

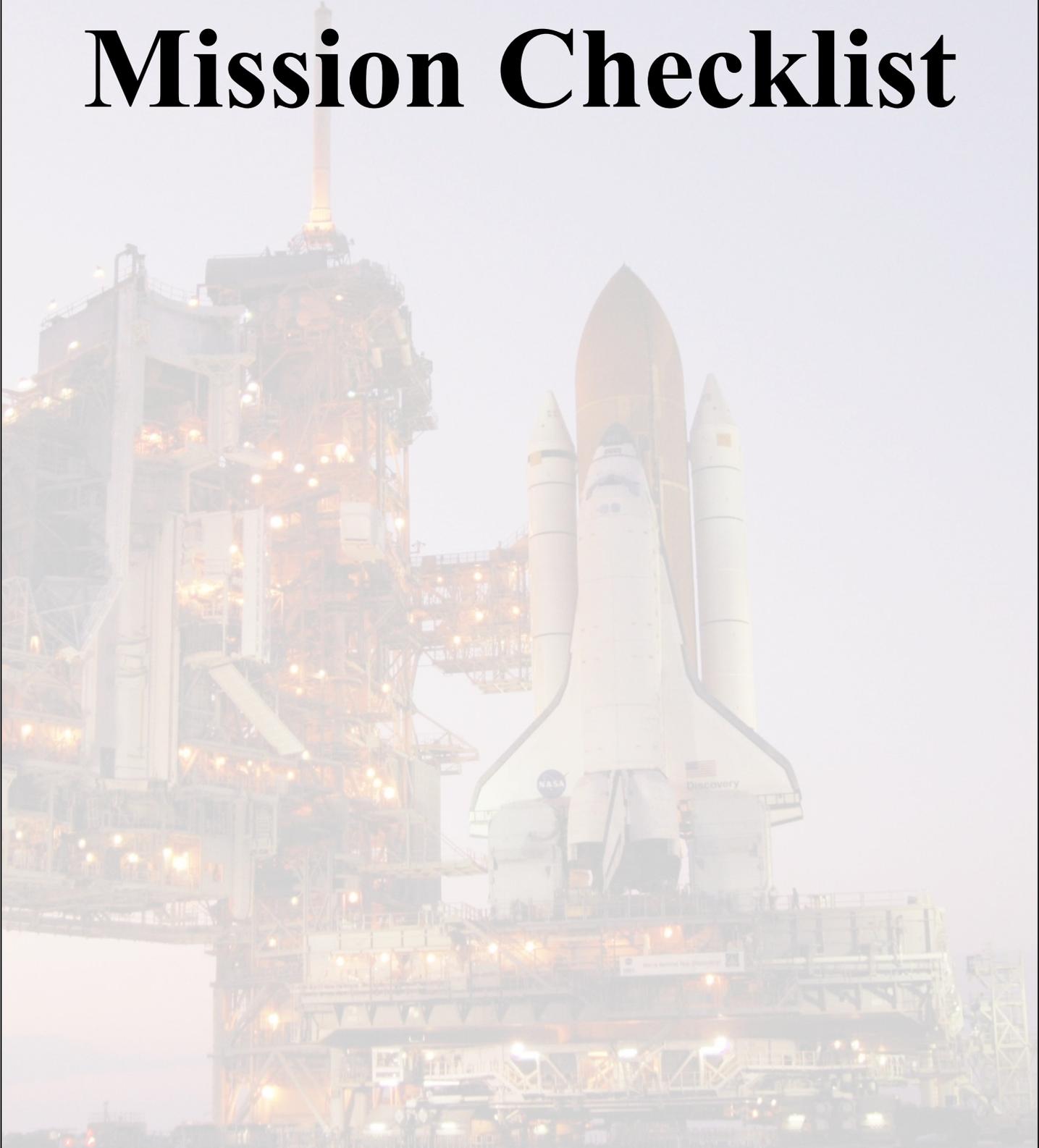


Space Shuttle Mission 2007



Designed By: Michael Swannick

Mission Checklist



Grapple Index Cards



Space Shuttle Mission 2007



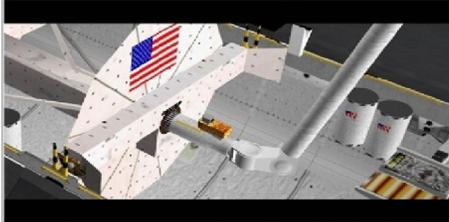
Designed By: Michael Swannick

Page 1 of 9

Grapple Index Card

Page 1 of 9

STS-8: PFTA | COMM: 1115



POSITION - P Y R

P: 000.0 | Y: 000.0 | R: 000.0

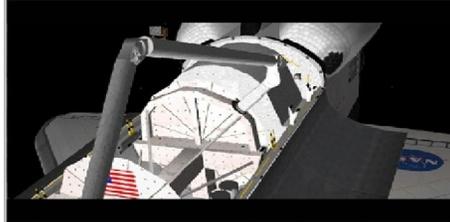
POSITION - X Y Z

X: 0709 | Y: -0016 | Z: 0420

JOINT ANGLE

YAW: -027.6
SHOULDER: 063.9
ELBOW: -136.8
WRIST PITCH: 073.0
WRIST YAW: 027.6
WRIST ROLL: 000.0

STS-8: PFTA | COMM: 1145



POSITION - P Y R

P: -090.0 | Y: -045.0 | R: 000.0

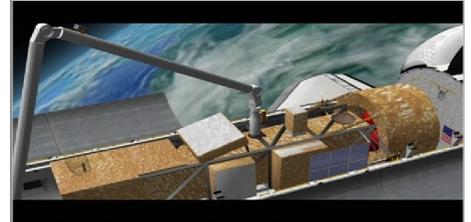
POSITION - X Y Z

X: 973 | Y: -064 | Z: 477

JOINT ANGLE

YAW: -000.5
SHOULDER: 043.5
ELBOW: -063.8
WRIST PITCH: -069.2
WRIST YAW: -045.0
WRIST ROLL: 000.8

STS-27: Lacrosse Satellite | COMM: 1121



POSITION - P Y R

P: -090.0 | Y: 000.0 | R: 000.0

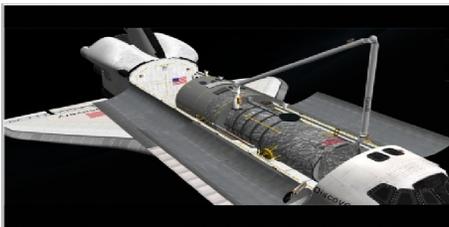
POSITION - X Y Z

X: 851 | Y: -005 | Z: 525

JOINT ANGLE

YAW: -17.8
SHOULDER: 66.9
ELBOW: -99.0
WRIST PITCH: -57.8
WRIST YAW: 000.0
WRIST ROLL: 17.9

STS-31: Hubble Telescope | COMM: 1115



POSITION - P Y R

P: -090.0 | Y: 000.0 | R: 179.9

POSITION - X Y Z

X: 748 | Y: 31 | Z: 479

JOINT ANGLE

YAW: -033.1
SHOULDER: 084.4
ELBOW: -118.9
WRIST PITCH: -055.6
WRIST YAW: 000.0
WRIST ROLL: 213.2

STS-32: LDEF-1 | COMM: 1171



POSITION - P Y R

P: -090.5 | Y: -060.0 | R: 000.3

POSITION - X Y Z

X: 782 | Y: -077 | Z: 462

JOINT ANGLE

YAW: 004.0
SHOULDER: 078.0
ELBOW: -123.3
WRIST PITCH: -052.1
WRIST YAW: -059.7
WRIST ROLL: -008.4

STS-41C: LDEF-1 | COMM: 1115



POSITION - P Y R

P: -090.0 | Y: -060.0 | R: 000.0

POSITION - X Y Z

X: 782 | Y: -077 | Z: 462

JOINT ANGLE

YAW: 004.0
SHOULDER: 078.0
ELBOW: -123.3
WRIST PITCH: -051.7
WRIST YAW: -059.7
WRIST ROLL: -008.0

STS-41C: LDEF-1 | COMM: 1117



POSITION - P Y R

P: -090.0 | Y: 030.0 | R: 000.0

POSITION - X Y Z

X: 782 | Y: 035 | Z: 492

JOINT ANGLE

YAW: -034.7
SHOULDER: 074.1
ELBOW: -105.3
WRIST PITCH: -077.0
WRIST YAW: 024.2
WRIST ROLL: 038.7

STS-41C: Solar Max | COMM: 1161



POSITION - P Y R

P: -001.7 | Y: -000.1 | R: 000.3

POSITION - X Y Z

X: 1030 | Y: -0007 | Z: 496

JOINT ANGLE

YAW: -012.8
SHOULDER: 041.2
ELBOW: -068.5
WRIST PITCH: 025.5
WRIST YAW: 012.6
WRIST ROLL: 000.0

STS-41C: Solar Max | COMM: 1184



POSITION - P Y R

P: 000.1 | Y: 000.0 | R: 000.0

POSITION - X Y Z

X: 1031 | Y: -003 | Z: 494

JOINT ANGLE

YAW: -013.3
SHOULDER: 040.3
ELBOW: -067.9
WRIST PITCH: 027.4
WRIST YAW: 013.3
WRIST ROLL: 000.0



Space Shuttle Mission 2007



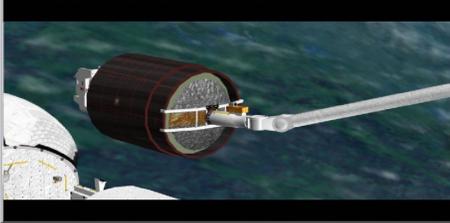
Designed By: Michael Swannick

Page 2 of 9

Grapple Index Card

Page 2 of 9

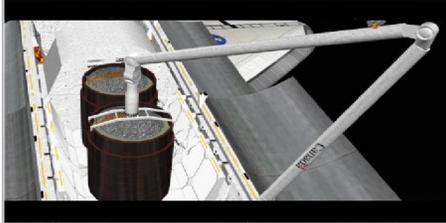
STS-51A: WESTAR-VI Satellite | COMM: 1217



Use The RMS To Capture The WESTAR-VI Satellite's Front Grapple.

Grapple Coordinates Will Be Dependant Upon The Placement Of The WESTAR-VI Satellite. Since The Satellite's Coordinates Will Vary Depending Upon Placement, I Am Unable To Supply Coordinates For This RMS Grapple.

STS-51A: WESTAR-VI Satellite | COMM: 1223

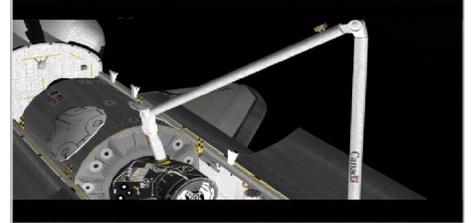


POSITION - P Y R
P: -090.0 | Y: 000.0 | R: 000.0

POSITION - X Y Z
X: 659 | Y: 000 | Z: 501

JOINT ANGLE
YAW: -041.1
SHOULDER: 110.6
ELBOW: -136.7
WRIST PITCH: -063.8
WRIST YAW: 000.0
WRIST ROLL: -319.0

STS-88: Unity Module | COMM: 1121

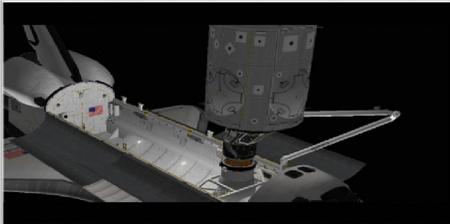


POSITION - P Y R
P: -090.0 | Y: 020.0 | R: 000.0

POSITION - X Y Z
X: 0760 | Y: -0008 | Z: 0470

JOINT ANGLE
YAW: -027.6
SHOULDER: 081.9
ELBOW: -119.3
WRIST PITCH: -062.2
WRIST YAW: 017.6
WRIST ROLL: 029.1

STS-88: Unity Module | COMM: 1126



POSITION - P Y R
P: 173.3 | Y: -049.2 | R: -179.8

POSITION - X Y Z
X: 590 | Y: -034 | Z: 567

JOINT ANGLE
YAW: -19.0
SHOULDER: 141.5
ELBOW: -153.0
WRIST PITCH: 016.0
WRIST YAW: -111.6
WRIST ROLL: 002.1

STS-88: Zarya Module | COMM: 1150



Use The RMS To Capture The Zarya Module.

Grapple Coordinates Will Be Dependant Upon The Placement Of The Zarya Module. Since The Module's Coordinates Will Vary Depending Upon Placement, I Am Unable To Supply Coordinates For This RMS Grapple.

STS-88: Zarya Module | COMM: 1150

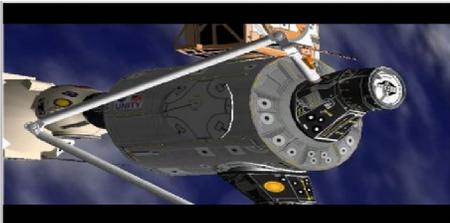


POSITION - P Y R
P: -152.6 | Y: -087.0 | R: 150.9

POSITION - X Y Z
X: 557 | Y: -0055 | Z: 0932

JOINT ANGLE
YAW: 005.8
SHOULDER: 116.0
ELBOW: -051.0
WRIST PITCH: -056.0
WRIST YAW: -098.5
WRIST ROLL: 010.8

STS-98: Unity Module | COMM: 1160

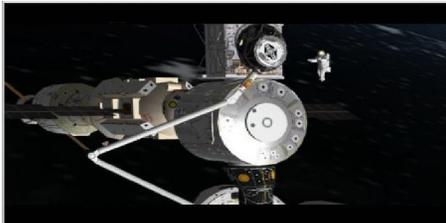


POSITION - P Y R
P: -090.0 | Y: -020.0 | R: 000.0

POSITION - X Y Z
X: 0577 | Y: -0038 | Z: 0696

JOINT ANGLE
YAW: -049.9
SHOULDER: 136.4
ELBOW: -107.7
WRIST PITCH: -103.1
WRIST YAW: -012.8
WRIST ROLL: 051.6

STS-98: Unity Module | COMM: 1163



POSITION - P Y R
P: 090.0 | Y: -040.0 | R: +179.9

POSITION - X Y Z
X: 0537 | Y: -0018 | Z: 0769

JOINT ANGLE
YAW: -088.0
SHOULDER: 147.4
ELBOW: -123.2
WRIST PITCH: 025.7
WRIST YAW: -001.3
WRIST ROLL: 091.4

STS-98: Destiny Module | COMM: 1165



POSITION - P Y R
P: -117.0 | Y: -041.6 | R: 018.8

POSITION - X Y Z
X: 0934 | Y: -0070 | Z: 0484

JOINT ANGLE
YAW: -000.1
SHOULDER: 046.5
ELBOW: -068.2
WRIST PITCH: -095.1
WRIST YAW: -041.7
WRIST ROLL: -018.7



Space Shuttle Mission 2007



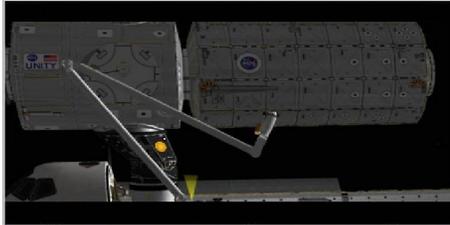
Designed By: Michael Swannick

Page 3 of 9

Grapple Index Card

Page 3 of 9

STS-98: Destiny Module | COMM: 1169



POSITION - P Y R

P: 064.0 | Y: -042.0 | R: 018.0

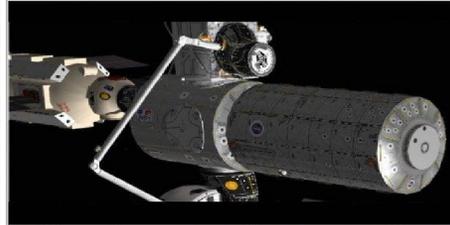
POSITION - X Y Z

X: 0663 | Y: -0070 | Z: 0584

JOINT ANGLE

YAW: -000.1
SHOULDER: 123.9
ELBOW: -155.1
WRIST PITCH: 095.1
WRIST YAW: -041.9
WRIST ROLL: -018.2

STS-98: Z1 Truss (PMA) | COMM: 1178



POSITION - P Y R

P: -087.2 | Y: -073.0 | R: 087.1

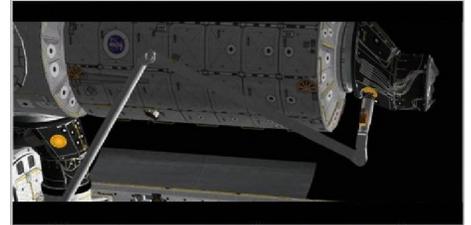
POSITION - X Y Z

X: 0532 | Y: -0069 | Z: 0812

JOINT ANGLE

YAW: -074.5
SHOULDER: 142.4
ELBOW: -089.2
WRIST PITCH: -070.6
WRIST YAW: -013.9
WRIST ROLL: -004.4

STS-98: Destiny Module (PMA) | COMM: 1181



POSITION - P Y R

P: 090.0 | Y: -045.0 | R: -090.0

POSITION - X Y Z

X: 0928 | Y: -0041 | Z: 0606

JOINT ANGLE

YAW: -004.0
SHOULDER: 055.0
ELBOW: -080.1
WRIST PITCH: 111.0
WRIST YAW: -044.9
WRIST ROLL: 084.3

STS-100: Pallet | COMM: 1171



POSITION - P Y R

P: -090.0 | Y: 000.0 | R: 000.0

POSITION - X Y Z

X: 0659 | Y: -0094 | Z: 0432

JOINT ANGLE

YAW: -006.2
SHOULDER: 107.8
ELBOW: -152.8
WRIST PITCH: -045.0
WRIST YAW: 000.0
WRIST ROLL: 006.2

STS-100: Pallet | COMM: 1174



POSITION - P Y R

P: 090.7 | Y: -088.9 | R: 179.8

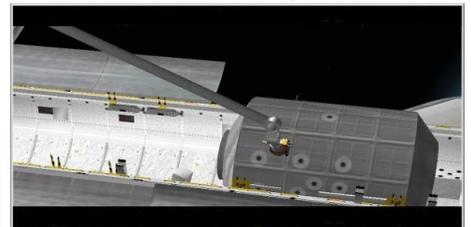
POSITION - X Y Z

X: 0236 | Y: -0064 | Z: 0693

JOINT ANGLE

YAW: 177.6
SHOULDER: 88.8
ELBOW: -091.0
WRIST PITCH: -022.1
WRIST YAW: 092.5
WRIST ROLL: 113.6

STS-100: Raffaello MPLM | COMM: 1192



POSITION - P Y R

P: -090.0 | Y: -045.0 | R: 000.0

POSITION - X Y Z

X: 0932 | Y: -0068 | Z: 0482

JOINT ANGLE

YAW: 000.0
SHOULDER: 53.3
ELBOW: -079.1
WRIST PITCH: -064.2
WRIST YAW: -045.0
WRIST ROLL: 000.0

STS-100: Raffaello MPLM | COMM: 1195



POSITION - P Y R

P: 090.0 | Y: -045.0 | R: 180.0

POSITION - X Y Z

X: 0624 | Y: -0071 | Z: 0934

JOINT ANGLE

YAW: 001.6
SHOULDER: 115.7
ELBOW: -071.6
WRIST PITCH: 047.6
WRIST YAW: -045.0
WRIST ROLL: 182.2

STS-100: Pallet | COMM: 1225



POSITION - P Y R

P: 106.0 | Y: 049.0 | R: 099.0

POSITION - X Y Z

X: 0519 | Y: -0443 | Z: 0692

JOINT ANGLE

YAW: 091.1
SHOULDER: 087.9
ELBOW: -101.8
WRIST PITCH: 053.4
WRIST YAW: 009.5
WRIST ROLL: 363.9

STS-100: Pallet | COMM: 1227



POSITION - P Y R

P: -090.0 | Y: 000.0 | R: 000.0

POSITION - X Y Z

X: 0659 | Y: -0094 | Z: 0432

JOINT ANGLE

YAW: -006.2
SHOULDER: 107.8
ELBOW: -152.8
WRIST PITCH: -045.0
WRIST YAW: 000.0
WRIST ROLL: 006.2



Space Shuttle Mission 2007



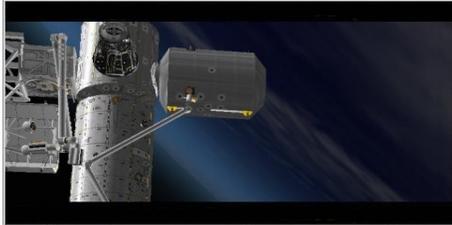
Designed By: Michael Swannick

Page 4 of 9

Grapple Index Card

Page 4 of 9

STS-100: Raffaello MPLM | COMM: 1235



POSITION - P Y R

P: 088.1 | Y: -044.9 | R: 179.9

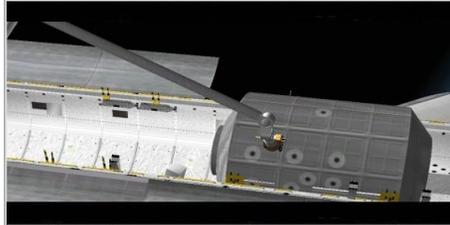
POSITION - X Y Z

X: 0634 | Y: -0071 | Z: 0928

JOINT ANGLE

YAW: 001.6
SHOULDER: 115.2
ELBOW: -073.1
WRIST PITCH: 047.6
WRIST YAW: -045.0
WRIST ROLL: 182.2

STS-100: Raffaello MPLM | COMM: 1236



POSITION - P Y R

P: -090.0 | Y: -045.0 | R: 000.0

POSITION - X Y Z

X: 0932 | Y: -0068 | Z: 0482

JOINT ANGLE

YAW: 000.0
SHOULDER: 53.3
ELBOW: -079.1
WRIST PITCH: -064.2
WRIST YAW: -045.0
WRIST ROLL: 000.0

STS-103: Hubble Telescope | COMM: 1130



POSITION - P Y R

P: 000.0 | Y: 000.0 | R: 000.0

POSITION - X Y Z

X: 0920 | Y: -0041 | Z: 0701

JOINT ANGLE

YAW: -011.4
SHOULDER: 080.4
ELBOW: -081.5
WRIST PITCH: 001.1
WRIST YAW: 011.5
WRIST ROLL: -000.1

STS-116: OBSS | COMM: 1119



POSITION - P Y R

P: -090.0 | Y: 000.0 | R: 000.0

POSITION - X Y Z

X: 0550 | Y: 0099 | Z: 0464

JOINT ANGLE

YAW: -085.9
SHOULDER: 092.9
ELBOW: -131.4
WRIST PITCH: -051.1
WRIST YAW: 000.0
WRIST ROLL: 086.0

STS-116: OBSS | COMM: 1122



POSITION - P Y R

P: -108.2 | Y: 009.4 | R: -012.2

POSITION - X Y Z

X: 0417 | Y: 0276 | Z: 0333

JOINT ANGLE

YAW: -104.3
SHOULDER: 032.8
ELBOW: -76.7
WRIST PITCH: -051.1
WRIST YAW: -019.9

STS-116: OBSS | COMM: 1123



POSITION - P Y R

P: -090.0 | Y: 000.0 | R: 000.0

POSITION - X Y Z

X: 0550 | Y: 0099 | Z: 0464

JOINT ANGLE

YAW: -085.9
SHOULDER: 092.9
ELBOW: -131.4
WRIST PITCH: -051.1
WRIST YAW: 000.0
WRIST ROLL: 086.0

STS-116: P5 Truss Segment | COMM: 1171



POSITION - P Y R

P: -045.0 | Y: 000.0 | R: 000.0

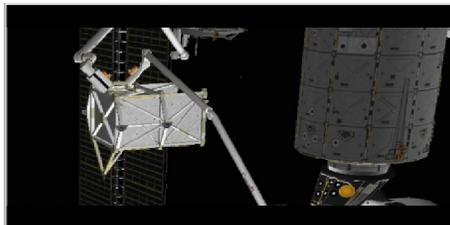
POSITION - X Y Z

X: 0920 | Y: -0003 | Z: 0492

JOINT ANGLE

YAW: -016.8
SHOULDER: 064.1
ELBOW: -094.5
WRIST PITCH: -015.8
WRIST YAW: 011.8
WRIST ROLL: 012.0

STS-116: P5 Truss Segment | COMM: 1174



POSITION - P Y R

P: -045.0 | Y: 000.0 | R: 000.0

POSITION - X Y Z

X: 0590 | Y: -0579 | Z: 0604

JOINT ANGLE

YAW: 088.0
SHOULDER: 032.7
ELBOW: -017.9
WRIST PITCH: -102.7
WRIST YAW: -044.9
WRIST ROLL: -087.2

STS-116: OBSS | COMM: 1266



POSITION - P Y R

P: -090.0 | Y: 000.0 | R: 000.0

POSITION - X Y Z

X: 0550 | Y: 0099 | Z: 0464

JOINT ANGLE

YAW: -085.9
SHOULDER: 092.9
ELBOW: -131.4
WRIST PITCH: -051.1
WRIST YAW: 000.0
WRIST ROLL: 086.0



Space Shuttle Mission 2007



Designed By: Michael Swannick

Page 5 of 9

Grapple Index Card

Page 5 of 9

STS-116: OBSS | COMM: 1269



POSITION - P Y R

P: -108.2 | Y: 009.4 | R: -012.2

POSITION - X Y Z

X: 0417 | Y: 0276 | Z: 0333

JOINT ANGLE

YAW: -104.3
SHOULDER: 032.8
ELBOW: -76.7
WRIST PITCH: -051.1
WRIST YAW: -019.9
WRIST ROLL: 114.1

STS-117: OBSS | COMM: 1119



POSITION - P Y R

P: -090.0 | Y: 000.0 | R: 000.0

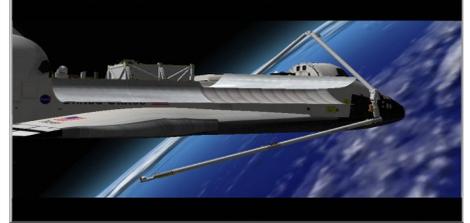
POSITION - X Y Z

X: 0550 | Y: 0099 | Z: 0464

JOINT ANGLE

YAW: -085.9
SHOULDER: 092.9
ELBOW: -131.4
WRIST PITCH: -051.1
WRIST YAW: 000.0

STS-117: OBSS | COMM: 1122



POSITION - P Y R

P: -108.2 | Y: 009.4 | R: -012.2

POSITION - X Y Z

X: 0417 | Y: 0276 | Z: 0333

JOINT ANGLE

YAW: -104.3
SHOULDER: 032.8
ELBOW: -76.7
WRIST PITCH: -051.1
WRIST YAW: -019.9
WRIST ROLL: 114.1

STS-117: S3/S4 Truss Segment | COMM: 1171



POSITION - P Y R

P: -090.0 | Y: 045.0 | R: -090.0

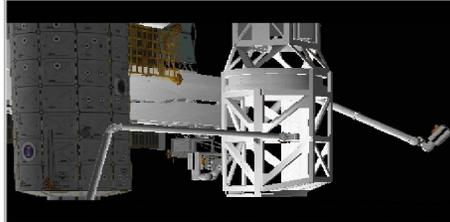
POSITION - X Y Z

X: 0674 | Y: 0062 | Z: 0426

JOINT ANGLE

YAW: -056.5
SHOULDER: 076.4
ELBOW: -119.1
WRIST PITCH: -087.2
WRIST YAW: 023.0
WRIST ROLL: 155.0

STS-117: S3/S4 Truss Segment | COMM: 1174



POSITION - P Y R

P: 180.0 | Y: -045.0 | R: 090.0

POSITION - X Y Z

X: 0714 | Y: 0207 | Z: 0689

JOINT ANGLE

YAW: -051.6
SHOULDER: 076.5
ELBOW: -079.4
WRIST PITCH: 003.4
WRIST YAW: -083.2
WRIST ROLL: 090.6

STS-117: OBSS | COMM: 1266



POSITION - P Y R

P: -090.0 | Y: 000.0 | R: 000.0

POSITION - X Y Z

X: 0550 | Y: 0099 | Z: 0464

JOINT ANGLE

YAW: -085.9
SHOULDER: 092.9
ELBOW: -131.4
WRIST PITCH: -051.1
WRIST YAW: 000.0
WRIST ROLL: 086.0

STS-117: OBSS | COMM: 1269



POSITION - P Y R

P: -108.2 | Y: 009.4 | R: -012.2

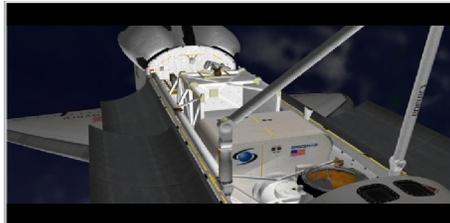
POSITION - X Y Z

X: 0417 | Y: 0276 | Z: 0333

JOINT ANGLE

YAW: -104.3
SHOULDER: 032.8
ELBOW: -76.7
WRIST PITCH: -051.1
WRIST YAW: -019.9
WRIST ROLL: 114.1

STS-121: OBSS | COMM: 1119



POSITION - P Y R

P: -090.0 | Y: 000.0 | R: 000.0

POSITION - X Y Z

X: 0550 | Y: 0099 | Z: 0464

JOINT ANGLE

YAW: -085.9
SHOULDER: 092.9
ELBOW: -131.4
WRIST PITCH: -051.1
WRIST YAW: 000.0
WRIST ROLL: 086.0

STS-121: OBSS | COMM: 1122



POSITION - P Y R

P: -108.2 | Y: 009.4 | R: -012.2

POSITION - X Y Z

X: 0417 | Y: 0276 | Z: 0333

JOINT ANGLE

YAW: -104.3
SHOULDER: 032.8
ELBOW: -76.7
WRIST PITCH: -051.1
WRIST YAW: -019.9
WRIST ROLL: 114.1



Space Shuttle Mission 2007



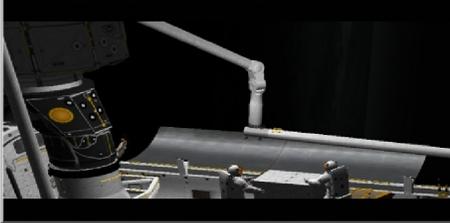
Designed By: Michael Swannick

Page 6 of 9

Grapple Index Card

Page 6 of 9

STS-121: OBSS | COMM: 1197



POSITION - P Y R

P: -102.4 | Y: -006.3 | R: 099.7

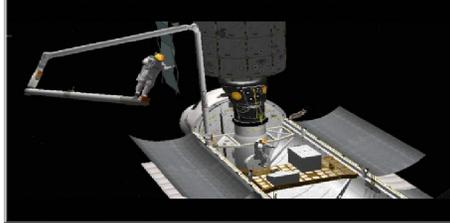
POSITION - X Y Z

X: 0639 | Y: 0104 | Z: 0498

JOINT ANGLE

YAW: -060.5
SHOULDER: 091.0
ELBOW: -121.6
WRIST PITCH: -060.0
WRIST YAW: -013.9
WRIST ROLL: -038.5

STS-121: OBSS | COMM: 1199



POSITION - P Y R

P: -071.4 | Y: 032.6 | R: 008.9

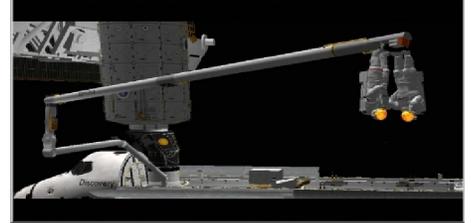
POSITION - X Y Z

X: 0469 | Y: -0409 | Z: 0595

JOINT ANGLE

YAW: 106.5
SHOULDER: 089.5
ELBOW: -100.9
WRIST PITCH: -049.6
WRIST YAW: -024.2
WRIST ROLL: -103.6

STS-121: OBSS | COMM: 1201



POSITION - P Y R

P: 088.9 | Y: -011.7 | R: -144.0

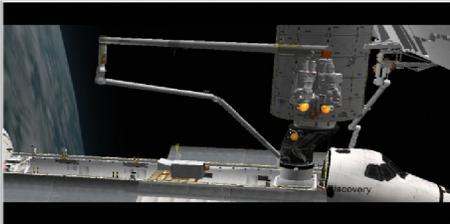
POSITION - X Y Z

X: 0561 | Y: -0590 | Z: 0636

JOINT ANGLE

YAW: 087.0
SHOULDER: 023.8
ELBOW: -023.1
WRIST PITCH: 100.9
WRIST YAW: -001.6
WRIST ROLL: -128.6

STS-121: OBSS | COMM: 1202



POSITION - P Y R

P: 081.5 | Y: -011.7 | R: -048.9

POSITION - X Y Z

X: 0835 | Y: 0227 | Z: 0765

JOINT ANGLE

YAW: -048.0
SHOULDER: 049.0
ELBOW: -039.2
WRIST PITCH: 065.8
WRIST YAW: -001.6
WRIST ROLL: -096.3

STS-121: OBSS | COMM: 1208



POSITION - P Y R

P: 090.2 | Y: 013.7 | R: -133.7

POSITION - X Y Z

X: 0534 | Y: -0572 | Z: 0525

JOINT ANGLE

YAW: 090.0
SHOULDER: 032.0
ELBOW: -062.6
WRIST PITCH: 106.8
WRIST YAW: 000.2
WRIST ROLL: -136.1

STS-121: OBSS | COMM: 1257



POSITION - P Y R

P: -108.2 | Y: 009.4 | R: -012.2

POSITION - X Y Z

X: 0417 | Y: 0276 | Z: 0333

JOINT ANGLE

YAW: -104.3
SHOULDER: 032.8
ELBOW: -76.7
WRIST PITCH: -051.1
WRIST YAW: -019.9
WRIST ROLL: 114.1

STS-122: OBSS | COMM: 1124



POSITION - P Y R

P: -090.0 | Y: 000.0 | R: 000.0

POSITION - X Y Z

X: 0550 | Y: 0099 | Z: 0464

JOINT ANGLE

YAW: -085.9
SHOULDER: 092.9
ELBOW: -131.4
WRIST PITCH: -051.1
WRIST YAW: 000.0
WRIST ROLL: 086.0

STS-122: OBSS | COMM: 1127



POSITION - P Y R

P: -108.2 | Y: 009.4 | R: -012.2

POSITION - X Y Z

X: 0417 | Y: 0276 | Z: 0333

JOINT ANGLE

YAW: -104.3
SHOULDER: 032.8
ELBOW: -76.7
WRIST PITCH: -051.1
WRIST YAW: -019.9
WRIST ROLL: 114.1

STS-122: OBSS | COMM: 1175



POSITION - P Y R

P: -004.2 | Y: 002.2 | R: 094.4

POSITION - X Y Z

X: 0887 | Y: -0255 | Z: 0722

JOINT ANGLE

YAW: 026.1
SHOULDER: 081.4
ELBOW: -076.9
WRIST PITCH: -009.0
WRIST YAW: -023.8
WRIST ROLL: 096.6



Space Shuttle Mission 2007



Designed By: Michael Swannick

Page 7 of 9

Grapple Index Card

Page 7 of 9

STS-122: OBSS | COMM: 1176



POSITION - P Y R

P: 010.4 | Y: -025.4 | R: -106.7

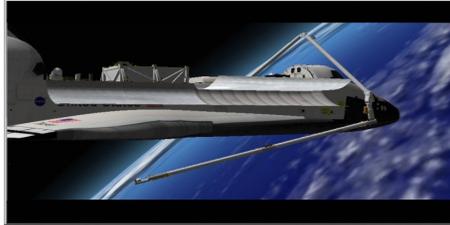
POSITION - X Y Z

X: 0713 | Y: 0206 | Z: 0694

JOINT ANGLE

YAW: -066.0
SHOULDER: 084.4
ELBOW: -090.2
WRIST PITCH: 018.0
WRIST YAW: 039.5
WRIST ROLL: 094.2

STS-122: OBSS | COMM: 1270



POSITION - P Y R

P: -108.2 | Y: 009.4 | R: -012.2

POSITION - X Y Z

X: 0417 | Y: 0276 | Z: 0333

JOINT ANGLE

YAW: -104.3
SHOULDER: 032.8
ELBOW: -76.7
WRIST PITCH: -051.1
WRIST YAW: -019.9
WRIST ROLL: 114.1

STS-124: RMS | COMM: 1127



POSITION - P Y R

P: -091.0 | Y: 005.6 | R: -059.1

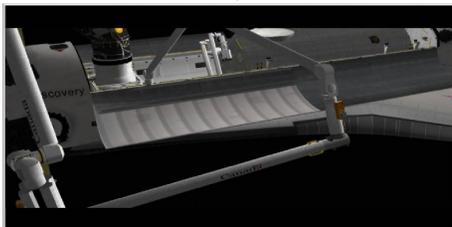
POSITION - X Y Z

X: 0495 | Y: -0387 | Z: 0149

JOINT ANGLE

YAW: 098.0
SHOULDER: 009.0
ELBOW: -93.2
WRIST PITCH: 000.0
WRIST YAW: 000.0
WRIST ROLL: 000.0

STS-124: OBSS | COMM: 1177



POSITION - P Y R

P: -087.6 | Y: 017.2 | R: -082.2

POSITION - X Y Z

X: 0598 | Y: -0592 | Z: 0508

JOINT ANGLE

YAW: 082.6
SHOULDER: 038.0
ELBOW: -044.8
WRIST PITCH: -065.7
WRIST YAW: 000.0
WRIST ROLL: 000.0

STS-124: OBSS | COMM: 1269



POSITION - P Y R

P: -108.2 | Y: 009.4 | R: -012.2

POSITION - X Y Z

X: 0417 | Y: 0276 | Z: 0333

JOINT ANGLE

YAW: -104.3
SHOULDER: 032.8
ELBOW: -76.7
WRIST PITCH: -051.1
WRIST YAW: -019.9
WRIST ROLL: 114.1

STS-124: OBSS | COMM: 1270



POSITION - P Y R

P: -090.0 | Y: 000.0 | R: 000.0

POSITION - X Y Z

X: 0550 | Y: 0099 | Z: 0464

JOINT ANGLE

YAW: -085.9
SHOULDER: 092.9
ELBOW: -131.4
WRIST PITCH: -051.1
WRIST YAW: 000.0
WRIST ROLL: 086.0

STS-401: OBSS | COMM: 1124



POSITION - P Y R

P: -090.0 | Y: 000.0 | R: 000.0

POSITION - X Y Z

X: 0550 | Y: 0099 | Z: 0464

JOINT ANGLE

YAW: -085.9
SHOULDER: 092.9
ELBOW: -131.4
WRIST PITCH: -051.1
WRIST YAW: 000.0
WRIST ROLL: 086.0

STS-401: OBSS | COMM: 1127



POSITION - P Y R

P: -108.2 | Y: 009.4 | R: -012.2

POSITION - X Y Z

X: 0417 | Y: 0276 | Z: 0333

JOINT ANGLE

YAW: -104.3
SHOULDER: 032.8
ELBOW: -76.7
WRIST PITCH: -051.1
WRIST YAW: -019.9
WRIST ROLL: 114.1

STS-401: OBSS | COMM: 1128



POSITION - P Y R

P: -090.0 | Y: 000.0 | R: 000.0

POSITION - X Y Z

X: 0550 | Y: 0099 | Z: 0464

JOINT ANGLE

YAW: -085.9
SHOULDER: 092.9
ELBOW: -131.4
WRIST PITCH: -051.1
WRIST YAW: 000.0
WRIST ROLL: 086.0



Space Shuttle Mission 2007



Designed By: Michael Swannick

Page 8 of 9

Grapple Index Card

Page 8 of 9

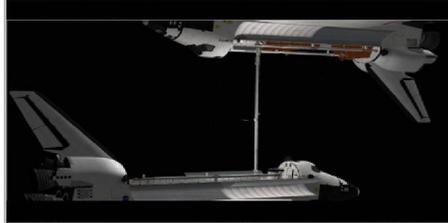
STS-401: Atlantis | COMM: 1151



Grapple Atlantis Using The Forward OBSB Boom Fixture.

Grapple Coordinates Will Be Dependant Upon The Placement Of Atlantis. Since The Coordinates Will Vary Depending Upon Placement, I Am Unable To Supply Coordinates For This RMS Grapple.

STS-401: Atlantis | COMM: 1152



POSITION - P Y R

P: 090.1 | Y: 000.0 | R: 000.0

POSITION - X Y Z

X: 0534 | Y: -0107 | Z: 1051

JOINT ANGLE

YAW: 000.0

SHOULDER: 090.0

ELBOW: 000.0

WRIST PITCH: 000.0

WRIST YAW: 000.0

WRIST ROLL: 000.0

STS-401: OBSS | COMM: 1266



POSITION - P Y R

P: -090.0 | Y: 000.0 | R: 000.0

POSITION - X Y Z

X: 0550 | Y: 0099 | Z: 0464

JOINT ANGLE

YAW: -085.9

SHOULDER: 092.9

ELBOW: -131.4

WRIST PITCH: -051.1

WRIST YAW: 000.0

WRIST ROLL: 086.0

STS-401: OBSS | COMM: 1266



POSITION - P Y R

P: -108.2 | Y: 009.4 | R: -012.2

POSITION - X Y Z

X: 0417 | Y: 0276 | Z: 0333

JOINT ANGLE

YAW: -104.3

SHOULDER: 032.8

ELBOW: -76.7

WRIST PITCH: -051.1

WRIST YAW: -019.9

WRIST ROLL: 114.1

STS-125: OBSS | COMM: 1119



POSITION - P Y R

P: -090.0 | Y: 000.0 | R: 000.0

POSITION - X Y Z

X: 0550 | Y: 0099 | Z: 0464

JOINT ANGLE

YAW: -085.9

SHOULDER: 092.9

ELBOW: -131.1

WRIST PITCH: -051.1

WRIST YAW: 000.0

WRIST ROLL: 086.0

STS-125: OBSS | COMM: 1122



POSITION - P Y R

P: -108.2 | Y: 009.4 | R: -012.2

POSITION - X Y Z

X: 0417 | Y: 0276 | Z: 0333

JOINT ANGLE

YAW: -104.3

SHOULDER: 032.8

ELBOW: -76.7

WRIST PITCH: -051.1

WRIST YAW: -019.9

WRIST ROLL: 114.1

STS-125: Hubble Telescope | COMM: 1143



POSITION - P Y R

P: 000.0 | Y: 000.0 | R: 000.0

POSITION - X Y Z

X: 0920 | Y: -0041 | Z: 0701

JOINT ANGLE

YAW: -011.4

SHOULDER: 080.4

ELBOW: -081.5

WRIST PITCH: 001.1

WRIST YAW: 011.5

WRIST ROLL: -000.1

STS-125: Hubble Telescope | COMM: 1300



POSITION - P Y R

P: 000.0 | Y: 000.0 | R: 000.0

POSITION - X Y Z

X: 0920 | Y: -0041 | Z: 0701

JOINT ANGLE

YAW: -011.4

SHOULDER: 080.4

ELBOW: -081.5

WRIST PITCH: 001.1

WRIST YAW: 011.5

WRIST ROLL: -000.1

STS-125: OBSS | COMM: 1316



POSITION - P Y R

P: -090.0 | Y: 000.0 | R: 000.0

POSITION - X Y Z

X: 0550 | Y: 0099 | Z: 0464

JOINT ANGLE

YAW: -085.9

SHOULDER: 092.9

ELBOW: -131.1

WRIST PITCH: -051.1

WRIST YAW: 000.0

WRIST ROLL: 086.0



Space Shuttle Mission 2007



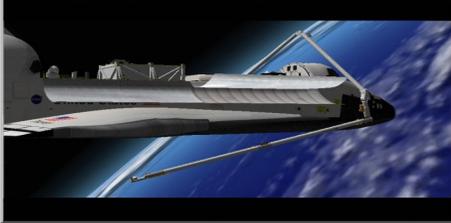
Designed By: Michael Swannick

Page 9 of 9

Grapple Index Card

Page 9 of 9

STS-125: OBSS | COMM: 1319



POSITION - P Y R

P: -108.2 | Y: 009.4 | R: -012.2

POSITION - X Y Z

X: 0417 | Y: 0276 | Z: 0333

JOINT ANGLE

YAW: -104.3

SHOULDER: 032.8

ELBOW: -76.7

WRIST PITCH: -051.1

WRIST YAW: -019.9

WRIST ROLL: 114.1