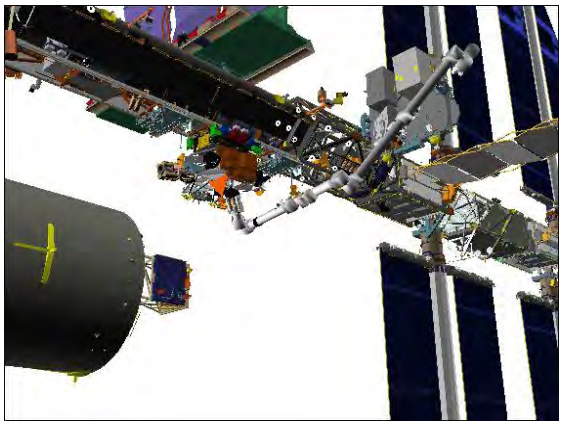


Figure 3.- ELC2 S3LO Backoff (Camera B: +45, +20).

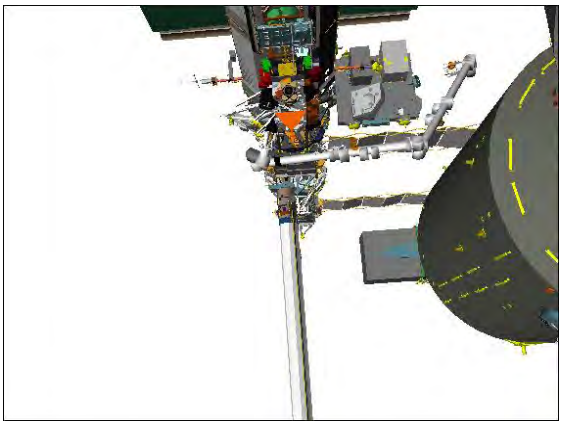


Figure 4.- ELC2 S3LO Backoff (SRMS Elbow: +95, -50).

NOTE
The following maneuver will bring the SSRMS Base Boom within 32in of MBS PDGF1. This clearance can be monitored with the S1 Lower Outboard Camera.

MSS: SSRMS: SSRMS

Change Loaded Parameters ▶ Walk Off ▶ MBS PDGF 1
Verify 'Loaded Parameters' (two) – MBS PDGF 1, SR Held

Change Unloaded Parameters ▶ Unloaded ▶ LEE Tip SYH
Verify 'Unloaded Parameters' (two) – LEE Tip, SY Held

Change Display ▶ MBS ▶ PDGF 1 (Verify MBS>PDGF 1)

RHC RATE → COARSE (Verify Coarse on PCS)

Verify SSRMS at ELC2 S3LO Backoff position (within 5 cm/1 deg).

SR	SY	SP	EP	WP	WY	WR
+170.2	+55.2	+129.2	+65.0	-75.2	-161.4	+247.8
X	Y	Z	Pitch	Yaw	Roll	
-91	+225	+936	+116.7	-80.2	+163.8	
FOR	Unloaded – LEE Tip, SY Held					
Disp	MBS>PDGF 1					

3.2 JOCAS to MBS PDGF 1 Pre-Grapple (2 Minutes)

> NOTE
> Expect the cross cluster warning to annunciate and persist into Step 7.

Enter Mode – Joint OCAS (Verify blue)

SSRMS Joint OCAS

Input 'Joint Angles' 'Destination' for MBS PDGF 1 Pre-Grapple position.

SR	SY	SP	EP	WP	WY	WR
+153.4	+6.9	-1.1	+154.8	-125.0	-200.0	-104.2

cmd Load (Verify Sequence Status – Confirm or Cancel)

MON Verify joint angles and errors are correct on Joint Angle Position overlay.

	SR	SY	SP	EP	WP	WY	WR
(current)	+170.2	+55.2	+129.2	+65.0	-75.2	-161.4	+247.8
TGT	**+153.4**	**+6.9**	**-1.1**	**+154.8**	**-125.0**	**-200.0**	**-104.2**
ERR	+16.8	+48.3	+130.3	-89.8	+49.8	+38.6	+352.0

PCS **cmd** Confirm (Verify Sequence Status – Auto Seq sw - Hot)

DCP AUTO SEQ → PROC

PCS MSS: SSRMS: SSRMS

Verify Posn Hold – orange

Verify Joint Angle values.

SR	SY	SP	EP	WP	WY	WR
+153.4	+6.9	-1.1	+154.8	-125.0	-200.0	-104.2

4. MBS PDGF 1 GRAPPLE

4.1 Grapple Setup

Configure Cameras and overlays as required.

Monitor 1	Monitor 2	Monitor 3	V10L	V10R
03: S1 Lower Outboard (+10, -30)	25: Tip LEE (fully zoomed out)	37: MBS Mast (+145, -5)	Camera B (+45, +20)	SRMS Elbow (+95, -50)

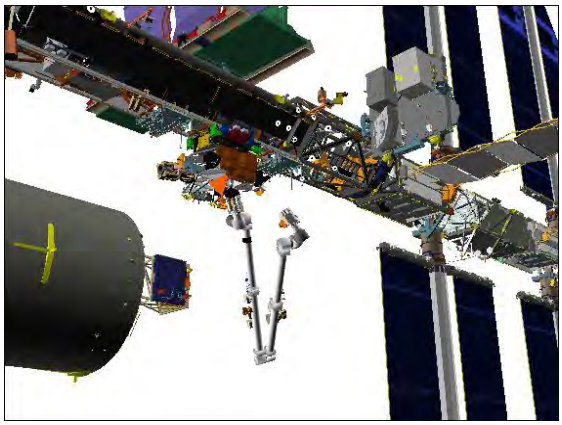


Figure 5.- MBS PDGF 1 Pre-Grapple (Camera B: +45, +20).

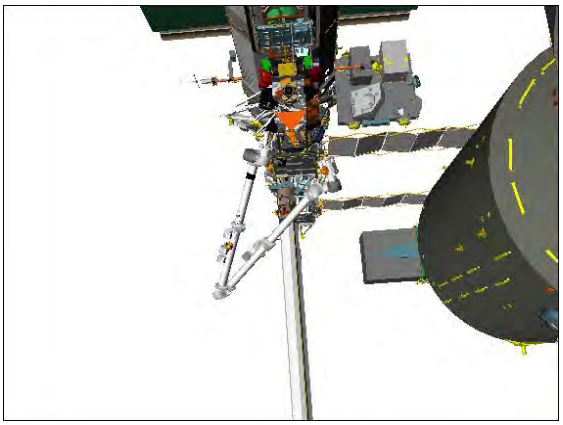


Figure 6.- MBS PDGF 1 Pre-Grapple (SRMS Elbow: +95, -50).

RHC RATE → VERN (Verify Vern on PCS)

MSS: SSRMS: Rate: SSRMS Rate

Set 'Scale' 'Vernier' Rate Scale: as desired.

4.2 Maneuver to MBS PDGF 1 Grapple

MSS: SSRMS: SSRMS

Enter Mode – Manual (Verify blue)

MSS: SSRMS: SSRMS Manual: Joint Lock: Joint Lock

cmd Shoulder Yaw (Verify SY – Locked)

RHC/ THC Maneuver to within grapple envelope.

4.3 Slow Capture Commands

PCS MSS: SSRMS: Tip LEE: SSRMS Tip LEE

cmd Capture ▶ Automatic ▶ Slow, Limp (Verify Speed – Slow)

Verify '**Confirm or Terminate**' prompt.

cmd Confirm (Verify RHC Trigger Hot icon)

Verify LEE Mode – Auto Capture

4.4 MBS PDGF 1 Grapple

RHC TRIGGER → press (momentarily)

PCS Verify 'Snare' Close, Capture (two) – blue (12 s max)
Verify Capture to Latch – Yes (SCR 19282)
Verify 'Carriage' Tension ~5500 N (90 s max)
Verify 'Carriage' Retract – blue
Verify 'Latch' Latch – blue (80s max)

4.5 Mating Umbilicals

Verify with **MCC-H** - Payload and PDGF power inhibits have been confirmed

cmd 'Umbilical' Mate (Verify '**Confirm or Terminate**' prompt)

NOTE
Expect 'R3L - SSRMS Pwr Flags Fail' Robotics Advisory message when mating is complete (SCR 19019).

cmd Confirm (Verify RHC Trigger Hot icon)

Verify LEE Mode – Mate

RHC TRIGGER → press (momentarily)

PCS Verify 'Umbilical' Mate – blue (10 s max)
Verify 'Connector Continuity' Prime, Redundant (two) – Yes

4.6 De-Rigidize

MSS: SSRMS: Tip LEE: SSRMS Tip LEE

cmd 'Carriage' Derigidize ▶ Slow (Verify Speed – Slow)

Verify '**Confirm or Terminate**' prompt.

cmd Confirm (Verify RHC Trigger Hot icon)

Verify LEE Mode – Deridigize

RHC TRIGGER → press (momentarily) (SCR 19064)

PCS Verify 'Carriage' Retract – grey (90 s max)
Verify 'Carriage' Tension < 555 N
Verify 'Carriage' Brakes – On (90 s max)

4.7 Grapple Cleanup

MSS: SSRMS: SSRMS

Verify Posn Hold – orange

Verify Loaded Parameters – √
Verify 'Loaded Parameters' (three) – MBS PDGF 1, SR Held

NOTE
Expect the following message when safing is commanded:
'**R3Z - MSS OCS SSRMS Prime(Redun) ACU SRT Cat-1 Brk Stat Fail**' (SCR 17495)
This message should return to Norm.

DCP SAFING → SAFE (Verify ON)

Verify SSRMS at MBS PDGF 1 Grapple position (within 5 cm/1 deg).

	Locked					
SR	SY	SP	EP	WP	WY	WR
+167.6	+6.9	+25.5	+163.5	-163.9	-206.4	-90.6
X	Y	Z	Pitch	Yaw	Roll	
0	0	0	0.0	0.0	0.0	
FOR	Loaded – MBS PDGF 1, SR Held					
Disp	MBS>PDGF 1					

Give **MCC-H** '**GO**' for SSRMS Base Change.'

5. BASE CHANGE
On MCC-H GO, 'Base Change complete:'

PCS MSS: SSRMS: SSRMS

Verify Loaded Parameters – √
Verify 'Loaded Parameters' (three) – MBS PDGF 2, SR Held

Verify 'Unloaded Parameters' (two) – LEE Tip, SY Held

Change Display ▶ MBS ▶ PDGF 2 (Verify MBS>PDGF 2)

√Command – SSRMS>Internal

√Vernier

MSS: SSRMS: Rate: SSRMS Rate

√'Scale' 'Vernier' Current: 1.0

Verify SSRMS at MBS PDGF 2 Grapple position (within 5 cm/1 deg).

SR	SY	SP	EP	WP	WY	WR
-90.6	+206.4	-163.9	+163.5	+25.5	-6.9	+167.6
X	Y	Z	Pitch	Yaw	Roll	
0	0	0	0.0	0.0	0.0	
FOR	Loaded – MBS PDGF 2, SR Held					
Disp	MBS>PDGF 2					

6. MBS PDGF 2 RELEASE

6.1 Release Setup

Configure Cameras and overlays as required.

Monitor 1	Monitor 2	Monitor 3	V10L	V10R
03: S1 Lower Outboard (+10, -30)	25: Tip LEE (fully zoomed out)	37: MBS Mast (-150, -20)	Camera B (+45, +20)	SRMS Elbow (+95, -50)

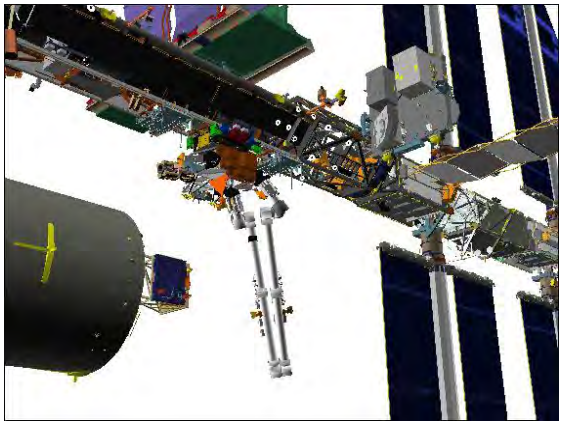


Figure 7.- MBS PDGF 2 Grapple (Camera B: +45, +20).

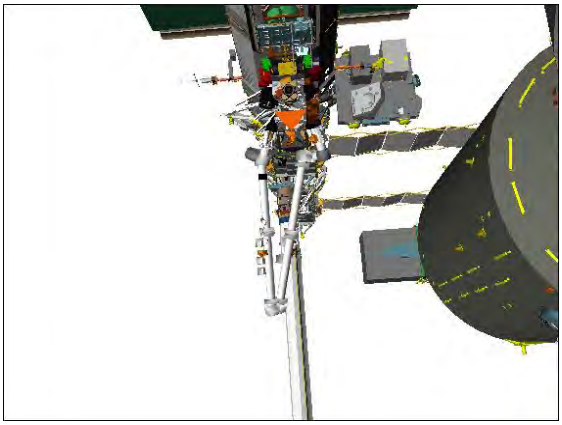


Figure 8.- MBS PDGF 2 Grapple (SRMS Elbow: +95, -50).

MSS: SSRMS: MSS Safing: MSS Safing

cmd 'SSRMS' Remove (Verify Not Safed)

DCP BRAKES SSRMS → OFF (Verify OFF)

6.2 SSRMS Limp

PCS MSS: SSRMS: Limp: SSRMS Limp

cmd All Limp (Verify Limp – blue)

MSS: SSRMS: SSRMS

Verify all joints – Limped

6.3 Auto Release

Verify with **MCC-H** - Payload and PDGF power inhibits have been confirmed

MSS: SSRMS: Tip LEE: SSRMS Tip LEE

cmd Release ▶ Automatic ▶ Slow (Verify Speed – Slow)

Verify '**Confirm or Terminate**' prompt.

cmd Confirm (Verify RHC Trigger Hot icon)

Verify LEE Mode – Auto Release

RHC TRIGGER → press (momentarily)

PCS Verify 'Umbilical' Demate – blue (10 s max)
Verify 'Latch' Unlatch − blue (65 s max)
Verify 'Carriage' Retract – gray (90 s max)
Verify 'Snare' Open – blue (12 s max)
Verify 'Carriage' Derigidize − blue
Verify 'Carriage' Extend – blue (90 s max)

6.4 SSRMS Backoff

MSS: SSRMS: Limp: SSRMS Limp

cmd None Limp (Verify Standby – blue)

MSS: SSRMS: SSRMS

√Vernier

Enter Mode – Manual (Verify blue)

MSS: SSRMS: SSRMS Manual: Joint Lock: Joint Lock

cmd Shoulder Yaw (Verify SY – Locked)

THC/ RHC Maneuver SSRMS to MBS PDGF 2 Backoff position (within 5 cm/1 deg).

	Locked					
SR	SY	SP	EP	WP	WY	WR
-86.2	+206.4	-193.9	+157.5	+59.9	-5.3	+171.2
X	Y	Z	Pitch	Yaw	Roll	
-150	0	0	0.0	0.0	0.0	
FOR	Unloaded – LEE Tip, SY Held					
Disp	MBS>PDGF 2					

7. JOCAS TO INTERMEDIATE POSITION (10 MINUTES)
   Configure Cameras and overlays as required.

Monitor 1	Monitor 2	Monitor 3	SSC 1 (MON 1)	SSC 2 (DTV)
03: S1 Lower Outboard (-10, -30)	24: Tip Elbow (+10, 0)	13: LAB Stbd Zenith (+30, +85)	Camera B (+45, +20)	SRMS Elbow (+95, -50)

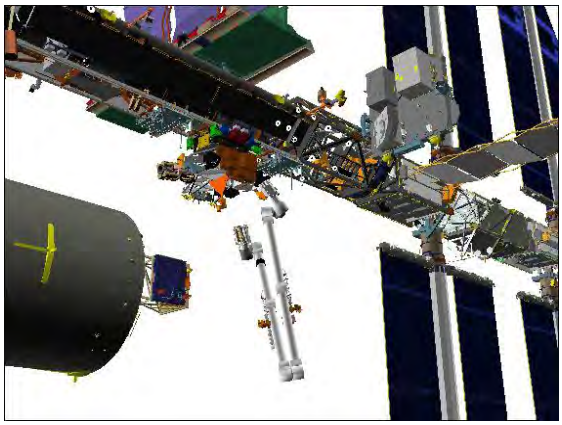


Figure 9.- MBS PDGF 2 Backoff (Camera B: +45, +20).

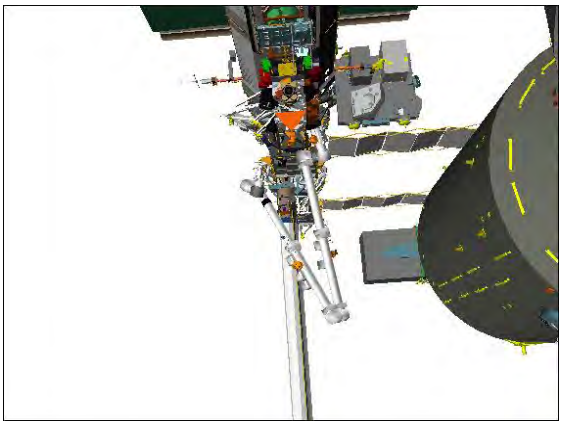


Figure 10.- MBS PDGF 2 Backoff (SRMS Elbow: +95, -50).

NOTE
Expect a singularity warning for EP between -15 and +15 deg.

RHC RATE → COARSE (Verify Coarse on PCS)

PCS MSS: SSRMS: SSRMS

Enter Mode – Joint OCAS (Verify blue)

SSRMS Joint OCAS

Input 'Joint Angles' 'Destination' for Intermediate position.

SR	SY	SP	EP	WP	WY	WR
-100.0	+206.4	-130.0	-140.0	-72.0	-180.0	+157.4

cmd Load (Verify Sequence Status – Confirm or Cancel)

MON Verify joint angles and errors are correct on Joint Angle Position overlay.

	SR	SY	SP	EP	WP	WY	WR
(current)	-86.2	+206.4	-193.9	+157.5	+59.9	-5.3	+171.2
TGT	**-100.0**	**+206.4**	**-130.0**	**-140.0**	**-72.0**	**-180.0**	**+157.4**
ERR	+13.8	0.0	-63.9	+297.5	+131.9	+174.7	+13.8

PCS **cmd** Confirm (Verify Sequence Status – Auto Seq sw - Hot)

DCP AUTO SEQ → PROC

PCS MSS: SSRMS: SSRMS

Verify Posn Hold – orange

Verify Joint Angle values.

SR	SY	SP	EP	WP	WY	WR
-100.0	+206.4	-130.0	-140.0	-72.0	-180.0	+157.4

8. JOCAS TO MT TRANSLATE CONFIG (6 MINUTES)
Configure Cameras and overlays as required.

Monitor 1	Monitor 2	Monitor 3	V10L	V10R
03: S1 Lower Outboard (-10, -30)	22: Base Elbow (+30, -5)	13: LAB Stbd Zenith (+30, +85)	Camera B (+45, +20)	SRMS Elbow (+95, -50)

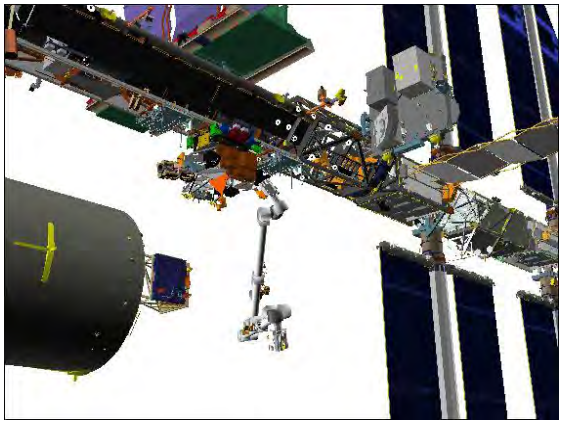


Figure 11.- Intermediate (Camera B: +45, +20).

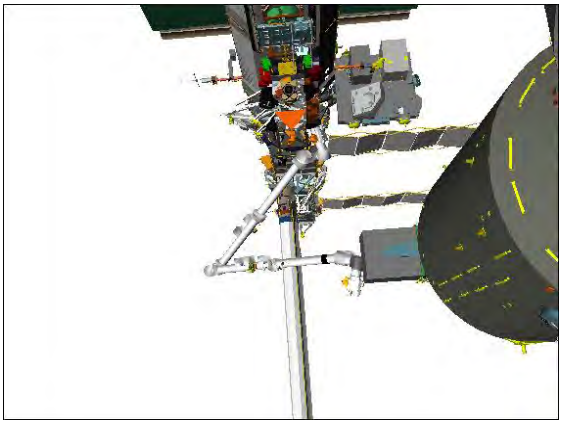


Figure 12.- Intermediate (SRMS Elbow: +95, -50).

NOTE
This maneuver brings the SSRMS Base Boom within 42in of the MBS Mast Camera. This Clearance can be monitored with the Base Elbow Camera of the SRMS Elbow Camera.

SSRMS Joint OCAS

Input ‘Joint Angles’ ‘Destination’ for MT Translation position.

SR	SY	SP	EP	WP	WY	WR
-100.0	+110.0	-8.0	-156.0	-72.0	-180.0	+157.4

cmd Load (Verify Sequence Status – Confirm or Cancel)

MON Verify joint angles and errors are correct on Joint Angle Position overlay.

	SR	SY	SP	EP	WP	WY	WR
(current)	-100.0	+206.4	-130.0	-140.0	-72.0	-180.0	+157.4
TGT	**-100.0**	**+110.0**	**-8.0**	**-156.0**	**-72.0**	**-180.0**	**+157.4**
ERR	0.0	+96.4	-122.0	+16.0	0.0	0.0	0.0

PCS **cmd** Confirm (Verify Sequence Status – Auto Seq sw - Hot)

DCP AUTO SEQ → PROC

PCS MSS: SSRMS: SSRMS

Verify Posn Hold – orange

Verify SSRMS at MT Translation position (within 5 cm/1 deg).

SR	SY	SP	EP	WP	WY	WR
-100.0	+110.0	-8.0	-156.0	-72.0	-180.0	+157.4
X	Y	Z	Pitch	Yaw	Roll	
-444	+9	-177	+127.0	+56.2	+56.0	
FOR	Unloaded – LEE Tip, SY Held					
Disp	MBS>PDGF 2					

NOTE
Expect the following message when safing is commanded:
'**R3Z - MSS OCS SSRMS Prime(Redun) ACU SRT Cat-1 Brk Stat Fail**' (SCR 17495)
This message should return to Norm.

DCP SAFING → SAFE (Verify ON)

TDRS	AOS	LOS	Delta (min)	Notes
W	05/03:19	05/03:31	12	
E	05/04:04	05/04:09	5	

Note: Please notify MCC-H 10 minutes prior to the event to allow for ground network configuration.

Gather the following equipment from both Shuttle and ISS for use in this morning's Exercise EVA Prep procedure.

ISS Stowed

Item	Location
Prime and backup tubing (blue or black)	ask ISS Crewmember for location
CEVIS PCMCIA Card	ask ISS Crewmember for location
Either one of the below CEVIS PCMCIA Cards should be used by both EV crewmembers during the Exercise Prebreathe:	
S/N 1030 - Shared by FE-1 and FE-3	
S/N 1024 - Assigned to FE2	
METOX canisters s/n 13 & 21	M-02 Bag s/n 1038

Shuttle Stowed

Item	Location
Cycling shoes (same as use on Shuttle Ergometer)	Last stowed location
EVA Ziplock Bag	MF57E
EVA Prebreathe CueCard	
HRM Resupply Kit:	MA16L
HRM Chest Strap	
HRM Transmitter	
Heart Rate Watch	