

Recent Developments in LS-PREPOST

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Latest Features in LS-PREPOST 2.2

***6th German LS-DYNA Forum
Frankenthal, Germany***

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Outline of Presentation

LS-PREPOST

- Current Status of LS-Prepost
- New features in General functions
- Meshing
- Post-Processing
- Pre-processing
- Current and future developments



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LS-PREPOST

Current Status of LS-Prepost

- LS-Prepost 2.2 will be released in November 2007
- LS-Prepost 2.2 can be freely download from ftp://ftp.lstc.com/outgoing/lsprepost2_2 or ftp://ftp22.lstc.com/outgoing/lsprepost2_2
- ftp22 is for countries that has no access to <ftp.lstc.com>
- <http://www.lstc.com/lspj> for online documentation and tutorials



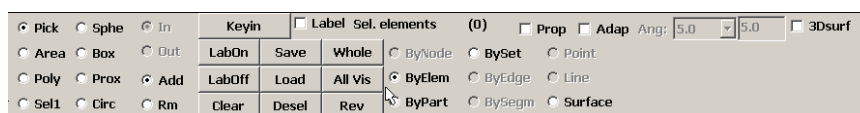
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LS-PREPOST

General Function

A more powerful general selection interface

- By Sphere - Select entities inside/outside of a sphere
- By Box – Select entities inside/outside of a box. Box can defined here, or one of the LSDYNA keyword data
- By Proximity – Select entities inside/outside the proximity of a part
- By Circle – Select entities inside/outside of a circle



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General Function

Blanking now using General selection

- Shell/Solid/Beam/Sph
- Mass/Inertia
- Constrained Nodal Rigid Bodies
- Nodes
- Curves/Surface
- Or Any other entities

Element Blanking

Type: Sh/Sol/Be/SPH

- Sh/Sol/Be/SPH
- Mass
- Inertia
- Nodes**
- Node
- Curve
- Surface
- Any

Element Blanking

Type: Sh/Sol/Be/SPH

Apply


UnBlank Part

Blank All Update Surf

Unblank All UpdEdge

Reverse UnBlank Last

Done



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LS-PREPOST

General Function

Recent file menu

New

Open

Import

Recent

Update

Save Keyword Alt+S

Save Keyword As... Alt+K

Save Active Keyword...

Save Config

Save Post.db...

Save Project

Save Project As... Alt+P

Print...

Movie...

Exit Alt+X

Save Exit

D:\posttest\amit\slow\d3plot

D:\posttest\sain93\d3plot

D:\posttest\sum\2-sb_notr.m.d3plot

...TE7_LHD_PREASSIR.rearODB_GM15TP156.dyn

D:\posttest\bag1\d3plot

D:\pretest\spghen\demosph.tank.k

D:\pretest\spghen\SPHTube.key

D:\posttest\...\filter\B1-101B17.curve

D:\posttest\cadferm\filter\bw170

D:\posttest\marco\d3eigv

D:\pretest\solid\grinder.1igs

C:\new_etamesh\meshdata.dat

D:\pretest\morph\deformer.k

D:\posttest\bird_strike\d3plot

D:\posttest\draw\d3plot

D:\posttest\particle\d3plot


D:\pretest\beltd\beltd.k

D:\pretest\beltd\beltd.k


D:\pretest\beltd\new.k

D:\posttest\metal2\d3plot

- Provide fast access to the last used files
- Pull Down File->Recent
- No. of files can be controlled by user, default is 5
- Edit first line in .lsp__recent in user's home directory:
c:\Document Setting\pho



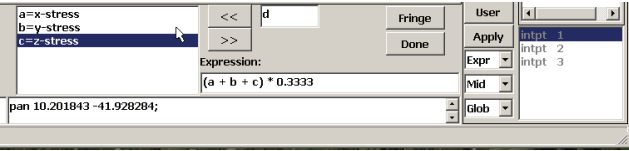
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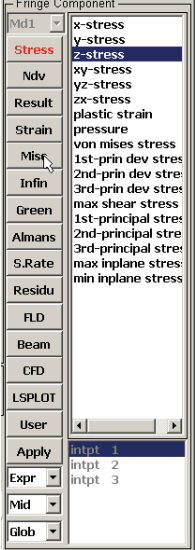



Post-Processing

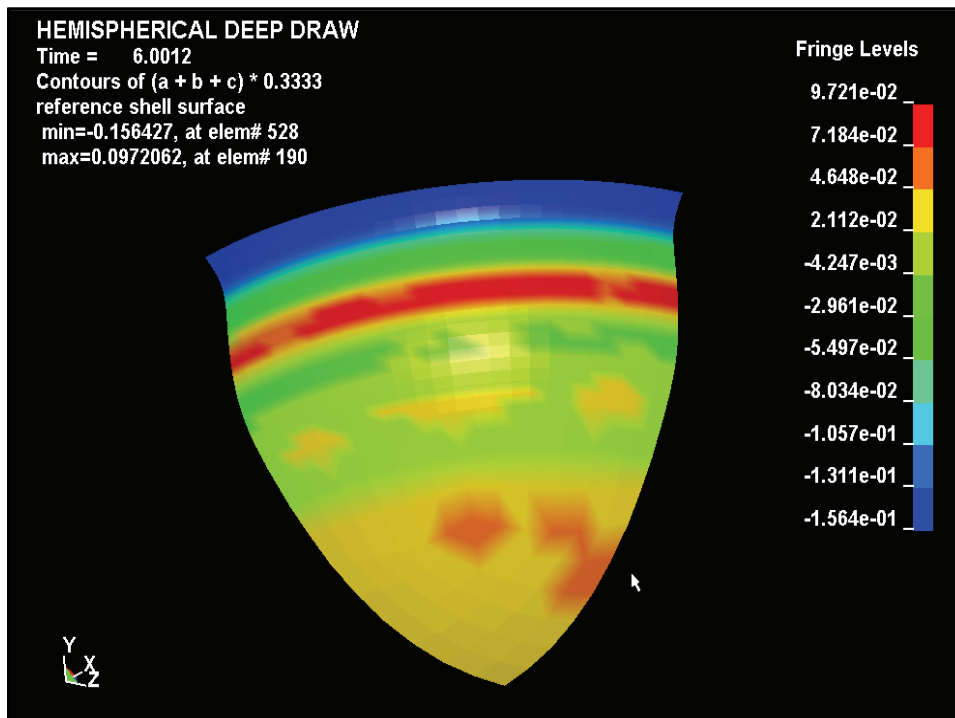
Fringe component by expression

- Assign regular fringe component to variables a, b, c,
- Define expression
- Click Fringe button to view result






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HEMISPHERICAL DEEP DRAW
Time = 6.0012
Contours of Resultant Displacement
min=21.4809, at node# 543
max=60.1475, at node# 1

HEMISPHERICAL DEEP DRAW
Time = 6.0012
Contours of sqrt(a*a + b*b + c*c)
min=21.4809, at node# 543
max=60.1475, at node# 1

a=x-displacement b=y-displacement c=z-displacement	<< >>	d	Fringe Done
Expression:		$\text{sqrt}(a*a + b*b + c*c)$	
plug_in script successfully parsed			

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Post-Processing

Ascii plots from multiple runs

PlotWindow-1

GMX367 GRAND PRIX 03 MULE REAR IMPACT

D:\posttest\ascii\run1\matsum	<input checked="" type="checkbox"/> Multiple Select
D:\posttest\ascii\run2\matsum	<input type="button" value="All"/> <input type="button" value="None"/> <input type="button" value="Rev"/>

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Post-Processing

FEMZIP file format support

- Treated as regular d3plot files
- Automatically recognized as FEMZIP format
- Adaptive meshing is not yet supported
- Some other LSDYNA data may not be supported at this time like CFD data, Particle Data, etc.
- Will work with SCAI to further improve file reading performance


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Post-Processing

Particle method post-processing


- Button located on page 1 ->Particle
- Separate viewing of particle from Different airbags and different gases
- View particles in all locations or inside the bag, or escape through the vent hole or leak by porosity
- Color of the particle can be changed by user

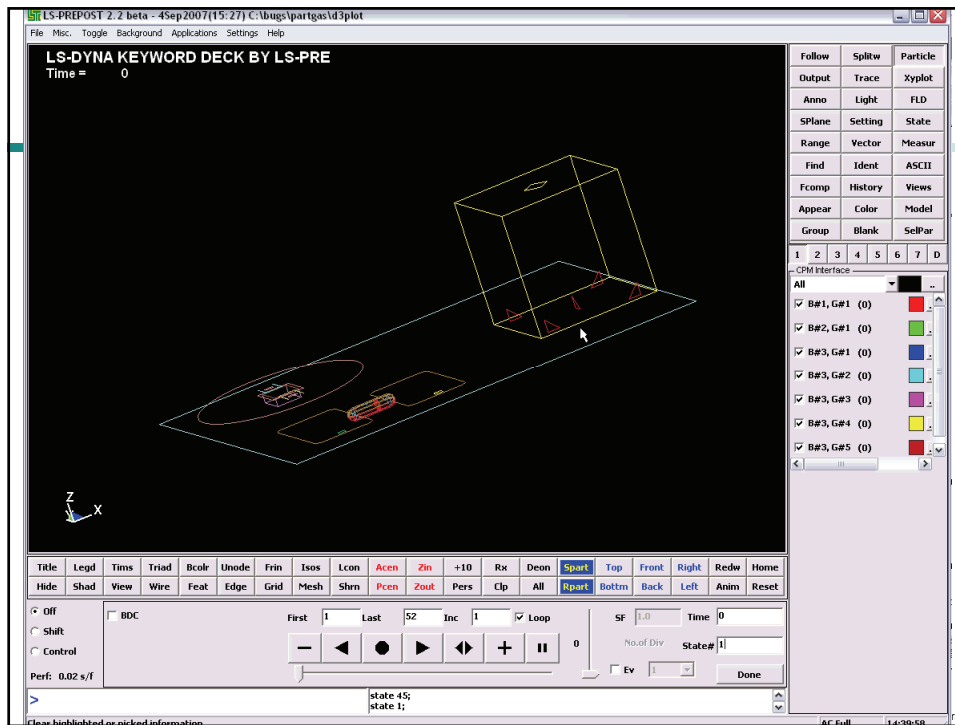
CPM Interface


All

<input checked="" type="checkbox"/> B#1, G#1 (99853)	Red
<input checked="" type="checkbox"/> B#2, G#1 (99995)	Green
<input checked="" type="checkbox"/> B#3, G#1 (12545)	Blue
<input checked="" type="checkbox"/> B#3, G#2 (46691)	Cyan
<input checked="" type="checkbox"/> B#3, G#3 (28671)	Purple
<input checked="" type="checkbox"/> B#3, G#4 (210)	Yellow
<input checked="" type="checkbox"/> B#3, G#5 (858)	Red

- All
- None
- In bag
- Thru Vent
- By Poros


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3D Block Meshing

Page 7 BlockM

- 3D block mesher uses LS-Ingrid index space mapping method
- Both Shell and Solid can be created
- Single block, Multiple blocks and Butterfly block are the block types
- I,J,K index lists define spacing for the blocks
- X,Y,Z position lists define the actual position of the blocks

BlockM Interface

Parameter Equations
 Create Rotate Pts.
 Blank\Del Distribute
 Move Pts. Project

Type: Multiple Blocks

I Index List:

J Index List:

K Index List:

X Position List:


Y Position List:

Z Position List:

Create

Part ID: 1

Reject Accept Done



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LS-PREPOST

3D Block Meshing

Page 7 BlockM

- Computation window provides the block topology in graphical form
- Computation window also provide manipulation on the mapping projection
- When physical model rotated graphically, the computation blocks also rotated accordingly. The viewing of the physical model and the computation blocks are in sync.



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3D Block Meshing

SurfMesh	nMesh	Smooth
2Dmesh	BMesh	
TetMesh		
Curves	Surface	ChainM
TTFMesh		DieLine
HIF201	SQual	PeneCk
IIHS		

BlockM Interface	
<input type="radio"/> Parameter	<input type="radio"/> Equations
<input checked="" type="radio"/> Create	<input type="radio"/> Rotate Pts.
<input type="radio"/> Blank/Del	<input type="radio"/> Distribute
<input type="radio"/> Move Pts.	<input type="radio"/> Project

Type: Multiple Blocks

I Index List:
1, 10, 19

J Index List:
1, 24, 60

K Index List:
1, 10, 19

X Position List:
0, 3.175, 3.175

Y Position List:
0, 7.25, 19.05

Z Position List:
-3.175, -3.175, 0

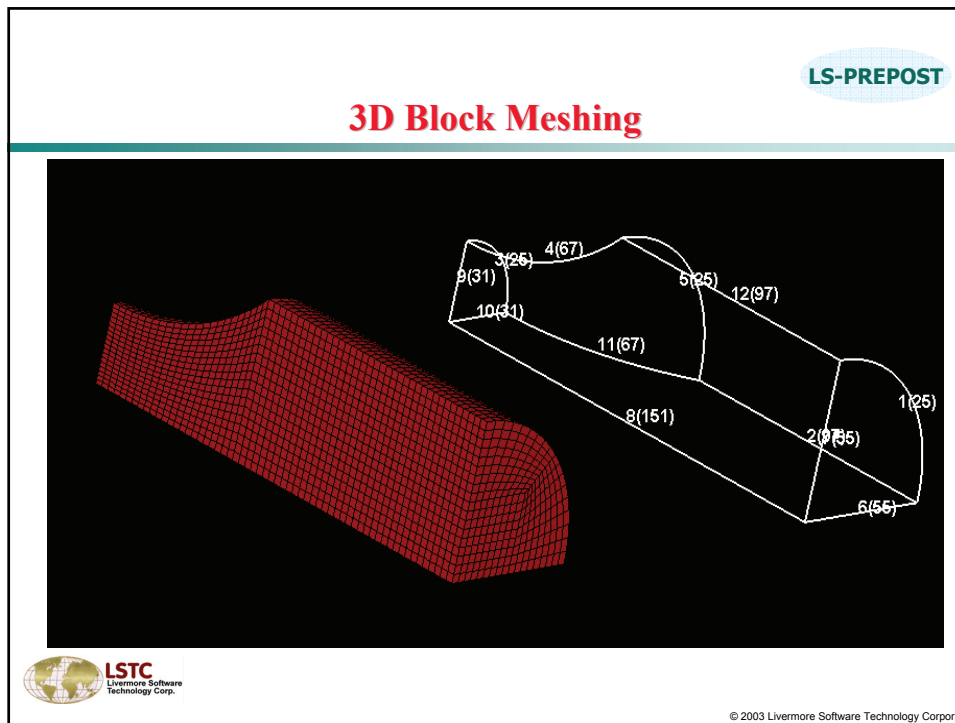
Create

Part ID: 1 PList

Reject Accept Done

quat -0.538895 -0.647848 0.085128 -0.531638;
pan -3.650805 0.149742;

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3D Block Meshing

- ❑ Using negative numbers in the index list to indicate it is shell mesh instead of solid mesh
- ❑ When there is negative number in the index list, it represents shell model, positive numbers just give space index, will not generate shell
- ❑ Solid mesh and shell mesh do not mixed

Blockm Interface

Parameter Equations
 Create Rotate Pts.
 Blank\Del Distribute
 Move Pts. Project

Type:

I Index List:

J Index List:

K Index List:

X Position List:

Y Position List:

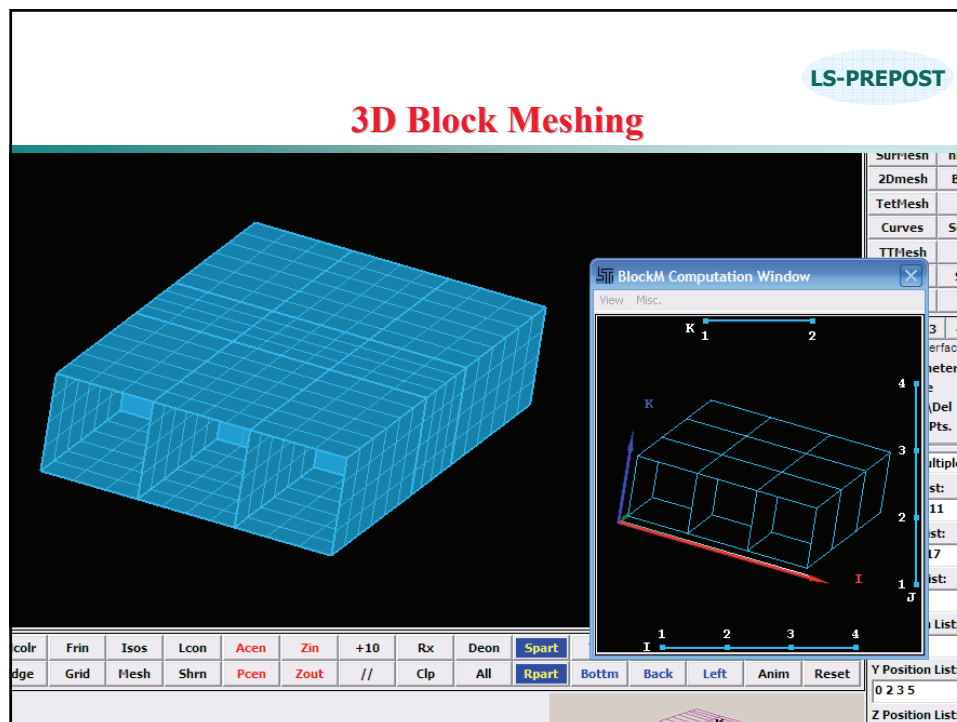
Z Position List:

Create

Part ID: PList

Reject Accept Done

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3D Block Meshing

- Parameters and expression can be used
- Equations also can be used
- Parameters and expressions are case sensitive
- Coordinates can be evaluated by equations

BlockM Interface

Parameter Equations
 Create Rotate Pts.
 Blank\Del Distribute
 Move Pts. Project

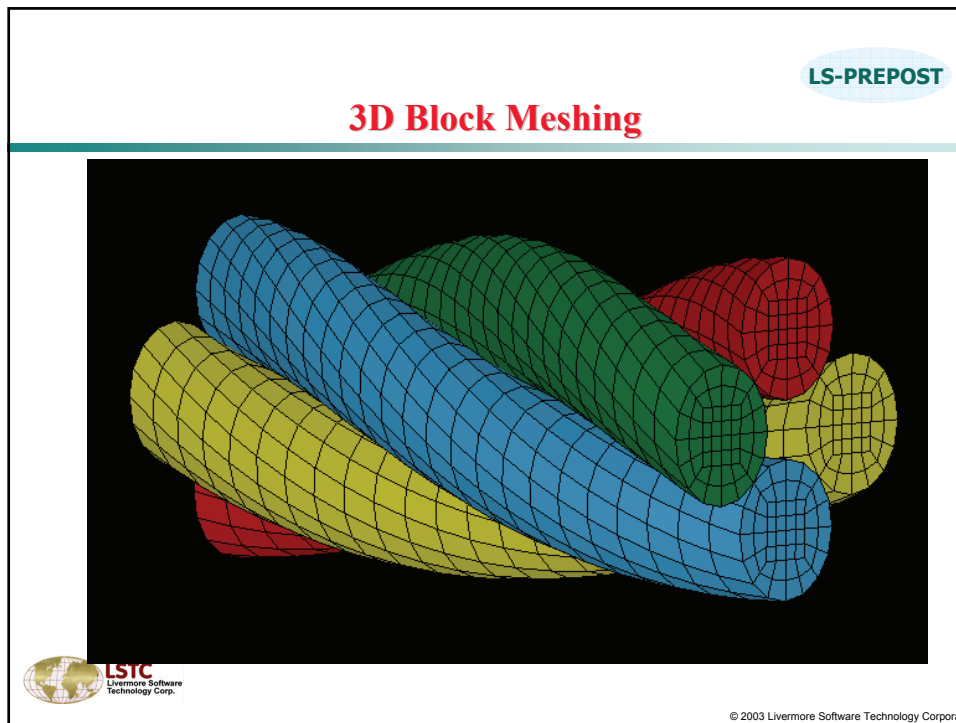
D=1.0
Len=10
Nel=24
Ang=18.0
Den=4

Delete

Parameter or Expression:
e.g. A=150 or R=T1*sin(T2)

Create

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LS-PREPOST

Extensive Model Checking

- Extensive Keyword check
 - ❖ Intelligent check that match LS-DYNA requirements
 - ❖ Provide limited autofix
 - ❖ Go to keyword directly and do manual fix
- Contact interface check
- Mesh quality check
- Model Summary
- Parameters use in model check can be setup by user

Model Check

Model Check

Concheck

Element Quality

Model Summary

Save Preference

Done

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Model Check Result Information					
	ReCheck	Auto Fix	Write	Keyword Info	Done
Total	Error(172)	Warning(104)	UnRef(811)	Undefined(18)	
*AIRBAG (10)	Error(0)	Warning(4)	Unref(0)	Undefined(0)	
*CONSTRAINED (5106)	Error(0)	Warning(6)	Unref(0)	Undefined(8)	
*CONTACT (19)	Error(165)	Warning(5)	Unref(0)	Undefined(0)	
*CONTROL (10)	Error(0)	Warning(0)	Unref(0)	Undefined(0)	
*DATABASE (58)	Error(0)	Warning(14)	Unref(0)	Undefined(0)	
*DEFINE (333)	Error(0)	Warning(0)	Unref(2)	Undefined(0)	
*ELEMENT (1325887)	Error(0)	Warning(51)	Unref(0)	Undefined(0)	
*HOURLASS (8)	Error(0)	Warning(0)	Unref(1)	Undefined(0)	
*INITIAL (2)	Error(0)	Warning(0)	Unref(0)	Undefined(0)	
*INTEGRATION (4)	Error(0)	Warning(0)	Unref(2)	Undefined(0)	
*MAT (164)	Error(3)	Warning(5)	Unref(91)	Undefined(0)	
*NODE (1295649)	Error(0)	Warning(0)	Unref(571)	Undefined(0)	
*PART (1205)	Error(4)	Warning(3)	Unref(0)	Undefined(0)	

Extended information

Check/Fix Keyword Information

Read Done

1: Node 684081 is tied on a segment where node(s): 1, 2, of 670171, 670172, 603973, 603973 are connected to rigid structure

2: Node 684082 is tied on a segment where node(s): 2, 3, of 490336, 490250, 490249, 490335 are connected to rigid structure

3: Node 684327 is tied on a segment where node(s): 1, 2, of 600842, 600841, 603977 are connected to rigid structure

4: Node 684328 is tied on a segment where node(s): 1, 2, of 490205, 490351, 490311 are connected to rigid structure

5: Node 684604 is tied on a segment where node(s): 1, 2, of 603976, 603975, 600855 are connected to rigid structure

6: Node 685475 is tied on a segment where node(s): 1, 2, of 531562, 531565, 531566 are connected to rigid structure

7: Node 685763 is tied on a segment where node(s): 1, 2, of 493551, 493519, 493571 are connected to rigid structure

8: Node 685781 is tied on a segment where node(s): 1, 2, of 499452, 499449, 499445 are connected to rigid structure

9: Node 686071 is tied on a segment where node(s): 1, 2, of 492101, 492086, 492051 are connected to rigid structure

10: Node 686135 is tied on a segment where node(s): 1, 2, of 672213, 499445, 499445 are connected to rigid structure

11: Node 686167 is tied on a segment where node(s): 1, 2, of 672235, 531560, 531560 are connected to rigid structure

12: Node 686971 is tied on a segment where node(s): 1, 2, of 672235, 531560, 531560 are connected to rigid structure

KEYWORD INPUT

Use *PARAMETER

(Subsys: 4)

*CONTACT_SPOTWELD_(ID/TITLE/MPP) (11)

Accept Done

Setting

CID	TITLE
0	

MPP1 MPP2

IPTRACK	BSORTFR	UNUSED	TRACK	INITI	PARMAX	UNUSED	BEAMPART
0	200		3	3	0.0005		0

UCP

1	SSID	MSID	SSTYP	MSTYP	SBOXID	MBOXID	SPR	MPR
1	10002	10001	2	2	0	0	0	0

2	FS	FD	DC	VC	VDC	PENCHK	BI	DI
2	0.20000	0.20000	0.0	0.0	0.0	0	0.0	0.0

3	SFS	SFM	SST	MST	SFST	SFMT	SFSE	VSF
3								

Triad Bcolr Unode

Extended information
Model Check

Check/Fix Keyword Information

Read
Done

1: SECTION 10 thickness is less than 0.5mm
Refby 6 parts 70052 70053 70054 90060 105034 105035

1 SECTION_SHELL
10 SECTION_SHELL
20 SECTION_SHELL
30 SECTION_SHELL
40 SECTION_SHELL
400003 SECTION_SHELL

KEYWORD INPUT
Accept Done

Use *PARAMETER (Subsys: 3) Setting

*SECTION_SHELL_(TITLE) (195)

TITLE

0.10mm Shell

1	SECID	ELFORM	SHRF	NIP	PROPT	QR/IRID	ICOMP	SETYP
	10	5	0.0	1	1	0	0	1
2	I1	I2	I3	I4	NLOC	MAREA	IDOF	EDGSET
	0.10000	0.10000	0.10000	0.10000	0.0	0.0	0.0	0

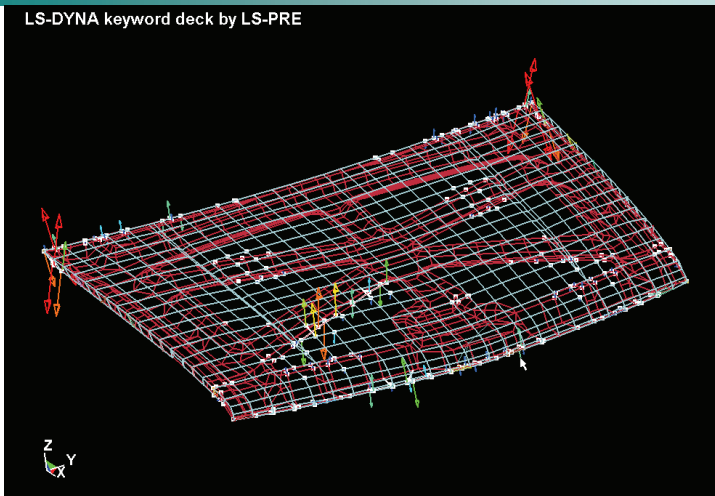
Repeated Data by Button and List

Model Check
Concheck
Element Quality
Model Summary
Save Preference
Done

Contact Interface Check

LS-DYNA keyword deck by LS-PRE

LS-PREPOST



Contact check

Penet. Tied

ByParts Contact

1 SSET 3 ALL 0 (sub 2
2 NSET 4 SSET 5 (sub
3 NSET 6 SSET 7 (sub
4 NSET 8 SSET 9 (sub
5 PSET 10 PSET 11 (s
6 PSET 12 PSET 13 (s
7 PSET 14 PSET 15 (s
8 PSET 16 PSET 17 (s

Show: CE Pen.

SF 1.0

Ignore < 0.0

Automatic Fixing

Lock Nodes


Move 100 % of pene.

Run 4 iterations

Manual Fixing

Flip Node Undo

Check Fix Undo Done



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Model Part Info Summary

Part Sort

Sort Part											
	Type	PartId	PartName	SectionId	MatId	EosId	Hrglass	Elform	Thickness	Mass	NumElem
1	Solid	1	PSOLID : 1	1	1	0	0	2	0	0.392552	192
2	Solid	2	PSOLID : 1	2	2	0	0	0	0	0.0976057	16
3	Solid	3	PSOLID : 1	3	3	0	0	0	0	0.247188	16
4	Solid	4	PSOLID : 1	4	4	0	0	0	0	0.07875	16
5	Solid	5	PSOLID : 1	5	5	0	0	0	0	0.0787491	16
6	Solid	6	PSOLID : 1	6	6	0	0	0	0	0.0787466	16
7	Solid	7	PSOLID : 1	7	7	0	0	0	0	7.9937e-06	1
8	Solid	8	PSOLID : 1	8	8	0	0	0	0	0.107898	1
9	Solid	9	PSOLID : 1	9	9	0	0	0	0	0.10794	1
10	Solid	10	PSOLID : 1	10	10	0	0	0	0	4.281	8
11	Solid	11	PSOLID : 1	11	11	0	0	0	0	1.26076	120
12	Solid	12	PSOLID : 1	12	12	0	0	0	0	2.33035	175
13	Shell	13	PSHELL : 1	13	13	0	0	0	0.4259	15.74	17
14	Shell	17	PSHELL : 1	17	17	0	0	0	0	0.569594	1
15	Shell	18	PSHELL : 1	18	18	0	0	0	0.5	0.319971	99
16	Shell	19	PSHELL : 1	19	19	0	0	0	0.5	0.267631	87
17	Solid	20	PSOLID : 1	20	20	0	0	0	0	0.0248878	1
18	Shell	21	PSHELL : 1	21	21	0	0	0	0.5	0.320095	99
19	Shell	22	PSHELL : 1	22	22	0	0	0	0.5	0.267632	87
20	Solid	23	PSOLID : 1	23	23	0	0	0	0	0.0248879	1
21	Shell	24	PSHELL : 1	24	24	0	0	0	0.2	2.086	32
22	Solid	25	PSOLID : 1	25	25	0	0	0	0	0.0194329	2
23	Shell	26	PSHELL : 1	26	26	0	0	0	0.2	2.086	32
24	Solid	27	PSOLID : 1	27	27	0	0	0	0	0.0194338	2
25	Shell	28	PSHELL : 1	28	28	0	0	0	0.2	1.723	22
26	Shell	30	PSHELL : 1	30	30	0	0	0	0.2	1.723	22
27	Shell	32	PSHELL : 1	32	32	0	0	0	0.2	0.584999	10
28	Shell	34	PSHELL : 1	34	34	0	0	0	0.2	0.584999	10
29	Solid	36	PSOLID : 1	36	36	0	0	2	0	1.05803	24
30	Solid	37	PSOLID : 1	37	37	0	0	0	0	0.145323	12

Setting Column:

Type

PartId

PartName

SectionId

SectionName

MatId

MatName

EosId

Hrglass

Elform

Thickness

Mass

Cent_XYZ

NumElem

Area

Volume

Set Active

LS-PREPOST

Mesh Quality Check Interface - Eledit

HYBRID III RIGID (W/SPRING CHEST) DUMMY MODEL

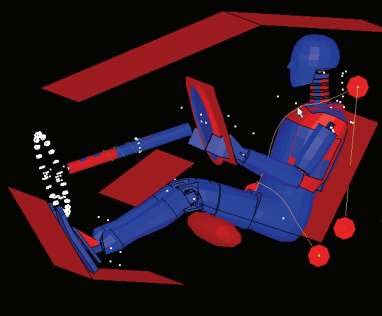
Contours of
min=0, at elem# 295
max=61.3416, at elem# 6304

Fringe Levels

1.000e+00

5.000e-01

0.000e+00



Element Edit Interface

Node Ident Element Check

Create Create

Delete Delete

Replace Split/Merge

Align Modify

Modify Direction

Show Free Edges

Beam Solid

Shell Tshell

Checking method

Quality Check

Duplicate

Normal

Free - Unattached

UnderCut

Curvature

Criterion:

Submit


Check Done

Shell Quality Check	Allowable	Min. val	Max. val	#Violated(%)
<input checked="" type="checkbox"/> Min side length	3	0.990012	212.501	52(1.67%)
<input checked="" type="checkbox"/> Max side length	30	0.990012	212.501	2030(65.19%)
<input checked="" type="checkbox"/> Aspect Ratio	10	1.00001	11.2058	12(0.3854%)
<input checked="" type="checkbox"/> Warpage	10	0	61.3416	118(3.789%)

Clear All

Save Failed

Write Report



LS-DYNA Keyword model Compare

Compare 2 LS-DYNA keyword models – very often it is very hard to find the difference between 2 similar models with minor changes

- Go to Page 1->Model interface
- Read in 2 LS-DYNA keyword models (use open, not import on the second model)
- Activate “Keyword Model Compare”
- Select 1st model, and 2nd model
- Click Compare

Model Selection

Select Trans

Remove Info

1-HYBRID III RIGID (W/SPRI)
2-HYBRID III RIGID (W/SPRI)

All None Rev

Sync largest state
 Sync smallest state

Sync state


SetActive

Keyword Model C

1st Model 2nd Model
1 2

Compare

Done



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Model Compare Info Dialog

Common Keywords | Model 1 Only | Model 2 Only

CONSTRAINED_JOINT_STIFFNESS_GENERALIZED(23, 23)

Keyword count : 23
Keyword ID range : 1 To 23

1(1, 2)	Field #1	Field #2	Field #3	Field #4	Field #5	Field #6	Field #7	F
Card #1	DSID	PIDA	PIDB	CIDA	CIDB	JID		
Value 1	1	28	32	2	1	0		
Value 2	1	28	32	2	1	0		
Card #2	LCIDPH	LCIDT	LCIDPS	DLCIDPH	DLCIDT	DLCIDPS		
Value 1	0	0	0	0	6	0		
Value 2	0	0	0	0	6	0		
Card #3	ESPH	FMPH	EST	FMT	ESPS	FMP		
Value 1	0	0	500	0.4	0	0		
Value 2	0	0.7	553	0.4	0	0		
Card #4	NSAPH	PSAPH	NSAT	PSAT	NSAPS	PSAPS		
Value 1	0	0	-79	30	0	0		
Value 2	0	0	-79	35	0	0		

Keyword 1 Keyword 2

Tab View Done

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LS-PREPOST

Models with too much difference


LSPP Question

There is too big a discrepancy between HYBRID III RIGID (W/SPRING CHEST) DUMMY and bm2:flat, updated beam & bracket

Further comparison for these two models might not generate meaningful information. Do you want to view the details?

Details ...


	Model 1	Model 2	Difference	% Diff
Num. Nodes	7787	11519	3732	32.3986
Num. Beam Elems	1	0	1	100
Num. Shell Elems	3114	10920	7806	71.4835
Num. Solid Elems	1836	260	1576	85.8388
Num. Tshell Elems	0	0	0	0
Num. SPH Elems	0	0	0	0
Num. Mass Elems	0	0	0	0
Num. Inertia Elems	0	0	0	0
Num. Discrete Elems	18	0	18	100
Num. Seatbelt Elems	220	0	220	100
Num. Beam Parts	1	0	1	100
Num. Shell Parts	41	19	22	53.6585
Num. Solid Parts	52	1	51	98.0769
Num. Tshell Parts	0	0	0	0
Num. SPH Parts	0	0	0	0
Num. Mass Parts	0	0	0	0
Num. Inertia Parts	0	0	0	0
Num. Discrete Parts	15	0	15	100
Num. Seatbelt Parts	1	0	1	100
Num. Nod Rgd Bodies	0	0	0	0
Model Extent X	1600.75	1600.75	470.178	29.3723
Model Extent Y	821.851	821.851	777.748	48.6214
Model Extent Z	1118.51	1118.51	322.883	28.8672


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LS-PREPOST


Dummy Positioning

- Dummy Database
- Multiple Dummies
- Handle a dummy with its Model
- Local Coordinate Systems for Occupants
- Primer Tree Reader and more(LS-PREPOST 2.2)


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G - II - 17




Dummy Database

- For the sharing and management purposes to the occupant models
- A dummy database contains
 - Occupant name
 - Tree/Keyword file directory
 - Tree and Keyword file names
- LS-PREPOST read the database from .LSPOSTRC file
 [occupant_list = ...]



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Dummy Database

```

* LSPOST configuration
*
max_physical_memory =
texture = off
occupant_list = 7
leg, c:\bugs\dilip\lstc_dummies\leg, leg.tree, leg.inf, \
lstc_dh3_5, c:\bugs\dilip\lstc_dummies\lstc_dh3_5, lstc_dh3_5.tree, lstc_dh3_5.inf, \
lstc_dh3_50, c:\bugs\dilip\lstc_dummies\lstc_dh3_50, lstc_dh3_50.tree, lstc_dh3_50.inf, \
lstc_dh3_95, c:\bugs\dilip\lstc_dummies\lstc_dh3_95, lstc_dh3_95.tree, lstc_dh3_95.inf, \
lstc_rh3_5, c:\bugs\dilip\lstc_dummies\lstc_rh3_5, lstc_rh3_5.tree, lstc_rh3_5.inf, \
lstc_rh3_50, c:\bugs\dilip\lstc_dummies\lstc_rh3_50, lstc_rh3_50.tree, lstc_rh3_50.inf, \
lstc_rh3_95, c:\bugs\dilip\lstc_dummies\lstc_rh3_95, lstc_rh3_95.tree, lstc_rh3_95.inf, \
    
```

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Dummy Positioning

Position Import

Write Reset Load Done

Occ. N/A

Dummy Database

leg
 lstc_dh3_5
lstc_dh3_50
 lstc_dh3_95
 lstc_rh3_5
 lstc_rh3_50
 lstc_rh3_95

==Selected Dummy info==

lstc_dh3_50
 c:\bugs\dilip\lstc_dummi...
 lstc_dh3_50.tree
 lstc_dh3_50.inf

Cancel

Number of dummies in the database


[name], [location], [tree name], [keyword name]

Dummy name list


Location for the tree and the keyword

Tree file

Keyword file




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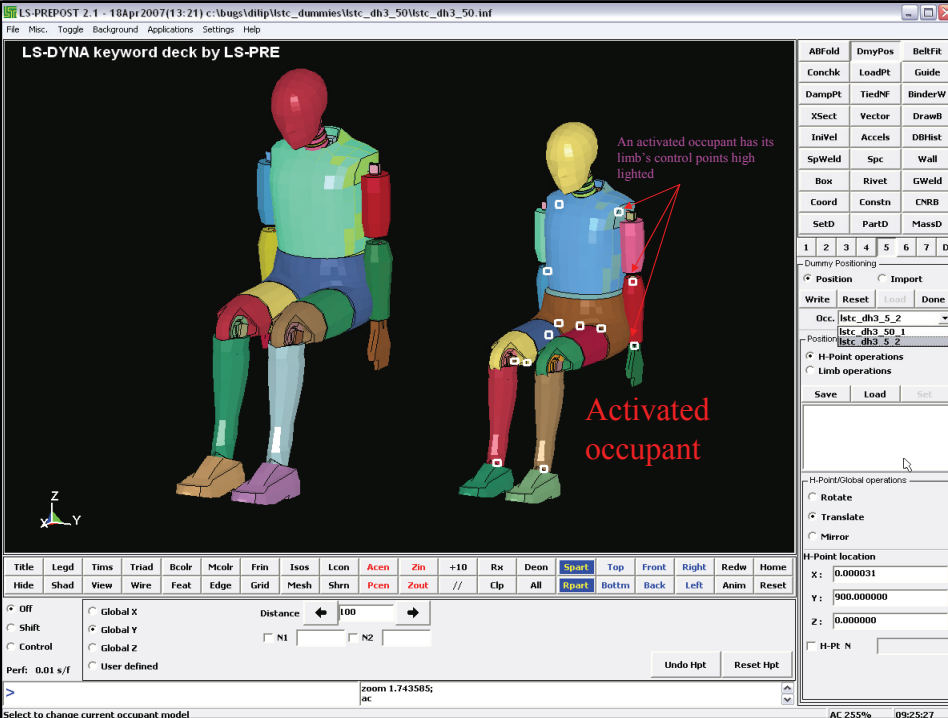


Multiple Dummies

Through [Import] interface, LS-PREPOST now can handle more than one dummies in positioning process

- Dummy Switching
 - With right-mouse click
 - With Pull-down menu
- Each dummy is operated the same way as one single dummy imported.
- All dummies can be exported into a same keyword file


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LS-PREPOST 2.1 - 18Apr 2007 (13:21) c:\bugs\dilip\lstc_dummies\lstc_dh3_50\lstc_dh3_50_1.inf

File Misc. Toggle Background Applications Settings Help

LS-DYNA keyword deck by LS-PRE

An activated occupant has its limb's control points high lighted

Activated occupant

AltFld	DmyPos	BeltFK
Conchk	LoadPT	Guide
DampPT	TiedNF	BinderW
XSect	Vector	DrawB
IniVel	Accels	DBHist
SpWeld	Spc	Wall
Box	Rivet	GWeld
Coord	Constrn	CNRB
SetD	PartD	MassD

1 2 3 4 5 6 7 D

Dummy Positioning

Position Import

Write Reset Load Done

Occ: lstc_dh3_5_2

Position: lstc_dh3_50_1

Position: lstc_dh3_5_2

H-Point operations

Limb operations

Save Load Set

H-Point/Global operations

Rotate

Translate

Mirror

H-Point location

X: 0.000031

Y: 900.000000

Z: 0.000000

H-PE N

Title Legd Tims Triad Bcolor Mcolor Frin Isos Leon Acen Zin +10 Rk Deon Spant Top Front Right Redw Home

Hide Shad View Wire Feat Edge Grid Mesh Shrn Pcen Zout // Clp All Import Boltm Back Left Anim Reset

Off Global X Distance: 100

Shift Global Y N1 N2

Control Global Z

Perf: 0.01 s/f User defined

Undo Hpt Reset Hpt

zoom 1.743585

Select to change current occupant model

AT 255% 09:25:27

LS-PREPOST

Handle dummies with its Model

- The latest release of LS-PREPOST will detect and process occupant information if one is presented in the keyword model
- The %occinfo and %endoccinfo blocks will be inserted into a keyword file after *END to carry extra occupant information with the keyword model
- Keyword files with dummies included can be later on used as a stand-alone dummy.



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LS-PREPOST

OCCINFO

- OCCINFO
 - Supports multiple dummies

Each OCCINFO block may contain information about different dummies that are in the model
 - Can be separated in different include files

Each OCCINFO can also be separated into different keywords and through *INCLUDE card, users can import them into same model
 - Can be used as a tree file

If separated with the original keyword model with the dummy, it can be a tree file to be added into the dummy database



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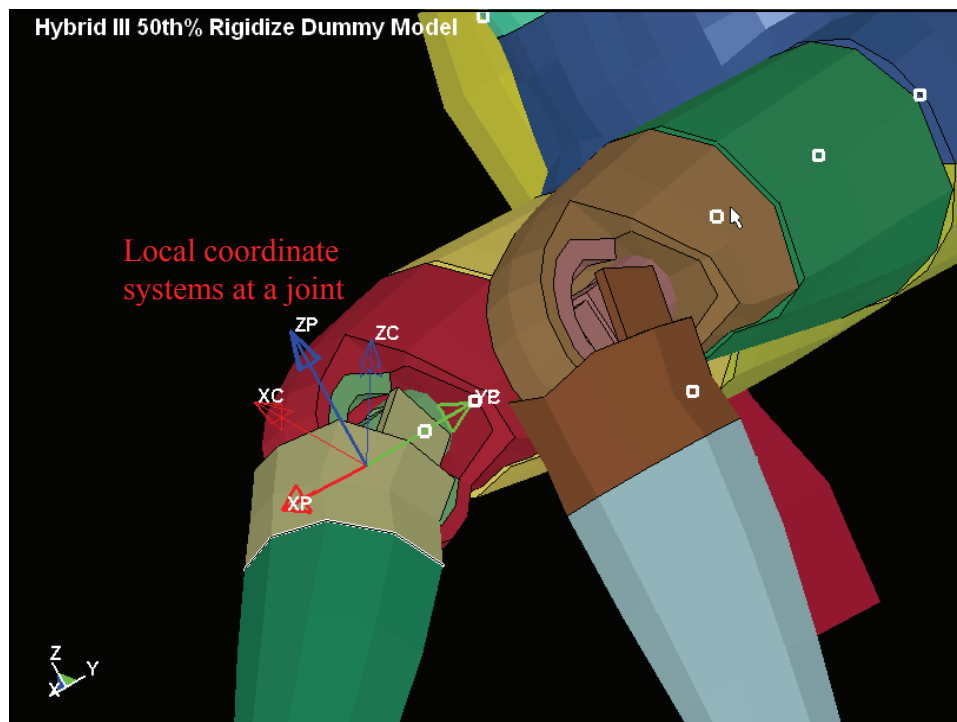
LS-PREPOST

Local Coordinate Systems

- Inside an OCCINFO block, users may assign limbs with different rotation axes:
 - Global Coordinate System
 - Assign a specific axis by two nodes
 - Local coordinate systems assigned in *CONSTRAINED_JOINT_STIFFNESS_GENERALIZED cards.
- When Local coordinate system is turned on for the limb, LS-PREPOST will show the two coordinate systems when rotating about the limb.



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LS-PREPOST

Primer Tree Reader and More...

- LS-PREPOST 2.2 will have the following new developments on Occupant Positioning System
 - A Primer Tree Reader to import a Primer's dummy seamlessly.
 - Report Rotation Angles for an occupant
 - Rotate an Occupant about global and local coordinate systems.
 - Rotation axes change through User Interfaces.



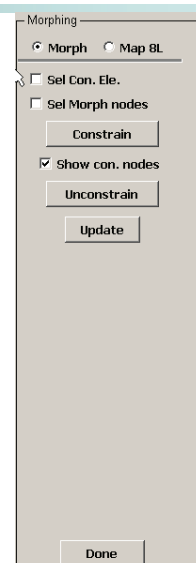
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LS-PREPOST

Basic Morphing in LS-PREPOST

Applications:

- Bending side curtain bags for packaging
- Optimization studies
- Deforming seat foams



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Basic Morphing in LS-PREPOST

LS-PREPOST

Applications:

- Bending side curtain bags for packaging
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Morphing

Morph Map BL

Sel Con. Ele.

Sel Morph nodes


Constrain

Show con. nodes

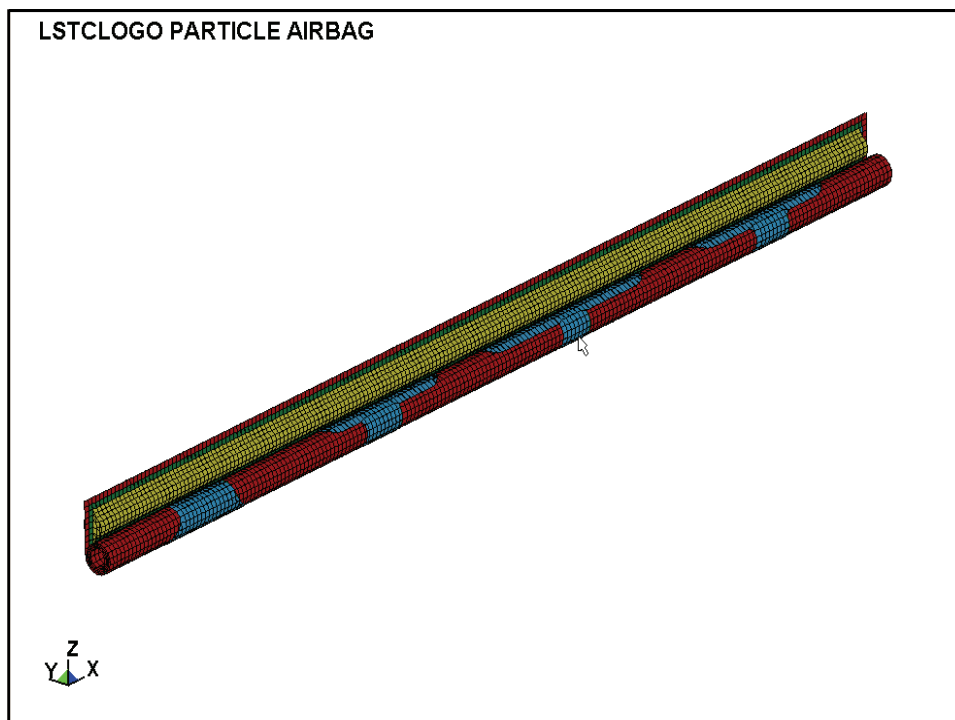
Unconstrain

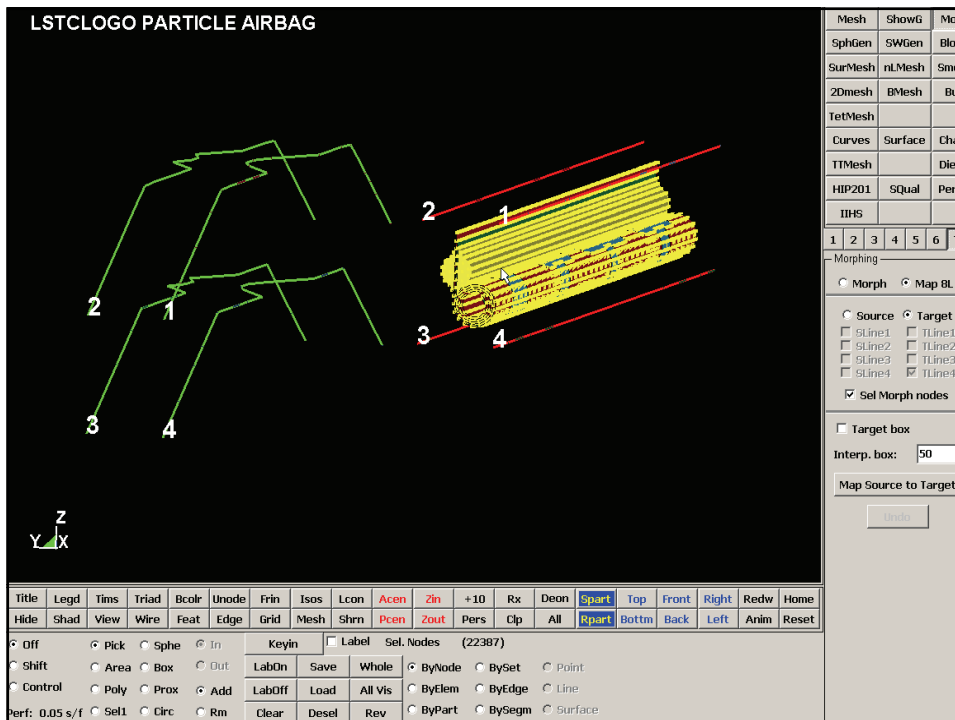
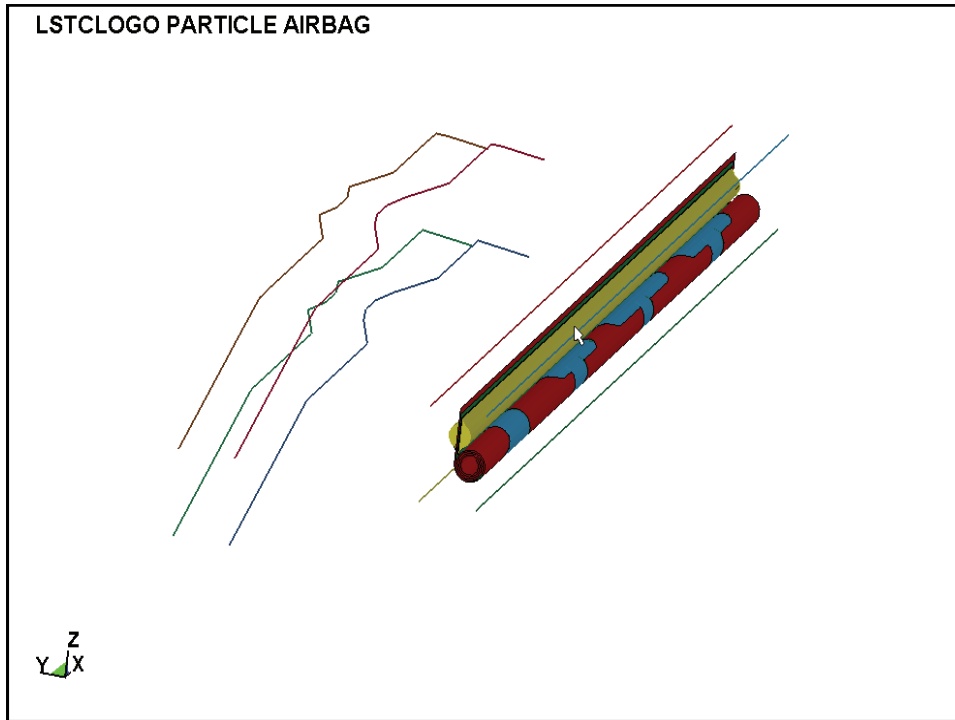
Update

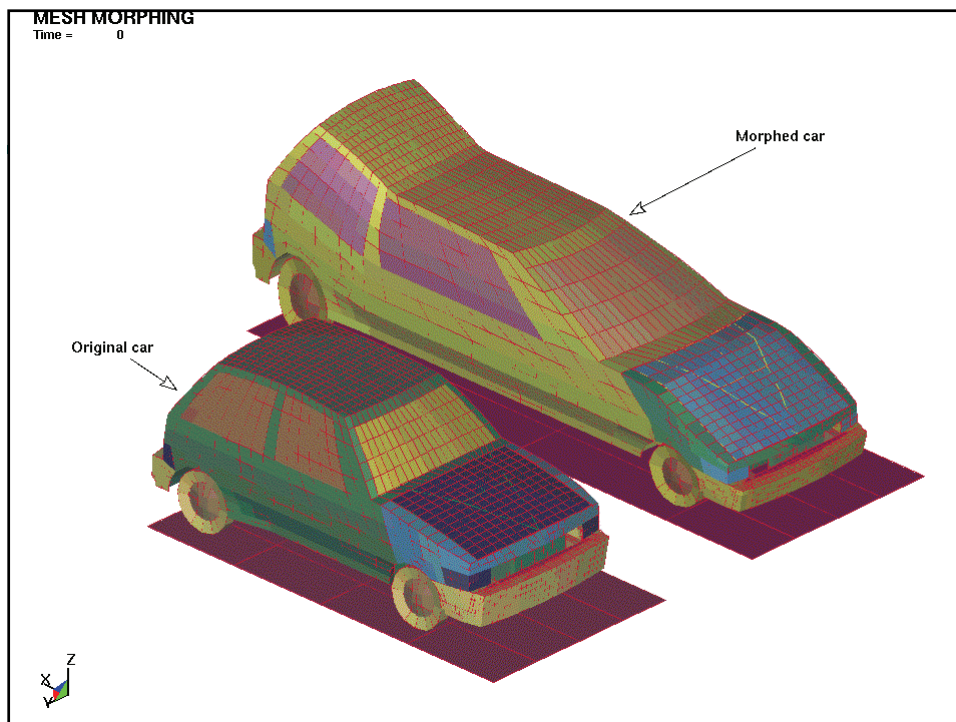
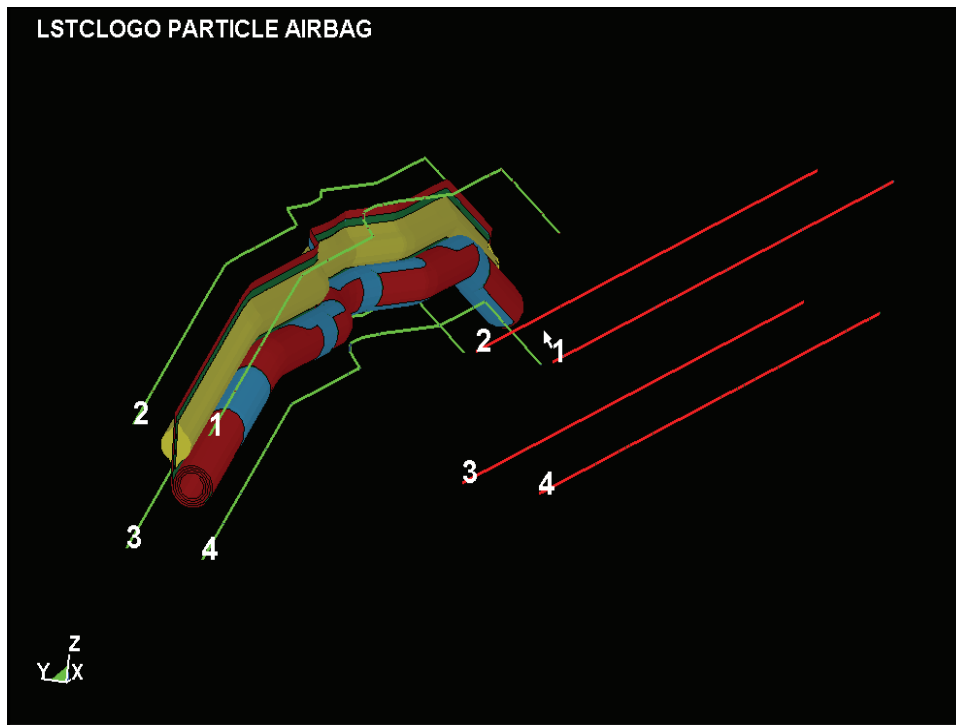
Done

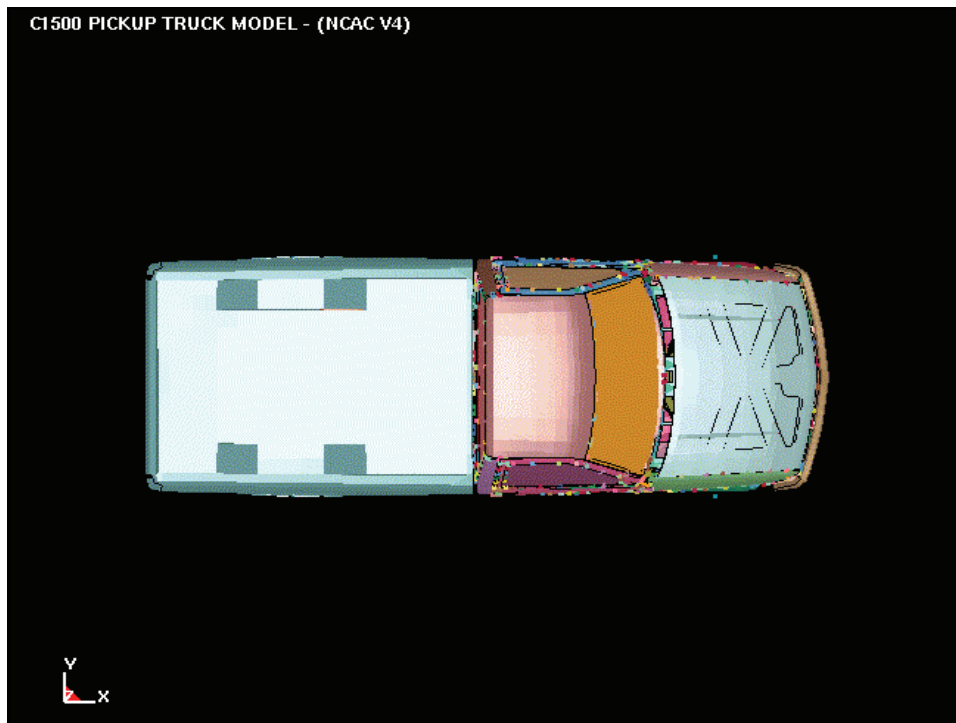
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LS-PREPOST

Conclusions

- ❑ LS-prepost version 2.2 has become more stable and robust
- ❑ Significant progress has been made to include more capabilities for pre-processing
- ❑ Our main goal and objective is to provide new features to support the pre- and post-processing requirements of LS-DYNA
- ❑ We are continue to listen to users' suggestions and adapting new ideas



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