base

MASS = 7.2235476e+02 GRAM

CENTER OF GRAVITY with respect to BASE coordinate frame:

X Y Z -1.6382624e+01 7.2856285e-02 4.9718110e+01 MM

INERTIA with respect to BASE coordinate frame: (GRAM \* MM^2)

INERTIA TENSOR:

Ixx Ixy Ixz 3.2129336e+06 -3.8766800e+03 6.3126034e+05

Iyx Iyy Iyz -3.8766800e+03 3.0125760e+06 -3.5967213e+03

Izx Izy Izz 6.3126034e+05 -3.5967213e+03 1.6982377e+06

INERTIA at CENTER OF GRAVITY with respect to BASE coordinate frame: (GRAM \* MM^2)

INERTIA TENSOR:

Ixx Ixy Ixz 1.4273480e+06 -4.7388662e+03 4.2892914e+04

Iyx Iyy Iyz -4.7388662e+03 1.0331211e+06 -9.8015247e+02

Izx Izy Izz 4.2892914e+04 -9.8015247e+02 1.5043608e+06

RL1

MASS = 1.1813898e+01 GRAM

CENTER OF GRAVITY with respect to RL1 coordinate frame:

X Y Z -1.5660623e+00 0.0000000e+00 -7.7401701e+00 MM

INERTIA with respect to RL1 coordinate frame: (GRAM \* MM^2)

INERTIA TENSOR:

Ixx Ixy Ixz 2.2157010e+03 0.0000000e+00 -1.3794101e+02

Iyx Iyy Iyz 0.0000000e+00 5.0374878e+03 0.0000000e+00

Izx Izy Izz -1.3794101e+02 0.0000000e+00 4.1482965e+03

INERTIA at CENTER OF GRAVITY with respect to RL1 coordinate frame: (GRAM \* MM^2)

INERTIA TENSOR:

Ixx Ixy Ixz 1.5079276e+03 0.0000000e+00 5.2622000e+00

Iyx Iyy Iyz 0.0000000e+00 4.3007402e+03 0.0000000e+00

Izx Izy Izz 5.2622000e+00 0.0000000e+00 4.1193223e+03

RL2

MASS = 1.7885985e+02 GRAM

CENTER OF GRAVITY with respect to RL2 coordinate frame:

X Y Z 3.8826299e+00 -2.7886286e-01 -1.2138713e+01 MM

INERTIA with respect to RL2 coordinate frame: (GRAM \* MM^2)

INERTIA TENSOR:

Ixx Ixy Ixz 7.2975588e+04 1.2020461e+03 7.1221394e+03

Iyx Iyy Iyz 1.2020461e+03 1.5428365e+05 -5.4074054e+02

Izx Izy Izz 7.1221394e+03 -5.4074054e+02 1.1127758e+05

INERTIA at CENTER OF GRAVITY with respect to RL2 coordinate frame: (GRAM \* MM^2)

INERTIA TENSOR:

Ixx Ixy Ixz 4.6606975e+04 1.0083908e+03 -1.3075486e+03

Iyx Iyy Iyz 1.0083908e+03 1.2523266e+05 6.4706542e+01

Izx Izy Izz -1.3075486e+03 6.4706542e+01 1.0856739e+05

RL3

MASS = 1.1543381e+02 GRAM

CENTER OF GRAVITY with respect to RL3 coordinate frame:

X Y Z 5.9036557e-01 1.9005093e+01 -8.4075186e+01 MM

INERTIA with respect to RL3 coordinate frame: (GRAM \* MM^2)

INERTIA TENSOR:

Ixx Ixy Ixz 9.6264470e+05 -1.2898302e+03 5.0192833e+03

Iyx Iyy Iyz -1.2898302e+03 9.1213052e+05 1.8091861e+05

Izx Izy Izz 5.0192833e+03 1.8091861e+05 6.6664895e+04

INERTIA at CENTER OF GRAVITY with respect to RL3 coordinate frame: (GRAM \* MM^2)

INERTIA TENSOR:

Ixx Ixy Ixz 1.0499103e+05 5.3317427e+00 -7.1028503e+02

Iyx Iyy Iyz 5.3317427e+00 9.6130573e+04 -3.5280865e+03

Izx Izy Izz -7.1028503e+02 -3.5280865e+03 2.4930714e+04

RL4

MASS = 4.0146918e+01 GRAM

CENTER OF GRAVITY with respect to RL4 coordinate frame:

X Y Z 0.0000000e+00 2.1514031e+01 -5.5000000e+01 MM

INERTIA with respect to RL4 coordinate frame: (GRAM \* MM^2)

INERTIA TENSOR:

Ixx Ixy Ixz 1.7717165e+05 0.0000000e+00 0.0000000e+00

Iyx Iyy Iyz 0.0000000e+00 1.4895736e+05 4.7504713e+04

Izx Izy Izz 0.0000000e+00 4.7504713e+04 3.3690562e+04

INERTIA at CENTER OF GRAVITY with respect to RL4 coordinate frame: (GRAM \* MM^2)

INERTIA TENSOR:

Ixx Ixy Ixz 3.7145077e+04 0.0000000e+00 0.0000000e+00

Iyx Iyy Iyz 0.0000000e+00 2.7512933e+04 0.0000000e+00

Izx Izy Izz 0.0000000e+00 0.0000000e+00 1.5108418e+04

RL5

MASS = 1.7885985e+02 GRAM

CENTER OF GRAVITY with respect to RL5 coordinate frame:

X Y Z -2.0217370e+01 1.8721137e+01 1.2138713e+01 MM

INERTIA with respect to RL5 coordinate frame: (GRAM \* MM^2)

INERTIA TENSOR:

Ixx Ixy Ixz 1.3564865e+05 6.8705438e+04 4.5202054e+04

Iyx Iyy Iyz 6.8705438e+04 2.2469491e+05 -4.0710700e+04

Izx Izy Izz 4.5202054e+04 -4.0710700e+04 2.4436190e+05

INERTIA at CENTER OF GRAVITY with respect to RL5 coordinate frame: (GRAM \* MM^2)

INERTIA TENSOR:

Ixx Ixy Ixz 4.6606975e+04 1.0083886e+03 1.3075479e+03

Iyx Iyy Iyz 1.0083886e+03 1.2523266e+05 -6.4708340e+01

Izx Izy Izz 1.3075479e+03 -6.4708340e+01 1.0856739e+05

RL6

MASS = 6.9344849e+01 GRAM

CENTER OF GRAVITY with respect to RL6 coordinate frame:

X Y Z 2.3733194e+01 -1.0370444e+01 -2.7601507e+01 MM

INERTIA with respect to RL6 coordinate frame: (GRAM \* MM^2)

INERTIA TENSOR:

Ixx Ixy Ixz 1.0063157e+05 1.7259275e+04 4.5547181e+04

Iyx Iyy Iyz 1.7259275e+04 1.7063174e+05 -2.0859599e+04

Izx Izy Izz 4.5547181e+04 -2.0859599e+04 1.6230923e+05

INERTIA at CENTER OF GRAVITY with respect to RL6 coordinate frame: (GRAM \* MM^2)

INERTIA TENSOR:

Ixx Ixy Ixz 4.0343898e+04 1.9185924e+02 1.2131733e+02

Iyx Iyy Iyz 1.9185924e+02 7.8742343e+04 -1.0103364e+03

Izx Izy Izz 1.2131733e+02 -1.0103364e+03 1.1579197e+05

LL1

MASS = 1.1813898e+01 GRAM

CENTER OF GRAVITY with respect to LL1 coordinate frame:

X Y Z -1.5660623e+00 0.0000000e+00 -7.7401701e+00 MM

INERTIA with respect to LL1 coordinate frame: (GRAM \* MM^2)

INERTIA TENSOR:

Ixx Ixy Ixz 2.2157010e+03 0.0000000e+00 -1.3794101e+02

Iyx Iyy Iyz 0.0000000e+00 5.0374878e+03 0.0000000e+00

Izx Izy Izz -1.3794101e+02 0.0000000e+00 4.1482965e+03

INERTIA at CENTER OF GRAVITY with respect to LL1 coordinate frame: (GRAM \* MM^2)

INERTIA TENSOR:

Ixx Ixy Ixz 1.5079276e+03 0.0000000e+00 5.2622000e+00

Iyx Iyy Iyz 0.0000000e+00 4.3007402e+03 0.0000000e+00

Izx Izy Izz 5.2622000e+00 0.0000000e+00 4.1193223e+03

LL2

MASS = 1.7885985e+02 GRAM

CENTER OF GRAVITY with respect to LL2 coordinate frame:

X Y Z 3.8826297e+00 2.7886312e-01 -1.2138713e+01 MM

INERTIA with respect to LL2 coordinate frame: (GRAM \* MM^2)

INERTIA TENSOR:

Ixx Ixy Ixz 7.2975588e+04 -1.2020442e+03 7.1221397e+03

Iyx Iyy Iyz -1.2020442e+03 1.5428364e+05 5.4073930e+02

Izx Izy Izz 7.1221397e+03 5.4073930e+02 1.1127758e+05

INERTIA at CENTER OF GRAVITY with respect to LL2 coordinate frame: (GRAM \* MM^2)

INERTIA TENSOR:

Ixx Ixy Ixz 4.6606975e+04 -1.0083886e+03 -1.3075479e+03

Iyx Iyy Iyz -1.0083886e+03 1.2523266e+05 -6.4708340e+01

Izx Izy Izz -1.3075479e+03 -6.4708340e+01 1.0856739e+05

LL3

MASS = 1.1543381e+02 GRAM

CENTER OF GRAVITY with respect to LL3 coordinate frame:

X Y Z 5.9036662e-01 -1.9005093e+01 -8.4075186e+01 MM

INERTIA with respect to LL3 coordinate frame: (GRAM \* MM^2)

INERTIA TENSOR:

Ixx Ixy Ixz 9.6264470e+05 1.2898263e+03 5.0192872e+03

Iyx Iyy Iyz 1.2898263e+03 9.1213052e+05 -1.8091861e+05

Izx Izy Izz 5.0192872e+03 -1.8091861e+05 6.6664898e+04

INERTIA at CENTER OF GRAVITY with respect to LL3 coordinate frame: (GRAM \* MM^2)

INERTIA TENSOR:

Ixx Ixy Ixz 1.0499103e+05 -5.3379056e+00 -7.1029132e+02

Iyx Iyy Iyz -5.3379056e+00 9.6130573e+04 3.5280887e+03

Izx Izy Izz -7.1029132e+02 3.5280887e+03 2.4930714e+04

LL4

MASS = 4.0146918e+01 GRAM

CENTER OF GRAVITY with respect to LL4 coordinate frame:

X Y Z 0.0000000e+00 -2.1514031e+01 -5.5000000e+01 MM

INERTIA with respect to LL4 coordinate frame: (GRAM \* MM^2)

INERTIA TENSOR:

Ixx Ixy Ixz 1.7717165e+05 0.0000000e+00 0.0000000e+00

Iyx Iyy Iyz 0.0000000e+00 1.4895736e+05 -4.7504713e+04

Izx Izy Izz 0.0000000e+00 -4.7504713e+04 3.3690562e+04

INERTIA at CENTER OF GRAVITY with respect to LL4 coordinate frame: (GRAM \* MM^2)

INERTIA TENSOR:

Ixx Ixy Ixz 3.7145077e+04 0.0000000e+00 0.0000000e+00

Iyx Iyy Iyz 0.0000000e+00 2.7512933e+04 0.0000000e+00

Izx Izy Izz 0.0000000e+00 0.0000000e+00 1.5108418e+04

PRINCIPAL MOMENTS OF INERTIA: (GRAM \* MM^2)

I1 I2 I3 1.5108418e+04 2.7512933e+04 3.7145077e+04

ROTATION MATRIX from LL4 orientation to PRINCIPAL AXES:

0.00000 0.00000 -1.00000

0.00000 1.00000 0.00000

1.00000 0.00000 0.00000

LL5

MASS = 1.7885580e+02 GRAM

CENTER OF GRAVITY with respect to LL5 coordinate frame:

X Y Z -2.0218250e+01 -1.8721131e+01 1.2138988e+01 MM

INERTIA with respect to LL5 coordinate frame: (GRAM \* MM^2)

INERTIA TENSOR:

Ixx Ixy Ixz 1.3564716e+05 -6.8706877e+04 4.5202055e+04

Iyx Iyy Iyz -6.8706877e+04 2.2469348e+05 4.0710699e+04

Izx Izy Izz 4.5202055e+04 4.0710699e+04 2.4435902e+05

INERTIA at CENTER OF GRAVITY with respect to LL5 coordinate frame: (GRAM \* MM^2)

INERTIA TENSOR:

Ixx Ixy Ixz 4.6606349e+04 -1.0084346e+03 1.3056389e+03

Iyx Iyy Iyz -1.0084346e+03 1.2522593e+05 6.4720227e+01

Izx Izy Izz 1.3056389e+03 6.4720227e+01 1.0856125e+05

LL6

MASS = 6.9344849e+01 GRAM

CENTER OF GRAVITY with respect to LL6 coordinate frame:

X Y Z 2.3733194e+01 1.0370444e+01 -2.7601507e+01 MM

INERTIA with respect to LL6 coordinate frame: (GRAM \* MM^2)

INERTIA TENSOR:

Ixx Ixy Ixz 1.0063157e+05 -1.7259288e+04 4.5547181e+04

Iyx Iyy Iyz -1.7259288e+04 1.7063174e+05 2.0859597e+04

Izx Izy Izz 4.5547181e+04 2.0859597e+04 1.6230923e+05

INERTIA at CENTER OF GRAVITY with respect to LL6 coordinate frame: (GRAM \* MM^2)

INERTIA TENSOR:

Ixx Ixy Ixz 4.0343899e+04 -1.9187283e+02 1.2131733e+02

Iyx Iyy Iyz -1.9187283e+02 7.8742343e+04 1.0103355e+03

Izx Izy Izz 1.2131733e+02 1.0103355e+03 1.1579197e+05

|  |  |  |  |
| --- | --- | --- | --- |
|  | x | y | z |
| Base-RL1 | 0 | -35 | 0 |
| RL1-RL2 | -24 | 0 | -28.5 |
| RL2-RL3 | 24.1 | -19 | 0 |
| RL3-RL4 | 0.1 | 0 | -110.15 |
| RL4-RL5 | 0 | 0 | -110 |
| RL5-RL6 | -24.1 | 19 | 0 |

|  |  |  |  |
| --- | --- | --- | --- |
|  | x | y | z |
| Base-LL1 | 0 | 35 | 0 |
| LL1-LL2 | -24 | 0 | -28.5 |
| LL2-LL3 | 24.1 | 19 | 0 |
| LL3-LL4 | 0.1 | 0 | -110.15 |
| LL4-LL5 | 0 | 0 | -110 |
| LL5-LL6 | -24.1 | -19 | 0 |