STS-132 / ULF4

FD 05 Execute Package

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032	21	EVA FD5 Deltas
033	22 - 24	STS-132 ULF4 Tie Wrap Prep
034	25 - 31	EVA LDRI Cable Workaround Briefing Packet
035	32 - 35	EVA LDRI Cable Workaround Procedure

Approved by FAO:
G. Whitney

Last Updated: May 18 2010 6:41 AM GMT
JEDI *(**J**oint **E**xecute package **D**evelopment and **I**ntegration), v3.0*

I didn't want to be a mustachioed pirate. I wanted to be... A LUMBERJACK!

♬ Oh I'm a lumberjack and I'm OK, ♬
♬ I work all night and I sleep all day. ♬

MSG INDEX

MSG NO.	TITLE
027	FD05 Flight Plan Revision (23-0622)
028	FD05 Mission Summary
029	FD05 Transfer Message (23-0615)
030	FD04 MMT Summary
031	FD05 PAO Event Summary (23-0616)
032	EVA FD05 Deltas (23-0611)
033	STS-132 ULF4 EVA Tie Wrap Prep (23-618)
034	EVA LDRI Cable Workaround Briefing Packet (23-619)
035	EVA LDRI Cable Workaround Procedure (23-620)

1. Post-Sleep Cryo Config

For today's post-sleep cryo config, O2 tanks 1 and 2, and H2 tanks 1 and 5 will be active.

R1 O2,H2 MANF VLV TK1 (two) - OP (tb-OP)
O2 TK2 HTRS A,B (two) - AUTO

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

Pre-Sleep Cryo Config

√MCC for deltas prior to configuring for pre-sleep.

For tonight's pre-sleep cryo config, manifold 1 will be closed with O2 and H2 tanks 1 and 5 active.

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

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

2. Crew Choice Downlink Opportunities

TDRS	AOS	LOS	Delta (min)	Notes
W	04/01:26	04/02:01	35	
W	04/03:02	04/03:35	33	
E	04/03:39	04/03:52	13	

3. WLES Laptop

   The WLES laptop has lost communication again with the LRU antenna. Sometime this morning, please disconnect the LRU from the serial port and then reseat it, firmly tightening the thumbscrews. Please notify MCC-H when complete.

4. MRM1 P&I

   Please make this Pen and Ink change to the CAUTION block in step 1 of 1.102 MRM1 PREP FOR TRANSFER (Assy Ops, MRM1):

   Was:
   MRM1 may remain unpowered for transfer for a maximum of **4** hours.

   Is:
   MRM1 may remain unpowered for transfer for a maximum of **7** hours.

5. Replace pages 2-14 through 2-17 and 3-44 through 3-53.

FD05
GMT 05/18/10 (138)
MET Day 003

NO EXERCISE [DBL GRPL] | NO EXERCISE [MRM CAPTURE] | NO EXERCISE [DBL GRPL] | REPLANNED

07 08 09 10 11 12 13 14 15 16 17 18 004/00
12 13 14 15 16 17 18 19 20 21 22 23

STS-132

| | | |

FD05

GMT 05/18/10 (138)

MET Day 003

NO EXERCISE [DBL GRPL] | NO EXERCISE [MRM CAPTURE] | NO EXERCISE [DBL GRPL] | REPLANNED

12 13 14 15 16 17 18 19 20 21 22 23 004/00

ISS TDRS AVAIL

ISS	ISS CDR Kotov	SLEEP; POST SLEEP; PW; СУБА CUP TEST; DPC; PW; M1-FGB-DOCK-MON; TVIS; MIDDAY MEAL; ♣; DPART PREP; PMC; PREP
ISS	FE-1 Skvortsov	SLEEP; POST SLEEP; TBUCK; MPEG2; СУБА CUP TEST; DPC; TBC-MON; TVIS; R PAO CHRON P/V; TBC-MON; TBCE-OFF; TEX15; MIDDAY MEAL; TEX-15 DNLD; КПТ-2-EXE_23/24; PREP
ISS	FE-2 Caldwell-Dyson	SLEEP; T2; PW; DPC; POST SLEEP; GC/DMS; BSA-T; EMU; BSA-I; CEVIS; MIDDAY MEAL; ARED; INSPCT; ARED CYL; GC/DMS; DOSIS; ND3 BF/SD INSP; VDSCAP; S/U; PREP
ISS	FE-3 Kornienko	SLEEP; ЭПКТ БЖ; POST SLEEP; PW; DPC; Ф СОСБ INVENT; TVIS MNT; Ф СОСБ INVENT; ИП-1 MNT; СОЖ; IMS; TVIS; MIDDAY MEAL; КПТ-2-EXE_23/24; VELO
ISS	FE-5 Noguchi	SLEEP; ARED; POST SLEEP; DPC; POST SLEEP; PW; N2 MTL; N2 LTL; JEM LTL; DPART PREP; MIDDAY MEAL; GSC OPS; MDDK XFR; CEVIS
ISS	FE-6 Creamer	SLEEP; D2XS; POST SLEEP; PW; DPC; A31P; ASHRS BRUSHDOWN; D2XS; P/TV-A; CSA-CP ACO; CEVIS; DPART PREP; EVA CAM; MIDDAY MEAL; KUSCHM; RMV; ЕДВ R&R; ARED

DAY/NIGHT

ORBIT: 57 | 58 | 59 | 60 | 61 | 62 | 63 | 64

SSRMS POS: LAB PDGF @ WS6

ALL VHF

NOTES: ♣OPSLAN-CABLE-DSCNCT

4

FD05

GMT 05/18/10 (138)

MET Day 004

NO UNISOLATED EXERCISE
[MT XLATE]

REPLANNED

004/00 19 20 21 22 23 05/19 01 02 03 04 05 06
01 02 03 04 05 06 07 08 09 10 11 12

STS-132

CDR Ham	PAO	EVA2 PROCEDURE RVW	XFER TAGUP	PRE SLEEP	XFER BREF PMC A/G	PRE SLEEP	SLEEP																	
PLT Antonelli		EVA2 PROCEDURE RVW	PTV6 DCT ILLUM-ON	PRE SLEEP			ISS EXTERNAL SURVEY / SLEEP																	
MS1 Reisman	PAO	EVA2 PROCEDURE RVW		PRE SLEEP			SLEEP																	
MS2 Good	LDRI CABLE PROC RVW	EVA2 PROCEDURE RVW		PRE SLEEP		MASK PB/TOOL CONFIG	PRE SLEEP	SLEEP / ISS A/L CAMPOUT @ 10.2 psi																
MS3 Bowen	LDRI CABLE PROC RVW	EVA2 PROCEDURE RVW		PRE SLEEP		MASK PB/TOOL CONFIG (10.2 DPRS)	PRE SLEEP	SLEEP																
MS4 Sellers	PAO	EVA2 PROCEDURE RVW	MDDK#	EXERCISE		PRE SLEEP		SLEEP																

DAY/NIGHT

ORBIT: 64 65 66 67 68 69 70 71 72

ORB ATT: BIAS -XLV -ZVV

SSRMS POS: W/O — MBS PDGF3 @ WS6 — MT XLATE — MBS PDGF3 @ WS8

GND: PPK PPK PPK ULD PPK ULD

TDRS W E Z

ISS TDRS AVAIL

NOTES: #STATUS CHECK 2-16 FLT PLN/132/FLIGHT

FD05 — **REPLANNED**

GMT 05/18/10 (138) — MET Day 004

NO UNISOLATED EXERCISE [MT XLATE]

GMT: 19, 20, 21, 22, 23, 05/19, 01, 02, 03, 04, 05, 06

MET: 004/00, 01, 02, 03, 04, 05, 06, 07, 08, 09, 10, 11, 12

ISS TDRS AVAIL

ISS	ISS CDR Kotov	PAO		TVIS			DPC	PRE SLEEP-ISS																SLEEP
	FE-1 Skvortsov	PAO		VELO			DPC	PRE SLEEP ISS	PMC	PRE SLEEP-ISS														SLEEP
	FE-2 Caldwell-Dyson	PAO		EVA2 PROCEDURE RVW		DEACT	DPC	PRE SLEEP-ISS																SLEEP
	FE-3 Kornienko	VELO		PW	PMC	ЭЛКТБЖ	PW	DPC	PRE SLEEP-ISS															SLEEP
	FE-5 Noguchi	CEVIS		EVA2 PROCEDURE RVW			PW	DPC	PRE SLEEP-ISS															SLEEP
	FE-6 Creamer	ARED			EVA 2 PROC RVW	P/TV-D	DPC	MPC	PRE SLEEP-ISS		PFC	PRE SLEEP ISS	MPC											SLEEP

DAY/NIGHT

ORBIT: 64, 65, 66, 67, 68, 69, 70, 71, 72

SSRMS POS: W/O — MBS PDGF3 @ WS6 — MT XLATE — MBS PDGF3 @ WS8

ALL VHF

NOTES

STS-132 FD (05)

REPLANNED

GMT Date 05/18 (138) | W | TDRSE | Z | D/N | DORB | ORB | MET Day 003 | STS ATI

07:00 | 08:00 | 09:00 | 10:00 | 12:00 | 13:00 | 14:00 | 15:00 | 16:00

15 57 | 16 58 | 19 59

BIAS -XLV -ZVV

CDR HAM	PLT ANTONELLI	MS1 REISMAN	NOTES
SLEEP	SLEEP	SLEEP	
POST-SLEEP ACTIVITY (ORB OPS, CREW SYS)	POST-SLEEP ACTIVITY (ORB OPS, CREW SYS)	EVA CREW: TAKE 1 ASPIRIN (325mg)	
		SLEEP LOGBOOK (SDBI 1634)	
		POST-SLEEP ACTIVITY (ORB OPS, CREW SYS)	
		P/TV06 ROBOTICS OPERATIONS (PHOTO/TV, SCENES) SETUP	
MRM1 UNBERTH (PDRS, MRM1 NOMINAL)	L17 Check MCIU filter screen MRM1 UNBERTH (PDRS, MRM1 NOMINAL)		
		EXERCISE	
		ROBO: 1.101 MRM-1 HANDOFF AND DOCKING Steps 2-15, EXERCISE CONSTRAINT	**NO EXERCISE** [DOUBLE GRAPPLED]

FD05 EZ ACTIVITIES:
- √OCAC FILTER
- √MDDK DUCT SCREEN
- TEPC (STATUS CHECK) (ORB OPS, CREW SYS)
- HARD REBOOT ALL PGSCs EXCEPT: STS-1(OCA ROUTER), STS-6(WLES) & STS-5(RPOP2)

STS-132 FD (05)

REPLANNED

GMT Date 05/18 (138) | W | TDRS E | Z | D/N | DORB 15 16 | DORB 57 58 59 | MET Day 003 | STS ATT

MET: 12:00, 13:00, 14:00, 15:00, 16:00

BIAS -XLV -ZVV

MS2 GOOD

SLEEP

POST-SLEEP ACTIVITY (ORB OPS, CREW SYS)

CWC-I FILL (ORB OPS, ECLS)
Fill CWC-I #7,
Perform Parts D & E
Ref. MSG 016

CWC-I FILL (ORB OPS, ECLS)
Fill CWC-I #8, Perform Parts D & E
Ref. MSG 016

MS3 BOWEN

SLEEP

EVA CREW: TAKE 1 ASPIRIN (325mg)

SLEEP LOGBOOK (SDBI 1634)

POST-SLEEP ACTIVITY (ORB OPS, CREW SYS)

MS4 SELLERS

SLEEP

SLEEP LOGBOOK (SDBI 1634)

POST-SLEEP ACTIVITY (ORB OPS, CREW SYS)

CGBA STATUS CHECK (Cue Card)

1.102 MRM1 PREPARATION FOR TRANSFER (ASSY OPS, MRM1) Ref. MSG 027, Item 4

POST-SLEEP ACTIVITY (ORB OPS, CREW SYS)

ROBO: 1.101 MRM-1 HANDOFF AND DOCKING
Steps 2-15, EXERCISE CONSTRAINT

NOTES

NO EXERCISE [DOUBLE GRAPPLED]

STS-132 FD (05)

REPLANNED

GMT Date 05/18 (138) | W | TDRS E | Z | D/N | DORB | ORB | MET Day 003 | STS ATI | CDR HAM | PLT ANTONELLI | MS1 REISMAN | NOTES

16:00 — 17:00 — 18:00 — 19:00 — 20:00 — 11:00 — 12:00 — 13:00 — 14:00

D/N: 1, 2, 3, 4

ORB: 59, 60, 61, 62

STS ATI: BIAS-XLV-ZVV

CDR HAM

IMU STAR OF OPPTY ALIGN (ORB OPS, GNC)

MRM-1 RELEASE
(PDRS, MRM1 NOMINAL)
EXERCISE CONSTRAINT

MRM1 DOCK VIEWING
(PDRS, MRM1 NOMINAL)

FILTER CLEANING
(IFM, SCHEDULED MAINTENANCE)
Do not perform MCIU Filter Check

EXERCISE

MEAL

PLT ANTONELLI

MRM1 RELEASE
(PDRS, MRM1 NOMINAL)
EXERCISE CONSTRAINT

MRM1 DOCK VIEWING
(PDRS, MRM1 NOMINAL)

DAILY TRANSFER LIST UPDATE
Ref. Transfer List & MSG 029

132 EVA 2 TOOL CONFIG
(EVA, TIMELINES)

MEAL

MS1 REISMAN

ROBO: 1.101 MRM-1 HANDOFF AND DOCKING
Steps 2-15, EXERCISE CONSTRAINT

ROBO: 8.112 SSRMS LEE SNARE CABLE CLEANUP

MEAL

NOTES

NO EXERCISE
[DOUBLE GRAPPLED]

STS-132 FD (05)

REPLANNED

GMT Date 05/18 (138) | W | TDRS E | Z | D/N | DORB 1 2 3 4 | ORB 59 60 61 62 | MET Day 003 | STS ATT BIAS -XLV -ZVV

MS2 GOOD

16:00
- CWC-I FILL (ORB OPS, ECLS)
  Fill CWC-I #8, Perform Parts D & E
  Ref. MSG 016
- EMU SWAP FOR EVA 2
  (EVA, AIRLOCK CONFIG)
  Ref: 1.515 EMU METOX/LIOH/BATTERY REPLACEMENT
  Ref: STS-132 Consumables CC

17:00
- EVA SYSTEMS: 1.403 REBA POWERED HARDWARE CHECK
  Perform on EMU 3009(G) only

18:00
- 132 EVA 2 TOOL CONFIG
  (EVA, TIMELINES)

19:00
- EVA SYSTEMS: 1.305 EQUIPMENT LOCK PREP

20:00

MS3 BOWEN

- SSV OUTRATE - 2
- EMU SWAP FOR EVA 2
  (EVA, AIRLOCK CONFIG)
  Ref: 1.515 EMU METOX/LIOH/BATTERY REPLACEMENT
  Ref: STS-132 Consumables CC
- EVA SYSTEMS: 1.403 REBA POWERED HARDWARE CHECK
  Perform on EMU 3009(G) only
- TIE WRAP PREP
  Ref. MSG 033
- 132 EVA 2 TOOL CONFIG
  (EVA, TIMELINES)
- EVA SYSTEMS: 1.305 EQUIPMENT LOCK PREP

MS4 SELLERS

- ROBO: 1.101 MRM-1 HANDOFF AND DOCKING
  Steps 2-15, EXERCISE CONSTRAINT
- ROBO: 8.112 SSRMS LEE SNARE CABLE CLEANUP
- MEAL

NOTES

- UPLINK
  TFL 184
- **NO EXERCISE**
  [DOUBLE GRAPPLED]

STS-132 FD (05)

REPLANNED

GMT Date 05/18 (138) | W | TDRS E | Z | D/N | DORB 4 5 6 | ORB 62 63 64 | MET Day 003 | STS ATT

20:00 — 21:00 — 22:00 — 23:00 — 00:00

BIAS -XLV -ZVV

CDR HAM	PLT ANTONELLI	MS1 REISMAN	NOTES
MEAL	MEAL	MEAL	
MNVR TO OBSS HANDOFF PRE-GRAPPLE (PDRS,OBSS NOMINAL) Steps 1 & 2	MNVR TO OBSS HANDOFF PRE-GRAPPLE (PDRS,OBSS NOMINAL) Steps 1 & 2	ROBO: 4.101 OBSS UNBERTH AND HANDOFF Step 1-3	
	MNVR TO OBSS HANDOFF PRE-GRAPPLE (PDRS, OBSS NOMINAL) Steps 3-5	ROBO: 4.101 OBSS UNBERTH AND HANDOFF Step 4	
		ROBO: 4.101 OBSS UNBERTH AND HANDOFF Steps 5-7	
OBSS GRAPPLE FROM SSRMS (PDRS, OBSS NOMINAL) EXERCISE CONSTRAINT	R1 PL PRI MNC - ON (tb-ON) OBSS GRAPPLE FROM SSRMS (PDRS, OBSS NOMINAL) EXERCISE CONSTRAINT	ROBO: 4.101 OBSS UNBERTH AND HANDOFF Steps 8-9 EXERCISE CONSTRAINT	NO EXERCISE [DOUBLE GRAPPLED]
		ROBO: 4.101 OBSS UNBERTH AND HANDOFF Steps 10-13	
		TRANSFER OPS Ref. Middeck Transfer List & MSG 029	
	EXERCISE		
LDRI INHIBIT PAD Ref. MSG 035, Steps 1-9 BATTERY R&R VIEWING (PDRS, VIEWING SUPPORT)	LDRI INHIBIT PAD Ref. MSG 035, Steps 1-9 BATTERY R&R VIEWING (PDRS, VIEWING SUPPORT)		

STS-132 FD (05)

REPLANNED

GMT Date 05/18 (138) | W | TDRS E | Z | D/N | DORB 4 5 6 | ORB 62 63 64 | MET Day 003 | STS ATT | BIAS-XLV-ZVV

MET	MS2 GOOD	MS3 BOWEN	MS4 SELLERS	NOTES
20:00	EXERCISE	MEAL	MEAL	
21:00	MEAL	EXERCISE	ROBO: 4.101 OBSS UNBERTH AND HANDOFF Step 1-3 ROBO: 4.101 OBSS UNBERTH AND HANDOFF Step 4	
22:00	CWC-I FILL (ORB OPS, ECLS) Fill CWC-I #9, Perform Parts D & E Ref. MSG 016 CWC-I FILL (ORB OPS, ECLS) Fill CWC-I #10, Perform Parts D & E Ref. MSG 016	TRANSFER OPS Ref. Middeck Transfer List & MSG 029	ROBO: 4.101 OBSS UNBERTH AND HANDOFF Steps 5-7	
23:00	CWC-I FILL (ORB OPS, ECLS) Fill CWC-I #11, Perform Parts D,E & F Ref. MSG 016 CWC-I TRANSFER Transfer 5 CWC-I to ISS		ROBO: 4.101 OBSS UNBERTH AND HANDOFF Steps 8-9 EXERCISE CONSTRAINT ROBO: 4.101 OBSS UNBERTH AND HANDOFF Steps 10-13	**NO EXERCISE** [DOUBLE GRAPPLED]
00:00	LDRI CABLE WORKAROUND PROCEDURE REVIEW Ref. MSG 032, 034 & 035	LDRI CABLE WORKAROUND PROCEDURE REVIEW Ref. MSG 032, 034 & 035		

STS-132 FD (05)

REPLANNED

GMT Date 05/18 (138) | W | TDRS E | Z | D/N | DORB 6 7 8 9 | ORB 64 65 66 67 | MET Day 004 | STS ATT

BIAS - XLV - ZVV

CDR HAM

- 00:00 — PUBLIC AFFAIRS EVENT
  ISS KU AVAIL: 23:24-00:21
  00:22-00:55
  Ref. MSG 031
- EVA 2 PROCEDURE REVIEW
  Ref: EVA 2 BRIEFING CARD
  (EVA, TIMELINES)
- TRANSFER TAGUP
  Coordinate with transfer counterpart
- PRE-SLEEP ACTIVITY
  (ORB OPS, CREW SYS)
  Air Quality Report
- TRANSFER BRIEF
  Call down status to MCC
- PRIVATE MEDICAL CONFERENCE
  L9 PAYLOAD STATION AUDIO A/G (two)-OFF
  Perform via A/G2
- PRE-SLEEP ACTIVITY
  (ORB OPS, CREW SYS)

PLT ANTONELLI

- EVA 2 PROCEDURE REVIEW
  Ref: EVA 2 BRIEFING CARD
  (EVA, TIMELINES)
- P/TV06 ROBOTICS OPERATIONS [A]
- PRE-SLEEP ACTIVITY
  (ORB OPS, CREW SYS)

[A] KEEL 2 PWR(ICC) - OFF
√2 ILL PWR(ICC) - ON

MS1 REISMAN

- PUBLIC AFFAIRS EVENT
  ISS KU AVAIL: 23:24-00:21
  00:22-00:55
  Ref. MSG 031
- EVA 2 PROCEDURE REVIEW
  Ref: EVA 2 BRIEFING CARD
  (EVA, TIMELINES)
- ILLUMINATOR OPS(CUE CARD,TV)ILLUM ON - A,D
- PRE-SLEEP ACTIVITY
  (ORB OPS, CREW SYS)

NOTES

STS-132 FD (05)

REPLANNED

GMT Date 05/18 (138) | W | TDRS E | Z | D/N | DORB 6 7 8 9 | ORB 64 65 66 67 | MET Day 004 | STS ATT BIAS -XLV -ZVV

MS2 GOOD	MS3 BOWEN	MS4 SELLERS	NOTES
LDRI CABLE WORKAROUND PROCEDURE REVIEW Ref. MSG 032, 034 & 035	LDRI CABLE WORKAROUND PROCEDURE REVIEW Ref. MSG 032, 034 & 035	PUBLIC AFFAIRS EVENT ISS KU AVAIL: 23:24-00:21 00:22-00:55 Ref. MSG 031	
EVA 2 PROCEDURE REVIEW Ref: EVA 2 BRIEFING CARD (EVA, TIMELINES)	EVA 2 PROCEDURE REVIEW Ref: EVA 2 BRIEFING CARD (EVA, TIMELINES)	EVA 2 PROCEDURE REVIEW Ref: EVA 2 BRIEFING CARD (EVA, TIMELINES)	
PRE-SLEEP ACTIVITY (ORB OPS, CREW SYS)	PRE-SLEEP ACTIVITY (ORB OPS, CREW SYS)	CGBA STATUS CHECK (Cue Card)	
		EXERCISE	
		PRE-SLEEP ACTIVITY (ORB OPS, CREW SYS)	
EVA SYSTEMS: 1.206 10.2 PSIA CAMPOUT MASK PREBREATHE Ref: 132 EVA 2 TOOL CONFIG (EVA, TIMELINES) Ref: STS-132 CONSUMABLES CC	EVA SYSTEMS: 1.206 10.2 PSIA CAMPOUT MASK PREBREATHE Ref: 132 EVA 2 TOOL CONFIG (EVA, TIMELINES) Ref: STS-132 CONSUMABLES CC		

STS-132 FD (05)

REPLANNED

GMT Date 05/18 (138) | W | TDRS E | Z | D/N | DORB 9 10 11 12 | ORB 67 68 69 70 | MET Day 004 | STS ATT

BIAS -XLV -ZVV

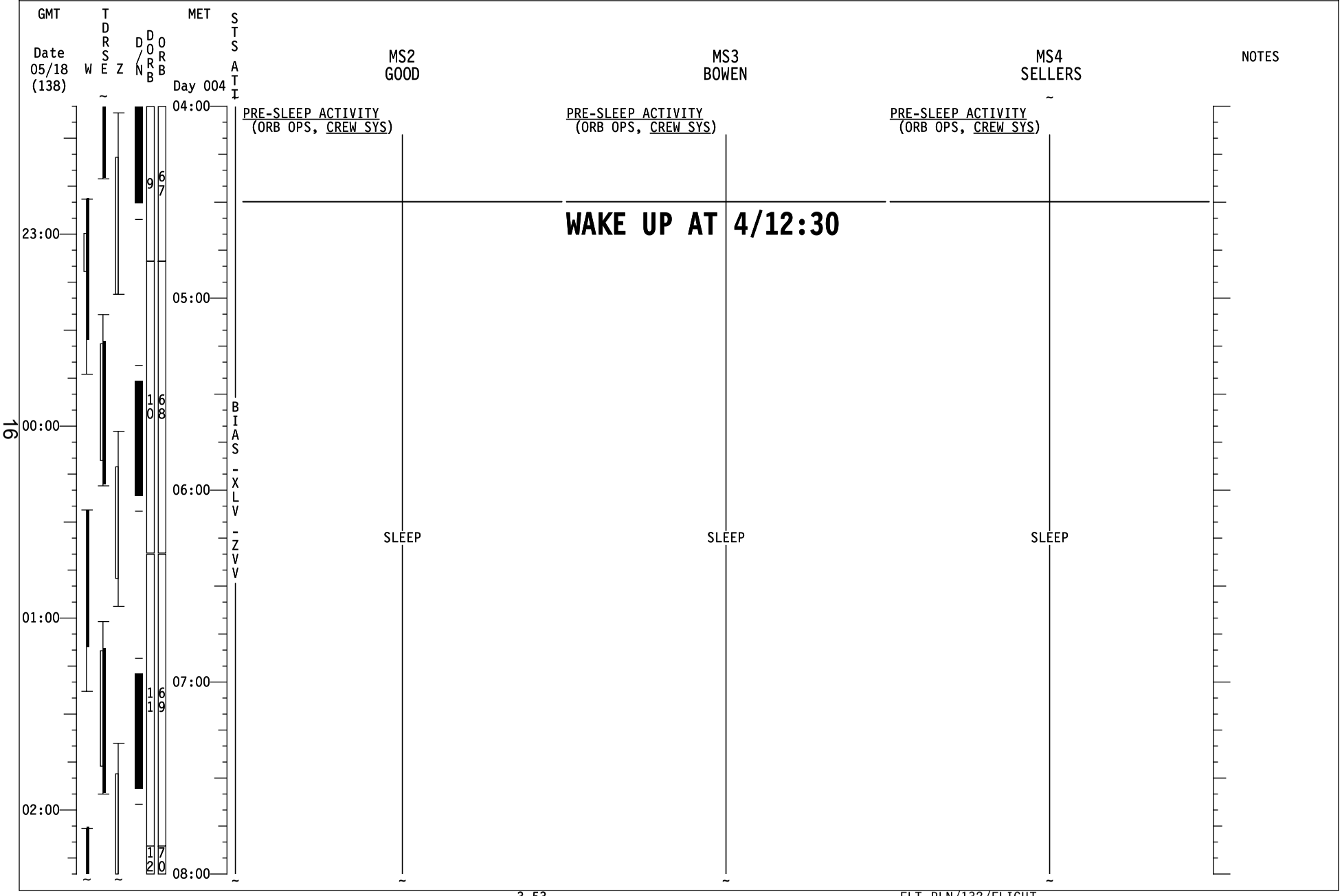
CDR HAM	PLT ANTONELLI	MS1 REISMAN	NOTES
PRE-SLEEP ACTIVITY (ORB OPS, CREW SYS)	PRE-SLEEP ACTIVITY (ORB OPS, CREW SYS)	PRE-SLEEP ACTIVITY (ORB OPS, CREW SYS)	
WAKE UP AT 4/12:30			
SLEEP	SLEEP	SLEEP	

GMT: 23:00, 00:00, 01:00, 02:00

MET: 04:00, 05:00, 06:00, 07:00, 08:00

STS-132 FD (05)

REPLANNED



Good Morning Atlantis!!!!

Great job on the EVA yesterday!

Have a great MRM1 install day!!!

YOUR CURRENT ORBIT IS: 191 X 184 NM

NOTAMS - (TWO CHANGES: DELETED GUA, ADDED DOV)

EDW -	EDW 22L/04R IN USE. EDT 22R/04L CLOSED FOR CONSTRUCTION.
EDW -	LAKEBED RWYS 15/33 GREEN. 18L RED.
NOR -	LAKEBED RWYS GREEN.
NTU -	RWY 05R/23L CLSD.
FOK -	CLOSED.
FMH -	RWY 23 APCH LTS OTS.
DOV	RWY 14/32 CLSD 1100 - 2100.
YYT -	TACAN UYT23 AZIMUTH OTS.
AMB -	RWY 15/33 REQUIRES 30MIN PN TO CLEAR WIP.
PTN -	CLSD.
IKF -	NOT USABLE. NO AGREEMENT.
BEN -	NOT RECOMMENDED/NOT SUPPORTED

<u>NEXT 2 PLS OPPORTUNITIES:</u>

EDW22	ORB 64 – 3/23:34 FEW050 SCT250	7	240/18P25
EDW22	ORB 80 – 4/23:59 SKC	7	240/06P09

<u>OMS TANK FAIL CAPABILITY:</u>

L OMS FAILS: NO
R OMS FAILS: NO

<u>LEAKING OMS PRPLT BURN:</u>

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

<u>OMS QUANTITIES(%)</u>

L OMS OX = 36.77 R OMS OX = 37.23
FU = 36.79 FU = 36.89

FOR CURRENT QTYS, SUBTRACT INCN’T COUNTER

DELTA V AVAILABLE:

OMS	358 FPS
ARCS (TOTAL ABOVE QTY1)	36 FPS
TOTAL IN THE AFT	394 FPS
ARCS (TOTAL ABOVE QTY2)	66 FPS
FRCS (ABOVE QTY 1)	34 FPS
AFT QTY 1	84 %
AFT QTY 2	46 %

SYSTEM #	FAILURE	IMPACT	WORK AROUND
EVA	EV1 (RM) received an eCWS alert tone at 7 psi.	None.	None. Reason tone annunciated is being investigated.
EVA	EV2 (BW) received an "O2 USE HIGH" message after O2 recharge.	None.	None. The message was probably caused by the rapid cooling typically seen after recharges.
EVA	NZGL connector P5; couldn't install properly	Loss of crew time. Potential loss of SGANT use.	P5 mated properly after being in sunlight
EVA	Dish bolts difficulty installing all 4 bolts	SGANT was not cleared structurally. Significant loss of crew time	Torque was increased additional turns achieved gap still exists. Troubleshooting steps to be discussed in near future.
EVA	EDF #3 released after installing with 5 turns	Loss of crew time	Increased torque to B7
EVA	BOOM fwd/aft bolts torqued out without breaking torque	Loss of crew time	Increased torque to B7
EVA	APFR 5 sticky knob going into APFR	Loss of crew time	Apply slightly more force

END OF PAGE 2 OF 2, MSG 028B

Good morning Ken and Tony,

I think you may be setting a new transfer speed record! Today's plan has you swapping the EVA Torque wrenches, and packing up items after some ISS payload and water sampling activities.

The Transfer List Excel file, FD05_Transfer_List_STS132.xls, is located on the KFX machine in **C:\OCA-up\transfer.**

For ISS, the Transfer List Excel file, FD05_Transfer_List_STS132.xls, is located in **K:\OCA-up\transfer.**

Transfer Questions/Comments

- Tony – you reported that we should leave item 727 open (Multimeter – Doc). Because this item is a swap, I will leave item 16 open for now also (Multimeter – Grumpy).

FD05 Transfer Choreography:

- Soichi: Transfer return samples after completing the ITCS sampling activities (items 902)
- Soichi: Transfer return GSC after GSC OPS activity (Items 721 and 722)
- Tracy: Transfer return passive detector pouch after DOS-PASS HW-DEINST (Item 904)
- T.J.: Transfer return ABRS items after ABRS SHUTDOWN activity (Items 706, 707 and 901)
- T.J.: Transfer CSA-CPs and CSA-CP Resupply Kit after EHS-CSA-CP ACO (items 709 and 906)
- MDDK XFER:
    - Swap EVA torque wrenches (Items 13.7 and 733)
    - Continue return transfers to open lockers and 5 MLE bags

Change Pages:
Please incorporate changes as follows:

In the Transfer List **RETURN** tab
Replace the following pages:
Return Page – 2, 4, 5, and 9.

FD06 Transfer Choreography:

- Soichi: Return water samples per EHS WATER activities (Item 728, 731, and 732)
- MDDK XFER:
    - Continue return transfer

Let us know if you have any questions!
- The ULF4 Transfer Team

The MMT met today during the EVA to review the orbiter systems and mission progress.

Atlantis continues to perform flawlessly (with minor issues as explained in FIWs).

As you are aware, the MMT decided not to entertain doing the RMS EE survey on FD5. The variables in the decision were the fact that EVA 1 was running long as well as allowing you guys to focus on installing MRM-1 and completing the OBSS handoff in preparation for EVA 2 (and the planned ITVC/LDRI pan/tilt cable repair).

With the FD5 survey tabled, the teams are looking at options to add inspection on FD7 (or later with +1 available) with and without recovery of Sensor Package 1. The key is how the inspection fits into the planned SSRMS activities (walkoffs, MBS translations, etc.) and what choreography changes would be required to accomplish the planned mission objectives while making sure the proper risks and tradeoffs are being assessed and weighed.

Should the pan/tilt not be recovered, the team is also looking at the option of waiting until Late Inspection to complete the surveys and determine what the timeline impacts would be with the additional RMS EE surveys.

Steve, Big G, Bueno, Tony, and Hock,

Great EVA yesterday! We are looking forward to another good one on EVA 2. We have a few notes for you today.

1. We know that you are aware of the LDRI Cable Workaround Task. Here are the items to be aware of:

    - MSG 033 (23-0618) - TIE WRAP PREP - is a 30 min procedure for Steve to assemble the tie wrap fix
    - MSG 034 (23-0619) - EVA LDRI Cable Workaround Briefing Packet - 30 min additional is scheduled for Steve and Bueno to review this. Also note that there are questions in the briefing packet; please let us know your answers. Depending on your answers and the results of the IMMT, we will send you P&I for your EVA 2 Tool Config.
    - MSG 035 (23-0620) - EVA LDRI Cable Workaround Procedure - please let us know if you have any questions

Steve and Mike,

2. During EVA1, it was noted that the top layer of the heat shrink near the yellow hook of Garret's 55' Safety Tether may be loose. We would like you to inspect the heat shrink during FD5 Tool Config. If it is loose, please cut off the top layer.

23-0618 (MSG 033) STS-132 ULF4 TIE WRAP PREP
Page 1 of 3 pages

OBJECTIVE:

Preparing 3 Tie Wraps to Fix LDRI Cable Snag.

DURATION:

30 Minutes

VERIFYING EQUIPMENT IN AIRLOCK (10 MINUTES)

1. Gather tools needed:
   - Tools/hardware:

     □ 6–EVA Tie-Wraps (green 14” tie wrap) – SDD13101649-304 – Location: NOD1O4_C1 - inside locker

     □ Kapton Tape – 528-41353-1– Location: NOD1O4_B1 - 0.5 CTB 1178

     □ Scissors (IVA), crew preference

     □ Sharpie, crew preference

PREPARING EVA TIE WRAPS (20 MINUTES)

1. ✓ EVA tie wraps (6) have metal tabs in the eye of the tie wrap heads

2. Mark line with sharpie

□□□ (3) Tie wraps with sharpie at 5” from the eye

Figure 1.

3. Make tether loops out of the three 5” marked wraps

□□□ Insert the tail end of the tie wrap into the eye up to the 5” mark

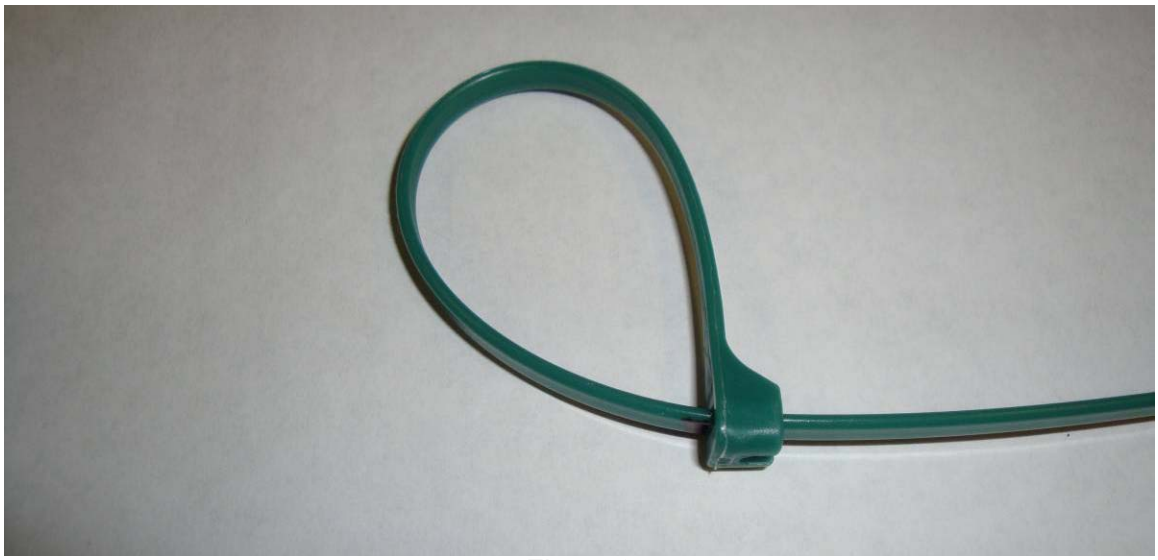


Figure 2.

□□□ Cut the excess straight plastic tails off and discard keeping the tether loop

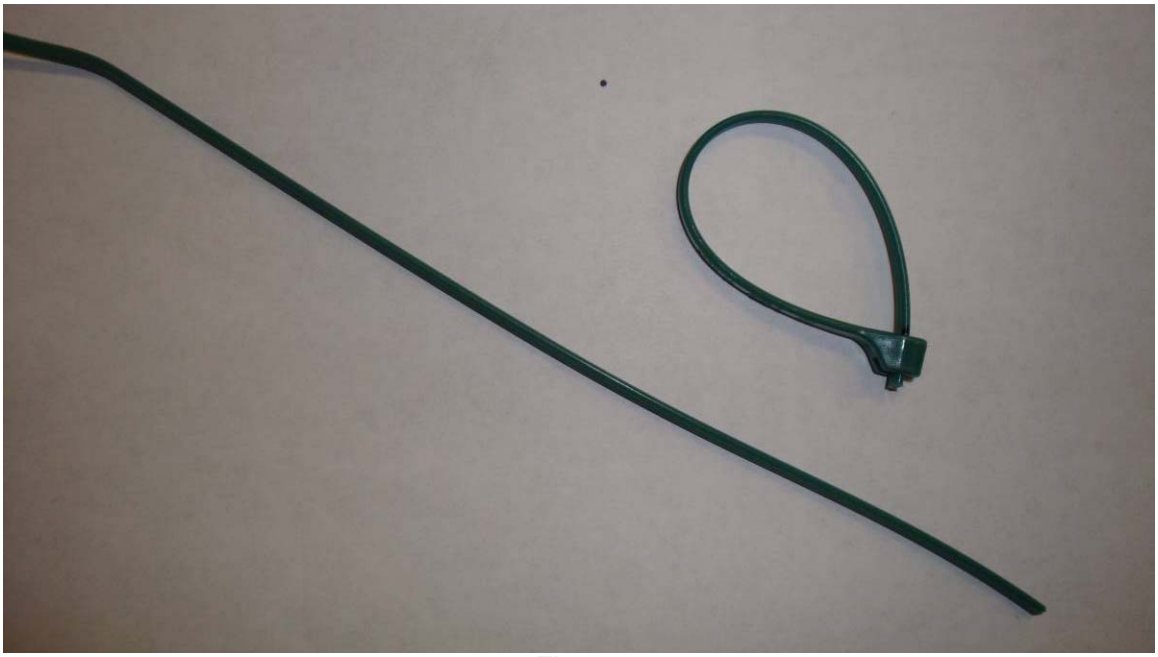


Figure 3.

4. Mark ‘window’ lines with sharpie

□□□ (3) Tie wraps 3.25” and 4.5” from the eye

Figure 4.

5. Attach the tether point to the tie wrap

□□□ Cut about a 6” piece of Kapton tape

□□□ Tape the loop to the tie wrap inboard of the 3.25” mark. Be sure to leave a 1” span of purely Kapton tape between the tether loop and tie wrap

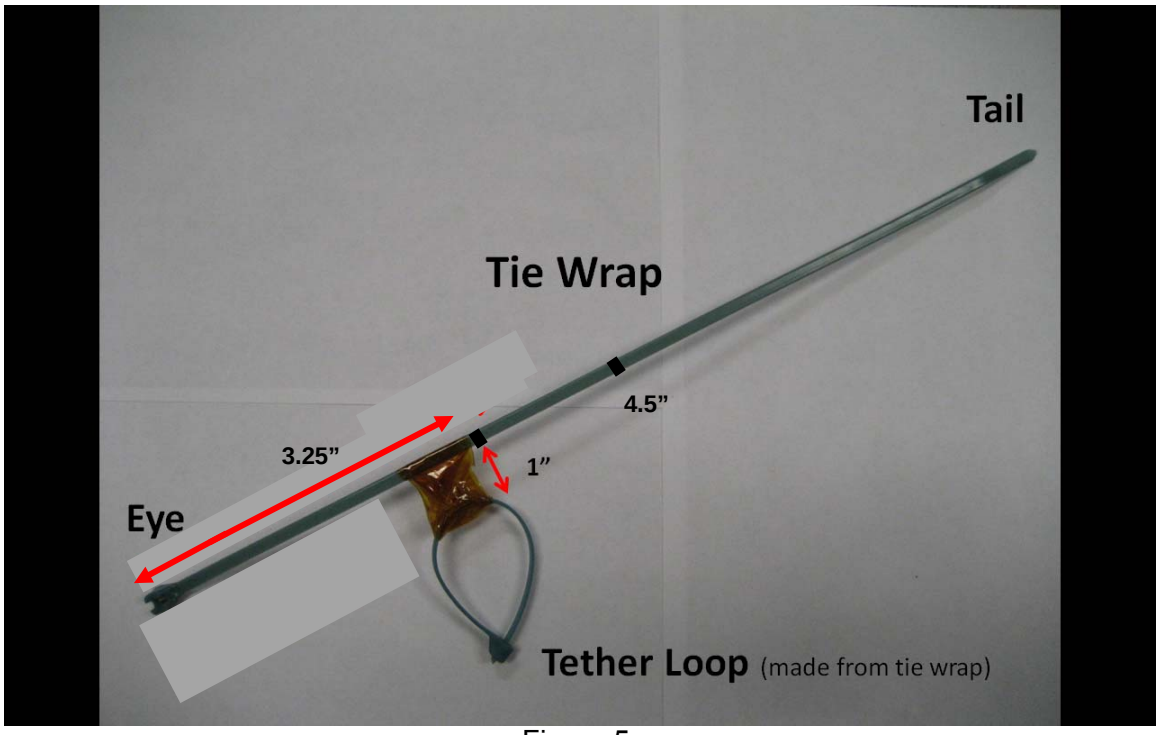


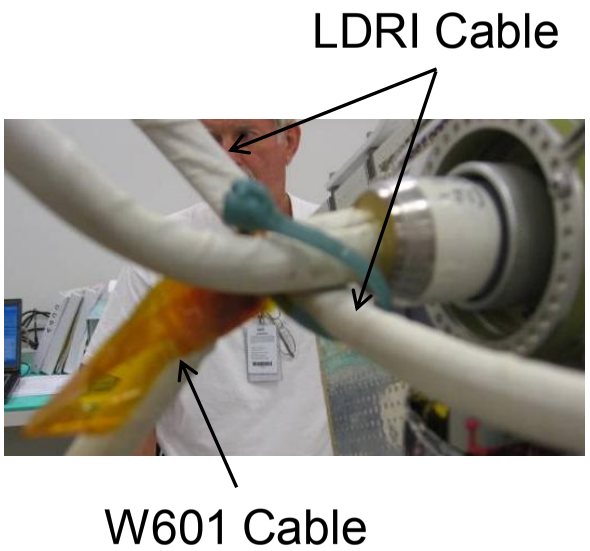
Figure 5.

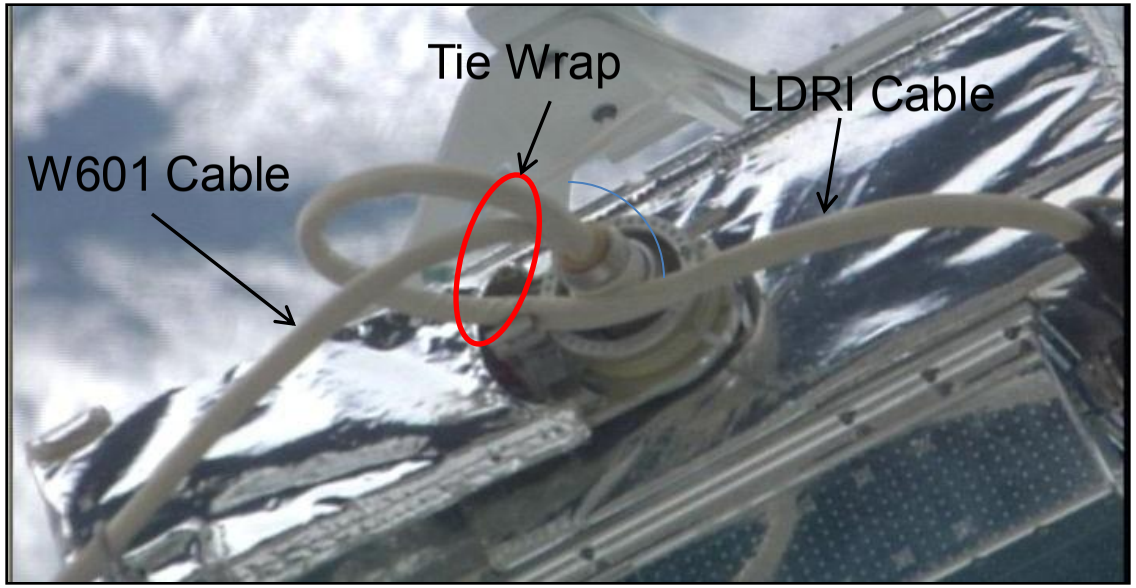
EVA Fix for LDRI Cable Interference with P/T Sensor

Briefing Package

Method for Restraining LDRI Cable

- EVA Task: (Est. time 0:30)
  - Release the LDRI cable from pinched spot (may need to tilt camera a bit)
  - Pull snagged section of cable towards the LDRI cable section coming out of the connector
  - Install Tie Wrap around the two ends of the LDRI cable
- Worksite Access:
  - EV positioned in APFR on stbd CETA Cart WIF 2
  - RMS with OBSS presents LDRI to crew





Prep Work

- IVA Prep:
  - Separate detail procedure to follow
- Tools/hardware:
  - Tie Wrap –1 required, 2 spare
  - Kapton tape – for tether loop
  - EVA Scissors – cut excess tie wrap and Kapton tape after tie wrap installed
  - Trash bag – whomever does the task will need a trash bag on MWS

EVA Tie Wrap

APFR Position from CETA Cart

Ingress/Egress Position

Task Position

Stbd CETA Cart 2
WIF 2
APFR: 12, FF, F, 6
Swingarm: 15 (90 °)
Pitch/Yaw Fitting: GG 12

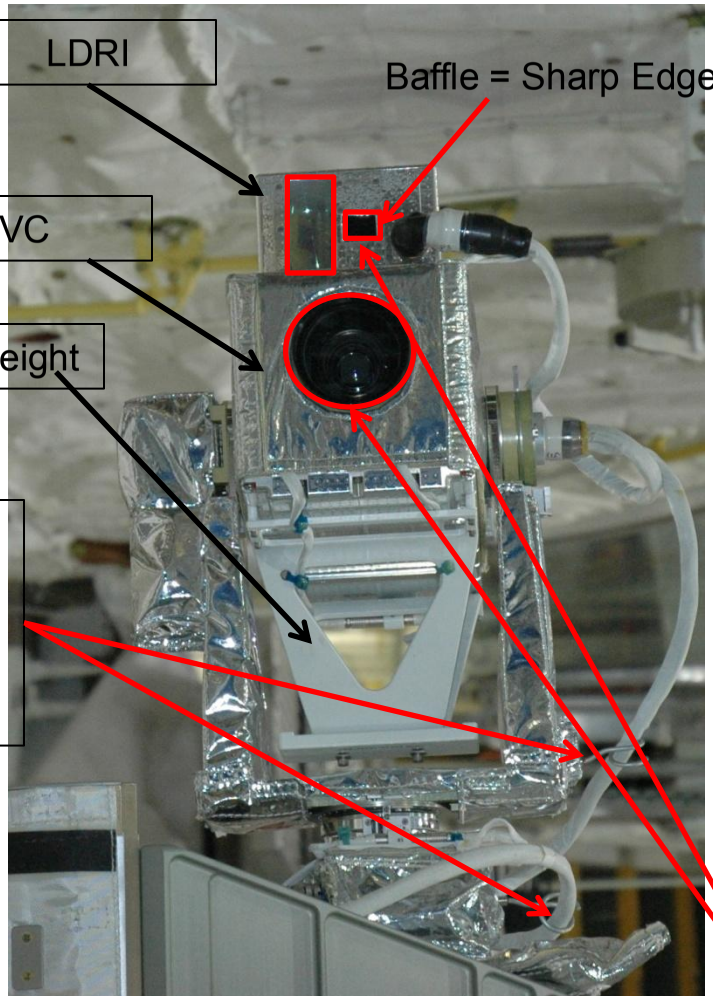
Note: Working position only requires wrist roll from ingress/egress position

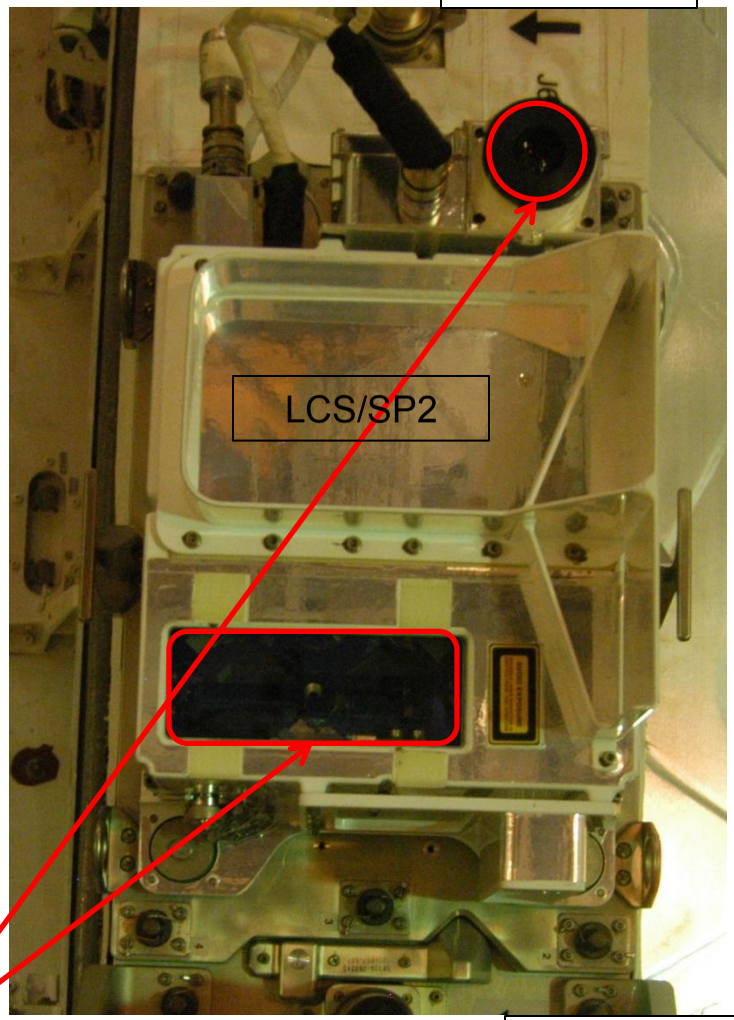
Questions/Comments

- To minimize impact to the Battery R&R, we recommend one crewmember do this task and the other continue out to P6 to begin APFR and gap spanner prep. Comments?
- Do you have any concerns with doing this at the beginning of EVA2?
- Based on your answers, Exec team will uplink new Tool Config

KOZ/ NCW

SP1 & SP2 Optics & Baffle

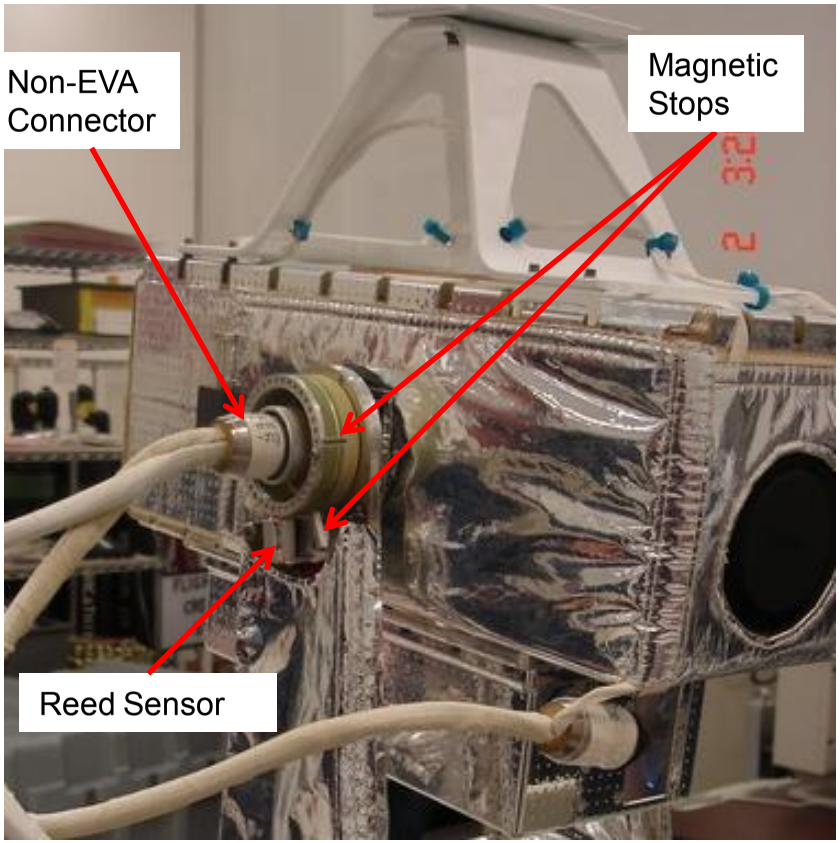




Highlighted Red Objects are No-Touch

KOZ/ NCW (cont')

Fragile PTU Parts



LDRI CABLE WORKAROUND - NOTES/CAUTIONS/WARNINGS

NOTES

1. Cables need to be able to move/slide relative to each other with any restraint method
2. LDRI to be in mode 1 (laser unpowered, heaters on). Crew can move the PTU even though it is powered.
3. PTU needs to be tilted down 30 to 75 degrees from the nominal stow position to ensure that the tilt magnet adjustment screw is not engaging the cable and forcing it into the read sensor groove.
4. CETA Cart parking break will provide additional worksite stability (Feedback from STS-126 LEE lubing task)

CAUTION

A. Avoid inadvertent contact with
   1. OBSS and SRMS composite sections joint torque arms, grapple fixture shafts, and cable harnesses
   2. LCS (silver Teflon) and LDRI (silver Teflon) and ITVC (gold foil)
   3. Striker bar (dry lube)
   4. LDRI diffuser
   5. OBSS saddle contacts (when OBSS unberthed)

B. Electrical cables
   1. Avoid bend radii < 10 times cable diameter

C. For structural reasons
   1. Avoid vigorous body motions, quick grabs and kickoffs against tether restraints
   2. Avoid performing shaking motions (sinusoidal functions) more than four cycles

D. Other
   1. ITT Cannon connector: On demated connectors, do not rotate collar or manipulate cable/connector using collar or connector tool
   2. MLI handholds are not rated for crewmember translation loads
   3. Cable guides can be easily snapped off. Do not put any side loads into the cable guides.
   4. PTU magnetic stop and read sensors are fragile and easily broken or bent. During cable manipulation and wire tie installation, do not touch magnetic stop or reed sensor.

WARNINGS

1. The PTU tilt must not be at the stop (down direction) as this will increase the likelihood of breaking the stop magnet during cable manipulation and cable tie installation.
2. LDRI 6-foot KOZ is when laser is powered (Flight Rule A15-28). No KOZ needed for laser emissions with LDRI in mode 1.
3. LDRI baffle on front face is a sharp edge, finger entrapment. Front face of LDRI should be considered a KOZ for sharp edges.
4. PTU cable guides (two) are fragile and can easily break. Tip of cable guide should be considered a sharp edge. Any broken cable guides should be treated as having sharp edges.

LDRI CABLE WORKAROUND - INHIBIT PAD

LOCATION DEPENDENT INHIBIT

OBSS - LDRI
TO INHIBIT LASER FIRING BUT LEAVE HEATER POWER ON:

NOTE
This procedure works best when performed during orbital night, and OBSS must be positioned such that its diffuser window is visible in the Camera B view (at best effort due to P/T limitations).

R12(VPU) 1. √Green Jumper – LDRI/ITVC
A7U 2. VID OUT MON2 pb – push
IN B pb – push
OUT MON1 pb – push
IN PL2(VPU) pb – push
3. Center Cam B (ITVC) in the view of LDRI/ITVC
4. VID OUT MON2 pb – push
5. Center LDRI/ITVC diffuser in the view of Cam B (ITVC)
6. CAMR CMD ZOOM – IN (FULL)
7. VID OUT MUX 1 L pb – push
IN MIDDECK pb – push

NOTE
The following step will power off the LDRI laser. Observe the LDRI diffuser in the Camera B view and verify the laser turns off. Report observation to **MCC-H** (at best effort due to P/T limitations).

8. LDRI MODE 1 pb – push
9. VID IN as desired (not MIDDECK)

POINT PTU/LDRI AWAY FROM EV CREW

A7U 10. VID OUT MON1 pb – push
IN PL2(VPU) pb – push
11. CAMR CMD PAN/TILT – HI RATE
PAN: (point sensor away from EV)
TILT: (point sensor away from EV)
R12(OBSS) 12. ITVC ENA – OFF

LDRI CABLE WORKAROUND (00:30)

IV	EV
1. Verify PTU Laser Inhibits	LDRI CABLE WORKAROUND (00:30) 1. Translate to stbd CETA Cart 2. Engage parking brake (nadir, stbd brake handle) 3. Reconfigure CETA stbd swing arm 2 to setting 15 (90 deg or stbd pointing) by lifting locking handle; ☐ Perform jiggle test 4. Verify pitch/yaw WIF 2 settings [GG,12] (WIF pointing fwd, bumper zenith) 5. Relocate APFR from CETA WIF 03 to WIF 02 ☐ pull test ☐ black on black 6. Reconfigure APFR **[12,FF,F, 6]** 7. Ingress APFR
2. SRMS - GCA	8. **GCA SRMS** to present snagged cable into work envelope 9. Perform WVS Survey of LDRI and SP1 Mounting plate 10. Evaluate cable routing to determine cable pinch points.
3. MCC-H - **Give EV GO** to unsnag cable	11. **On MCC GO**, unsnag LDRI cable from sensor (may need to manually tilt camera) ☐ Inspect cable for damage 12. Retrieve tie wrap from trash bag, lock RET cord housing 13. Route the tie wrap around the LDRI cable close to backshell (See figure 1 and 2) 14. Feed tail end of tie wrap through the eye until reach Kapton tape ☐ verify eye is within both Sharpie marks on tie wrap 15. Push on cable to verify tie wrap restrains cable appropriately 16. Retrieve EVA scissors and cut tail end of tie wrap close to eye; stow excess in trash bag 17. Cut Kapton tape close to tie wrap; stow tether loop/Kapton tape in trash bag 18. Perform WVS Survey of LDRI and SP1 Mounting plate
4. SRMS - GCA	19. **GCA SRMS** 6 ft away from worksite
5. MCC-H - Perform Pan & Tilt test	20. **Give MCC-H Go** for Pan/Tilt test 21. Egress APFR 22. Clean up worksite as necessary 23. Disengage parking brake 24. Gauntlet and Glove Check

LDRI CABLE WORKAROUND – TASK DATA

Figure 1

Figure 2