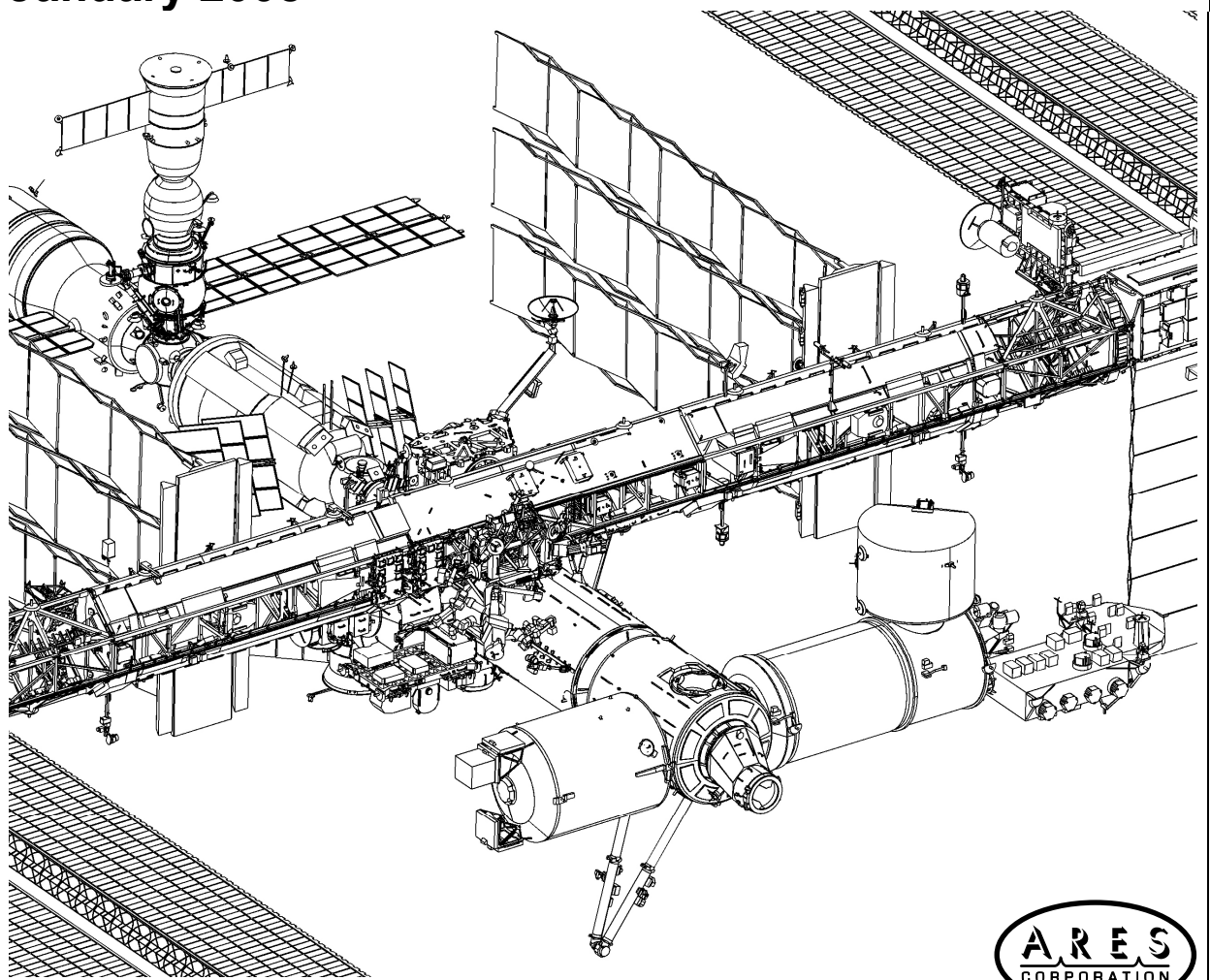


On-Orbit Assembly, Modeling, and Mass Properties Data Book

Volume II

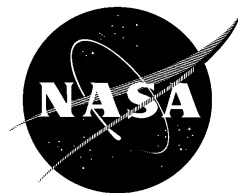
International Space Station Program

January 2008



Booz | Allen | Hamilton

National Aeronautics and Space Administration
International Space Station Program
Johnson Space Center
Houston, Texas



This page included for formatting purposes.

VOLUMES I AND II

This revision of the *Data Book* was segmented into two volumes due to the document size and because of a smaller customer base requiring data in Volume II. Volume I contains free flying and Orbiter-attached configuration properties necessary to fulfill the requirements of the PI&C Contract. In Volume II, the mass property and aerodynamic data are organized into a multi-body system utilized by analysts. Volume II provides data used by a limited number of customers within the ISS analysis community.

This page included for formatting purposes.

INTERNATIONAL SPACE STATION
ON-ORBIT ASSEMBLY, MODELING, AND MASS PROPERTIES
DATA BOOK

PREFACE

This document was constructed by using the NASA approved Blue Book Revision AB Assembly Matrix that provided by the Strategic Planning, Assembly, Requirements, and Configuration office.

The contents of this document are to be consistent with the tasks and products prepared by the International Space Station Program (ISSP) participants as specified in *Space Shuttle Program (SSP) 50011-01, Concept of Operation and Utilization, Volume I: Principles* and *SSP 50200-02, Station Program Implementation Plan, Volume II, Program Planning and Manifesting*.

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INTERNATIONAL SPACE STATION
ON-ORBIT ASSEMBLY, MODELING, AND MASS PROPERTIES
DATA BOOK


CONCURRENCE

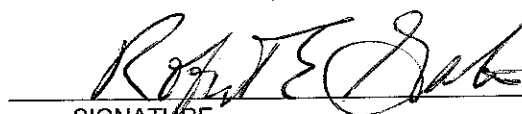
JANUARY 2008

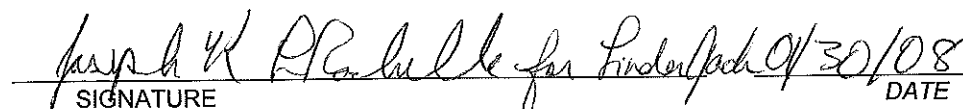
PREPARED BY: Configuration Analysis Modeling and Mass Properties (CAMMP) Team BOOZ ALLEN HAMILTON

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VEHICLE CONFIGURATION TEAM LEAD

 JOSEPH K. R. BULL FOR LINDA JACK
SIGNATURE DATE
01/30/08

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**INTERNATIONAL SPACE STATION
 ON-ORBIT ASSEMBLY, MODELING, AND MASS PROPERTIES
 DATA BOOK**

LIST OF CHANGES

JANUARY 2008

| <i>Data Book</i> | <i>Entry Date</i> | <i>Change</i> | <i>Paragraphs</i> |
|--------------------------------|-------------------|---------------|-------------------|
| VOLUME I Revision AB | January 2008 | Baseline | All |
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| VOLUME II Revision AB | January 2008 | Baseline | All |
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8.0 BODY PROPERTIES

The CAMMP Team I-DEAS model of the International Space Station (ISS) is organized to allow for dynamic analyses by the NASA and contractor technical community. This organizational structure consists of a 30-body system composed of the various assembly elements and sub-elements, distributed into bodies on the basis of static, rotating and articulating bodies. RSA Progress, ATV and Soyuz module flights are classified as bodies as well due to their frequent arrival and departure. In addition, the Orbiter is defined as a body for appropriate Orbiter-attached configurations. Figure 8.0-1 illustrates the 30-body system. The 30 bodies are described as follows:

Note: Due to the limited range of ISS missions, this document will not contain data sets for all 30 bodies.

Body **1** contains the main truss boom, its integrated equipment and the module cluster, excluding the Soyuz and Progress modules. At Assembly Complete, this is by far the most massive ISS body.

Bodies **2** (starboard) and **3** (port) each have alpha axis rotations relative to Body 1. Each contains an integrated energy assembly for power generation.

Bodies **4** and **5** contain the starboard and port Thermal Control System radiators, respectively. Each body employs a gamma axis rotation relative to Body 1.

Body **6** consists of the Mobile Servicing Center, plus Crew and Equipment Translation Aid carts. This body translates relative to body one only on the forward truss face on the Mobile Transporter rails.

Bodies **7** and **8** are no longer in use (contained in starboard and port Science Power Platform (SPP) solar arrays).

Bodies **9**, **11**, **13** and **15** each contain an aft solar array mounted outboard of the alpha joints on the USOS truss. Each solar array rotates about an individual beta axis. Bodies 9 and 11 rotate about their beta axes relative to Body 2. Bodies 13 and 15 rotate about beta axes relative to Body 3.

Bodies **10**, **12**, **14** and **16** each contain a forward solar array mounted outboard of the alpha on the USOS truss. Each solar array rotates about an individual beta axis. Bodies 10 and 12 rotate about their beta axes relative to Body 2. Body 14 and 16 rotate about beta axes relative to Body 3.

Body **17** contains the Progress, Soyuz, and ATV vehicles attached to the Service Module aft docking port. Bodies **18** and **19** represent Progress and Soyuz vehicles attached to the nadir docking ports on the Zarya FGB, and DC 1. Modules are

docked at certain ports with specific solar array alignments. These bodies are added and removed from the ISS according to the assembly sequence logistics schedule.

Bodies **20** and **21** contain the starboard and port Zarya FGB solar arrays, respectively.

Bodies **22** and **23** contain the starboard and port Zvezda Service Module solar arrays, respectively.

Body **24** is no longer used (contains the Russian Thermal Control System Radiator).

Body **25** is no longer used (contains the SPP Activator).

Body **26** is no longer used (contained the X-38 Crew Return Vehicle).

Body **27** contains the Space Shuttle vehicle. This body is added and removed from the ISS for appropriate Orbiter-attached configurations according to the assembly schedule.

Body **28** is no longer used (contained the Propulsion Module).

Body **29** contains the HTV.

Body **30** contains represent Progress and Soyuz vehicles attached to the zenith docking ports on the MRM2.

Please note: Bodies 7, 8, 24, 25, 26, and 28 have been de-manifested from the ISS Program and are listed for historical purposes.

Pivot point locations for articulating bodies are provided in Table 8.0-1. All pivot point locations are given with respect to the Space Station Analysis Coordinate System, and are listed in both millimeters and inches. Bodies 15 and 16 have locations listed for the P6 truss segment as attached to the initial position on the Z1 truss segment. Docking locations for Soyuz, Automated Transfer Vehicle and Progress vehicles are listed in Table 8.0-2. Docking locations for Orbiter vehicles are listed in Table 6.3-1. Only those pivot points used for the range of ISS configurations in this document were listed.

Table 8.0-1 Body Pivot Point Locations

| Body | X Location | | Y Location | | Z Location | |
|------------|------------|---------|------------|---------|------------|-------|
| | mm | Inch | mm | Inch | mm | Inch |
| Body 2 | 0 | 0.0 | 25831 | 1017 | 0 | 0.0 |
| Body 3 | 0 | 0.0 | -25831 | -1017 | 0 | 0.0 |
| Body 4 | -122 | -4.8 | 14691 | 578.4 | 1 | 0.0 |
| Body 5 | -122 | -4.8 | -14691 | -578.4 | 1 | 0.0 |
| Body 9 | -1098 | -43.2 | 33390 | 1314.6 | 660 | 26.0 |
| Body 10 | 1812 | 71.3 | 33390 | 1314.6 | -660 | -26.0 |
| Body 11 | -1105 | -43.5 | 48559 | 1911.8 | 660 | 26.0 |
| Body 12 | 1808 | 71.2 | 48559 | 1911.8 | -660 | -26.0 |
| Body 13 | -1812 | -71.3 | -33419 | -1315.7 | -661 | -26.0 |
| Body 14 | 1098 | 43.2 | -33419 | -1315.7 | 660 | 26.0 |
| Body 15 | -1808 | -71.2 | -48559 | -1911.8 | -660 | -26.0 |
| Body 16 | 1102 | 43.4 | -48559 | -1911.8 | 660 | 26.0 |
| Body 17 | -35691 | -1405.2 | -6 | -0.2 | 4142 | 163.1 |
| Body 18 | -11134 | -438.3 | -6 | -0.2 | 5285 | 208.1 |
| Body 18 * | -11134 | -438.3 | -6 | -0.2 | 11285 | 444.3 |
| Body 19 | -23701 | -933.1 | -6 | 0.2 | 9308 | 366.5 |
| Body 19 ** | -23701 | -933.1 | -6 | 0.2 | 22282 | 877.2 |
| Body 20 | -15103 | -594.6 | 1459 | 57.4 | 4142 | 163.1 |
| Body 21 | -15103 | -594.6 | -1471 | -57.9 | 4142 | 163.1 |
| Body 22 | -27699 | -1090.5 | 1559 | 61.4 | 4142 | 163.1 |
| Body 23 | -27698 | -1090.5 | -1570 | -61.8 | 4142 | 163.1 |
| Body 29 | 10934 | 430.5 | 8 | 0.3 | 6854 | 269.8 |
| Body 30 | -23701 | -933.1 | -6 | 0.2 | -1024 | -40.3 |

* Indicates position on MRM1

** Indicates position on MLM

Table 8.0-2 Docking Locations for Soyuz, Progress, and ATV Vehicles

P= Progress, S= Soyuz, ATV= Automated Transfer Vehicle

| Configuration | RSA Module Type | | | | SM | FGB/ MRM1 | DC1/M LM | MRM2 | Body 17 | | | Body 18 | | | Body 19 | | | Body 30 | | | |
|----------------|-----------------|----|----|----|----|--------------|-------------|------|---------|-------|-------|---------|----|------|---------|----|------|---------|---|---|---|
| | Body | | | | | | | | (mm) | | | (mm) | | | (mm) | | | (mm) | | | |
| | 17 | 18 | 19 | 30 | | | | | aft | nadir | nadir | zenith | x | y | z | x | y | z | x | y | z |
| (S001) 28P_AR | A | S | P | | A | S | P | | -35691 | -6 | 4142 | -11134 | -6 | 5285 | -23701 | -6 | 9308 | | | | |
| (S008) 28P_AS | A | S | | | A | S | | | -35691 | -6 | 4142 | -11134 | -6 | 5285 | | | | | | | |
| (S009) 16S_AR1 | A | S | S | | A | S | S | | -35691 | -6 | 4142 | -11134 | -6 | 5285 | -23701 | -6 | 9308 | | | | |
| (S010) 15S_AS | A | | S | | A | | S | | -35691 | -6 | 4142 | | | | -23701 | -6 | 9308 | | | | |
| (S016) 16S_AS1 | A | | | | A | | | | -35691 | -6 | 4142 | | | | | | | | | | |
| (S017) 16S_AR2 | A | S | | | A | S | | | -35691 | -6 | 4142 | -11134 | -6 | 5285 | | | | | | | |
| (S018) 29P_AR | A | S | P | | A | S | P | | -35691 | -6 | 4142 | -11134 | -6 | 5285 | -23701 | -6 | 9308 | | | | |
| (S019) ATV1_AS | | S | P | | | S | P | | | | | -11134 | -6 | 5285 | -23701 | -6 | 9308 | | | | |
| (S020) 30P_AR | P | S | P | | P | S | P | | -35691 | -6 | 4142 | -11134 | -6 | 5285 | -23701 | -6 | 9308 | | | | |
| (S021) 29P_AS | P | S | | | P | S | | | -35691 | -6 | 4142 | -11134 | -6 | 5285 | | | | | | | |
| (S022) 31P_AR | P | S | P | | P | S | P | | -35691 | -6 | 4142 | -11134 | -6 | 5285 | -23701 | -6 | 9308 | | | | |
| (S028) 30P_AS | | S | P | | | S | P | | | | | -11134 | -6 | 5285 | -23701 | -6 | 9308 | | | | |
| (S029) 17S_AR1 | S | S | P | | S | S | P | | -35691 | -6 | 4142 | -11134 | -6 | 5285 | -23701 | -6 | 9308 | | | | |
| (S030) 16S_AS2 | S | | P | | S | | P | | -35691 | -6 | 4142 | | | | -23701 | -6 | 9308 | | | | |
| (S031) 17S_AS1 | | | P | | | | P | | | | | | | | -23701 | -6 | 9308 | | | | |
| (S032) 17S_AR2 | | S | P | | | S | P | | | | | -11134 | -6 | 5285 | -23701 | -6 | 9308 | | | | |
| (S038) 32P_AR | P | S | P | | P | S | P | | -35691 | -6 | 4142 | -11134 | -6 | 5285 | -23701 | -6 | 9308 | | | | |
| (S039) 32P_AS | | S | P | | | S | P | | | | | -11134 | -6 | 5285 | -23701 | -6 | 9308 | | | | |
| (S040) 33P_AR | P | S | P | | P | S | P | | -35691 | -6 | 4142 | -11134 | -6 | 5285 | -23701 | -6 | 9308 | | | | |
| (S041) 33P_AS | | S | P | | | S | P | | | | | -11134 | -6 | 5285 | -23701 | -6 | 9308 | | | | |
| (S042) 34P_AR | P | S | P | | P | S | P | | -35691 | -6 | 4142 | -11134 | -6 | 5285 | -23701 | -6 | 9308 | | | | |
| (S050) 31P_AS | P | S | | | P | S | | | -35691 | -6 | 4142 | -11134 | -6 | 5285 | | | | | | | |
| (S051) 18S1_AR | P | S | S | | P | S | S | | -35691 | -6 | 4142 | -11134 | -6 | 5285 | -23701 | -6 | 9308 | | | | |
| (S052) 17S_AS2 | P | | S | | P | | S | | -35691 | -6 | 4142 | | | | -23701 | -6 | 9308 | | | | |
| (S053) 18S2_AR | P | S | S | | P | S | S | | -35691 | -6 | 4142 | -11134 | -6 | 5285 | -23701 | -6 | 9308 | | | | |
| (S059) 34P_AS | | S | S | | | S | S | | | | | -11134 | -6 | 5285 | -23701 | -6 | 9308 | | | | |

**JSC-26557 REVISION AB
VOLUME II**

| Configuration | RSA Module Type | | | | SM | FGB/ MRM1 | DC1/M LM | MRM2 | Body 17 | | | Body 18 | | | Body 19 | | | Body 30 | | |
|-----------------|-----------------|----|----|----|----|--------------|-------------|------|---------|-------|-------|---------|----|-------|---------|----|------|---------|----|-------|
| | Body | | | | | | | | aft | nadir | nadir | zenith | x | y | z | x | y | z | x | y |
| Name | 17 | 18 | 19 | 30 | | | | | (mm) | | | (mm) | | | (mm) | | | (mm) | | |
| (S060) 35P_AR | P | S | S | | P | S | S | | -35691 | -6 | 4142 | -11134 | -6 | 5285 | -23701 | -6 | 9308 | | | |
| (S061) 35P_AS | | S | S | | | S | S | | | | | -11134 | -6 | 5285 | -23701 | -6 | 9308 | | | |
| (S062) 36P_AR | P | S | S | | P | S | S | | -35691 | -6 | 4142 | -11134 | -6 | 5285 | -23701 | -6 | 9308 | | | |
| (S067) 36P_AS | | S | S | | | S | S | | | | | -11134 | -6 | 5285 | -23701 | -6 | 9308 | | | |
| (S068) 37P_AR | P | S | S | | P | S | S | | -35691 | -6 | 4142 | -11134 | -6 | 5285 | -23701 | -6 | 9308 | | | |
| (S073) 18S1_AS | P | S | | | P | S | | | -35691 | -6 | 4142 | -11134 | -6 | 5285 | | | | | | |
| (S074) 19S1_AR | P | S | S | | P | S | S | | -35691 | -6 | 4142 | -11134 | -6 | 5285 | -23701 | -6 | 9308 | | | |
| (S075) 37P_AS | | S | S | | | S | S | | | | | -11134 | -6 | 5285 | -23701 | -6 | 9308 | | | |
| (S076) ATV2_AR | A | S | S | | A | S | S | | -35691 | -6 | 4142 | -11134 | -6 | 5285 | -23701 | -6 | 9308 | | | |
| (S077) 18S2_AS | A | | S | | A | | S | | -35691 | -6 | 4142 | | | | -23701 | -6 | 9308 | | | |
| (S078) 19S2_AR1 | A | S | S | | A | S | S | | -35691 | -6 | 4142 | -11134 | -6 | 5285 | -23701 | -6 | 9308 | | | |
| (S082) 38P_AR | A | S | S | P | A | S | S | P | -35691 | -6 | 4142 | -11134 | -6 | 5285 | -23701 | -6 | 9308 | -23701 | -6 | -1024 |
| (S083) 38P_AS | A | S | S | | A | S | S | | -35691 | -6 | 4142 | -11134 | -6 | 5285 | -23701 | -6 | 9308 | | | |
| (S084) 19S2_AS1 | A | | S | | A | | S | | -35691 | -6 | 4142 | | | | -23701 | -6 | 9308 | | | |
| (S085) 19S2_AR2 | A | | S | S | A | | S | S | -35691 | -6 | 4142 | | | | -23701 | -6 | 9308 | -23701 | -6 | -1024 |
| (S089) ATV2_AS | | | S | S | | | S | S | | | | | | | -23701 | -6 | 9308 | -23701 | -6 | -1024 |
| (S090) 39P_AR | P | | S | S | P | | S | S | -35691 | -6 | 4142 | | | | -23701 | -6 | 9308 | -23701 | -6 | -1024 |
| (S091) 19S1_AS | P | | | S | P | | | S | -35691 | -6 | 4142 | | | | | | | -23701 | -6 | -1024 |
| (S092) 20S1_AR | P | S | | S | P | S | | S | -35691 | -6 | 4142 | -11134 | -6 | 11285 | | | | -23701 | -6 | -1024 |
| (S096) 19S2_AS2 | P | S | | | P | S | | | -35691 | -6 | 4142 | -11134 | -6 | 11285 | | | | | | |
| (S097) 20S2_AR | P | S | | S | P | S | | S | -35691 | -6 | 4142 | -11134 | -6 | 11285 | | | | -23701 | -6 | -1024 |
| (S098) 40P_AR | P | S | P | S | P | S | P | S | -35691 | -6 | 4142 | -11134 | -6 | 11285 | -23701 | -6 | 9308 | -23701 | -6 | -1024 |
| (S099) 39P_AS | | S | P | S | | S | P | S | | | | -11134 | -6 | 11285 | -23701 | -6 | 9308 | -23701 | -6 | -1024 |
| (S100) 41P_AR | P | S | P | S | P | S | P | S | -35691 | -6 | 4142 | -11134 | -6 | 11285 | -23701 | -6 | 9308 | -23701 | -6 | -1024 |
| (S104) 40P_AS | P | S | | S | P | S | | S | -35691 | -6 | 4142 | -11134 | -6 | 11285 | | | | -23701 | -6 | -1024 |

| | | | |
|--------------------------|-------------------------------------|-----------------|-------------|
| Technical Monitor | Title | | |
| Linda Jack (OM) | International Space Station Program | | |
| Approved By | The Thirty Body System | | |
| De Los Reyes (CAMMP) | | | |
| Produced By | Contract | | |
| CAMMP | ISS Program Integration & Control | | |
| | NASA Center/Division | Revision | Date |
| | JSC/OM | AB | 01/30/2008 |

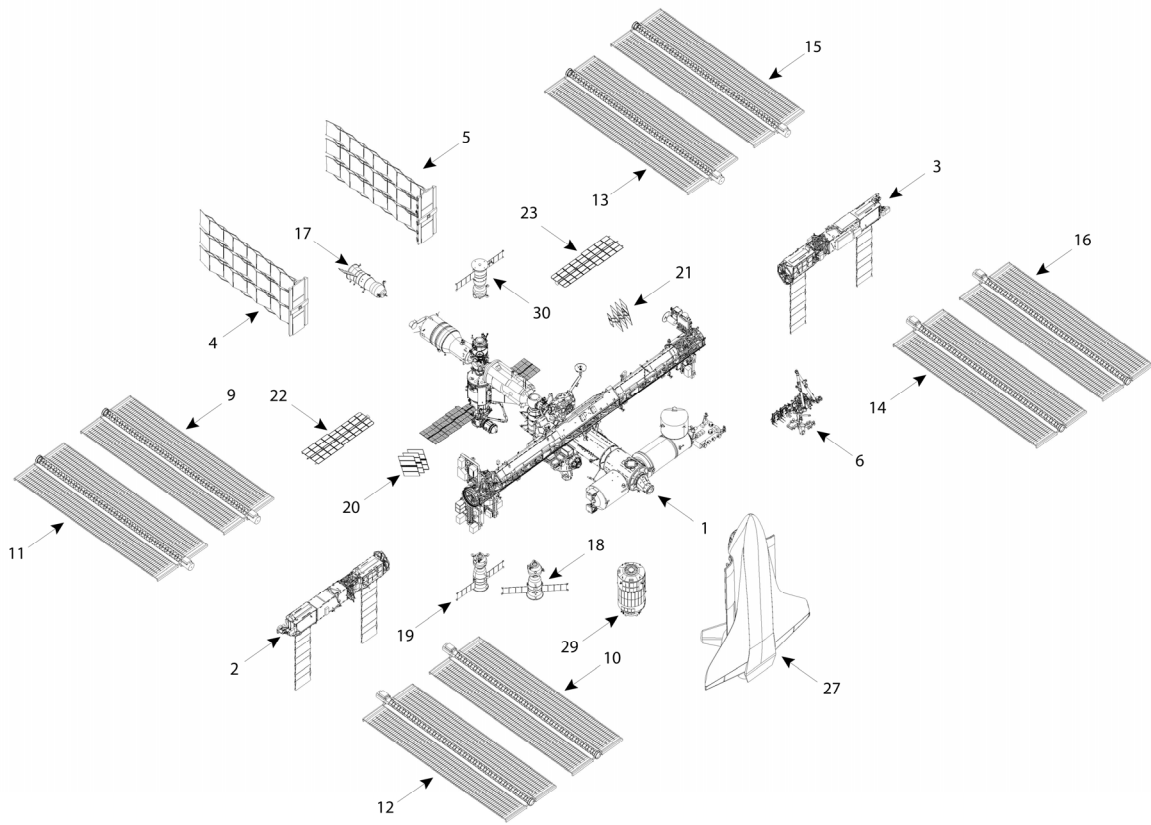


Figure 8.0-1 The Thirty Body System

| | | | |
|--------------------------|-------------------------------------|-----------------|-------------|
| Technical Monitor | Title | | |
| Linda Jack (OM) | International Space Station Program | | |
| Approved By | Body 01 | | |
| De Los Reyes (CAMMP) | STEP 001 - 002 | | |
| Produced By | Contract | | |
| CAMMP | ISS Program Integration & Control | | |
| | NASA Center/Division | Revision | Date |
| | JSC/OM | AB | 01/30/2008 |

Total mass: 404225. lb
 183353. kg

Center of mass:

| | | | |
|--|--------|------|----------|
| | X | Y | Z |
| | -19.78 | 1.02 | 11.78 ft |
| | -6.03 | .31 | 3.59 m |

Inertia Tensor*:

| | | | |
|--|-----------|------------|-----------|
| | | slug*ft**2 | |
| | 7579909. | -800135. | 440397. |
| | -800135. | 23558027. | -452923. |
| | 440397. | -452923. | 29516540. |
| | | kg*m**2 | |
| | 10276978. | -1084837. | 597098. |
| | -1084837. | 31940398. | -614081. |
| | 597098. | -614081. | 40019058. |

Principal moments of inertia (I_{XX}, I_{YY}, I_{ZZ}):

| | | | |
|--|-----------|-----------|----------------------|
| | 7532017. | 23560290. | 29562170. slug*ft**2 |
| | 10212044. | 31943467. | 40080923. kg*m**2 |

Principal to body yaw, pitch, roll in a 3 2 1 sequence:

| | | | |
|--|-------|-------|---------------|
| | -2.73 | -1.31 | -4.49 degrees |
|--|-------|-------|---------------|

Center of Pressure:

(WRT CM)

| | | | |
|-----|-----------|----------|-----------|
| | X ft | Y ft | Z ft |
| CPx | 0.00E+00 | 1.25E-01 | -8.39E+00 |
| CPy | -8.37E+00 | 0.00E+00 | 9.12E-01 |
| CPz | 5.55E+00 | 1.13E+00 | 0.00E+00 |
| | X m | Y m | Z m |
| CPx | 0.00E+00 | 3.82E-02 | -2.56E+00 |
| CPy | -2.55E+00 | 0.00E+00 | 2.78E-01 |
| CPz | 1.69E+00 | 3.44E-01 | 0.00E+00 |

Projected areas:

| | | | |
|--|---------|---------|---------------|
| | X | Y | Z |
| | 3193.85 | 2570.56 | 3829.43 ft**2 |
| | 296.72 | 238.81 | 355.77 m**2 |

*Off-diagonal elements are negative integrals

| | | | |
|--------------------------|-------------------------------------|-----------------|-------------|
| Technical Monitor | Title | | |
| Linda Jack (OM) | International Space Station Program | | |
| Approved By | Body 01 | | |
| De Los Reyes (CAMMP) | STEP 003 | | |
| Produced By | Contract | | |
| CAMMP | ISS Program Integration & Control | | |
| | NASA Center/Division | Revision | Date |
| | JSC/OM | AB | 01/30/2008 |

Total mass: 426009. lb
 193234. kg

Center of mass:

| | | | |
|--|--------|------|----------|
| | X | Y | Z |
| | -17.06 | 1.02 | 11.52 ft |
| | -5.20 | .31 | 3.51 m |

Inertia Tensor*:

| | | | |
|--|-----------|------------|-----------|
| | | slug*ft**2 | |
| | 7690138. | -789554. | 650320. |
| | -789554. | 25504075. | -470308. |
| | 650320. | -470308. | 31384487. |
| | | kg*m**2 | |
| | 10426428. | -1070491. | 881715. |
| | -1070491. | 34578885. | -637652. |
| | 881715. | -637652. | 42551654. |

Principal moments of inertia (I_{XX}, I_{YY}, I_{ZZ}):

| | | | |
|--|-----------|-----------|----------------------|
| | 7638546. | 25496937. | 31443218. slug*ft**2 |
| | 10356478. | 34569207. | 42631282. kg*m**2 |

Principal to body yaw, pitch, roll in a 3 2 1 sequence:

| | | | |
|--|-------|-------|---------------|
| | -2.36 | -1.72 | -4.76 degrees |
|--|-------|-------|---------------|

Center of Pressure:

(WRT CM)

| | | | |
|-----|-----------|----------|-----------|
| | X ft | Y ft | Z ft |
| CPx | 0.00E+00 | 3.41E-01 | -7.36E+00 |
| CPy | -6.56E+00 | 0.00E+00 | 1.30E+00 |
| CPz | 3.18E+00 | 1.08E+00 | 0.00E+00 |
| | X m | Y m | Z m |
| CPx | 0.00E+00 | 1.04E-01 | -2.24E+00 |
| CPy | -2.00E+00 | 0.00E+00 | 3.96E-01 |
| CPz | 9.70E-01 | 3.29E-01 | 0.00E+00 |

Projected areas:

| | | | |
|--|---------|---------|---------------|
| | X | Y | Z |
| | 3242.39 | 2826.58 | 3838.36 ft**2 |
| | 301.23 | 262.60 | 356.60 m**2 |

*Off-diagonal elements are negative integrals

| | | | |
|--------------------------|-------------------------------------|-----------------|-------------|
| Technical Monitor | Title | | |
| Linda Jack (OM) | International Space Station Program | | |
| Approved By | Body 01 | | |
| De Los Reyes (CAMMP) | STEP 004 | | |
| Produced By | Contract | | |
| CAMMP | ISS Program Integration & Control | | |
| | NASA Center/Division | Revision | Date |
| | JSC/OM | AB | 01/30/2008 |

Total mass: 427923. lb
 194103. kg

Center of mass:

| | | | |
|--|--------|------|----------|
| | X | Y | Z |
| | -16.96 | 1.12 | 11.55 ft |
| | -5.17 | .34 | 3.52 m |

Inertia Tensor*:

| | | | |
|--|-----------|------------|-----------|
| | | slug*ft**2 | |
| | 7723280. | -823743. | 637066. |
| | -823743. | 25556422. | -481067. |
| | 637066. | -481067. | 31461604. |
| | | kg*m**2 | |
| | 10471363. | -1116845. | 863745. |
| | -1116845. | 34649858. | -652239. |
| | 863745. | -652239. | 42656210. |

Principal moments of inertia (I_{XX}, I_{YY}, I_{ZZ}):

| | | | |
|--|-----------|-----------|----------------------|
| | 7669444. | 25550564. | 31521298. slug*ft**2 |
| | 10398370. | 34641916. | 42737145. kg*m**2 |

Principal to body yaw, pitch, roll in a 3 2 1 sequence:

| | | | |
|--|-------|-------|---------------|
| | -2.46 | -1.70 | -4.84 degrees |
|--|-------|-------|---------------|

Center of Pressure:

(WRT CM)

| | | | |
|-----|-----------|----------|-----------|
| | X ft | Y ft | Z ft |
| CPx | 0.00E+00 | 3.62E-01 | -7.33E+00 |
| CPy | -6.66E+00 | 0.00E+00 | 1.27E+00 |
| CPz | 3.09E+00 | 9.86E-01 | 0.00E+00 |
| | X m | Y m | Z m |
| CPx | 0.00E+00 | 1.10E-01 | -2.23E+00 |
| CPy | -2.03E+00 | 0.00E+00 | 3.87E-01 |
| CPz | 9.42E-01 | 3.01E-01 | 0.00E+00 |

Projected areas:

| | | | |
|--|---------|---------|---------------|
| | X | Y | Z |
| | 3254.31 | 2826.86 | 3839.23 ft**2 |
| | 302.34 | 262.62 | 356.68 m**2 |

*Off-diagonal elements are negative integrals

| | | | |
|--------------------------|-------------------------------------|-----------------|-------------|
| Technical Monitor | Title | | |
| Linda Jack (OM) | International Space Station Program | | |
| Approved By | Body 01 | | |
| De Los Reyes (CAMMP) | STEP 005 | | |
| Produced By | Contract | | |
| CAMMP | ISS Program Integration & Control | | |
| | NASA Center/Division | Revision | Date |
| | JSC/OM | AB | 01/30/2008 |

Total mass: 431282. lb
 195626. kg

Center of mass:

| | | | |
|--|--------|-----|----------|
| | X | Y | Z |
| | -16.50 | .39 | 11.65 ft |
| | -5.03 | .12 | 3.55 m |

Inertia Tensor*:

| | | | |
|--|-----------|------------|-----------|
| | | slug*ft**2 | |
| | 8188513. | -365918. | 557420. |
| | -365918. | 25902627. | -340056. |
| | 557420. | -340056. | 32256392. |
| | | kg*m**2 | |
| | 11102133. | -496118. | 755760. |
| | -496118. | 35119249. | -461054. |
| | 755760. | -461054. | 43733798. |

Principal moments of inertia (I_{XX}, I_{YY}, I_{ZZ}):

| | | | | |
|--|-----------|-----------|-----------|------------|
| | 8168382. | 25890826. | 32288323. | slug*ft**2 |
| | 11074840. | 35103249. | 43777091. | kg*m**2 |

Principal to body yaw, pitch, roll in a 3 2 1 sequence:

| | | | |
|--|-------|-------|---------------|
| | -1.08 | -1.37 | -3.13 degrees |
|--|-------|-------|---------------|

Center of Pressure:

(WRT CM)

| | | | |
|-----|-----------|-----------|-----------|
| | X ft | Y ft | Z ft |
| CPx | 0.00E+00 | -8.33E-01 | -7.21E+00 |
| CPy | -6.89E+00 | 0.00E+00 | 8.80E-01 |
| CPz | 3.80E+00 | 4.32E-01 | 0.00E+00 |
| | X m | Y m | Z m |
| CPx | 0.00E+00 | -2.54E-01 | -2.20E+00 |
| CPy | -2.10E+00 | 0.00E+00 | 2.68E-01 |
| CPz | 1.16E+00 | 1.32E-01 | 0.00E+00 |

Projected areas:

| | | | |
|--|---------|---------|---------------|
| | X | Y | Z |
| | 3341.72 | 2813.07 | 3937.80 ft**2 |
| | 310.46 | 261.34 | 365.83 m**2 |

*Off-diagonal elements are negative integrals

| | | | |
|--------------------------|-------------------------------------|-----------------|-------------|
| Technical Monitor | Title | | |
| Linda Jack (OM) | International Space Station Program | | |
| Approved By | Body 01 | | |
| De Los Reyes (CAMMP) | STEP 006 - 007 | | |
| Produced By | Contract | | |
| CAMMP | ISS Program Integration & Control | | |
| | NASA Center/Division | Revision | Date |
| | JSC/OM | AB | 01/30/2008 |

Total mass: 428585. lb
 194403. kg

Center of mass:

| | | | |
|--|--------|------|----------|
| | X | Y | Z |
| | -16.99 | 1.05 | 11.52 ft |
| | -5.18 | .32 | 3.51 m |

Inertia Tensor*:

| | | | |
|--|-----------|------------|-----------|
| | | slug*ft**2 | |
| | 7745328. | -790897. | 670721. |
| | -790897. | 25499888. | -441098. |
| | 670721. | -441098. | 31445054. |
| | | kg*m**2 | |
| | 10501255. | -1072313. | 909375. |
| | -1072313. | 34573208. | -598048. |
| | 909375. | -598048. | 42633772. |

Principal moments of inertia (IXX, IYY, IZZ):

| | | | |
|--|-----------|-----------|----------------------|
| | 7692344. | 25497982. | 31499944. slug*ft**2 |
| | 10429418. | 34570624. | 42708193. kg*m**2 |

Principal to body yaw, pitch, roll in a 3 2 1 sequence:

| | | | |
|--|-------|-------|---------------|
| | -2.37 | -1.76 | -4.44 degrees |
|--|-------|-------|---------------|

Center of Pressure:

(WRT CM)

| | | | |
|-----|-----------|----------|-----------|
| | X ft | Y ft | Z ft |
| CPx | 0.00E+00 | 8.33E-01 | -7.92E+00 |
| CPy | -6.83E+00 | 0.00E+00 | 7.87E-01 |
| CPz | 2.97E+00 | 1.02E+00 | 0.00E+00 |
| | X m | Y m | Z m |
| CPx | 0.00E+00 | 2.54E-01 | -2.41E+00 |
| CPy | -2.08E+00 | 0.00E+00 | 2.40E-01 |
| CPz | 9.05E-01 | 3.10E-01 | 0.00E+00 |

Projected areas:

| | | | |
|--|---------|---------|---------------|
| | X | Y | Z |
| | 3288.91 | 2755.23 | 3858.43 ft**2 |
| | 305.55 | 255.97 | 358.46 m**2 |

*Off-diagonal elements are negative integrals

| | | | |
|--------------------------|-------------------------------------|-----------------|-------------|
| Technical Monitor | Title | | |
| Linda Jack (OM) | International Space Station Program | | |
| Approved By | Body 01 | | |
| De Los Reyes (CAMMP) | STEP 008 - 010 | | |
| Produced By | Contract | | |
| CAMMP | ISS Program Integration & Control | | |
| | NASA Center/Division | Revision | Date |
| | JSC/OM | AB | 01/30/2008 |

Total mass: 429516. lb
 194825. kg

Center of mass:

| | | | |
|--|--------|------|----------|
| | X | Y | Z |
| | -17.06 | 1.02 | 11.52 ft |
| | -5.20 | .31 | 3.51 m |

Inertia Tensor*:

| | | | |
|--|-----------|------------|-----------|
| | | slug*ft**2 | |
| | 7745496. | -792038. | 673123. |
| | -792038. | 25542165. | -441032. |
| | 673123. | -441032. | 31487226. |
| | | kg*m**2 | |
| | 10501483. | -1073860. | 912632. |
| | -1073860. | 34630528. | -597959. |
| | 912632. | -597959. | 42690949. |

Principal moments of inertia (IXX, IYY, IZZ):

| | | | |
|--|-----------|-----------|----------------------|
| | 7692392. | 25540275. | 31542219. slug*ft**2 |
| | 10429484. | 34627966. | 42765510. kg*m**2 |

Principal to body yaw, pitch, roll in a 3 2 1 sequence:

| | | | |
|--|-------|-------|---------------|
| | -2.37 | -1.76 | -4.44 degrees |
|--|-------|-------|---------------|

Center of Pressure:

(WRT CM)

| | | | |
|-----|-----------|----------|-----------|
| | X ft | Y ft | Z ft |
| CPx | 0.00E+00 | 8.66E-01 | -7.92E+00 |
| CPy | -6.76E+00 | 0.00E+00 | 7.87E-01 |
| CPz | 3.04E+00 | 1.05E+00 | 0.00E+00 |
| | X m | Y m | Z m |
| CPx | 0.00E+00 | 2.64E-01 | -2.41E+00 |
| CPy | -2.06E+00 | 0.00E+00 | 2.40E-01 |
| CPz | 9.25E-01 | 3.20E-01 | 0.00E+00 |

Projected areas:

| | | | |
|--|---------|---------|---------------|
| | X | Y | Z |
| | 3288.91 | 2755.23 | 3858.43 ft**2 |
| | 305.55 | 255.97 | 358.46 m**2 |

*Off-diagonal elements are negative integrals

| | | | |
|--------------------------|-------------------------------------|-----------------|-------------|
| Technical Monitor | Title | | |
| Linda Jack (OM) | International Space Station Program | | |
| Approved By | Body 01 | | |
| De Los Reyes (CAMMP) | STEP 011 | | |
| Produced By | Contract | | |
| CAMMP | ISS Program Integration & Control | | |
| | NASA Center/Division | Revision | Date |
| | JSC/OM | AB | 01/30/2008 |

Total mass: 429517. lb
 194826. kg

Center of mass:

| | | | |
|--|--------|------|----------|
| | X | Y | Z |
| | -16.93 | 1.12 | 11.52 ft |
| | -5.16 | .34 | 3.51 m |

Inertia Tensor*:

| | | | |
|--|-----------|------------|-----------|
| | | slug*ft**2 | |
| | 7759615. | -848297. | 658726. |
| | -848297. | 25691934. | -446231. |
| | 658726. | -446231. | 31650682. |
| | | kg*m**2 | |
| | 10520626. | -1150137. | 893113. |
| | -1150137. | 34833587. | -605008. |
| | 893113. | -605008. | 42912565. |

Principal moments of inertia (I_{XX}, I_{YY}, I_{ZZ}):

| | | | |
|--|-----------|-----------|----------------------|
| | 7702625. | 25693954. | 31705651. slug*ft**2 |
| | 10443358. | 34836326. | 42987094. kg*m**2 |

Principal to body yaw, pitch, roll in a 3 2 1 sequence:

| | | | |
|--|-------|-------|---------------|
| | -2.53 | -1.73 | -4.49 degrees |
|--|-------|-------|---------------|

Center of Pressure:
(WRT CM)

| | | | |
|-----|-----------|----------|-----------|
| | X ft | Y ft | Z ft |
| CPx | 0.00E+00 | 7.68E-01 | -7.92E+00 |
| CPy | -6.89E+00 | 0.00E+00 | 7.87E-01 |
| CPz | 2.90E+00 | 9.52E-01 | 0.00E+00 |
| | X m | Y m | Z m |
| CPx | 0.00E+00 | 2.34E-01 | -2.41E+00 |
| CPy | -2.10E+00 | 0.00E+00 | 2.40E-01 |
| CPz | 8.85E-01 | 2.90E-01 | 0.00E+00 |

Projected areas:

| | | | |
|--|---------|---------|---------------|
| | X | Y | Z |
| | 3288.91 | 2755.23 | 3858.43 ft**2 |
| | 305.55 | 255.97 | 358.46 m**2 |

*Off-diagonal elements are negative integrals

| | | | |
|--------------------------|-------------------------------------|-----------------|-------------|
| Technical Monitor | Title | | |
| Linda Jack (OM) | International Space Station Program | | |
| Approved By | Body 01 | | |
| De Los Reyes (CAMMP) | STEP 012 | | |
| Produced By | Contract | | |
| CAMMP | ISS Program Integration & Control | | |
| | NASA Center/Division | Revision | Date |
| | JSC/OM | AB | 01/30/2008 |

Total mass: 465039. lb
 210938. kg

Center of mass:

| | | | |
|--|--------|------|----------|
| | X | Y | Z |
| | -12.96 | -.79 | 12.01 ft |
| | -3.95 | -.24 | 3.66 m |

Inertia Tensor*:

| | | | |
|--|-----------|------------|-----------|
| | | slug*ft**2 | |
| | 8648049. | 506367. | 353461. |
| | 506367. | 28548433. | -354121. |
| | 353461. | -354121. | 35246185. |
| | | kg*m**2 | |
| | 11725181. | 686542. | 479229. |
| | 686542. | 38706480. | -480124. |
| | 479229. | -480124. | 47787413. |

Principal moments of inertia (IXX, IYY, IZZ):

| | | | |
|--|-----------|-----------|----------------------|
| | 8630239. | 28543566. | 35268862. slug*ft**2 |
| | 11701033. | 38699882. | 47818159. kg*m**2 |

Principal to body yaw, pitch, roll in a 3 2 1 sequence:

| | | | |
|--|------|------|---------------|
| | 1.51 | -.70 | -2.96 degrees |
|--|------|------|---------------|

Center of Pressure:
(WRT CM)

| | | | |
|-----|-----------|-----------|-----------|
| | X ft | Y ft | Z ft |
| CPx | 0.00E+00 | -1.37E+00 | -6.06E+00 |
| CPy | -1.01E+01 | 0.00E+00 | 1.02E+00 |
| CPz | 5.02E+00 | -3.58E-01 | 0.00E+00 |
| | X m | Y m | Z m |
| CPx | 0.00E+00 | -4.17E-01 | -1.85E+00 |
| CPy | -3.09E+00 | 0.00E+00 | 3.11E-01 |
| CPz | 1.53E+00 | -1.09E-01 | 0.00E+00 |

Projected areas:

| | | | |
|--|---------|---------|---------------|
| | X | Y | Z |
| | 3783.34 | 2870.25 | 4371.85 ft**2 |
| | 351.48 | 266.66 | 406.16 m**2 |

*Off-diagonal elements are negative integrals

| | | | |
|--------------------------|-------------------------------------|-----------------|-------------|
| Technical Monitor | Title | | |
| Linda Jack (OM) | International Space Station Program | | |
| Approved By | Body 01 | | |
| De Los Reyes (CAMMP) | STEP 013 | | |
| Produced By | Contract | | |
| CAMMP | ISS Program Integration & Control | | |
| | NASA Center/Division | Revision | Date |
| | JSC/OM | AB | 01/30/2008 |

Total mass: 465040. lb
 210938. kg

Center of mass:

| | | | |
|--|--------|-------|----------|
| | X | Y | Z |
| | -12.96 | -1.21 | 12.24 ft |
| | -3.95 | -.37 | 3.73 m |

Inertia Tensor*:

| | | | |
|--|-----------|------------|-----------|
| | | slug*ft**2 | |
| | 8743978. | 774817. | 186826. |
| | 774817. | 28481412. | -343496. |
| | 186826. | -343496. | 35327329. |
| | | kg*m**2 | |
| | 11855243. | 1050511. | 253302. |
| | 1050511. | 38615612. | -465718. |
| | 253302. | -465718. | 47897430. |

Principal moments of inertia (IXX, IYY, IZZ):

| | | | |
|--|-----------|-----------|----------------------|
| | 8712103. | 28495270. | 35345346. slug*ft**2 |
| | 11812026. | 38634402. | 47921857. kg*m**2 |

Principal to body yaw, pitch, roll in a 3 2 1 sequence:

| | | | |
|--|------|------|---------------|
| | 2.27 | -.32 | -2.83 degrees |
|--|------|------|---------------|

Center of Pressure:

(WRT CM)

| | | | |
|-----|-----------|-----------|-----------|
| | X ft | Y ft | Z ft |
| CPx | 0.00E+00 | -9.42E-01 | -6.29E+00 |
| CPy | -1.01E+01 | 0.00E+00 | 7.90E-01 |
| CPz | 5.02E+00 | 6.90E-02 | 0.00E+00 |
| | X m | Y m | Z m |
| CPx | 0.00E+00 | -2.87E-01 | -1.92E+00 |
| CPy | -3.09E+00 | 0.00E+00 | 2.41E-01 |
| CPz | 1.53E+00 | 2.10E-02 | 0.00E+00 |

Projected areas:

| | | | |
|--|---------|---------|---------------|
| | X | Y | Z |
| | 3783.34 | 2870.25 | 4371.85 ft**2 |
| | 351.48 | 266.66 | 406.16 m**2 |

*Off-diagonal elements are negative integrals

| | | | |
|--------------------------|-------------------------------------|-----------------|-------------|
| Technical Monitor | Title | | |
| Linda Jack (OM) | International Space Station Program | | |
| Approved By | Body 01 | | |
| De Los Reyes (CAMMP) | STEP 014 - 018 | | |
| Produced By | Contract | | |
| CAMMP | ISS Program Integration & Control | | |
| | NASA Center/Division | Revision | Date |
| | JSC/OM | AB | 01/30/2008 |

Total mass: 461694. lb
 209421. kg

Center of mass:

| | | | |
|--|--------|-------|----------|
| | X | Y | Z |
| | -13.19 | -1.94 | 12.11 ft |
| | -4.02 | -.59 | 3.69 m |

Inertia Tensor*:

| | | | |
|--|-----------|------------|-----------|
| | | slug*ft**2 | |
| | 8973935. | 1273210. | 249565. |
| | 1273210. | 28332137. | -415293. |
| | 249565. | -415293. | 35485164. |
| | | kg*m**2 | |
| | 12167023. | 1726241. | 338365. |
| | 1726241. | 38413222. | -563062. |
| | 338365. | -563062. | 48111425. |

Principal moments of inertia (IXX, IYY, IZZ):

| | | | | |
|--|-----------|-----------|-----------|------------|
| | 8887685. | 28393184. | 35510366. | slug*ft**2 |
| | 12050084. | 38495991. | 48145595. | kg*m**2 |

Principal to body yaw, pitch, roll in a 3 2 1 sequence:

| | | | |
|--|------|------|---------------|
| | 3.79 | -.38 | -3.24 degrees |
|--|------|------|---------------|

Center of Pressure:

(WRT CM)

| | | | |
|-----|-----------|-----------|-----------|
| | X ft | Y ft | Z ft |
| CPx | 0.00E+00 | -3.97E-01 | -6.75E+00 |
| CPy | -1.06E+01 | 0.00E+00 | 1.89E-01 |
| CPz | 4.97E+00 | 8.06E-01 | 0.00E+00 |
| | X m | Y m | Z m |
| CPx | 0.00E+00 | -1.21E-01 | -2.06E+00 |
| CPy | -3.23E+00 | 0.00E+00 | 5.75E-02 |
| CPz | 1.52E+00 | 2.46E-01 | 0.00E+00 |

Projected areas:

| | | | |
|--|---------|---------|---------------|
| | X | Y | Z |
| | 3732.32 | 2756.59 | 4366.91 ft**2 |
| | 346.74 | 256.10 | 405.70 m**2 |

*Off-diagonal elements are negative integrals

| | | | |
|--------------------------|-------------------------------------|-----------------|-------------|
| Technical Monitor | Title | | |
| Linda Jack (OM) | International Space Station Program | | |
| Approved By | Body 01 | | |
| De Los Reyes (CAMMP) | STEP 019 | | |
| Produced By | Contract | | |
| CAMMP | ISS Program Integration & Control | | |
| | NASA Center/Division | Revision | Date |
| | JSC/OM | AB | 01/30/2008 |

Total mass: 462057. lb
 209586. kg

Center of mass:

| | | | |
|--|--------|-------|----------|
| | X | Y | Z |
| | -13.22 | -1.94 | 12.11 ft |
| | -4.03 | -.59 | 3.69 m |

Inertia Tensor*:

| | | | |
|--|-----------|------------|-----------|
| | | slug*ft**2 | |
| | 8974004. | 1274127. | 250309. |
| | 1274127. | 28352212. | -415328. |
| | 250309. | -415328. | 35505254. |
| | | kg*m**2 | |
| | 12167117. | 1727484. | 339373. |
| | 1727484. | 38440441. | -563109. |
| | 339373. | -563109. | 48138664. |

Principal moments of inertia (IXX, IYY, IZZ):

| | | | |
|--|-----------|-----------|----------------------|
| | 8887707. | 28413295. | 35530469. slug*ft**2 |
| | 12050114. | 38523257. | 48172851. kg*m**2 |

Principal to body yaw, pitch, roll in a 3 2 1 sequence:

| | | | |
|--|------|------|---------------|
| | 3.79 | -.38 | -3.24 degrees |
|--|------|------|---------------|

Center of Pressure:

(WRT CM)

| | | | |
|-----|-----------|-----------|-----------|
| | X ft | Y ft | Z ft |
| CPx | 0.00E+00 | -3.97E-01 | -6.75E+00 |
| CPy | -1.06E+01 | 0.00E+00 | 1.89E-01 |
| CPz | 5.00E+00 | 8.06E-01 | 0.00E+00 |
| | X m | Y m | Z m |
| CPx | 0.00E+00 | -1.21E-01 | -2.06E+00 |
| CPy | -3.22E+00 | 0.00E+00 | 5.75E-02 |
| CPz | 1.53E+00 | 2.46E-01 | 0.00E+00 |

Projected areas:

| | | | |
|--|---------|---------|---------------|
| | X | Y | Z |
| | 3732.32 | 2756.59 | 4366.91 ft**2 |
| | 346.74 | 256.10 | 405.70 m**2 |

*Off-diagonal elements are negative integrals

| | | | |
|--------------------------|-------------------------------------|-----------------|-------------|
| Technical Monitor | Title | | |
| Linda Jack (OM) | International Space Station Program | | |
| Approved By | Body 01 | | |
| De Los Reyes (CAMMP) | STEP 020 | | |
| Produced By | Contract | | |
| CAMMP | ISS Program Integration & Control | | |
| | NASA Center/Division | Revision | Date |
| | JSC/OM | AB | 01/30/2008 |

Total mass: 461971. lb
 209547. kg

Center of mass:

| | | | |
|--|--------|-------|----------|
| | X | Y | Z |
| | -13.22 | -1.94 | 12.11 ft |
| | -4.03 | -.59 | 3.69 m |

Inertia Tensor*:

| | | | |
|--|-----------|------------|-----------|
| | | slug*ft**2 | |
| | 8973988. | 1273911. | 250134. |
| | 1273911. | 28347503. | -415320. |
| | 250134. | -415320. | 35500541. |
| | | kg*m**2 | |
| | 12167095. | 1727191. | 339136. |
| | 1727191. | 38434056. | -563098. |
| | 339136. | -563098. | 48132274. |

Principal moments of inertia (I_{XX}, I_{YY}, I_{ZZ}):

| | | | |
|--|-----------|-----------|----------------------|
| | 8887702. | 28408577. | 35525753. slug*ft**2 |
| | 12050107. | 38516861. | 48166457. kg*m**2 |

Principal to body yaw, pitch, roll in a 3 2 1 sequence:

| | | | |
|--|------|------|---------------|
| | 3.79 | -.38 | -3.24 degrees |
|--|------|------|---------------|

Center of Pressure:
(WRT CM)

| | | | |
|-----|-----------|-----------|-----------|
| | X ft | Y ft | Z ft |
| CPx | 0.00E+00 | -3.97E-01 | -6.75E+00 |
| CPy | -1.06E+01 | 0.00E+00 | 1.89E-01 |
| CPz | 5.00E+00 | 8.06E-01 | 0.00E+00 |
| | X m | Y m | Z m |
| CPx | 0.00E+00 | -1.21E-01 | -2.06E+00 |
| CPy | -3.22E+00 | 0.00E+00 | 5.75E-02 |
| CPz | 1.53E+00 | 2.46E-01 | 0.00E+00 |

Projected areas:

| | | | |
|--|---------|---------|---------------|
| | X | Y | Z |
| | 3732.32 | 2756.59 | 4366.91 ft**2 |
| | 346.74 | 256.10 | 405.70 m**2 |

*Off-diagonal elements are negative integrals

| | | | |
|--------------------------|-------------------------------------|-----------------|-------------|
| Technical Monitor | Title | | |
| Linda Jack (OM) | International Space Station Program | | |
| Approved By | Body 01 | | |
| De Los Reyes (CAMMP) | STEP 021 | | |
| Produced By | Contract | | |
| CAMMP | ISS Program Integration & Control | | |
| | NASA Center/Division | Revision | Date |
| | JSC/OM | AB | 01/30/2008 |

Total mass: 461753. lb
 209448. kg

Center of mass:

| | | | |
|--|--------|-------|----------|
| | X | Y | Z |
| | -13.22 | -1.94 | 12.11 ft |
| | -4.03 | -.59 | 3.69 m |

Inertia Tensor*:

| | | | |
|--|-----------|------------|-----------|
| | | slug*ft**2 | |
| | 8973946. | 1273363. | 249688. |
| | 1273363. | 28335539. | -415299. |
| | 249688. | -415299. | 35488568. |
| | | kg*m**2 | |
| | 12167038. | 1726448. | 338532. |
| | 1726448. | 38417835. | -563070. |
| | 338532. | -563070. | 48116041. |

Principal moments of inertia (I_{XX}, I_{YY}, I_{ZZ}):

| | | | |
|--|-----------|-----------|----------------------|
| | 8887689. | 28396592. | 35513773. slug*ft**2 |
| | 12050089. | 38500611. | 48150214. kg*m**2 |

Principal to body yaw, pitch, roll in a 3 2 1 sequence:

| | | | |
|--|------|------|---------------|
| | 3.79 | -.38 | -3.24 degrees |
|--|------|------|---------------|

Center of Pressure:
(WRT CM)

| | | | |
|-----|-----------|-----------|-----------|
| | X ft | Y ft | Z ft |
| CPx | 0.00E+00 | -3.97E-01 | -6.75E+00 |
| CPy | -1.06E+01 | 0.00E+00 | 1.89E-01 |
| CPz | 5.00E+00 | 8.06E-01 | 0.00E+00 |
| | X m | Y m | Z m |
| CPx | 0.00E+00 | -1.21E-01 | -2.06E+00 |
| CPy | -3.22E+00 | 0.00E+00 | 5.75E-02 |
| CPz | 1.53E+00 | 2.46E-01 | 0.00E+00 |

Projected areas:

| | | | |
|--|---------|---------|---------------|
| | X | Y | Z |
| | 3732.32 | 2756.59 | 4366.91 ft**2 |
| | 346.74 | 256.10 | 405.70 m**2 |

*Off-diagonal elements are negative integrals

| | | | |
|--------------------------|-------------------------------------|-----------------|-------------|
| Technical Monitor | Title | | |
| Linda Jack (OM) | International Space Station Program | | |
| Approved By | Body 01 | | |
| De Los Reyes (CAMMP) | STEP 022 | | |
| Produced By | Contract | | |
| CAMMP | ISS Program Integration & Control | | |
| | NASA Center/Division | Revision | Date |
| | JSC/OM | AB | 01/30/2008 |

Total mass: 461471. lb
 209320. kg

Center of mass:

| | | | |
|--|--------|-------|----------|
| | X | Y | Z |
| | -13.19 | -1.94 | 12.11 ft |
| | -4.02 | -.59 | 3.69 m |

Inertia Tensor*:

| | | | |
|--|-----------|------------|-----------|
| | | slug*ft**2 | |
| | 8973892. | 1272652. | 249113. |
| | 1272652. | 28320054. | -415273. |
| | 249113. | -415273. | 35473073. |
| | | kg*m**2 | |
| | 12166965. | 1725485. | 337752. |
| | 1725485. | 38396840. | -563034. |
| | 337752. | -563034. | 48095032. |

Principal moments of inertia (I_{XX}, I_{YY}, I_{ZZ}):

| | | | | |
|--|-----------|-----------|-----------|------------|
| | 8887672. | 28381079. | 35498268. | slug*ft**2 |
| | 12050066. | 38479579. | 48129192. | kg*m**2 |

Principal to body yaw, pitch, roll in a 3 2 1 sequence:

| | | | |
|--|------|------|---------------|
| | 3.79 | -.38 | -3.24 degrees |
|--|------|------|---------------|

Center of Pressure:
(WRT CM)

| | | | |
|-----|-----------|-----------|-----------|
| | X ft | Y ft | Z ft |
| CPx | 0.00E+00 | -3.97E-01 | -6.75E+00 |
| CPy | -1.06E+01 | 0.00E+00 | 1.89E-01 |
| CPz | 4.97E+00 | 8.06E-01 | 0.00E+00 |
| | X m | Y m | Z m |
| CPx | 0.00E+00 | -1.21E-01 | -2.06E+00 |
| CPy | -3.23E+00 | 0.00E+00 | 5.75E-02 |
| CPz | 1.52E+00 | 2.46E-01 | 0.00E+00 |

Projected areas:

| | | | |
|--|---------|---------|---------------|
| | X | Y | Z |
| | 3732.32 | 2756.59 | 4366.91 ft**2 |
| | 346.74 | 256.10 | 405.70 m**2 |

*Off-diagonal elements are negative integrals

| | | | |
|--------------------------|-------------------------------------|-----------------|-------------|
| Technical Monitor | Title | | |
| Linda Jack (OM) | International Space Station Program | | |
| Approved By | Body 01 | | |
| De Los Reyes (CAMMP) | STEP 023 | | |
| Produced By | Contract | | |
| CAMMP | ISS Program Integration & Control | | |
| | NASA Center/Division | Revision | Date |
| | JSC/OM | AB | 01/30/2008 |

Total mass: 461457. lb
 209313. kg

Center of mass:

| | | | |
|--|--------|-------|----------|
| | X | Y | Z |
| | -12.57 | -1.87 | 12.17 ft |
| | -3.83 | -.57 | 3.71 m |

Inertia Tensor*:

| | | | |
|--|-----------|------------|-----------|
| | | slug*ft**2 | |
| | 9122065. | 1269642. | 184238. |
| | 1269642. | 28945563. | -434119. |
| | 184238. | -434119. | 36205693. |
| | | kg*m**2 | |
| | 12367860. | 1721404. | 249793. |
| | 1721404. | 39244916. | -588586. |
| | 249793. | -588586. | 49088332. |

Principal moments of inertia (IXX, IYY, IZZ):

| | | | |
|--|-----------|-----------|----------------------|
| | 9039431. | 29001893. | 36231996. slug*ft**2 |
| | 12255824. | 39321290. | 49123994. kg*m**2 |

Principal to body yaw, pitch, roll in a 3 2 1 sequence:

| | | | |
|--|------|------|---------------|
| | 3.68 | -.23 | -3.37 degrees |
|--|------|------|---------------|

Center of Pressure:

(WRT CM)

| | | | |
|-----|-----------|-----------|-----------|
| | X ft | Y ft | Z ft |
| CPx | 0.00E+00 | -2.86E-01 | -6.44E+00 |
| CPy | -1.10E+01 | 0.00E+00 | 6.31E-01 |
| CPz | 4.52E+00 | 7.67E-01 | 0.00E+00 |
| | X m | Y m | Z m |
| CPx | 0.00E+00 | -8.72E-02 | -1.96E+00 |
| CPy | -3.35E+00 | 0.00E+00 | 1.92E-01 |
| CPz | 1.38E+00 | 2.34E-01 | 0.00E+00 |

Projected areas:

| | | | |
|--|---------|---------|---------------|
| | X | Y | Z |
| | 3752.11 | 2829.26 | 4347.84 ft**2 |
| | 348.58 | 262.85 | 403.93 m**2 |

*Off-diagonal elements are negative integrals

| | | | |
|--------------------------|-------------------------------------|-----------------|-------------|
| Technical Monitor | Title | | |
| Linda Jack (OM) | International Space Station Program | | |
| Approved By | Body 01 | | |
| De Los Reyes (CAMMP) | STEP 024 | | |
| Produced By | Contract | | |
| CAMMP | ISS Program Integration & Control | | |
| | NASA Center/Division | Revision | Date |
| | JSC/OM | AB | 01/30/2008 |

Total mass: 489296. lb
 221941. kg

Center of mass:

| | | | |
|--|--------|-------|----------|
| | X | Y | Z |
| | -10.30 | -1.77 | 12.99 ft |
| | -3.14 | -.54 | 3.96 m |

Inertia Tensor*:

| | | | |
|--|-----------|------------|-----------|
| | | slug*ft**2 | |
| | 9398061. | 1205898. | -383505. |
| | 1205898. | 30666067. | -462288. |
| | -383505. | -462288. | 37679764. |
| | | kg*m**2 | |
| | 12742060. | 1634978. | -519963. |
| | 1634978. | 41577607. | -626779. |
| | -519963. | -626779. | 51086904. |

Principal moments of inertia (I_{XX}, I_{YY}, I_{ZZ}):

| | | | | |
|--|-----------|-----------|-----------|------------|
| | 9325413. | 30700798. | 37717682. | slug*ft**2 |
| | 12643563. | 41624695. | 51138313. | kg*m**2 |

Principal to body yaw, pitch, roll in a 3 2 1 sequence:

| | | | |
|--|------|-----|---------------|
| | 3.16 | .94 | -3.91 degrees |
|--|------|-----|---------------|

Center of Pressure:

(WRT CM)

| | | | |
|-----|-----------|-----------|-----------|
| | X ft | Y ft | Z ft |
| CPx | 0.00E+00 | -2.62E-01 | -5.89E+00 |
| CPy | -7.78E+00 | 0.00E+00 | 1.72E+00 |
| CPz | 2.26E+00 | 6.68E-01 | 0.00E+00 |
| | X m | Y m | Z m |
| CPx | 0.00E+00 | -7.97E-02 | -1.80E+00 |
| CPy | -2.37E+00 | 0.00E+00 | 5.23E-01 |
| CPz | 6.90E-01 | 2.04E-01 | 0.00E+00 |

Projected areas:

| | | | |
|--|---------|---------|---------------|
| | X | Y | Z |
| | 3935.93 | 3117.29 | 4348.00 ft**2 |
| | 365.66 | 289.61 | 403.94 m**2 |

*Off-diagonal elements are negative integrals

| | | | |
|--------------------------|-------------------------------------|-----------------|-------------|
| Technical Monitor | Title | | |
| Linda Jack (OM) | International Space Station Program | | |
| Approved By | Body 01 | | |
| De Los Reyes (CAMMP) | STEP 025 | | |
| Produced By | Contract | | |
| CAMMP | ISS Program Integration & Control | | |
| | NASA Center/Division | Revision | Date |
| | JSC/OM | AB | 01/30/2008 |

Total mass: 485992. lb
 220442. kg

Center of mass:

| | | | |
|--|--------|-------|----------|
| | X | Y | Z |
| | -10.50 | -1.84 | 12.89 ft |
| | -3.20 | -.56 | 3.93 m |

Inertia Tensor*:

| | | | |
|--|-----------|------------|-----------|
| | | slug*ft**2 | |
| | 9347144. | 1224778. | -332369. |
| | 1224778. | 30539164. | -447011. |
| | -332369. | -447011. | 37571784. |
| | | kg*m**2 | |
| | 12673026. | 1660576. | -450632. |
| | 1660576. | 41405550. | -606066. |
| | -450632. | -606066. | 50940502. |

Principal moments of inertia (IXX, IYY, IZZ):

| | | | |
|--|-----------|-----------|----------------------|
| | 9273281. | 30578763. | 37606048. slug*ft**2 |
| | 12572881. | 41459238. | 50986958. kg*m**2 |

Principal to body yaw, pitch, roll in a 3 2 1 sequence:

| | | | |
|--|------|-----|---------------|
| | 3.24 | .84 | -3.76 degrees |
|--|------|-----|---------------|

Center of Pressure:

(WRT CM)

| | | | |
|-----|-----------|-----------|-----------|
| | X ft | Y ft | Z ft |
| CPx | 0.00E+00 | -4.00E-01 | -6.09E+00 |
| CPy | -8.20E+00 | 0.00E+00 | 1.22E+00 |
| CPz | 2.15E+00 | 7.61E-01 | 0.00E+00 |
| | X m | Y m | Z m |
| CPx | 0.00E+00 | -1.22E-01 | -1.86E+00 |
| CPy | -2.50E+00 | 0.00E+00 | 3.73E-01 |
| CPz | 6.56E-01 | 2.32E-01 | 0.00E+00 |

Projected areas:

| | | | |
|--|---------|---------|---------------|
| | X | Y | Z |
| | 3915.45 | 3008.95 | 4342.72 ft**2 |
| | 363.76 | 279.54 | 403.45 m**2 |

*Off-diagonal elements are negative integrals

| | | | |
|--------------------------|-------------------------------------|-----------------|-------------|
| Technical Monitor | Title | | |
| Linda Jack (OM) | International Space Station Program | | |
| Approved By | Body 01 | | |
| De Los Reyes (CAMMP) | STEP 026 - 027 | | |
| Produced By | Contract | | |
| CAMMP | ISS Program Integration & Control | | |
| | NASA Center/Division | Revision | Date |
| | JSC/OM | AB | 01/30/2008 |

Total mass: 471054. lb
 213667. kg

Center of mass:

| | | | |
|--|--------|-------|----------|
| | X | Y | Z |
| | -12.11 | -1.87 | 12.20 ft |
| | -3.69 | -.57 | 3.72 m |

Inertia Tensor*:

| | | | |
|--|-----------|------------|-----------|
| | | slug*ft**2 | |
| | 9134837. | 1259756. | 163940. |
| | 1259756. | 29142349. | -436850. |
| | 163940. | -436850. | 36403874. |
| | | kg*m**2 | |
| | 12385177. | 1708000. | 222273. |
| | 1708000. | 39511723. | -592289. |
| | 222273. | -592289. | 49357029. |

Principal moments of inertia (IXX, IYY, IZZ):

| | | | |
|--|-----------|-----------|----------------------|
| | 9054496. | 29196217. | 36430348. slug*ft**2 |
| | 12276249. | 39584757. | 49392923. kg*m**2 |

Principal to body yaw, pitch, roll in a 3 2 1 sequence:

| | | | |
|--|------|------|---------------|
| | 3.61 | -.19 | -3.40 degrees |
|--|------|------|---------------|

Center of Pressure:
(WRT CM)

| | | | |
|-----|-----------|-----------|-----------|
| | X ft | Y ft | Z ft |
| CPx | 0.00E+00 | -4.32E-01 | -6.50E+00 |
| CPy | -1.15E+01 | 0.00E+00 | 5.86E-01 |
| CPz | 4.06E+00 | 7.66E-01 | 0.00E+00 |
| | X m | Y m | Z m |
| CPx | 0.00E+00 | -1.32E-01 | -1.98E+00 |
| CPy | -3.49E+00 | 0.00E+00 | 1.79E-01 |
| CPz | 1.24E+00 | 2.33E-01 | 0.00E+00 |

Projected areas:

| | | | |
|--|---------|---------|---------------|
| | X | Y | Z |
| | 3758.95 | 2830.61 | 4349.42 ft**2 |
| | 349.22 | 262.97 | 404.07 m**2 |

*Off-diagonal elements are negative integrals

| | | | |
|--------------------------|-------------------------------------|-----------------|-------------|
| Technical Monitor | Title | | |
| Linda Jack (OM) | International Space Station Program | | |
| Approved By | Body 01 | | |
| De Los Reyes (CAMMP) | STEP 028 | | |
| Produced By | Contract | | |
| CAMMP | ISS Program Integration & Control | | |
| | NASA Center/Division | Revision | Date |
| | JSC/OM | AB | 01/30/2008 |

Total mass: 471198. lb
 213732. kg

Center of mass:

| | | | |
|--|--------|-------|----------|
| | X | Y | Z |
| | -12.11 | -1.87 | 12.20 ft |
| | -3.69 | -.57 | 3.72 m |

Inertia Tensor*:

| | | | |
|--|-----------|------------|-----------|
| | | slug*ft**2 | |
| | 9134862. | 1260115. | 164220. |
| | 1260115. | 29150625. | -436862. |
| | 164220. | -436862. | 36412155. |
| | | kg*m**2 | |
| | 12385211. | 1708486. | 222653. |
| | 1708486. | 39522943. | -592306. |
| | 222653. | -592306. | 49368257. |

Principal moments of inertia (IXX, IYY, IZZ):

| | | | |
|--|-----------|-----------|----------------------|
| | 9054505. | 29204505. | 36438632. slug*ft**2 |
| | 12276261. | 39595995. | 49404155. kg*m**2 |

Principal to body yaw, pitch, roll in a 3 2 1 sequence:

| | | | |
|--|------|------|---------------|
| | 3.61 | -.19 | -3.40 degrees |
|--|------|------|---------------|

Center of Pressure:
(WRT CM)

| | | | |
|-----|-----------|-----------|-----------|
| | X ft | Y ft | Z ft |
| CPx | 0.00E+00 | -4.32E-01 | -6.50E+00 |
| CPy | -1.15E+01 | 0.00E+00 | 5.86E-01 |
| CPz | 4.06E+00 | 7.66E-01 | 0.00E+00 |
| | X m | Y m | Z m |
| CPx | 0.00E+00 | -1.32E-01 | -1.98E+00 |
| CPy | -3.49E+00 | 0.00E+00 | 1.79E-01 |
| CPz | 1.24E+00 | 2.33E-01 | 0.00E+00 |

Projected areas:

| | | | |
|--|---------|---------|---------------|
| | X | Y | Z |
| | 3758.95 | 2830.61 | 4349.42 ft**2 |
| | 349.22 | 262.97 | 404.07 m**2 |

*Off-diagonal elements are negative integrals

| | | | |
|--------------------------|-------------------------------------|-----------------|-------------|
| Technical Monitor | Title | | |
| Linda Jack (OM) | International Space Station Program | | |
| Approved By | Body 01 | | |
| De Los Reyes (CAMMP) | STEP 029 | | |
| Produced By | Contract | | |
| CAMMP | ISS Program Integration & Control | | |
| | NASA Center/Division | Revision | Date |
| | JSC/OM | AB | 01/30/2008 |

Total mass: 471074. lb
 213676. kg

Center of mass:

| | | | |
|--|--------|-------|----------|
| | X | Y | Z |
| | -12.11 | -1.87 | 12.20 ft |
| | -3.69 | -.57 | 3.72 m |

Inertia Tensor*:

| | | | |
|--|-----------|------------|-----------|
| | | slug*ft**2 | |
| | 9134840. | 1259805. | 163979. |
| | 1259805. | 29143496. | -436852. |
| | 163979. | -436852. | 36405021. |
| | | kg*m**2 | |
| | 12385181. | 1708067. | 222326. |
| | 1708067. | 39513277. | -592292. |
| | 222326. | -592292. | 49358584. |

Principal moments of inertia (IXX, IYY, IZZ):

| | | | |
|--|-----------|-----------|----------------------|
| | 9054497. | 29197365. | 36431495. slug*ft**2 |
| | 12276250. | 39586314. | 49394479. kg*m**2 |

Principal to body yaw, pitch, roll in a 3 2 1 sequence:

| | | | |
|--|------|------|---------------|
| | 3.61 | -.19 | -3.40 degrees |
|--|------|------|---------------|

Center of Pressure:

(WRT CM)

| | | | |
|-----|-----------|-----------|-----------|
| | X ft | Y ft | Z ft |
| CPx | 0.00E+00 | -4.32E-01 | -6.50E+00 |
| CPy | -1.15E+01 | 0.00E+00 | 5.86E-01 |
| CPz | 4.06E+00 | 7.66E-01 | 0.00E+00 |
| | X m | Y m | Z m |
| CPx | 0.00E+00 | -1.32E-01 | -1.98E+00 |
| CPy | -3.49E+00 | 0.00E+00 | 1.79E-01 |
| CPz | 1.24E+00 | 2.33E-01 | 0.00E+00 |

Projected areas:

| | | | |
|--|---------|---------|---------------|
| | X | Y | Z |
| | 3758.95 | 2830.61 | 4349.42 ft**2 |
| | 349.22 | 262.97 | 404.07 m**2 |

*Off-diagonal elements are negative integrals

| | | | |
|--------------------------|-------------------------------------|-----------------|-------------|
| Technical Monitor | Title | | |
| Linda Jack (OM) | International Space Station Program | | |
| Approved By | Body 01 | | |
| De Los Reyes (CAMMP) | STEP 030 - 031 | | |
| Produced By | Contract | | |
| CAMMP | ISS Program Integration & Control | | |
| | NASA Center/Division | Revision | Date |
| | JSC/OM | AB | 01/30/2008 |

Total mass: 470977. lb
 213632. kg

Center of mass:

| | | | |
|--|--------|-------|----------|
| | X | Y | Z |
| | -12.11 | -1.87 | 12.20 ft |
| | -3.69 | -.57 | 3.72 m |

Inertia Tensor*:

| | | | |
|--|-----------|------------|-----------|
| | | slug*ft**2 | |
| | 9134823. | 1259563. | 163789. |
| | 1259563. | 29137892. | -436843. |
| | 163789. | -436843. | 36399412. |
| | | kg*m**2 | |
| | 12385158. | 1707738. | 222068. |
| | 1707738. | 39505679. | -592280. |
| | 222068. | -592280. | 49350980. |

Principal moments of inertia (IXX, IYY, IZZ):

| | | | |
|--|-----------|-----------|----------------------|
| | 9054490. | 29191752. | 36425885. slug*ft**2 |
| | 12276241. | 39578704. | 49386872. kg*m**2 |

Principal to body yaw, pitch, roll in a 3 2 1 sequence:

| | | | |
|--|------|------|---------------|
| | 3.61 | -.19 | -3.40 degrees |
|--|------|------|---------------|

Center of Pressure:

(WRT CM)

| | | | |
|-----|-----------|-----------|-----------|
| | X ft | Y ft | Z ft |
| CPx | 0.00E+00 | -4.32E-01 | -6.50E+00 |
| CPy | -1.15E+01 | 0.00E+00 | 5.86E-01 |
| CPz | 4.06E+00 | 7.66E-01 | 0.00E+00 |
| | X m | Y m | Z m |
| CPx | 0.00E+00 | -1.32E-01 | -1.98E+00 |
| CPy | -3.49E+00 | 0.00E+00 | 1.79E-01 |
| CPz | 1.24E+00 | 2.33E-01 | 0.00E+00 |

Projected areas:

| | | | |
|--|---------|---------|---------------|
| | X | Y | Z |
| | 3758.95 | 2830.61 | 4349.42 ft**2 |
| | 349.22 | 262.97 | 404.07 m**2 |

*Off-diagonal elements are negative integrals

| | | | |
|--------------------------|-------------------------------------|-----------------|-------------|
| Technical Monitor | Title | | |
| Linda Jack (OM) | International Space Station Program | | |
| Approved By | Body 01 | | |
| De Los Reyes (CAMMP) | STEP 032 | | |
| Produced By | Contract | | |
| CAMMP | ISS Program Integration & Control | | |
| | NASA Center/Division | Revision | Date |
| | JSC/OM | AB | 01/30/2008 |

Total mass: 470895. lb
 213595. kg

Center of mass:

| | | | |
|--|--------|-------|----------|
| | X | Y | Z |
| | -12.07 | -1.87 | 12.20 ft |
| | -3.68 | -.57 | 3.72 m |

Inertia Tensor*:

| | | | |
|--|-----------|------------|-----------|
| | | slug*ft**2 | |
| | 9134809. | 1259359. | 163630. |
| | 1259359. | 29133177. | -436837. |
| | 163630. | -436837. | 36394695. |
| | | kg*m**2 | |
| | 12385139. | 1707461. | 221852. |
| | 1707461. | 39499287. | -592271. |
| | 221852. | -592271. | 49344584. |

Principal moments of inertia (IXX, IYY, IZZ):

| | | | | |
|--|-----------|-----------|-----------|------------|
| | 9054486. | 29187030. | 36421166. | slug*ft**2 |
| | 12276235. | 39572302. | 49380473. | kg*m**2 |

Principal to body yaw, pitch, roll in a 3 2 1 sequence:

| | | | |
|--|------|------|---------------|
| | 3.61 | -.19 | -3.40 degrees |
|--|------|------|---------------|

Center of Pressure:
(WRT CM)

| | | | |
|-----|-----------|-----------|-----------|
| | X ft | Y ft | Z ft |
| CPx | 0.00E+00 | -4.32E-01 | -6.50E+00 |
| CPy | -1.15E+01 | 0.00E+00 | 5.86E-01 |
| CPz | 4.02E+00 | 7.66E-01 | 0.00E+00 |
| | X m | Y m | Z m |
| CPx | 0.00E+00 | -1.32E-01 | -1.98E+00 |
| CPy | -3.50E+00 | 0.00E+00 | 1.79E-01 |
| CPz | 1.23E+00 | 2.33E-01 | 0.00E+00 |

Projected areas:

| | | | |
|--|---------|---------|---------------|
| | X | Y | Z |
| | 3758.95 | 2830.61 | 4349.42 ft**2 |
| | 349.22 | 262.97 | 404.07 m**2 |

*Off-diagonal elements are negative integrals

| | | | |
|--------------------------|-------------------------------------|-----------------|-------------|
| Technical Monitor | Title | | |
| Linda Jack (OM) | International Space Station Program | | |
| Approved By | Body 01 | | |
| De Los Reyes (CAMMP) | STEP 033 - 035 | | |
| Produced By | Contract | | |
| CAMMP | ISS Program Integration & Control | | |
| | NASA Center/Division | Revision | Date |
| | JSC/OM | AB | 01/30/2008 |

Total mass: 467549. lb
 212077. kg

Center of mass:

| | | | |
|--|--------|-------|----------|
| | X | Y | Z |
| | -12.30 | -1.94 | 12.11 ft |
| | -3.75 | -.59 | 3.69 m |

Inertia Tensor*:

| | | | |
|--|-----------|------------|-----------|
| | | slug*ft**2 | |
| | 9084816. | 1286141. | 222336. |
| | 1286141. | 28986986. | -419846. |
| | 222336. | -419846. | 36276120. |
| | | kg*m**2 | |
| | 12317358. | 1743773. | 301447. |
| | 1743773. | 39301078. | -569235. |
| | 301447. | -569235. | 49183818. |

Principal moments of inertia (I_{XX}, I_{YY}, I_{ZZ}):

| | | | | |
|--|-----------|-----------|-----------|------------|
| | 8999775. | 29047109. | 36301038. | slug*ft**2 |
| | 12202058. | 39382595. | 49217602. | kg*m**2 |

Principal to body yaw, pitch, roll in a 3 2 1 sequence:

| | | | |
|--|------|------|---------------|
| | 3.72 | -.31 | -3.23 degrees |
|--|------|------|---------------|

Center of Pressure:

(WRT CM)

| | | | |
|-----|-----------|-----------|-----------|
| | X ft | Y ft | Z ft |
| CPx | 0.00E+00 | -6.72E-01 | -7.04E+00 |
| CPy | -1.22E+01 | 0.00E+00 | -3.84E-02 |
| CPz | 3.95E+00 | 8.59E-01 | 0.00E+00 |
| | X m | Y m | Z m |
| CPx | 0.00E+00 | -2.05E-01 | -2.15E+00 |
| CPy | -3.71E+00 | 0.00E+00 | -1.17E-02 |
| CPz | 1.21E+00 | 2.62E-01 | 0.00E+00 |

Projected areas:

| | | | |
|--|---------|---------|---------------|
| | X | Y | Z |
| | 3713.96 | 2727.70 | 4342.58 ft**2 |
| | 345.04 | 253.41 | 403.44 m**2 |

*Off-diagonal elements are negative integrals

| | | | |
|--------------------------|-------------------------------------|-----------------|-------------|
| Technical Monitor | Title | | |
| Linda Jack (OM) | International Space Station Program | | |
| Approved By | Body 01 | | |
| De Los Reyes (CAMMP) | STEP 036 - 037 | | |
| Produced By | Contract | | |
| CAMMP | ISS Program Integration & Control | | |
| | NASA Center/Division | Revision | Date |
| | JSC/OM | AB | 01/30/2008 |

Total mass: 467549. lb
 212077. kg

Center of mass:

| | | | |
|--|--------|-------|----------|
| | X | Y | Z |
| | -12.30 | -1.94 | 12.11 ft |
| | -3.75 | -.59 | 3.69 m |

Inertia Tensor*:

| | | | |
|--|-----------|------------|-----------|
| | | slug*ft**2 | |
| | 9085976. | 1291604. | 221477. |
| | 1291604. | 28986520. | -419772. |
| | 221477. | -419772. | 36274980. |
| | | kg*m**2 | |
| | 12318930. | 1751180. | 300282. |
| | 1751180. | 39300447. | -569134. |
| | 300282. | -569134. | 49182272. |

Principal moments of inertia (I_{XX}, I_{YY}, I_{ZZ}):

| | | | |
|--|-----------|-----------|----------------------|
| | 9000240. | 29047358. | 36299878. slug*ft**2 |
| | 12202688. | 39382932. | 49216030. kg*m**2 |

Principal to body yaw, pitch, roll in a 3 2 1 sequence:

| | | | |
|--|------|------|---------------|
| | 3.73 | -.31 | -3.23 degrees |
|--|------|------|---------------|

Center of Pressure:
(WRT CM)

| | | | |
|-----|-----------|-----------|-----------|
| | X ft | Y ft | Z ft |
| CPx | 0.00E+00 | -6.64E-01 | -7.04E+00 |
| CPy | -1.22E+01 | 0.00E+00 | -4.54E-02 |
| CPz | 3.95E+00 | 8.59E-01 | 0.00E+00 |
| | X m | Y m | Z m |
| CPx | 0.00E+00 | -2.02E-01 | -2.15E+00 |
| CPy | -3.70E+00 | 0.00E+00 | -1.38E-02 |
| CPz | 1.21E+00 | 2.62E-01 | 0.00E+00 |

Projected areas:

| | | | |
|--|---------|---------|---------------|
| | X | Y | Z |
| | 3714.51 | 2730.61 | 4342.59 ft**2 |
| | 345.09 | 253.68 | 403.44 m**2 |

*Off-diagonal elements are negative integrals

| | | | |
|--------------------------|-------------------------------------|-----------------|-------------|
| Technical Monitor | Title | | |
| Linda Jack (OM) | International Space Station Program | | |
| Approved By | Body 01 | | |
| De Los Reyes (CAMMP) | STEP 038 | | |
| Produced By | Contract | | |
| CAMMP | ISS Program Integration & Control | | |
| | NASA Center/Division | Revision | Date |
| | JSC/OM | AB | 01/30/2008 |

Total mass: 465865. lb
 211313. kg

Center of mass:

| | | | |
|--|--------|-------|----------|
| | X | Y | Z |
| | -12.17 | -1.94 | 12.07 ft |
| | -3.71 | -.59 | 3.68 m |

Inertia Tensor*:

| | | | |
|--|-----------|------------|-----------|
| | | slug*ft**2 | |
| | 9085648. | 1287254. | 217901. |
| | 1287254. | 28889834. | -419610. |
| | 217901. | -419610. | 36178230. |
| | | kg*m**2 | |
| | 12318485. | 1745282. | 295434. |
| | 1745282. | 39169358. | -568915. |
| | 295434. | -568915. | 49051097. |

Principal moments of inertia (I_{XX}, I_{YY}, I_{ZZ}):

| | | | | |
|--|-----------|-----------|-----------|------------|
| | 9000127. | 28950507. | 36203078. | slug*ft**2 |
| | 12202534. | 39251620. | 49084786. | kg*m**2 |

Principal to body yaw, pitch, roll in a 3 2 1 sequence:

| | | | |
|--|------|------|---------------|
| | 3.74 | -.31 | -3.23 degrees |
|--|------|------|---------------|

Center of Pressure:
(WRT CM)

| | | | |
|-----|-----------|-----------|-----------|
| | X ft | Y ft | Z ft |
| CPx | 0.00E+00 | -6.64E-01 | -7.01E+00 |
| CPy | -1.23E+01 | 0.00E+00 | -1.26E-02 |
| CPz | 3.82E+00 | 8.59E-01 | 0.00E+00 |
| | X m | Y m | Z m |
| CPx | 0.00E+00 | -2.02E-01 | -2.14E+00 |
| CPy | -3.74E+00 | 0.00E+00 | -3.85E-03 |
| CPz | 1.17E+00 | 2.62E-01 | 0.00E+00 |

Projected areas:

| | | | |
|--|---------|---------|---------------|
| | X | Y | Z |
| | 3714.51 | 2730.61 | 4342.59 ft**2 |
| | 345.09 | 253.68 | 403.44 m**2 |

*Off-diagonal elements are negative integrals

| | | | |
|--------------------------|-------------------------------------|-----------------|-------------|
| Technical Monitor | Title | | |
| Linda Jack (OM) | International Space Station Program | | |
| Approved By | Body 01 | | |
| De Los Reyes (CAMMP) | STEP 039 - 041 | | |
| Produced By | Contract | | |
| CAMMP | ISS Program Integration & Control | | |
| | NASA Center/Division | Revision | Date |
| | JSC/OM | AB | 01/30/2008 |

Total mass: 465765. lb
 211268. kg

Center of mass:

| | | | |
|--|--------|-------|----------|
| | X | Y | Z |
| | -12.14 | -1.94 | 12.07 ft |
| | -3.70 | -.59 | 3.68 m |

Inertia Tensor*:

| | | | |
|--|-----------|------------|-----------|
| | | slug*ft**2 | |
| | 9085628. | 1286996. | 217689. |
| | 1286996. | 28884117. | -419601. |
| | 217689. | -419601. | 36172510. |
| | | kg*m**2 | |
| | 12318458. | 1744933. | 295147. |
| | 1744933. | 39161607. | -568903. |
| | 295147. | -568903. | 49043341. |

Principal moments of inertia (IXX, IYY, IZZ):

| | | | |
|--|-----------|-----------|----------------------|
| | 9000120. | 28944781. | 36197354. slug*ft**2 |
| | 12202524. | 39243856. | 49077026. kg*m**2 |

Principal to body yaw, pitch, roll in a 3 2 1 sequence:

| | | | |
|--|------|------|---------------|
| | 3.74 | -.31 | -3.23 degrees |
|--|------|------|---------------|

Center of Pressure:
(WRT CM)

| | | | |
|-----|-----------|-----------|-----------|
| | X ft | Y ft | Z ft |
| CPx | 0.00E+00 | -6.64E-01 | -7.01E+00 |
| CPy | -1.23E+01 | 0.00E+00 | -1.26E-02 |
| CPz | 3.79E+00 | 8.59E-01 | 0.00E+00 |
| | X m | Y m | Z m |
| CPx | 0.00E+00 | -2.02E-01 | -2.14E+00 |
| CPy | -3.75E+00 | 0.00E+00 | -3.85E-03 |
| CPz | 1.16E+00 | 2.62E-01 | 0.00E+00 |

Projected areas:

| | | | |
|--|---------|---------|---------------|
| | X | Y | Z |
| | 3714.51 | 2730.61 | 4342.59 ft**2 |
| | 345.09 | 253.68 | 403.44 m**2 |

*Off-diagonal elements are negative integrals

| | | | |
|--------------------------|-------------------------------------|-----------------|-------------|
| Technical Monitor | Title | | |
| Linda Jack (OM) | International Space Station Program | | |
| Approved By | Body 01 | | |
| De Los Reyes (CAMMP) | STEP 042 - 043 | | |
| Produced By | Contract | | |
| CAMMP | ISS Program Integration & Control | | |
| | NASA Center/Division | Revision | Date |
| | JSC/OM | AB | 01/30/2008 |

Total mass: 465697. lb
 211237. kg

Center of mass:

| | | | |
|--|--------|-------|----------|
| | X | Y | Z |
| | -12.14 | -1.94 | 12.07 ft |
| | -3.70 | -.59 | 3.68 m |

Inertia Tensor*:

| | | | |
|--|-----------|------------|-----------|
| | | slug*ft**2 | |
| | 9085614. | 1286819. | 217544. |
| | 1286819. | 28880177. | -419595. |
| | 217544. | -419595. | 36168567. |
| | | kg*m**2 | |
| | 12318440. | 1744693. | 294950. |
| | 1744693. | 39156265. | -568894. |
| | 294950. | -568894. | 49037996. |

Principal moments of inertia (IXX, IYY, IZZ):

| | | | |
|--|-----------|-----------|----------------------|
| | 9000115. | 28940834. | 36193410. slug*ft**2 |
| | 12202518. | 39238505. | 49071678. kg*m**2 |

Principal to body yaw, pitch, roll in a 3 2 1 sequence:

| | | | |
|--|------|------|---------------|
| | 3.74 | -.31 | -3.23 degrees |
|--|------|------|---------------|

Center of Pressure:

(WRT CM)

| | | | |
|-----|-----------|-----------|-----------|
| | X ft | Y ft | Z ft |
| CPx | 0.00E+00 | -6.64E-01 | -7.01E+00 |
| CPy | -1.23E+01 | 0.00E+00 | -1.26E-02 |
| CPz | 3.79E+00 | 8.59E-01 | 0.00E+00 |
| | X m | Y m | Z m |
| CPx | 0.00E+00 | -2.02E-01 | -2.14E+00 |
| CPy | -3.75E+00 | 0.00E+00 | -3.85E-03 |
| CPz | 1.16E+00 | 2.62E-01 | 0.00E+00 |

Projected areas:

| | | | |
|--|---------|---------|---------------|
| | X | Y | Z |
| | 3714.51 | 2730.61 | 4342.59 ft**2 |
| | 345.09 | 253.68 | 403.44 m**2 |

*Off-diagonal elements are negative integrals

| | | | |
|--------------------------|-------------------------------------|-----------------|-------------|
| Technical Monitor | Title | | |
| Linda Jack (OM) | International Space Station Program | | |
| Approved By | Body 01 | | |
| De Los Reyes (CAMMP) | STEP 044 | | |
| Produced By | Contract | | |
| CAMMP | ISS Program Integration & Control | | |
| | NASA Center/Division | Revision | Date |
| | JSC/OM | AB | 01/30/2008 |

Total mass: 474120. lb
 215057. kg

Center of mass:

| | | | |
|--|--------|-------|----------|
| | X | Y | Z |
| | -11.22 | -2.82 | 12.24 ft |
| | -3.42 | -.86 | 3.73 m |

Inertia Tensor*:

| | | | |
|--|-----------|------------|-----------|
| | | slug*ft**2 | |
| | 9770187. | 1953924. | 93700. |
| | 1953924. | 29586790. | -297972. |
| | 93700. | -297972. | 37513093. |
| | | kg*m**2 | |
| | 13246596. | 2649166. | 127040. |
| | 2649166. | 40114303. | -403996. |
| | 127040. | -403996. | 50860928. |

Principal moments of inertia (I_{XX}, I_{YY}, I_{ZZ}):

| | | | |
|--|-----------|-----------|----------------------|
| | 9578832. | 29766944. | 37524294. slug*ft**2 |
| | 12987153. | 40358559. | 50876115. kg*m**2 |

Principal to body yaw, pitch, roll in a 3 2 1 sequence:

| | | | |
|--|------|------|---------------|
| | 5.59 | -.04 | -2.14 degrees |
|--|------|------|---------------|

Center of Pressure:
(WRT CM)

| | | | |
|-----|-----------|-----------|-----------|
| | X ft | Y ft | Z ft |
| CPx | 0.00E+00 | -9.91E-01 | -6.77E+00 |
| CPy | -1.26E+01 | 0.00E+00 | -6.50E-02 |
| CPz | 4.75E+00 | -3.20E-01 | 0.00E+00 |
| | X m | Y m | Z m |
| CPx | 0.00E+00 | -3.02E-01 | -2.06E+00 |
| CPy | -3.85E+00 | 0.00E+00 | -1.98E-02 |
| CPz | 1.45E+00 | -9.75E-02 | 0.00E+00 |

Projected areas:

| | | | |
|--|---------|---------|---------------|
| | X | Y | Z |
| | 3806.68 | 2757.10 | 4524.45 ft**2 |
| | 353.65 | 256.14 | 420.33 m**2 |

*Off-diagonal elements are negative integrals

| | | | |
|--------------------------|-------------------------------------|-----------------|-------------|
| Technical Monitor | Title | | |
| Linda Jack (OM) | International Space Station Program | | |
| Approved By | Body 01 | | |
| De Los Reyes (CAMMP) | STEP 045 | | |
| Produced By | Contract | | |
| CAMMP | ISS Program Integration & Control | | |
| | NASA Center/Division | Revision | Date |
| | JSC/OM | AB | 01/30/2008 |

Total mass: 479529. lb
 217511. kg

Center of mass:

| | | | |
|--|--------|-------|----------|
| | X | Y | Z |
| | -10.76 | -3.54 | 12.37 ft |
| | -3.28 | -1.08 | 3.77 m |

Inertia Tensor*:

| | | | |
|--|-----------|------------|-----------|
| | | slug*ft**2 | |
| | 10441801. | 2401451. | 30677. |
| | 2401451. | 29907157. | -205567. |
| | 30677. | -205567. | 38478244. |
| | | kg*m**2 | |
| | 14157182. | 3255930. | 41592. |
| | 3255930. | 40548663. | -278711. |
| | 41592. | -278711. | 52169497. |

Principal moments of inertia (I_{XX}, I_{YY}, I_{ZZ}):

| | | | |
|--|-----------|-----------|----------------------|
| | 10149802. | 30194202. | 38483198. slug*ft**2 |
| | 13761285. | 40937844. | 52176213. kg*m**2 |

Principal to body yaw, pitch, roll in a 3 2 1 sequence:

| | | | |
|--|------|-----|---------------|
| | 6.93 | .06 | -1.39 degrees |
|--|------|-----|---------------|

Center of Pressure:

(WRT CM)

| | | | |
|-----|-----------|-----------|-----------|
| | X ft | Y ft | Z ft |
| CPx | 0.00E+00 | -6.94E-01 | -6.79E+00 |
| CPy | -1.31E+01 | 0.00E+00 | -1.95E-01 |
| CPz | 5.34E+00 | -1.36E+00 | 0.00E+00 |
| | X m | Y m | Z m |
| CPx | 0.00E+00 | -2.11E-01 | -2.07E+00 |
| CPy | -3.98E+00 | 0.00E+00 | -5.94E-02 |
| CPz | 1.63E+00 | -4.14E-01 | 0.00E+00 |

Projected areas:

| | | | |
|--|---------|---------|---------------|
| | X | Y | Z |
| | 3832.89 | 2757.45 | 4654.38 ft**2 |
| | 356.09 | 256.18 | 432.41 m**2 |

*Off-diagonal elements are negative integrals

| | | | |
|--------------------------|-------------------------------------|-----------------|-------------|
| Technical Monitor | Title | | |
| Linda Jack (OM) | International Space Station Program | | |
| Approved By | Body 01 | | |
| De Los Reyes (CAMMP) | STEP 046 - 047 | | |
| Produced By | Contract | | |
| CAMMP | ISS Program Integration & Control | | |
| | NASA Center/Division | Revision | Date |
| | JSC/OM | AB | 01/30/2008 |

Total mass: 479529. lb
 217511. kg

Center of mass:

| | | | |
|--|--------|-------|----------|
| | X | Y | Z |
| | -10.70 | -3.48 | 12.37 ft |
| | -3.26 | -1.06 | 3.77 m |

Inertia Tensor*:

| | | | |
|--|-----------|------------|-----------|
| | | slug*ft**2 | |
| | 10338305. | 2396620. | 13272. |
| | 2396620. | 29975390. | -200794. |
| | 13272. | -200794. | 38433011. |
| | | kg*m**2 | |
| | 14016860. | 3249380. | 17994. |
| | 3249380. | 40641174. | -272240. |
| | 17994. | -272240. | 52108170. |

Principal moments of inertia (IXX, IYY, IZZ):

| | | | |
|--|-----------|-----------|----------------------|
| | 10049991. | 30258870. | 38437845. slug*ft**2 |
| | 13625959. | 41025522. | 52114724. kg*m**2 |

Principal to body yaw, pitch, roll in a 3 2 1 sequence:

| | | | |
|--|------|-----|---------------|
| | 6.86 | .09 | -1.39 degrees |
|--|------|-----|---------------|

Center of Pressure:
(WRT CM)

| | | | |
|-----|-----------|-----------|-----------|
| | X ft | Y ft | Z ft |
| CPx | 0.00E+00 | -7.59E-01 | -6.79E+00 |
| CPy | -1.31E+01 | 0.00E+00 | -1.95E-01 |
| CPz | 5.28E+00 | -1.42E+00 | 0.00E+00 |
| | X m | Y m | Z m |
| CPx | 0.00E+00 | -2.31E-01 | -2.07E+00 |
| CPy | -4.00E+00 | 0.00E+00 | -5.94E-02 |
| CPz | 1.61E+00 | -4.34E-01 | 0.00E+00 |

Projected areas:

| | | | |
|--|---------|---------|---------------|
| | X | Y | Z |
| | 3832.89 | 2757.45 | 4654.38 ft**2 |
| | 356.09 | 256.18 | 432.41 m**2 |

*Off-diagonal elements are negative integrals

| | | | |
|--------------------------|-------------------------------------|-----------------|-------------|
| Technical Monitor | Title | | |
| Linda Jack (OM) | International Space Station Program | | |
| Approved By | Body 01 | | |
| De Los Reyes (CAMMP) | STEP 048 - 049 | | |
| Produced By | Contract | | |
| CAMMP | ISS Program Integration & Control | | |
| | NASA Center/Division | Revision | Date |
| | JSC/OM | AB | 01/30/2008 |

Total mass: 479717. lb
 217596. kg

Center of mass:

| | | | |
|--|--------|-------|----------|
| | X | Y | Z |
| | -10.93 | -3.58 | 12.17 ft |
| | -3.33 | -1.09 | 3.71 m |

Inertia Tensor*:

| | | | |
|--|-----------|------------|-----------|
| | | slug*ft**2 | |
| | 10577655. | 2185242. | 44240. |
| | 2185242. | 29874617. | -405846. |
| | 44240. | -405846. | 38485642. |
| | | kg*m**2 | |
| | 14341375. | 2962791. | 59981. |
| | 2962791. | 40504544. | -550253. |
| | 59981. | -550253. | 52179528. |

Principal moments of inertia (I_{XX}, I_{YY}, I_{ZZ}):

| | | | |
|--|-----------|-----------|----------------------|
| | 10333004. | 30100056. | 38504853. slug*ft**2 |
| | 14009674. | 40810199. | 52205574. kg*m**2 |

Principal to body yaw, pitch, roll in a 3 2 1 sequence:

| | | | |
|--|------|-----|---------------|
| | 6.39 | .12 | -2.72 degrees |
|--|------|-----|---------------|

Center of Pressure:
(WRT CM)

| | | | |
|-----|-----------|-----------|-----------|
| | X ft | Y ft | Z ft |
| CPx | 0.00E+00 | -6.33E-01 | -6.79E+00 |
| CPy | -1.29E+01 | 0.00E+00 | -1.66E-01 |
| CPz | 4.41E+00 | -1.42E-01 | 0.00E+00 |
| | X m | Y m | Z m |
| CPx | 0.00E+00 | -1.93E-01 | -2.07E+00 |
| CPy | -3.93E+00 | 0.00E+00 | -5.07E-02 |
| CPz | 1.34E+00 | -4.33E-02 | 0.00E+00 |

Projected areas:

| | | | |
|--|---------|---------|---------------|
| | X | Y | Z |
| | 3827.73 | 2777.16 | 4559.23 ft**2 |
| | 355.61 | 258.01 | 423.57 m**2 |

*Off-diagonal elements are negative integrals

| | | | |
|--------------------------|-------------------------------------|-----------------|-------------|
| Technical Monitor | Title | | |
| Linda Jack (OM) | International Space Station Program | | |
| Approved By | Body 01 | | |
| De Los Reyes (CAMMP) | STEP 050 - 052 | | |
| Produced By | Contract | | |
| CAMMP | ISS Program Integration & Control | | |
| | NASA Center/Division | Revision | Date |
| | JSC/OM | AB | 01/30/2008 |

Total mass: 480365. lb
 217890. kg

Center of mass:

| | | | |
|--|--------|-------|----------|
| | X | Y | Z |
| | -10.99 | -3.58 | 12.17 ft |
| | -3.35 | -1.09 | 3.71 m |

Inertia Tensor*:

| | | | |
|--|-----------|------------|-----------|
| | | slug*ft**2 | |
| | 10577959. | 2188435. | 45575. |
| | 2188435. | 29914056. | -405953. |
| | 45575. | -405953. | 38525295. |
| | | kg*m**2 | |
| | 14341787. | 2967120. | 61791. |
| | 2967120. | 40558017. | -550399. |
| | 61791. | -550399. | 52233290. |

Principal moments of inertia (IXX, IYY, IZZ):

| | | | |
|--|-----------|-----------|----------------------|
| | 10333078. | 30139721. | 38544510. slug*ft**2 |
| | 14009774. | 40863978. | 52259342. kg*m**2 |

Principal to body yaw, pitch, roll in a 3 2 1 sequence:

| | | | |
|--|------|-----|---------------|
| | 6.38 | .12 | -2.72 degrees |
|--|------|-----|---------------|

Center of Pressure:
(WRT CM)

| | | | |
|-----|-----------|-----------|-----------|
| | X ft | Y ft | Z ft |
| CPx | 0.00E+00 | -6.33E-01 | -6.79E+00 |
| CPy | -1.28E+01 | 0.00E+00 | -1.66E-01 |
| CPz | 4.47E+00 | -1.42E-01 | 0.00E+00 |
| | X m | Y m | Z m |
| CPx | 0.00E+00 | -1.93E-01 | -2.07E+00 |
| CPy | -3.91E+00 | 0.00E+00 | -5.07E-02 |
| CPz | 1.36E+00 | -4.33E-02 | 0.00E+00 |

Projected areas:

| | | | |
|--|---------|---------|---------------|
| | X | Y | Z |
| | 3827.73 | 2777.16 | 4559.23 ft**2 |
| | 355.61 | 258.01 | 423.57 m**2 |

*Off-diagonal elements are negative integrals

| | | | |
|--------------------------|-------------------------------------|-----------------|-------------|
| Technical Monitor | Title | | |
| Linda Jack (OM) | International Space Station Program | | |
| Approved By | Body 01 | | |
| De Los Reyes (CAMMP) | STEP 053 - 054 | | |
| Produced By | Contract | | |
| CAMMP | ISS Program Integration & Control | | |
| | NASA Center/Division | Revision | Date |
| | JSC/OM | AB | 01/30/2008 |

Total mass: 480054. lb
 217749. kg

Center of mass:

| | | | |
|--|--------|-------|----------|
| | X | Y | Z |
| | -10.96 | -3.58 | 12.17 ft |
| | -3.34 | -1.09 | 3.71 m |

Inertia Tensor*:

| | | | |
|--|-----------|------------|-----------|
| | | slug*ft**2 | |
| | 10577813. | 2186905. | 44935. |
| | 2186905. | 29895155. | -405902. |
| | 44935. | -405902. | 38506291. |
| | | kg*m**2 | |
| | 14341589. | 2965045. | 60924. |
| | 2965045. | 40532390. | -550329. |
| | 60924. | -550329. | 52207524. |

Principal moments of inertia (IXX, IYY, IZZ):

| | | | |
|--|-----------|-----------|----------------------|
| | 10333043. | 30120712. | 38525504. slug*ft**2 |
| | 14009725. | 40838204. | 52233573. kg*m**2 |

Principal to body yaw, pitch, roll in a 3 2 1 sequence:

| | | | |
|--|------|-----|---------------|
| | 6.38 | .12 | -2.72 degrees |
|--|------|-----|---------------|

Center of Pressure:
(WRT CM)

| | | | |
|-----|-----------|-----------|-----------|
| | X ft | Y ft | Z ft |
| CPx | 0.00E+00 | -6.33E-01 | -6.79E+00 |
| CPy | -1.29E+01 | 0.00E+00 | -1.66E-01 |
| CPz | 4.44E+00 | -1.42E-01 | 0.00E+00 |
| | X m | Y m | Z m |
| CPx | 0.00E+00 | -1.93E-01 | -2.07E+00 |
| CPy | -3.92E+00 | 0.00E+00 | -5.07E-02 |
| CPz | 1.35E+00 | -4.33E-02 | 0.00E+00 |

Projected areas:

| | | | |
|--|---------|---------|---------------|
| | X | Y | Z |
| | 3827.73 | 2777.16 | 4559.23 ft**2 |
| | 355.61 | 258.01 | 423.57 m**2 |

*Off-diagonal elements are negative integrals

| | | | |
|--------------------------|-------------------------------------|-----------------|-------------|
| Technical Monitor | Title | | |
| Linda Jack (OM) | International Space Station Program | | |
| Approved By | Body 01 | | |
| De Los Reyes (CAMMP) | STEP 055 | | |
| Produced By | Contract | | |
| CAMMP | ISS Program Integration & Control | | |
| | NASA Center/Division | Revision | Date |
| | JSC/OM | AB | 01/30/2008 |

Total mass: 507169. lb
 230048. kg

Center of mass:

| | | | |
|--|-------|-------|----------|
| | X | Y | Z |
| | -8.73 | -3.58 | 13.09 ft |
| | -2.66 | -1.09 | 3.99 m |

Inertia Tensor*:

| | | | |
|--|-----------|------------|-----------|
| | | slug*ft**2 | |
| | 10816362. | 2176852. | -532493. |
| | 2176852. | 31706989. | -475237. |
| | -532493. | -475237. | 40040761. |
| | | kg*m**2 | |
| | 14665019. | 2951415. | -721964. |
| | 2951415. | 42988907. | -644335. |
| | -721964. | -644335. | 54287986. |

Principal moments of inertia (I_{XX}, I_{YY}, I_{ZZ}):

| | | | |
|--|-----------|-----------|----------------------|
| | 10584084. | 31897308. | 40082720. slug*ft**2 |
| | 14350092. | 43246945. | 54344875. kg*m**2 |

Principal to body yaw, pitch, roll in a 3 2 1 sequence:

| | | | |
|--|------|------|---------------|
| | 5.79 | 1.31 | -3.59 degrees |
|--|------|------|---------------|

Center of Pressure:
(WRT CM)

| | | | |
|-----|-----------|-----------|-----------|
| | X ft | Y ft | Z ft |
| CPx | 0.00E+00 | -1.47E-01 | -5.77E+00 |
| CPy | -9.14E+00 | 0.00E+00 | 1.46E+00 |
| CPz | 2.49E+00 | -2.05E-01 | 0.00E+00 |
| | X m | Y m | Z m |
| CPx | 0.00E+00 | -4.48E-02 | -1.76E+00 |
| CPy | -2.79E+00 | 0.00E+00 | 4.46E-01 |
| CPz | 7.59E-01 | -6.26E-02 | 0.00E+00 |

Projected areas:

| | | | |
|--|---------|---------|---------------|
| | X | Y | Z |
| | 4048.44 | 3153.08 | 4559.46 ft**2 |
| | 376.11 | 292.93 | 423.59 m**2 |

*Off-diagonal elements are negative integrals

| | | | |
|--------------------------|-------------------------------------|-----------------|-------------|
| Technical Monitor | Title | | |
| Linda Jack (OM) | International Space Station Program | | |
| Approved By | Body 01 | | |
| De Los Reyes (CAMMP) | STEP 056 | | |
| Produced By | Contract | | |
| CAMMP | ISS Program Integration & Control | | |
| | NASA Center/Division | Revision | Date |
| | JSC/OM | AB | 01/30/2008 |

Total mass: 505646. lb
 229357. kg

Center of mass:

| | | | |
|--|-------|-------|----------|
| | X | Y | Z |
| | -8.89 | -3.51 | 12.93 ft |
| | -2.71 | -1.07 | 3.94 m |

Inertia Tensor*:

| | | | |
|--|-----------|------------|-----------|
| | | slug*ft**2 | |
| | 10888663. | 2179053. | -474738. |
| | 2179053. | 31601080. | -422634. |
| | -474738. | -422634. | 40058474. |
| | | kg*m**2 | |
| | 14763046. | 2954400. | -643658. |
| | 2954400. | 42845314. | -573015. |
| | -643658. | -573015. | 54312002. |

Principal moments of inertia (IXX, IYY, IZZ):

| | | | |
|--|-----------|-----------|----------------------|
| | 10655653. | 31801177. | 40091387. slug*ft**2 |
| | 14447126. | 43116610. | 54356626. kg*m**2 |

Principal to body yaw, pitch, roll in a 3 2 1 sequence:

| | | | |
|--|------|------|---------------|
| | 5.87 | 1.16 | -3.15 degrees |
|--|------|------|---------------|

Center of Pressure:

(WRT CM)

| | | | |
|-----|-----------|-----------|-----------|
| | X ft | Y ft | Z ft |
| CPx | 0.00E+00 | -2.38E-01 | -5.88E+00 |
| CPy | -9.59E+00 | 0.00E+00 | 1.05E+00 |
| CPz | 2.37E+00 | -2.08E-01 | 0.00E+00 |
| | X m | Y m | Z m |
| CPx | 0.00E+00 | -7.27E-02 | -1.79E+00 |
| CPy | -2.92E+00 | 0.00E+00 | 3.19E-01 |
| CPz | 7.24E-01 | -6.33E-02 | 0.00E+00 |

Projected areas:

| | | | |
|--|---------|---------|---------------|
| | X | Y | Z |
| | 4028.48 | 3043.13 | 4559.39 ft**2 |
| | 374.26 | 282.72 | 423.58 m**2 |

*Off-diagonal elements are negative integrals

| | | | |
|--------------------------|-------------------------------------|-----------------|-------------|
| Technical Monitor | Title | | |
| Linda Jack (OM) | International Space Station Program | | |
| Approved By | Body 01 | | |
| De Los Reyes (CAMMP) | STEP 057 - 058 | | |
| Produced By | Contract | | |
| CAMMP | ISS Program Integration & Control | | |
| | NASA Center/Division | Revision | Date |
| | JSC/OM | AB | 01/30/2008 |

Total mass: 490250. lb
 222374. kg

Center of mass:

| | | | |
|--|--------|-------|----------|
| | X | Y | Z |
| | -10.43 | -3.61 | 12.34 ft |
| | -3.18 | -1.10 | 3.76 m |

Inertia Tensor*:

| | | | |
|--|-----------|------------|-----------|
| | | slug*ft**2 | |
| | 10668606. | 2263750. | -32275. |
| | 2263750. | 30245412. | -415558. |
| | -32275. | -415558. | 38859800. |
| | | kg*m**2 | |
| | 14464689. | 3069233. | -43759. |
| | 3069233. | 41007275. | -563421. |
| | -43759. | -563421. | 52686818. |

Principal moments of inertia (IXX, IYY, IZZ):

| | | | |
|--|-----------|-----------|----------------------|
| | 10410241. | 30483057. | 38880521. slug*ft**2 |
| | 14114392. | 41329478. | 52714911. kg*m**2 |

Principal to body yaw, pitch, roll in a 3 2 1 sequence:

| | | | |
|--|------|-----|---------------|
| | 6.51 | .29 | -2.83 degrees |
|--|------|-----|---------------|

Center of Pressure:
(WRT CM)

| | | | |
|-----|-----------|-----------|-----------|
| | X ft | Y ft | Z ft |
| CPx | 0.00E+00 | -4.23E-01 | -6.39E+00 |
| CPy | -1.25E+01 | 0.00E+00 | 3.82E-01 |
| CPz | 4.20E+00 | -1.32E-01 | 0.00E+00 |
| | X m | Y m | Z m |
| CPx | 0.00E+00 | -1.29E-01 | -1.95E+00 |
| CPy | -3.81E+00 | 0.00E+00 | 1.17E-01 |
| CPz | 1.28E+00 | -4.03E-02 | 0.00E+00 |

Projected areas:

| | | | |
|--|---------|---------|---------------|
| | X | Y | Z |
| | 3854.75 | 2880.66 | 4565.94 ft**2 |
| | 358.12 | 267.62 | 424.19 m**2 |

*Off-diagonal elements are negative integrals

| | | | |
|--------------------------|-------------------------------------|-----------------|-------------|
| Technical Monitor | Title | | |
| Linda Jack (OM) | International Space Station Program | | |
| Approved By | Body 01 | | |
| De Los Reyes (CAMMP) | STEP 059 - 061 | | |
| Produced By | Contract | | |
| CAMMP | ISS Program Integration & Control | | |
| | NASA Center/Division | Revision | Date |
| | JSC/OM | AB | 01/30/2008 |

Total mass: 487373. lb
 221069. kg

Center of mass:

| | | | |
|--|--------|-------|----------|
| | X | Y | Z |
| | -10.17 | -3.61 | 12.34 ft |
| | -3.10 | -1.10 | 3.76 m |

Inertia Tensor*:

| | | | |
|--|-----------|------------|-----------|
| | | slug*ft**2 | |
| | 10667287. | 2249285. | -37629. |
| | 2249285. | 30065025. | -415128. |
| | -37629. | -415128. | 38678411. |
| | | kg*m**2 | |
| | 14462900. | 3049621. | -51018. |
| | 3049621. | 40762703. | -562838. |
| | -51018. | -562838. | 52440888. |

Principal moments of inertia (IXX, IYY, IZZ):

| | | | |
|--|-----------|-----------|----------------------|
| | 10409881. | 30301697. | 38699145. slug*ft**2 |
| | 14113904. | 41083588. | 52468999. kg*m**2 |

Principal to body yaw, pitch, roll in a 3 2 1 sequence:

| | | | |
|--|------|-----|---------------|
| | 6.52 | .30 | -2.83 degrees |
|--|------|-----|---------------|

Center of Pressure:

(WRT CM)

| | | | |
|-----|-----------|-----------|-----------|
| | X ft | Y ft | Z ft |
| CPx | 0.00E+00 | -4.23E-01 | -6.39E+00 |
| CPy | -1.28E+01 | 0.00E+00 | 3.82E-01 |
| CPz | 3.94E+00 | -1.32E-01 | 0.00E+00 |
| | X m | Y m | Z m |
| CPx | 0.00E+00 | -1.29E-01 | -1.95E+00 |
| CPy | -3.89E+00 | 0.00E+00 | 1.17E-01 |
| CPz | 1.20E+00 | -4.03E-02 | 0.00E+00 |

Projected areas:

| | | | |
|--|---------|---------|---------------|
| | X | Y | Z |
| | 3854.75 | 2880.66 | 4565.94 ft**2 |
| | 358.12 | 267.62 | 424.19 m**2 |

*Off-diagonal elements are negative integrals

| | | | |
|--------------------------|-------------------------------------|-----------------|-------------|
| Technical Monitor | Title | | |
| Linda Jack (OM) | International Space Station Program | | |
| Approved By | Body 01 | | |
| De Los Reyes (CAMMP) | STEP 062 - 063 | | |
| Produced By | Contract | | |
| CAMMP | ISS Program Integration & Control | | |
| | NASA Center/Division | Revision | Date |
| | JSC/OM | AB | 01/30/2008 |

Total mass: 487236. lb
 221007. kg

Center of mass:

| | | | |
|--|--------|-------|----------|
| | X | Y | Z |
| | -10.14 | -3.61 | 12.34 ft |
| | -3.09 | -1.10 | 3.76 m |

Inertia Tensor*:

| | | | |
|--|-----------|------------|-----------|
| | | slug*ft**2 | |
| | 10667223. | 2248593. | -37885. |
| | 2248593. | 30056402. | -415108. |
| | -37885. | -415108. | 38669740. |
| | | kg*m**2 | |
| | 14462814. | 3048683. | -51365. |
| | 3048683. | 40751012. | -562811. |
| | -51365. | -562811. | 52429131. |

Principal moments of inertia (IXX, IYY, IZZ):

| | | | |
|--|-----------|-----------|----------------------|
| | 10409863. | 30293028. | 38690474. slug*ft**2 |
| | 14113881. | 41071833. | 52457243. kg*m**2 |

Principal to body yaw, pitch, roll in a 3 2 1 sequence:

| | | | |
|--|------|-----|---------------|
| | 6.52 | .30 | -2.83 degrees |
|--|------|-----|---------------|

Center of Pressure:

(WRT CM)

| | | | |
|-----|-----------|-----------|-----------|
| | X ft | Y ft | Z ft |
| CPx | 0.00E+00 | -4.23E-01 | -6.39E+00 |
| CPy | -1.28E+01 | 0.00E+00 | 3.82E-01 |
| CPz | 3.90E+00 | -1.32E-01 | 0.00E+00 |
| | X m | Y m | Z m |
| CPx | 0.00E+00 | -1.29E-01 | -1.95E+00 |
| CPy | -3.90E+00 | 0.00E+00 | 1.17E-01 |
| CPz | 1.19E+00 | -4.03E-02 | 0.00E+00 |

Projected areas:

| | | | |
|--|---------|---------|---------------|
| | X | Y | Z |
| | 3854.75 | 2880.66 | 4565.94 ft**2 |
| | 358.12 | 267.62 | 424.19 m**2 |

*Off-diagonal elements are negative integrals

| | | | |
|--------------------------|-------------------------------------|-----------------|-------------|
| Technical Monitor | Title | | |
| Linda Jack (OM) | International Space Station Program | | |
| Approved By | Body 01 | | |
| De Los Reyes (CAMMP) | STEP 064 - 065 | | |
| Produced By | Contract | | |
| CAMMP | ISS Program Integration & Control | | |
| | NASA Center/Division | Revision | Date |
| | JSC/OM | AB | 01/30/2008 |

Total mass: 491511. lb
 222946. kg

Center of mass:

| | | | |
|--|-------|-------|----------|
| | X | Y | Z |
| | -9.78 | -3.90 | 12.40 ft |
| | -2.98 | -1.19 | 3.78 m |

Inertia Tensor*:

| | | | |
|--|-----------|------------|-----------|
| | | slug*ft**2 | |
| | 10865815. | 2446035. | -81467. |
| | 2446035. | 30310456. | -375166. |
| | -81467. | -375166. | 39103936. |
| | | kg*m**2 | |
| | 14732068. | 3316379. | -110455. |
| | 3316379. | 41095463. | -508657. |
| | -110455. | -508657. | 53017822. |

Principal moments of inertia (I_{XX}, I_{YY}, I_{ZZ}):

| | | | |
|--|-----------|-----------|----------------------|
| | 10562795. | 30596252. | 39121160. slug*ft**2 |
| | 14321228. | 41482950. | 53041175. kg*m**2 |

Principal to body yaw, pitch, roll in a 3 2 1 sequence:

| | | | |
|--|------|-----|---------------|
| | 7.05 | .39 | -2.55 degrees |
|--|------|-----|---------------|

Center of Pressure:

(WRT CM)

| | | | |
|-----|-----------|-----------|-----------|
| | X ft | Y ft | Z ft |
| CPx | 0.00E+00 | -1.28E-01 | -6.46E+00 |
| CPy | -1.32E+01 | 0.00E+00 | 3.17E-01 |
| CPz | 3.54E+00 | 1.63E-01 | 0.00E+00 |
| | X m | Y m | Z m |
| CPx | 0.00E+00 | -3.89E-02 | -1.97E+00 |
| CPy | -4.01E+00 | 0.00E+00 | 9.66E-02 |
| CPz | 1.08E+00 | 4.97E-02 | 0.00E+00 |

Projected areas:

| | | | |
|--|---------|---------|---------------|
| | X | Y | Z |
| | 3854.75 | 2880.66 | 4565.94 ft**2 |
| | 358.12 | 267.62 | 424.19 m**2 |

*Off-diagonal elements are negative integrals

| | | | |
|--------------------------|-------------------------------------|-----------------|-------------|
| Technical Monitor | Title | | |
| Linda Jack (OM) | International Space Station Program | | |
| Approved By | Body 01 | | |
| De Los Reyes (CAMMP) | STEP 066 | | |
| Produced By | Contract | | |
| CAMMP | ISS Program Integration & Control | | |
| | NASA Center/Division | Revision | Date |
| | JSC/OM | AB | 01/30/2008 |

Total mass: 499794. lb
 226703. kg

Center of mass:

| | | | |
|--|--------|-------|----------|
| | X | Y | Z |
| | -10.93 | -3.84 | 12.24 ft |
| | -3.33 | -1.17 | 3.73 m |

Inertia Tensor*:

| | | | |
|--|-----------|------------|-----------|
| | | slug*ft**2 | |
| | 10897706. | 2499917. | -246204. |
| | 2499917. | 31523237. | -367554. |
| | -246204. | -367554. | 40294181. |
| | | kg*m**2 | |
| | 14775306. | 3389433. | -333808. |
| | 3389433. | 42739774. | -498336. |
| | -333808. | -498336. | 54631578. |

Principal moments of inertia (I_{XX}, I_{YY}, I_{ZZ}):

| | | | |
|--|-----------|-----------|----------------------|
| | 10597669. | 31803620. | 40313835. slug*ft**2 |
| | 14368511. | 43119922. | 54658225. kg*m**2 |

Principal to body yaw, pitch, roll in a 3 2 1 sequence:

| | | | |
|--|------|-----|---------------|
| | 6.78 | .70 | -2.59 degrees |
|--|------|-----|---------------|

Center of Pressure:

(WRT CM)

| | | | |
|-----|-----------|-----------|-----------|
| | X ft | Y ft | Z ft |
| CPx | 0.00E+00 | -1.93E-01 | -6.29E+00 |
| CPy | -1.40E+01 | 0.00E+00 | 1.44E-01 |
| CPz | 4.38E+00 | 1.18E-01 | 0.00E+00 |
| | X m | Y m | Z m |
| CPx | 0.00E+00 | -5.89E-02 | -1.92E+00 |
| CPy | -4.26E+00 | 0.00E+00 | 4.39E-02 |
| CPz | 1.34E+00 | 3.60E-02 | 0.00E+00 |

Projected areas:

| | | | |
|--|---------|---------|---------------|
| | X | Y | Z |
| | 3855.26 | 2989.08 | 4586.05 ft**2 |
| | 358.17 | 277.69 | 426.06 m**2 |

*Off-diagonal elements are negative integrals

| | | | |
|--------------------------|-------------------------------------|-----------------|-------------|
| Technical Monitor | Title | | |
| Linda Jack (OM) | International Space Station Program | | |
| Approved By | Body 01 | | |
| De Los Reyes (CAMMP) | STEP 067 | | |
| Produced By | Contract | | |
| CAMMP | ISS Program Integration & Control | | |
| | NASA Center/Division | Revision | Date |
| | JSC/OM | AB | 01/30/2008 |

Total mass: 501410. lb
 227436. kg

Center of mass:

| | | | |
|--|--------|-------|----------|
| | X | Y | Z |
| | -11.06 | -3.84 | 12.24 ft |
| | -3.37 | -1.17 | 3.73 m |

Inertia Tensor*:

| | | | |
|--|-----------|------------|-----------|
| | | slug*ft**2 | |
| | 10898546. | 2508421. | -243030. |
| | 2508421. | 31621428. | -367829. |
| | -243030. | -367829. | 40393007. |
| | | kg*m**2 | |
| | 14776445. | 3400962. | -329505. |
| | 3400962. | 42872903. | -498709. |
| | -329505. | -498709. | 54765567. |

Principal moments of inertia (IXX, IYY, IZZ):

| | | | |
|--|-----------|-----------|----------------------|
| | 10597922. | 31902457. | 40412602. slug*ft**2 |
| | 14368854. | 43253927. | 54792134. kg*m**2 |

Principal to body yaw, pitch, roll in a 3 2 1 sequence:

| | | | |
|--|------|-----|---------------|
| | 6.77 | .69 | -2.59 degrees |
|--|------|-----|---------------|

Center of Pressure:

(WRT CM)

| | | | |
|-----|-----------|-----------|-----------|
| | X ft | Y ft | Z ft |
| CPx | 0.00E+00 | -1.93E-01 | -6.29E+00 |
| CPy | -1.39E+01 | 0.00E+00 | 1.44E-01 |
| CPz | 4.51E+00 | 1.18E-01 | 0.00E+00 |
| | X m | Y m | Z m |
| CPx | 0.00E+00 | -5.89E-02 | -1.92E+00 |
| CPy | -4.22E+00 | 0.00E+00 | 4.39E-02 |
| CPz | 1.38E+00 | 3.60E-02 | 0.00E+00 |

Projected areas:

| | | | |
|--|---------|---------|---------------|
| | X | Y | Z |
| | 3855.26 | 2989.08 | 4586.05 ft**2 |
| | 358.17 | 277.69 | 426.06 m**2 |

*Off-diagonal elements are negative integrals

| | | | |
|--------------------------|-------------------------------------|-----------------|-------------|
| Technical Monitor | Title | | |
| Linda Jack (OM) | International Space Station Program | | |
| Approved By | Body 01 | | |
| De Los Reyes (CAMMP) | STEP 068 - 069 | | |
| Produced By | Contract | | |
| CAMMP | ISS Program Integration & Control | | |
| | NASA Center/Division | Revision | Date |
| | JSC/OM | AB | 01/30/2008 |

Total mass: 501273. lb
 227374. kg

Center of mass:

| | | | |
|--|--------|-------|----------|
| | X | Y | Z |
| | -11.06 | -3.84 | 12.24 ft |
| | -3.37 | -1.17 | 3.73 m |

Inertia Tensor*:

| | | | |
|--|-----------|------------|-----------|
| | | slug*ft**2 | |
| | 10898475. | 2507704. | -243298. |
| | 2507704. | 31613147. | -367805. |
| | -243298. | -367805. | 40384672. |
| | | kg*m**2 | |
| | 14776349. | 3399990. | -329868. |
| | 3399990. | 42861675. | -498677. |
| | -329868. | -498677. | 54754267. |

Principal moments of inertia (IXX, IYY, IZZ):

| | | | |
|--|-----------|-----------|----------------------|
| | 10597901. | 31894121. | 40404272. slug*ft**2 |
| | 14368825. | 43242625. | 54780841. kg*m**2 |

Principal to body yaw, pitch, roll in a 3 2 1 sequence:

| | | | |
|--|------|-----|---------------|
| | 6.77 | .69 | -2.59 degrees |
|--|------|-----|---------------|

Center of Pressure:

(WRT CM)

| | | | |
|-----|-----------|-----------|-----------|
| | X ft | Y ft | Z ft |
| CPx | 0.00E+00 | -1.93E-01 | -6.29E+00 |
| CPy | -1.39E+01 | 0.00E+00 | 1.44E-01 |
| CPz | 4.51E+00 | 1.18E-01 | 0.00E+00 |
| | X m | Y m | Z m |
| CPx | 0.00E+00 | -5.89E-02 | -1.92E+00 |
| CPy | -4.22E+00 | 0.00E+00 | 4.39E-02 |
| CPz | 1.38E+00 | 3.60E-02 | 0.00E+00 |

Projected areas:

| | | | |
|--|---------|---------|---------------|
| | X | Y | Z |
| | 3855.26 | 2989.08 | 4586.05 ft**2 |
| | 358.17 | 277.69 | 426.06 m**2 |

*Off-diagonal elements are negative integrals

| | | | |
|--------------------------|-------------------------------------|-----------------|-------------|
| Technical Monitor | Title | | |
| Linda Jack (OM) | International Space Station Program | | |
| Approved By | Body 01 | | |
| De Los Reyes (CAMMP) | STEP 070 | | |
| Produced By | Contract | | |
| CAMMP | ISS Program Integration & Control | | |
| | NASA Center/Division | Revision | Date |
| | JSC/OM | AB | 01/30/2008 |

Total mass: 498154. lb
 225959. kg

Center of mass:

| | | | |
|--|--------|-------|----------|
| | X | Y | Z |
| | -11.25 | -3.90 | 12.14 ft |
| | -3.43 | -1.19 | 3.70 m |

Inertia Tensor*:

| | | | |
|--|-----------|------------|-----------|
| | | slug*ft**2 | |
| | 10846050. | 2540131. | -186788. |
| | 2540131. | 31474309. | -346686. |
| | -186788. | -346686. | 40270075. |
| | | kg*m**2 | |
| | 14705270. | 3443956. | -253250. |
| | 3443956. | 42673436. | -470043. |
| | -253250. | -470043. | 54598894. |

Principal moments of inertia (IXX, IYY, IZZ):

| | | | |
|--|-----------|-----------|----------------------|
| | 10537172. | 31766684. | 40286578. slug*ft**2 |
| | 14286488. | 43069844. | 54621269. kg*m**2 |

Principal to body yaw, pitch, roll in a 3 2 1 sequence:

| | | | |
|--|------|-----|---------------|
| | 6.89 | .57 | -2.42 degrees |
|--|------|-----|---------------|

Center of Pressure:

(WRT CM)

| | | | |
|-----|-----------|-----------|-----------|
| | X ft | Y ft | Z ft |
| CPx | 0.00E+00 | -4.70E-01 | -6.81E+00 |
| CPy | -1.45E+01 | 0.00E+00 | -4.52E-01 |
| CPz | 4.42E+00 | 2.05E-01 | 0.00E+00 |
| | X m | Y m | Z m |
| CPx | 0.00E+00 | -1.43E-01 | -2.08E+00 |
| CPy | -4.43E+00 | 0.00E+00 | -1.38E-01 |
| CPz | 1.35E+00 | 6.25E-02 | 0.00E+00 |

Projected areas:

| | | | |
|--|---------|---------|---------------|
| | X | Y | Z |
| | 3811.05 | 2884.59 | 4579.16 ft**2 |
| | 354.06 | 267.99 | 425.42 m**2 |

*Off-diagonal elements are negative integrals

| | | | |
|--------------------------|-------------------------------------|-----------------|-------------|
| Technical Monitor | Title | | |
| Linda Jack (OM) | International Space Station Program | | |
| Approved By | Body 01 | | |
| De Los Reyes (CAMMP) | STEP 071 - 072 | | |
| Produced By | Contract | | |
| CAMMP | ISS Program Integration & Control | | |
| | NASA Center/Division | Revision | Date |
| | JSC/OM | AB | 01/30/2008 |

Total mass: 524111. lb
 237733. kg

Center of mass:

| | | | |
|--|--------|-------|----------|
| | X | Y | Z |
| | -10.83 | -3.35 | 11.48 ft |
| | -3.30 | -1.02 | 3.50 m |

Inertia Tensor*:

| | | | |
|--|-----------|------------|-----------|
| | | slug*ft**2 | |
| | 16535518. | 2467490. | -99498. |
| | 2467490. | 31927909. | 710438. |
| | -99498. | 710438. | 45658791. |
| | | kg*m**2 | |
| | 22419153. | 3345468. | -134901. |
| | 3345468. | 43288435. | 963224. |
| | -134901. | 963224. | 61905013. |

Principal moments of inertia (I_{XX}, I_{YY}, I_{ZZ}):

| | | | |
|--|-----------|-----------|----------------------|
| | 16148170. | 32278570. | 45695479. slug*ft**2 |
| | 21893980. | 43763867. | 61954754. kg*m**2 |

Principal to body yaw, pitch, roll in a 3 2 1 sequence:

| | | | |
|--|------|------|--------------|
| | 8.91 | -.06 | 2.96 degrees |
|--|------|------|--------------|

Center of Pressure:
(WRT CM)

| | | | |
|-----|-----------|-----------|-----------|
| | X ft | Y ft | Z ft |
| CPx | 0.00E+00 | -4.81E-01 | -6.53E+00 |
| CPy | -1.41E+01 | 0.00E+00 | -8.53E-01 |
| CPz | 3.98E+00 | 7.81E-02 | 0.00E+00 |
| | X m | Y m | Z m |
| CPx | 0.00E+00 | -1.46E-01 | -1.99E+00 |
| CPy | -4.29E+00 | 0.00E+00 | -2.60E-01 |
| CPz | 1.21E+00 | 2.38E-02 | 0.00E+00 |

Projected areas:

| | | | |
|--|---------|---------|---------------|
| | X | Y | Z |
| | 4035.95 | 3013.18 | 4637.99 ft**2 |
| | 374.95 | 279.93 | 430.88 m**2 |

*Off-diagonal elements are negative integrals

| | | | |
|--------------------------|-------------------------------------|-----------------|-------------|
| Technical Monitor | Title | | |
| Linda Jack (OM) | International Space Station Program | | |
| Approved By | Body 01 | | |
| De Los Reyes (CAMMP) | STEP 073 - 074 | | |
| Produced By | Contract | | |
| CAMMP | ISS Program Integration & Control | | |
| | NASA Center/Division | Revision | Date |
| | JSC/OM | AB | 01/30/2008 |

Total mass: 523910. lb
 237642. kg

Center of mass:

| | | | |
|--|--------|-------|----------|
| | X | Y | Z |
| | -10.83 | -3.35 | 11.48 ft |
| | -3.30 | -1.02 | 3.50 m |

Inertia Tensor*:

| | | | |
|--|-----------|------------|-----------|
| | | slug*ft**2 | |
| | 16535417. | 2466561. | -100106. |
| | 2466561. | 31915607. | 710484. |
| | -100106. | 710484. | 45646450. |
| | | kg*m**2 | |
| | 22419016. | 3344208. | -135726. |
| | 3344208. | 43271756. | 963287. |
| | -135726. | 963287. | 61888280. |

Principal moments of inertia (IXX, IYY, IZZ):

| | | | | |
|--|-----------|-----------|-----------|------------|
| | 16148051. | 32266282. | 45683141. | slug*ft**2 |
| | 21893819. | 43747207. | 61938026. | kg*m**2 |

Principal to body yaw, pitch, roll in a 3 2 1 sequence:

| | | | |
|--|------|------|--------------|
| | 8.92 | -.05 | 2.96 degrees |
|--|------|------|--------------|

Center of Pressure:

(WRT CM)

| | | | |
|-----|-----------|-----------|-----------|
| | X ft | Y ft | Z ft |
| CPx | 0.00E+00 | -4.81E-01 | -6.53E+00 |
| CPy | -1.41E+01 | 0.00E+00 | -8.53E-01 |
| CPz | 3.98E+00 | 7.81E-02 | 0.00E+00 |
| | X m | Y m | Z m |
| CPx | 0.00E+00 | -1.46E-01 | -1.99E+00 |
| CPy | -4.29E+00 | 0.00E+00 | -2.60E-01 |
| CPz | 1.21E+00 | 2.38E-02 | 0.00E+00 |

Projected areas:

| | | | |
|--|---------|---------|---------------|
| | X | Y | Z |
| | 4035.95 | 3013.18 | 4637.99 ft**2 |
| | 374.95 | 279.93 | 430.88 m**2 |

*Off-diagonal elements are negative integrals

| | | | |
|--------------------------|-------------------------------------|-----------------|-------------|
| Technical Monitor | Title | | |
| Linda Jack (OM) | International Space Station Program | | |
| Approved By | Body 01 | | |
| De Los Reyes (CAMMP) | STEP 075 | | |
| Produced By | Contract | | |
| CAMMP | ISS Program Integration & Control | | |
| | NASA Center/Division | Revision | Date |
| | JSC/OM | AB | 01/30/2008 |

Total mass: 524116. lb
 237735. kg

Center of mass:

| | | | |
|--|--------|-------|----------|
| | X | Y | Z |
| | -10.83 | -3.35 | 11.48 ft |
| | -3.30 | -1.02 | 3.50 m |

Inertia Tensor*:

| | | | |
|--|-----------|------------|-----------|
| | | slug*ft**2 | |
| | 16535520. | 2467510. | -99485. |
| | 2467510. | 31928179. | 710437. |
| | -99485. | 710437. | 45659063. |
| | | kg*m**2 | |
| | 22419156. | 3345495. | -134883. |
| | 3345495. | 43288801. | 963223. |
| | -134883. | 963223. | 61905381. |

Principal moments of inertia (IXX, IYY, IZZ):

| | | | |
|--|-----------|-----------|----------------------|
| | 16148172. | 32278839. | 45695750. slug*ft**2 |
| | 21893984. | 43764232. | 61955122. kg*m**2 |

Principal to body yaw, pitch, roll in a 3 2 1 sequence:

| | | | |
|--|------|-------|--------------|
| | 8.91 | -0.06 | 2.96 degrees |
|--|------|-------|--------------|

Center of Pressure:
(WRT CM)

| | | | |
|-----|-----------|-----------|-----------|
| | X ft | Y ft | Z ft |
| CPx | 0.00E+00 | -4.81E-01 | -6.53E+00 |
| CPy | -1.41E+01 | 0.00E+00 | -8.53E-01 |
| CPz | 3.98E+00 | 7.81E-02 | 0.00E+00 |
| | X m | Y m | Z m |
| CPx | 0.00E+00 | -1.46E-01 | -1.99E+00 |
| CPy | -4.29E+00 | 0.00E+00 | -2.60E-01 |
| CPz | 1.21E+00 | 2.38E-02 | 0.00E+00 |

Projected areas:

| | | | |
|--|---------|---------|---------------|
| | X | Y | Z |
| | 4035.95 | 3013.18 | 4637.99 ft**2 |
| | 374.95 | 279.93 | 430.88 m**2 |

*Off-diagonal elements are negative integrals

| | | | |
|--------------------------|-------------------------------------|-----------------|-------------|
| Technical Monitor | Title | | |
| Linda Jack (OM) | International Space Station Program | | |
| Approved By | Body 01 | | |
| De Los Reyes (CAMMP) | STEP 076 | | |
| Produced By | Contract | | |
| CAMMP | ISS Program Integration & Control | | |
| | NASA Center/Division | Revision | Date |
| | JSC/OM | AB | 01/30/2008 |

Total mass: 523977. lb
 237672. kg

Center of mass:

| | | | |
|--|--------|-------|----------|
| | X | Y | Z |
| | -10.83 | -3.35 | 11.48 ft |
| | -3.30 | -1.02 | 3.50 m |

Inertia Tensor*:

| | | | |
|--|-----------|------------|-----------|
| | | slug*ft**2 | |
| | 16535450. | 2466867. | -99906. |
| | 2466867. | 31919664. | 710468. |
| | -99906. | 710468. | 45650520. |
| | | kg*m**2 | |
| | 22419061. | 3344623. | -135454. |
| | 3344623. | 43277256. | 963266. |
| | -135454. | 963266. | 61893798. |

Principal moments of inertia (IXX, IYY, IZZ):

| | | | |
|--|-----------|-----------|----------------------|
| | 16148090. | 32270334. | 45687209. slug*ft**2 |
| | 21893872. | 43752700. | 61943542. kg*m**2 |

Principal to body yaw, pitch, roll in a 3 2 1 sequence:

| | | | |
|--|------|------|--------------|
| | 8.92 | -.05 | 2.96 degrees |
|--|------|------|--------------|

Center of Pressure:

(WRT CM)

| | | | |
|-----|-----------|-----------|-----------|
| | X ft | Y ft | Z ft |
| CPx | 0.00E+00 | -4.81E-01 | -6.53E+00 |
| CPy | -1.41E+01 | 0.00E+00 | -8.53E-01 |
| CPz | 3.98E+00 | 7.81E-02 | 0.00E+00 |
| | X m | Y m | Z m |
| CPx | 0.00E+00 | -1.46E-01 | -1.99E+00 |
| CPy | -4.29E+00 | 0.00E+00 | -2.60E-01 |
| CPz | 1.21E+00 | 2.38E-02 | 0.00E+00 |

Projected areas:

| | | | |
|--|---------|---------|---------------|
| | X | Y | Z |
| | 4035.95 | 3013.18 | 4637.99 ft**2 |
| | 374.95 | 279.93 | 430.88 m**2 |

*Off-diagonal elements are negative integrals

| | | | |
|--------------------------|-------------------------------------|-----------------|-------------|
| Technical Monitor | Title | | |
| Linda Jack (OM) | International Space Station Program | | |
| Approved By | Body 01 | | |
| De Los Reyes (CAMMP) | STEP 077 - 078 | | |
| Produced By | Contract | | |
| CAMMP | ISS Program Integration & Control | | |
| | NASA Center/Division | Revision | Date |
| | JSC/OM | AB | 01/30/2008 |

Total mass: 523776. lb
 237581. kg

Center of mass:

| | | | |
|--|--------|-------|----------|
| | X | Y | Z |
| | -10.79 | -3.35 | 11.48 ft |
| | -3.29 | -1.02 | 3.50 m |

Inertia Tensor*:

| | | | |
|--|-----------|------------|-----------|
| | | slug*ft**2 | |
| | 16535349. | 2465938. | -100514. |
| | 2465938. | 31907356. | 710515. |
| | -100514. | 710515. | 45638172. |
| | | kg*m**2 | |
| | 22418925. | 3343363. | -136279. |
| | 3343363. | 43260569. | 963329. |
| | -136279. | 963329. | 61877057. |

Principal moments of inertia (IXX, IYY, IZZ):

| | | | |
|--|-----------|-----------|----------------------|
| | 16147972. | 32258040. | 45674865. slug*ft**2 |
| | 21893712. | 43736032. | 61926806. kg*m**2 |

Principal to body yaw, pitch, roll in a 3 2 1 sequence:

| | | | |
|--|------|------|--------------|
| | 8.92 | -.05 | 2.96 degrees |
|--|------|------|--------------|

Center of Pressure:

(WRT CM)

| | | | |
|-----|-----------|-----------|-----------|
| | X ft | Y ft | Z ft |
| CPx | 0.00E+00 | -4.81E-01 | -6.53E+00 |
| CPy | -1.41E+01 | 0.00E+00 | -8.53E-01 |
| CPz | 3.95E+00 | 7.81E-02 | 0.00E+00 |
| | X m | Y m | Z m |
| CPx | 0.00E+00 | -1.46E-01 | -1.99E+00 |
| CPy | -4.30E+00 | 0.00E+00 | -2.60E-01 |
| CPz | 1.20E+00 | 2.38E-02 | 0.00E+00 |

Projected areas:

| | | | |
|--|---------|---------|---------------|
| | X | Y | Z |
| | 4035.95 | 3013.18 | 4637.99 ft**2 |
| | 374.95 | 279.93 | 430.88 m**2 |

*Off-diagonal elements are negative integrals

| | | | |
|--------------------------|-------------------------------------|-----------------|-------------|
| Technical Monitor | Title | | |
| Linda Jack (OM) | International Space Station Program | | |
| Approved By | Body 01 | | |
| De Los Reyes (CAMMP) | STEP 079 | | |
| Produced By | Contract | | |
| CAMMP | ISS Program Integration & Control | | |
| | NASA Center/Division | Revision | Date |
| | JSC/OM | AB | 01/30/2008 |

Total mass: 527123. lb
 239099. kg

Center of mass:

| | | | |
|--|--------|-------|----------|
| | X | Y | Z |
| | -10.60 | -3.28 | 11.58 ft |
| | -3.23 | -1.00 | 3.53 m |

Inertia Tensor*:

| | | | |
|--|-----------|------------|-----------|
| | | slug*ft**2 | |
| | 16590445. | 2436007. | -158450. |
| | 2436007. | 32046191. | 690268. |
| | -158450. | 690268. | 45749911. |
| | | kg*m**2 | |
| | 22493625. | 3302782. | -214830. |
| | 3302782. | 43448804. | 935878. |
| | -214830. | 935878. | 62028555. |

Principal moments of inertia (IXX, IYY, IZZ):

| | | | |
|--|-----------|-----------|----------------------|
| | 16213275. | 32388635. | 45784638. slug*ft**2 |
| | 21982250. | 43913096. | 62075638. kg*m**2 |

Principal to body yaw, pitch, roll in a 3 2 1 sequence:

| | | | |
|--|------|-----|--------------|
| | 8.78 | .07 | 2.86 degrees |
|--|------|-----|--------------|

Center of Pressure:

(WRT CM)

| | | | |
|-----|-----------|-----------|-----------|
| | X ft | Y ft | Z ft |
| CPx | 0.00E+00 | -4.14E-01 | -6.06E+00 |
| CPy | -1.31E+01 | 0.00E+00 | -2.48E-01 |
| CPz | 4.05E+00 | -1.36E-02 | 0.00E+00 |
| | X m | Y m | Z m |
| CPx | 0.00E+00 | -1.26E-01 | -1.85E+00 |
| CPy | -3.99E+00 | 0.00E+00 | -7.55E-02 |
| CPz | 1.23E+00 | -4.14E-03 | 0.00E+00 |

Projected areas:

| | | | |
|--|---------|---------|---------------|
| | X | Y | Z |
| | 4093.79 | 3090.13 | 4646.38 ft**2 |
| | 380.33 | 287.08 | 431.66 m**2 |

*Off-diagonal elements are negative integrals

| | | | |
|--------------------------|-------------------------------------|-----------------|-------------|
| Technical Monitor | Title | | |
| Linda Jack (OM) | International Space Station Program | | |
| Approved By | Body 01 | | |
| De Los Reyes (CAMMP) | STEP 080 | | |
| Produced By | Contract | | |
| CAMMP | ISS Program Integration & Control | | |
| | NASA Center/Division | Revision | Date |
| | JSC/OM | AB | 01/30/2008 |

Total mass: 550465. lb
 249686. kg

Center of mass:

| | | | |
|--|-------|-------|----------|
| | X | Y | Z |
| | -8.69 | -3.31 | 12.30 ft |
| | -2.65 | -1.01 | 3.75 m |

Inertia Tensor*:

| | | | |
|--|-----------|------------|-----------|
| | | slug*ft**2 | |
| | 16886382. | 2436146. | -697810. |
| | 2436146. | 33767826. | 656006. |
| | -697810. | 656006. | 47270995. |
| | | kg*m**2 | |
| | 22894862. | 3302971. | -946104. |
| | 3302971. | 45783028. | 889425. |
| | -946104. | 889425. | 64090868. |

Principal moments of inertia (IXX, IYY, IZZ):

| | | | |
|--|-----------|-----------|----------------------|
| | 16521916. | 34089313. | 47313975. slug*ft**2 |
| | 22400712. | 46218905. | 64149141. kg*m**2 |

Principal to body yaw, pitch, roll in a 3 2 1 sequence:

| | | | |
|--|------|------|--------------|
| | 8.15 | 1.11 | 2.57 degrees |
|--|------|------|--------------|

Center of Pressure:

(WRT CM)

| | | | |
|-----|-----------|-----------|-----------|
| | X ft | Y ft | Z ft |
| CPx | 0.00E+00 | -3.10E-01 | -5.52E+00 |
| CPy | -1.02E+01 | 0.00E+00 | 8.42E-01 |
| CPz | 2.03E+00 | -7.75E-02 | 0.00E+00 |
| | X m | Y m | Z m |
| CPx | 0.00E+00 | -9.44E-02 | -1.68E+00 |
| CPy | -3.11E+00 | 0.00E+00 | 2.57E-01 |
| CPz | 6.20E-01 | -2.36E-02 | 0.00E+00 |

Projected areas:

| | | | |
|--|---------|---------|---------------|
| | X | Y | Z |
| | 4267.67 | 3360.72 | 4634.37 ft**2 |
| | 396.48 | 312.22 | 430.55 m**2 |

*Off-diagonal elements are negative integrals

| | | | |
|--------------------------|-------------------------------------|-----------------|-------------|
| Technical Monitor | Title | | |
| Linda Jack (OM) | International Space Station Program | | |
| Approved By | Body 01 | | |
| De Los Reyes (CAMMP) | STEP 081 - 082 | | |
| Produced By | Contract | | |
| CAMMP | ISS Program Integration & Control | | |
| | NASA Center/Division | Revision | Date |
| | JSC/OM | AB | 01/30/2008 |

Total mass: 532496. lb
 241536. kg

Center of mass:

| | | | |
|--|--------|-------|----------|
| | X | Y | Z |
| | -10.24 | -3.41 | 11.61 ft |
| | -3.12 | -1.04 | 3.54 m |

Inertia Tensor*:

| | | | |
|--|-----------|------------|-----------|
| | | slug*ft**2 | |
| | 16633641. | 2503638. | -179237. |
| | 2503638. | 32325503. | 685361. |
| | -179237. | 685361. | 46058527. |
| | | kg*m**2 | |
| | 22552190. | 3394477. | -243013. |
| | 3394477. | 43827500. | 929225. |
| | -243013. | 929225. | 62446982. |

Principal moments of inertia (I_{XX}, I_{YY}, I_{ZZ}):

| | | | |
|--|-----------|-----------|----------------------|
| | 16241187. | 32683735. | 46092749. slug*ft**2 |
| | 22020095. | 44313197. | 62493380. kg*m**2 |

Principal to body yaw, pitch, roll in a 3 2 1 sequence:

| | | | |
|--|------|-----|--------------|
| | 8.89 | .11 | 2.83 degrees |
|--|------|-----|--------------|

Center of Pressure:

(WRT CM)

| | | | |
|-----|-----------|-----------|-----------|
| | X ft | Y ft | Z ft |
| CPx | 0.00E+00 | -3.81E-01 | -6.11E+00 |
| CPy | -1.34E+01 | 0.00E+00 | -2.80E-01 |
| CPz | 3.57E+00 | 2.08E-02 | 0.00E+00 |
| | X m | Y m | Z m |
| CPx | 0.00E+00 | -1.16E-01 | -1.86E+00 |
| CPy | -4.10E+00 | 0.00E+00 | -8.55E-02 |
| CPz | 1.09E+00 | 6.35E-03 | 0.00E+00 |

Projected areas:

| | | | |
|--|---------|---------|---------------|
| | X | Y | Z |
| | 4083.02 | 3090.13 | 4634.20 ft**2 |
| | 379.33 | 287.08 | 430.53 m**2 |

*Off-diagonal elements are negative integrals

| | | | |
|--------------------------|-------------------------------------|-----------------|-------------|
| Technical Monitor | Title | | |
| Linda Jack (OM) | International Space Station Program | | |
| Approved By | Body 01 | | |
| De Los Reyes (CAMMP) | STEP 083 - 086 | | |
| Produced By | Contract | | |
| CAMMP | ISS Program Integration & Control | | |
| | NASA Center/Division | Revision | Date |
| | JSC/OM | AB | 01/30/2008 |

Total mass: 534945. lb
 242647. kg

Center of mass:

| | | | |
|--|--------|-------|----------|
| | X | Y | Z |
| | -10.43 | -3.41 | 11.61 ft |
| | -3.18 | -1.04 | 3.54 m |

Inertia Tensor*:

| | | | |
|--|-----------|------------|-----------|
| | | slug*ft**2 | |
| | 16634847. | 2515270. | -172218. |
| | 2515270. | 32478957. | 684828. |
| | -172218. | 684828. | 46212543. |
| | | kg*m**2 | |
| | 22553825. | 3410249. | -233496. |
| | 3410249. | 44035556. | 928502. |
| | -233496. | 928502. | 62655799. |

Principal moments of inertia (IXX, IYY, IZZ):

| | | | |
|--|-----------|-----------|----------------------|
| | 16242604. | 32837059. | 46246683. slug*ft**2 |
| | 22022016. | 44521077. | 62702087. kg*m**2 |

Principal to body yaw, pitch, roll in a 3 2 1 sequence:

| | | | |
|--|------|-----|--------------|
| | 8.84 | .09 | 2.83 degrees |
|--|------|-----|--------------|

Center of Pressure:
(WRT CM)

| | | | |
|-----|-----------|-----------|-----------|
| | X ft | Y ft | Z ft |
| CPx | 0.00E+00 | -3.81E-01 | -6.11E+00 |
| CPy | -1.33E+01 | 0.00E+00 | -2.80E-01 |
| CPz | 3.77E+00 | 2.08E-02 | 0.00E+00 |
| | X m | Y m | Z m |
| CPx | 0.00E+00 | -1.16E-01 | -1.86E+00 |
| CPy | -4.04E+00 | 0.00E+00 | -8.55E-02 |
| CPz | 1.15E+00 | 6.35E-03 | 0.00E+00 |

Projected areas:

| | | | |
|--|---------|---------|---------------|
| | X | Y | Z |
| | 4083.02 | 3090.13 | 4634.20 ft**2 |
| | 379.33 | 287.08 | 430.53 m**2 |

*Off-diagonal elements are negative integrals

| | | | |
|--------------------------|-------------------------------------|-----------------|-------------|
| Technical Monitor | Title | | |
| Linda Jack (OM) | International Space Station Program | | |
| Approved By | Body 01 | | |
| De Los Reyes (CAMMP) | STEP 087 - 088 | | |
| Produced By | Contract | | |
| CAMMP | ISS Program Integration & Control | | |
| | NASA Center/Division | Revision | Date |
| | JSC/OM | AB | 01/30/2008 |

Total mass: 553093. lb
 250879. kg

Center of mass:

| | | | |
|--|--------|-------|----------|
| | X | Y | Z |
| | -11.32 | -3.41 | 12.17 ft |
| | -3.45 | -1.04 | 3.71 m |

Inertia Tensor*:

| | | | |
|--|-----------|------------|-----------|
| | | slug*ft**2 | |
| | 16699745. | 2632069. | 56204. |
| | 2632069. | 32942403. | 636892. |
| | 56204. | 636892. | 46437723. |
| | | kg*m**2 | |
| | 22641815. | 3568606. | 76202. |
| | 3568606. | 44663904. | 863510. |
| | 76202. | 863510. | 62961102. |

Principal moments of inertia (IXX, IYY, IZZ):

| | | | |
|--|-----------|-----------|----------------------|
| | 16283811. | 33327240. | 46468820. slug*ft**2 |
| | 22077884. | 45185673. | 63003264. kg*m**2 |

Principal to body yaw, pitch, roll in a 3 2 1 sequence:

| | | | |
|--|------|-------|--------------|
| | 8.98 | -0.35 | 2.76 degrees |
|--|------|-------|--------------|

Center of Pressure:
(WRT CM)

| | | | |
|-----|-----------|-----------|-----------|
| | X ft | Y ft | Z ft |
| CPx | 0.00E+00 | -7.83E-01 | -6.16E+00 |
| CPy | -1.36E+01 | 0.00E+00 | -1.43E-02 |
| CPz | 4.16E+00 | -1.14E-01 | 0.00E+00 |
| | X m | Y m | Z m |
| CPx | 0.00E+00 | -2.39E-01 | -1.88E+00 |
| CPy | -4.13E+00 | 0.00E+00 | -4.37E-03 |
| CPz | 1.27E+00 | -3.47E-02 | 0.00E+00 |

Projected areas:

| | | | |
|--|---------|---------|---------------|
| | X | Y | Z |
| | 4135.30 | 3283.62 | 4688.79 ft**2 |
| | 384.18 | 305.06 | 435.60 m**2 |

*Off-diagonal elements are negative integrals

| | | | |
|--------------------------|-------------------------------------|-----------------|-------------|
| Technical Monitor | Title | | |
| Linda Jack (OM) | International Space Station Program | | |
| Approved By | Body 01 | | |
| De Los Reyes (CAMMP) | STEP 089 | | |
| Produced By | Contract | | |
| CAMMP | ISS Program Integration & Control | | |
| | NASA Center/Division | Revision | Date |
| | JSC/OM | AB | 01/30/2008 |

Total mass: 554833. lb
 251668. kg

Center of mass:

| | | | |
|--|--------|-------|----------|
| | X | Y | Z |
| | -11.48 | -3.41 | 12.17 ft |
| | -3.50 | -1.04 | 3.71 m |

Inertia Tensor*:

| | | | |
|--|-----------|------------|-----------|
| | | slug*ft**2 | |
| | 16700492. | 2640126. | 59745. |
| | 2640126. | 33046173. | 636617. |
| | 59745. | 636617. | 46541998. |
| | | kg*m**2 | |
| | 22642828. | 3579530. | 81003. |
| | 3579530. | 44804597. | 863137. |
| | 81003. | 863137. | 63102480. |

Principal moments of inertia (I_{XX}, I_{YY}, I_{ZZ}):

| | | | |
|--|-----------|-----------|----------------------|
| | 16284590. | 33430960. | 46573112. slug*ft**2 |
| | 22078941. | 45326299. | 63144665. kg*m**2 |

Principal to body yaw, pitch, roll in a 3 2 1 sequence:

| | | | |
|--|------|------|--------------|
| | 8.95 | -.36 | 2.76 degrees |
|--|------|------|--------------|

Center of Pressure:
(WRT CM)

| | | | |
|-----|-----------|-----------|-----------|
| | X ft | Y ft | Z ft |
| CPx | 0.00E+00 | -7.83E-01 | -6.16E+00 |
| CPy | -1.34E+01 | 0.00E+00 | -1.43E-02 |
| CPz | 4.32E+00 | -1.14E-01 | 0.00E+00 |
| | X m | Y m | Z m |
| CPx | 0.00E+00 | -2.39E-01 | -1.88E+00 |
| CPy | -4.08E+00 | 0.00E+00 | -4.37E-03 |
| CPz | 1.32E+00 | -3.47E-02 | 0.00E+00 |

Projected areas:

| | | | |
|--|---------|---------|---------------|
| | X | Y | Z |
| | 4135.30 | 3283.62 | 4688.79 ft**2 |
| | 384.18 | 305.06 | 435.60 m**2 |

*Off-diagonal elements are negative integrals

| | | | |
|--------------------------|-------------------------------------|-----------------|-------------|
| Technical Monitor | Title | | |
| Linda Jack (OM) | International Space Station Program | | |
| Approved By | Body 01 | | |
| De Los Reyes (CAMMP) | STEP 090 - 091 | | |
| Produced By | Contract | | |
| CAMMP | ISS Program Integration & Control | | |
| | NASA Center/Division | Revision | Date |
| | JSC/OM | AB | 01/30/2008 |

Total mass: 554738. lb
 251625. kg

Center of mass:

| | | | |
|--|--------|-------|----------|
| | X | Y | Z |
| | -11.45 | -3.41 | 12.17 ft |
| | -3.49 | -1.04 | 3.71 m |

Inertia Tensor*:

| | | | |
|--|-----------|------------|-----------|
| | | slug*ft**2 | |
| | 16700451. | 2639688. | 59552. |
| | 2639688. | 33040534. | 636632. |
| | 59552. | 636632. | 46536332. |
| | | kg*m**2 | |
| | 22642773. | 3578937. | 80742. |
| | 3578937. | 44796952. | 863157. |
| | 80742. | 863157. | 63094798. |

Principal moments of inertia (IXX, IYY, IZZ):

| | | | |
|--|-----------|-----------|----------------------|
| | 16284548. | 33425324. | 46567445. slug*ft**2 |
| | 22078883. | 45318658. | 63136982. kg*m**2 |

Principal to body yaw, pitch, roll in a 3 2 1 sequence:

| | | | |
|--|------|------|--------------|
| | 8.95 | -.36 | 2.76 degrees |
|--|------|------|--------------|

Center of Pressure:

(WRT CM)

| | | | |
|-----|-----------|-----------|-----------|
| | X ft | Y ft | Z ft |
| CPx | 0.00E+00 | -7.83E-01 | -6.16E+00 |
| CPy | -1.34E+01 | 0.00E+00 | -1.43E-02 |
| CPz | 4.29E+00 | -1.14E-01 | 0.00E+00 |
| | X m | Y m | Z m |
| CPx | 0.00E+00 | -2.39E-01 | -1.88E+00 |
| CPy | -4.09E+00 | 0.00E+00 | -4.37E-03 |
| CPz | 1.31E+00 | -3.47E-02 | 0.00E+00 |

Projected areas:

| | | | |
|--|---------|---------|---------------|
| | X | Y | Z |
| | 4135.30 | 3283.62 | 4688.79 ft**2 |
| | 384.18 | 305.06 | 435.60 m**2 |

*Off-diagonal elements are negative integrals

| | | | |
|--------------------------|-------------------------------------|-----------------|-------------|
| Technical Monitor | Title | | |
| Linda Jack (OM) | International Space Station Program | | |
| Approved By | Body 01 | | |
| De Los Reyes (CAMMP) | STEP 092 | | |
| Produced By | Contract | | |
| CAMMP | ISS Program Integration & Control | | |
| | NASA Center/Division | Revision | Date |
| | JSC/OM | AB | 01/30/2008 |

Total mass: 554581. lb
 251554. kg

Center of mass:

| | | | |
|--|--------|-------|----------|
| | X | Y | Z |
| | -11.45 | -3.41 | 12.17 ft |
| | -3.49 | -1.04 | 3.71 m |

Inertia Tensor*:

| | | | |
|--|-----------|------------|-----------|
| | | slug*ft**2 | |
| | 16700384. | 2638965. | 59234. |
| | 2638965. | 33031219. | 636656. |
| | 59234. | 636656. | 46526971. |
| | | kg*m**2 | |
| | 22642682. | 3577956. | 80311. |
| | 3577956. | 44784323. | 863190. |
| | 80311. | 863190. | 63082107. |

Principal moments of inertia (IXX, IYY, IZZ):

| | | | |
|--|-----------|-----------|----------------------|
| | 16284478. | 33416014. | 46558083. slug*ft**2 |
| | 22078789. | 45306034. | 63124289. kg*m**2 |

Principal to body yaw, pitch, roll in a 3 2 1 sequence:

| | | | |
|--|------|-------|--------------|
| | 8.95 | -0.36 | 2.76 degrees |
|--|------|-------|--------------|

Center of Pressure:

(WRT CM)

| | | | |
|-----|-----------|-----------|-----------|
| | X ft | Y ft | Z ft |
| CPx | 0.00E+00 | -7.83E-01 | -6.16E+00 |
| CPy | -1.34E+01 | 0.00E+00 | -1.43E-02 |
| CPz | 4.29E+00 | -1.14E-01 | 0.00E+00 |
| | X m | Y m | Z m |
| CPx | 0.00E+00 | -2.39E-01 | -1.88E+00 |
| CPy | -4.09E+00 | 0.00E+00 | -4.37E-03 |
| CPz | 1.31E+00 | -3.47E-02 | 0.00E+00 |

Projected areas:

| | | | |
|--|---------|---------|---------------|
| | X | Y | Z |
| | 4135.30 | 3283.62 | 4688.79 ft**2 |
| | 384.18 | 305.06 | 435.60 m**2 |

*Off-diagonal elements are negative integrals

| | | | |
|--------------------------|-------------------------------------|-----------------|-------------|
| Technical Monitor | Title | | |
| Linda Jack (OM) | International Space Station Program | | |
| Approved By | Body 01 | | |
| De Los Reyes (CAMMP) | STEP 093 | | |
| Produced By | Contract | | |
| CAMMP | ISS Program Integration & Control | | |
| | NASA Center/Division | Revision | Date |
| | JSC/OM | AB | 01/30/2008 |

Total mass: 554581. lb
 251554. kg

Center of mass:

| | | | |
|--|--------|-------|----------|
| | X | Y | Z |
| | -11.12 | -3.41 | 12.07 ft |
| | -3.39 | -1.04 | 3.68 m |

Inertia Tensor*:

| | | | |
|--|-----------|------------|-----------|
| | | slug*ft**2 | |
| | 16683858. | 2619988. | 89349. |
| | 2619988. | 33267726. | 644016. |
| | 89349. | 644016. | 46780239. |
| | | kg*m**2 | |
| | 22620275. | 3552227. | 121141. |
| | 3552227. | 45104983. | 873168. |
| | 121141. | 873168. | 63425492. |

Principal moments of inertia (I_{XX}, I_{YY}, I_{ZZ}):

| | | | |
|--|-----------|-----------|----------------------|
| | 16279783. | 33639634. | 46812405. slug*ft**2 |
| | 22072424. | 45609223. | 63469104. kg*m**2 |

Principal to body yaw, pitch, roll in a 3 2 1 sequence:

| | | | |
|--|------|------|--------------|
| | 8.76 | -.41 | 2.80 degrees |
|--|------|------|--------------|

Center of Pressure:
(WRT CM)

| | | | |
|-----|-----------|-----------|-----------|
| | X ft | Y ft | Z ft |
| CPx | 0.00E+00 | -7.83E-01 | -6.06E+00 |
| CPy | -1.39E+01 | 0.00E+00 | -5.22E-02 |
| CPz | 3.96E+00 | -1.14E-01 | 0.00E+00 |
| | X m | Y m | Z m |
| CPx | 0.00E+00 | -2.39E-01 | -1.85E+00 |
| CPy | -4.23E+00 | 0.00E+00 | -1.59E-02 |
| CPz | 1.21E+00 | -3.47E-02 | 0.00E+00 |

Projected areas:

| | | | |
|--|---------|---------|---------------|
| | X | Y | Z |
| | 4135.01 | 3255.37 | 4688.79 ft**2 |
| | 384.15 | 302.43 | 435.60 m**2 |

*Off-diagonal elements are negative integrals

| | | | |
|--------------------------|-------------------------------------|-----------------|-------------|
| Technical Monitor | Title | | |
| Linda Jack (OM) | International Space Station Program | | |
| Approved By | Body 01 | | |
| De Los Reyes (CAMMP) | STEP 094 - 095 | | |
| Produced By | Contract | | |
| CAMMP | ISS Program Integration & Control | | |
| | NASA Center/Division | Revision | Date |
| | JSC/OM | AB | 01/30/2008 |

Total mass: 585919. lb
 265768. kg

Center of mass:

| | | | |
|--|--------|-------|----------|
| | X | Y | Z |
| | -12.14 | -2.95 | 13.75 ft |
| | -3.70 | -.90 | 4.19 m |

Inertia Tensor*:

| | | | |
|--|-----------|------------|-----------|
| | | slug*ft**2 | |
| | 17391167. | 2463642. | 116544. |
| | 2463642. | 33320856. | 506906. |
| | 116544. | 506906. | 46121503. |
| | | kg*m**2 | |
| | 23579258. | 3340250. | 158012. |
| | 3340250. | 45177017. | 687272. |
| | 158012. | 687272. | 62532366. |

Principal moments of inertia (I_{XX}, I_{YY}, I_{ZZ}):

| | | | |
|--|-----------|-----------|----------------------|
| | 17018795. | 33671569. | 46143161. slug*ft**2 |
| | 23074390. | 45652521. | 62561730. kg*m**2 |

Principal to body yaw, pitch, roll in a 3 2 1 sequence:

| | | | |
|--|------|------|--------------|
| | 8.58 | -.43 | 2.35 degrees |
|--|------|------|--------------|

Center of Pressure:

(WRT CM)

| | | | |
|-----|-----------|-----------|-----------|
| | X ft | Y ft | Z ft |
| CPx | 0.00E+00 | -5.81E-01 | -6.24E+00 |
| CPy | -1.16E+01 | 0.00E+00 | 7.96E-01 |
| CPz | 5.17E+00 | -5.49E-01 | 0.00E+00 |
| | X m | Y m | Z m |
| CPx | 0.00E+00 | -1.77E-01 | -1.90E+00 |
| CPy | -3.54E+00 | 0.00E+00 | 2.43E-01 |
| CPz | 1.58E+00 | -1.67E-01 | 0.00E+00 |

Projected areas:

| | | | |
|--|---------|---------|---------------|
| | X | Y | Z |
| | 4283.16 | 3637.87 | 4672.61 ft**2 |
| | 397.92 | 337.97 | 434.10 m**2 |

*Off-diagonal elements are negative integrals

| | | | |
|--------------------------|-------------------------------------|-----------------|-------------|
| Technical Monitor | Title | | |
| Linda Jack (OM) | International Space Station Program | | |
| Approved By | Body 01 | | |
| De Los Reyes (CAMMP) | STEP 096 | | |
| Produced By | Contract | | |
| CAMMP | ISS Program Integration & Control | | |
| | NASA Center/Division | Revision | Date |
| | JSC/OM | AB | 01/30/2008 |

Total mass: 583787. lb
 264801. kg

Center of mass:

| | | | |
|--|--------|-------|----------|
| | X | Y | Z |
| | -11.98 | -2.95 | 13.75 ft |
| | -3.65 | -.90 | 4.19 m |

Inertia Tensor*:

| | | | |
|--|-----------|------------|-----------|
| | | slug*ft**2 | |
| | 17390592. | 2455231. | 116746. |
| | 2455231. | 33197663. | 506892. |
| | 116746. | 506892. | 45997737. |
| | | kg*m**2 | |
| | 23578479. | 3328846. | 158286. |
| | 3328846. | 45009990. | 687253. |
| | 158286. | 687253. | 62364561. |

Principal moments of inertia (IXX, IYY, IZZ):

| | | | |
|--|-----------|-----------|----------------------|
| | 17017962. | 33548630. | 46019399. slug*ft**2 |
| | 23073260. | 45485838. | 62393932. kg*m**2 |

Principal to body yaw, pitch, roll in a 3 2 1 sequence:

| | | | |
|--|------|------|--------------|
| | 8.62 | -.43 | 2.35 degrees |
|--|------|------|--------------|

Center of Pressure:
(WRT CM)

| | | | |
|-----|-----------|-----------|-----------|
| | X ft | Y ft | Z ft |
| CPx | 0.00E+00 | -5.81E-01 | -6.24E+00 |
| CPy | -1.18E+01 | 0.00E+00 | 7.96E-01 |
| CPz | 5.01E+00 | -5.49E-01 | 0.00E+00 |
| | X m | Y m | Z m |
| CPx | 0.00E+00 | -1.77E-01 | -1.90E+00 |
| CPy | -3.59E+00 | 0.00E+00 | 2.43E-01 |
| CPz | 1.53E+00 | -1.67E-01 | 0.00E+00 |

Projected areas:

| | | | |
|--|---------|---------|---------------|
| | X | Y | Z |
| | 4283.16 | 3637.87 | 4672.61 ft**2 |
| | 397.92 | 337.97 | 434.10 m**2 |

*Off-diagonal elements are negative integrals

| | | | |
|--------------------------|-------------------------------------|-----------------|-------------|
| Technical Monitor | Title | | |
| Linda Jack (OM) | International Space Station Program | | |
| Approved By | Body 01 | | |
| De Los Reyes (CAMMP) | STEP 097 | | |
| Produced By | Contract | | |
| CAMMP | ISS Program Integration & Control | | |
| | NASA Center/Division | Revision | Date |
| | JSC/OM | AB | 01/30/2008 |

Total mass: 583668. lb
 264747. kg

Center of mass:

| | | | |
|--|--------|-------|----------|
| | X | Y | Z |
| | -11.98 | -2.95 | 13.75 ft |
| | -3.65 | -.90 | 4.19 m |

Inertia Tensor*:

| | | | |
|--|-----------|------------|-----------|
| | | slug*ft**2 | |
| | 17390561. | 2454759. | 116758. |
| | 2454759. | 33190757. | 506891. |
| | 116758. | 506891. | 45990798. |
| | | kg*m**2 | |
| | 23578436. | 3328207. | 158302. |
| | 3328207. | 45000627. | 687252. |
| | 158302. | 687252. | 62355154. |

Principal moments of inertia (IXX, IYY, IZZ):

| | | | |
|--|-----------|-----------|----------------------|
| | 17017916. | 33541739. | 46012461. slug*ft**2 |
| | 23073197. | 45476495. | 62384525. kg*m**2 |

Principal to body yaw, pitch, roll in a 3 2 1 sequence:

| | | | |
|--|------|------|--------------|
| | 8.62 | -.43 | 2.35 degrees |
|--|------|------|--------------|

Center of Pressure:

(WRT CM)

| | | | |
|-----|-----------|-----------|-----------|
| | X ft | Y ft | Z ft |
| CPx | 0.00E+00 | -5.81E-01 | -6.24E+00 |
| CPy | -1.18E+01 | 0.00E+00 | 7.96E-01 |
| CPz | 5.01E+00 | -5.49E-01 | 0.00E+00 |
| | X m | Y m | Z m |
| CPx | 0.00E+00 | -1.77E-01 | -1.90E+00 |
| CPy | -3.59E+00 | 0.00E+00 | 2.43E-01 |
| CPz | 1.53E+00 | -1.67E-01 | 0.00E+00 |

Projected areas:

| | | | |
|--|---------|---------|---------------|
| | X | Y | Z |
| | 4283.16 | 3637.87 | 4672.61 ft**2 |
| | 397.92 | 337.97 | 434.10 m**2 |

*Off-diagonal elements are negative integrals

| | | | |
|--------------------------|-------------------------------------|-----------------|-------------|
| Technical Monitor | Title | | |
| Linda Jack (OM) | International Space Station Program | | |
| Approved By | Body 01 | | |
| De Los Reyes (CAMMP) | STEP 098 - 099 | | |
| Produced By | Contract | | |
| CAMMP | ISS Program Integration & Control | | |
| | NASA Center/Division | Revision | Date |
| | JSC/OM | AB | 01/30/2008 |

Total mass: 582074. lb
 264024. kg

Center of mass:

| | | | |
|--|--------|-------|----------|
| | X | Y | Z |
| | -11.84 | -2.95 | 13.75 ft |
| | -3.61 | -.90 | 4.19 m |

Inertia Tensor*:

| | | | |
|--|-----------|------------|-----------|
| | | slug*ft**2 | |
| | 17390128. | 2448428. | 116909. |
| | 2448428. | 33098022. | 506881. |
| | 116909. | 506881. | 45897632. |
| | | kg*m**2 | |
| | 23577849. | 3319623. | 158508. |
| | 3319623. | 44874895. | 687238. |
| | 158508. | 687238. | 62228837. |

Principal moments of inertia (I_{XX}, I_{YY}, I_{ZZ}):

| | | | |
|--|-----------|-----------|----------------------|
| | 17017279. | 33449204. | 45919298. slug*ft**2 |
| | 23072334. | 45351034. | 62258213. kg*m**2 |

Principal to body yaw, pitch, roll in a 3 2 1 sequence:

| | | | |
|--|------|------|--------------|
| | 8.64 | -.44 | 2.35 degrees |
|--|------|------|--------------|

Center of Pressure:

(WRT CM)

| | | | |
|-----|-----------|-----------|-----------|
| | X ft | Y ft | Z ft |
| CPx | 0.00E+00 | -5.81E-01 | -6.24E+00 |
| CPy | -1.19E+01 | 0.00E+00 | 7.96E-01 |
| CPz | 4.87E+00 | -5.49E-01 | 0.00E+00 |
| | X m | Y m | Z m |
| CPx | 0.00E+00 | -1.77E-01 | -1.90E+00 |
| CPy | -3.63E+00 | 0.00E+00 | 2.43E-01 |
| CPz | 1.49E+00 | -1.67E-01 | 0.00E+00 |

Projected areas:

| | | | |
|--|---------|---------|---------------|
| | X | Y | Z |
| | 4283.16 | 3637.87 | 4672.61 ft**2 |
| | 397.92 | 337.97 | 434.10 m**2 |

*Off-diagonal elements are negative integrals

| | | | |
|--------------------------|-------------------------------------|-----------------|-------------|
| Technical Monitor | Title | | |
| Linda Jack (OM) | International Space Station Program | | |
| Approved By | Body 01 | | |
| De Los Reyes (CAMMP) | STEP 100 - 101 | | |
| Produced By | Contract | | |
| CAMMP | ISS Program Integration & Control | | |
| | NASA Center/Division | Revision | Date |
| | JSC/OM | AB | 01/30/2008 |

Total mass: 582006. lb
 263993. kg

Center of mass:

| | | | |
|--|--------|-------|----------|
| | X | Y | Z |
| | -11.84 | -2.95 | 13.75 ft |
| | -3.61 | -.90 | 4.19 m |

Inertia Tensor*:

| | | | |
|--|-----------|------------|-----------|
| | | slug*ft**2 | |
| | 17390109. | 2448156. | 116916. |
| | 2448156. | 33094035. | 506880. |
| | 116916. | 506880. | 45893625. |
| | | kg*m**2 | |
| | 23577824. | 3319254. | 158517. |
| | 3319254. | 44869489. | 687237. |
| | 158517. | 687237. | 62223405. |

Principal moments of inertia (IXX, IYY, IZZ):

| | | | |
|--|-----------|-----------|----------------------|
| | 17017252. | 33445225. | 45915292. slug*ft**2 |
| | 23072297. | 45345639. | 62252781. kg*m**2 |

Principal to body yaw, pitch, roll in a 3 2 1 sequence:

| | | | |
|--|------|------|--------------|
| | 8.65 | -.44 | 2.35 degrees |
|--|------|------|--------------|

Center of Pressure:

(WRT CM)

| | | | |
|-----|-----------|-----------|-----------|
| | X ft | Y ft | Z ft |
| CPx | 0.00E+00 | -5.81E-01 | -6.24E+00 |
| CPy | -1.19E+01 | 0.00E+00 | 7.96E-01 |
| CPz | 4.87E+00 | -5.49E-01 | 0.00E+00 |
| | X m | Y m | Z m |
| CPx | 0.00E+00 | -1.77E-01 | -1.90E+00 |
| CPy | -3.63E+00 | 0.00E+00 | 2.43E-01 |
| CPz | 1.49E+00 | -1.67E-01 | 0.00E+00 |

Projected areas:

| | | | |
|--|---------|---------|---------------|
| | X | Y | Z |
| | 4283.16 | 3637.87 | 4672.61 ft**2 |
| | 397.92 | 337.97 | 434.10 m**2 |

*Off-diagonal elements are negative integrals

| | | | |
|--------------------------|-------------------------------------|-----------------|-------------|
| Technical Monitor | Title | | |
| Linda Jack (OM) | International Space Station Program | | |
| Approved By | Body 01 | | |
| De Los Reyes (CAMMP) | STEP 102 - 105 | | |
| Produced By | Contract | | |
| CAMMP | ISS Program Integration & Control | | |
| | NASA Center/Division | Revision | Date |
| | JSC/OM | AB | 01/30/2008 |

Total mass: 588013. lb
 266718. kg

Center of mass:

| | | | |
|--|--------|-------|----------|
| | X | Y | Z |
| | -11.38 | -3.31 | 13.81 ft |
| | -3.47 | -1.01 | 4.21 m |

Inertia Tensor*:

| | | | |
|--|-----------|------------|-----------|
| | | slug*ft**2 | |
| | 17667967. | 2714374. | 73373. |
| | 2714374. | 33525626. | 544367. |
| | 73373. | 544367. | 46588810. |
| | | kg*m**2 | |
| | 23954549. | 3680197. | 99480. |
| | 3680197. | 45454649. | 738063. |
| | 99480. | 738063. | 63165949. |

Principal moments of inertia (IXX, IYY, IZZ):

| | | | |
|--|-----------|-----------|----------------------|
| | 17216205. | 33953523. | 46612676. slug*ft**2 |
| | 23342041. | 46034799. | 63198307. kg*m**2 |

Principal to body yaw, pitch, roll in a 3 2 1 sequence:

| | | | |
|--|------|------|--------------|
| | 9.44 | -.38 | 2.46 degrees |
|--|------|------|--------------|

Center of Pressure:
(WRT CM)

| | | | |
|-----|-----------|-----------|-----------|
| | X ft | Y ft | Z ft |
| CPx | 0.00E+00 | -2.20E-01 | -6.31E+00 |
| CPy | -1.24E+01 | 0.00E+00 | 7.31E-01 |
| CPz | 4.42E+00 | -1.88E-01 | 0.00E+00 |
| | X m | Y m | Z m |
| CPx | 0.00E+00 | -6.72E-02 | -1.92E+00 |
| CPy | -3.77E+00 | 0.00E+00 | 2.23E-01 |
| CPz | 1.35E+00 | -5.73E-02 | 0.00E+00 |

Projected areas:

| | | | |
|--|---------|---------|---------------|
| | X | Y | Z |
| | 4283.16 | 3637.87 | 4672.61 ft**2 |
| | 397.92 | 337.97 | 434.10 m**2 |

*Off-diagonal elements are negative integrals

| | | | |
|--------------------------|-------------------------------------|-----------------|-------------|
| Technical Monitor | Title | | |
| Linda Jack (OM) | International Space Station Program | | |
| Approved By | Body 01 | | |
| De Los Reyes (CAMMP) | STEP 106 - 107 | | |
| Produced By | Contract | | |
| CAMMP | ISS Program Integration & Control | | |
| | NASA Center/Division | Revision | Date |
| | JSC/OM | AB | 01/30/2008 |

Total mass: 609786. lb
 276594. kg

Center of mass:

| | | | |
|--|--------|------|----------|
| | X | Y | Z |
| | -11.19 | -.13 | 13.71 ft |
| | -3.41 | -.04 | 4.18 m |

Inertia Tensor*:

| | | | |
|--|-----------|------------|-----------|
| | | slug*ft**2 | |
| | 22361614. | 2241675. | 122593. |
| | 2241675. | 33554482. | 552748. |
| | 122593. | 552748. | 51201900. |
| | | kg*m**2 | |
| | 30318280. | 3039303. | 166214. |
| | 3039303. | 45493772. | 749426. |
| | 166214. | 749426. | 69420460. |

Principal moments of inertia (IXX, IYY, IZZ):

| | | | |
|--|-----------|-----------|----------------------|
| | 21929344. | 33968158. | 51220495. slug*ft**2 |
| | 29732200. | 46054641. | 69445671. kg*m**2 |

Principal to body yaw, pitch, roll in a 3 2 1 sequence:

| | | | |
|--|-------|------|--------------|
| | 10.91 | -.39 | 1.84 degrees |
|--|-------|------|--------------|

Center of Pressure:

(WRT CM)

| | | | |
|-----|-----------|-----------|-----------|
| | X ft | Y ft | Z ft |
| CPx | 0.00E+00 | 5.68E-01 | -5.87E+00 |
| CPy | -1.35E+01 | 0.00E+00 | 3.46E-01 |
| CPz | 3.94E+00 | -2.29E+00 | 0.00E+00 |
| | X m | Y m | Z m |
| CPx | 0.00E+00 | 1.73E-01 | -1.79E+00 |
| CPy | -4.12E+00 | 0.00E+00 | 1.05E-01 |
| CPz | 1.20E+00 | -6.98E-01 | 0.00E+00 |

Projected areas:

| | | | |
|--|---------|---------|---------------|
| | X | Y | Z |
| | 4488.47 | 3558.49 | 4729.75 ft**2 |
| | 416.99 | 330.59 | 439.41 m**2 |

*Off-diagonal elements are negative integrals

| | | | |
|--------------------------|-------------------------------------|-----------------|-------------|
| Technical Monitor | Title | | |
| Linda Jack (OM) | International Space Station Program | | |
| Approved By | Body 01 | | |
| De Los Reyes (CAMMP) | STEP 108 | | |
| Produced By | Contract | | |
| CAMMP | ISS Program Integration & Control | | |
| | NASA Center/Division | Revision | Date |
| | JSC/OM | AB | 01/30/2008 |

Total mass: 650956. lb
 295269. kg

Center of mass:

| | | | |
|--|--------|------|----------|
| | X | Y | Z |
| | -15.62 | -.13 | 15.42 ft |
| | -4.76 | -.04 | 4.70 m |

Inertia Tensor*:

| | | | |
|--|-----------|------------|-----------|
| | | slug*ft**2 | |
| | 23324446. | 2246065. | 2320055. |
| | 2246065. | 40183639. | 551862. |
| | 2320055. | 551862. | 56933962. |
| | | kg*m**2 | |
| | 31623704. | 3045256. | 3145572. |
| | 3045256. | 54481703. | 748225. |
| | 3145572. | 748225. | 77192093. |

Principal moments of inertia (IXX, IYY, IZZ):

| | | | |
|--|-----------|-----------|----------------------|
| | 22884282. | 40434856. | 57122909. slug*ft**2 |
| | 31026922. | 54822307. | 77448271. kg*m**2 |

Principal to body yaw, pitch, roll in a 3 2 1 sequence:

| | | | |
|--|------|-------|--------------|
| | 7.10 | -4.08 | 2.41 degrees |
|--|------|-------|--------------|

Center of Pressure:

(WRT CM)

| | | | |
|-----|-----------|-----------|-----------|
| | X ft | Y ft | Z ft |
| CPx | 0.00E+00 | 3.55E-02 | -6.34E+00 |
| CPy | -1.56E+01 | 0.00E+00 | 2.18E+00 |
| CPz | -1.64E+00 | -2.00E+00 | 0.00E+00 |
| | X m | Y m | Z m |
| CPx | 0.00E+00 | 1.08E-02 | -1.93E+00 |
| CPy | -4.75E+00 | 0.00E+00 | 6.63E-01 |
| CPz | -5.01E-01 | -6.10E-01 | 0.00E+00 |

Projected areas:

| | | | |
|--|---------|---------|---------------|
| | X | Y | Z |
| | 4688.26 | 4115.67 | 5485.87 ft**2 |
| | 435.55 | 382.36 | 509.65 m**2 |

*Off-diagonal elements are negative integrals

| | | | |
|--------------------------|-------------------------------------|-----------------|-------------|
| Technical Monitor | Title | | |
| Linda Jack (OM) | International Space Station Program | | |
| Approved By | Body 02 | | |
| De Los Reyes (CAMMP) | STEP 001 - 033 | | |
| Produced By | Contract | | |
| CAMMP | ISS Program Integration & Control | | |
| | NASA Center/Division | Revision | Date |
| | JSC/OM | AB | 01/30/2008 |

Total mass: 26537. lb
 12037. kg

Center of mass:

| | | | |
|--|------|-------|---------|
| | X | Y | Z |
| | 1.21 | 97.70 | 1.18 ft |
| | .37 | 29.78 | .36 m |

Inertia Tensor*:

| | | | |
|--|---------|------------|---------|
| | | slug*ft**2 | |
| | 262247. | -3733. | 4573. |
| | -3733. | 42351. | 533. |
| | 4573. | 533. | 230238. |
| | | kg*m**2 | |
| | 355559. | -5061. | 6200. |
| | -5061. | 57420. | 723. |
| | 6200. | 723. | 312161. |

Principal moments of inertia (IXX, IYY, IZZ):

| | | | |
|--|---------|--------|--------------------|
| | 262947. | 42285. | 229603. slug*ft**2 |
| | 356508. | 57331. | 311301. kg*m**2 |

Principal to body yaw, pitch, roll in a 3 2 1 sequence:

| | | | |
|--|-----|------|-------------|
| | .99 | 7.94 | .32 degrees |
|--|-----|------|-------------|

Center of Pressure:

(WRT CM)

| | | | |
|-----|----------|----------|----------|
| | X ft | Y ft | Z ft |
| CPx | 0.00E+00 | 6.03E-01 | 1.67E+01 |
| CPy | 3.24E-01 | 0.00E+00 | 5.83E-01 |
| CPz | 2.75E-01 | 3.46E+00 | 0.00E+00 |
| | X m | Y m | Z m |
| CPx | 0.00E+00 | 1.84E-01 | 5.08E+00 |
| CPy | 9.87E-02 | 0.00E+00 | 1.78E-01 |
| CPz | 8.37E-02 | 1.05E+00 | 0.00E+00 |

Projected areas:

| | | | |
|--|--------|--------|--------------|
| | X | Y | Z |
| | 739.41 | 139.79 | 213.09 ft**2 |
| | 68.69 | 12.99 | 19.80 m**2 |

*Off-diagonal elements are negative integrals

| | | | |
|--------------------------|-------------------------------------|-----------------|-------------|
| Technical Monitor | Title | | |
| Linda Jack (OM) | International Space Station Program | | |
| Approved By | Body 02 | | |
| De Los Reyes (CAMMP) | STEP 034 | | |
| Produced By | Contract | | |
| CAMMP | ISS Program Integration & Control | | |
| | NASA Center/Division | Revision | Date |
| | JSC/OM | AB | 01/30/2008 |

Total mass: 57731. lb
 26186. kg

Center of mass:

| | | | |
|--|------|--------|--------|
| | X | Y | Z |
| | 1.08 | 123.85 | .72 ft |
| | .33 | 37.75 | .22 m |

Inertia Tensor*:

| | | | |
|--|----------|------------|----------|
| | | slug*ft**2 | |
| | 1446540. | 450. | 6762. |
| | 450. | 74643. | 16299. |
| | 6762. | 16299. | 1427622. |
| | | kg*m**2 | |
| | 1961245. | 610. | 9168. |
| | 610. | 101202. | 22098. |
| | 9168. | 22098. | 1935596. |

Principal moments of inertia (I_{XX}, I_{YY}, I_{ZZ}):

| | | | |
|--|----------|---------|---------------------|
| | 1448730. | 74446. | 1425629. slug*ft**2 |
| | 1964214. | 100936. | 1932893. kg*m**2 |

Principal to body yaw, pitch, roll in a 3 2 1 sequence:

| | | | |
|--|------|-------|-------------|
| | -.02 | 17.93 | .69 degrees |
|--|------|-------|-------------|

Center of Pressure:
(WRT CM)

| | | | |
|-----|----------|-----------|----------|
| | X ft | Y ft | Z ft |
| CPx | 0.00E+00 | -7.75E+00 | 1.02E+01 |
| CPy | 2.65E-01 | 0.00E+00 | 3.08E-01 |
| CPz | 1.00E-01 | 7.26E+00 | 0.00E+00 |
| | X m | Y m | Z m |
| CPx | 0.00E+00 | -2.36E+00 | 3.10E+00 |
| CPy | 8.09E-02 | 0.00E+00 | 9.39E-02 |
| CPz | 3.06E-02 | 2.21E+00 | 0.00E+00 |

Projected areas:

| | | | |
|--|---------|--------|--------------|
| | X | Y | Z |
| | 1212.85 | 217.10 | 710.69 ft**2 |
| | 112.68 | 20.17 | 66.03 m**2 |

*Off-diagonal elements are negative integrals

| | | | |
|--------------------------|-------------------------------------|-----------------|-------------|
| Technical Monitor | Title | | |
| Linda Jack (OM) | International Space Station Program | | |
| Approved By | Body 02 | | |
| De Los Reyes (CAMMP) | STEP 035 - 108 | | |
| Produced By | Contract | | |
| CAMMP | ISS Program Integration & Control | | |
| | NASA Center/Division | Revision | Date |
| | JSC/OM | AB | 01/30/2008 |

Total mass: 52981. lb
 24032. kg

Center of mass:

| | | | |
|--|------|--------|---------|
| | X | Y | Z |
| | 1.05 | 120.67 | 1.18 ft |
| | .32 | 36.78 | .36 m |

Inertia Tensor*:

| | | | |
|--|----------|------------|----------|
| | | slug*ft**2 | |
| | 1259014. | 2153. | 3511. |
| | 2153. | 83537. | -2787. |
| | 3511. | -2787. | 1196043. |
| | | kg*m**2 | |
| | 1706994. | 2919. | 4760. |
| | 2919. | 113261. | -3779. |
| | 4760. | -3779. | 1621616. |

Principal moments of inertia (IXX, IYY, IZZ):

| | | | |
|--|----------|---------|---------------------|
| | 1259213. | 83526. | 1195855. slug*ft**2 |
| | 1707263. | 113246. | 1621362. kg*m**2 |

Principal to body yaw, pitch, roll in a 3 2 1 sequence:

| | | | |
|--|------|------|--------------|
| | -.11 | 3.18 | -.15 degrees |
|--|------|------|--------------|

Center of Pressure:
(WRT CM)

| | | | |
|-----|----------|----------|----------|
| | X ft | Y ft | Z ft |
| CPx | 0.00E+00 | 1.75E+00 | 1.50E+01 |
| CPy | 4.69E-01 | 0.00E+00 | 1.13E+00 |
| CPz | 2.58E-01 | 2.58E+00 | 0.00E+00 |
| | X m | Y m | Z m |
| CPx | 0.00E+00 | 5.35E-01 | 4.56E+00 |
| CPy | 1.43E-01 | 0.00E+00 | 3.44E-01 |
| CPz | 7.87E-02 | 7.87E-01 | 0.00E+00 |

Projected areas:

| | | | |
|--|---------|--------|--------------|
| | X | Y | Z |
| | 1622.11 | 156.48 | 556.72 ft**2 |
| | 150.70 | 14.54 | 51.72 m**2 |

*Off-diagonal elements are negative integrals

| | | | |
|--------------------------|-------------------------------------|-----------------|-------------|
| Technical Monitor | Title | | |
| Linda Jack (OM) | International Space Station Program | | |
| Approved By | Body 03 | | |
| De Los Reyes (CAMMP) | STEP 001 - 024 | | |
| Produced By | Contract | | |
| CAMMP | ISS Program Integration & Control | | |
| | NASA Center/Division | Revision | Date |
| | JSC/OM | AB | 01/30/2008 |

Total mass: 56952. lb
 25833. kg

Center of mass:

| | | | |
|--|------|---------|--------|
| | X | Y | Z |
| | -.89 | -121.29 | .72 ft |
| | -.27 | -36.97 | .22 m |

Inertia Tensor*:

| | | | |
|--|----------|------------|----------|
| | | slug*ft**2 | |
| | 1270747. | -3284. | 79. |
| | -3284. | 76715. | -8406. |
| | 79. | -8406. | 1218128. |
| | | kg*m**2 | |
| | 1722902. | -4452. | 107. |
| | -4452. | 104012. | -11397. |
| | 107. | -11397. | 1651560. |

Principal moments of inertia (IXX, IYY, IZZ):

| | | | |
|--|----------|---------|---------------------|
| | 1270756. | 76644. | 1218190. slug*ft**2 |
| | 1722915. | 103916. | 1651644. kg*m**2 |

Principal to body yaw, pitch, roll in a 3 2 1 sequence:

| | | | |
|--|-----|-----|--------------|
| | .16 | .11 | -.42 degrees |
|--|-----|-----|--------------|

Center of Pressure:

(WRT CM)

| | | | |
|-----|-----------|-----------|----------|
| | X ft | Y ft | Z ft |
| CPx | 0.00E+00 | -1.40E+00 | 1.47E+01 |
| CPy | -5.53E-01 | 0.00E+00 | 8.97E-01 |
| CPz | -3.65E-01 | -2.12E+00 | 0.00E+00 |
| | X m | Y m | Z m |
| CPx | 0.00E+00 | -4.27E-01 | 4.48E+00 |
| CPy | -1.69E-01 | 0.00E+00 | 2.73E-01 |
| CPz | -1.11E-01 | -6.46E-01 | 0.00E+00 |

Projected areas:

| | | | |
|--|---------|--------|--------------|
| | X | Y | Z |
| | 1696.91 | 158.71 | 578.36 ft**2 |
| | 157.65 | 14.74 | 53.73 m**2 |

*Off-diagonal elements are negative integrals

| | | | |
|--------------------------|-------------------------------------|-----------------|-------------|
| Technical Monitor | Title | | |
| Linda Jack (OM) | International Space Station Program | | |
| Approved By | Body 03 | | |
| De Los Reyes (CAMMP) | STEP 025 - 108 | | |
| Produced By | Contract | | |
| CAMMP | ISS Program Integration & Control | | |
| | NASA Center/Division | Revision | Date |
| | JSC/OM | AB | 01/30/2008 |

Total mass: 56879. lb
 25800. kg

Center of mass:

| | | | |
|--|------|---------|--------|
| | X | Y | Z |
| | -.89 | -121.29 | .72 ft |
| | -.27 | -36.97 | .22 m |

Inertia Tensor*:

| | | | |
|--|----------|------------|----------|
| | | slug*ft**2 | |
| | 1269635. | -3280. | 79. |
| | -3280. | 76715. | -8367. |
| | 79. | -8367. | 1217017. |
| | | kg*m**2 | |
| | 1721394. | -4447. | 107. |
| | -4447. | 104011. | -11344. |
| | 107. | -11344. | 1650053. |

Principal moments of inertia (I_{XX}, I_{YY}, I_{ZZ}):

| | | | |
|--|----------|---------|---------------------|
| | 1269644. | 76644. | 1217078. slug*ft**2 |
| | 1721406. | 103916. | 1650136. kg*m**2 |

Principal to body yaw, pitch, roll in a 3 2 1 sequence:

| | | | |
|--|-----|-----|--------------|
| | .16 | .11 | -.42 degrees |
|--|-----|-----|--------------|

Center of Pressure:
(WRT CM)

| | | | |
|-----|-----------|-----------|----------|
| | X ft | Y ft | Z ft |
| CPx | 0.00E+00 | -1.40E+00 | 1.47E+01 |
| CPy | -5.53E-01 | 0.00E+00 | 8.97E-01 |
| CPz | -3.65E-01 | -2.12E+00 | 0.00E+00 |
| | X m | Y m | Z m |
| CPx | 0.00E+00 | -4.27E-01 | 4.48E+00 |
| CPy | -1.69E-01 | 0.00E+00 | 2.73E-01 |
| CPz | -1.11E-01 | -6.46E-01 | 0.00E+00 |

Projected areas:

| | | | |
|--|---------|--------|--------------|
| | X | Y | Z |
| | 1696.91 | 158.71 | 578.36 ft**2 |
| | 157.65 | 14.74 | 53.73 m**2 |

*Off-diagonal elements are negative integrals

| | | | |
|--------------------------|-------------------------------------|-----------------|-------------|
| Technical Monitor | Title | | |
| Linda Jack (OM) | International Space Station Program | | |
| Approved By | Body 04 | | |
| De Los Reyes (CAMMP) | STEP 001 - 108 | | |
| Produced By | Contract | | |
| CAMMP | ISS Program Integration & Control | | |
| | NASA Center/Division | Revision | Date |
| | JSC/OM | AB | 01/30/2008 |

Total mass: 11454. lb
 5195. kg

Center of mass:

| | | | |
|--|--------|-------|--------|
| | X | Y | Z |
| | -19.06 | 47.74 | .07 ft |
| | -5.81 | 14.55 | .02 m |

Inertia Tensor*:

| | | | |
|--|--------|------------|---------|
| | | slug*ft**2 | |
| | 42689. | -3327. | 326. |
| | -3327. | 232923. | 111. |
| | 326. | 111. | 199843. |
| | | kg*m**2 | |
| | 57879. | -4511. | 442. |
| | -4511. | 315801. | 150. |
| | 442. | 150. | 270951. |

Principal moments of inertia (IXX, IYY, IZZ):

| | | | |
|--|--------|---------|--------------------|
| | 42630. | 232981. | 199844. slug*ft**2 |
| | 57799. | 315880. | 270951. kg*m**2 |

Principal to body yaw, pitch, roll in a 3 2 1 sequence:

| | | | |
|--|-------|------|--------------|
| | -1.00 | -.12 | -.18 degrees |
|--|-------|------|--------------|

Center of Pressure:
(WRT CM)

| | | | |
|-----|-----------|----------|-----------|
| | X ft | Y ft | Z ft |
| CPx | 0.00E+00 | 4.02E-01 | -5.00E-02 |
| CPy | -1.95E+01 | 0.00E+00 | -7.19E-02 |
| CPz | -4.85E+00 | 3.43E-01 | 0.00E+00 |
| | X m | Y m | Z m |
| CPx | 0.00E+00 | 1.23E-01 | -1.52E-02 |
| CPy | -5.94E+00 | 0.00E+00 | -2.19E-02 |
| CPz | -1.48E+00 | 1.05E-01 | 0.00E+00 |

Projected areas:

| | | | |
|--|--------|---------|-------------|
| | X | Y | Z |
| | 453.77 | 2449.41 | 69.00 ft**2 |
| | 42.16 | 227.56 | 6.41 m**2 |

*Off-diagonal elements are negative integrals

| | | | |
|--------------------------|-------------------------------------|-----------------|-------------|
| Technical Monitor | Title | | |
| Linda Jack (OM) | International Space Station Program | | |
| Approved By | Body 05 | | |
| De Los Reyes (CAMMP) | STEP 001 - 108 | | |
| Produced By | Contract | | |
| CAMMP | ISS Program Integration & Control | | |
| | NASA Center/Division | Revision | Date |
| | JSC/OM | AB | 01/30/2008 |

Total mass: 11440. lb
 5189. kg

Center of mass:

| | | | |
|--|--------|--------|---------|
| | X | Y | Z |
| | -19.09 | -47.77 | -.07 ft |
| | -5.82 | -14.56 | -.02 m |

Inertia Tensor*:

| | | | |
|--|--------|------------|---------|
| | | slug*ft**2 | |
| | 42672. | 2944. | -529. |
| | 2944. | 232702. | 125. |
| | -529. | 125. | 199638. |
| | | kg*m**2 | |
| | 57855. | 3992. | -717. |
| | 3992. | 315502. | 169. |
| | -717. | 169. | 270673. |

Principal moments of inertia (IXX, IYY, IZZ):

| | | | |
|--|--------|---------|--------------------|
| | 42624. | 232748. | 199640. slug*ft**2 |
| | 57791. | 315564. | 270675. kg*m**2 |

Principal to body yaw, pitch, roll in a 3 2 1 sequence:

| | | | |
|--|-----|-----|--------------|
| | .89 | .20 | -.20 degrees |
|--|-----|-----|--------------|

Center of Pressure:
(WRT CM)

| | | | |
|-----|-----------|-----------|----------|
| | X ft | Y ft | Z ft |
| CPx | 0.00E+00 | -3.93E-01 | 4.99E-02 |
| CPy | -1.95E+01 | 0.00E+00 | 7.10E-02 |
| CPz | -4.82E+00 | -3.11E-01 | 0.00E+00 |
| | X m | Y m | Z m |
| CPx | 0.00E+00 | -1.20E-01 | 1.52E-02 |
| CPy | -5.93E+00 | 0.00E+00 | 2.17E-02 |
| CPz | -1.47E+00 | -9.48E-02 | 0.00E+00 |

Projected areas:

| | | | |
|--|--------|---------|-------------|
| | X | Y | Z |
| | 453.77 | 2449.46 | 69.09 ft**2 |
| | 42.16 | 227.56 | 6.42 m**2 |

*Off-diagonal elements are negative integrals

| | | | |
|--------------------------|-------------------------------------|-----------------|-------------|
| Technical Monitor | Title | | |
| Linda Jack (OM) | International Space Station Program | | |
| Approved By | Body 06 | | |
| De Los Reyes (CAMMP) | STEP 001 - 002 | | |
| Produced By | Contract | | |
| CAMMP | ISS Program Integration & Control | | |
| | NASA Center/Division | Revision | Date |
| | JSC/OM | AB | 01/30/2008 |

Total mass: 9531. lb
 4323. kg

Center of mass:

| | | | |
|--|-------|-------|----------|
| | X | Y | Z |
| | 10.60 | 11.06 | -4.00 ft |
| | 3.23 | 3.37 | -1.22 m |

Inertia Tensor*:

| | | | |
|--|--------|------------|--------|
| | | slug*ft**2 | |
| | 27673. | 769. | 5060. |
| | 769. | 18786. | -452. |
| | 5060. | -452. | 16794. |
| | | kg*m**2 | |
| | 37519. | 1043. | 6860. |
| | 1043. | 25471. | -613. |
| | 6860. | -613. | 22769. |

Principal moments of inertia (IXX, IYY, IZZ):

| | | | |
|--|--------|--------|-------------------|
| | 29690. | 18879. | 14683. slug*ft**2 |
| | 40254. | 25597. | 19908. kg*m**2 |

Principal to body yaw, pitch, roll in a 3 2 1 sequence:

| | | | |
|--|-----|-------|---------------|
| | .94 | 21.49 | 10.50 degrees |
|--|-----|-------|---------------|

Center of Pressure:

(WRT CM)

| | | | |
|-----|-----------|----------|-----------|
| | X ft | Y ft | Z ft |
| CPx | 0.00E+00 | 2.38E+00 | -4.02E-01 |
| CPy | 4.56E-01 | 0.00E+00 | -3.16E+00 |
| CPz | -2.05E-01 | 2.78E-01 | 0.00E+00 |
| | X m | Y m | Z m |
| CPx | 0.00E+00 | 7.24E-01 | -1.23E-01 |
| CPy | 1.39E-01 | 0.00E+00 | -9.64E-01 |
| CPz | -6.23E-02 | 8.47E-02 | 0.00E+00 |

Projected areas:

| | | | |
|--|--------|--------|--------------|
| | X | Y | Z |
| | 241.56 | 122.72 | 134.46 ft**2 |
| | 22.44 | 11.40 | 12.49 m**2 |

*Off-diagonal elements are negative integrals

| | | | |
|--------------------------|-------------------------------------|-----------------|-------------|
| Technical Monitor | Title | | |
| Linda Jack (OM) | International Space Station Program | | |
| Approved By | Body 06 | | |
| De Los Reyes (CAMMP) | STEP 003 | | |
| Produced By | Contract | | |
| CAMMP | ISS Program Integration & Control | | |
| | NASA Center/Division | Revision | Date |
| | JSC/OM | AB | 01/30/2008 |

Total mass: 13492. lb
 6120. kg

Center of mass:

| | | | |
|--|-------|--------|--------|
| | X | Y | Z |
| | 14.83 | -33.89 | .03 ft |
| | 4.52 | -10.33 | .01 m |

Inertia Tensor*:

| | | | |
|--|--------|------------|--------|
| | | slug*ft**2 | |
| | 49711. | 22338. | -215. |
| | 22338. | 21854. | 817. |
| | -215. | 817. | 66139. |
| | | kg*m**2 | |
| | 67399. | 30286. | -291. |
| | 30286. | 29630. | 1108. |
| | -291. | 1108. | 89672. |

Principal moments of inertia (IXX, IYY, IZZ):

| | | | |
|--|--------|--------|-------------------|
| | 62096. | 9446. | 66161. slug*ft**2 |
| | 84191. | 12807. | 89703. kg*m**2 |

Principal to body yaw, pitch, roll in a 3 2 1 sequence:

| | | | |
|--|--------|-------|--------------|
| | -29.04 | -2.18 | 2.15 degrees |
|--|--------|-------|--------------|

Center of Pressure:
(WRT CM)

| | | | |
|-----|----------|-----------|-----------|
| | X ft | Y ft | Z ft |
| CPx | 0.00E+00 | 5.76E+00 | -3.27E-01 |
| CPy | 7.63E-01 | 0.00E+00 | -6.88E-01 |
| CPz | 7.67E-01 | -4.05E-01 | 0.00E+00 |
| | X m | Y m | Z m |
| CPx | 0.00E+00 | 1.76E+00 | -9.98E-02 |
| CPy | 2.33E-01 | 0.00E+00 | -2.10E-01 |
| CPz | 2.34E-01 | -1.24E-01 | 0.00E+00 |

Projected areas:

| | | | |
|--|--------|--------|--------------|
| | X | Y | Z |
| | 260.16 | 130.24 | 252.34 ft**2 |
| | 24.17 | 12.10 | 23.44 m**2 |

*Off-diagonal elements are negative integrals

| | | | |
|--------------------------|-------------------------------------|-----------------|-------------|
| Technical Monitor | Title | | |
| Linda Jack (OM) | International Space Station Program | | |
| Approved By | Body 06 | | |
| De Los Reyes (CAMMP) | STEP 004 | | |
| Produced By | Contract | | |
| CAMMP | ISS Program Integration & Control | | |
| | NASA Center/Division | Revision | Date |
| | JSC/OM | AB | 01/30/2008 |

Total mass: 13492. lb
 6120. kg

Center of mass:

| | | | |
|--|-------|--------|--------|
| | X | Y | Z |
| | 14.83 | -33.89 | .03 ft |
| | 4.52 | -10.33 | .01 m |

Inertia Tensor*:

| | | | |
|--|--------|------------|--------|
| | | slug*ft**2 | |
| | 49711. | 22338. | -215. |
| | 22338. | 21854. | 817. |
| | -215. | 817. | 66139. |
| | | kg*m**2 | |
| | 67399. | 30286. | -291. |
| | 30286. | 29630. | 1108. |
| | -291. | 1108. | 89672. |

Principal moments of inertia (I_{XX}, I_{YY}, I_{ZZ}):

| | | | |
|--|--------|--------|-------------------|
| | 62096. | 9446. | 66161. slug*ft**2 |
| | 84191. | 12807. | 89703. kg*m**2 |

Principal to body yaw, pitch, roll in a 3 2 1 sequence:

| | | | |
|--|--------|-------|--------------|
| | -29.04 | -2.18 | 2.15 degrees |
|--|--------|-------|--------------|

Center of Pressure:
(WRT CM)

| | | | |
|-----|-----------|-----------|-----------|
| | X ft | Y ft | Z ft |
| CPx | 0.00E+00 | 5.31E+00 | -5.71E-02 |
| CPy | -1.96E+00 | 0.00E+00 | -2.81E-01 |
| CPz | -2.58E+00 | -1.19E+00 | 0.00E+00 |
| | X m | Y m | Z m |
| CPx | 0.00E+00 | 1.62E+00 | -1.74E-02 |
| CPy | -5.97E-01 | 0.00E+00 | -8.57E-02 |
| CPz | -7.86E-01 | -3.64E-01 | 0.00E+00 |

Projected areas:

| | | | |
|--|--------|--------|--------------|
| | X | Y | Z |
| | 260.94 | 109.06 | 252.34 ft**2 |
| | 24.24 | 10.13 | 23.44 m**2 |

*Off-diagonal elements are negative integrals

| | | | |
|--------------------------|-------------------------------------|-----------------|-------------|
| Technical Monitor | Title | | |
| Linda Jack (OM) | International Space Station Program | | |
| Approved By | Body 06 | | |
| De Los Reyes (CAMMP) | STEP 005 | | |
| Produced By | Contract | | |
| CAMMP | ISS Program Integration & Control | | |
| | NASA Center/Division | Revision | Date |
| | JSC/OM | AB | 01/30/2008 |

Total mass: 10092. lb
 4578. kg

Center of mass:

| | | | |
|--|-------|--------|--------|
| | X | Y | Z |
| | 13.16 | -30.91 | .30 ft |
| | 4.01 | -9.42 | .09 m |

Inertia Tensor*:

| | | | |
|--|--------|------------|--------|
| | | slug*ft**2 | |
| | 34941. | 16077. | -578. |
| | 16077. | 14998. | 1209. |
| | -578. | 1209. | 42419. |
| | | kg*m**2 | |
| | 47374. | 21798. | -783. |
| | 21798. | 20335. | 1639. |
| | -783. | 1639. | 57512. |

Principal moments of inertia (IXX, IYY, IZZ):

| | | | |
|--|--------|-------|-------------------|
| | 43893. | 6002. | 42463. slug*ft**2 |
| | 59511. | 8138. | 57572. kg*m**2 |

Principal to body yaw, pitch, roll in a 3 2 1 sequence:

| | | | |
|--|--------|------|-------------|
| | -29.15 | 3.94 | .21 degrees |
|--|--------|------|-------------|

Center of Pressure:
(WRT CM)

| | | | |
|-----|----------|-----------|-----------|
| | X ft | Y ft | Z ft |
| CPx | 0.00E+00 | 2.86E+00 | -6.00E-01 |
| CPy | 1.76E+00 | 0.00E+00 | -1.01E+00 |
| CPz | 2.34E+00 | -3.33E+00 | 0.00E+00 |
| | X m | Y m | Z m |
| CPx | 0.00E+00 | 8.72E-01 | -1.83E-01 |
| CPy | 5.37E-01 | 0.00E+00 | -3.09E-01 |
| CPz | 7.13E-01 | -1.01E+00 | 0.00E+00 |

Projected areas:

| | | | |
|--|--------|--------|--------------|
| | X | Y | Z |
| | 257.91 | 114.08 | 245.95 ft**2 |
| | 23.96 | 10.60 | 22.85 m**2 |

*Off-diagonal elements are negative integrals

| | | | |
|--------------------------|-------------------------------------|-----------------|-------------|
| Technical Monitor | Title | | |
| Linda Jack (OM) | International Space Station Program | | |
| Approved By | Body 06 | | |
| De Los Reyes (CAMMP) | STEP 006 - 011 | | |
| Produced By | Contract | | |
| CAMMP | ISS Program Integration & Control | | |
| | NASA Center/Division | Revision | Date |
| | JSC/OM | AB | 01/30/2008 |

Total mass: 9531. lb
 4323. kg

Center of mass:

| | | | |
|--|-------|-------|----------|
| | X | Y | Z |
| | 10.60 | 11.09 | -4.00 ft |
| | 3.23 | 3.38 | -1.22 m |

Inertia Tensor*:

| | | | |
|--|--------|------------|--------|
| | | slug*ft**2 | |
| | 27670. | 763. | 5084. |
| | 763. | 18809. | -435. |
| | 5084. | -435. | 16813. |
| | | kg*m**2 | |
| | 37516. | 1035. | 6893. |
| | 1035. | 25501. | -590. |
| | 6893. | -590. | 22796. |

Principal moments of inertia (I_{XX}, I_{YY}, I_{ZZ}):

| | | | |
|--|--------|--------|-------------------|
| | 29707. | 18895. | 14690. slug*ft**2 |
| | 40278. | 25619. | 19917. kg*m**2 |

Principal to body yaw, pitch, roll in a 3 2 1 sequence:

| | | | |
|--|-----|-------|---------------|
| | .86 | 21.60 | 10.22 degrees |
|--|-----|-------|---------------|

Center of Pressure:
(WRT CM)

| | | | |
|-----|-----------|----------|-----------|
| | X ft | Y ft | Z ft |
| CPx | 0.00E+00 | 2.34E+00 | -4.02E-01 |
| CPy | 4.56E-01 | 0.00E+00 | -3.16E+00 |
| CPz | -2.05E-01 | 2.45E-01 | 0.00E+00 |
| | X m | Y m | Z m |
| CPx | 0.00E+00 | 7.14E-01 | -1.23E-01 |
| CPy | 1.39E-01 | 0.00E+00 | -9.64E-01 |
| CPz | -6.23E-02 | 7.47E-02 | 0.00E+00 |

Projected areas:

| | | | |
|--|--------|--------|--------------|
| | X | Y | Z |
| | 241.56 | 122.72 | 134.46 ft**2 |
| | 22.44 | 11.40 | 12.49 m**2 |

*Off-diagonal elements are negative integrals

| | | | |
|--------------------------|-------------------------------------|-----------------|-------------|
| Technical Monitor | Title | | |
| Linda Jack (OM) | International Space Station Program | | |
| Approved By | Body 06 | | |
| De Los Reyes (CAMMP) | STEP 012 | | |
| Produced By | Contract | | |
| CAMMP | ISS Program Integration & Control | | |
| | NASA Center/Division | Revision | Date |
| | JSC/OM | AB | 01/30/2008 |

Total mass: 6184. lb
 2805. kg

Center of mass:

| | | | |
|--|------|-------|---------|
| | X | Y | Z |
| | 8.86 | 11.32 | -.07 ft |
| | 2.70 | 3.45 | -.02 m |

Inertia Tensor*:

| | | | |
|--|--------|------------|--------|
| | | slug*ft**2 | |
| | 10543. | 1853. | 150. |
| | 1853. | 2790. | 86. |
| | 150. | 86. | 10640. |
| | | kg*m**2 | |
| | 14295. | 2512. | 204. |
| | 2512. | 3783. | 117. |
| | 204. | 117. | 14426. |

Principal moments of inertia (IXX, IYY, IZZ):

| | | | |
|--|--------|-------|-------------------|
| | 11033. | 2370. | 10570. slug*ft**2 |
| | 14959. | 3213. | 14332. kg*m**2 |

Principal to body yaw, pitch, roll in a 3 2 1 sequence:

| | | | |
|--|--------|-------|---------------|
| | -13.82 | 22.36 | -4.98 degrees |
|--|--------|-------|---------------|

Center of Pressure:

(WRT CM)

| | | | |
|-----|----------|----------|-----------|
| | X ft | Y ft | Z ft |
| CPx | 0.00E+00 | 3.08E+00 | -4.68E-01 |
| CPy | 7.57E-01 | 0.00E+00 | -9.04E-01 |
| CPz | 3.42E-01 | 2.62E-01 | 0.00E+00 |
| | X m | Y m | Z m |
| CPx | 0.00E+00 | 9.39E-01 | -1.42E-01 |
| CPy | 2.31E-01 | 0.00E+00 | -2.76E-01 |
| CPz | 1.04E-01 | 7.97E-02 | 0.00E+00 |

Projected areas:

| | | | |
|--|--------|-------|--------------|
| | X | Y | Z |
| | 170.46 | 59.85 | 102.40 ft**2 |
| | 15.84 | 5.56 | 9.51 m**2 |

*Off-diagonal elements are negative integrals

| | | | |
|--------------------------|-------------------------------------|-----------------|-------------|
| Technical Monitor | Title | | |
| Linda Jack (OM) | International Space Station Program | | |
| Approved By | Body 06 | | |
| De Los Reyes (CAMMP) | STEP 013 | | |
| Produced By | Contract | | |
| CAMMP | ISS Program Integration & Control | | |
| | NASA Center/Division | Revision | Date |
| | JSC/OM | AB | 01/30/2008 |

Total mass: 6184. lb
 2805. kg

Center of mass:

| | | | |
|--|------|--------|---------|
| | X | Y | Z |
| | 8.86 | -24.18 | -.07 ft |
| | 2.70 | -7.37 | -.02 m |

Inertia Tensor*:

| | | | |
|--|--------|------------|--------|
| | | slug*ft**2 | |
| | 10543. | 1853. | 150. |
| | 1853. | 2790. | 86. |
| | 150. | 86. | 10640. |
| | | kg*m**2 | |
| | 14295. | 2512. | 204. |
| | 2512. | 3783. | 117. |
| | 204. | 117. | 14426. |

Principal moments of inertia (IXX, IYY, IZZ):

| | | | |
|--|--------|-------|-------------------|
| | 11033. | 2370. | 10570. slug*ft**2 |
| | 14959. | 3213. | 14332. kg*m**2 |

Principal to body yaw, pitch, roll in a 3 2 1 sequence:

| | | | |
|--|--------|-------|---------------|
| | -13.82 | 22.36 | -4.98 degrees |
|--|--------|-------|---------------|

Center of Pressure:

(WRT CM)

| | | | |
|-----|----------|----------|-----------|
| | X ft | Y ft | Z ft |
| CPx | 0.00E+00 | 3.09E+00 | -4.68E-01 |
| CPy | 7.57E-01 | 0.00E+00 | -9.04E-01 |
| CPz | 3.42E-01 | 2.74E-01 | 0.00E+00 |
| | X m | Y m | Z m |
| CPx | 0.00E+00 | 9.43E-01 | -1.42E-01 |
| CPy | 2.31E-01 | 0.00E+00 | -2.76E-01 |
| CPz | 1.04E-01 | 8.35E-02 | 0.00E+00 |

Projected areas:

| | | | |
|--|--------|-------|--------------|
| | X | Y | Z |
| | 170.46 | 59.85 | 102.40 ft**2 |
| | 15.84 | 5.56 | 9.51 m**2 |

*Off-diagonal elements are negative integrals

| | | | |
|--------------------------|-------------------------------------|-----------------|-------------|
| Technical Monitor | Title | | |
| Linda Jack (OM) | International Space Station Program | | |
| Approved By | Body 06 | | |
| De Los Reyes (CAMMP) | STEP 014 | | |
| Produced By | Contract | | |
| CAMMP | ISS Program Integration & Control | | |
| | NASA Center/Division | Revision | Date |
| | JSC/OM | AB | 01/30/2008 |

Total mass: 9531. lb
 4323. kg

Center of mass:

| | | | |
|--|-------|--------|----------|
| | X | Y | Z |
| | 10.60 | -24.41 | -4.00 ft |
| | 3.23 | -7.44 | -1.22 m |

Inertia Tensor*:

| | | | |
|--|--------|------------|--------|
| | | slug*ft**2 | |
| | 27670. | 763. | 5084. |
| | 763. | 18809. | -435. |
| | 5084. | -435. | 16813. |
| | | kg*m**2 | |
| | 37516. | 1035. | 6893. |
| | 1035. | 25501. | -590. |
| | 6893. | -590. | 22796. |

Principal moments of inertia (IXX, IYY, IZZ):

| | | | |
|--|--------|--------|-------------------|
| | 29707. | 18895. | 14690. slug*ft**2 |
| | 40278. | 25619. | 19917. kg*m**2 |

Principal to body yaw, pitch, roll in a 3 2 1 sequence:

| | | | |
|--|-----|-------|---------------|
| | .86 | 21.60 | 10.22 degrees |
|--|-----|-------|---------------|

Center of Pressure:

(WRT CM)

| | | | |
|-----|-----------|----------|-----------|
| | X ft | Y ft | Z ft |
| CPx | 0.00E+00 | 2.36E+00 | -3.97E-01 |
| CPy | 4.56E-01 | 0.00E+00 | -3.16E+00 |
| CPz | -2.05E-01 | 2.57E-01 | 0.00E+00 |
| | X m | Y m | Z m |
| CPx | 0.00E+00 | 7.18E-01 | -1.21E-01 |
| CPy | 1.39E-01 | 0.00E+00 | -9.64E-01 |
| CPz | -6.23E-02 | 7.84E-02 | 0.00E+00 |

Projected areas:

| | | | |
|--|--------|--------|--------------|
| | X | Y | Z |
| | 241.46 | 122.72 | 134.46 ft**2 |
| | 22.43 | 11.40 | 12.49 m**2 |

*Off-diagonal elements are negative integrals

| | | | |
|--------------------------|-------------------------------------|-----------------|-------------|
| Technical Monitor | Title | | |
| Linda Jack (OM) | International Space Station Program | | |
| Approved By | Body 06 | | |
| De Los Reyes (CAMMP) | STEP 015 - 022 | | |
| Produced By | Contract | | |
| CAMMP | ISS Program Integration & Control | | |
| | NASA Center/Division | Revision | Date |
| | JSC/OM | AB | 01/30/2008 |

Total mass: 9531. lb
 4323. kg

Center of mass:

| | | | |
|--|-------|-------|----------|
| | X | Y | Z |
| | 10.60 | 11.09 | -4.00 ft |
| | 3.23 | 3.38 | -1.22 m |

Inertia Tensor*:

| | | | |
|--|--------|------------|--------|
| | | slug*ft**2 | |
| | 27670. | 763. | 5084. |
| | 763. | 18809. | -435. |
| | 5084. | -435. | 16813. |
| | | kg*m**2 | |
| | 37516. | 1035. | 6893. |
| | 1035. | 25501. | -590. |
| | 6893. | -590. | 22796. |

Principal moments of inertia (I_{XX}, I_{YY}, I_{ZZ}):

| | | | |
|--|--------|--------|-------------------|
| | 29707. | 18895. | 14690. slug*ft**2 |
| | 40278. | 25619. | 19917. kg*m**2 |

Principal to body yaw, pitch, roll in a 3 2 1 sequence:

| | | | |
|--|-----|-------|---------------|
| | .86 | 21.60 | 10.22 degrees |
|--|-----|-------|---------------|

Center of Pressure:
(WRT CM)

| | | | |
|-----|-----------|----------|-----------|
| | X ft | Y ft | Z ft |
| CPx | 0.00E+00 | 2.34E+00 | -4.02E-01 |
| CPy | 4.56E-01 | 0.00E+00 | -3.16E+00 |
| CPz | -2.05E-01 | 2.45E-01 | 0.00E+00 |
| | X m | Y m | Z m |
| CPx | 0.00E+00 | 7.14E-01 | -1.23E-01 |
| CPy | 1.39E-01 | 0.00E+00 | -9.64E-01 |
| CPz | -6.23E-02 | 7.47E-02 | 0.00E+00 |

Projected areas:

| | | | |
|--|--------|--------|--------------|
| | X | Y | Z |
| | 241.56 | 122.72 | 134.46 ft**2 |
| | 22.44 | 11.40 | 12.49 m**2 |

*Off-diagonal elements are negative integrals

| | | | |
|--------------------------|-------------------------------------|-----------------|-------------|
| Technical Monitor | Title | | |
| Linda Jack (OM) | International Space Station Program | | |
| Approved By | Body 06 | | |
| De Los Reyes (CAMMP) | STEP 023 - 024 | | |
| Produced By | Contract | | |
| CAMMP | ISS Program Integration & Control | | |
| | NASA Center/Division | Revision | Date |
| | JSC/OM | AB | 01/30/2008 |

Total mass: 9543. lb
 4329. kg

Center of mass:

| | | | |
|--|-------|-------|----------|
| | X | Y | Z |
| | 11.42 | 13.29 | -1.67 ft |
| | 3.48 | 4.05 | - .51 m |

Inertia Tensor*:

| | | | |
|--|--------|------------|--------|
| | | slug*ft**2 | |
| | 15070. | -1088. | 2351. |
| | -1088. | 9017. | 2126. |
| | 2351. | 2126. | 17759. |
| | | kg*m**2 | |
| | 20432. | -1475. | 3187. |
| | -1475. | 12225. | 2883. |
| | 3187. | 2883. | 24078. |

Principal moments of inertia (IXX, IYY, IZZ):

| | | | |
|--|--------|--------|-------------------|
| | 14408. | 8140. | 19297. slug*ft**2 |
| | 19535. | 11036. | 26164. kg*m**2 |

Principal to body yaw, pitch, roll in a 3 2 1 sequence:

| | | | |
|--|-------|--------|--------------|
| | 15.40 | -27.07 | 8.65 degrees |
|--|-------|--------|--------------|

Center of Pressure:
(WRT CM)

| | | | |
|-----|----------|----------|-----------|
| | X ft | Y ft | Z ft |
| CPx | 0.00E+00 | 1.68E+00 | 2.76E-01 |
| CPy | 1.49E+00 | 0.00E+00 | -9.45E-01 |
| CPz | 5.13E-01 | 3.45E-01 | 0.00E+00 |
| | X m | Y m | Z m |
| CPx | 0.00E+00 | 5.13E-01 | 8.41E-02 |
| CPy | 4.53E-01 | 0.00E+00 | -2.88E-01 |
| CPz | 1.56E-01 | 1.05E-01 | 0.00E+00 |

Projected areas:

| | | | |
|--|--------|--------|--------------|
| | X | Y | Z |
| | 209.07 | 112.67 | 165.94 ft**2 |
| | 19.42 | 10.47 | 15.42 m**2 |

*Off-diagonal elements are negative integrals

| | | | |
|--------------------------|-------------------------------------|-----------------|-------------|
| Technical Monitor | Title | | |
| Linda Jack (OM) | International Space Station Program | | |
| Approved By | Body 06 | | |
| De Los Reyes (CAMMP) | STEP 025 | | |
| Produced By | Contract | | |
| CAMMP | ISS Program Integration & Control | | |
| | NASA Center/Division | Revision | Date |
| | JSC/OM | AB | 01/30/2008 |

Total mass: 12890. lb
 5847. kg

Center of mass:

| | | | |
|--|-------|--------|----------|
| | X | Y | Z |
| | 13.42 | -47.67 | -2.26 ft |
| | 4.09 | -14.53 | -.69 m |

Inertia Tensor*:

| | | | |
|--|---------|------------|--------|
| | | slug*ft**2 | |
| | 36733. | -8806. | 6165. |
| | -8806. | 22356. | 4360. |
| | 6165. | 4360. | 37900. |
| | | kg*m**2 | |
| | 49803. | -11939. | 8358. |
| | -11939. | 30311. | 5912. |
| | 8358. | 5912. | 51386. |

Principal moments of inertia (IXX, IYY, IZZ):

| | | | |
|--|--------|--------|-------------------|
| | 44004. | 16135. | 36850. slug*ft**2 |
| | 59662. | 21876. | 49962. kg*m**2 |

Principal to body yaw, pitch, roll in a 3 2 1 sequence:

| | | | |
|--|-------|-------|---------------|
| | 30.80 | 28.73 | 35.34 degrees |
|--|-------|-------|---------------|

Center of Pressure:
(WRT CM)

| | | | |
|-----|----------|----------|-----------|
| | X ft | Y ft | Z ft |
| CPx | 0.00E+00 | 2.18E+00 | 2.92E-01 |
| CPy | 1.57E+00 | 0.00E+00 | -7.82E-01 |
| CPz | 7.23E-01 | 1.90E+00 | 0.00E+00 |
| | X m | Y m | Z m |
| CPx | 0.00E+00 | 6.65E-01 | 8.89E-02 |
| CPy | 4.79E-01 | 0.00E+00 | -2.38E-01 |
| CPz | 2.20E-01 | 5.78E-01 | 0.00E+00 |

Projected areas:

| | | | |
|--|--------|--------|--------------|
| | X | Y | Z |
| | 277.15 | 163.65 | 227.12 ft**2 |
| | 25.75 | 15.20 | 21.10 m**2 |

*Off-diagonal elements are negative integrals

| | | | |
|--------------------------|-------------------------------------|-----------------|-------------|
| Technical Monitor | Title | | |
| Linda Jack (OM) | International Space Station Program | | |
| Approved By | Body 06 | | |
| De Los Reyes (CAMMP) | STEP 026 - 032 | | |
| Produced By | Contract | | |
| CAMMP | ISS Program Integration & Control | | |
| | NASA Center/Division | Revision | Date |
| | JSC/OM | AB | 01/30/2008 |

Total mass: 9543. lb
 4329. kg

Center of mass:

| | | | |
|--|-------|-------|----------|
| | X | Y | Z |
| | 11.42 | 10.01 | -1.67 ft |
| | 3.48 | 3.05 | -.51 m |

Inertia Tensor*:

| | | | |
|--|--------|------------|--------|
| | | slug*ft**2 | |
| | 19056. | -6074. | 2351. |
| | -6074. | 9017. | 3675. |
| | 2351. | 3675. | 21745. |
| | | kg*m**2 | |
| | 25836. | -8235. | 3187. |
| | -8235. | 12225. | 4982. |
| | 3187. | 4982. | 29482. |

Principal moments of inertia (IXX, IYY, IZZ):

| | | | |
|--|--------|-------|-------------------|
| | 23112. | 5036. | 21670. slug*ft**2 |
| | 31335. | 6827. | 29380. kg*m**2 |

Principal to body yaw, pitch, roll in a 3 2 1 sequence:

| | | | |
|--|-------|-------|---------------|
| | 41.76 | 50.91 | 50.77 degrees |
|--|-------|-------|---------------|

Center of Pressure:
(WRT CM)

| | | | |
|-----|----------|-----------|-----------|
| | X ft | Y ft | Z ft |
| CPx | 0.00E+00 | -3.63E+00 | 2.11E-01 |
| CPy | 1.49E+00 | 0.00E+00 | -9.46E-01 |
| CPz | 4.95E-01 | -3.40E-01 | 0.00E+00 |
| | X m | Y m | Z m |
| CPx | 0.00E+00 | -1.11E+00 | 6.44E-02 |
| CPy | 4.53E-01 | 0.00E+00 | -2.88E-01 |
| CPz | 1.51E-01 | -1.04E-01 | 0.00E+00 |

Projected areas:

| | | | |
|--|--------|--------|--------------|
| | X | Y | Z |
| | 209.47 | 112.65 | 167.03 ft**2 |
| | 19.46 | 10.47 | 15.52 m**2 |

*Off-diagonal elements are negative integrals

| | | | |
|--------------------------|-------------------------------------|-----------------|-------------|
| Technical Monitor | Title | | |
| Linda Jack (OM) | International Space Station Program | | |
| Approved By | Body 06 | | |
| De Los Reyes (CAMMP) | STEP 033 - 035 | | |
| Produced By | Contract | | |
| CAMMP | ISS Program Integration & Control | | |
| | NASA Center/Division | Revision | Date |
| | JSC/OM | AB | 01/30/2008 |

Total mass: 12890. lb
 5847. kg

Center of mass:

| | | | |
|--|-------|-------|---------|
| | X | Y | Z |
| | 12.04 | 71.26 | 1.77 ft |
| | 3.67 | 21.72 | .54 m |

Inertia Tensor*:

| | | | |
|--|--------|------------|--------|
| | | slug*ft**2 | |
| | 41513. | -4421. | -1311. |
| | -4421. | 28904. | 5493. |
| | -1311. | 5493. | 26906. |
| | | kg*m**2 | |
| | 56284. | -5994. | -1777. |
| | -5994. | 39188. | 7447. |
| | -1777. | 7447. | 36480. |

Principal moments of inertia (IXX, IYY, IZZ):

| | | | |
|--|--------|--------|-------------------|
| | 43467. | 31721. | 22135. slug*ft**2 |
| | 58933. | 43008. | 30011. kg*m**2 |

Principal to body yaw, pitch, roll in a 3 2 1 sequence:

| | | | |
|--|-------|------|----------------|
| | 22.71 | 5.85 | -42.04 degrees |
|--|-------|------|----------------|

Center of Pressure:
(WRT CM)

| | | | |
|-----|----------|-----------|-----------|
| | X ft | Y ft | Z ft |
| CPx | 0.00E+00 | -1.01E+00 | -2.11E+00 |
| CPy | 5.55E+00 | 0.00E+00 | -9.47E-01 |
| CPz | 3.45E+00 | 3.17E+00 | 0.00E+00 |
| | X m | Y m | Z m |
| CPx | 0.00E+00 | -3.08E-01 | -6.42E-01 |
| CPy | 1.69E+00 | 0.00E+00 | -2.89E-01 |
| CPz | 1.05E+00 | 9.67E-01 | 0.00E+00 |

Projected areas:

| | | | |
|--|--------|--------|--------------|
| | X | Y | Z |
| | 248.80 | 193.31 | 232.43 ft**2 |
| | 23.11 | 17.96 | 21.59 m**2 |

*Off-diagonal elements are negative integrals

| | | | |
|--------------------------|-------------------------------------|-----------------|-------------|
| Technical Monitor | Title | | |
| Linda Jack (OM) | International Space Station Program | | |
| Approved By | Body 06 | | |
| De Los Reyes (CAMMP) | STEP 036 - 043 | | |
| Produced By | Contract | | |
| CAMMP | ISS Program Integration & Control | | |
| | NASA Center/Division | Revision | Date |
| | JSC/OM | AB | 01/30/2008 |

Total mass: 12890. lb
 5847. kg

Center of mass:

| | | | |
|--|-------|-------|----------|
| | X | Y | Z |
| | 13.42 | 15.98 | -2.26 ft |
| | 4.09 | 4.87 | -.69 m |

Inertia Tensor*:

| | | | |
|--|---------|------------|--------|
| | | slug*ft**2 | |
| | 36732. | -8806. | 6165. |
| | -8806. | 22356. | 4360. |
| | 6165. | 4360. | 37900. |
| | | kg*m**2 | |
| | 49802. | -11939. | 8358. |
| | -11939. | 30311. | 5912. |
| | 8358. | 5912. | 51385. |

Principal moments of inertia (I_{XX}, I_{YY}, I_{ZZ}):

| | | | |
|--|--------|--------|-------------------|
| | 44003. | 16135. | 36850. slug*ft**2 |
| | 59661. | 21876. | 49962. kg*m**2 |

Principal to body yaw, pitch, roll in a 3 2 1 sequence:

| | | | |
|--|-------|-------|---------------|
| | 30.80 | 28.73 | 35.34 degrees |
|--|-------|-------|---------------|

Center of Pressure:
(WRT CM)

| | | | |
|-----|----------|----------|-----------|
| | X ft | Y ft | Z ft |
| CPx | 0.00E+00 | 2.23E+00 | 3.76E-01 |
| CPy | 1.50E+00 | 0.00E+00 | -7.63E-01 |
| CPz | 6.94E-01 | 1.88E+00 | 0.00E+00 |
| | X m | Y m | Z m |
| CPx | 0.00E+00 | 6.80E-01 | 1.15E-01 |
| CPy | 4.58E-01 | 0.00E+00 | -2.32E-01 |
| CPz | 2.11E-01 | 5.72E-01 | 0.00E+00 |

Projected areas:

| | | | |
|--|--------|--------|--------------|
| | X | Y | Z |
| | 272.20 | 159.09 | 223.37 ft**2 |
| | 25.29 | 14.78 | 20.75 m**2 |

*Off-diagonal elements are negative integrals

| | | | |
|--------------------------|-------------------------------------|-----------------|-------------|
| Technical Monitor | Title | | |
| Linda Jack (OM) | International Space Station Program | | |
| Approved By | Body 06 | | |
| De Los Reyes (CAMMP) | STEP 044 - 045 | | |
| Produced By | Contract | | |
| CAMMP | ISS Program Integration & Control | | |
| | NASA Center/Division | Revision | Date |
| | JSC/OM | AB | 01/30/2008 |

Total mass: 12890. lb
 5847. kg

Center of mass:

| | | | |
|--|-------|--------|----------|
| | X | Y | Z |
| | 13.42 | -47.67 | -2.26 ft |
| | 4.09 | -14.53 | -.69 m |

Inertia Tensor*:

| | | | |
|--|---------|------------|--------|
| | | slug*ft**2 | |
| | 36732. | -8806. | 6165. |
| | -8806. | 22356. | 4360. |
| | 6165. | 4360. | 37900. |
| | | kg*m**2 | |
| | 49802. | -11939. | 8358. |
| | -11939. | 30311. | 5912. |
| | 8358. | 5912. | 51385. |

Principal moments of inertia (IXX, IYY, IZZ):

| | | | |
|--|--------|--------|-------------------|
| | 44003. | 16135. | 36850. slug*ft**2 |
| | 59661. | 21876. | 49962. kg*m**2 |

Principal to body yaw, pitch, roll in a 3 2 1 sequence:

| | | | |
|--|-------|-------|---------------|
| | 30.80 | 28.73 | 35.34 degrees |
|--|-------|-------|---------------|

Center of Pressure:
(WRT CM)

| | | | |
|-----|----------|----------|-----------|
| | X ft | Y ft | Z ft |
| CPx | 0.00E+00 | 2.21E+00 | 2.73E-01 |
| CPy | 1.58E+00 | 0.00E+00 | -7.94E-01 |
| CPz | 7.83E-01 | 1.90E+00 | 0.00E+00 |
| | X m | Y m | Z m |
| CPx | 0.00E+00 | 6.75E-01 | 8.31E-02 |
| CPy | 4.81E-01 | 0.00E+00 | -2.42E-01 |
| CPz | 2.39E-01 | 5.79E-01 | 0.00E+00 |

Projected areas:

| | | | |
|--|--------|--------|--------------|
| | X | Y | Z |
| | 276.39 | 163.82 | 227.27 ft**2 |
| | 25.68 | 15.22 | 21.11 m**2 |

*Off-diagonal elements are negative integrals

| | | | |
|--------------------------|-------------------------------------|-----------------|-------------|
| Technical Monitor | Title | | |
| Linda Jack (OM) | International Space Station Program | | |
| Approved By | Body 06 | | |
| De Los Reyes (CAMMP) | STEP 046 | | |
| Produced By | Contract | | |
| CAMMP | ISS Program Integration & Control | | |
| | NASA Center/Division | Revision | Date |
| | JSC/OM | AB | 01/30/2008 |

Total mass: 21588. lb
 9792. kg

Center of mass:

| | | | |
|--|-------|--------|---------|
| | X | Y | Z |
| | 15.12 | -58.69 | 1.15 ft |
| | 4.61 | -17.89 | .35 m |

Inertia Tensor*:

| | | | |
|--|---------|------------|---------|
| | | slug*ft**2 | |
| | 91110. | 22344. | -149. |
| | 22344. | 43589. | 2182. |
| | -149. | 2182. | 88534. |
| | | kg*m**2 | |
| | 123528. | 30294. | -202. |
| | 30294. | 59099. | 2959. |
| | -202. | 2959. | 120036. |

Principal moments of inertia (IXX, IYY, IZZ):

| | | | |
|--|---------|--------|-------------------|
| | 100004. | 34653. | 88576. slug*ft**2 |
| | 135587. | 46983. | 120093. kg*m**2 |

Principal to body yaw, pitch, roll in a 3 2 1 sequence:

| | | | |
|--|--------|------|-------------|
| | -21.63 | 3.92 | .83 degrees |
|--|--------|------|-------------|

Center of Pressure:
(WRT CM)

| | | | |
|-----|----------|-----------|----------|
| | X ft | Y ft | Z ft |
| CPx | 0.00E+00 | 5.68E+00 | 1.26E-02 |
| CPy | 5.85E+00 | 0.00E+00 | 1.60E+00 |
| CPz | 2.57E+00 | -7.69E-01 | 0.00E+00 |
| | X m | Y m | Z m |
| CPx | 0.00E+00 | 1.73E+00 | 3.83E-03 |
| CPy | 1.78E+00 | 0.00E+00 | 4.89E-01 |
| CPz | 7.83E-01 | -2.34E-01 | 0.00E+00 |

Projected areas:

| | | | |
|--|--------|--------|--------------|
| | X | Y | Z |
| | 352.48 | 279.19 | 426.13 ft**2 |
| | 32.75 | 25.94 | 39.59 m**2 |

*Off-diagonal elements are negative integrals

| | | | |
|--------------------------|-------------------------------------|-----------------|-------------|
| Technical Monitor | Title | | |
| Linda Jack (OM) | International Space Station Program | | |
| Approved By | Body 06 | | |
| De Los Reyes (CAMMP) | STEP 047 | | |
| Produced By | Contract | | |
| CAMMP | ISS Program Integration & Control | | |
| | NASA Center/Division | Revision | Date |
| | JSC/OM | AB | 01/30/2008 |

Total mass: 21588. lb
 9792. kg

Center of mass:

| | | | |
|--|-------|--------|----------|
| | X | Y | Z |
| | 20.60 | -76.87 | -5.81 ft |
| | 6.28 | -23.43 | -1.77 m |

Inertia Tensor*:

| | | | |
|--|---------|------------|---------|
| | | slug*ft**2 | |
| | 134394. | 1272. | 62502. |
| | 1272. | 161625. | 20874. |
| | 62502. | 20874. | 129058. |
| | | kg*m**2 | |
| | 182214. | 1724. | 84742. |
| | 1724. | 219134. | 28301. |
| | 84742. | 28301. | 174979. |

Principal moments of inertia (IXX, IYY, IZZ):

| | | | |
|--|---------|---------|-------------------|
| | 200588. | 157493. | 66996. slug*ft**2 |
| | 271961. | 213532. | 90834. kg*m**2 |

Principal to body yaw, pitch, roll in a 3 2 1 sequence:

| | | | |
|--|--------|-------|----------------|
| | -30.51 | 42.12 | -11.76 degrees |
|--|--------|-------|----------------|

Center of Pressure:
(WRT CM)

| | | | |
|-----|-----------|-----------|-----------|
| | X ft | Y ft | Z ft |
| CPx | 0.00E+00 | 5.50E+00 | -8.44E-01 |
| CPy | 3.46E+00 | 0.00E+00 | -1.92E+00 |
| CPz | -4.51E+00 | -2.22E+00 | 0.00E+00 |
| | X m | Y m | Z m |
| CPx | 0.00E+00 | 1.68E+00 | -2.57E-01 |
| CPy | 1.06E+00 | 0.00E+00 | -5.85E-01 |
| CPz | -1.37E+00 | -6.75E-01 | 0.00E+00 |

Projected areas:

| | | | |
|--|--------|--------|--------------|
| | X | Y | Z |
| | 336.71 | 282.76 | 401.53 ft**2 |
| | 31.28 | 26.27 | 37.30 m**2 |

*Off-diagonal elements are negative integrals

| | | | |
|--------------------------|-------------------------------------|-----------------|-------------|
| Technical Monitor | Title | | |
| Linda Jack (OM) | International Space Station Program | | |
| Approved By | Body 06 | | |
| De Los Reyes (CAMMP) | STEP 048 - 054 | | |
| Produced By | Contract | | |
| CAMMP | ISS Program Integration & Control | | |
| | NASA Center/Division | Revision | Date |
| | JSC/OM | AB | 01/30/2008 |

Total mass: 12890. lb
 5847. kg

Center of mass:

| | | | |
|--|-------|------|---------|
| | X | Y | Z |
| | 12.27 | 9.19 | -.75 ft |
| | 3.74 | 2.80 | -.23 m |

Inertia Tensor*:

| | | | |
|--|--------|------------|--------|
| | | slug*ft**2 | |
| | 43690. | 4526. | 2964. |
| | 4526. | 15680. | 6502. |
| | 2964. | 6502. | 43768. |
| | | kg*m**2 | |
| | 59236. | 6136. | 4019. |
| | 6136. | 21259. | 8816. |
| | 4019. | 8816. | 59341. |

Principal moments of inertia (IXX, IYY, IZZ):

| | | | |
|--|--------|--------|-------------------|
| | 48560. | 13762. | 40816. slug*ft**2 |
| | 65839. | 18659. | 55338. kg*m**2 |

Principal to body yaw, pitch, roll in a 3 2 1 sequence:

| | | | |
|--|--------|-------|--------------|
| | -11.02 | 48.21 | 3.26 degrees |
|--|--------|-------|--------------|

Center of Pressure:
(WRT CM)

| | | | |
|-----|----------|-----------|-----------|
| | X ft | Y ft | Z ft |
| CPx | 0.00E+00 | 7.32E-01 | 1.36E-01 |
| CPy | 9.18E-01 | 0.00E+00 | -8.89E-01 |
| CPz | 3.28E-01 | -4.11E-01 | 0.00E+00 |
| | X m | Y m | Z m |
| CPx | 0.00E+00 | 2.23E-01 | 4.15E-02 |
| CPy | 2.80E-01 | 0.00E+00 | -2.71E-01 |
| CPz | 1.00E-01 | -1.25E-01 | 0.00E+00 |

Projected areas:

| | | | |
|--|--------|--------|--------------|
| | X | Y | Z |
| | 276.09 | 136.48 | 225.69 ft**2 |
| | 25.65 | 12.68 | 20.97 m**2 |

*Off-diagonal elements are negative integrals

| | | | |
|--------------------------|-------------------------------------|-----------------|-------------|
| Technical Monitor | Title | | |
| Linda Jack (OM) | International Space Station Program | | |
| Approved By | Body 06 | | |
| De Los Reyes (CAMMP) | STEP 055 | | |
| Produced By | Contract | | |
| CAMMP | ISS Program Integration & Control | | |
| | NASA Center/Division | Revision | Date |
| | JSC/OM | AB | 01/30/2008 |

Total mass: 10893. lb
 4941. kg

Center of mass:

| | | | |
|--|-------|-------|----------|
| | X | Y | Z |
| | 11.65 | 11.25 | -1.21 ft |
| | 3.55 | 3.43 | -.37 m |

Inertia Tensor*:

| | | | |
|--|--------|------------|--------|
| | | slug*ft**2 | |
| | 27297. | 91. | 1971. |
| | 91. | 10726. | 4688. |
| | 1971. | 4688. | 28690. |
| | | kg*m**2 | |
| | 37010. | 124. | 2672. |
| | 124. | 14543. | 6356. |
| | 2672. | 6356. | 38898. |

Principal moments of inertia (IXX, IYY, IZZ):

| | | | |
|--|--------|--------|-------------------|
| | 26259. | 9568. | 30886. slug*ft**2 |
| | 35603. | 12973. | 41875. kg*m**2 |

Principal to body yaw, pitch, roll in a 3 2 1 sequence:

| | | | |
|--|------|--------|---------------|
| | 1.41 | -28.39 | 13.23 degrees |
|--|------|--------|---------------|

Center of Pressure:
(WRT CM)

| | | | |
|-----|----------|----------|-----------|
| | X ft | Y ft | Z ft |
| CPx | 0.00E+00 | 2.39E+00 | -5.92E-02 |
| CPy | 1.31E+00 | 0.00E+00 | -1.26E+00 |
| CPz | 3.86E-01 | 1.18E+00 | 0.00E+00 |
| | X m | Y m | Z m |
| CPx | 0.00E+00 | 7.30E-01 | -1.80E-02 |
| CPy | 4.00E-01 | 0.00E+00 | -3.85E-01 |
| CPz | 1.18E-01 | 3.61E-01 | 0.00E+00 |

Projected areas:

| | | | |
|--|--------|--------|--------------|
| | X | Y | Z |
| | 224.21 | 117.49 | 178.94 ft**2 |
| | 20.83 | 10.91 | 16.62 m**2 |

*Off-diagonal elements are negative integrals

| | | | |
|--------------------------|-------------------------------------|-----------------|-------------|
| Technical Monitor | Title | | |
| Linda Jack (OM) | International Space Station Program | | |
| Approved By | Body 06 | | |
| De Los Reyes (CAMMP) | STEP 056 | | |
| Produced By | Contract | | |
| CAMMP | ISS Program Integration & Control | | |
| | NASA Center/Division | Revision | Date |
| | JSC/OM | AB | 01/30/2008 |

Total mass: 14164. lb
 6425. kg

Center of mass:

| | | | |
|--|-------|------|---------|
| | X | Y | Z |
| | 12.37 | 8.04 | 1.67 ft |
| | 3.77 | 2.45 | .51 m |

Inertia Tensor*:

| | | | |
|--|--------|------------|--------|
| | | slug*ft**2 | |
| | 49693. | 5206. | -1266. |
| | 5206. | 15823. | -344. |
| | -1266. | -344. | 50091. |
| | | kg*m**2 | |
| | 67375. | 7059. | -1716. |
| | 7059. | 21453. | -467. |
| | -1716. | -467. | 67914. |

Principal moments of inertia (IXX, IYY, IZZ):

| | | | |
|--|--------|--------|-------------------|
| | 51600. | 15040. | 48967. slug*ft**2 |
| | 69961. | 20392. | 66390. kg*m**2 |

Principal to body yaw, pitch, roll in a 3 2 1 sequence:

| | | | |
|--|--------|--------|--------------|
| | -11.22 | -40.30 | 7.06 degrees |
|--|--------|--------|--------------|

Center of Pressure:
(WRT CM)

| | | | |
|-----|----------|-----------|-----------|
| | X ft | Y ft | Z ft |
| CPx | 0.00E+00 | 1.28E+00 | -8.45E-01 |
| CPy | 3.01E-01 | 0.00E+00 | -6.77E-01 |
| CPz | 1.41E-01 | -1.57E-01 | 0.00E+00 |
| | X m | Y m | Z m |
| CPx | 0.00E+00 | 3.90E-01 | -2.58E-01 |
| CPy | 9.18E-02 | 0.00E+00 | -2.06E-01 |
| CPz | 4.30E-02 | -4.77E-02 | 0.00E+00 |

Projected areas:

| | | | |
|--|--------|--------|--------------|
| | X | Y | Z |
| | 295.09 | 121.14 | 235.53 ft**2 |
| | 27.41 | 11.25 | 21.88 m**2 |

*Off-diagonal elements are negative integrals

| | | | |
|--------------------------|-------------------------------------|-----------------|-------------|
| Technical Monitor | Title | | |
| Linda Jack (OM) | International Space Station Program | | |
| Approved By | Body 06 | | |
| De Los Reyes (CAMMP) | STEP 057 - 069 | | |
| Produced By | Contract | | |
| CAMMP | ISS Program Integration & Control | | |
| | NASA Center/Division | Revision | Date |
| | JSC/OM | AB | 01/30/2008 |

Total mass: 9543. lb
 4329. kg

Center of mass:

| | | | |
|--|-------|-------|---------|
| | X | Y | Z |
| | 11.42 | 13.29 | 1.57 ft |
| | 3.48 | 4.05 | .48 m |

Inertia Tensor*:

| | | | |
|--|--------|------------|--------|
| | | slug*ft**2 | |
| | 15286. | -1132. | -2418. |
| | -1132. | 8971. | -1551. |
| | -2418. | -1551. | 17749. |
| | | kg*m**2 | |
| | 20725. | -1535. | -3278. |
| | -1535. | 12163. | -2103. |
| | -3278. | -2103. | 24065. |

Principal moments of inertia (IXX, IYY, IZZ):

| | | | |
|--|--------|--------|-------------------|
| | 14376. | 8344. | 19286. slug*ft**2 |
| | 19491. | 11313. | 26148. kg*m**2 |

Principal to body yaw, pitch, roll in a 3 2 1 sequence:

| | | | |
|--|-------|-------|---------------|
| | 15.40 | 30.02 | -4.96 degrees |
|--|-------|-------|---------------|

Center of Pressure:
(WRT CM)

| | | | |
|-----|----------|----------|-----------|
| | X ft | Y ft | Z ft |
| CPx | 0.00E+00 | 1.58E+00 | -1.00E+00 |
| CPy | 8.72E-01 | 0.00E+00 | -2.40E-01 |
| CPz | 3.56E-01 | 2.64E-01 | 0.00E+00 |
| | X m | Y m | Z m |
| CPx | 0.00E+00 | 4.83E-01 | -3.06E-01 |
| CPy | 2.66E-01 | 0.00E+00 | -7.33E-02 |
| CPz | 1.08E-01 | 8.04E-02 | 0.00E+00 |

Projected areas:

| | | | |
|--|--------|--------|--------------|
| | X | Y | Z |
| | 214.08 | 103.05 | 162.16 ft**2 |
| | 19.89 | 9.57 | 15.07 m**2 |

*Off-diagonal elements are negative integrals

| | | | |
|--------------------------|-------------------------------------|-----------------|-------------|
| Technical Monitor | Title | | |
| Linda Jack (OM) | International Space Station Program | | |
| Approved By | Body 06 | | |
| De Los Reyes (CAMMP) | STEP 070 | | |
| Produced By | Contract | | |
| CAMMP | ISS Program Integration & Control | | |
| | NASA Center/Division | Revision | Date |
| | JSC/OM | AB | 01/30/2008 |

Total mass: 12890. lb
 5847. kg

Center of mass:

| | | | |
|--|-------|-------|----------|
| | X | Y | Z |
| | 12.04 | 57.45 | -1.74 ft |
| | 3.67 | 17.51 | -.53 m |

Inertia Tensor*:

| | | | |
|--|--------|------------|--------|
| | | slug*ft**2 | |
| | 37168. | -1939. | 1159. |
| | -1939. | 27990. | -4206. |
| | 1159. | -4206. | 23201. |
| | | kg*m**2 | |
| | 50393. | -2629. | 1572. |
| | -2629. | 37949. | -5702. |
| | 1572. | -5702. | 31456. |

Principal moments of inertia (IXX, IYY, IZZ):

| | | | |
|--|--------|--------|-------------------|
| | 37856. | 29747. | 20756. slug*ft**2 |
| | 51325. | 40332. | 28141. kg*m**2 |

Principal to body yaw, pitch, roll in a 3 2 1 sequence:

| | | | |
|--|-------|-----|---------------|
| | 16.93 | .10 | 30.15 degrees |
|--|-------|-----|---------------|

Center of Pressure:
(WRT CM)

| | | | |
|-----|----------|----------|-----------|
| | X ft | Y ft | Z ft |
| CPx | 0.00E+00 | 1.33E+00 | -1.24E+00 |
| CPy | 4.38E-01 | 0.00E+00 | -2.39E+00 |
| CPz | 7.62E-02 | 2.70E-01 | 0.00E+00 |
| | X m | Y m | Z m |
| CPx | 0.00E+00 | 4.04E-01 | -3.78E-01 |
| CPy | 1.34E-01 | 0.00E+00 | -7.28E-01 |
| CPz | 2.32E-02 | 8.24E-02 | 0.00E+00 |

Projected areas:

| | | | |
|--|--------|--------|--------------|
| | X | Y | Z |
| | 285.85 | 166.85 | 183.96 ft**2 |
| | 26.56 | 15.50 | 17.09 m**2 |

*Off-diagonal elements are negative integrals

| | | | |
|--------------------------|-------------------------------------|-----------------|-------------|
| Technical Monitor | Title | | |
| Linda Jack (OM) | International Space Station Program | | |
| Approved By | Body 06 | | |
| De Los Reyes (CAMMP) | STEP 071 | | |
| Produced By | Contract | | |
| CAMMP | ISS Program Integration & Control | | |
| | NASA Center/Division | Revision | Date |
| | JSC/OM | AB | 01/30/2008 |

Total mass: 12890. lb
 5847. kg

Center of mass:

| | | | |
|--|-------|--------|---------|
| | X | Y | Z |
| | 12.27 | -54.46 | 1.64 ft |
| | 3.74 | -16.60 | .50 m |

Inertia Tensor*:

| | | | |
|--|--------|------------|--------|
| | | slug*ft**2 | |
| | 42692. | 4649. | -1139. |
| | 4649. | 14649. | -749. |
| | -1139. | -749. | 43993. |
| | | kg*m**2 | |
| | 57883. | 6303. | -1544. |
| | 6303. | 19862. | -1016. |
| | -1544. | -1016. | 59646. |

Principal moments of inertia (I_{XX}, I_{YY}, I_{ZZ}):

| | | | |
|--|--------|--------|-------------------|
| | 42448. | 13889. | 44998. slug*ft**2 |
| | 57552. | 18830. | 61008. kg*m**2 |

Principal to body yaw, pitch, roll in a 3 2 1 sequence:

| | | | |
|--|--------|-------|---------------|
| | -11.60 | 37.91 | -8.26 degrees |
|--|--------|-------|---------------|

Center of Pressure:
(WRT CM)

| | | | |
|-----|----------|-----------|-----------|
| | X ft | Y ft | Z ft |
| CPx | 0.00E+00 | 6.94E-01 | -7.77E-01 |
| CPy | 3.87E-01 | 0.00E+00 | -6.36E-01 |
| CPz | 2.79E-01 | -5.50E-01 | 0.00E+00 |
| | X m | Y m | Z m |
| CPx | 0.00E+00 | 2.12E-01 | -2.37E-01 |
| CPy | 1.18E-01 | 0.00E+00 | -1.94E-01 |
| CPz | 8.50E-02 | -1.68E-01 | 0.00E+00 |

Projected areas:

| | | | |
|--|--------|--------|--------------|
| | X | Y | Z |
| | 283.15 | 120.46 | 221.37 ft**2 |
| | 26.31 | 11.19 | 20.57 m**2 |

*Off-diagonal elements are negative integrals

| | | | |
|--------------------------|-------------------------------------|-----------------|-------------|
| Technical Monitor | Title | | |
| Linda Jack (OM) | International Space Station Program | | |
| Approved By | Body 06 | | |
| De Los Reyes (CAMMP) | STEP 072 - 078 | | |
| Produced By | Contract | | |
| CAMMP | ISS Program Integration & Control | | |
| | NASA Center/Division | Revision | Date |
| | JSC/OM | AB | 01/30/2008 |

Total mass: 12890. lb
 5847. kg

Center of mass:

| | | | |
|--|-------|------|---------|
| | X | Y | Z |
| | 12.27 | 9.19 | 1.64 ft |
| | 3.74 | 2.80 | .50 m |

Inertia Tensor*:

| | | | |
|--|--------|------------|--------|
| | | slug*ft**2 | |
| | 42692. | 4649. | -1139. |
| | 4649. | 14649. | -749. |
| | -1139. | -749. | 43993. |
| | | kg*m**2 | |
| | 57883. | 6303. | -1544. |
| | 6303. | 19862. | -1016. |
| | -1544. | -1016. | 59646. |

Principal moments of inertia (IXX, IYY, IZZ):

| | | | |
|--|--------|--------|-------------------|
| | 42448. | 13889. | 44998. slug*ft**2 |
| | 57552. | 18830. | 61008. kg*m**2 |

Principal to body yaw, pitch, roll in a 3 2 1 sequence:

| | | | |
|--|--------|-------|---------------|
| | -11.60 | 37.91 | -8.26 degrees |
|--|--------|-------|---------------|

Center of Pressure:
(WRT CM)

| | | | |
|-----|----------|-----------|-----------|
| | X ft | Y ft | Z ft |
| CPx | 0.00E+00 | 6.71E-01 | -7.69E-01 |
| CPy | 4.02E-01 | 0.00E+00 | -6.32E-01 |
| CPz | 2.42E-01 | -5.55E-01 | 0.00E+00 |
| | X m | Y m | Z m |
| CPx | 0.00E+00 | 2.05E-01 | -2.34E-01 |
| CPy | 1.22E-01 | 0.00E+00 | -1.93E-01 |
| CPz | 7.39E-02 | -1.69E-01 | 0.00E+00 |

Projected areas:

| | | | |
|--|--------|--------|--------------|
| | X | Y | Z |
| | 283.63 | 120.60 | 221.49 ft**2 |
| | 26.35 | 11.20 | 20.58 m**2 |

*Off-diagonal elements are negative integrals

| | | | |
|--------------------------|-------------------------------------|-----------------|-------------|
| Technical Monitor | Title | | |
| Linda Jack (OM) | International Space Station Program | | |
| Approved By | Body 06 | | |
| De Los Reyes (CAMMP) | STEP 079 - 105 | | |
| Produced By | Contract | | |
| CAMMP | ISS Program Integration & Control | | |
| | NASA Center/Division | Revision | Date |
| | JSC/OM | AB | 01/30/2008 |

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Total mass:                9543. lb
                          4329. kg

Center of mass:

        X           Y           Z
        11.42      13.29      1.57 ft
        3.48       4.05       .48 m

Inertia Tensor*:

                         slug*ft**2
        15286.      -1132.      -2418.
        -1132.      8971.       -1551.
        -2418.      -1551.      17749.

                         kg*m**2
        20725.      -1535.      -3278.
        -1535.      12163.      -2103.
        -3278.      -2103.      24065.

Principal moments of inertia (IXX, IYY, IZZ):
        14376.      8344.       19286. slug*ft**2
        19491.      11313.      26148. kg*m**2

Principal to body yaw, pitch, roll in a 3 2 1 sequence:
        15.40      30.02      -4.96 degrees

Center of Pressure:
(WRT CM)
        X ft           Y ft           Z ft
CPx  0.00E+00      1.56E+00      -1.00E+00
CPy  8.75E-01      0.00E+00      -2.40E-01
CPz  3.75E-01      2.65E-01      0.00E+00

        X m           Y m           Z m
CPx  0.00E+00      4.74E-01      -3.05E-01
CPy  2.67E-01      0.00E+00      -7.31E-02
CPz  1.14E-01      8.09E-02      0.00E+00

Projected areas:

        X           Y           Z
        214.94      103.04      162.19 ft**2
        19.97       9.57       15.07 m**2

```

*Off-diagonal elements are negative integrals

| | | | |
|--------------------------|-------------------------------------|-----------------|-------------|
| Technical Monitor | Title | | |
| Linda Jack (OM) | International Space Station Program | | |
| Approved By | Body 06 | | |
| De Los Reyes (CAMMP) | STEP 106 | | |
| Produced By | Contract | | |
| CAMMP | ISS Program Integration & Control | | |
| | NASA Center/Division | Revision | Date |
| | JSC/OM | AB | 01/30/2008 |

Total mass: 12890. lb
 5847. kg

Center of mass:

| | | | |
|--|-------|-------|----------|
| | X | Y | Z |
| | 12.04 | 57.45 | -1.74 ft |
| | 3.67 | 17.51 | -.53 m |

Inertia Tensor*:

| | | | |
|--|--------|------------|--------|
| | | slug*ft**2 | |
| | 37152. | -1943. | 1165. |
| | -1943. | 27989. | -4176. |
| | 1165. | -4176. | 23191. |
| | | kg*m**2 | |
| | 50372. | -2634. | 1580. |
| | -2634. | 37948. | -5662. |
| | 1580. | -5662. | 31443. |

Principal moments of inertia (IXX, IYY, IZZ):

| | | | |
|--|--------|--------|-------------------|
| | 37843. | 29716. | 20774. slug*ft**2 |
| | 51308. | 40290. | 28166. kg*m**2 |

Principal to body yaw, pitch, roll in a 3 2 1 sequence:

| | | | |
|--|-------|-----|---------------|
| | 16.94 | .13 | 30.03 degrees |
|--|-------|-----|---------------|

Center of Pressure:
(WRT CM)

| | | | |
|-----|----------|----------|-----------|
| | X ft | Y ft | Z ft |
| CPx | 0.00E+00 | 1.33E+00 | -1.24E+00 |
| CPy | 4.38E-01 | 0.00E+00 | -2.39E+00 |
| CPz | 7.62E-02 | 2.70E-01 | 0.00E+00 |
| | X m | Y m | Z m |
| CPx | 0.00E+00 | 4.04E-01 | -3.78E-01 |
| CPy | 1.34E-01 | 0.00E+00 | -7.28E-01 |
| CPz | 2.32E-02 | 8.24E-02 | 0.00E+00 |

Projected areas:

| | | | |
|--|--------|--------|--------------|
| | X | Y | Z |
| | 285.85 | 166.85 | 183.96 ft**2 |
| | 26.56 | 15.50 | 17.09 m**2 |

*Off-diagonal elements are negative integrals

| | | | |
|--------------------------|-------------------------------------|-----------------|-------------|
| Technical Monitor | Title | | |
| Linda Jack (OM) | International Space Station Program | | |
| Approved By | Body 06 | | |
| De Los Reyes (CAMMP) | STEP 107 - 108 | | |
| Produced By | Contract | | |
| CAMMP | ISS Program Integration & Control | | |
| | NASA Center/Division | Revision | Date |
| | JSC/OM | AB | 01/30/2008 |

Total mass: 12890. lb
 5847. kg

Center of mass:

| | | | |
|--|-------|-------|----------|
| | X | Y | Z |
| | 12.04 | 12.60 | -1.74 ft |
| | 3.67 | 3.84 | - .53 m |

Inertia Tensor*:

| | | | |
|--|--------|------------|--------|
| | | slug*ft**2 | |
| | 37152. | -1943. | 1165. |
| | -1943. | 27989. | -4176. |
| | 1165. | -4176. | 23191. |
| | | kg*m**2 | |
| | 50372. | -2634. | 1580. |
| | -2634. | 37948. | -5662. |
| | 1580. | -5662. | 31443. |

Principal moments of inertia (IXX, IYY, IZZ):

| | | | |
|--|--------|--------|-------------------|
| | 37843. | 29716. | 20774. slug*ft**2 |
| | 51308. | 40290. | 28166. kg*m**2 |

Principal to body yaw, pitch, roll in a 3 2 1 sequence:

| | | | |
|--|-------|-----|---------------|
| | 16.94 | .13 | 30.03 degrees |
|--|-------|-----|---------------|

Center of Pressure:
(WRT CM)

| | | | |
|-----|----------|----------|-----------|
| | X ft | Y ft | Z ft |
| CPx | 0.00E+00 | 1.33E+00 | -1.26E+00 |
| CPy | 4.38E-01 | 0.00E+00 | -2.39E+00 |
| CPz | 7.61E-02 | 2.81E-01 | 0.00E+00 |
| | X m | Y m | Z m |
| CPx | 0.00E+00 | 4.06E-01 | -3.84E-01 |
| CPy | 1.33E-01 | 0.00E+00 | -7.29E-01 |
| CPz | 2.32E-02 | 8.57E-02 | 0.00E+00 |

Projected areas:

| | | | |
|--|--------|--------|--------------|
| | X | Y | Z |
| | 286.23 | 166.96 | 183.97 ft**2 |
| | 26.59 | 15.51 | 17.09 m**2 |

*Off-diagonal elements are negative integrals

| | | | |
|--------------------------|-------------------------------------|-----------------|-------------|
| Technical Monitor | Title | | |
| Linda Jack (OM) | International Space Station Program | | |
| Approved By | Body 09 | | |
| De Los Reyes (CAMMP) | STEP 001 - 108 | | |
| Produced By | Contract | | |
| CAMMP | ISS Program Integration & Control | | |
| | NASA Center/Division | Revision | Date |
| | JSC/OM | AB | 01/30/2008 |

Total mass: 2342. lb
 1062. kg

Center of mass:

| | | | |
|--|--------|--------|---------|
| | X | Y | Z |
| | -46.19 | 109.48 | 2.92 ft |
| | -14.08 | 33.37 | .89 m |

Inertia Tensor*:

| | | | |
|--|-------|------------|---------|
| | | slug*ft**2 | |
| | 6140. | 30. | 68. |
| | 30. | 130209. | 0. |
| | 68. | 0. | 136196. |
| | | kg*m**2 | |
| | 8325. | 41. | 92. |
| | 41. | 176540. | 0. |
| | 92. | 0. | 184657. |

Principal moments of inertia (IXX, IYY, IZZ):

| | | | |
|--|-------|---------|--------------------|
| | 6140. | 130209. | 136196. slug*ft**2 |
| | 8325. | 176540. | 184657. kg*m**2 |

Principal to body yaw, pitch, roll in a 3 2 1 sequence:

| | | | |
|--|-----|------|-------------|
| | .01 | -.03 | .00 degrees |
|--|-----|------|-------------|

Center of Pressure:

(WRT CM)

| | | | |
|-----|-----------|----------|-----------|
| | X ft | Y ft | Z ft |
| CPx | 0.00E+00 | 2.45E-01 | -1.60E-01 |
| CPy | 2.95E+00 | 0.00E+00 | -1.23E+00 |
| CPz | -1.75E+01 | 9.45E-02 | 0.00E+00 |
| | X m | Y m | Z m |
| CPx | 0.00E+00 | 7.47E-02 | -4.89E-02 |
| CPy | 9.00E-01 | 0.00E+00 | -3.76E-01 |
| CPz | -5.34E+00 | 2.88E-02 | 0.00E+00 |

Projected areas:

| | | | |
|--|-------|-------|---------------|
| | X | Y | Z |
| | 72.71 | 79.73 | 3213.99 ft**2 |
| | 6.75 | 7.41 | 298.59 m**2 |

*Off-diagonal elements are negative integrals

| | | | |
|--------------------------|-------------------------------------|-----------------|-------------|
| Technical Monitor | Title | | |
| Linda Jack (OM) | International Space Station Program | | |
| Approved By | Body 10 | | |
| De Los Reyes (CAMMP) | STEP 001 - 108 | | |
| Produced By | Contract | | |
| CAMMP | ISS Program Integration & Control | | |
| | NASA Center/Division | Revision | Date |
| | JSC/OM | AB | 01/30/2008 |

Total mass: 2342. lb
 1062. kg

Center of mass:

| | | | |
|--|-------|--------|----------|
| | X | Y | Z |
| | 48.56 | 109.61 | -1.41 ft |
| | 14.80 | 33.41 | -.43 m |

Inertia Tensor*:

| | | | |
|--|-------|------------|---------|
| | | slug*ft**2 | |
| | 6140. | 30. | -68. |
| | 30. | 130209. | 0. |
| | -68. | 0. | 136196. |
| | | kg*m**2 | |
| | 8325. | 41. | -92. |
| | 41. | 176540. | 0. |
| | -92. | 0. | 184657. |

Principal moments of inertia (I_{XX}, I_{YY}, I_{ZZ}):

| | | | |
|--|-------|---------|--------------------|
| | 6140. | 130209. | 136196. slug*ft**2 |
| | 8325. | 176540. | 184657. kg*m**2 |

Principal to body yaw, pitch, roll in a 3 2 1 sequence:

| | | | |
|--|-----|-----|-------------|
| | .01 | .03 | .00 degrees |
|--|-----|-----|-------------|

Center of Pressure:
(WRT CM)

| | | | |
|-----|-----------|-----------|-----------|
| | X ft | Y ft | Z ft |
| CPx | 0.00E+00 | 6.19E-02 | -1.63E-01 |
| CPy | -7.93E-01 | 0.00E+00 | -1.24E+00 |
| CPz | 1.82E+01 | -9.28E-02 | 0.00E+00 |
| | X m | Y m | Z m |
| CPx | 0.00E+00 | 1.89E-02 | -4.97E-02 |
| CPy | -2.42E-01 | 0.00E+00 | -3.77E-01 |
| CPz | 5.54E+00 | -2.83E-02 | 0.00E+00 |

Projected areas:

| | | | |
|--|-------|-------|---------------|
| | X | Y | Z |
| | 72.71 | 79.73 | 3214.15 ft**2 |
| | 6.75 | 7.41 | 298.60 m**2 |

*Off-diagonal elements are negative integrals

| | | | |
|--------------------------|-------------------------------------|-----------------|-------------|
| Technical Monitor | Title | | |
| Linda Jack (OM) | International Space Station Program | | |
| Approved By | Body 11 | | |
| De Los Reyes (CAMMP) | STEP 035 - 108 | | |
| Produced By | Contract | | |
| CAMMP | ISS Program Integration & Control | | |
| | NASA Center/Division | Revision | Date |
| | JSC/OM | AB | 01/30/2008 |

Total mass: 2342. lb
 1062. kg

Center of mass:

| | | | |
|--|--------|--------|---------|
| | X | Y | Z |
| | -46.23 | 159.28 | 2.53 ft |
| | -14.09 | 48.55 | .77 m |

Inertia Tensor*:

| | | | |
|--|-------|------------|---------|
| | | slug*ft**2 | |
| | 6140. | 30. | 68. |
| | 30. | 130209. | 0. |
| | 68. | 0. | 136196. |
| | | kg*m**2 | |
| | 8325. | 41. | 92. |
| | 41. | 176540. | 0. |
| | 92. | 0. | 184657. |

Principal moments of inertia (I_{XX}, I_{YY}, I_{ZZ}):

| | | | |
|--|-------|---------|--------------------|
| | 6140. | 130209. | 136196. slug*ft**2 |
| | 8325. | 176540. | 184657. kg*m**2 |

Principal to body yaw, pitch, roll in a 3 2 1 sequence:

| | | | |
|--|-----|------|-------------|
| | .01 | -.03 | .00 degrees |
|--|-----|------|-------------|

Center of Pressure:

(WRT CM)

| | | | |
|-----|-----------|----------|-----------|
| | X ft | Y ft | Z ft |
| CPx | 0.00E+00 | 1.58E-01 | 2.33E-01 |
| CPy | 3.06E+00 | 0.00E+00 | -8.40E-01 |
| CPz | -1.79E+01 | 2.88E-02 | 0.00E+00 |
| | X m | Y m | Z m |
| CPx | 0.00E+00 | 4.82E-02 | 7.09E-02 |
| CPy | 9.33E-01 | 0.00E+00 | -2.56E-01 |
| CPz | -5.45E+00 | 8.79E-03 | 0.00E+00 |

Projected areas:

| | | | |
|--|-------|-------|---------------|
| | X | Y | Z |
| | 72.64 | 79.47 | 3254.72 ft**2 |
| | 6.75 | 7.38 | 302.37 m**2 |

*Off-diagonal elements are negative integrals

| | | | |
|--------------------------|-------------------------------------|-----------------|-------------|
| Technical Monitor | Title | | |
| Linda Jack (OM) | International Space Station Program | | |
| Approved By | Body 12 | | |
| De Los Reyes (CAMMP) | STEP 035 - 108 | | |
| Produced By | Contract | | |
| CAMMP | ISS Program Integration & Control | | |
| | NASA Center/Division | Revision | Date |
| | JSC/OM | AB | 01/30/2008 |

Total mass: 2342. lb
 1062. kg

Center of mass:

| | | | |
|--|-------|--------|----------|
| | X | Y | Z |
| | 48.52 | 159.38 | -1.41 ft |
| | 14.79 | 48.58 | -.43 m |

Inertia Tensor*:

| | | | |
|--|-------|------------|---------|
| | | slug*ft**2 | |
| | 6140. | 30. | -68. |
| | 30. | 130209. | 0. |
| | -68. | 0. | 136196. |
| | | kg*m**2 | |
| | 8325. | 41. | -92. |
| | 41. | 176540. | 0. |
| | -92. | 0. | 184657. |

Principal moments of inertia (IXX, IYY, IZZ):

| | | | |
|--|-------|---------|--------------------|
| | 6140. | 130209. | 136196. slug*ft**2 |
| | 8325. | 176540. | 184657. kg*m**2 |

Principal to body yaw, pitch, roll in a 3 2 1 sequence:

| | | | |
|--|-----|-----|-------------|
| | .01 | .03 | .00 degrees |
|--|-----|-----|-------------|

Center of Pressure:
(WRT CM)

| | | | |
|-----|-----------|-----------|-----------|
| | X ft | Y ft | Z ft |
| CPx | 0.00E+00 | 5.97E-02 | -1.64E-01 |
| CPy | -8.71E-01 | 0.00E+00 | -1.24E+00 |
| CPz | 1.79E+01 | -6.98E-02 | 0.00E+00 |
| | X m | Y m | Z m |
| CPx | 0.00E+00 | 1.82E-02 | -4.99E-02 |
| CPy | -2.65E-01 | 0.00E+00 | -3.77E-01 |
| CPz | 5.45E+00 | -2.13E-02 | 0.00E+00 |

Projected areas:

| | | | |
|--|-------|-------|---------------|
| | X | Y | Z |
| | 72.64 | 79.47 | 3254.70 ft**2 |
| | 6.75 | 7.38 | 302.37 m**2 |

*Off-diagonal elements are negative integrals

| | | | |
|--------------------------|-------------------------------------|-----------------|-------------|
| Technical Monitor | Title | | |
| Linda Jack (OM) | International Space Station Program | | |
| Approved By | Body 13 | | |
| De Los Reyes (CAMMP) | STEP 001 - 108 | | |
| Produced By | Contract | | |
| CAMMP | ISS Program Integration & Control | | |
| | NASA Center/Division | Revision | Date |
| | JSC/OM | AB | 01/30/2008 |

Total mass: 2342. lb
 1062. kg

Center of mass:

| | | | |
|--|--------|---------|----------|
| | X | Y | Z |
| | -48.56 | -109.71 | -1.41 ft |
| | -14.80 | -33.44 | -.43 m |

Inertia Tensor*:

| | | | |
|--|-------|------------|---------|
| | | slug*ft**2 | |
| | 6140. | 30. | 68. |
| | 30. | 130209. | 0. |
| | 68. | 0. | 136196. |
| | | kg*m**2 | |
| | 8325. | 41. | 92. |
| | 41. | 176540. | 0. |
| | 92. | 0. | 184657. |

Principal moments of inertia (IXX, IYY, IZZ):

| | | | |
|--|-------|---------|--------------------|
| | 6140. | 130209. | 136196. slug*ft**2 |
| | 8325. | 176540. | 184657. kg*m**2 |

Principal to body yaw, pitch, roll in a 3 2 1 sequence:

| | | | |
|--|-----|------|-------------|
| | .01 | -.03 | .00 degrees |
|--|-----|------|-------------|

Center of Pressure:
(WRT CM)

| | | | |
|-----|-----------|----------|-----------|
| | X ft | Y ft | Z ft |
| CPx | 0.00E+00 | 2.49E-01 | -1.64E-01 |
| CPy | 2.97E+00 | 0.00E+00 | -1.24E+00 |
| CPz | -1.75E+01 | 9.84E-02 | 0.00E+00 |
| | X m | Y m | Z m |
| CPx | 0.00E+00 | 7.59E-02 | -4.99E-02 |
| CPy | 9.06E-01 | 0.00E+00 | -3.77E-01 |
| CPz | -5.33E+00 | 3.00E-02 | 0.00E+00 |

Projected areas:

| | | | |
|--|-------|-------|---------------|
| | X | Y | Z |
| | 72.71 | 79.73 | 3213.99 ft**2 |
| | 6.75 | 7.41 | 298.59 m**2 |

*Off-diagonal elements are negative integrals

| | | | |
|--------------------------|-------------------------------------|-----------------|-------------|
| Technical Monitor | Title | | |
| Linda Jack (OM) | International Space Station Program | | |
| Approved By | Body 14 | | |
| De Los Reyes (CAMMP) | STEP 001 - 108 | | |
| Produced By | Contract | | |
| CAMMP | ISS Program Integration & Control | | |
| | NASA Center/Division | Revision | Date |
| | JSC/OM | AB | 01/30/2008 |

Total mass: 2342. lb
 1062. kg

Center of mass:

| | | | |
|--|-------|---------|---------|
| | X | Y | Z |
| | 46.19 | -109.58 | 2.92 ft |
| | 14.08 | -33.40 | .89 m |

Inertia Tensor*:

| | | | |
|--|-------|------------|---------|
| | | slug*ft**2 | |
| | 6140. | 30. | -68. |
| | 30. | 130209. | 0. |
| | -68. | 0. | 136196. |
| | | kg*m**2 | |
| | 8325. | 41. | -92. |
| | 41. | 176540. | 0. |
| | -92. | 0. | 184657. |

Principal moments of inertia (IXX, IYY, IZZ):

| | | | |
|--|-------|---------|--------------------|
| | 6140. | 130209. | 136196. slug*ft**2 |
| | 8325. | 176540. | 184657. kg*m**2 |

Principal to body yaw, pitch, roll in a 3 2 1 sequence:

| | | | |
|--|-----|-----|-------------|
| | .01 | .03 | .00 degrees |
|--|-----|-----|-------------|

Center of Pressure:
(WRT CM)

| | | | |
|-----|-----------|-----------|-----------|
| | X ft | Y ft | Z ft |
| CPx | 0.00E+00 | 6.57E-02 | -1.61E-01 |
| CPy | -7.72E-01 | 0.00E+00 | -1.23E+00 |
| CPz | 1.82E+01 | -8.90E-02 | 0.00E+00 |
| | X m | Y m | Z m |
| CPx | 0.00E+00 | 2.00E-02 | -4.91E-02 |
| CPy | -2.35E-01 | 0.00E+00 | -3.76E-01 |
| CPz | 5.55E+00 | -2.71E-02 | 0.00E+00 |

Projected areas:

| | | | |
|--|-------|-------|---------------|
| | X | Y | Z |
| | 72.71 | 79.73 | 3214.15 ft**2 |
| | 6.75 | 7.41 | 298.60 m**2 |

*Off-diagonal elements are negative integrals

| | | | |
|--------------------------|-------------------------------------|-----------------|-------------|
| Technical Monitor | Title | | |
| Linda Jack (OM) | International Space Station Program | | |
| Approved By | Body 15 | | |
| De Los Reyes (CAMMP) | STEP 001 - 108 | | |
| Produced By | Contract | | |
| CAMMP | ISS Program Integration & Control | | |
| | NASA Center/Division | Revision | Date |
| | JSC/OM | AB | 01/30/2008 |

Total mass: 2342. lb
 1062. kg

Center of mass:

| | | | |
|--|--------|---------|----------|
| | X | Y | Z |
| | -48.52 | -159.38 | -1.41 ft |
| | -14.79 | -48.58 | -.43 m |

Inertia Tensor*:

| | | | |
|--|-------|------------|---------|
| | | slug*ft**2 | |
| | 6140. | 30. | 68. |
| | 30. | 130209. | 0. |
| | 68. | 0. | 136196. |
| | | kg*m**2 | |
| | 8325. | 41. | 92. |
| | 41. | 176540. | 0. |
| | 92. | 0. | 184657. |

Principal moments of inertia (IXX, IYY, IZZ):

| | | | |
|--|-------|---------|--------------------|
| | 6140. | 130209. | 136196. slug*ft**2 |
| | 8325. | 176540. | 184657. kg*m**2 |

Principal to body yaw, pitch, roll in a 3 2 1 sequence:

| | | | |
|--|-----|------|-------------|
| | .01 | -.03 | .00 degrees |
|--|-----|------|-------------|

Center of Pressure:
(WRT CM)

| | | | |
|-----|-----------|----------|-----------|
| | X ft | Y ft | Z ft |
| CPx | 0.00E+00 | 2.48E-01 | -1.63E-01 |
| CPy | 2.95E+00 | 0.00E+00 | -1.24E+00 |
| CPz | -1.75E+01 | 9.77E-02 | 0.00E+00 |
| | X m | Y m | Z m |
| CPx | 0.00E+00 | 7.57E-02 | -4.97E-02 |
| CPy | 9.00E-01 | 0.00E+00 | -3.77E-01 |
| CPz | -5.34E+00 | 2.98E-02 | 0.00E+00 |

Projected areas:

| | | | |
|--|-------|-------|---------------|
| | X | Y | Z |
| | 72.71 | 79.73 | 3213.99 ft**2 |
| | 6.75 | 7.41 | 298.59 m**2 |

*Off-diagonal elements are negative integrals

| | | | |
|--------------------------|-------------------------------------|-----------------|-------------|
| Technical Monitor | Title | | |
| Linda Jack (OM) | International Space Station Program | | |
| Approved By | Body 16 | | |
| De Los Reyes (CAMMP) | STEP 001 - 108 | | |
| Produced By | Contract | | |
| CAMMP | ISS Program Integration & Control | | |
| | NASA Center/Division | Revision | Date |
| | JSC/OM | AB | 01/30/2008 |

Total mass: 2342. lb
 1062. kg

Center of mass:

| | | | |
|--|-------|---------|---------|
| | X | Y | Z |
| | 46.23 | -159.25 | 2.89 ft |
| | 14.09 | -48.54 | .88 m |

Inertia Tensor*:

| | | | |
|--|-------|------------|---------|
| | | slug*ft**2 | |
| | 6140. | 30. | -68. |
| | 30. | 130209. | 0. |
| | -68. | 0. | 136196. |
| | | kg*m**2 | |
| | 8325. | 41. | -92. |
| | 41. | 176540. | 0. |
| | -92. | 0. | 184657. |

Principal moments of inertia (IXX, IYY, IZZ):

| | | | |
|--|-------|---------|--------------------|
| | 6140. | 130209. | 136196. slug*ft**2 |
| | 8325. | 176540. | 184657. kg*m**2 |

Principal to body yaw, pitch, roll in a 3 2 1 sequence:

| | | | |
|--|-----|-----|-------------|
| | .01 | .03 | .00 degrees |
|--|-----|-----|-------------|

Center of Pressure:

(WRT CM)

| | | | |
|-----|-----------|-----------|-----------|
| | X ft | Y ft | Z ft |
| CPx | 0.00E+00 | 6.51E-02 | -1.27E-01 |
| CPy | -7.91E-01 | 0.00E+00 | -1.20E+00 |
| CPz | 1.82E+01 | -8.96E-02 | 0.00E+00 |
| | X m | Y m | Z m |
| CPx | 0.00E+00 | 1.99E-02 | -3.88E-02 |
| CPy | -2.41E-01 | 0.00E+00 | -3.66E-01 |
| CPz | 5.55E+00 | -2.73E-02 | 0.00E+00 |

Projected areas:

| | | | |
|--|-------|-------|---------------|
| | X | Y | Z |
| | 72.71 | 79.73 | 3214.15 ft**2 |
| | 6.75 | 7.41 | 298.60 m**2 |

*Off-diagonal elements are negative integrals

| | | | |
|--------------------------|-------------------------------------|-----------------|-------------|
| Technical Monitor | Title | | |
| Linda Jack (OM) | International Space Station Program | | |
| Approved By | Body 17 | | |
| De Los Reyes (CAMMP) | STEP 001 - 018 | | |
| Produced By | Contract | | |
| CAMMP | ISS Program Integration & Control | | |
| | NASA Center/Division | Revision | Date |
| | JSC/OM | AB | 01/30/2008 |

Total mass: 37171. lb
 16861. kg

Center of mass:

| | | | |
|--|---------|-----|----------|
| | X | Y | Z |
| | -126.77 | .10 | 13.62 ft |
| | -38.64 | .03 | 4.15 m |

Inertia Tensor*:

| | | | |
|--|--------|------------|---------|
| | | slug*ft**2 | |
| | 39870. | 251. | 183. |
| | 251. | 96619. | -143. |
| | 183. | -143. | 94340. |
| | | kg*m**2 | |
| | 54056. | 340. | 248. |
| | 340. | 130998. | -194. |
| | 248. | -194. | 127908. |

Principal moments of inertia (IXX, IYY, IZZ):

| | | | |
|--|--------|---------|-------------------|
| | 39868. | 96629. | 94332. slug*ft**2 |
| | 54054. | 131011. | 127897. kg*m**2 |

Principal to body yaw, pitch, roll in a 3 2 1 sequence:

| | | | |
|--|-----|------|--------------|
| | .24 | -.21 | 3.56 degrees |
|--|-----|------|--------------|

Center of Pressure:
(WRT CM)

| | | | |
|-----|-----------|-----------|-----------|
| | X ft | Y ft | Z ft |
| CPx | 0.00E+00 | -1.13E-01 | -2.60E-02 |
| CPy | -5.39E+00 | 0.00E+00 | -3.82E-02 |
| CPz | -5.59E+00 | -1.86E-01 | 0.00E+00 |
| | X m | Y m | Z m |
| CPx | 0.00E+00 | -3.45E-02 | -7.92E-03 |
| CPy | -1.64E+00 | 0.00E+00 | -1.16E-02 |
| CPz | -1.70E+00 | -5.68E-02 | 0.00E+00 |

Projected areas:

| | | | |
|--|--------|--------|--------------|
| | X | Y | Z |
| | 538.88 | 376.71 | 380.11 ft**2 |
| | 50.06 | 35.00 | 35.31 m**2 |

*Off-diagonal elements are negative integrals

| | | | |
|--------------------------|-------------------------------------|-----------------|-------------|
| Technical Monitor | Title | | |
| Linda Jack (OM) | International Space Station Program | | |
| Approved By | Body 17 | | |
| De Los Reyes (CAMMP) | STEP 020 - 027 | | |
| Produced By | Contract | | |
| CAMMP | ISS Program Integration & Control | | |
| | NASA Center/Division | Revision | Date |
| | JSC/OM | AB | 01/30/2008 |

Total mass: 15216. lb
 6902. kg

Center of mass:

| | | | |
|--|---------|------|----------|
| | X | Y | Z |
| | -130.97 | -.23 | 13.65 ft |
| | -39.92 | -.07 | 4.16 m |

Inertia Tensor*:

| | | | |
|--|-------|------------|--------|
| | | slug*ft**2 | |
| | 3508. | 253. | -343. |
| | 253. | 16982. | -12. |
| | -343. | -12. | 17649. |
| | | kg*m**2 | |
| | 4756. | 343. | -465. |
| | 343. | 23024. | -16. |
| | -465. | -16. | 23929. |

Principal moments of inertia (IXX, IYY, IZZ):

| | | | |
|--|-------|--------|-------------------|
| | 3495. | 16986. | 17658. slug*ft**2 |
| | 4738. | 23030. | 23941. kg*m**2 |

Principal to body yaw, pitch, roll in a 3 2 1 sequence:

| | | | |
|--|------|------|---------------|
| | 1.04 | 1.42 | -1.53 degrees |
|--|------|------|---------------|

Center of Pressure:
(WRT CM)

| | | | |
|-----|-----------|-----------|-----------|
| | X ft | Y ft | Z ft |
| CPx | 0.00E+00 | -2.09E-01 | 1.41E-02 |
| CPy | -6.25E-01 | 0.00E+00 | -1.46E-02 |
| CPz | -6.03E-01 | 1.04E-01 | 0.00E+00 |
| | X m | Y m | Z m |
| CPx | 0.00E+00 | -6.38E-02 | 4.30E-03 |
| CPy | -1.90E-01 | 0.00E+00 | -4.46E-03 |
| CPz | -1.84E-01 | 3.16E-02 | 0.00E+00 |

Projected areas:

| | | | |
|--|-------|--------|--------------|
| | X | Y | Z |
| | 72.32 | 243.09 | 244.44 ft**2 |
| | 6.72 | 22.58 | 22.71 m**2 |

*Off-diagonal elements are negative integrals

| | | | |
|--------------------------|-------------------------------------|-----------------|-------------|
| Technical Monitor | Title | | |
| Linda Jack (OM) | International Space Station Program | | |
| Approved By | Body 17 | | |
| De Los Reyes (CAMMP) | STEP 029 - 030 | | |
| Produced By | Contract | | |
| CAMMP | ISS Program Integration & Control | | |
| | NASA Center/Division | Revision | Date |
| | JSC/OM | AB | 01/30/2008 |

Total mass: 14870. lb
 6745. kg

Center of mass:

| | | | |
|--|---------|------|----------|
| | X | Y | Z |
| | -130.64 | -.13 | 13.65 ft |
| | -39.82 | -.04 | 4.16 m |

Inertia Tensor*:

| | | | |
|--|-------|------------|--------|
| | | slug*ft**2 | |
| | 3422. | -119. | -434. |
| | -119. | 18005. | 308. |
| | -434. | 308. | 18036. |
| | | kg*m**2 | |
| | 4639. | -161. | -589. |
| | -161. | 24412. | 418. |
| | -589. | 418. | 24454. |

Principal moments of inertia (IXX, IYY, IZZ):

| | | | |
|--|-------|--------|-------------------|
| | 3408. | 17715. | 18340. slug*ft**2 |
| | 4620. | 24019. | 24866. kg*m**2 |

Principal to body yaw, pitch, roll in a 3 2 1 sequence:

| | | | |
|--|-----|------|---------------|
| | .84 | 1.53 | 43.04 degrees |
|--|-----|------|---------------|

Center of Pressure:
(WRT CM)

| | | | |
|-----|-----------|-----------|-----------|
| | X ft | Y ft | Z ft |
| CPx | 0.00E+00 | -2.50E-01 | 3.27E-02 |
| CPy | -6.35E-01 | 0.00E+00 | -8.45E-03 |
| CPz | -6.66E-01 | 2.20E-02 | 0.00E+00 |
| | X m | Y m | Z m |
| CPx | 0.00E+00 | -7.61E-02 | 9.97E-03 |
| CPy | -1.93E-01 | 0.00E+00 | -2.57E-03 |
| CPz | -2.03E-01 | 6.71E-03 | 0.00E+00 |

Projected areas:

| | | | |
|--|-------|--------|--------------|
| | X | Y | Z |
| | 73.19 | 233.32 | 235.07 ft**2 |
| | 6.80 | 21.68 | 21.84 m**2 |

*Off-diagonal elements are negative integrals

| | | | |
|--------------------------|-------------------------------------|-----------------|-------------|
| Technical Monitor | Title | | |
| Linda Jack (OM) | International Space Station Program | | |
| Approved By | Body 17 | | |
| De Los Reyes (CAMMP) | STEP 038 | | |
| Produced By | Contract | | |
| CAMMP | ISS Program Integration & Control | | |
| | NASA Center/Division | Revision | Date |
| | JSC/OM | AB | 01/30/2008 |

Total mass: 15216. lb
 6902. kg

Center of mass:

| | | | |
|--|---------|------|----------|
| | X | Y | Z |
| | -130.97 | -.23 | 13.65 ft |
| | -39.92 | -.07 | 4.16 m |

Inertia Tensor*:

| | | | |
|--|-------|------------|--------|
| | | slug*ft**2 | |
| | 3508. | 253. | -343. |
| | 253. | 16982. | -12. |
| | -343. | -12. | 17649. |
| | | kg*m**2 | |
| | 4756. | 343. | -465. |
| | 343. | 23024. | -16. |
| | -465. | -16. | 23929. |

Principal moments of inertia (IXX, IYY, IZZ):

| | | | |
|--|-------|--------|-------------------|
| | 3495. | 16986. | 17658. slug*ft**2 |
| | 4738. | 23030. | 23941. kg*m**2 |

Principal to body yaw, pitch, roll in a 3 2 1 sequence:

| | | | |
|--|------|------|---------------|
| | 1.04 | 1.42 | -1.53 degrees |
|--|------|------|---------------|

Center of Pressure:
(WRT CM)

| | | | |
|-----|-----------|-----------|-----------|
| | X ft | Y ft | Z ft |
| CPx | 0.00E+00 | -2.09E-01 | 1.41E-02 |
| CPy | -6.25E-01 | 0.00E+00 | -1.46E-02 |
| CPz | -6.03E-01 | 1.04E-01 | 0.00E+00 |
| | X m | Y m | Z m |
| CPx | 0.00E+00 | -6.38E-02 | 4.30E-03 |
| CPy | -1.90E-01 | 0.00E+00 | -4.46E-03 |
| CPz | -1.84E-01 | 3.16E-02 | 0.00E+00 |

Projected areas:

| | | | |
|--|-------|--------|--------------|
| | X | Y | Z |
| | 72.32 | 243.09 | 244.44 ft**2 |
| | 6.72 | 22.58 | 22.71 m**2 |

*Off-diagonal elements are negative integrals

| | | | |
|--------------------------|-------------------------------------|-----------------|-------------|
| Technical Monitor | Title | | |
| Linda Jack (OM) | International Space Station Program | | |
| Approved By | Body 17 | | |
| De Los Reyes (CAMMP) | STEP 040 | | |
| Produced By | Contract | | |
| CAMMP | ISS Program Integration & Control | | |
| | NASA Center/Division | Revision | Date |
| | JSC/OM | AB | 01/30/2008 |

Total mass: 15216. lb
 6902. kg

Center of mass:

| | | | |
|--|---------|------|----------|
| | X | Y | Z |
| | -130.97 | -.23 | 13.65 ft |
| | -39.92 | -.07 | 4.16 m |

Inertia Tensor*:

| | | | |
|--|-------|------------|--------|
| | | slug*ft**2 | |
| | 3508. | 253. | -343. |
| | 253. | 16982. | -12. |
| | -343. | -12. | 17649. |
| | | kg*m**2 | |
| | 4756. | 343. | -465. |
| | 343. | 23024. | -16. |
| | -465. | -16. | 23929. |

Principal moments of inertia (IXX, IYY, IZZ):

| | | | |
|--|-------|--------|-------------------|
| | 3495. | 16986. | 17658. slug*ft**2 |
| | 4738. | 23030. | 23941. kg*m**2 |

Principal to body yaw, pitch, roll in a 3 2 1 sequence:

| | | | |
|--|------|------|---------------|
| | 1.04 | 1.42 | -1.53 degrees |
|--|------|------|---------------|

Center of Pressure:
(WRT CM)

| | | | |
|-----|-----------|-----------|-----------|
| | X ft | Y ft | Z ft |
| CPx | 0.00E+00 | -2.09E-01 | 1.41E-02 |
| CPy | -6.25E-01 | 0.00E+00 | -1.46E-02 |
| CPz | -6.03E-01 | 1.04E-01 | 0.00E+00 |
| | X m | Y m | Z m |
| CPx | 0.00E+00 | -6.38E-02 | 4.30E-03 |
| CPy | -1.90E-01 | 0.00E+00 | -4.46E-03 |
| CPz | -1.84E-01 | 3.16E-02 | 0.00E+00 |

Projected areas:

| | | | |
|--|-------|--------|--------------|
| | X | Y | Z |
| | 72.32 | 243.09 | 244.44 ft**2 |
| | 6.72 | 22.58 | 22.71 m**2 |

*Off-diagonal elements are negative integrals

| | | | |
|--------------------------|-------------------------------------|-----------------|-------------|
| Technical Monitor | Title | | |
| Linda Jack (OM) | International Space Station Program | | |
| Approved By | Body 17 | | |
| De Los Reyes (CAMMP) | STEP 042 - 058 | | |
| Produced By | Contract | | |
| CAMMP | ISS Program Integration & Control | | |
| | NASA Center/Division | Revision | Date |
| | JSC/OM | AB | 01/30/2008 |

Total mass: 15216. lb
 6902. kg

Center of mass:

| | | | |
|--|---------|------|----------|
| | X | Y | Z |
| | -130.97 | -.23 | 13.65 ft |
| | -39.92 | -.07 | 4.16 m |

Inertia Tensor*:

| | | | |
|--|-------|------------|--------|
| | | slug*ft**2 | |
| | 3508. | 253. | -343. |
| | 253. | 16982. | -12. |
| | -343. | -12. | 17649. |
| | | kg*m**2 | |
| | 4756. | 343. | -465. |
| | 343. | 23024. | -16. |
| | -465. | -16. | 23929. |

Principal moments of inertia (IXX, IYY, IZZ):

| | | | |
|--|-------|--------|-------------------|
| | 3495. | 16986. | 17658. slug*ft**2 |
| | 4738. | 23030. | 23941. kg*m**2 |

Principal to body yaw, pitch, roll in a 3 2 1 sequence:

| | | | |
|--|------|------|---------------|
| | 1.04 | 1.42 | -1.53 degrees |
|--|------|------|---------------|

Center of Pressure:
(WRT CM)

| | | | |
|-----|-----------|-----------|-----------|
| | X ft | Y ft | Z ft |
| CPx | 0.00E+00 | -2.09E-01 | 1.41E-02 |
| CPy | -6.25E-01 | 0.00E+00 | -1.46E-02 |
| CPz | -6.03E-01 | 1.04E-01 | 0.00E+00 |
| | X m | Y m | Z m |
| CPx | 0.00E+00 | -6.38E-02 | 4.30E-03 |
| CPy | -1.90E-01 | 0.00E+00 | -4.46E-03 |
| CPz | -1.84E-01 | 3.16E-02 | 0.00E+00 |

Projected areas:

| | | | |
|--|-------|--------|--------------|
| | X | Y | Z |
| | 72.32 | 243.09 | 244.44 ft**2 |
| | 6.72 | 22.58 | 22.71 m**2 |

*Off-diagonal elements are negative integrals

| | | | |
|--------------------------|-------------------------------------|-----------------|-------------|
| Technical Monitor | Title | | |
| Linda Jack (OM) | International Space Station Program | | |
| Approved By | Body 17 | | |
| De Los Reyes (CAMMP) | STEP 060 | | |
| Produced By | Contract | | |
| CAMMP | ISS Program Integration & Control | | |
| | NASA Center/Division | Revision | Date |
| | JSC/OM | AB | 01/30/2008 |

Total mass: 15216. lb
 6902. kg

Center of mass:

| | | | |
|--|---------|------|----------|
| | X | Y | Z |
| | -130.97 | -.23 | 13.65 ft |
| | -39.92 | -.07 | 4.16 m |

Inertia Tensor*:

| | | | |
|--|-------|------------|--------|
| | | slug*ft**2 | |
| | 3508. | 253. | -343. |
| | 253. | 16982. | -12. |
| | -343. | -12. | 17649. |
| | | kg*m**2 | |
| | 4756. | 343. | -465. |
| | 343. | 23024. | -16. |
| | -465. | -16. | 23929. |

Principal moments of inertia (IXX, IYY, IZZ):

| | | | |
|--|-------|--------|-------------------|
| | 3495. | 16986. | 17658. slug*ft**2 |
| | 4738. | 23030. | 23941. kg*m**2 |

Principal to body yaw, pitch, roll in a 3 2 1 sequence:

| | | | |
|--|------|------|---------------|
| | 1.04 | 1.42 | -1.53 degrees |
|--|------|------|---------------|

Center of Pressure:
(WRT CM)

| | | | |
|-----|-----------|-----------|-----------|
| | X ft | Y ft | Z ft |
| CPx | 0.00E+00 | -2.09E-01 | 1.41E-02 |
| CPy | -6.25E-01 | 0.00E+00 | -1.46E-02 |
| CPz | -6.03E-01 | 1.04E-01 | 0.00E+00 |
| | X m | Y m | Z m |
| CPx | 0.00E+00 | -6.38E-02 | 4.30E-03 |
| CPy | -1.90E-01 | 0.00E+00 | -4.46E-03 |
| CPz | -1.84E-01 | 3.16E-02 | 0.00E+00 |

Projected areas:

| | | | |
|--|-------|--------|--------------|
| | X | Y | Z |
| | 72.32 | 243.09 | 244.44 ft**2 |
| | 6.72 | 22.58 | 22.71 m**2 |

*Off-diagonal elements are negative integrals

| | | | |
|--------------------------|-------------------------------------|-----------------|-------------|
| Technical Monitor | Title | | |
| Linda Jack (OM) | International Space Station Program | | |
| Approved By | Body 17 | | |
| De Los Reyes (CAMMP) | STEP 062 - 066 | | |
| Produced By | Contract | | |
| CAMMP | ISS Program Integration & Control | | |
| | NASA Center/Division | Revision | Date |
| | JSC/OM | AB | 01/30/2008 |

Total mass: 15216. lb
 6902. kg

Center of mass:

| | | | |
|--|---------|------|----------|
| | X | Y | Z |
| | -130.97 | -.23 | 13.65 ft |
| | -39.92 | -.07 | 4.16 m |

Inertia Tensor*:

| | | | |
|--|-------|------------|--------|
| | | slug*ft**2 | |
| | 3508. | 253. | -343. |
| | 253. | 16982. | -12. |
| | -343. | -12. | 17649. |
| | | kg*m**2 | |
| | 4756. | 343. | -465. |
| | 343. | 23024. | -16. |
| | -465. | -16. | 23929. |

Principal moments of inertia (IXX, IYY, IZZ):

| | | | |
|--|-------|--------|-------------------|
| | 3495. | 16986. | 17658. slug*ft**2 |
| | 4738. | 23030. | 23941. kg*m**2 |

Principal to body yaw, pitch, roll in a 3 2 1 sequence:

| | | | |
|--|------|------|---------------|
| | 1.04 | 1.42 | -1.53 degrees |
|--|------|------|---------------|

Center of Pressure:
(WRT CM)

| | | | |
|-----|-----------|-----------|-----------|
| | X ft | Y ft | Z ft |
| CPx | 0.00E+00 | -2.09E-01 | 1.41E-02 |
| CPy | -6.25E-01 | 0.00E+00 | -1.46E-02 |
| CPz | -6.03E-01 | 1.04E-01 | 0.00E+00 |
| | X m | Y m | Z m |
| CPx | 0.00E+00 | -6.38E-02 | 4.30E-03 |
| CPy | -1.90E-01 | 0.00E+00 | -4.46E-03 |
| CPz | -1.84E-01 | 3.16E-02 | 0.00E+00 |

Projected areas:

| | | | |
|--|-------|--------|--------------|
| | X | Y | Z |
| | 72.32 | 243.09 | 244.44 ft**2 |
| | 6.72 | 22.58 | 22.71 m**2 |

*Off-diagonal elements are negative integrals

| | | | |
|--------------------------|-------------------------------------|-----------------|-------------|
| Technical Monitor | Title | | |
| Linda Jack (OM) | International Space Station Program | | |
| Approved By | Body 17 | | |
| De Los Reyes (CAMMP) | STEP 068 - 074 | | |
| Produced By | Contract | | |
| CAMMP | ISS Program Integration & Control | | |
| | NASA Center/Division | Revision | Date |
| | JSC/OM | AB | 01/30/2008 |

Total mass: 15216. lb
 6902. kg

Center of mass:

| | | | |
|--|---------|------|----------|
| | X | Y | Z |
| | -130.97 | -.23 | 13.65 ft |
| | -39.92 | -.07 | 4.16 m |

Inertia Tensor*:

| | | | |
|--|-------|------------|--------|
| | | slug*ft**2 | |
| | 3508. | 253. | -343. |
| | 253. | 16982. | -12. |
| | -343. | -12. | 17649. |
| | | kg*m**2 | |
| | 4756. | 343. | -465. |
| | 343. | 23024. | -16. |
| | -465. | -16. | 23929. |

Principal moments of inertia (I_{XX}, I_{YY}, I_{ZZ}):

| | | | |
|--|-------|--------|-------------------|
| | 3495. | 16986. | 17658. slug*ft**2 |
| | 4738. | 23030. | 23941. kg*m**2 |

Principal to body yaw, pitch, roll in a 3 2 1 sequence:

| | | | |
|--|------|------|---------------|
| | 1.04 | 1.42 | -1.53 degrees |
|--|------|------|---------------|

Center of Pressure:
(WRT CM)

| | | | |
|-----|-----------|-----------|-----------|
| | X ft | Y ft | Z ft |
| CPx | 0.00E+00 | -2.09E-01 | 1.41E-02 |
| CPy | -6.25E-01 | 0.00E+00 | -1.46E-02 |
| CPz | -6.03E-01 | 1.04E-01 | 0.00E+00 |
| | X m | Y m | Z m |
| CPx | 0.00E+00 | -6.38E-02 | 4.30E-03 |
| CPy | -1.90E-01 | 0.00E+00 | -4.46E-03 |
| CPz | -1.84E-01 | 3.16E-02 | 0.00E+00 |

Projected areas:

| | | | |
|--|-------|--------|--------------|
| | X | Y | Z |
| | 72.32 | 243.09 | 244.44 ft**2 |
| | 6.72 | 22.58 | 22.71 m**2 |

*Off-diagonal elements are negative integrals

| | | | |
|--------------------------|-------------------------------------|-----------------|-------------|
| Technical Monitor | Title | | |
| Linda Jack (OM) | International Space Station Program | | |
| Approved By | Body 17 | | |
| De Los Reyes (CAMMP) | STEP 076 - 088 | | |
| Produced By | Contract | | |
| CAMMP | ISS Program Integration & Control | | |
| | NASA Center/Division | Revision | Date |
| | JSC/OM | AB | 01/30/2008 |

Total mass: 37171. lb
 16861. kg

Center of mass:

| | | | |
|--|---------|-----|----------|
| | X | Y | Z |
| | -126.77 | .10 | 13.62 ft |
| | -38.64 | .03 | 4.15 m |

Inertia Tensor*:

| | | | |
|--|--------|------------|---------|
| | | slug*ft**2 | |
| | 39870. | 251. | 183. |
| | 251. | 96619. | -143. |
| | 183. | -143. | 94340. |
| | | kg*m**2 | |
| | 54056. | 340. | 248. |
| | 340. | 130998. | -194. |
| | 248. | -194. | 127908. |

Principal moments of inertia (IXX, IYY, IZZ):

| | | | |
|--|--------|---------|-------------------|
| | 39868. | 96629. | 94332. slug*ft**2 |
| | 54054. | 131011. | 127897. kg*m**2 |

Principal to body yaw, pitch, roll in a 3 2 1 sequence:

| | | | |
|--|-----|------|--------------|
| | .24 | -.21 | 3.56 degrees |
|--|-----|------|--------------|

Center of Pressure:
(WRT CM)

| | | | |
|-----|-----------|-----------|-----------|
| | X ft | Y ft | Z ft |
| CPx | 0.00E+00 | -1.13E-01 | -2.60E-02 |
| CPy | -5.39E+00 | 0.00E+00 | -3.82E-02 |
| CPz | -5.59E+00 | -1.86E-01 | 0.00E+00 |
| | X m | Y m | Z m |
| CPx | 0.00E+00 | -3.45E-02 | -7.92E-03 |
| CPy | -1.64E+00 | 0.00E+00 | -1.16E-02 |
| CPz | -1.70E+00 | -5.68E-02 | 0.00E+00 |

Projected areas:

| | | | |
|--|--------|--------|--------------|
| | X | Y | Z |
| | 538.88 | 376.71 | 380.11 ft**2 |
| | 50.06 | 35.00 | 35.31 m**2 |

*Off-diagonal elements are negative integrals

| | | | |
|--------------------------|-------------------------------------|-----------------|-------------|
| Technical Monitor | Title | | |
| Linda Jack (OM) | International Space Station Program | | |
| Approved By | Body 17 | | |
| De Los Reyes (CAMMP) | STEP 090 - 098 | | |
| Produced By | Contract | | |
| CAMMP | ISS Program Integration & Control | | |
| | NASA Center/Division | Revision | Date |
| | JSC/OM | AB | 01/30/2008 |

Total mass: 15216. lb
 6902. kg

Center of mass:

| | | | |
|--|---------|------|----------|
| | X | Y | Z |
| | -130.97 | -.23 | 13.65 ft |
| | -39.92 | -.07 | 4.16 m |

Inertia Tensor*:

| | | | |
|--|-------|------------|--------|
| | | slug*ft**2 | |
| | 3508. | 253. | -343. |
| | 253. | 16982. | -12. |
| | -343. | -12. | 17649. |
| | | kg*m**2 | |
| | 4756. | 343. | -465. |
| | 343. | 23024. | -16. |
| | -465. | -16. | 23929. |

Principal moments of inertia (IXX, IYY, IZZ):

| | | | |
|--|-------|--------|-------------------|
| | 3495. | 16986. | 17658. slug*ft**2 |
| | 4738. | 23030. | 23941. kg*m**2 |

Principal to body yaw, pitch, roll in a 3 2 1 sequence:

| | | | |
|--|------|------|---------------|
| | 1.04 | 1.42 | -1.53 degrees |
|--|------|------|---------------|

Center of Pressure:
(WRT CM)

| | | | |
|-----|-----------|-----------|-----------|
| | X ft | Y ft | Z ft |
| CPx | 0.00E+00 | -2.09E-01 | 1.41E-02 |
| CPy | -6.25E-01 | 0.00E+00 | -1.46E-02 |
| CPz | -6.03E-01 | 1.04E-01 | 0.00E+00 |
| | X m | Y m | Z m |
| CPx | 0.00E+00 | -6.38E-02 | 4.30E-03 |
| CPy | -1.90E-01 | 0.00E+00 | -4.46E-03 |
| CPz | -1.84E-01 | 3.16E-02 | 0.00E+00 |

Projected areas:

| | | | |
|--|-------|--------|--------------|
| | X | Y | Z |
| | 72.32 | 243.09 | 244.44 ft**2 |
| | 6.72 | 22.58 | 22.71 m**2 |

*Off-diagonal elements are negative integrals

| | | | |
|--------------------------|-------------------------------------|-----------------|-------------|
| Technical Monitor | Title | | |
| Linda Jack (OM) | International Space Station Program | | |
| Approved By | Body 17 | | |
| De Los Reyes (CAMMP) | STEP 100 - 108 | | |
| Produced By | Contract | | |
| CAMMP | ISS Program Integration & Control | | |
| | NASA Center/Division | Revision | Date |
| | JSC/OM | AB | 01/30/2008 |

Total mass: 15216. lb
 6902. kg

Center of mass:

| | | | |
|--|---------|------|----------|
| | X | Y | Z |
| | -130.97 | -.23 | 13.65 ft |
| | -39.92 | -.07 | 4.16 m |

Inertia Tensor*:

| | | | |
|--|-------|------------|--------|
| | | slug*ft**2 | |
| | 3508. | 253. | -343. |
| | 253. | 16982. | -12. |
| | -343. | -12. | 17649. |
| | | kg*m**2 | |
| | 4756. | 343. | -465. |
| | 343. | 23024. | -16. |
| | -465. | -16. | 23929. |

Principal moments of inertia (IXX, IYY, IZZ):

| | | | |
|--|-------|--------|-------------------|
| | 3495. | 16986. | 17658. slug*ft**2 |
| | 4738. | 23030. | 23941. kg*m**2 |

Principal to body yaw, pitch, roll in a 3 2 1 sequence:

| | | | |
|--|------|------|---------------|
| | 1.04 | 1.42 | -1.53 degrees |
|--|------|------|---------------|

Center of Pressure:
(WRT CM)

| | | | |
|-----|-----------|-----------|-----------|
| | X ft | Y ft | Z ft |
| CPx | 0.00E+00 | -2.09E-01 | 1.41E-02 |
| CPy | -6.25E-01 | 0.00E+00 | -1.46E-02 |
| CPz | -6.03E-01 | 1.04E-01 | 0.00E+00 |
| | X m | Y m | Z m |
| CPx | 0.00E+00 | -6.38E-02 | 4.30E-03 |
| CPy | -1.90E-01 | 0.00E+00 | -4.46E-03 |
| CPz | -1.84E-01 | 3.16E-02 | 0.00E+00 |

Projected areas:

| | | | |
|--|-------|--------|--------------|
| | X | Y | Z |
| | 72.32 | 243.09 | 244.44 ft**2 |
| | 6.72 | 22.58 | 22.71 m**2 |

*Off-diagonal elements are negative integrals

| | | | |
|--------------------------|-------------------------------------|-----------------|-------------|
| Technical Monitor | Title | | |
| Linda Jack (OM) | International Space Station Program | | |
| Approved By | Body 18 | | |
| De Los Reyes (CAMMP) | STEP 001 - 009 | | |
| Produced By | Contract | | |
| CAMMP | ISS Program Integration & Control | | |
| | NASA Center/Division | Revision | Date |
| | JSC/OM | AB | 01/30/2008 |

Total mass: 14870. lb
 6745. kg

Center of mass:

| | | | |
|--|--------|-----|----------|
| | X | Y | Z |
| | -36.55 | .00 | 30.91 ft |
| | -11.14 | .00 | 9.42 m |

Inertia Tensor*:

| | | | |
|--|--------|------------|-------|
| | | slug*ft**2 | |
| | 18036. | 308. | -439. |
| | 308. | 18005. | -119. |
| | -439. | -119. | 3422. |
| | | kg*m**2 | |
| | 24454. | 418. | -595. |
| | 418. | 24412. | -161. |
| | -595. | -161. | 4640. |

Principal moments of inertia (IXX, IYY, IZZ):

| | | | |
|--|--------|--------|------------------|
| | 18340. | 17715. | 3408. slug*ft**2 |
| | 24866. | 24019. | 4621. kg*m**2 |

Principal to body yaw, pitch, roll in a 3 2 1 sequence:

| | | | |
|--|--------|-------|-------------|
| | -43.03 | -1.71 | .43 degrees |
|--|--------|-------|-------------|

Center of Pressure:
(WRT CM)

| | | | |
|-----|-----------|-----------|----------|
| | X ft | Y ft | Z ft |
| CPx | 0.00E+00 | -3.36E-02 | 6.27E-01 |
| CPy | -2.58E-02 | 0.00E+00 | 6.47E-01 |
| CPz | 8.84E-03 | 2.02E-01 | 0.00E+00 |
| | X m | Y m | Z m |
| CPx | 0.00E+00 | -1.02E-02 | 1.91E-01 |
| CPy | -7.87E-03 | 0.00E+00 | 1.97E-01 |
| CPz | 2.70E-03 | 6.17E-02 | 0.00E+00 |

Projected areas:

| | | | |
|--|--------|--------|-------------|
| | X | Y | Z |
| | 235.17 | 233.02 | 72.42 ft**2 |
| | 21.85 | 21.65 | 6.73 m**2 |

*Off-diagonal elements are negative integrals

| | | | |
|--------------------------|-------------------------------------|-----------------|-------------|
| Technical Monitor | Title | | |
| Linda Jack (OM) | International Space Station Program | | |
| Approved By | Body 18 | | |
| De Los Reyes (CAMMP) | STEP 017 - 029 | | |
| Produced By | Contract | | |
| CAMMP | ISS Program Integration & Control | | |
| | NASA Center/Division | Revision | Date |
| | JSC/OM | AB | 01/30/2008 |

Total mass: 14770. lb
 6700. kg

Center of mass:

| | | | |
|--|--------|-----|----------|
| | X | Y | Z |
| | -36.55 | .00 | 30.91 ft |
| | -11.14 | .00 | 9.42 m |

Inertia Tensor*:

| | | | |
|--|--------|------------|-------|
| | | slug*ft**2 | |
| | 18036. | 308. | -439. |
| | 308. | 18005. | -119. |
| | -439. | -119. | 3422. |
| | | kg*m**2 | |
| | 24454. | 418. | -595. |
| | 418. | 24412. | -161. |
| | -595. | -161. | 4640. |

Principal moments of inertia (IXX, IYY, IZZ):

| | | | |
|--|--------|--------|------------------|
| | 18340. | 17715. | 3408. slug*ft**2 |
| | 24866. | 24019. | 4621. kg*m**2 |

Principal to body yaw, pitch, roll in a 3 2 1 sequence:

| | | | |
|--|--------|-------|-------------|
| | -43.03 | -1.71 | .43 degrees |
|--|--------|-------|-------------|

Center of Pressure:
(WRT CM)

| | | | |
|-----|-----------|-----------|----------|
| | X ft | Y ft | Z ft |
| CPx | 0.00E+00 | -3.36E-02 | 6.27E-01 |
| CPy | -2.58E-02 | 0.00E+00 | 6.47E-01 |
| CPz | 8.84E-03 | 2.02E-01 | 0.00E+00 |
| | X m | Y m | Z m |
| CPx | 0.00E+00 | -1.02E-02 | 1.91E-01 |
| CPy | -7.87E-03 | 0.00E+00 | 1.97E-01 |
| CPz | 2.70E-03 | 6.17E-02 | 0.00E+00 |

Projected areas:

| | | | |
|--|--------|--------|-------------|
| | X | Y | Z |
| | 235.17 | 233.02 | 72.42 ft**2 |
| | 21.85 | 21.65 | 6.73 m**2 |

*Off-diagonal elements are negative integrals

| | | | |
|--------------------------|-------------------------------------|-----------------|-------------|
| Technical Monitor | Title | | |
| Linda Jack (OM) | International Space Station Program | | |
| Approved By | Body 18 | | |
| De Los Reyes (CAMMP) | STEP 032 - 051 | | |
| Produced By | Contract | | |
| CAMMP | ISS Program Integration & Control | | |
| | NASA Center/Division | Revision | Date |
| | JSC/OM | AB | 01/30/2008 |

Total mass: 14770. lb
 6700. kg

Center of mass:

| | | | |
|--|--------|-----|----------|
| | X | Y | Z |
| | -36.55 | .00 | 30.91 ft |
| | -11.14 | .00 | 9.42 m |

Inertia Tensor*:

| | | | |
|--|--------|------------|-------|
| | | slug*ft**2 | |
| | 18036. | 308. | -439. |
| | 308. | 18005. | -119. |
| | -439. | -119. | 3422. |
| | | kg*m**2 | |
| | 24454. | 418. | -595. |
| | 418. | 24412. | -161. |
| | -595. | -161. | 4640. |

Principal moments of inertia (IXX, IYY, IZZ):

| | | | |
|--|--------|--------|------------------|
| | 18340. | 17715. | 3408. slug*ft**2 |
| | 24866. | 24019. | 4621. kg*m**2 |

Principal to body yaw, pitch, roll in a 3 2 1 sequence:

| | | | |
|--|--------|-------|-------------|
| | -43.03 | -1.71 | .43 degrees |
|--|--------|-------|-------------|

Center of Pressure:
(WRT CM)

| | | | |
|-----|-----------|-----------|----------|
| | X ft | Y ft | Z ft |
| CPx | 0.00E+00 | -3.36E-02 | 6.27E-01 |
| CPy | -2.58E-02 | 0.00E+00 | 6.47E-01 |
| CPz | 8.84E-03 | 2.02E-01 | 0.00E+00 |
| | X m | Y m | Z m |
| CPx | 0.00E+00 | -1.02E-02 | 1.91E-01 |
| CPy | -7.87E-03 | 0.00E+00 | 1.97E-01 |
| CPz | 2.70E-03 | 6.17E-02 | 0.00E+00 |

Projected areas:

| | | | |
|--|--------|--------|-------------|
| | X | Y | Z |
| | 235.17 | 233.02 | 72.42 ft**2 |
| | 21.85 | 21.65 | 6.73 m**2 |

*Off-diagonal elements are negative integrals

| | | | |
|--------------------------|-------------------------------------|-----------------|-------------|
| Technical Monitor | Title | | |
| Linda Jack (OM) | International Space Station Program | | |
| Approved By | Body 18 | | |
| De Los Reyes (CAMMP) | STEP 053 - 076 | | |
| Produced By | Contract | | |
| CAMMP | ISS Program Integration & Control | | |
| | NASA Center/Division | Revision | Date |
| | JSC/OM | AB | 01/30/2008 |

Total mass: 14870. lb
 6745. kg

Center of mass:

| | | | |
|--|--------|-----|----------|
| | X | Y | Z |
| | -36.55 | .00 | 30.91 ft |
| | -11.14 | .00 | 9.42 m |

Inertia Tensor*:

| | | | |
|--|--------|------------|-------|
| | | slug*ft**2 | |
| | 18036. | 308. | -439. |
| | 308. | 18005. | -119. |
| | -439. | -119. | 3422. |
| | | kg*m**2 | |
| | 24454. | 418. | -595. |
| | 418. | 24412. | -161. |
| | -595. | -161. | 4640. |

Principal moments of inertia (IXX, IYY, IZZ):

| | | | |
|--|--------|--------|------------------|
| | 18340. | 17715. | 3408. slug*ft**2 |
| | 24866. | 24019. | 4621. kg*m**2 |

Principal to body yaw, pitch, roll in a 3 2 1 sequence:

| | | | |
|--|--------|-------|-------------|
| | -43.03 | -1.71 | .43 degrees |
|--|--------|-------|-------------|

Center of Pressure:
(WRT CM)

| | | | |
|-----|-----------|-----------|----------|
| | X ft | Y ft | Z ft |
| CPx | 0.00E+00 | -3.36E-02 | 6.27E-01 |
| CPy | -2.58E-02 | 0.00E+00 | 6.47E-01 |
| CPz | 8.84E-03 | 2.02E-01 | 0.00E+00 |
| | X m | Y m | Z m |
| CPx | 0.00E+00 | -1.02E-02 | 1.91E-01 |
| CPy | -7.87E-03 | 0.00E+00 | 1.97E-01 |
| CPz | 2.70E-03 | 6.17E-02 | 0.00E+00 |

Projected areas:

| | | | |
|--|--------|--------|-------------|
| | X | Y | Z |
| | 235.17 | 233.02 | 72.42 ft**2 |
| | 21.85 | 21.65 | 6.73 m**2 |

*Off-diagonal elements are negative integrals

| | | | |
|--------------------------|-------------------------------------|-----------------|-------------|
| Technical Monitor | Title | | |
| Linda Jack (OM) | International Space Station Program | | |
| Approved By | Body 18 | | |
| De Los Reyes (CAMMP) | STEP 078 - 083 | | |
| Produced By | Contract | | |
| CAMMP | ISS Program Integration & Control | | |
| | NASA Center/Division | Revision | Date |
| | JSC/OM | AB | 01/30/2008 |

Total mass: 14870. lb
 6745. kg

Center of mass:

| | | | |
|--|--------|-----|----------|
| | X | Y | Z |
| | -36.55 | .00 | 30.91 ft |
| | -11.14 | .00 | 9.42 m |

Inertia Tensor*:

| | | | |
|--|--------|------------|-------|
| | | slug*ft**2 | |
| | 18036. | 308. | -439. |
| | 308. | 18005. | -119. |
| | -439. | -119. | 3422. |
| | | kg*m**2 | |
| | 24454. | 418. | -595. |
| | 418. | 24412. | -161. |
| | -595. | -161. | 4640. |

Principal moments of inertia (IXX, IYY, IZZ):

| | | | |
|--|--------|--------|------------------|
| | 18340. | 17715. | 3408. slug*ft**2 |
| | 24866. | 24019. | 4621. kg*m**2 |

Principal to body yaw, pitch, roll in a 3 2 1 sequence:

| | | | |
|--|--------|-------|-------------|
| | -43.03 | -1.71 | .43 degrees |
|--|--------|-------|-------------|

Center of Pressure:
(WRT CM)

| | | | |
|-----|-----------|-----------|----------|
| | X ft | Y ft | Z ft |
| CPx | 0.00E+00 | -3.36E-02 | 6.27E-01 |
| CPy | -2.58E-02 | 0.00E+00 | 6.47E-01 |
| CPz | 8.84E-03 | 2.02E-01 | 0.00E+00 |
| | X m | Y m | Z m |
| CPx | 0.00E+00 | -1.02E-02 | 1.91E-01 |
| CPy | -7.87E-03 | 0.00E+00 | 1.97E-01 |
| CPz | 2.70E-03 | 6.17E-02 | 0.00E+00 |

Projected areas:

| | | | |
|--|--------|--------|-------------|
| | X | Y | Z |
| | 235.17 | 233.02 | 72.42 ft**2 |
| | 21.85 | 21.65 | 6.73 m**2 |

*Off-diagonal elements are negative integrals

| | | | |
|--------------------------|-------------------------------------|-----------------|-------------|
| Technical Monitor | Title | | |
| Linda Jack (OM) | International Space Station Program | | |
| Approved By | Body 18 | | |
| De Los Reyes (CAMMP) | STEP 092 - 108 | | |
| Produced By | Contract | | |
| CAMMP | ISS Program Integration & Control | | |
| | NASA Center/Division | Revision | Date |
| | JSC/OM | AB | 01/30/2008 |

Total mass: 14870. lb
 6745. kg

Center of mass:

| | | | |
|--|--------|-----|----------|
| | X | Y | Z |
| | -36.55 | .00 | 50.59 ft |
| | -11.14 | .00 | 15.42 m |

Inertia Tensor*:

| | | | |
|--|--------|------------|-------|
| | | slug*ft**2 | |
| | 18089. | 301. | -448. |
| | 301. | 17952. | -80. |
| | -448. | -80. | 3422. |
| | | kg*m**2 | |
| | 24526. | 408. | -607. |
| | 408. | 24339. | -109. |
| | -607. | -109. | 4640. |

Principal moments of inertia (IXX, IYY, IZZ):

| | | | |
|--|--------|--------|------------------|
| | 18340. | 17715. | 3408. slug*ft**2 |
| | 24866. | 24018. | 4621. kg*m**2 |

Principal to body yaw, pitch, roll in a 3 2 1 sequence:

| | | | |
|--|--------|-------|-------------|
| | -38.01 | -1.74 | .28 degrees |
|--|--------|-------|-------------|

Center of Pressure:
(WRT CM)

| | | | |
|-----|-----------|-----------|----------|
| | X ft | Y ft | Z ft |
| CPx | 0.00E+00 | -2.51E-02 | 7.68E-01 |
| CPy | -2.00E-02 | 0.00E+00 | 4.39E-01 |
| CPz | -4.52E-02 | -2.39E-01 | 0.00E+00 |
| | X m | Y m | Z m |
| CPx | 0.00E+00 | -7.66E-03 | 2.34E-01 |
| CPy | -6.11E-03 | 0.00E+00 | 1.34E-01 |
| CPz | -1.38E-02 | -7.29E-02 | 0.00E+00 |

Projected areas:

| | | | |
|--|--------|--------|-------------|
| | X | Y | Z |
| | 243.46 | 222.50 | 71.88 ft**2 |
| | 22.62 | 20.67 | 6.68 m**2 |

*Off-diagonal elements are negative integrals

| | | | |
|--------------------------|-------------------------------------|-----------------|-------------|
| Technical Monitor | Title | | |
| Linda Jack (OM) | International Space Station Program | | |
| Approved By | Body 19 | | |
| De Los Reyes (CAMMP) | STEP 001 - 007 | | |
| Produced By | Contract | | |
| CAMMP | ISS Program Integration & Control | | |
| | NASA Center/Division | Revision | Date |
| | JSC/OM | AB | 01/30/2008 |

Total mass: 15216. lb
 6902. kg

Center of mass:

| | | | |
|--|--------|------|----------|
| | X | Y | Z |
| | -77.82 | -.07 | 44.42 ft |
| | -23.72 | -.02 | 13.54 m |

Inertia Tensor*:

| | | | |
|--|--------|------------|-------|
| | | slug*ft**2 | |
| | 17303. | -334. | 59. |
| | -334. | 17328. | -421. |
| | 59. | -421. | 3508. |
| | | kg*m**2 | |
| | 23460. | -453. | 80. |
| | -453. | 23493. | -571. |
| | 80. | -571. | 4756. |

Principal moments of inertia (IXX, IYY, IZZ):

| | | | |
|--|--------|--------|------------------|
| | 16986. | 17658. | 3495. slug*ft**2 |
| | 23029. | 23941. | 4738. kg*m**2 |

Principal to body yaw, pitch, roll in a 3 2 1 sequence:

| | | | |
|--|--------|-----|--------------|
| | -43.42 | .20 | 1.74 degrees |
|--|--------|-----|--------------|

Center of Pressure:
(WRT CM)

| | | | |
|-----|-----------|-----------|-----------|
| | X ft | Y ft | Z ft |
| CPx | 0.00E+00 | 4.59E-02 | 1.33E+00 |
| CPy | 6.74E-02 | 0.00E+00 | -1.61E+00 |
| CPz | -1.27E-01 | -1.75E-01 | 0.00E+00 |
| | X m | Y m | Z m |
| CPx | 0.00E+00 | 1.40E-02 | 4.06E-01 |
| CPy | 2.05E-02 | 0.00E+00 | -4.91E-01 |
| CPz | -3.87E-02 | -5.34E-02 | 0.00E+00 |

Projected areas:

| | | | |
|--|--------|--------|-------------|
| | X | Y | Z |
| | 281.99 | 170.99 | 72.27 ft**2 |
| | 26.20 | 15.89 | 6.71 m**2 |

*Off-diagonal elements are negative integrals

| | | | |
|--------------------------|-------------------------------------|-----------------|-------------|
| Technical Monitor | Title | | |
| Linda Jack (OM) | International Space Station Program | | |
| Approved By | Body 19 | | |
| De Los Reyes (CAMMP) | STEP 009 - 015 | | |
| Produced By | Contract | | |
| CAMMP | ISS Program Integration & Control | | |
| | NASA Center/Division | Revision | Date |
| | JSC/OM | AB | 01/30/2008 |

Total mass: 14870. lb
 6745. kg

Center of mass:

| | | | |
|--|--------|-----|----------|
| | X | Y | Z |
| | -77.76 | .00 | 44.16 ft |
| | -23.70 | .00 | 13.46 m |

Inertia Tensor*:

| | | | |
|--|--------|------------|-------|
| | | slug*ft**2 | |
| | 18328. | -15. | -391. |
| | -15. | 17713. | 223. |
| | -391. | 223. | 3422. |
| | | kg*m**2 | |
| | 24850. | -21. | -530. |
| | -21. | 24015. | 302. |
| | -530. | 302. | 4639. |

Principal moments of inertia (IXX, IYY, IZZ):

| | | | |
|--|--------|--------|------------------|
| | 18339. | 17715. | 3408. slug*ft**2 |
| | 24865. | 24019. | 4620. kg*m**2 |

Principal to body yaw, pitch, roll in a 3 2 1 sequence:

| | | | |
|--|------|-------|--------------|
| | 1.98 | -1.50 | -.89 degrees |
|--|------|-------|--------------|

Center of Pressure:
(WRT CM)

| | | | |
|-----|-----------|-----------|-----------|
| | X ft | Y ft | Z ft |
| CPx | 0.00E+00 | -3.87E-02 | 1.21E+00 |
| CPy | 2.62E-02 | 0.00E+00 | -1.57E+00 |
| CPz | -1.84E-01 | -2.98E-01 | 0.00E+00 |
| | X m | Y m | Z m |
| CPx | 0.00E+00 | -1.18E-02 | 3.69E-01 |
| CPy | 7.98E-03 | 0.00E+00 | -4.79E-01 |
| CPz | -5.60E-02 | -9.07E-02 | 0.00E+00 |

Projected areas:

| | | | |
|--|--------|--------|-------------|
| | X | Y | Z |
| | 272.37 | 159.27 | 73.55 ft**2 |
| | 25.30 | 14.80 | 6.83 m**2 |

*Off-diagonal elements are negative integrals

| | | | |
|--------------------------|-------------------------------------|-----------------|-------------|
| Technical Monitor | Title | | |
| Linda Jack (OM) | International Space Station Program | | |
| Approved By | Body 19 | | |
| De Los Reyes (CAMMP) | STEP 018 - 020 | | |
| Produced By | Contract | | |
| CAMMP | ISS Program Integration & Control | | |
| | NASA Center/Division | Revision | Date |
| | JSC/OM | AB | 01/30/2008 |

Total mass: 15216. lb
 6902. kg

Center of mass:

| | | | |
|--|--------|------|----------|
| | X | Y | Z |
| | -77.82 | -.07 | 44.42 ft |
| | -23.72 | -.02 | 13.54 m |

Inertia Tensor*:

| | | | |
|--|--------|------------|-------|
| | | slug*ft**2 | |
| | 17303. | -334. | 59. |
| | -334. | 17328. | -421. |
| | 59. | -421. | 3508. |
| | | kg*m**2 | |
| | 23460. | -453. | 80. |
| | -453. | 23493. | -571. |
| | 80. | -571. | 4756. |

Principal moments of inertia (IXX, IYY, IZZ):

| | | | |
|--|--------|--------|------------------|
| | 16986. | 17658. | 3495. slug*ft**2 |
| | 23029. | 23941. | 4738. kg*m**2 |

Principal to body yaw, pitch, roll in a 3 2 1 sequence:

| | | | |
|--|--------|-----|--------------|
| | -43.42 | .20 | 1.74 degrees |
|--|--------|-----|--------------|

Center of Pressure:
(WRT CM)

| | | | |
|-----|-----------|-----------|-----------|
| | X ft | Y ft | Z ft |
| CPx | 0.00E+00 | 4.59E-02 | 1.33E+00 |
| CPy | 6.74E-02 | 0.00E+00 | -1.61E+00 |
| CPz | -1.27E-01 | -1.75E-01 | 0.00E+00 |
| | X m | Y m | Z m |
| CPx | 0.00E+00 | 1.40E-02 | 4.06E-01 |
| CPy | 2.05E-02 | 0.00E+00 | -4.91E-01 |
| CPz | -3.87E-02 | -5.34E-02 | 0.00E+00 |

Projected areas:

| | | | |
|--|--------|--------|-------------|
| | X | Y | Z |
| | 281.99 | 170.99 | 72.27 ft**2 |
| | 26.20 | 15.89 | 6.71 m**2 |

*Off-diagonal elements are negative integrals

| | | | |
|--------------------------|-------------------------------------|-----------------|-------------|
| Technical Monitor | Title | | |
| Linda Jack (OM) | International Space Station Program | | |
| Approved By | Body 19 | | |
| De Los Reyes (CAMMP) | STEP 022 - 049 | | |
| Produced By | Contract | | |
| CAMMP | ISS Program Integration & Control | | |
| | NASA Center/Division | Revision | Date |
| | JSC/OM | AB | 01/30/2008 |

Total mass: 15216. lb
 6902. kg

Center of mass:

| | | | |
|--|--------|------|----------|
| | X | Y | Z |
| | -77.82 | -.07 | 44.42 ft |
| | -23.72 | -.02 | 13.54 m |

Inertia Tensor*:

| | | | |
|--|--------|------------|-------|
| | | slug*ft**2 | |
| | 17303. | -334. | 63. |
| | -334. | 17328. | -422. |
| | 63. | -422. | 3508. |
| | | kg*m**2 | |
| | 23460. | -453. | 86. |
| | -453. | 23493. | -572. |
| | 86. | -572. | 4756. |

Principal moments of inertia (IXX, IYY, IZZ):

| | | | |
|--|--------|--------|------------------|
| | 16986. | 17658. | 3495. slug*ft**2 |
| | 23029. | 23941. | 4738. kg*m**2 |

Principal to body yaw, pitch, roll in a 3 2 1 sequence:

| | | | |
|--|--------|-----|--------------|
| | -43.42 | .22 | 1.74 degrees |
|--|--------|-----|--------------|

Center of Pressure:
(WRT CM)

| | | | |
|-----|-----------|-----------|-----------|
| | X ft | Y ft | Z ft |
| CPx | 0.00E+00 | 4.59E-02 | 1.33E+00 |
| CPy | 6.74E-02 | 0.00E+00 | -1.61E+00 |
| CPz | -1.27E-01 | -1.75E-01 | 0.00E+00 |
| | X m | Y m | Z m |
| CPx | 0.00E+00 | 1.40E-02 | 4.06E-01 |
| CPy | 2.05E-02 | 0.00E+00 | -4.91E-01 |
| CPz | -3.87E-02 | -5.34E-02 | 0.00E+00 |

Projected areas:

| | | | |
|--|--------|--------|-------------|
| | X | Y | Z |
| | 281.99 | 170.99 | 72.27 ft**2 |
| | 26.20 | 15.89 | 6.71 m**2 |

*Off-diagonal elements are negative integrals

| | | | |
|--------------------------|-------------------------------------|-----------------|-------------|
| Technical Monitor | Title | | |
| Linda Jack (OM) | International Space Station Program | | |
| Approved By | Body 19 | | |
| De Los Reyes (CAMMP) | STEP 051 - 072 | | |
| Produced By | Contract | | |
| CAMMP | ISS Program Integration & Control | | |
| | NASA Center/Division | Revision | Date |
| | JSC/OM | AB | 01/30/2008 |

Total mass: 14870. lb
 6745. kg

Center of mass:

| | | | |
|--|--------|-----|----------|
| | X | Y | Z |
| | -77.76 | .00 | 44.13 ft |
| | -23.70 | .00 | 13.45 m |

Inertia Tensor*:

| | | | |
|--|--------|------------|-------|
| | | slug*ft**2 | |
| | 18329. | -15. | -387. |
| | -15. | 17712. | 237. |
| | -387. | 237. | 3422. |
| | | kg*m**2 | |
| | 24851. | -21. | -525. |
| | -21. | 24014. | 321. |
| | -525. | 321. | 4640. |

Principal moments of inertia (IXX, IYY, IZZ):

| | | | |
|--|--------|--------|------------------|
| | 18340. | 17715. | 3408. slug*ft**2 |
| | 24866. | 24018. | 4621. kg*m**2 |

Principal to body yaw, pitch, roll in a 3 2 1 sequence:

| | | | |
|--|------|-------|--------------|
| | 2.01 | -1.49 | -.95 degrees |
|--|------|-------|--------------|

Center of Pressure:
(WRT CM)

| | | | |
|-----|-----------|-----------|-----------|
| | X ft | Y ft | Z ft |
| CPx | 0.00E+00 | -3.87E-02 | 1.24E+00 |
| CPy | 2.62E-02 | 0.00E+00 | -1.54E+00 |
| CPz | -1.84E-01 | -2.98E-01 | 0.00E+00 |
| | X m | Y m | Z m |
| CPx | 0.00E+00 | -1.18E-02 | 3.79E-01 |
| CPy | 7.98E-03 | 0.00E+00 | -4.69E-01 |
| CPz | -5.60E-02 | -9.07E-02 | 0.00E+00 |

Projected areas:

| | | | |
|--|--------|--------|-------------|
| | X | Y | Z |
| | 272.37 | 159.27 | 73.55 ft**2 |
| | 25.30 | 14.80 | 6.83 m**2 |

*Off-diagonal elements are negative integrals

| | | | |
|--------------------------|-------------------------------------|-----------------|-------------|
| Technical Monitor | Title | | |
| Linda Jack (OM) | International Space Station Program | | |
| Approved By | Body 19 | | |
| De Los Reyes (CAMMP) | STEP 074 - 090 | | |
| Produced By | Contract | | |
| CAMMP | ISS Program Integration & Control | | |
| | NASA Center/Division | Revision | Date |
| | JSC/OM | AB | 01/30/2008 |

Total mass: 14870. lb
 6745. kg

Center of mass:

| | | | |
|--|--------|-----|----------|
| | X | Y | Z |
| | -77.76 | .00 | 44.13 ft |
| | -23.70 | .00 | 13.45 m |

Inertia Tensor*:

| | | | |
|--|--------|------------|-------|
| | | slug*ft**2 | |
| | 18329. | -15. | -387. |
| | -15. | 17712. | 237. |
| | -387. | 237. | 3422. |
| | | kg*m**2 | |
| | 24851. | -21. | -525. |
| | -21. | 24014. | 321. |
| | -525. | 321. | 4640. |

Principal moments of inertia (IXX, IYY, IZZ):

| | | | |
|--|--------|--------|------------------|
| | 18340. | 17715. | 3408. slug*ft**2 |
| | 24866. | 24018. | 4621. kg*m**2 |

Principal to body yaw, pitch, roll in a 3 2 1 sequence:

| | | | |
|--|------|-------|--------------|
| | 2.01 | -1.49 | -.95 degrees |
|--|------|-------|--------------|

Center of Pressure:
(WRT CM)

| | | | |
|-----|-----------|-----------|-----------|
| | X ft | Y ft | Z ft |
| CPx | 0.00E+00 | -3.87E-02 | 1.24E+00 |
| CPy | 2.62E-02 | 0.00E+00 | -1.54E+00 |
| CPz | -1.84E-01 | -2.98E-01 | 0.00E+00 |
| | X m | Y m | Z m |
| CPx | 0.00E+00 | -1.18E-02 | 3.79E-01 |
| CPy | 7.98E-03 | 0.00E+00 | -4.69E-01 |
| CPz | -5.60E-02 | -9.07E-02 | 0.00E+00 |

Projected areas:

| | | | |
|--|--------|--------|-------------|
| | X | Y | Z |
| | 272.37 | 159.27 | 73.55 ft**2 |
| | 25.30 | 14.80 | 6.83 m**2 |

*Off-diagonal elements are negative integrals

| | | | |
|--------------------------|-------------------------------------|-----------------|-------------|
| Technical Monitor | Title | | |
| Linda Jack (OM) | International Space Station Program | | |
| Approved By | Body 19 | | |
| De Los Reyes (CAMMP) | STEP 098 - 103 | | |
| Produced By | Contract | | |
| CAMMP | ISS Program Integration & Control | | |
| | NASA Center/Division | Revision | Date |
| | JSC/OM | AB | 01/30/2008 |

Total mass: 15216. lb
 6902. kg

Center of mass:

| | | | |
|--|--------|------|----------|
| | X | Y | Z |
| | -77.82 | -.07 | 44.42 ft |
| | -23.72 | -.02 | 13.54 m |

Inertia Tensor*:

| | | | |
|--|--------|------------|-------|
| | | slug*ft**2 | |
| | 17303. | -334. | 63. |
| | -334. | 17328. | -422. |
| | 63. | -422. | 3508. |
| | | kg*m**2 | |
| | 23460. | -453. | 86. |
| | -453. | 23493. | -572. |
| | 86. | -572. | 4756. |

Principal moments of inertia (IXX, IYY, IZZ):

| | | | |
|--|--------|--------|------------------|
| | 16986. | 17658. | 3495. slug*ft**2 |
| | 23029. | 23941. | 4738. kg*m**2 |

Principal to body yaw, pitch, roll in a 3 2 1 sequence:

| | | | |
|--|--------|-----|--------------|
| | -43.42 | .22 | 1.74 degrees |
|--|--------|-----|--------------|

Center of Pressure:
(WRT CM)

| | | | |
|-----|-----------|-----------|-----------|
| | X ft | Y ft | Z ft |
| CPx | 0.00E+00 | 4.59E-02 | 1.33E+00 |
| CPy | 6.74E-02 | 0.00E+00 | -1.61E+00 |
| CPz | -1.27E-01 | -1.75E-01 | 0.00E+00 |
| | X m | Y m | Z m |
| CPx | 0.00E+00 | 1.40E-02 | 4.06E-01 |
| CPy | 2.05E-02 | 0.00E+00 | -4.91E-01 |
| CPz | -3.87E-02 | -5.34E-02 | 0.00E+00 |

Projected areas:

| | | | |
|--|--------|--------|-------------|
| | X | Y | Z |
| | 281.99 | 170.99 | 72.27 ft**2 |
| | 26.20 | 15.89 | 6.71 m**2 |

*Off-diagonal elements are negative integrals

| | | | |
|--------------------------|-------------------------------------|-----------------|-------------|
| Technical Monitor | Title | | |
| Linda Jack (OM) | International Space Station Program | | |
| Approved By | Body 20 | | |
| De Los Reyes (CAMMP) | STEP 001 - 108 | | |
| Produced By | Contract | | |
| CAMMP | ISS Program Integration & Control | | |
| | NASA Center/Division | Revision | Date |
| | JSC/OM | AB | 01/30/2008 |

Total mass: 551. lb
 250. kg

Center of mass:

| | | | |
|--|--------|-------|----------|
| | X | Y | Z |
| | -49.64 | 11.68 | 13.65 ft |
| | -15.13 | 3.56 | 4.16 m |

Inertia Tensor*:

| | | | |
|--|------|------------|------|
| | | slug*ft**2 | |
| | 375. | 23. | -29. |
| | 23. | 309. | -10. |
| | -29. | -10. | 317. |
| | | kg*m**2 | |
| | 509. | 31. | -39. |
| | 31. | 419. | -13. |
| | -39. | -13. | 430. |

Principal moments of inertia (I_{XX}, I_{YY}, I_{ZZ}):

| | | | |
|--|------|------|-----------------|
| | 394. | 302. | 305. slug*ft**2 |
| | 535. | 409. | 414. kg*m**2 |

Principal to body yaw, pitch, roll in a 3 2 1 sequence:

| | | | |
|--|--------|--------|---------------|
| | -15.01 | -23.14 | -3.05 degrees |
|--|--------|--------|---------------|

Center of Pressure:
(WRT CM)

| | | | |
|-----|-----------|-----------|-----------|
| | X ft | Y ft | Z ft |
| CPx | 0.00E+00 | 8.57E-02 | 6.21E-03 |
| CPy | 7.93E-02 | 0.00E+00 | -5.67E-02 |
| CPz | -4.70E-02 | -6.93E-02 | 0.00E+00 |
| | X m | Y m | Z m |
| CPx | 0.00E+00 | 2.61E-02 | 1.89E-03 |
| CPy | 2.42E-02 | 0.00E+00 | -1.73E-02 |
| CPz | -1.43E-02 | -2.11E-02 | 0.00E+00 |

Projected areas:

| | | | |
|--|--------|--------|-------------|
| | X | Y | Z |
| | 129.73 | 106.20 | 63.65 ft**2 |
| | 12.05 | 9.87 | 5.91 m**2 |

*Off-diagonal elements are negative integrals

| | | | |
|--------------------------|-------------------------------------|-----------------|-------------|
| Technical Monitor | Title | | |
| Linda Jack (OM) | International Space Station Program | | |
| Approved By | Body 21 | | |
| De Los Reyes (CAMMP) | STEP 001 - 108 | | |
| Produced By | Contract | | |
| CAMMP | ISS Program Integration & Control | | |
| | NASA Center/Division | Revision | Date |
| | JSC/OM | AB | 01/30/2008 |

Total mass: 551. lb
 250. kg

Center of mass:

| | X | Y | Z |
|--|--------|--------|----------|
| | -49.64 | -11.75 | 13.65 ft |
| | -15.13 | -3.58 | 4.16 m |

Inertia Tensor*:

| | slug*ft**2 | | |
|--|------------|------|------|
| | 375. | -23. | -29. |
| | -23. | 309. | 10. |
| | -29. | 10. | 317. |

| | kg*m**2 | | |
|--|---------|------|------|
| | 509. | -31. | -39. |
| | -31. | 419. | 13. |
| | -39. | 13. | 430. |

Principal moments of inertia (I_{XX}, I_{YY}, I_{ZZ}):

| | | | |
|--|------|------|-----------------|
| | 394. | 302. | 305. slug*ft**2 |
| | 535. | 409. | 414. kg*m**2 |

Principal to body yaw, pitch, roll in a 3 2 1 sequence:

| | | | |
|--|-------|--------|--------------|
| | 15.01 | -23.14 | 3.05 degrees |
|--|-------|--------|--------------|

Center of Pressure:
(WRT CM)

| | X ft | Y ft | Z ft |
|-----|-----------|-----------|-----------|
| CPx | 0.00E+00 | -1.04E-01 | 5.43E-03 |
| CPy | 9.36E-02 | 0.00E+00 | -5.70E-02 |
| CPz | -3.64E-02 | 7.51E-02 | 0.00E+00 |

| | X m | Y m | Z m |
|-----|-----------|-----------|-----------|
| CPx | 0.00E+00 | -3.17E-02 | 1.66E-03 |
| CPy | 2.85E-02 | 0.00E+00 | -1.74E-02 |
| CPz | -1.11E-02 | 2.29E-02 | 0.00E+00 |

Projected areas:

| | X | Y | Z |
|--|--------|--------|-------------|
| | 129.91 | 106.16 | 63.74 ft**2 |
| | 12.07 | 9.86 | 5.92 m**2 |

*Off-diagonal elements are negative integrals

| | | | |
|--------------------------|-------------------------------------|-----------------|-------------|
| Technical Monitor | Title | | |
| Linda Jack (OM) | International Space Station Program | | |
| Approved By | Body 22 | | |
| De Los Reyes (CAMMP) | STEP 001 - 108 | | |
| Produced By | Contract | | |
| CAMMP | ISS Program Integration & Control | | |
| | NASA Center/Division | Revision | Date |
| | JSC/OM | AB | 01/30/2008 |

Total mass: 1279. lb
 580. kg

Center of mass:

| | | | |
|--|--------|-------|----------|
| | X | Y | Z |
| | -90.88 | 26.25 | 13.62 ft |
| | -27.70 | 8.00 | 4.15 m |

Inertia Tensor*:

| | | | |
|--|-------|------------|--------|
| | | slug*ft**2 | |
| | 6966. | 4. | 0. |
| | 4. | 418. | 0. |
| | 0. | 0. | 7378. |
| | | kg*m**2 | |
| | 9444. | 6. | 0. |
| | 6. | 567. | 0. |
| | 0. | 0. | 10003. |

Principal moments of inertia (IXX, IYY, IZZ):

| | | | |
|--|-------|------|------------------|
| | 6966. | 418. | 7378. slug*ft**2 |
| | 9444. | 567. | 10003. kg*m**2 |

Principal to body yaw, pitch, roll in a 3 2 1 sequence:

| | | | |
|--|------|-----|-------------|
| | -.04 | .00 | .00 degrees |
|--|------|-----|-------------|

Center of Pressure:

(WRT CM)

| | | | |
|-----|----------|----------|-----------|
| | X ft | Y ft | Z ft |
| CPx | 0.00E+00 | 1.31E+00 | -1.04E-03 |
| CPy | 2.72E-01 | 0.00E+00 | 2.45E-03 |
| CPz | 1.09E-02 | 1.90E+00 | 0.00E+00 |
| | X m | Y m | Z m |
| CPx | 0.00E+00 | 4.01E-01 | -3.18E-04 |
| CPy | 8.29E-02 | 0.00E+00 | 7.48E-04 |
| CPz | 3.34E-03 | 5.80E-01 | 0.00E+00 |

Projected areas:

| | | | |
|--|-------|------|--------------|
| | X | Y | Z |
| | 15.06 | 5.67 | 486.82 ft**2 |
| | 1.40 | .53 | 45.23 m**2 |

*Off-diagonal elements are negative integrals

| | | | |
|--------------------------|-------------------------------------|-----------------|-------------|
| Technical Monitor | Title | | |
| Linda Jack (OM) | International Space Station Program | | |
| Approved By | Body 23 | | |
| De Los Reyes (CAMMP) | STEP 001 - 108 | | |
| Produced By | Contract | | |
| CAMMP | ISS Program Integration & Control | | |
| | NASA Center/Division | Revision | Date |
| | JSC/OM | AB | 01/30/2008 |

Total mass: 1279. lb
 580. kg

Center of mass:

| | | | |
|--|--------|--------|----------|
| | X | Y | Z |
| | -90.88 | -26.25 | 13.58 ft |
| | -27.70 | -8.00 | 4.14 m |

Inertia Tensor*:

| | | | |
|--|-------|------------|-------|
| | | slug*ft**2 | |
| | 5879. | 4. | 0. |
| | 4. | 357. | 0. |
| | 0. | 0. | 6232. |
| | | kg*m**2 | |
| | 7971. | 5. | 0. |
| | 5. | 484. | 0. |
| | 0. | 0. | 8449. |

Principal moments of inertia (I_{XX}, I_{YY}, I_{ZZ}):

| | | | |
|--|-------|------|------------------|
| | 5879. | 357. | 6232. slug*ft**2 |
| | 7971. | 484. | 8449. kg*m**2 |

Principal to body yaw, pitch, roll in a 3 2 1 sequence:

| | | | |
|--|------|-----|-------------|
| | -.04 | .00 | .00 degrees |
|--|------|-----|-------------|

Center of Pressure:
(WRT CM)

| | | | |
|-----|-----------|-----------|----------|
| | X ft | Y ft | Z ft |
| CPx | 0.00E+00 | 5.21E-01 | 3.22E-02 |
| CPy | -1.02E-01 | 0.00E+00 | 3.52E-02 |
| CPz | -1.64E-02 | -2.03E+00 | 0.00E+00 |
| | X m | Y m | Z m |
| CPx | 0.00E+00 | 1.59E-01 | 9.81E-03 |
| CPy | -3.12E-02 | 0.00E+00 | 1.07E-02 |
| CPz | -5.00E-03 | -6.19E-01 | 0.00E+00 |

Projected areas:

| | | | |
|--|-------|------|--------------|
| | X | Y | Z |
| | 14.96 | 5.75 | 486.98 ft**2 |
| | 1.39 | .53 | 45.24 m**2 |

*Off-diagonal elements are negative integrals

| | | | |
|--------------------------|-------------------------------------|-----------------|-------------|
| Technical Monitor | Title | | |
| Linda Jack (OM) | International Space Station Program | | |
| Approved By | Body 29 | | |
| De Los Reyes (CAMMP) | STEP 063 | | |
| Produced By | Contract | | |
| CAMMP | ISS Program Integration & Control | | |
| | NASA Center/Division | Revision | Date |
| | JSC/OM | AB | 01/30/2008 |

Total mass: 30900. lb
 14016. kg

Center of mass:

| | | | |
|--|-------|-----|----------|
| | X | Y | Z |
| | 35.86 | .03 | 37.83 ft |
| | 10.93 | .01 | 11.53 m |

Inertia Tensor*:

| | | | |
|--|--------|------------|--------|
| | | slug*ft**2 | |
| | 57530. | 1475. | 3688. |
| | 1475. | 57530. | 3688. |
| | 3688. | 3688. | 16964. |
| | | kg*m**2 | |
| | 78000. | 2000. | 5000. |
| | 2000. | 78000. | 5000. |
| | 5000. | 5000. | 23000. |

Principal moments of inertia (I_{XX}, I_{YY}, I_{ZZ}):

| | | | |
|--|--------|--------|-------------------|
| | 59642. | 56055. | 16327. slug*ft**2 |
| | 80864. | 76000. | 22136. kg*m**2 |

Principal to body yaw, pitch, roll in a 3 2 1 sequence:

| | | | |
|--|--------|------|---------------|
| | -45.21 | 4.92 | -4.94 degrees |
|--|--------|------|---------------|

Center of Pressure:
(WRT CM)

| | | | |
|-----|----------|-----------|-----------|
| | X ft | Y ft | Z ft |
| CPx | 0.00E+00 | -3.58E-02 | -2.42E-01 |
| CPy | 1.58E-01 | 0.00E+00 | -2.74E-01 |
| CPz | 8.49E-02 | -6.15E-02 | 0.00E+00 |
| | X m | Y m | Z m |
| CPx | 0.00E+00 | -1.09E-02 | -7.38E-02 |
| CPy | 4.80E-02 | 0.00E+00 | -8.35E-02 |
| CPz | 2.59E-02 | -1.88E-02 | 0.00E+00 |

Projected areas:

| | | | |
|--|--------|--------|--------------|
| | X | Y | Z |
| | 426.00 | 413.65 | 171.90 ft**2 |
| | 39.58 | 38.43 | 15.97 m**2 |

*Off-diagonal elements are negative integrals

| | | | |
|--------------------------|-------------------------------------|-----------------|-------------|
| Technical Monitor | Title | | |
| Linda Jack (OM) | International Space Station Program | | |
| Approved By | Body 29 | | |
| De Los Reyes (CAMMP) | STEP 064 | | |
| Produced By | Contract | | |
| CAMMP | ISS Program Integration & Control | | |
| | NASA Center/Division | Revision | Date |
| | JSC/OM | AB | 01/30/2008 |

Total mass: 26625. lb
 12077. kg

Center of mass:

| | | | |
|--|-------|-----|----------|
| | X | Y | Z |
| | 35.86 | .03 | 37.83 ft |
| | 10.93 | .01 | 11.53 m |

Inertia Tensor*:

| | | | |
|--|--------|------------|--------|
| | | slug*ft**2 | |
| | 57530. | 1475. | 3688. |
| | 1475. | 57530. | 3688. |
| | 3688. | 3688. | 16964. |
| | | kg*m**2 | |
| | 78000. | 2000. | 5000. |
| | 2000. | 78000. | 5000. |
| | 5000. | 5000. | 23000. |

Principal moments of inertia (IXX, IYY, IZZ):

| | | | |
|--|--------|--------|-------------------|
| | 59642. | 56055. | 16327. slug*ft**2 |
| | 80864. | 76000. | 22136. kg*m**2 |

Principal to body yaw, pitch, roll in a 3 2 1 sequence:

| | | | |
|--|--------|------|---------------|
| | -45.21 | 4.92 | -4.94 degrees |
|--|--------|------|---------------|

Center of Pressure:

(WRT CM)

| | | | |
|-----|----------|-----------|-----------|
| | X ft | Y ft | Z ft |
| CPx | 0.00E+00 | -3.58E-02 | -2.42E-01 |
| CPy | 1.58E-01 | 0.00E+00 | -2.74E-01 |
| CPz | 8.49E-02 | -6.15E-02 | 0.00E+00 |
| | X m | Y m | Z m |
| CPx | 0.00E+00 | -1.09E-02 | -7.38E-02 |
| CPy | 4.80E-02 | 0.00E+00 | -8.35E-02 |
| CPz | 2.59E-02 | -1.88E-02 | 0.00E+00 |

Projected areas:

| | | | |
|--|--------|--------|--------------|
| | X | Y | Z |
| | 426.00 | 413.65 | 171.90 ft**2 |
| | 39.58 | 38.43 | 15.97 m**2 |

*Off-diagonal elements are negative integrals

| | | | |
|--------------------------|-------------------------------------|-----------------|-------------|
| Technical Monitor | Title | | |
| Linda Jack (OM) | International Space Station Program | | |
| Approved By | Body 29 | | |
| De Los Reyes (CAMMP) | STEP 101 | | |
| Produced By | Contract | | |
| CAMMP | ISS Program Integration & Control | | |
| | NASA Center/Division | Revision | Date |
| | JSC/OM | AB | 01/30/2008 |

Total mass: 35274. lb
 16000. kg

Center of mass:

| | | | |
|--|-------|-----|----------|
| | X | Y | Z |
| | 35.86 | .03 | 35.20 ft |
| | 10.93 | .01 | 10.73 m |

Inertia Tensor*:

| | | | |
|--|---------|------------|--------|
| | | slug*ft**2 | |
| | 88507. | -1475. | -2950. |
| | -1475. | 88507. | -2950. |
| | -2950. | -2950. | 25077. |
| | | kg*m**2 | |
| | 120000. | -2000. | -4000. |
| | -2000. | 120000. | -4000. |
| | -4000. | -4000. | 34000. |

Principal moments of inertia (IXX, IYY, IZZ):

| | | | |
|--|---------|---------|-------------------|
| | 89983. | 87312. | 24797. slug*ft**2 |
| | 122000. | 118379. | 33621. kg*m**2 |

Principal to body yaw, pitch, roll in a 3 2 1 sequence:

| | | | |
|--|-------|-------|--------------|
| | 44.94 | -2.71 | 2.71 degrees |
|--|-------|-------|--------------|

Center of Pressure:
(WRT CM)

| | | | |
|-----|----------|-----------|----------|
| | X ft | Y ft | Z ft |
| CPx | 0.00E+00 | -3.58E-02 | 2.38E+00 |
| CPy | 1.58E-01 | 0.00E+00 | 2.35E+00 |
| CPz | 8.49E-02 | -6.15E-02 | 0.00E+00 |
| | X m | Y m | Z m |
| CPx | 0.00E+00 | -1.09E-02 | 7.26E-01 |
| CPy | 4.80E-02 | 0.00E+00 | 7.16E-01 |
| CPz | 2.59E-02 | -1.88E-02 | 0.00E+00 |

Projected areas:

| | | | |
|--|--------|--------|--------------|
| | X | Y | Z |
| | 426.00 | 413.65 | 171.90 ft**2 |
| | 39.58 | 38.43 | 15.97 m**2 |

*Off-diagonal elements are negative integrals

| | | | |
|--------------------------|-------------------------------------|-----------------|-------------|
| Technical Monitor | Title | | |
| Linda Jack (OM) | International Space Station Program | | |
| Approved By | Body 29 | | |
| De Los Reyes (CAMMP) | STEP 102 | | |
| Produced By | Contract | | |
| CAMMP | ISS Program Integration & Control | | |
| | NASA Center/Division | Revision | Date |
| | JSC/OM | AB | 01/30/2008 |

Total mass: 29266. lb
 13275. kg

Center of mass:

| | | | |
|--|-------|-----|----------|
| | X | Y | Z |
| | 35.86 | .03 | 37.83 ft |
| | 10.93 | .01 | 11.53 m |

Inertia Tensor*:

| | | | |
|--|--------|------------|--------|
| | | slug*ft**2 | |
| | 57530. | 1475. | 3688. |
| | 1475. | 57530. | 3688. |
| | 3688. | 3688. | 16964. |
| | | kg*m**2 | |
| | 78000. | 2000. | 5000. |
| | 2000. | 78000. | 5000. |
| | 5000. | 5000. | 23000. |

Principal moments of inertia (I_{XX}, I_{YY}, I_{ZZ}):

| | | | |
|--|--------|--------|-------------------|
| | 59642. | 56055. | 16327. slug*ft**2 |
| | 80864. | 76000. | 22136. kg*m**2 |

Principal to body yaw, pitch, roll in a 3 2 1 sequence:

| | | | |
|--|--------|------|---------------|
| | -45.21 | 4.92 | -4.94 degrees |
|--|--------|------|---------------|

Center of Pressure:
(WRT CM)

| | | | |
|-----|----------|-----------|-----------|
| | X ft | Y ft | Z ft |
| CPx | 0.00E+00 | -3.58E-02 | -2.42E-01 |
| CPy | 1.58E-01 | 0.00E+00 | -2.74E-01 |
| CPz | 8.49E-02 | -6.15E-02 | 0.00E+00 |
| | X m | Y m | Z m |
| CPx | 0.00E+00 | -1.09E-02 | -7.38E-02 |
| CPy | 4.80E-02 | 0.00E+00 | -8.35E-02 |
| CPz | 2.59E-02 | -1.88E-02 | 0.00E+00 |

Projected areas:

| | | | |
|--|--------|--------|--------------|
| | X | Y | Z |
| | 426.00 | 413.65 | 171.90 ft**2 |
| | 39.58 | 38.43 | 15.97 m**2 |

*Off-diagonal elements are negative integrals

| | | | |
|--------------------------|-------------------------------------|-----------------|-------------|
| Technical Monitor | Title | | |
| Linda Jack (OM) | International Space Station Program | | |
| Approved By | Body 30 | | |
| De Los Reyes (CAMMP) | STEP 082 | | |
| Produced By | Contract | | |
| CAMMP | ISS Program Integration & Control | | |
| | NASA Center/Division | Revision | Date |
| | JSC/OM | AB | 01/30/2008 |

Total mass: 15216. lb
 6902. kg

Center of mass:

| | | | |
|--|--------|------|-----------|
| | X | Y | Z |
| | -77.82 | -.03 | -17.22 ft |
| | -23.72 | -.01 | -5.25 m |

Inertia Tensor*:

| | | | |
|--|--------|------------|-------|
| | | slug*ft**2 | |
| | 17303. | 334. | -63. |
| | 334. | 17328. | -422. |
| | -63. | -422. | 3508. |
| | | kg*m**2 | |
| | 23460. | 453. | -86. |
| | 453. | 23493. | -572. |
| | -86. | -572. | 4756. |

Principal moments of inertia (IXX, IYY, IZZ):

| | | | |
|--|--------|--------|------------------|
| | 16986. | 17658. | 3495. slug*ft**2 |
| | 23029. | 23941. | 4738. kg*m**2 |

Principal to body yaw, pitch, roll in a 3 2 1 sequence:

| | | | |
|--|-------|------|--------------|
| | 43.42 | -.22 | 1.74 degrees |
|--|-------|------|--------------|

Center of Pressure:
(WRT CM)

| | | | |
|-----|-----------|----------|-----------|
| | X ft | Y ft | Z ft |
| CPx | 0.00E+00 | 4.87E-02 | -1.33E+00 |
| CPy | 3.71E-02 | 0.00E+00 | 1.60E+00 |
| CPz | -1.60E-01 | 2.53E-01 | 0.00E+00 |
| | X m | Y m | Z m |
| CPx | 0.00E+00 | 1.48E-02 | -4.07E-01 |
| CPy | 1.13E-02 | 0.00E+00 | 4.88E-01 |
| CPz | -4.89E-02 | 7.72E-02 | 0.00E+00 |

Projected areas:

| | | | |
|--|--------|--------|-------------|
| | X | Y | Z |
| | 281.11 | 170.92 | 71.76 ft**2 |
| | 26.12 | 15.88 | 6.67 m**2 |

*Off-diagonal elements are negative integrals

| | | | |
|--------------------------|-------------------------------------|-----------------|-------------|
| Technical Monitor | Title | | |
| Linda Jack (OM) | International Space Station Program | | |
| Approved By | Body 30 | | |
| De Los Reyes (CAMMP) | STEP 085 - 095 | | |
| Produced By | Contract | | |
| CAMMP | ISS Program Integration & Control | | |
| | NASA Center/Division | Revision | Date |
| | JSC/OM | AB | 01/30/2008 |

Total mass: 14771. lb
 6700. kg

Center of mass:

| | | | |
|--|--------|------|-----------|
| | X | Y | Z |
| | -77.76 | -.10 | -16.93 ft |
| | -23.70 | -.03 | -5.16 m |

Inertia Tensor*:

| | | | |
|--|--------|------------|-------|
| | | slug*ft**2 | |
| | 18329. | 15. | 387. |
| | 15. | 17712. | 237. |
| | 387. | 237. | 3422. |
| | | kg*m**2 | |
| | 24851. | 21. | 525. |
| | 21. | 24014. | 321. |
| | 525. | 321. | 4640. |

Principal moments of inertia (I_{XX}, I_{YY}, I_{ZZ}):

| | | | |
|--|--------|--------|------------------|
| | 18340. | 17715. | 3408. slug*ft**2 |
| | 24866. | 24018. | 4621. kg*m**2 |

Principal to body yaw, pitch, roll in a 3 2 1 sequence:

| | | | |
|--|-------|------|--------------|
| | -2.01 | 1.49 | -.95 degrees |
|--|-------|------|--------------|

Center of Pressure:
(WRT CM)

| | | | |
|-----|-----------|-----------|-----------|
| | X ft | Y ft | Z ft |
| CPx | 0.00E+00 | 7.33E-02 | -1.23E+00 |
| CPy | -6.89E-02 | 0.00E+00 | 1.55E+00 |
| CPz | 1.31E-01 | -1.77E-01 | 0.00E+00 |
| | X m | Y m | Z m |
| CPx | 0.00E+00 | 2.23E-02 | -3.75E-01 |
| CPy | -2.10E-02 | 0.00E+00 | 4.74E-01 |
| CPz | 3.98E-02 | -5.40E-02 | 0.00E+00 |

Projected areas:

| | | | |
|--|--------|--------|-------------|
| | X | Y | Z |
| | 272.38 | 159.11 | 73.28 ft**2 |
| | 25.31 | 14.78 | 6.81 m**2 |

*Off-diagonal elements are negative integrals

| | | | |
|--------------------------|-------------------------------------|-----------------|-------------|
| Technical Monitor | Title | | |
| Linda Jack (OM) | International Space Station Program | | |
| Approved By | Body 30 | | |
| De Los Reyes (CAMMP) | STEP 097 - 108 | | |
| Produced By | Contract | | |
| CAMMP | ISS Program Integration & Control | | |
| | NASA Center/Division | Revision | Date |
| | JSC/OM | AB | 01/30/2008 |

Total mass: 14870. lb
 6745. kg

Center of mass:

| | | | |
|--|--------|------|-----------|
| | X | Y | Z |
| | -77.76 | -.10 | -16.93 ft |
| | -23.70 | -.03 | -5.16 m |

Inertia Tensor*:

| | | | |
|--|--------|------------|-------|
| | | slug*ft**2 | |
| | 18329. | 15. | 387. |
| | 15. | 17712. | 237. |
| | 387. | 237. | 3422. |
| | | kg*m**2 | |
| | 24851. | 21. | 525. |
| | 21. | 24014. | 321. |
| | 525. | 321. | 4640. |

Principal moments of inertia (IXX, IYY, IZZ):

| | | | |
|--|--------|--------|------------------|
| | 18340. | 17715. | 3408. slug*ft**2 |
| | 24866. | 24018. | 4621. kg*m**2 |

Principal to body yaw, pitch, roll in a 3 2 1 sequence:

| | | | |
|--|-------|------|--------------|
| | -2.01 | 1.49 | -.95 degrees |
|--|-------|------|--------------|

Center of Pressure:
(WRT CM)

| | | | |
|-----|-----------|-----------|-----------|
| | X ft | Y ft | Z ft |
| CPx | 0.00E+00 | 7.33E-02 | -1.23E+00 |
| CPy | -6.89E-02 | 0.00E+00 | 1.55E+00 |
| CPz | 1.31E-01 | -1.77E-01 | 0.00E+00 |
| | X m | Y m | Z m |
| CPx | 0.00E+00 | 2.23E-02 | -3.75E-01 |
| CPy | -2.10E-02 | 0.00E+00 | 4.74E-01 |
| CPz | 3.98E-02 | -5.40E-02 | 0.00E+00 |

Projected areas:

| | | | |
|--|--------|--------|-------------|
| | X | Y | Z |
| | 272.38 | 159.11 | 73.28 ft**2 |
| | 25.31 | 14.78 | 6.81 m**2 |

*Off-diagonal elements are negative integrals

This page included for formatting purposes.

APPENDIX A ACRONYMS AND ABBREVIATIONS

A

| | |
|------|--------------------------------------|
| A | American |
| A/R | American/Russian |
| APAS | Androgynous Peripheral Attach System |
| APFR | Articulating Portable Foot Restraint |
| AR | After Rendezvous |
| AS | After Separation |
| ATV | Automated Transfer Vehicle |

B

| | |
|-----|------------------------------|
| BPM | Biological Production Module |
| BS | Before Separation |
| BSP | Band Signal Processor |

C

| | |
|------|---|
| CAD | Computer Aided Design |
| CBM | Common Berthing Mechanism |
| CETA | Crew and Equipment Translation Assembly |
| CID | Circuit Interrupt Device |
| cm | Centimeter |
| CM | Center of Mass |
| CMG | Control Moment Gyroscope |
| COF | Columbus Orbiting Facility |
| CP | Center of Pressure |
| CSA | Canadian Space Agency |

D

| | |
|------|---|
| DAC | Design Analysis Cycle |
| DC | Docking Compartment |
| DCN | Design Change Notice |
| DCSU | DC Switching Unit |
| DDCU | Direct current-to-Direct current Converter Unit |

E

| | |
|--------|--|
| EA4 | System Engineering Office (NASA/JSC) |
| EAS | Early Ammonia Servicer |
| EATCS | External Active Thermal Control System |
| ECOMM | Early Communication System |
| EDS | Electronic Data Systems |
| EEATCS | Early External Active Thermal Control System |
| ESA | European Space Agency |
| ESP | External Stowage Platform |
| ETSD | EVA Tool Stowage Device |

ETVCG External Television Camera Group
EV-CPDS Extravehicular-Charged Particle Detection System
EVA Extravehicular Activity

F

FGB Functionalni Gruzvoi Blok (Russian)
FHRC Flex Hose Rotary Coupler
FSE Flight Support Equipment
FPMU Field Plasma Measurement Unit
ft feet

G

GN&C Guidance, Navigation and Control

H

HD Highly Directional
HPGA High Pressure Gas Assembly
HPGT High Pressure Gas Tank
http hypertext transfer protocol
HTV H-II Transfer Vehicle

I

IAPFR Interoperable Articulating Portable Foot Restraint
I-DEAS Integrated Design Engineering Analysis Software
ICC Integrated Cargo Carrier
IDD Interface Development Document
IGES International Graphics Exchange Standard
INT Intermediate
ISS International Space Station
ISSP International Space Station Program
ITA Integrated Truss Assembly
ITS Integrated Truss Segment

J

JAXA Japanese Aerospace eXploration Agency
JEM Japanese Experiment Module
JEMELMPS JEM Experimental Logistics Module Pressurized Section
JEMPM JEM Pressurized Module
JSC Johnson Space Center
JTWG Joint Technical Working Group

K

kg kilogram
KhSC Khrunichev State Research and Production Space Center

L

lb pound
LCA Lab Cradle Assembly
LDA Launch Deployment Assembly
LEE Latching End Effector
LM Lockheed Martin
LMSO Lockheed Martin Space Operations
LVLH Local Vertical/Local Horizontal

M

m meter
MBS MRS Base System
MBSU Main Bus Switching Unit
MDM Multiplexer/De-Multiplexer
MIM Multi-Increment Manifest
MISSE Materials ISS Experiment
mm millimeters
MOD Mission Operations Directorate
MODGEN Model Generator
MPAC Micro-Particle Capture
MPLM Multi-Purpose Logistics Module
MPSU Main Bus Switching Unit
MPSET Mass Properties Sustaining Engineering Tool
MPVSET Mass Properties Verification and Sustaining Engineering Tool
MRS Mobile Remote Servicer
MT Mobile Transporter
MTS Mobile Truss Structure
MTSAS Module Truss Structure Attach System

N

N/A Not Applicable
NASA National Aeronautics and Space Administration (United States)
NSTS National Space Transportation System

O

ODS Orbiter Docking System
OM ISS Mission Integration Office (organization code)
OMS Orbital Maneuvering System
ORU Orbital Replacement Unit
OSE Orbital Support Equipment
OSRS Orbiter Structural Reference System
OTD ORU Transfer Device
OV Orbiter Vehicle

P

P Progress; Port
P1 Port One

PDGF Power and Data Grapple Fixture
PFCS Pump and Flow Control Subassembly
PFRWS Portable Foot Restraint and Workstation Stanchion
PIA Port Inboard Aft
PIF Port Inboard Forward
PIT Physical Integration Team (Boeing)
PMA Pressurized Mating Adapter
POA Port Outboard Aft
POF Port Outboard Forward
PROP Propellant
PV Photovoltaic
PVRGF Photovoltaic Removable Grapple Fixture
PWP Portable Work Platform

Q

QD Quick Disconnect

R

R Russian
RAI Resource Analysis and Integration
Rev Revision
RM Resource Management
RMS Remote Manipulator System
RPO Research Program Office
RSA Russian Space Agency
RSC-E Rocket Space Corporation-Energia

S

S Soyuz
SARJ Solar Alpha Rotary Joint
SASA S-band Antenna Structural Assembly
SDRC Structural Dynamics Research Corporation
SEED Space Environment Exposure Device
SEMDA Systems Engineering, Modeling, and Design Analysis
SGANT Space to Ground Antenna
SHOSS Spacehab Oceaneering Space System
SIA Starboard Inboard Aft
SIF Starboard Inboard Forward
SLP Spacelab Pallet
SMDP Service Module Debris Panel
SMDS Service Module Debris Shields
SPDM Special Purpose Dexterous Manipulator
SOA Starboard Outboard Aft
SODB Shuttle Operational Data Book
SOF Starboard Outboard Forward
SSACS Space Station Analysis Coordinate System

SSCB Space Station Control Board
SSP Space Shuttle Program
SSRMS Space Station Remote Manipulator System
STS Space Transportation System

T

TCS Thermal Control System
TIM Technical Interchange Meeting
TM Transport Spacecraft, Modified
TPS Thermal Protection System
TUS Trailing Umbilical System

V

UF Utilization Flight
UHF Ultra High Frequency
UIS Universal Instrument Section
ULCAS Unpressurized Logistics Carrier Attach System
ULF Utilization Logistic Flight
UT Universal Translator

V

VAC Verification Analysis Cycle
VIPER Vehicle Integrated Performance, Environments, and Resources (team)
VMDB Vehicle Management Database
VSSA Video Stanchion Support Assembly

W

WETA WVS External Transceiver Assembly
WIF Worksite Interface
WRT with respect to
WVS Wireless Video Systems

X, Y, Z

Z1 Zenith One

This page included for formatting purposes.

APPENDIX B
COMPONENT DEFINITIONS
PREFIXES

| | |
|-----|--|
| P1 | First port truss section, outboard of the middle truss section |
| P3 | Second port truss section, outboard of P1 |
| P4 | Third port truss section, subject to alpha rotation |
| P5 | Fourth port truss section, subject to alpha rotation |
| P6 | Fifth port truss section, subject to alpha rotation |
| PIA | Port inboard aft |
| PIF | Port inboard forward |
| POA | Port outboard aft |
| POF | Port outboard forward |
| S0 | Zero, or middeck truss section, formerly called M1 |
| S1 | First starboard truss section, outboard of middle ITA |
| S3 | Second starboard truss section, outboard of S1 |
| S4 | Third starboard truss section, subject to alpha rotation |
| S5 | Fourth starboard truss section, subject to alpha rotation |
| S6 | Fifth starboard truss section, subject to alpha rotation |
| SIA | Starboard inboard aft |
| SIF | Starboard inboard forward |
| SOA | Starboard outboard aft |
| SOF | Starboard outboard forward |
| Z1 | Zenith, first truss section on Node 1 |

COMPONENT DEFINITIONS (continued)
SUFFIXES

| | |
|---------|--|
| xx_AS | <u>After Separation</u> : A free flying configuration, immediately after separation of an Orbiter, Progress, Soyuz, HTV, or ATV. |
| xx_AR | <u>After Rendezvous</u> : A stage configuration with the Orbiter or HTV attached, after rendezvous. |
| xx_INTx | <u>Intermediate</u> : A stage configuration with the Orbiter or HTV attached, intermediate. |
| xx_BS | <u>Before Separation</u> : A stage configuration with the Orbiter attached, immediately before separation. |

**APPENDIX C
DATA BOOK SPECIFICATIONS**

| ITEM | VARIABLE | SPECIFICATION |
|---------------|---------------------|--|
| VOLUMES | TWO | I and II |
| VERSION | NUMBER | JSC 26557 REVISION X; VOLUME I and II |
| MANUAL | SOFTWARE | <i>MICROSOFT WORD 2003</i> |
| COVER | FONT SIZE | Arial 10, 12, 18, 20, 24-point |
| PAGE | SIZE | 8 ½-inch X 11-inch |
| PAGE | FORMAT | Portrait and Landscape (Figures or Tables) |
| LOGO | NASA | <i>MICROSOFT WORD</i> |
| LOGO | BOOZ ALLEN HAMILTON | <i>MICROSOFT WORD</i> |
| TEXT | ACRONYMS | Identified once at first use only |
| TEXT | FONT | Arial 12-point |
| TEXT | HEADINGS | No Bold ; no <u>underlines</u> ; ALL CAPS; Left |
| TEXT | MARGINS | Left: 1.2-inches; others 1-inch; mirror pages |
| TEXT | SPACING | Flush left; ragged right |
| TEXT | INDENT | ¼-inch then ½-inch |
| TEXT | LISTS | Bullets unless order is required |
| TABLES | TITLE/TEXT | Title at top; Arial 10-point |
| FIGURES | TITLE/TEXT | Title at bottom; Arial 12-point |
| HEADER | RIGHT CORNER | JSC Document number, revision, volume |
| REFERENCE | DOCUMENT/ SOFTWARE | <i>Italics</i> |
| FOOTER | RIGHT CORNER | JSC Document number, revision, volume |
| FOOTER | PAGE NUMBERS | 1-1, 2-1, 3-1, 4-1, 5-1, 6-1, 7-1 |
| FOOTER | APPENDICES PAGES | A-1, B-1, C-1, IND-1 |
| HEADER/FOOTER | FONT SIZE | Arial 9-point |
| PAGE | Blanks | "This page included for formatting purposes." |