

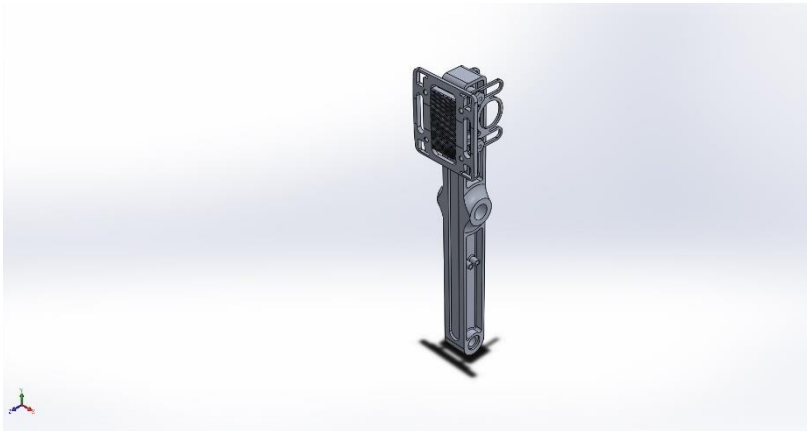
Simulation of Assem3

Date: Tuesday, March 6, 2018

Designer: Solidworks

Study name: Static 2

Analysis type: Static



Description

4000 N is applied to force the brake pedal and get the results are needed.

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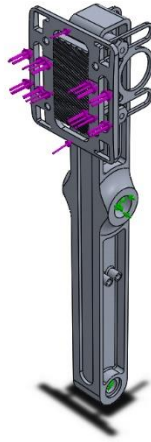


Assumptions



Model Information





Model name: Assem3
Current Configuration: Default

Solid Bodies

Document Name and Reference	Treated As	Volumetric Properties	Document Path/Date Modified
Fillet7	Solid Body	Mass:0.278762 kg Volume:0.000103245 m ³ Density:2700 kg/m ³ Weight:2.73187 N	C:\Users\aalodah\Desktop\4511\brakepedal.SLDPRT Mar 04 20:37:48 2018
Chamfer1	Solid Body	Mass:0.0282578 kg Volume:1.00921e-005 m ³ Density:2800 kg/m ³ Weight:0.276927 N	C:\Users\aalodah\Desktop\4511\brakepedalface.SLDPRT Mar 04 20:37:48 2018
Fillet5	Solid Body	Mass:0.0381406 kg Volume:1.41261e-005 m ³ Density:2700 kg/m ³ Weight:0.373778 N	C:\Users\aalodah\Desktop\4511\pedalfacebraket.SLDPRT Mar 04 20:37:54 2018
Chamfer1	Solid Body	Mass:0.00556795 kg Volume:2.06221e-006 m ³ Density:2700 kg/m ³ Weight:0.0545659 N	C:\Users\aalodah\Desktop\4511\pedalfacebraketbolt.SLDPRT Mar 04 20:37:54 2018
Chamfer1	Solid Body	Mass:0.00556795 kg Volume:2.06221e-006 m ³ Density:2700 kg/m ³ Weight:0.0545659 N	C:\Users\aalodah\Desktop\4511\pedalfacebraketbolt.SLDPRT Mar 04 20:37:54 2018
Boss-Extrude1	Solid Body	Mass:0.000502655 kg Volume:6.28319e-008 m ³ Density:8000 kg/m ³ Weight:0.00492602 N	C:\Users\aalodah\Desktop\4511\pedalfacebraketwasher.SLDPRT Mar 04 20:37:54 2018



Boss-Extrude1	Solid Body	Mass:0.000502655 kg Volume:6.28319e-008 m ³ Density:8000 kg/m ³ Weight:0.00492602 N	C:\Users\aalodah\Desktop \4511\pedalfacebraketwa sher.SLDPRT Mar 04 20:37:54 2018
Boss-Extrude1	Solid Body	Mass:0.000502655 kg Volume:6.28319e-008 m ³ Density:8000 kg/m ³ Weight:0.00492602 N	C:\Users\aalodah\Desktop \4511\pedalfacebraketwa sher.SLDPRT Mar 04 20:37:54 2018
Boss-Extrude1	Solid Body	Mass:0.000502655 kg Volume:6.28319e-008 m ³ Density:8000 kg/m ³ Weight:0.00492602 N	C:\Users\aalodah\Desktop \4511\pedalfacebraketwa sher.SLDPRT Mar 04 20:37:54 2018
Boss-Extrude1	Solid Body	Mass:0.000872089 kg Volume:1.09011e-007 m ³ Density:8000 kg/m ³ Weight:0.00854648 N	C:\Users\aalodah\Desktop \4511\pedalfacenut.SLDP RT Mar 04 20:37:54 2018
Boss-Extrude1	Solid Body	Mass:0.000872089 kg Volume:1.09011e-007 m ³ Density:8000 kg/m ³ Weight:0.00854648 N	C:\Users\aalodah\Desktop \4511\pedalfacenut.SLDP RT Mar 04 20:37:54 2018



Study Properties




Study name	Static 2
Analysis type	Static
Mesh type	Solid Mesh
Thermal Effect:	On
Thermal option	Include temperature loads
Zero strain temperature	298 Kelvin
Include fluid pressure effects from SOLIDWORKS Flow Simulation	Off
Solver type	FFEPlus
Inplane Effect:	Off
Soft Spring:	Off
Inertial Relief:	Off
Incompatible bonding options	Automatic
Large displacement	Off
Compute free body forces	On
Friction	Off
Use Adaptive Method:	Off
Result folder	SOLIDWORKS document (C:\Users\aalodah\Desktop\4511)

Units

Unit system:	SI (MKS)
Length/Displacement	mm
Temperature	Kelvin
Angular velocity	Rad/sec
Pressure/Stress	N/m ²

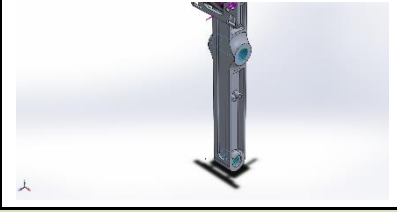


Material Properties

Model Reference	Properties	Components
	Name: 6061-T6 (SS) Model type: Linear Elastic Isotropic Default failure criterion: Unknown Yield strength: 2.75e+008 N/m ² Tensile strength: 3.1e+008 N/m ² Elastic modulus: 6.9e+010 N/m ² Poisson's ratio: 0.33 Mass density: 2700 kg/m ³ Shear modulus: 2.6e+010 N/m ² Thermal expansion coefficient: 2.4e-005 /Kelvin	SolidBody 1(Fillet7)(Assem5-1/brakepedal-1), SolidBody 1(Fillet5)(Assem5-1/pedalfacebraket-1), SolidBody 1(Chamfer1)(Assem5-1/pedalfacebraketbolt-1), SolidBody 1(Chamfer1)(Assem5-1/pedalfacebraketbolt-2)
Curve Data:N/A		
	Name: 2018 Alloy Model type: Linear Elastic Isotropic Default failure criterion: Unknown Yield strength: 3.17104e+008 N/m ² Tensile strength: 4.20507e+008 N/m ² Elastic modulus: 7.4e+010 N/m ² Poisson's ratio: 0.33 Mass density: 2800 kg/m ³ Shear modulus: 2.7e+010 N/m ² Thermal expansion coefficient: 2.2e-005 /Kelvin	SolidBody 1(Chamfer1)(Assem5-1/brakepedalface-1)
Curve Data:N/A		
	Name: AISI 304 Model type: Linear Elastic Isotropic Default failure criterion: Unknown Yield strength: 2.06807e+008 N/m ² Tensile strength: 5.17017e+008 N/m ² Elastic modulus: 1.9e+011 N/m ² Poisson's ratio: 0.29 Mass density: 8000 kg/m ³ Shear modulus: 7.5e+010 N/m ² Thermal expansion coefficient: 1.8e-005 /Kelvin	SolidBody 1(Boss-Extrude1)(Assem5-1/pedalfacebraketwasher-1), SolidBody 1(Boss-Extrude1)(Assem5-1/pedalfacebraketwasher-2), SolidBody 1(Boss-Extrude1)(Assem5-1/pedalfacebraketwasher-3), SolidBody 1(Boss-Extrude1)(Assem5-1/pedalfacebraketwasher-4), SolidBody 1(Boss-Extrude1)(Assem5-1/pedalfacenut-1), SolidBody 1(Boss-Extrude1)(Assem5-1/pedalfacenut-2)
Curve Data:N/A		



Loads and Fixtures

Fixture name	Fixture Image	Fixture Details		
Fixed Hinge-1		Entities: 2 face(s) Type: Fixed Hinge		
Resultant Forces				
Components	X	Y	Z	Resultant
Reaction force(N)	0.000536382	0.0404264	3993.72	3993.72
Reaction Moment(N.m)	0	0	0	0


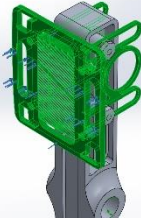



Load name	Load Image	Load Details
Force-1		Entities: 6 face(s) Type: Apply normal force Value: 4000 N

Connector Definitions

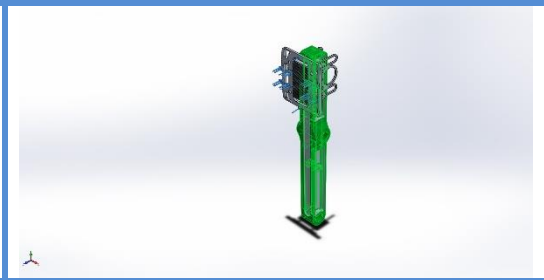
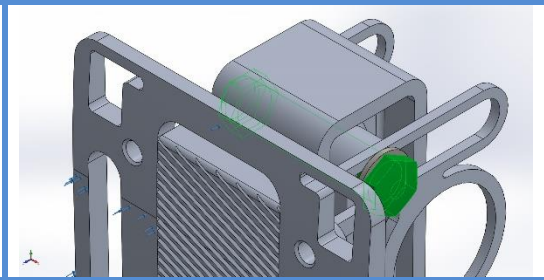
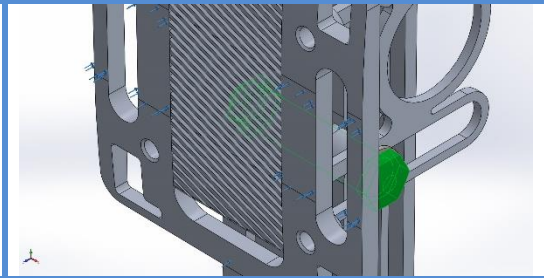
No Data



Contact Information

Contact	Contact Image	Contact Properties
Global Contact		Type: Bonded Components: 1 component(s) Options: Compatible mesh
Component Contact-1		Type: No penetration (Surface to surface) Components: 2 Solid Body (s)
Component Contact-2		Type: No penetration (Surface to surface) Components: 1 component(s), 1 Solid Body (s)
Component Contact-3		Type: No penetration (Surface to surface) Components: 1 component(s), 1 Solid Body (s)
Component Contact-4		Type: No penetration (Surface to surface) Components: 1 component(s), 1 Solid Body (s)



<p>Component Contact-5</p>		<p>Type: No penetration (Surface to surface)</p> <p>Components: 4 component(s), 1 Solid Body (s)</p>
<p>Component Contact-7</p>		<p>Type: No penetration (Surface to surface)</p> <p>Components: 2 Solid Body (s)</p>
<p>Component Contact-8</p>		<p>Type: No penetration (Surface to surface)</p> <p>Components: 2 Solid Body (s)</p>



Mesh information

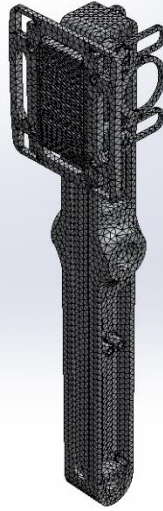
Mesh type	Solid Mesh
Mesher Used:	Standard mesh
Automatic Transition:	Off
Include Mesh Auto Loops:	Off
Jacobian points	4 Points
Element Size	3.5 mm
Tolerance	0.175 mm
Mesh Quality Plot	High
Remesh failed parts with incompatible mesh	Off

Mesh information - Details

Total Nodes	74563
Total Elements	40946
Maximum Aspect Ratio	30.689
% of elements with Aspect Ratio < 3	85.4
% of elements with Aspect Ratio > 10	0.203
% of distorted elements(Jacobian)	0
Time to complete mesh(hh:mm:ss):	00:00:09
Computer name:	SE-A303-04



Model name: Assem3
Study name: Static (2) (Default)
Mesh type: Solid Mesh



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Sensor Details

No Data

Resultant Forces

Reaction forces

Selection set	Units	Sum X	Sum Y	Sum Z	Resultant
Entire Model	N	0.000536382	0.0404264	3993.72	3993.72

Reaction Moments

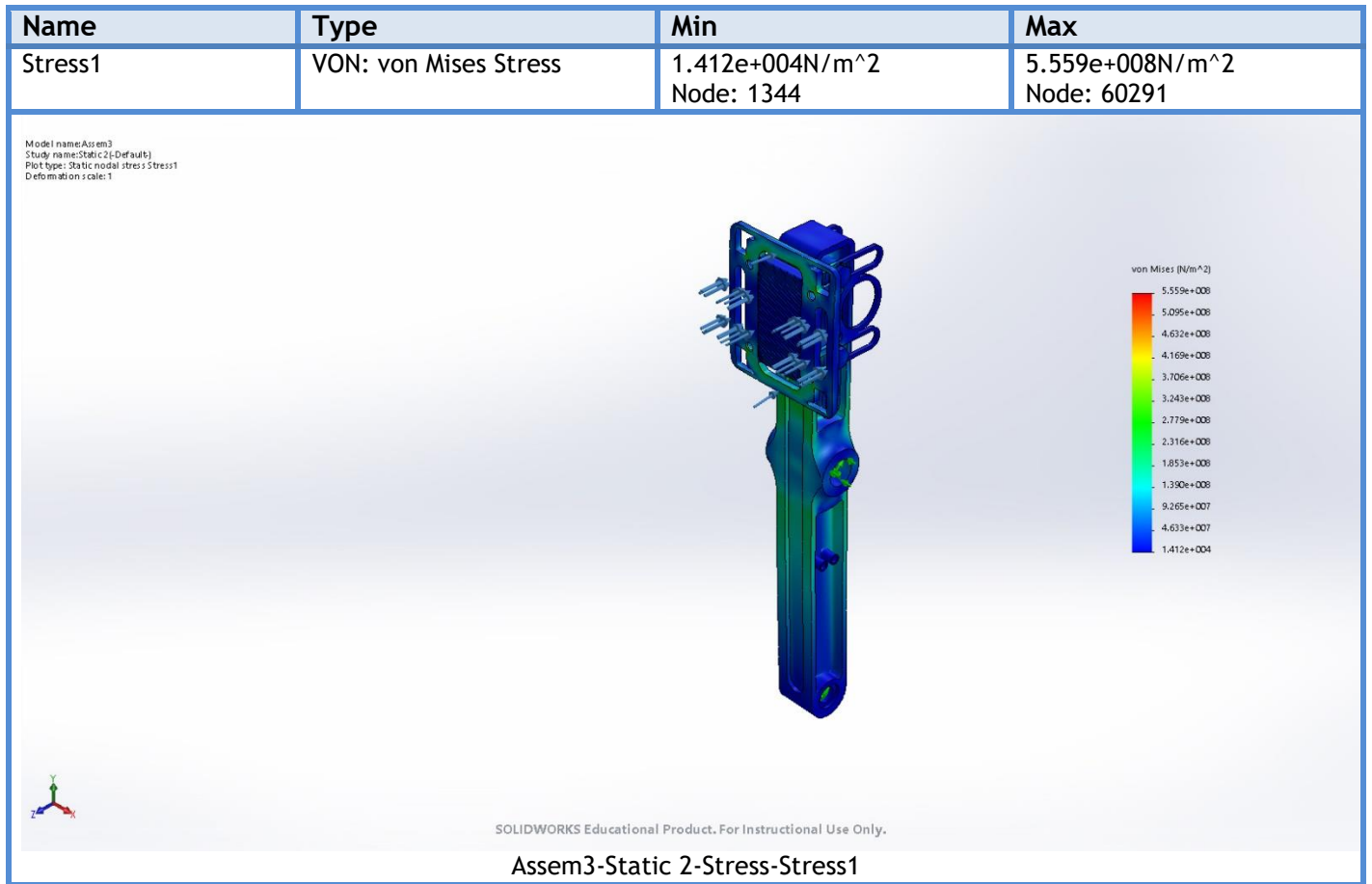
Selection set	Units	Sum X	Sum Y	Sum Z	Resultant
Entire Model	N.m	0	0	0	0

Beams

No Data

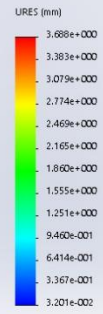
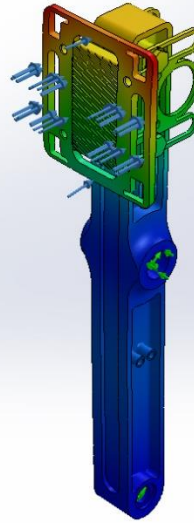


Study Results



Name	Type	Min	Max
Displacement1	URES: Resultant Displacement	3.201e-002mm Node: 40786	3.688e+000mm Node: 49030

Model name: Assem3
 Study name: Static 2 (-Default)
 Plot type: Static displacement Displacement1
 Deformation scale: 1

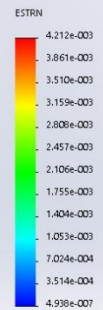
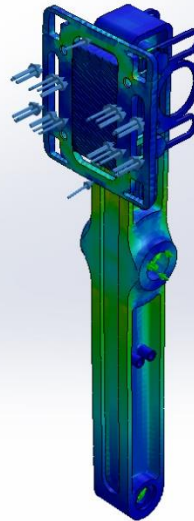


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Assem3-Static 2-Displacement-Displacement1

Name	Type	Min	Max
Strain1	ESTRN: Equivalent Strain	4.938e-007 Element: 18296	4.212e-003 Element: 35969

Model name: Assem3
 Study name: Static 2 (-Default)
 Plot type: Static strain Strain1
 Deformation scale: 1



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Assem3-Static 2-Strain-Strain1



Conclusion

