

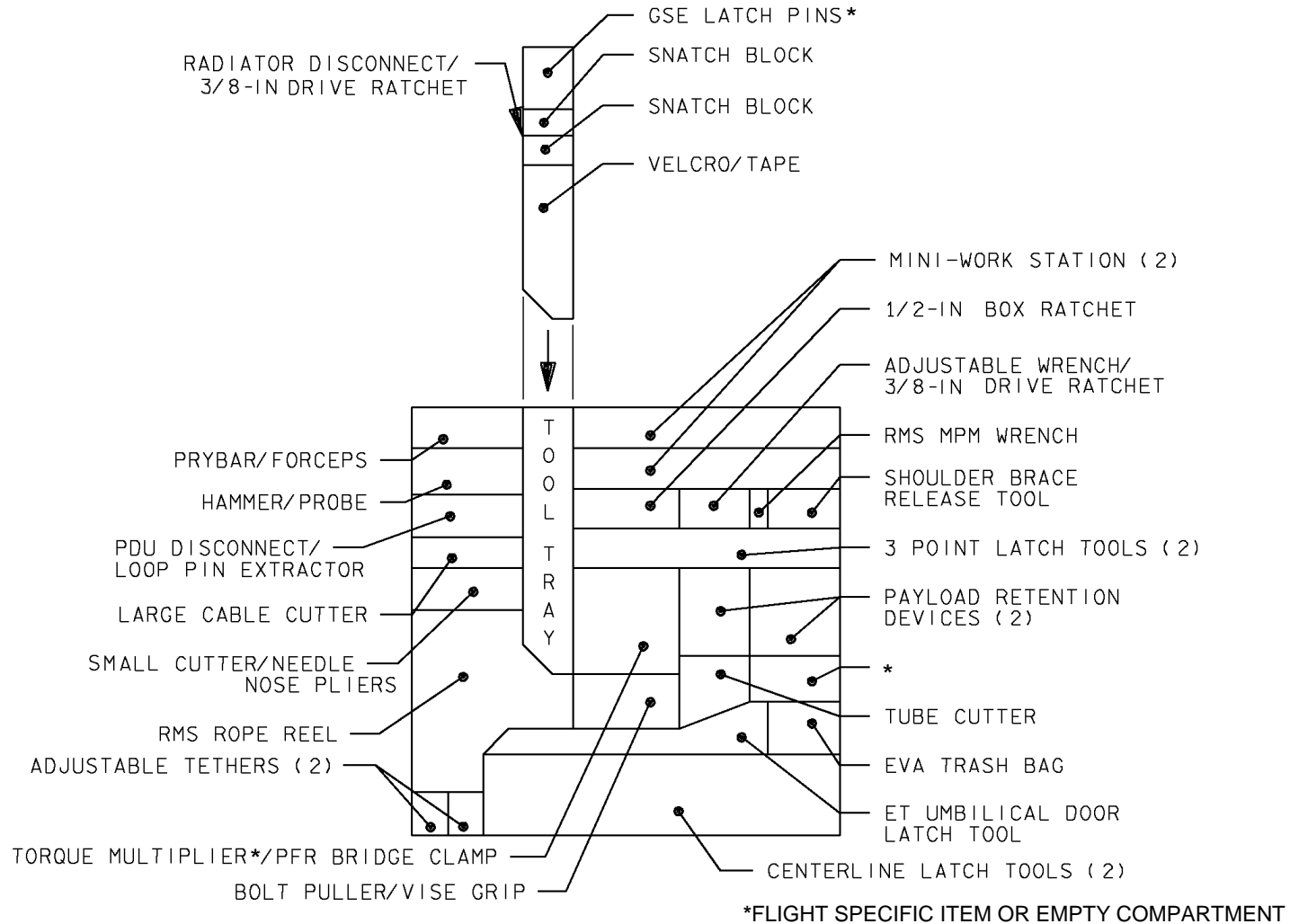
TOOLS AND STOWAGE

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TOOLS AND
STOWAGE

TOOLS AND STOWAGE

- INBOARD - PSA STOWAGE



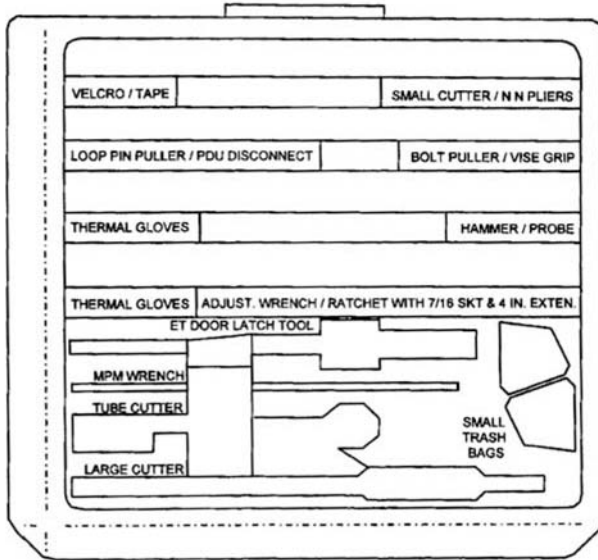
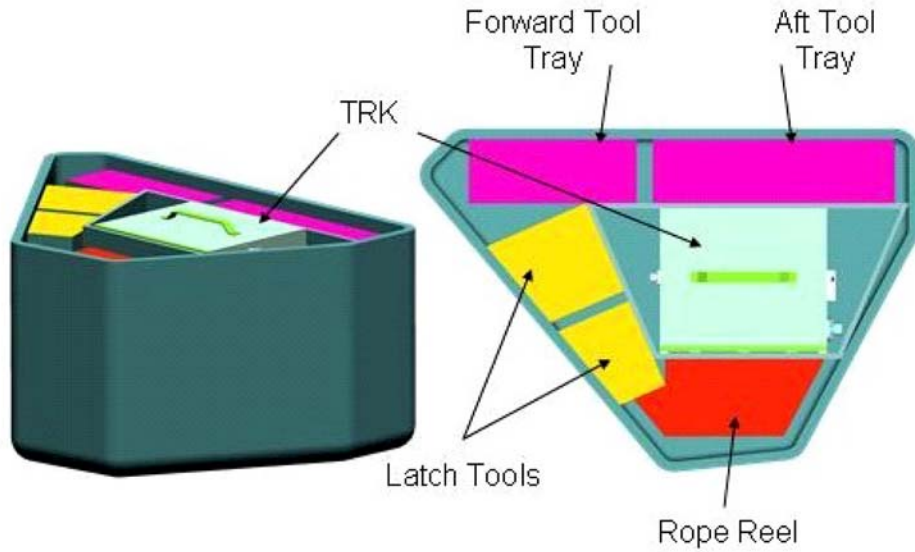
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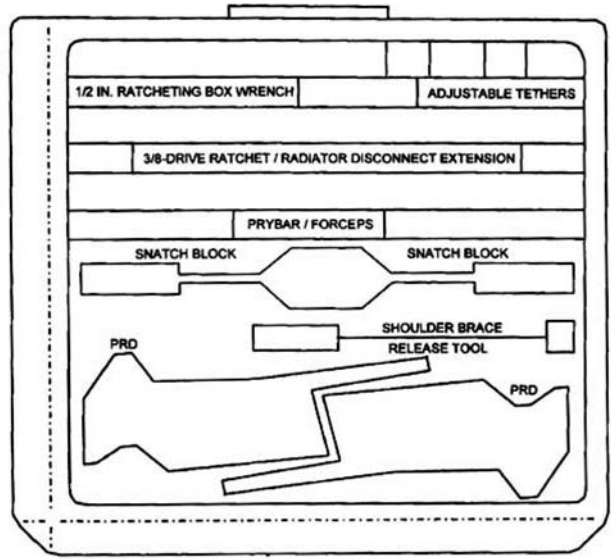
TEMP FS 8-2

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EVA/ALL/BAS

PORT LIGHTWEIGHT TOOL STORAGE ASSEMBLY

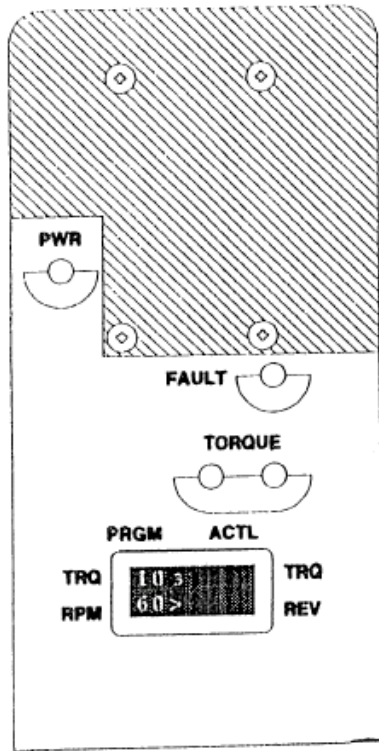
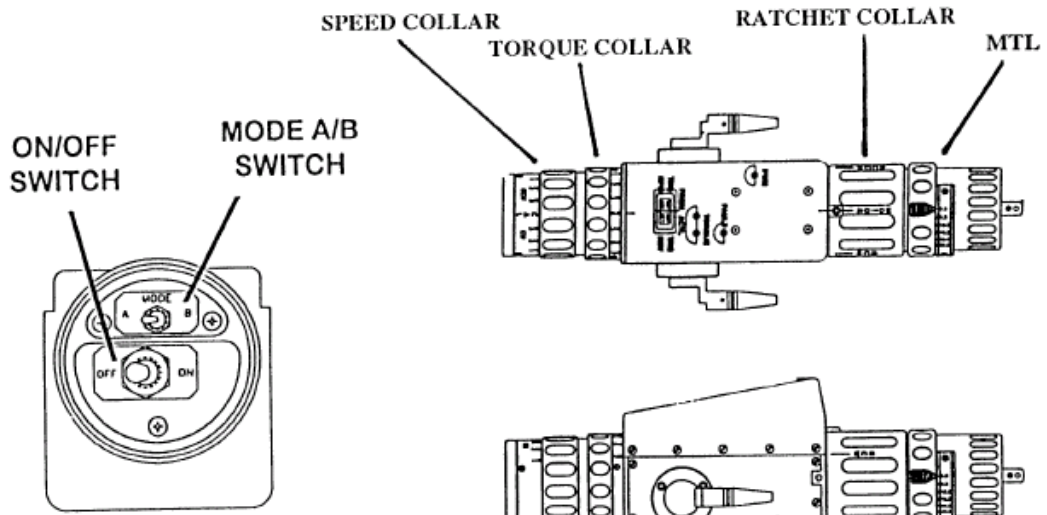


Forward Tray Layout and Labels



Aft Tray Layout and Labels

PISTOL GRIP TOOL



PGT SETTINGS TABLE

TORQUE SETTINGS:

SETTING	TORQUE SETPOINT (FT-LB)	TORQUE WINDOW	TORQUE THRESHOLD	TURN LIMIT
A1	2.5	±1.0	±1.0	Infinite
A2	3.8	±1.0	±1.0	Infinite
A3	4.8	±1.0	±1.0	Infinite
A4	6.3	±1.0	±1.0	Infinite
A5	7.0	±1.0	±1.0	Infinite
A6	8.3	±1.0	±1.0	Infinite
A7	9.2	±1.0	±1.0	Infinite
B1	12.0	±1.0	±1.0	Infinite
B2	16.0	±1.2	±1.0	Infinite
B3	18.4	±1.7	±1.0	Infinite
B4	19.4	±1.9	±1.0	Infinite
B5	22.0	±2.0	±1.0	Infinite
B6	24.0	±2.0	±1.0	Infinite
B7	25.5	±2.0	±1.0	Infinite

SPEED SETTINGS:

SETTING	RPM
CW1	10
CW2	30
CW3	60
CCW1	10
CCW2	30
CCW3	60

POWER MANAGEMENT:

FUNCTION	MIN
Auto Sleep	15
Auto Off	30

MULTI-SETTING TORQUE LIMITER (MTL) SETTINGS:

(ft-lb)
2.5
5.5
10.5
15.5
23.5
30.5

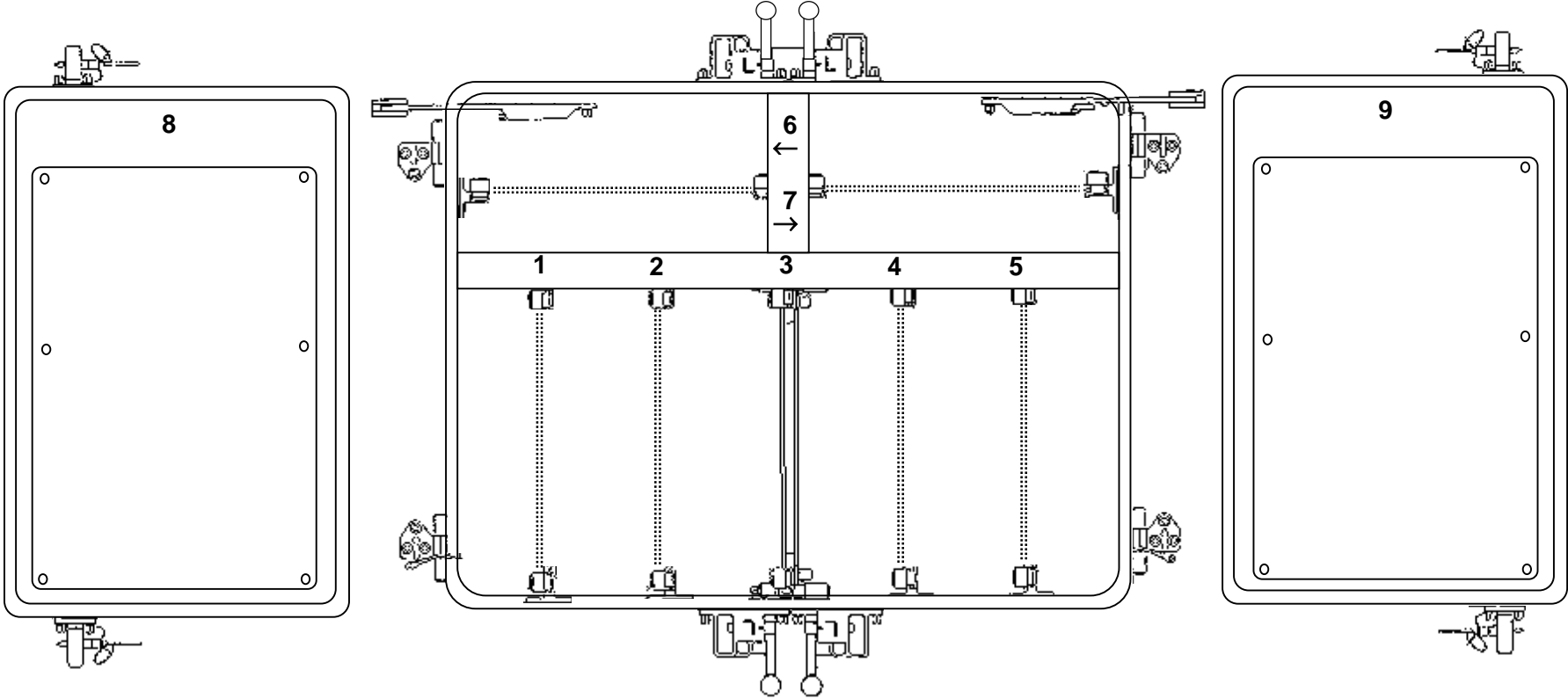
PGT/FASTENER REF DATA

FASTENER/APPLICATION	TORQUES (ft-lb)	SOCKET	TORQUE SETTING	SPD/DIR	RATCHET	MTL	# BOLTS, TURNS/LIMIT
ESP2 FRGF Removal	22.0	EVA Ratchet w/2-in ext	N/A	N/A	N/A	N/A	4 Bolts, 12 turns
FGB launch mount bolt release	10.0	6-in ext	B1	ccw2	MTR	30.5	4 Bolts, 20 turns
PM FGB GP bolt release	10.0	6-in ext	B1	ccw2	MTR	30.5	4 Bolts, 20 turns
PM FGB GP bolt install	15.4	6-in ext	B2	cw2	MTR	30.5	4 Bolts, 10-11 turns/torque
PM Primary FRAM bolt release	10.0	6-in ext	A7	ccw2	MTR	30.5	1 Bolt, 11 turns/torque
PM Primary FRAM bolt engage	10.0	6-in ext	A7	cw2	MTR	30.5	1 Bolt, 11 turns/torque
ATA FGB GP bolt release	10.0	6-in ext	B1	ccw2	MTR	30.5	4 Bolts, 20 turns
ATA FGB GP bolt install	15.4	6-in ext	B2	cw2	MTR	30.5	4 Bolts, 10-11 turns/torque
SHOSS-ED Primary FRAM bolt release	10.0	6-in ext	A7	ccw2	MTR	30.5	1 Bolt, 11 turns/torque
SHOSS-ED Primary FRAM bolt engage	10.0	6-in ext	A7	cw2	MTR	30.5	1 Bolt, 11 turns/torque
VSSA FSE launch bolt release	16.7	6-in ext	B7	ccw2	MTR	30.5	2 Bolts, 8.5 turns
Stanchion dummy box outer bolt release	6.2	6-in ext	A4	ccw2	MTR	10.5	2 Bolts, 10 turns/torque
Stanchion dummy box center jacking bolt release	6.2	6-in ext	A4	ccw2	MTR	10.5	1 Bolt, 28 turns/torque
Camera center jacking bolt engage	6.9	6-in ext	A5	cw2	MTR	10.5	1 Bolt, 28 turns/torque
Camera outer bolts engage	5.0	6-in ext	A4	cw2	MTR	10.5	2 Bolts, 10 turns/torque
Stanchion primary installation bolt	23.0	6-in ext	B6	cw2	MTR	30.5	1 Bolt, 9 turns then 21/torque

TOOLBOX STOWAGE

	Z1 PORT TOOLBOX	Z1 STBD TOOLBOX	A/L TOOLBOX 1	A/L TOOLBOX 2
SLOT # 1	SQUARE TM BOARD SQ TORQUE MULTIPLIER 7/16" FLUSH SQ SOCKET 7/16" PROUD SQ SOCKET 7/16" RECESSED SQ SOCKET	SQUARE TM BOARD SQ TORQUE MULTIPLIER 7/16" FLUSH SQ SOCKET 7/16" PROUD SQ SOCKET 7/16" RECESSED SQ SOCKET	HAMMER BOARD HAMMER	CABLE CUTTER BOARD COMPOUND CUTTERS (SM) SCISSORS
SLOT # 2		QD BAIL TOOL BOARD BMRRM LATCH TOOL QD BAIL DRIVE TOOL (1")	PLIERS BOARD NEEDLE NOSE PLIERS	
SLOT # 3	RATCHET BOARD 3/8" DRIVE RATCHET 7/16" X 12" WOBBLE SOCKET 7/16" X 2" RIGID SOCKET 7/16" X 6" WOBBLE SOCKET	RATCHET BOARD 3/8" DRIVE RATCHET 7/16" X 6" WOBBLE SOCKET		
SLOT # 4				
SLOT # 5	ROUND TM BOARD RND TORQUE MULTIPLIER 5/8" PROUD RND SOCKET 7/16" FLUSH RND SOCKET 7/16" PROUD RND SOCKET	ROUND TM BOARD 7/16" FLUSH RND SOCKET 7/16" PROUD RND SOCKET	ADJ WRENCH BOARD FORCEPS VISE GRIPS WRENCH, ADJ	T-HANDLE TOOL BOARD 3-3" T-TOOLS 2-8" T-TOOLS
SLOT # 6	TRASH BAG BOARD LARGE TRASH BAG SMALL TRASH BAG	TRASH BAG BOARD LARGE TRASH BAG	HYDRAZINE BRUSH BOARD HYDRAZINE BRUSH	
SLOT # 7	SOCKET BOARD 5/32" BALL END ALLEN DR 1/2" X 8" WOBBLE SOCKET 5/16" X 7" RIGID SOCKET	SOCKET BOARD 5/32" BALL END ALLEN DR 1/2" X 8" WOBBLE SOCKET 5/16" X 7" RIGID SOCKET	PRD CARRIER PRD	PRD CARRIER PRD
PANEL # 8	CHEATER BAR PANEL CHEATER BAR ADJ EQUIP TETHER	CHEATER BAR PANEL CHEATER BAR ADJ EQUIP TETHER CADDY, ISS GEN PURPOSE 2 CANNON CONN TOOLS	TOOL CADDY PANEL CADDY, ISS (BUNGEE)	
PANEL # 9	18" SOCKET PANEL 7/16" X 18" WOBBLE SOCKET 7/16" X 9" RIGID SOCKET	18" SOCKET PANEL	BOLT PULLER PANEL BOLT PULLER MECHANICAL FINGER	LARGE CUTTER PANEL GP CUTTER (LARGE)
EXTERNAL	2 SQUARE SCOOPS 2 ROUND SCOOPS D-HANDLE	1 SQUARE SCOOP 1 ROUND SCOOP D-HANDLE		

TOOLBOX PANEL AND SLOT LABELS



SHUTTLE EMU EQUIPMENT BY ITEM

ITEM	S/N or ID	UP	DN	LOCATION
Adjustable Thermal Mittens		2 pr	2 pr	Port TSA
Battery, EMU		1	0	EMU 3015 (SI)
Battery, EMU		1	0	EMU 3003 (Fs)
Battery, EMU		1	1	Locker -TBD
Battery, EMU Helmet Light (EHIP)	1031, 1038	2	2	Vol H (Inbd)
Battery, EMU Helmet Light (EHIP)	1025, 1026	2	2	Vol H (Obd)
Battery Charger, EMU Middeck		1	0	Vol D - TBD
Battery Charger, EMU Middeck		0	1	Vol D
Bends Treatment Adapter (BTA)		1	1	Vol 3B - TBD
BSC Contingency Tool		1	1	EMU Equipment Bag
CCA (Comm Cap) (LEMO)	SI	2	2	EMU 3015 LTA Bag
CCA (Comm Cap) (LEMO)	Fs	2	2	EMU 3003 LTA Bag
Comfort Gloves	Fs	3 pr	3 pr	Mesh Bag (Fs)
Comfort Gloves, Spectra	SI	3 pr	3 pr	Mesh Bag (SI)
Contaminant Control Cartridge (LiOH)		1	1	EMU 3015 (SI)
Contaminant Control Cartridge (LiOH)		1	1	EMU 3003 (Fs)
Contaminant Control Cartridge (LiOH)		4	4	A/L Floor Bag -TBD
Cooling Loop (Multiple Water Connector) Jumper		1	1	EMU Equipment Bag
Cue Card, Crewlock Depress/Repress (ISS)		1	0	ODF Locker
Cue Card, Depress/Repress (Shuttle)		1	1	FDF Locker
Cue Card, EMU Consumables		1	1	FDF Locker
Cue Card, EVA Prebreathe		2	1	ODF (1)/FDF(1) Lockers
Cuff Checklist - ISS		2	0	ODF Locker
Cuff Checklist - ISS - eCWS		1	0	ODF Locker
Cuff Checklist - Shuttle		2	2	FDF Locker
DCM Plug (ESCU Connector)		1	1	EVA Bag
DIDB	SI, Fs	20	12	Vol H (TBD)
DIDB Restraint Bag		1	1	EMU 3015 (SI)
DIDB Restraint Bag		1	1	EMU 3003 (Fs)
Empty Mesh Bag (EVA Sys Xfer)		1	1	Mesh Bag (SI)
Empty Mesh Bag (EVA Tool Xfer)		1	1	Mesh Bag (Fs)
EMU - Large (SI)	3015	1	1	Ext A/L Stbd
EMU - Large (Fs)	3003	1	1	Ext A/L Port
EMU - Large	3017	1	0	Middeck Ceiling
EMU - Large	3011	0	1	Middeck Ceiling
EMU Equipment Bag	1011	1	1	Vol H (Inbd)
EMU Servicing Kit		0	1	Vol H (Inbd)
EMU Servicing Kit		1	0	Vol H (Inbd)
Ergometer Shoes (CEVIS use)	SI, Fs	1 pr	1 pr	Shoe Bag on Ergometer
EV Crew Options Kit (ECOK) (SI)	Mesh Bag (SI)	1	1	EMU 3015 (SI)
EV Crew Options Kit (ECOK) (Fs)	Mesh Bag (Fs)	1	1	EMU 3003 (Fs)
EVA Bag	1013	1	1	Vol H (Obd)
EVA Checklist (Shuttle)		2	2	FDF Locker
EVA Scissor/Tether Assembly		1	1	EMU 3015 (SI)
EVA Scissor/Tether Assembly		1	1	EMU 3003 (Fs)
Feedwater Switch Guard		1	1	EMU 3015 (SI)
Feedwater Switch Guard		1	1	EMU 3003 (Fs)
Glove, EMU	SI	1 pr	1 pr	EMU 3015 (SI)
Glove, EMU	Fs	1 pr	1 pr	EMU 3003 (Fs)
Glove, EMU (backup)	SI2, Fs2	2 pr	2 pr	Vol D - TBD
Helmet Light, EMU (EHIP)	1004	1	1	Vol H (Inbd)
Helmet Light, EMU (EHIP)	1006	1	1	Vol H (Obd)
Helmet, EMU (with Cover)		1	0	EMU 3015 (SI)
Helmet, EMU (with Cover)		1	0	EMU 3003 (Fs)
Helmet, EMU (with Cover)		1	0	EMU 3017

SHUTTLE EMU EQUIPMENT BY ITEM (Cont)

ITEM	S/N or ID	UP	DN	LOCATION
Helmet, EMU (with Cover)		0	1	EMU 3011
ISS EVA Systems Checklist		3	1	ODF Locker
LCVG (backup without Biomed)	SI, Fs	2	2	Vol D - TBD
LCVG (with Biomed)	SI	1	1	EMU 3015 (SI)
LCVG (with Biomed)	Fs	1	1	EMU 3003 (Fs)
LTA Donning Handle		2	2	EMU Equipment Bag
Maximum Absorption Garment (MAG)	M	6	6	Mesh Bag (SI)
Maximum Absorption Garment (MAG)	M	6	6	Mesh Bag (Fs)
Mesh Bag (SI) (EV Crew Options Kit)	SI	1	1	EMU 3015 (SI)
Mesh Bag (Fs) (EV Crew Options Kit)	Fs	1	1	EMU 3003 (Fs)
Multiple Water Connector Cover (HUT line)		1	1	EMU 3015 (SI)
Multiple Water Connector Cover (HUT line)		1	1	EMU 3003 (Fs)
SAFER	1003	1	0	A/L Floor Bag
SAFER	1006	0	1	A/L Floor Bag
SAFER Inhibit Plug	1003	1	0	SAFER 1003
SAFER Inhibit Plug	1006	0	1	SAFER 1006
SAFER IVA Battery Assy	1028	1	0	SAFER 1003
SAFER IVA Battery Assy	1026	0	1	SAFER 1006
SAFER Switch Guard	1003	1	1	SAFER
SOP Checkout Fixture (SCOF)		2	2	EMU Equipment Bag
Thermal Comfort Undergarment (TCU), bottom	M	3	3	Mesh Bag (SI)
Thermal Comfort Undergarment (TCU), bottom	M	3	3	Mesh Bag (Fs)
Thermal Comfort Undergarment (TCU), top	M	3	3	Mesh Bag (SI)
Thermal Comfort Undergarment (TCU), top	M	3	3	Mesh Bag (Fs)
Thermax Sock Liners	SI	3 pr	3 pr	Mesh Bag (SI)
Tube Socks	Fs	3 pr	3 pr	Mesh Bag (Fs)
Wrist Mirror, EMU		2	2	EMU 3015 (SI)
Wrist Mirror, EMU		2	2	EMU 3003 (Fs)
Wristlets	SI	3 pr	3 pr	Mesh Bag (SI)
Wristlets	Fs	3 pr	3 pr	Mesh Bag (Fs)

SHUTTLE EMU EQUIPMENT BY LOCATION

LOCATION	ITEM	S/N or ID	UP	DN
Locker	Battery, EMU		1	1
A/L Floor Bag - TBD	Contaminant Control Cartridge (LiOH)		4	4
A/L Floor Bag	SAFER	1003	1	0
A/L Floor Bag	SAFER	1006	0	1
EMU 3003 (Fs)	Battery, EMU	2035	1	0
EMU 3003 (Fs)	Contaminant Control Cartridge (LiOH)		1	1
EMU 3003 (Fs)	DIDB Restraint Bag		1	1
EMU 3003 (Fs)	EV Crew Options Kit (ECOK) (Fs)	Mesh Bag (Fs)	1	1
EMU 3003 (Fs)	EVA Scissor/Tether Assembly		1	1
EMU 3003 (Fs)	Feedwater Switch Guard		1	1
EMU 3003 (Fs)	Glove, EMU	Fs	1 pr	1 pr
EMU 3003 (Fs)	Helmet, EMU (with Cover)		1	0
EMU 3003 (Fs)	LCVG (with Biomed)	Fs	1	1
EMU 3003 (Fs)	Mesh Bag (Fs) (EV Crew Options Kit)	Fs	1	1
EMU 3003 (Fs)	Multiple Water Connector Cover (HUT line)		1	1
EMU 3003 (Fs)	Wrist Mirror, EMU		2	2
EMU 3003 LTA Bag	CCA (Comm Cap) (LEMO)	Fs	1	1
EMU 3017	Helmet, EMU (with Cover)		1	0
EMU 3011	Helmet, EMU (with Cover)		0	1
EMU 3015 (SI)	Battery, EMU	2034	1	0
EMU 3015 (SI)	Contaminant Control Cartridge (LiOH)		1	1
EMU 3015 (SI)	DIDB Restraint Bag		1	1
EMU 3015 (SI)	EV Crew Options Kit (ECOK) (SI)	Mesh Bag (SI)	1	1
EMU 3015 (SI)	EVA Scissor/Tether Assembly		1	1
EMU 3015 (SI)	Feedwater Switch Guard		1	1
EMU 3015 (SI)	Glove, EMU	SI	1 pr	1 pr
EMU 3015 (SI)	Helmet, EMU (with Cover)		1	0
EMU 3015 (SI)	LCVG (with Biomed)	SI	1	1
EMU 3015 (SI)	Mesh Bag (SI) (EV Crew Options Kit)	SI	1	1
EMU 3015 (SI)	Multiple Water Connector Cover (HUT line)		1	1
EMU 3015 (SI)	Wrist Mirror, EMU		2	2
EMU 3015 LTA Bag	CCA (Comm Cap) (LEMO)	SI	1	1
EMU Equipment Bag	BSC Contingency Tool		1	1
EMU Equipment Bag	Cooling Loop (Multiple Water Connector) Jumper		1	1
EMU Equipment Bag	LTA Donning Handle		2	2
EMU Equipment Bag	SOP Checkout Fixture (SCOF)		2	2
EVA Bag	DCM Plug (ESCU Connector)		1	1
Ext A/L Port	EMU - Large (Fs)	3003	1	1
Ext A/L Stbd	EMU - Large (SI)	3015	1	1
FDL Locker	Cue Card, Depress/Repress (Shuttle)		1	1
FDL Locker	Cue Card, EMU Consumables		1	1
FDL Locker	Cuff Checklist - Shuttle		2	2
FDL Locker	EVA Checklist (Shuttle)		2	2
Mesh Bag (SI)	Comfort Gloves, Spectra	SI	3 pr	3 pr
Mesh Bag (SI)	Empty Mesh Bag (EVA Sys Xfer)		1	1
Mesh Bag (SI)	Maximum Absorption Garment (MAG)	M	6	6
Mesh Bag (SI)	Thermal Comfort Undergarment (TCU), bottom	M	3	3
Mesh Bag (SI)	Thermal Comfort Undergarment (TCU), top	M	3	3
Mesh Bag (SI)	Thermax Sock Liners	SI	3 pr	3 pr
Mesh Bag (SI)	Wristlets	SI	3 pr	3 pr
Mesh Bag (Fs)	Comfort Gloves	Fs	3 pr	3 pr
Mesh Bag (Fs)	Empty Mesh Bag (EVA Tool Xfer)		1	1
Mesh Bag (Fs)	Maximum Absorption Garment (MAG)	M	6	6
Mesh Bag (Fs)	Thermal Comfort Undergarment (TCU), bottom	M	3	3
Mesh Bag (Fs)	Thermal Comfort Undergarment (TCU), top	M	3	3

SHUTTLE EMU EQUIPMENT BY LOCATION (Cont)

LOCATION	ITEM	S/N or ID	UP	DN
Mesh Bag (Fs)	Tube Socks	Fs	3 pr	3 pr
Mesh Bag (Fs)	Wristlets	Fs	3 pr	3 pr
Middeck Ceiling	EMU - Large	3011	0	1
Middeck Ceiling	EMU - Large	3017	1	0
ODF (1)/FDF(1) Lockers	Cue Card, EVA Prebreathe		2	1
ODF Locker	Cue Card, Crewlock Depress/Repress (ISS)		1	0
ODF Locker	Cuff Checklist - ISS		2	0
ODF Locker	Cuff Checklist - ISS - eCWS		1	0
ODF Locker	ISS EVA Systems Checklist		3	1
Port TSA	Adjustable Thermal Mittens		2 pr	2 pr
SAFER	SAFER Switch Guard	1003	1	1
SAFER 1006	SAFER Inhibit Plug	1006	0	1
SAFER 1006	SAFER IVA Battery Assy	1026	0	1
SAFER 1003	SAFER Inhibit Plug	1003	1	0
SAFER 1003	SAFER IVA Battery Assy	1028	1	0
Shoe Bag on Ergometer	Ergometer Shoes (CEVIS use)	SI, Fs	1 pr	1 pr
Vol 3B - TBD	Bends Treatment Adapter (BTA)		1	1
Vol D -TBD	Battery Charger, EMU Middeck	1005	1	0
Vol D -TBD	Battery Charger, EMU Middeck	1002	0	1
Vol D -TBD	Glove, EMU (backup)	SI2, Fs2	2 pr	2 pr
Vol D -TBD	LCVG (backup without Biomed)	SI, Fs	2	2
Vol H (Inbd)	Battery, EMU Helmet Light (EHIP)	1031, 1038	2	2
Vol H (Inbd)	EMU Equipment Bag	1011	1	1
Vol H (Inbd)	EMU Servicing Kit		0	1
Vol H (Inbd)	EMU Servicing Kit		1	0
Vol H (Inbd)	Helmet Light, EMU (EHIP)	1004	1	1
Vol H (Obd)	Battery, EMU Helmet Light (EHIP)	1025, 1026	2	2
Vol H (Obd)	DIDB	SI, Fs	20	12
Vol H (Obd)	EVA Bag	1013	1	1
Vol H (Obd)	Helmet Light, EMU (EHIP)	1006	1	1

SHUTTLE EVA TOOLS BY ITEM

ITEM	COMMENT	UP	DN	LOCATION
1" Foam Brush Assy	pre-posn 115	1	0	MPLM
1" Foam Brush Assy	TPS	1	1	PLB TSA port
1" Silicone Gel Brush	TPS	9	9	Middeck
1" Silicone Gel Brush	TPS	9	9	Middeck
1/2" Nozzle x 5"	TPS	1	1	Middeck
1/2" Nozzle x 5"	TPS	1	1	Middeck
1/2" Nozzle x 5"	TPS	1	1	Middeck
1/2" Box Ratchet Tool Caddy		1	1	PLB TSA port
1/2" Box Socket Wrench		1	1	PLB TSA port
1/2" Nozzle x 7"	TPS	3	3	Middeck
1/4" Hex, Radiator Extension		1	1	PLB TSA port
3" Silicone Gel Brush	TPS	9	9	Middeck
3" Silicone Gel Brush	TPS	9	9	Middeck
3" Foam Brush Assy	pre-posn 115	1	0	MPLM
3" Foam Brush Assy	pre-posn 115	1	0	MPLM
3" Foam Brush Assy	TPS	1	1	PLB TSA port
3" Foam Brush Assy	TPS	1	1	PLB TSA port
3 Point Latch Tool		2	2	PLB TSA port
3 Point Latch Tool Stowage Bag		1	1	PLB TSA port
3/8" Ratchet, 4" Extension, 7/16" Socket		1	1	PLB TSA port
3/8" Socket w/universal	pre-posn 12A, 13A	1	0	MPLM
3/8" Drive Ratchet		1	1	PLB TSA port
3/8" Ratchet w/7/16" Socket		1	1	Middeck
6" x 6" Chemstat (ESD Protection Patch)		1	1	PLB TSA Stbd
Adjustable Equipment Tether (Eq-Eq w/slide lock)		2	2	EMU
Adjustable Equipment Tether (Sm-Sm)		2	2	PLB TSA port
Adjustable Fuse Tether (Eq hooks w/slide lock)	pre-posn f/12A, 13A	1	0	Middeck
Adjustable Fuse Tether (Eq hooks w/slide lock)	pre-posn 12A, 13A	1	0	MPLM
Adjustable Thermal Mitten		1	1	PLB TSA port
Adjustable Thermal Mitten		1	1	PLB TSA port
Adjustable Thermal Mitten		1	1	PLB TSA port
Adjustable Thermal Mitten		1	1	PLB TSA port
Angle Stamp	pre-posn 115	1	0	MPLM
Angle Stamp	pre-posn 115	1	0	MPLM
Angle Stamp	pre-posn 115	1	0	MPLM
Angle Stamp	TPS	1	1	PLB TSA port
Angle Stamp	TPS	1	1	PLB TSA port
Angle Stamp	TPS	1	1	PLB TSA port
Body Restraint Tether (BRT)		2	2	Middeck
Bolt Puller		1	1	PLB TSA port
Bolt Puller/Vise Grip Pliers Tool Caddy		1	1	PLB TSA port
BRS Pin Contingency Tool	pre-posn 12A-15A	1	0	MPLM
Centerline Latch Tool		2	2	PLB TSA port
Centerline Latch Tool Bag		1	1	PLB TSA port
Chisel-Long Probe		1	1	PLB TSA port
CIPA Applicator (CIPAA)	TPS	1	1	Middeck
CIPA Applicator (CIPAA)	TPS	1	1	Middeck
CIPA Discard Container Assy	pre-posn 115	1	0	MPLM
CIPA Discard Container Assy	TPS	1	1	PLB TSA port
CIPAA Spare Hose assembly	TPS	1	1	Middeck
CIPAA Spare Hose assembly	TPS	1	1	Middeck

SHUTTLE EVA TOOLS BY ITEM (Cont)

ITEM	COMMENT	UP	DN	LOCATION
CIPAA Spare Hose assembly	TPS	1	1	Middeck
Clamp, High Strength Bridge		1	1	PLB sill bay 12 port
Compound Cutter (Small Cutter)		1	1	PLB TSA port
Compound Cutter/Needle Nose Pliers Tool Caddy		1	1	PLB TSA port
Contour Gauge, Mechanical	pre-posn 115	2	0	MPLM
Contour Gauge, Mechanical	TPS	2	2	PLB TSA port
EMU Cuff Checklist Band		3	3	Middeck
ERCM Tether	w/locking hook	2	2	PLB
ERCM Tether Reel Box		1	1	PLB
ESP2 Grapple Fixture		0	1	PLB TSA Stbd
ET Umbilical Door Tool		1	1	PLB TSA port
EVA Adjustable Wrench		1	1	Middeck
EVA Adjustable Wrench		1	1	PLB TSA port
EVA Adjustable Wrench/4" Ratchet Ext Tool Caddy		1	1	PLB TSA port
EVA Forceps		1	1	PLB TSA port
EVA Temporary Rail Stop (ETRS)	pre-posn 12A, 13A	2	0	MPLM
EVA Trash Bag	pre-posn 12A-13A	2	0	MPLM
EVA Trash Bag		2	2	PLB TSA port
EVA Wipe	pre-posn 115	1	0	MPLM
EVA Wipe	pre-posn 115	1	0	MPLM
EVA Wipe	pre-posn 115	1	0	MPLM
EVA Wipe	TPS	3	3	PLB TSA port
EVA Wipe	TPS	1	1	PLB TSA port
EVA Wipe	TPS	1	1	PLB TSA port
Flat Stamp	pre-posn 115	1	0	MPLM
Flat Stamp	TPS	1	1	PLB TSA port
Gel Brush Kit	TPS	1	1	Middeck
Gel Brush Kit	TPS	1	1	Middeck
General Purpose Cutter		1	1	PLB TSA port
General Purpose Tool Caddy (GP tool caddy)		1	1	Middeck
General Purpose Tool Caddy (GP tool caddy)		1	1	PLB TSA port
General Purpose Tool Caddy (GP tool caddy)		1	1	PLB TSA port
Hammer		1	1	PLB TSA port
Hammer/Chisel Long Probe Tool Caddy		1	1	PLB TSA port
Holster	TPS	1	1	Middeck
Holster	TPS	1	1	Middeck
Holster	TPS	1	1	Middeck
Locking Strut Aid	pre-posn f/12A-15A	4	0	MPLM
Loop Pin Extractor Puller		1	1	PLB TSA port
Modular Mini-Workstation Key Strap Assembly		1	1	Middeck
Modular MWS Baseplate Assy	sn 1029 swap 1005	2	1	Middeck
Modular MWS Baseplate Assy	sn 1009 return	0	1	Middeck
Modular MWS Gimbal Assy	sn 1005 return	0	1	Middeck
Modular MWS RH Swingarm Assy	pre-posn for 12A	2	0	MPLM
Modular MWS RH Swingarm Assy	1005,1006 return	0	2	MPLM
MPM Ratchet Wrench		1	1	PLB TSA port
MWS Tool Stowage Caddy	pre-posn 115	1	0	MPLM
MWS Tool Stowage Caddy	pre-posn 115	1	0	MPLM
MWS Tool Stowage Caddy	TPS	1	1	PLB TSA port
MWS Tool Stowage Caddy	TPS	1	1	PLB TSA port
Needle Nose Pliers		1	1	PLB TSA port

SHUTTLE EVA TOOLS BY ITEM (Cont)

ITEM	COMMENT	UP	DN	LOCATION
Orbiter Slidewire (short)		1	1	PLB sill
ORU Transfer Bag (Med w/internal tether loops)	pre-posn 12A, 13A	1	0	MPLM
Payload Retention Device (PRD)		2	2	PLB TSA port
PB Articulating Socket		1	1	PLB TSA port
PDU Disc/Loop Pin Puller Tool Caddy		1	1	PLB TSA port
PDU Disconnect Tool		1	1	PLB TSA port
Pencil Tip Gel Brush	TPS	3	3	Middeck
Pencil Tip Gel Brush	TPS	3	3	Middeck
PFR		1	1	PLB Bkhd Fwd
PFR Attachment Device (PAD)		1	1	PLB TSA port
Pry Bar		1	1	PLB TSA port
Prybar/EVA Forceps Tool Caddy		1	1	PLB TSA port
Radiator Extension/Drive Ratchet Tool Caddy		1	1	PLB TSA port
Removable Brush Handle Assembly	TPS	1	1	Middeck
Removable Brush Handle Assembly	TPS	1	1	Middeck
Removable Brush Handle Assembly	pre-posn 115	1	0	MPLM
Removable Brush Handle Assembly	pre-posn 115	1	0	MPLM
Removable Brush Handle Assembly	pre-posn 115	1	0	MPLM
Removable Brush Handle Assembly	TPS	1	1	PLB TSA port
Removable Brush Handle Assembly	TPS	1	1	PLB TSA port
Removable Brush Handle Assembly	TPS	1	1	PLB TSA port
Retractable Equipment Tether (Eq-Eq w/slide lock)		2	2	EMU
RMS Shoulder Brace Release Hand Tool		1	1	PLB TSA port
Silicone Gel Brush Caddy	TPS	1	1	Middeck
Silicone Gel Brush Caddy	TPS	1	1	Middeck
SLRI 10	pre-posn 12A, 13A	1	0	MPLM
SLRI 6	pre-posn 12A, 13A	1	0	MPLM
Snatch Block		2	2	PLB TSA port
Tether, Safety	pre-posn 12A	2	0	MPLM
Tether, Waist (w/slide lock)		4	4	EMU
Tile Repair Kit (TRK)	pre-posn 115	1	0	MPLM
Tile Repair Kit (TRK)	TPS	1	1	PLB TSA port
Tool Caddy		1	1	PLB TSA port
Tool Caddy		1	1	PLB TSA port
Tool Caddy		1	1	PLB TSA port
Tool Caddy		1	1	PLB TSA port
Tool Caddy		1	1	PLB TSA port
Tool Caddy		1	1	PLB TSA port
Tool Caddy		1	1	PLB TSA port
Tool Caddy		1	1	PLB TSA port
Tool Caddy – standard		1	1	PLB TSA port
Trash Bag	pre-posn 115	2	0	MPLM
Trash Bag	TPS	2	2	PLB TSA port
TRK Stowage Bag	pre-posn 115	1	0	MPLM
TRK Stowage Bag	TPS	1	1	PLB TSA port
Tube Cutter		1	1	PLB TSA port
Velcro/Tape Caddy		1	1	PLB TSA port
Vise Grip Pliers		1	1	PLB TSA port
Winch and Mount Assy, Aft (w/4 ball pip pin)		1	1	PLB Bkhd Aft
Winch and Mount Assy, Fwd (w/4 ball pip pin)		1	1	PLB Bkhd Fwd
Winch Hook Adapter (RMS Rope Reel)		1	1	PLB TSA port

SHUTTLE EVA TOOLS BY LOCATION

ITEM	COMMENT	UP	DN	LOCATION
Adjustable Equipment Tether (Eq-Eq w/slide lock)		2	2	EMU
Retractable Equipment Tether (Eq-Eq w/slide lock)		2	2	EMU
Tether, Waist (w/slide lock)		4	4	EMU
1" Silicone Gel Brush	TPS	9	9	Middeck
1" Silicone Gel Brush	TPS	9	9	Middeck
1/2" Nozzle x 5"	TPS	1	1	Middeck
1/2" Nozzle x 5"	TPS	1	1	Middeck
1/2" Nozzle x 5"	TPS	1	1	Middeck
1/2" Nozzle x 7"	TPS	3	3	Middeck
3" Silicone Gel Brush	TPS	9	9	Middeck
3" Silicone Gel Brush	TPS	9	9	Middeck
3/8" Ratchet w/7/16" socket		1	1	Middeck
Adjustable Fuse Tether (Eq hooks w/slide lock)	pre-posn f/12A, 13A	1	0	Middeck
Body Restraint Tether (BRT)		2	2	Middeck
CIPA Applicator (CIPAA)	TPS	1	1	Middeck
CIPA Applicator (CIPAA)	TPS	1	1	Middeck
CIPAA Spare Hose Assembly	TPS	1	1	Middeck
CIPAA Spare Hose Assembly	TPS	1	1	Middeck
CIPAA Spare Hose Assembly	TPS	1	1	Middeck
EMU Cuff Checklist Band		3	3	Middeck
EVA Adjustable Wrench		1	1	Middeck
Gel Brush Kit	TPS	1	1	Middeck
Gel Brush Kit	TPS	1	1	Middeck
General Purpose Tool Caddy (GP tool caddy)		1	1	Middeck
Holster	TPS	1	1	Middeck
Holster	TPS	1	1	Middeck
Holster	TPS	1	1	Middeck
Modular Mini-Workstation Key Strap Assembly		1	1	Middeck
Modular MWS Baseplate Assy	sn 1029 swap 1005	2	1	Middeck
Modular MWS Baseplate Assy	sn 1009 return	0	1	Middeck
Modular MWS Gimbal Assy	sn 1005 return	0	1	Middeck
Pencil Tip Gel Brush	TPS	3	3	Middeck
Pencil Tip Gel Brush	TPS	3	3	Middeck
Removable Brush Handle Assembly	TPS	1	1	Middeck
Removable Brush Handle Assembly	TPS	1	1	Middeck
Silicone Gel Brush Caddy	TPS	1	1	Middeck
Silicone Gel Brush Caddy	TPS	1	1	Middeck
1" Foam Brush Assy	pre-posn 115	1	0	MPLM
3" Foam Brush Assy	pre-posn 115	1	0	MPLM
3" Foam Brush Assy	pre-posn 115	1	0	MPLM
3/8" Socket w/universal	pre-posn 12A, 13A	1	0	MPLM
Adjustable Fuse Tether (Eq hooks w/slide lock)	pre-posn 12A, 13A	1	0	MPLM
Angle Stamp	pre-posn 115	1	0	MPLM
Angle Stamp	pre-posn 115	1	0	MPLM
Angle Stamp	pre-posn 115	1	0	MPLM
BRS Pin Contingency Tool	pre-posn 12A-15A	1	0	MPLM
CIPA Discard Container Assy	pre-posn 115	1	0	MPLM
Contour Gauge, Mechanical	pre-posn 115	2	0	MPLM
EVA Temporary Rail Stop (ETRS)	pre-posn 12A, 13A	2	0	MPLM
EVA Trash Bag	pre-posn 12A-13A	2	0	MPLM
EVA Wipe	pre-posn 115	1	0	MPLM

SHUTTLE EVA TOOLS BY LOCATION (Cont)

ITEM	COMMENT	UP	DN	LOCATION
EVA Wipe	pre-posn 115	1	0	MPLM
EVA Wipe	pre-posn 115	1	0	MPLM
Flat Stamp	pre-posn 115	1	0	MPLM
Locking Strut Aid	pre-posn f/12A-15A	4	0	MPLM
Modular MWS RH Swingarm Assy	pre-posn for 12A	2	0	MPLM
Modular MWS RH Swingarm Assy	1005,1006 return	0	2	MPLM
MWS Tool Stowage Caddy	pre-posn 115	1	0	MPLM
MWS Tool Stowage Caddy	pre-posn 115	1	0	MPLM
ORU Transfer Bag (Med w/internal tether loops)	pre-posn 12A, 13A	1	0	MPLM
Removable Brush Handle Assembly	pre-posn 115	1	0	MPLM
Removable Brush Handle Assembly	pre-posn 115	1	0	MPLM
Removable Brush Handle Assembly	pre-posn 115	1	0	MPLM
SLRI 10	pre-posn 12A, 13A	1	0	MPLM
SLRI 6	pre-posn 12A, 13A	1	0	MPLM
Tether, Safety	pre-posn 12A	2	0	MPLM
Tile Repair Kit (TRK)	pre-posn 115	1	0	MPLM
Trash Bag	pre-posn 115	2	0	MPLM
TRK Stowage Bag	pre-posn 115	1	0	MPLM
ERCM Tether	w/locking hook	2	2	PLB
ERCM Tether Reel Box		1	1	PLB
Winch and Mount Assy, Aft (w/4 ball pip pin)		1	1	PLB Bkhd Aft
PFR		1	1	PLB Bkhd Fwd
Winch and Mount Assy, Fwd (w/4 ball pip pin)		1	1	PLB Bkhd Fwd
Orbiter Slidewire (short)		1	1	PLB sill
Clamp, High Strength Bridge		1	1	PLB sill bay 12 port
1" Foam Brush Assy	TPS	1	1	PLB TSA port
1/2" Box Ratchet Tool Caddy		1	1	PLB TSA port
1/2" Box Socket Wrench		1	1	PLB TSA port
1/4" Hex, Radiator Extension		1	1	PLB TSA port
3" Foam Brush Assy	TPS	1	1	PLB TSA port
3" Foam Brush Assy	TPS	1	1	PLB TSA port
3 Point Latch Tool		2	2	PLB TSA port
3 Point Latch Tool Stowage Bag		1	1	PLB TSA port
3/8" Ratchet, 4" Extension, 7/16" Socket		1	1	PLB TSA port
3/8" Drive Ratchet		1	1	PLB TSA port
Adjustable Equipment Tether (Sm-Sm)		2	2	PLB TSA port
Adjustable Thermal Mitten		1	1	PLB TSA port
Adjustable Thermal Mitten		1	1	PLB TSA port
Adjustable Thermal Mitten		1	1	PLB TSA port
Adjustable Thermal Mitten		1	1	PLB TSA port
Angle Stamp	TPS	1	1	PLB TSA port
Angle Stamp	TPS	1	1	PLB TSA port
Angle Stamp	TPS	1	1	PLB TSA port
Bolt Puller		1	1	PLB TSA port
Bolt Puller/Vise Grip Pliers Tool Caddy		1	1	PLB TSA port
Centerline Latch Tool		2	2	PLB TSA port
Centerline Latch Tool Bag		1	1	PLB TSA port
Chisel-Long Probe		1	1	PLB TSA port
CIPA Discard Container Assy	TPS	1	1	PLB TSA port
Compound Cutter (Small Cutter)		1	1	PLB TSA port
Compound Cutter/Needle Nose Pliers Tool Caddy		1	1	PLB TSA port

SHUTTLE EVA TOOLS BY LOCATION (Cont)

ITEM	COMMENT	UP	DN	LOCATION
Contour Gauge, Mechanical	TPS	2	2	PLB TSA port
ET Umbilical Door Tool		1	1	PLB TSA port
EVA Adjustable Wrench		1	1	PLB TSA port
EVA Adjustable Wrench/4" Ratchet Ext Tool Caddy		1	1	PLB TSA port
EVA Forceps		1	1	PLB TSA port
EVA Trash Bag		2	2	PLB TSA port
EVA Wipe	TPS	3	3	PLB TSA port
EVA Wipe	TPS	1	1	PLB TSA port
EVA Wipe	TPS	1	1	PLB TSA port
Flat Stamp	TPS	1	1	PLB TSA port
General Purpose Cutter		1	1	PLB TSA port
General Purpose Tool Caddy (GP tool caddy)		1	1	PLB TSA port
General Purpose Tool Caddy (GP tool caddy)		1	1	PLB TSA port
Hammer		1	1	PLB TSA port
Hammer/Chisel Long Probe Tool Caddy		1	1	PLB TSA port
Loop Pin Extractor Puller		1	1	PLB TSA port
MPM Ratchet Wrench		1	1	PLB TSA port
MWS Tool Stowage Caddy	TPS	1	1	PLB TSA port
MWS Tool Stowage Caddy	TPS	1	1	PLB TSA port
Needle Nose Pliers		1	1	PLB TSA port
Payload Retention Device (PRD)		2	2	PLB TSA port
PB Articulating Socket		1	1	PLB TSA port
PDU Disc/Loop Pin Puller Tool Caddy		1	1	PLB TSA port
PDU Disconnect Tool		1	1	PLB TSA port
PFR Attachment Device (PAD)		1	1	PLB TSA port
Pry Bar		1	1	PLB TSA port
Prybar/EVA Forceps Tool Caddy		1	1	PLB TSA port
Radiator Extension/Drive Ratchet Tool Caddy		1	1	PLB TSA port
Removable Brush Handle Assembly	TPS	1	1	PLB TSA port
Removable Brush Handle Assembly	TPS	1	1	PLB TSA port
Removable Brush Handle Assembly	TPS	1	1	PLB TSA port
RMS Shoulder Brace Release Hand Tool		1	1	PLB TSA port
Snatch Block		2	2	PLB TSA port
Tile Repair Kit (TRK)	TPS	1	1	PLB TSA port
Tool Caddy		1	1	PLB TSA port
Tool Caddy		1	1	PLB TSA port
Tool Caddy		1	1	PLB TSA port
Tool Caddy		1	1	PLB TSA port
Tool Caddy		1	1	PLB TSA port
Tool Caddy		1	1	PLB TSA port
Tool Caddy		1	1	PLB TSA port
Tool Caddy – standard		1	1	PLB TSA port
Trash Bag	TPS	2	2	PLB TSA port
TRK Stowage Bag	TPS	1	1	PLB TSA port
Tube Cutter		1	1	PLB TSA port
Velcro/Tape Caddy		1	1	PLB TSA port
Vise Grip Pliers		1	1	PLB TSA port
Winch Hook Adapter (RMS Rope Reel)		1	1	PLB TSA port
6" x 6" Chemstat (ESD Protection Patch)		1	1	PLB TSA Stbd
ESP2 Grapple Fixture		0	1	PLB TSA Stbd

APFR MANAGEMENT

		APFR 1	APFR 2	APFR 3 (Ingress Aid)	APFR 4 (TS)	APFR 5 (TS)	APFR 6	APFR 7	IAPFR 1	IAPFR 2
		8A pitch knob problem, 9A no problem		8A pitch knob problem, 9A no problem,	Has heat shield, Tool Stanchion w/ old ORU tether, Safety tether	Has heat shield, Tool Stanchion w/ old ORU tether, ballstack	Has heat shield			
PRE-EVA APFR Locations/Settings		CETA1 WIF 4 (3,GG) (12,PP,F,12)	S0 WIF 42 (10,PP,F,12)	Lab WIF 9 (TBD)	NODE1 WIF 5 (6,PP,B,12)	PMA1 WIF 2 (12,KK,F,6)	PMA1 WIF 4 (4,PP,A,6)	A/L (stbd) toolbox 1 (12,MM) (--,QQ,G,12)	Z1 WIF 1 (12,PP,F,12)	Z1 WIF 3 (6,PP,F,12)
EVA 1	OBSS DTO			Load Cell WIF (11,FF,A,6)						
	Cleanup			Lab WIF 9 (--,FF,A,6)						
EVA 2	PM Retrieval			ICC WIF 1 (9,QQ,G,2)						
	PM Install						ESP2 WIF 5 (3,PP,F,11)			
	SHOSS-ED Retrieval			ICC WIF 2 (3,LL,E,12)						
	Cleanup			Lab WIF 9 (--,LL,E,12)						
	Camera to Stanchion Install						ESP2 WIF 5 (12,QQ,F,12)			
	SHOSS-ED Install						ESP2 WIF 5 (4,OO,H,12)			
	Cleanup						A/L (stbd) toolbox 1 (12,MM) (--,OO,H,12)			

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EMU MAINT/RECHARGE

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WATER RECHARGE

IF EMU NOT ALREADY POWERED UP:

EMU POWERUP

- BOTH DCM
1. Retrieve, position SCUs; remove DCM covers
 2. Connect SCUs to DCM, √locked
 3. PWR – BATT

CAUTION

EMU must be on BATT pwr when
airlock pwr supply is turned on

- AW18H
4. PWR/BATT CHGR EMU 1,2 MODE (two) – PWR
BUS SEL (two) – MNA(MNB)
- MD(flr)
5. √EMU O2 ISOL VLV – OP
- AW82B
6. EV1,2 O2 vlv (two) – OP
- DCM
7. PWR – SCU

WATER FILL (√MCC for config, if reqd)

- MO13Q
8. √ARLK H2O S/O VLV – OP (tb-OP)
- R11L
- If SPLY H2O XOVR VLV closed (tb-CL or bp) (water transfer config):

9. √SPLY H2O TKA OUTLET – CL (tb-CL)

SM 60 TABLE MAINT

- CRT
10. Use TKB quantity:
PARAM ID – ITEM 1 +0 6 2 0 4 2 0 EXEC
- R11L
- If SPLY H2O XOVR VLV open (tb-OP) (nominal config):

- L1
11. √RAD CNTLR OUT TEMP – NORM
 12. √FLASH EVAP CNTLR PRI A,B (two) – OFF
- ML31C
13. SPLY H2O TKD OUTLET – CL (tb-CL)
- R11L
14. √SPLY H2O TKA OUTLET – CL (tb-CL)
TKB OUTLET – CL (tb-CL)
TKC OUTLET – OP (tb-OP)
√INLET – CL (tb-CL)

SM 60 TABLE MAINT

- CRT
15. Use TKC quantity:
PARAM ID – ITEM 1 +0 6 2 0 5 4 8 EXEC

16. Log value before recharge

Recharge #	H2O TKB(C) %
1	
2	
3	
4	
5	

- AW82D
17. √EMU 1,2 H2O WASTE tb (two) – CL
SPLY (two) – OP (tb-OP)
 18. √H2O TKB(C) quantity decreasing

NOTE

Full charge requires ~15 min