

Knuckle boom

Mass properties of Jib+telescope

Configuration: Version K4 (armed)

Coordinate system: Point C

* Includes the mass properties of one or more hidden components/bodies.

Mass = 842.2 kilograms

Volume = 0.1092 cubic meters

Surface area = 38.6 square meters

Center of mass: (meters)

X = 0.9806

Y = 0.1814

Z = -0.2939

Principal axes of inertia and principal moments of inertia: (kilograms * square meters)

Taken at the center of mass.

Ix = (0.9996, 0.0179, -0.0211) Px = 31.34

Iy = (-0.0174, 0.9995, 0.0264) Py = 566.5

Iz = (0.0215, -0.026, 0.9994) Pz = 573.4

Moments of inertia: (kilograms * square meters)

Taken at the center of mass and aligned with the output coordinate system. (Using positive tensor notation.)

Lxx = 31.75 Lxy = 9.588 Lxz = -11.42

Lyx = 9.588 Lyy = 566.3 Lyz = -0.0237

Lzx = -11.42 Lzy = -0.0237 Lzz = 573.1

Moments of inertia: (kilograms * square meters)

Taken at the output coordinate system. (Using positive tensor notation.)

Ixx = 132.2 Ixy = 159.4 Ixz = -254.1

Iyx = 159.4 Iyy = 1449 Iyz = -44.91

Izx = -254.1 Izy = -44.91 Izz = 1411

Main boom

Mass properties of selected components

Coordinate system: Point B

The center of mass and the moments of inertia are output in the coordinate system of MainBoom

Mass = 216.5 kilograms

Volume = 0.0277 cubic meters

Surface area = 7.882 square meters

Center of mass: (meters)

X = 1.134

Y = 0.1674

Z = -0.0018

Principal axes of inertia and principal moments of inertia: (kilograms * square meters)

Taken at the center of mass.

Ix = (0.9987, 0.0519, 0.0007) Px = 6.083

Iy = (0.0056, -0.0933, -0.9956) Py = 160

Iz = (-0.0516, 0.9943, -0.0935) Pz = 160.7

Moments of inertia: (kilograms * square meters)

Taken at the center of mass and aligned with the output coordinate system. (Using positive tensor notation.)

Lxx = 6.5 Lxy = 8.016 Lxz = 0.1093

Lyx = 8.016 Lyy = 160.3 Lyz = 0.0666

Lzx = 0.1093 Lzy = 0.0666 Lzz = 160

Moments of inertia: (kilograms * square meters)

Taken at the output coordinate system. (Using positive tensor notation.)

Ixx = 12.56 Ixy = 49.09 Ixz = -0.3321

Iyx = 49.09 Iyy = 438.5 Iyz = 0.0014

Izx = -0.3321 Izy = 0.0014 Izz = 444.3

Column

Mass properties of selected components

Coordinate system: Point A

The center of mass and the moments of inertia are output in the coordinate system of Column

Mass = 239385.0582 grams

Volume = 30506961.0343 cubic millimeters

Surface area = 5914286.7537 square millimeters

Center of mass: (millimeters)

X = -100.6662

Y = 0.0662

Z = 435.1073

Principal axes of inertia and principal moments of inertia: (grams * square millimeters)

Taken at the center of mass.

Ix = (-0.2023, 0.0003, 0.9793) Px = 4548681998.0964

Iy = (-0.9793, 0.0087, -0.2023) Py = 113490610230.2879

Iz = (-0.0086, -1.0000, -0.0015) Pz = 114019173455.4535

Moments of inertia: (grams * square millimeters)

Taken at the center of mass and aligned with the output coordinate system. (Using positive tensor notation.)

Lxx = 109030688861.2798 Lxy = -11270678.4889 Lxz = -21586700991.0242

Lyx = -11270678.4889 Lyy = 114019123306.8452 Lyz = 31851426.2467

Lzx = -21586700991.0242 Lzy = 31851426.2467 Lzz = 9008653515.7132

Moments of inertia: (grams * square millimeters)

Taken at the output coordinate system. (Using positive tensor notation.)

lxx = 154350682737.6009 lxy = -12866519.8657 lxz = -32071914120.7848

lyx = -12866519.8657 lyy = 161764970320.8656 lyz = 38749094.3108

lzx = -32071914120.7848 lzy = 38749094.3108 lzz = 11434508753.0520

Dogbone

-----D2E--G2H-----

Mass properties of 6344163

Configuration: 6344163

Coordinate system: Point D

Density = 7850 kilograms per cubic meter

Mass = 6.426 kilograms

Volume = 0.0008 cubic meters

Surface area = 0.138 square meters

Center of mass: (meters)

X = 0.245

Y = 0

Z = 0

Principal axes of inertia and principal moments of inertia: (kilograms * square meters)

Taken at the center of mass.

Ix = (-1, 0, 0) Px = 0.0069

Iy = (0, 1, 0) Py = 0.2419

Iz = (0, 0, -1) Pz = 0.2485

Moments of inertia: (kilograms * square meters)

Taken at the center of mass and aligned with the output coordinate system. (Using positive tensor notation.)

Lxx = 0.0069 Lxy = 0 Lxz = 0

Lyx = 0 Lyy = 0.2419 Lyz = 0

Lzx = 0 Lzy = 0 Lzz = 0.2485

Moments of inertia: (kilograms * square meters)

Taken at the output coordinate system. (Using positive tensor notation.)

Ixx = 0.0069 Ixy = 0 Ixz = 0

Iyx = 0 Iyy = 0.6276 Iyz = 0

Izx = 0 Izy = 0 Izz = 0.6342

-----E2F-----

Mass properties of 15373

Configuration: Default

Coordinate system: Point E

Density = 7850 kilograms per cubic meter

Mass = 7.076 kilograms

Volume = 0.0009 cubic meters

Surface area = 0.1017 square meters

Center of mass: (meters)

X = 0.0817

Y = 0

Z = 0.0023

Principal axes of inertia and principal moments of inertia: (kilograms * square meters)

Taken at the center of mass.

Ix = (-0.984, 0, 0.1782) Px = 0.0095

Iy = (0, -1, 0) Py = 0.0546

Iz = (0.1782, 0, 0.984) Pz = 0.0603

Moments of inertia: (kilograms * square meters)

Taken at the center of mass and aligned with the output coordinate system. (Using positive tensor notation.)

Lxx = 0.0111 Lxy = 0 Lxz = -0.0089

Lyx = 0 Lyy = 0.0546 Lyz = 0

Lzx = -0.0089 Lzy = 0 Lzz = 0.0587

Moments of inertia: (kilograms * square meters)

Taken at the output coordinate system. (Using positive tensor notation.)

Ixx = 0.0112 Ixy = 0 Ixz = -0.0075

Iyx = 0 Iyy = 0.1019 Iyz = 0

Izx = -0.0075 Izy = 0 Izz = 0.1059

Mass properties of 15377

Configuration: Default

Coordinate system: Point H

Density = 7850 kilograms per cubic meter

Mass = 22.05 kilograms

Volume = 0.0028 cubic meters

Surface area = 0.3182 square meters

Center of mass: (meters)

X = 0.1206

Y = 0

Z = 0

Principal axes of inertia and principal moments of inertia: (kilograms * square meters)

Taken at the center of mass.

Ix = (0, 0, 1) Px = 0.1901

Iy = (1, 0, 0) Py = 0.2636

Iz = (0, 1, 0) Pz = 0.4184

Moments of inertia: (kilograms * square meters)

Taken at the center of mass and aligned with the output coordinate system. (Using positive tensor notation.)

Lxx = 0.2636 Lxy = 0 Lxz = 0

Lyx = 0 Lyy = 0.4184 Lyz = 0

Lzx = 0 Lzy = 0 Lzz = 0.1901

Moments of inertia: (kilograms * square meters)

Taken at the output coordinate system. (Using positive tensor notation.)

Ixx = 0.2636 Ixy = 0 Ixz = 0

Iyx = 0 Iyy = 0.7389 Iyz = 0

Izx = 0 Izy = 0 Izz = 0.5106