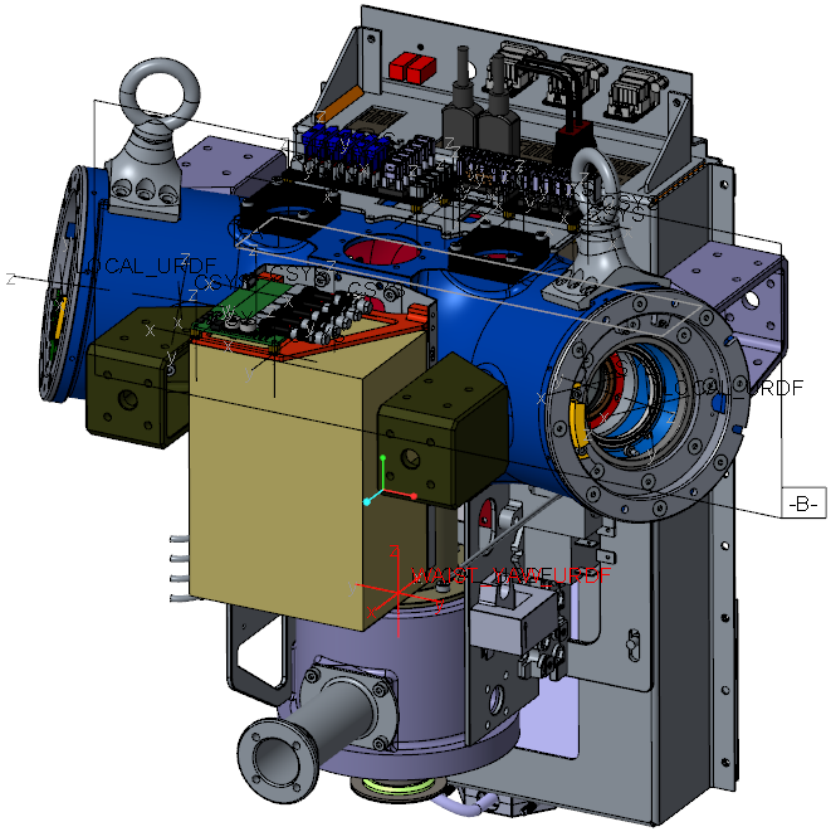
Walkimon URDF DATA

Torso yaw



VOLUME = 4.1467438e+06 MM^3
SURFACE AREA = 2.0235201e+06 MM^2
AVERAGE DENSITY = 3.2772602e-06 KILOGRAM / MM^3
MASS = 1.3589958e+01 KILOGRAM

CENTER OF GRAVITY with respect to WAIST_YAW_URDF coordinate frame:
X Y Z -5.7472215e+01 2.8579335e-01 4.7027898e+01 MM

INERTIA with respect to WAIST_YAW_URDF coordinate frame: (KILOGRAM * MM^2)

INERTIA TENSOR:
Ixx Ixy Ixz 8.0724492e+09 1.0431094e+07 -2.7531799e+06
Iyx Iyy Iyz 1.0431094e+07 6.0675433e+09 -3.6027061e+06
Izx Izy Izz -2.7531799e+06 -3.6027061e+06 8.9204648e+09

INERTIA at CENTER OF GRAVITY with respect to WAIST_YAW_URDF coordinate frame: (KILOGRAM * MM^2)

INERTIA TENSOR:
Ixx Ixy Ixz 8.0724191e+09 1.0430870e+07 -2.7899108e+06
Iyx Iyy Iyz 1.0430870e+07 6.0674683e+09 -3.6025234e+06
Izx Izy Izz -2.7899108e+06 -3.6025234e+06 8.9204199e+09

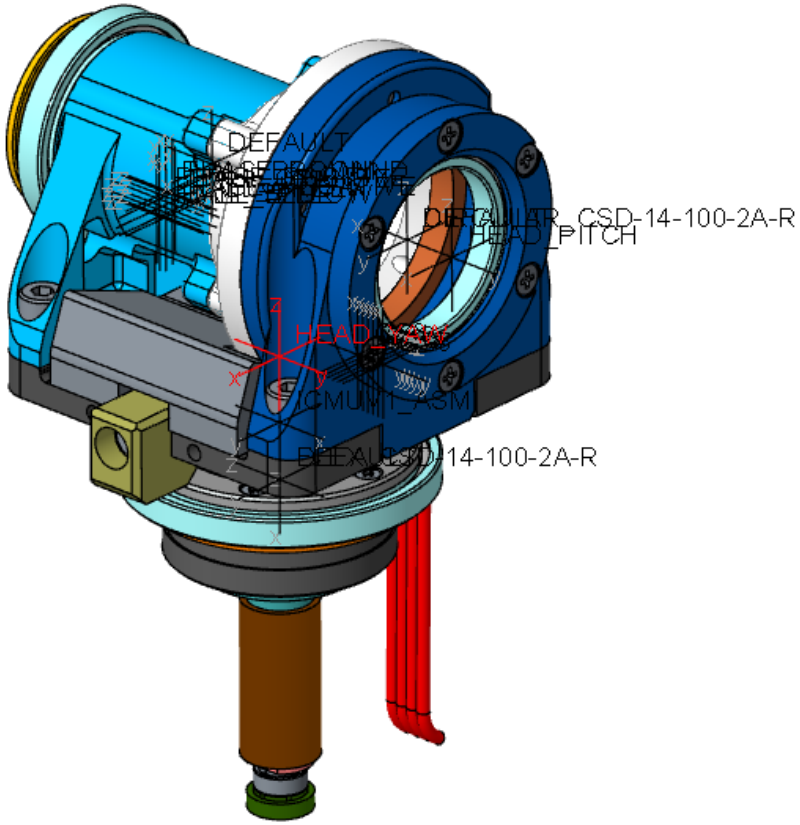
PRINCIPAL MOMENTS OF INERTIA: (KILOGRAM * MM^2)
I1 I2 I3 6.0674096e+09 8.0724641e+09 8.9204337e+09

ROTATION MATRIX from WAIST_YAW_URDF orientation to PRINCIPAL AXES:
-0.00520 -0.99998 -0.00331
0.99999 -0.00520 -0.00127
0.00126 -0.00331 0.99999

ROTATION ANGLES from WAIST_YAW_URDF orientation to PRINCIPAL AXES (degrees):
angles about x y z 0.073 -0.189 90.298

RADII OF GYRATION with respect to PRINCIPAL AXES:
R1 R2 R3 2.1129664e+04 2.4372159e+04 2.5620283e+04 MM

Head yaw



VOLUME = 1.1368397e+05 MM^3
SURFACE AREA = 9.0100890e+04 MM^2
AVERAGE DENSITY = 5.2377357e-06 KILOGRAM / MM^3
MASS = 5.9544662e-01 KILOGRAM

CENTER OF GRAVITY with respect to HEAD_YAW coordinate frame:
X Y Z 1.7665124e-01 -5.6962982e-01 9.6961910e+00 MM

INERTIA with respect to HEAD_YAW coordinate frame: (KILOGRAM * MM^2)

INERTIA TENSOR:
Ixx Ixy Ixz 5.0019931e+02 1.2343306e-02 -8.9287674e-01
Iyx Iyy Iyz 1.2343306e-02 4.2558237e+02 8.9412269e+00
Izx Izy Izz -8.9287674e-01 8.9412269e+00 2.7144961e+02

INERTIA at CENTER OF GRAVITY with respect to HEAD_YAW coordinate frame: (KILOGRAM * MM^2)

INERTIA TENSOR:
Ixx Ixy Ixz 4.4402452e+02 -4.7573996e-02 1.2703055e-01
Iyx Iyy Iyz -4.7573996e-02 3.6958221e+02 5.6524326e+00
Izx Izy Izz 1.2703055e-01 5.6524326e+00 2.7123782e+02

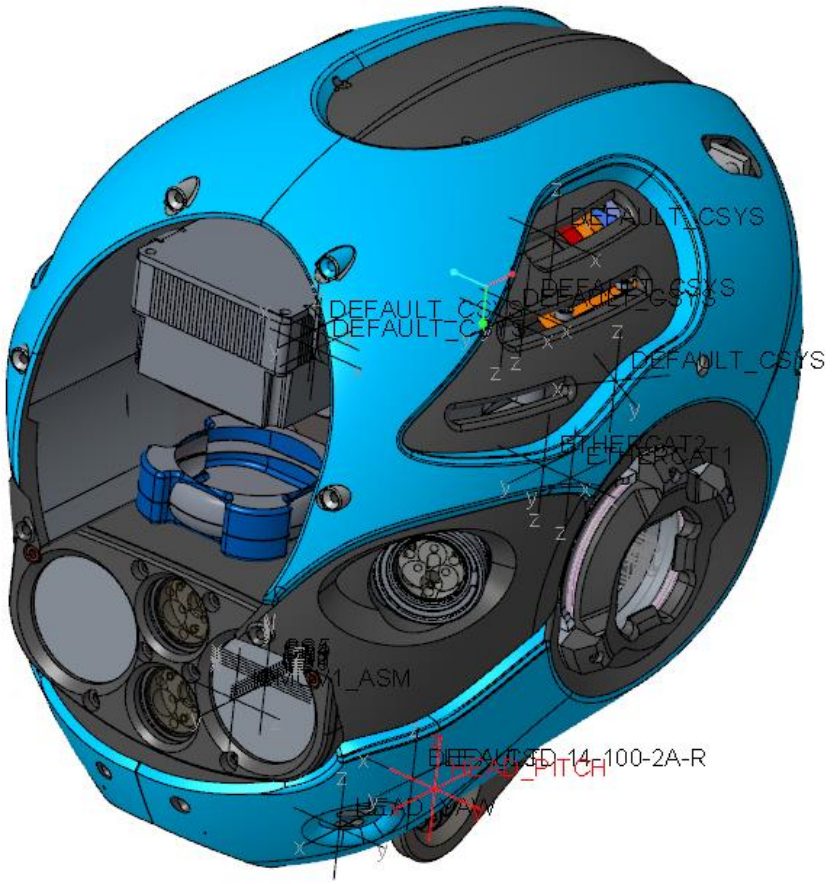
PRINCIPAL MOMENTS OF INERTIA: (KILOGRAM * MM^2)
I1 I2 I3 2.7091391e+02 3.6990600e+02 4.4402464e+02

ROTATION MATRIX from HEAD_YAW orientation to PRINCIPAL AXES:
-0.00075 0.00054 -1.00000
-0.05719 0.99836 0.00058
0.99836 0.05719 -0.00072

ROTATION ANGLES from HEAD_YAW orientation to PRINCIPAL AXES (degrees):
angles about x y z-140.767 -89.947 -144.045

RADII OF GYRATION with respect to PRINCIPAL AXES:
R1 R2 R3 2.1330166e+01 2.4924375e+01 2.7307511e+01 MM

Head pitch



VOLUME = 1.0683415e+06 MM^3
SURFACE AREA = 5.9958122e+05 MM^2
AVERAGE DENSITY = 2.9380576e-06 KILOGRAM / MM^3
MASS = 3.1388490e+00 KILOGRAM

CENTER OF GRAVITY with respect to HEAD_PITCH coordinate frame:
X Y Z 6.5724785e+00 -3.4569915e+01 1.1402826e+02 MM

INERTIA with respect to HEAD_PITCH coordinate frame: (KILOGRAM * MM^2)

INERTIA TENSOR:
Ixx Ixy Ixz 6.6631055e+04 6.8066704e+02 -3.5583041e+03
Iyx Iyy Iyz 6.8066704e+02 6.0088590e+04 1.2276506e+04
Izx Izy Izz -3.5583041e+03 1.2276506e+04 2.5221425e+04

INERTIA at CENTER OF GRAVITY with respect to HEAD_PITCH coordinate frame: (KILOGRAM * MM^2)

INERTIA TENSOR:
Ixx Ixy Ixz 2.2067171e+04 -3.2510922e+01 -1.2058990e+03
Iyx Iyy Iyz -3.2510922e+01 1.9140289e+04 -9.6672078e+01
Izx Izy Izz -1.2058990e+03 -9.6672078e+01 2.1334662e+04

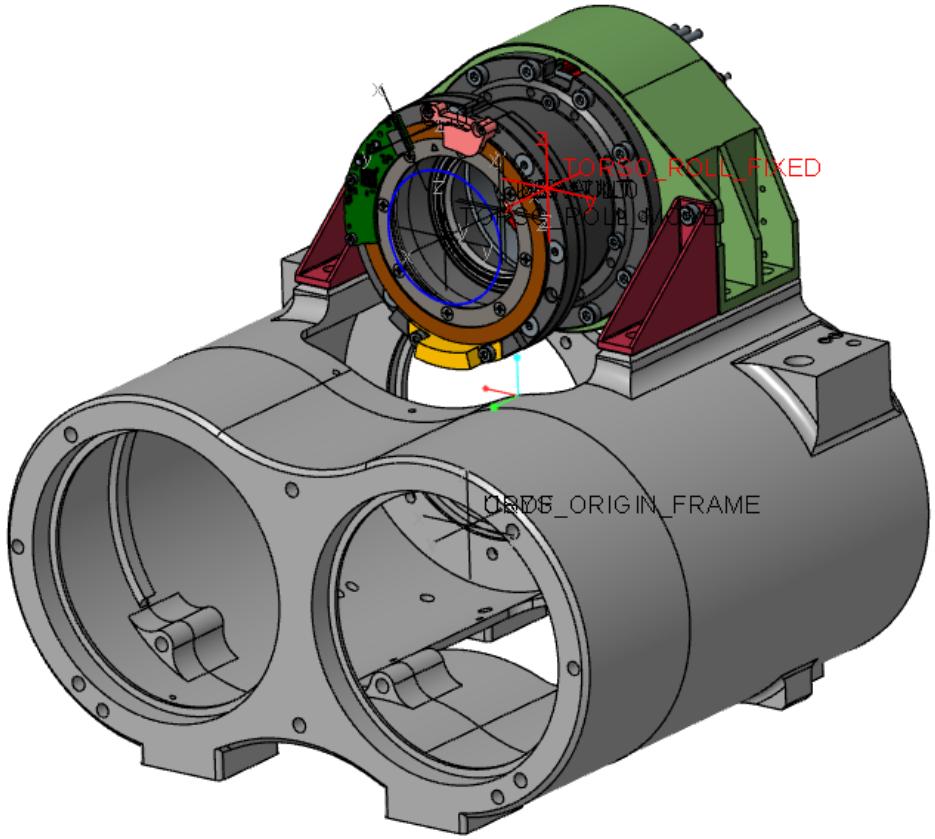
PRINCIPAL MOMENTS OF INERTIA: (KILOGRAM * MM^2)
I1 I2 I3 1.9132833e+04 2.0447822e+04 2.2961467e+04

ROTATION MATRIX from HEAD_PITCH orientation to PRINCIPAL AXES:
0.03748 0.59467 0.80309
0.99723 -0.07398 0.00824
0.06431 0.80056 -0.59580

ROTATION ANGLES from HEAD_PITCH orientation to PRINCIPAL AXES (degrees):
angles about x y z-179.208 53.426 -86.394

RADII OF GYRATION with respect to PRINCIPAL AXES:
R1 R2 R3 7.8073639e+01 8.0712037e+01 8.5529238e+01 MM

Torso roll fixed



VOLUME = 9.6612646e+05 MM^3
SURFACE AREA = 5.4086234e+05 MM^2
AVERAGE DENSITY = 3.0284953e-06 KILOGRAM / MM^3
MASS = 2.9259094e+00 KILOGRAM

CENTER OF GRAVITY with respect to TORSO_ROLL_FIXED coordinate frame:
X Y Z 2.7038986e+01 -5.1554922e-03 -6.4188178e+01 MM

INERTIA with respect to TORSO_ROLL_FIXED coordinate frame: (KILOGRAM * MM^2)

INERTIA TENSOR:
Ixx Ixy Ixz 3.7768715e+04 9.9086721e+00 9.4301090e+03
Iyx Iyy Iyz 9.9086721e+00 3.9143447e+04 3.5756843e+00
Izx Izy Izz 9.4301090e+03 3.5756843e+00 2.7059272e+04

INERTIA at CENTER OF GRAVITY with respect to TORSO_ROLL_FIXED coordinate frame: (KILOGRAM * MM^2)

INERTIA TENSOR:
Ixx Ixy Ixz 2.5713610e+04 9.5008024e+00 4.3519496e+03
Iyx Iyy Iyz 9.5008024e+00 2.4949190e+04 4.5439311e+00
Izx Izy Izz 4.3519496e+03 4.5439311e+00 2.4920120e+04

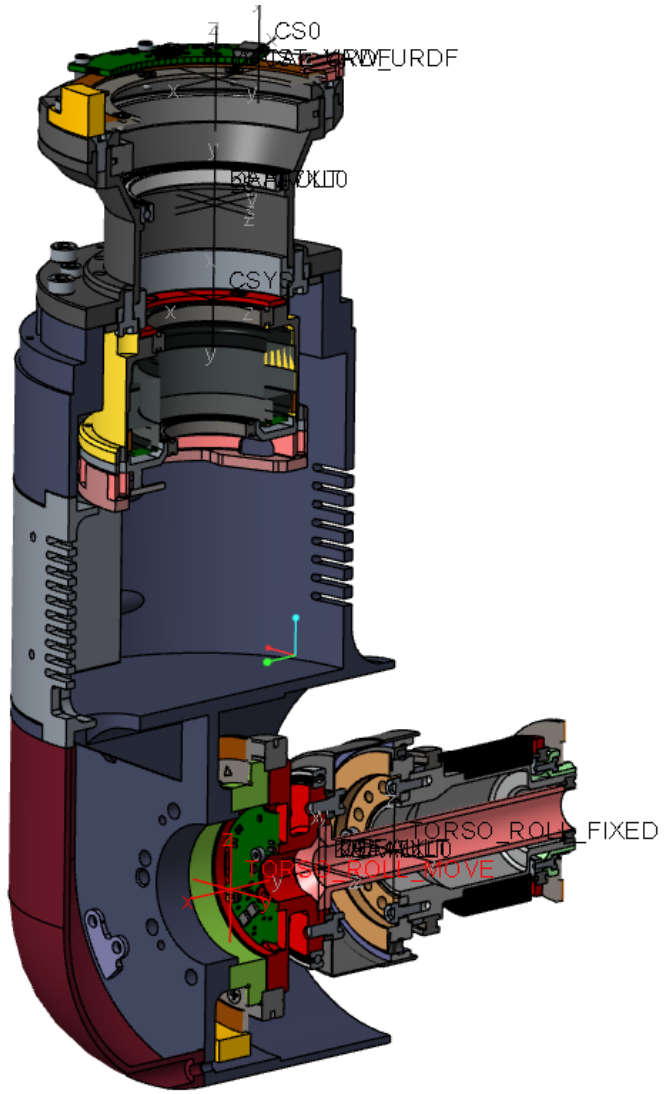
PRINCIPAL MOMENTS OF INERTIA: (KILOGRAM * MM^2)
I1 I2 I3 2.0946866e+04 2.4949171e+04 2.9686883e+04

ROTATION MATRIX from TORSO_ROLL_FIXED orientation to PRINCIPAL AXES:
-0.67425 -0.00106 -0.73851
0.00076 1.00000 -0.00213
0.73851 -0.00200 -0.67424

ROTATION ANGLES from TORSO_ROLL_FIXED orientation to PRINCIPAL AXES (degrees):
angles about x y z 179.819 -47.604 179.910

RADII OF GYRATION with respect to PRINCIPAL AXES:
R1 R2 R3 8.4611440e+01 9.2341648e+01 1.0072838e+02 MM

Torso roll move



VOLUME = 6.1911318e+05 MM^3
SURFACE AREA = 4.4885712e+05 MM^2
AVERAGE DENSITY = 3.9264336e-06 KILOGRAM / MM^3
MASS = 2.4309068e+00 KILOGRAM

CENTER OF GRAVITY with respect to TORSO_ROLL_MOVE coordinate frame:
X Y Z -1.3438629e+01 -2.4995993e-02 7.3562799e+01 MM

INERTIA with respect to TORSO_ROLL_MOVE coordinate frame: (KILOGRAM * MM^2)

INERTIA TENSOR:
Ixx Ixy Ixz 2.9857616e+04 3.5091583e+01 -1.7677738e+03
Iyx Iyy Iyz 3.5091583e+01 3.3034755e+04 1.6047928e+01
Izx Izy Izz -1.7677738e+03 1.6047928e+01 6.2111222e+03

INERTIA at CENTER OF GRAVITY with respect to TORSO_ROLL_MOVE coordinate frame: (KILOGRAM * MM^2)

INERTIA TENSOR:
Ixx Ixy Ixz 1.6702798e+04 3.5908153e+01 -4.1709274e+03
Iyx Iyy Iyz 3.5908153e+01 1.9440925e+04 1.1578036e+01
Izx Izy Izz -4.1709274e+03 1.1578036e+01 5.7721068e+03

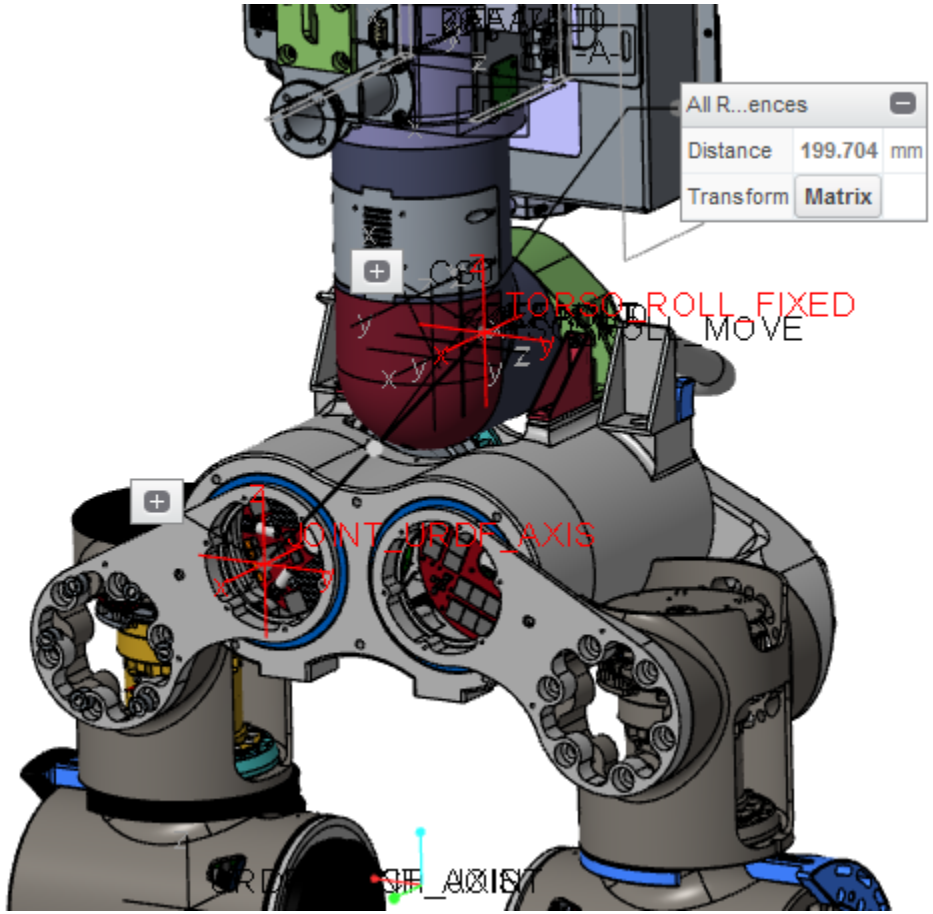
PRINCIPAL MOMENTS OF INERTIA: (KILOGRAM * MM^2)
I1 I2 I3 4.3623453e+03 1.8111835e+04 1.9441649e+04

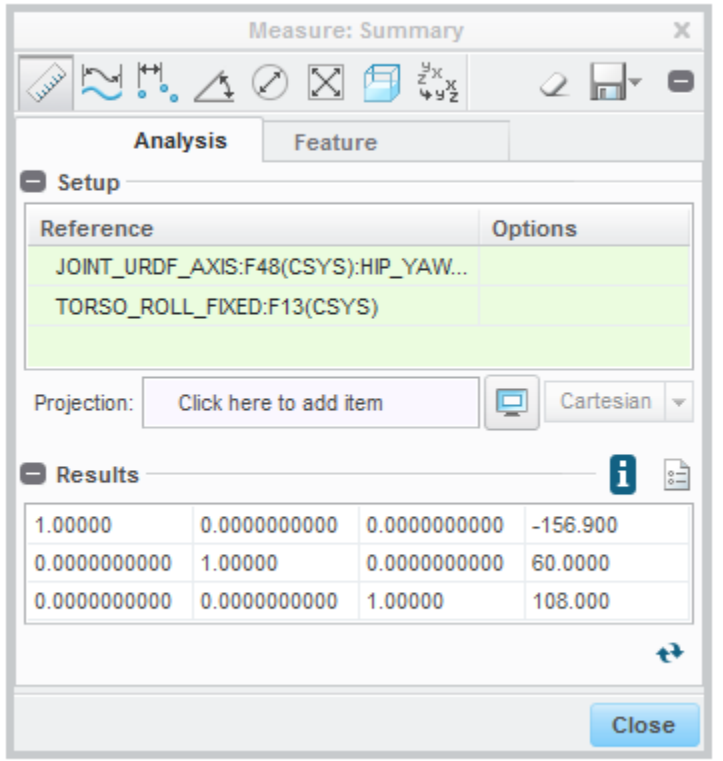
ROTATION MATRIX from TORSO_ROLL_MOVE orientation to PRINCIPAL AXES:
0.32020 0.94709 0.02208
-0.00149 -0.02280 0.99974
0.94735 -0.32015 -0.00589

ROTATION ANGLES from TORSO_ROLL_MOVE orientation to PRINCIPAL AXES (degrees):
angles about x y z -90.338 1.265 -71.320

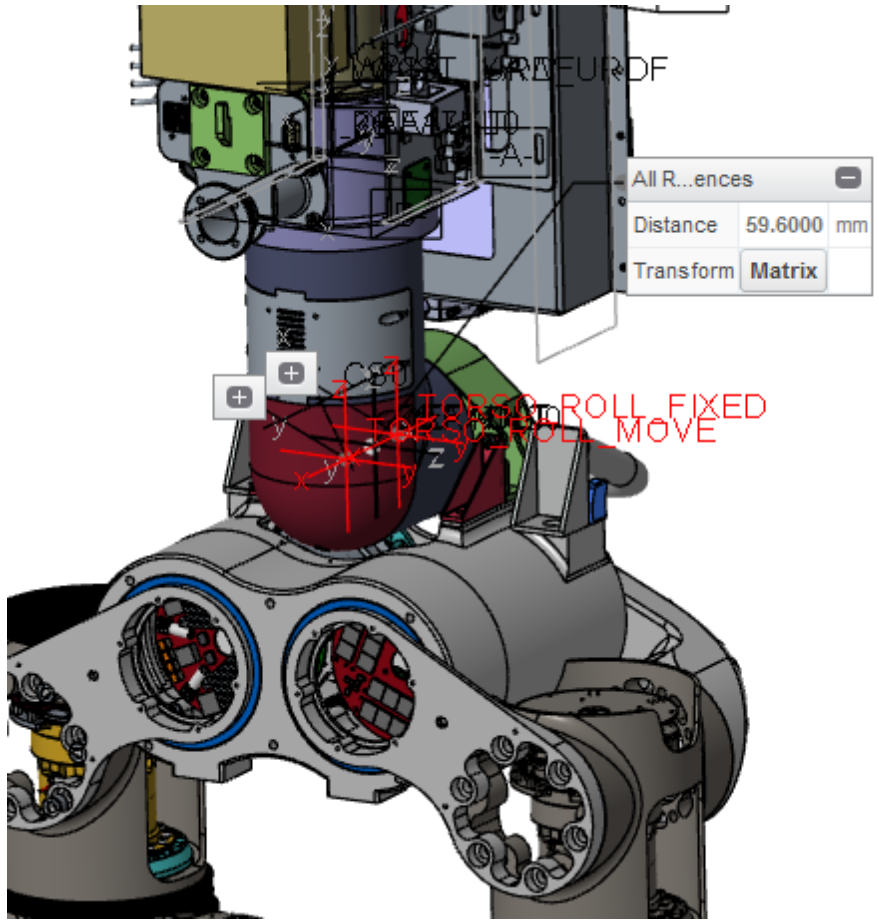
RADII OF GYRATION with respect to PRINCIPAL AXES:
R1 R2 R3 4.2361942e+01 8.6317145e+01 8.9429829e+01 MM

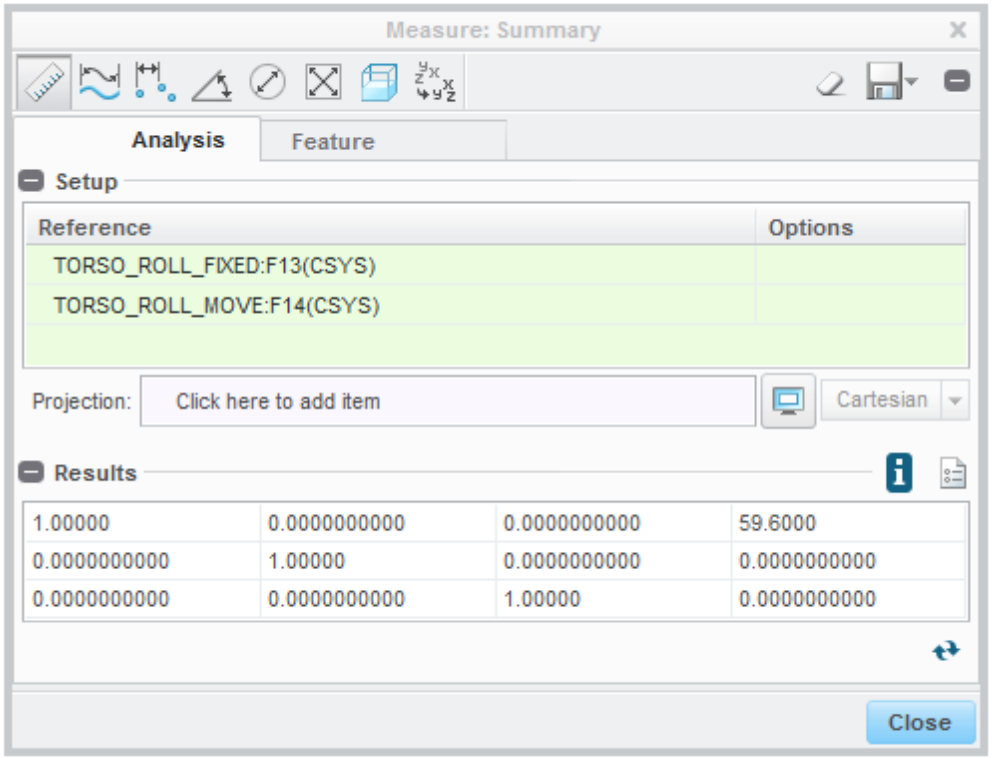
From Joint_URDF_axis to Torso_roll_fixed



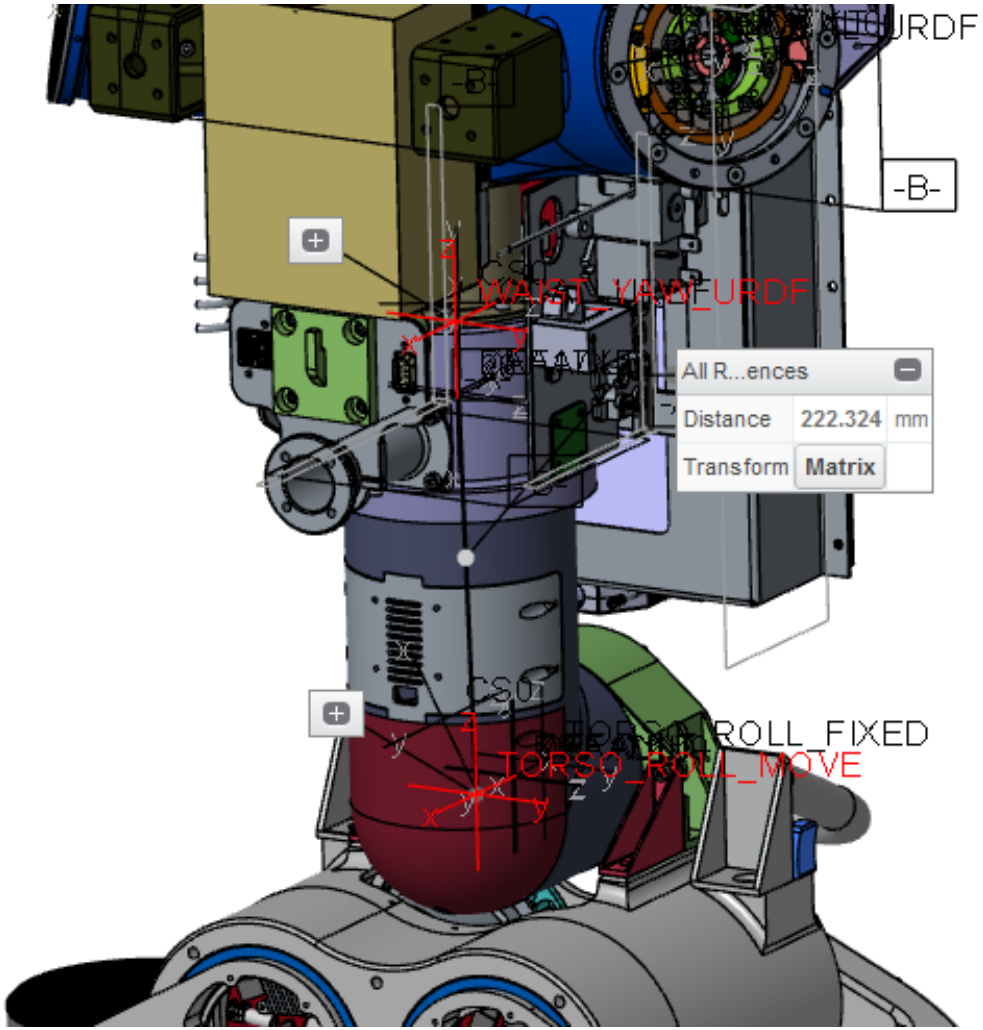


From Torso_roll_fixed to Torso_roll_move





From Torso_roll_move to Torso_roll_fixed



Measure: Summary

Analysis | Feature

Setup

Reference	Options
TORSO_ROLL_MOVE:F14(CSYS)	
WAIST_YAW_URDF:F12(CSYS)	

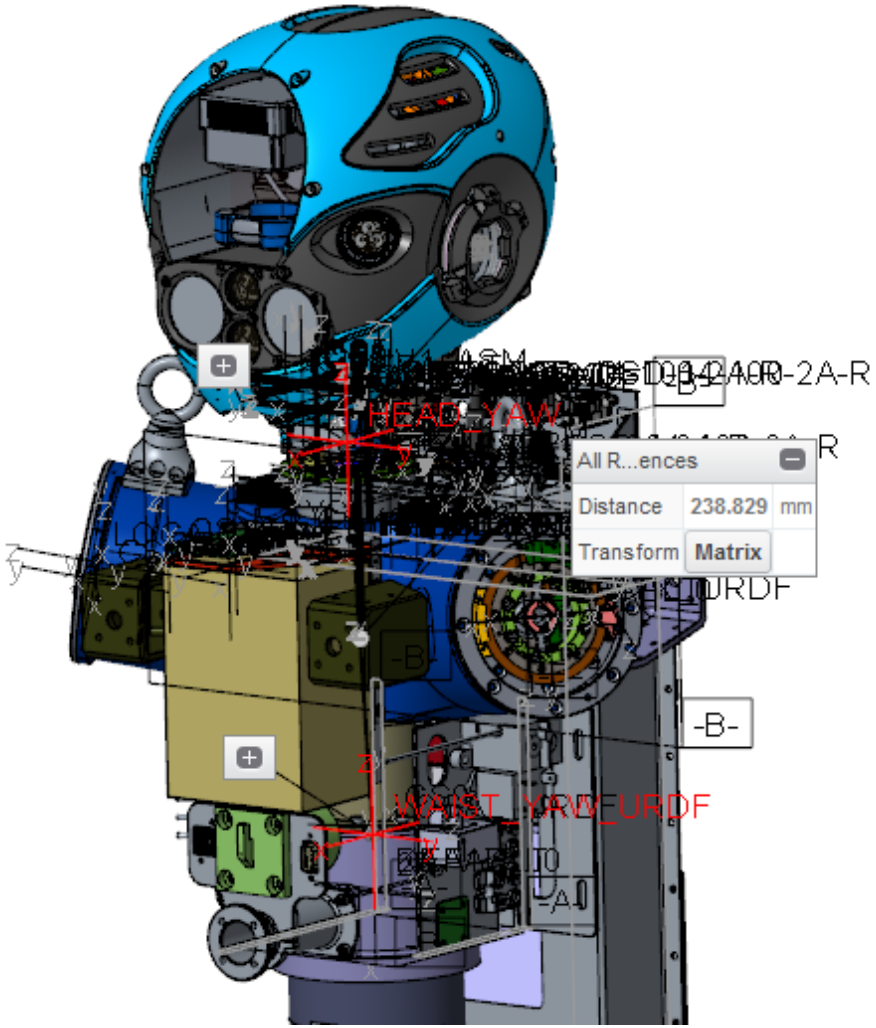
Projection: Click here to add item | Cartesian

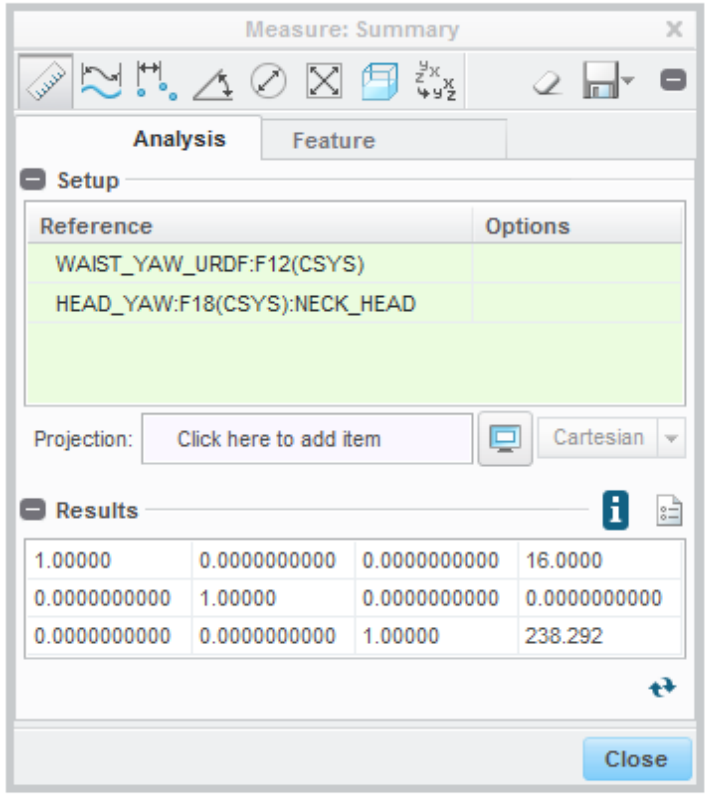
Results

1.00000	0.0000000000	0.0000000000	8.80000
0.0000000000	1.00000	0.0000000000	0.0000000000
0.0000000000	0.0000000000	1.00000	222.150

Close

From Torso_roll_move to head_yaw





From Torso_roll_move to head_pitch