2D to 3D Solids Vignette

Demonstration Installation and Setup

- Copy or unload the demo files to a local directory

- cd to the directory containing the demo files

- Uncompress all files if necessary
  find . –name "" –exec uncompress {} \;*

- Start I-DEAS
  Project   = **Any**
  Model File = **No model file**
  Application = **Design**
  Task   = **Master Modeler**

- File, Import, I-DEAS Design Universal File
  '2Dstart.unv'

- Do the following manually or run
  '2Dstart.prg'

- Enter Drafting, import clip.asc to start the demo.
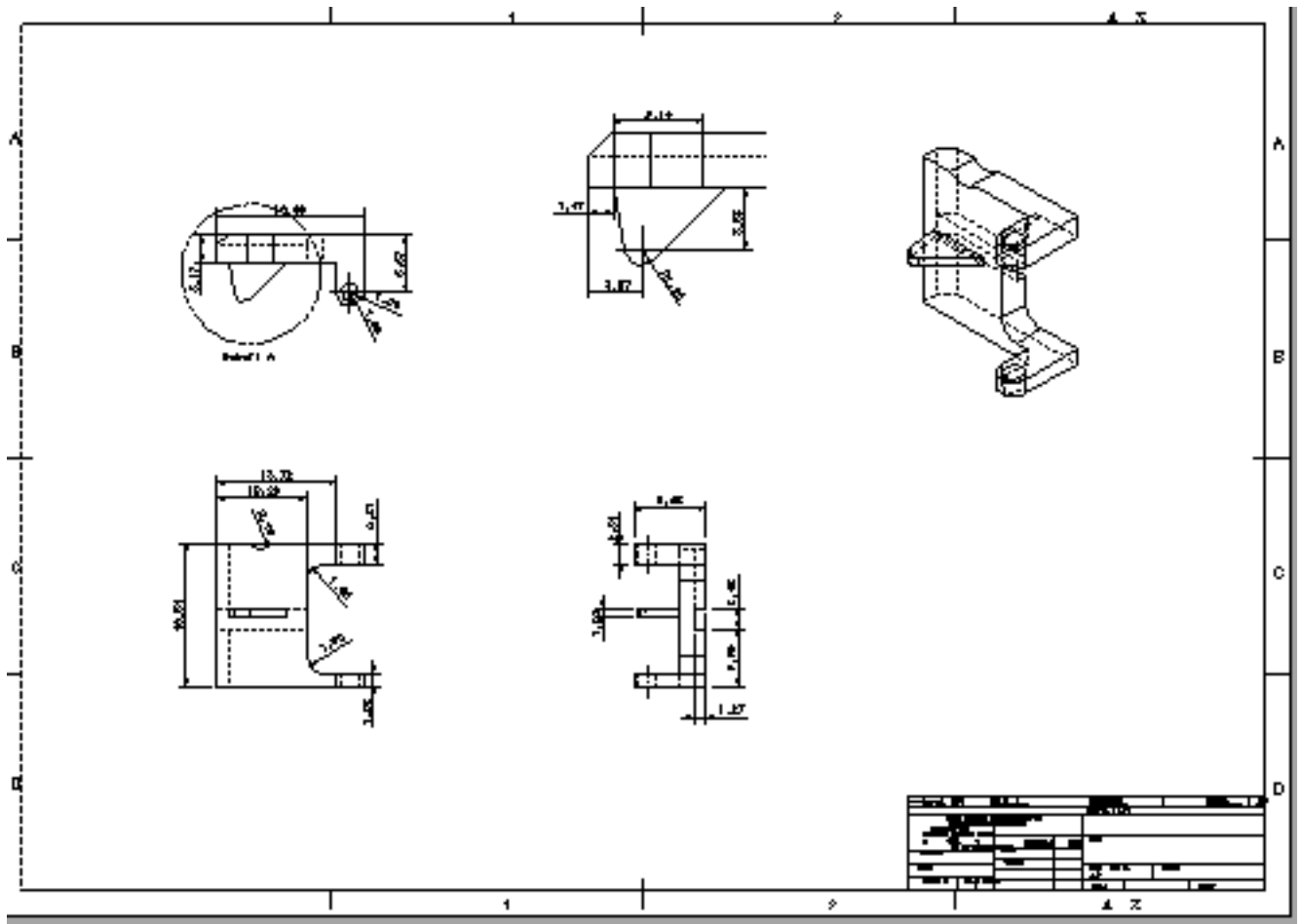

- **Options, units, MM**

- **Display Filters, Workplane=off, Parts, Coordinate Sys=off, Centerpoints/centerlines=off, OK, Assembly, Assembly Name (Top)=off, OK**

- **Shading Options, Hardware support, Backlighting=On, OK Outline=Black, OK**

- **Line Options, Line Attributes, Iso Lines=Off, Seams=Off, OK, OK**

- **Line Options, Line Attributes, Silhouette=Off, OK, OK**

- **Manage Bins, get Initial and Cartridge parts**

- **Iso view**

- **Run the 'symbols.prg' program file**

- **Save – use any name you like, (i.e., '2D')**

Demonstration Overview

This demonstration is intended to show an overview of the process to get 2D data into a 3D solids environment. The ability to use undimensioned geometry should be highlighted during the demo. This is a distinct competitive advantage.
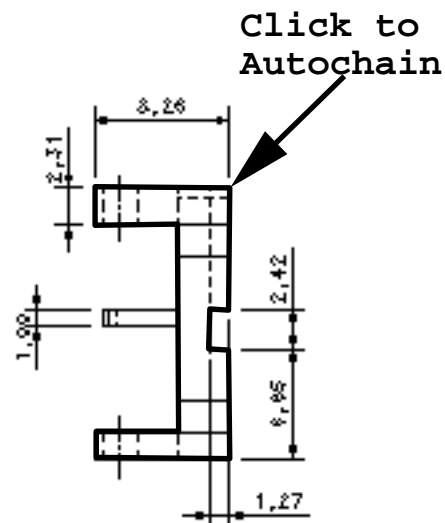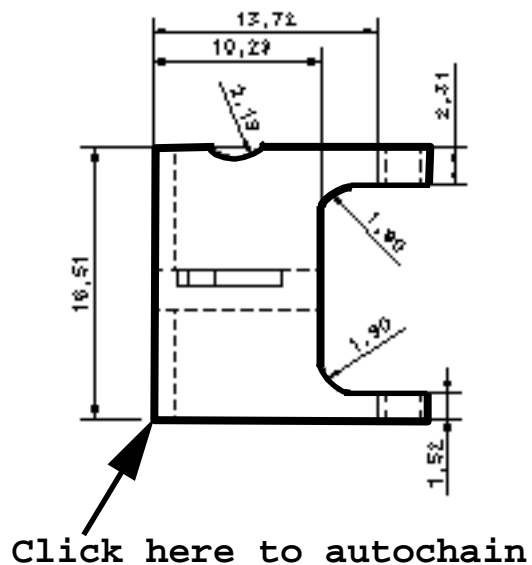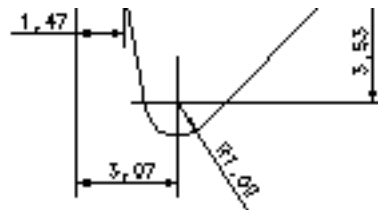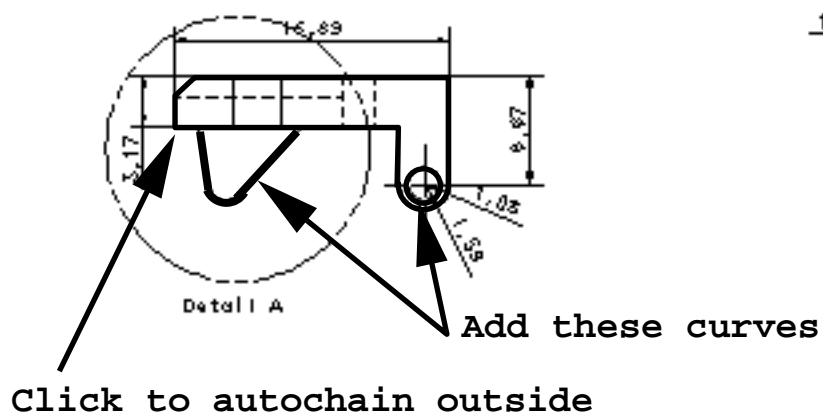
MS6 assembly capability is also shown toward the end of the demo. Assembly constraints, VGX part, assembly constraint browser, as well as animation is included.

Solid Modeling .... Drafting

File Open
 Open clip.asc

Detail A

Add these curves

Click to autochain outside

Click to Autochain

Click here to autochain

File Export - fx from the keyboard

```
 Pull down "To Solids"
 N = Demo ( Any suitable file name except "clip"
Done
 N – front
 Select wireframe, click in front view, autochaoin
 ouside border, Done

 N – Top
 Wireframe, click in top view, autochain outside
```
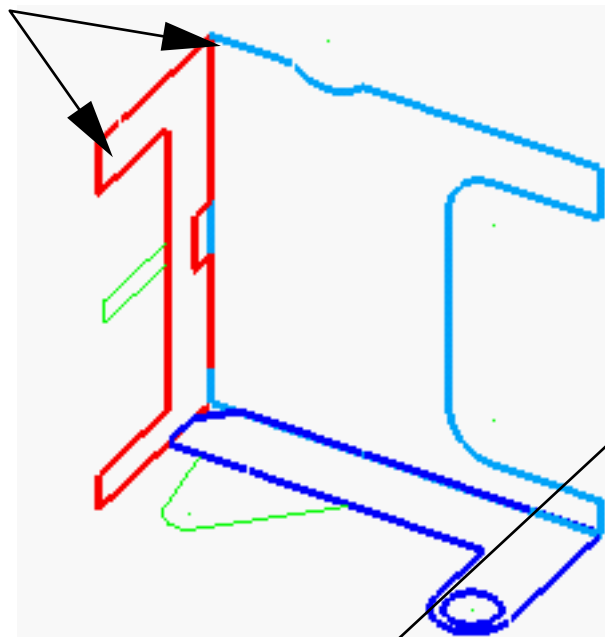
Pick here

Piock here
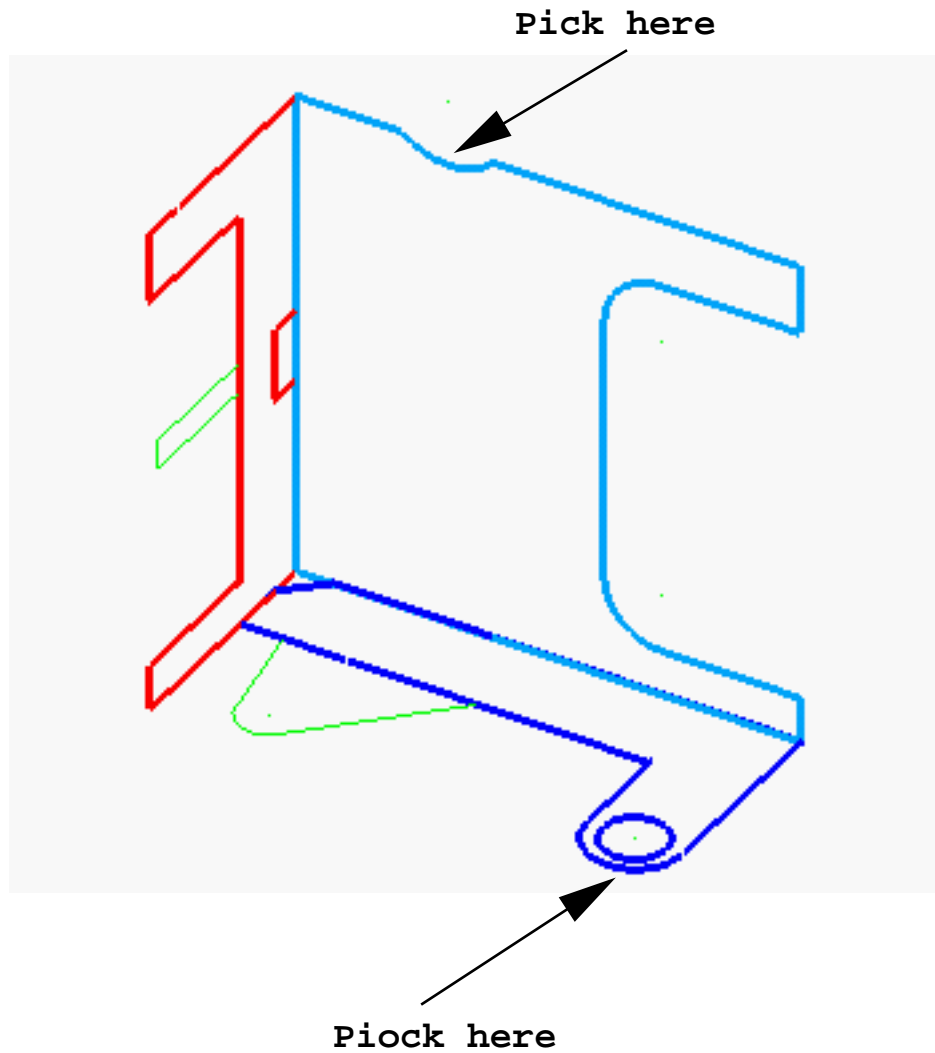
wrr – from the keyboard

Global symbol to read existing file clip.unv and bring
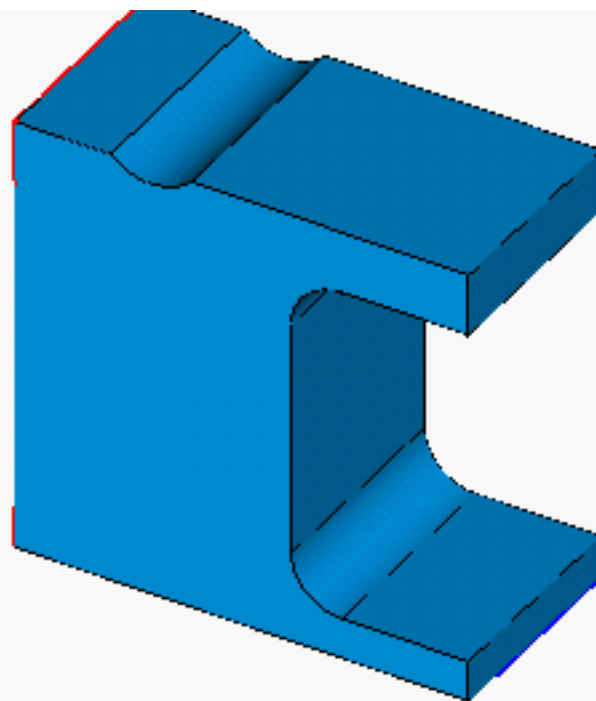the three wireframe parts to the workbench.

Build Section

Build sections as shown. Select and arc to begin the
sections shown (This determines a plane in one pick)

Measure

Direction

Pull down for measure

Distance	8.255	◇ Protrude
		◇ Cutout
☐ Draft Angle		◇ Intersect
		◆ New Part
👀 ✗	Distance ▭	Options...

| OK | Cancel |

Protrude
  Select the section, MB2, measure, measure
  from two points shown, MB2, New Part, OK

Benefit
  • *Ability to access 2D geometry quickly*
    No need to add dimensions to create solid part

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Drag

Select witness line

New position

16.89

14.29

5.08
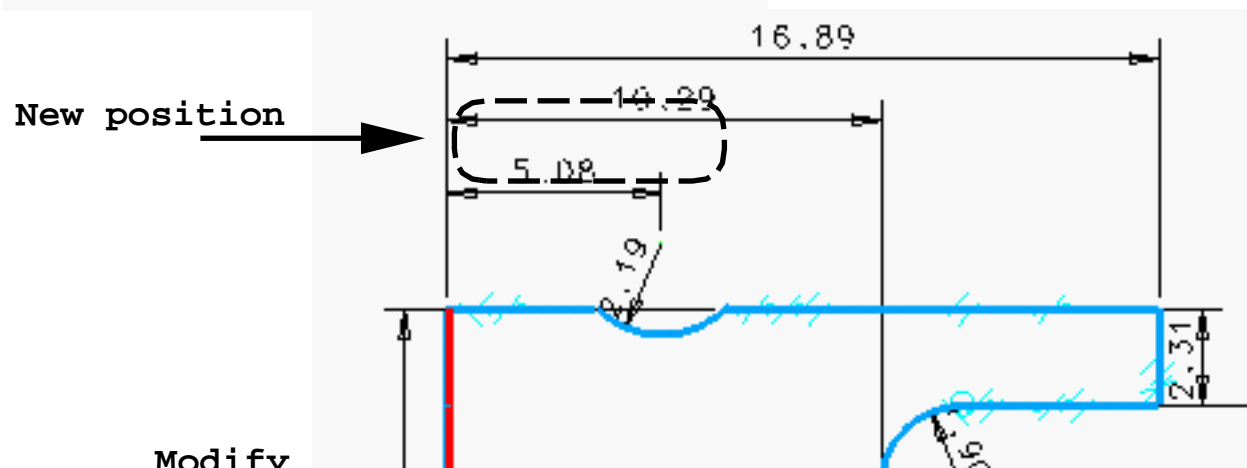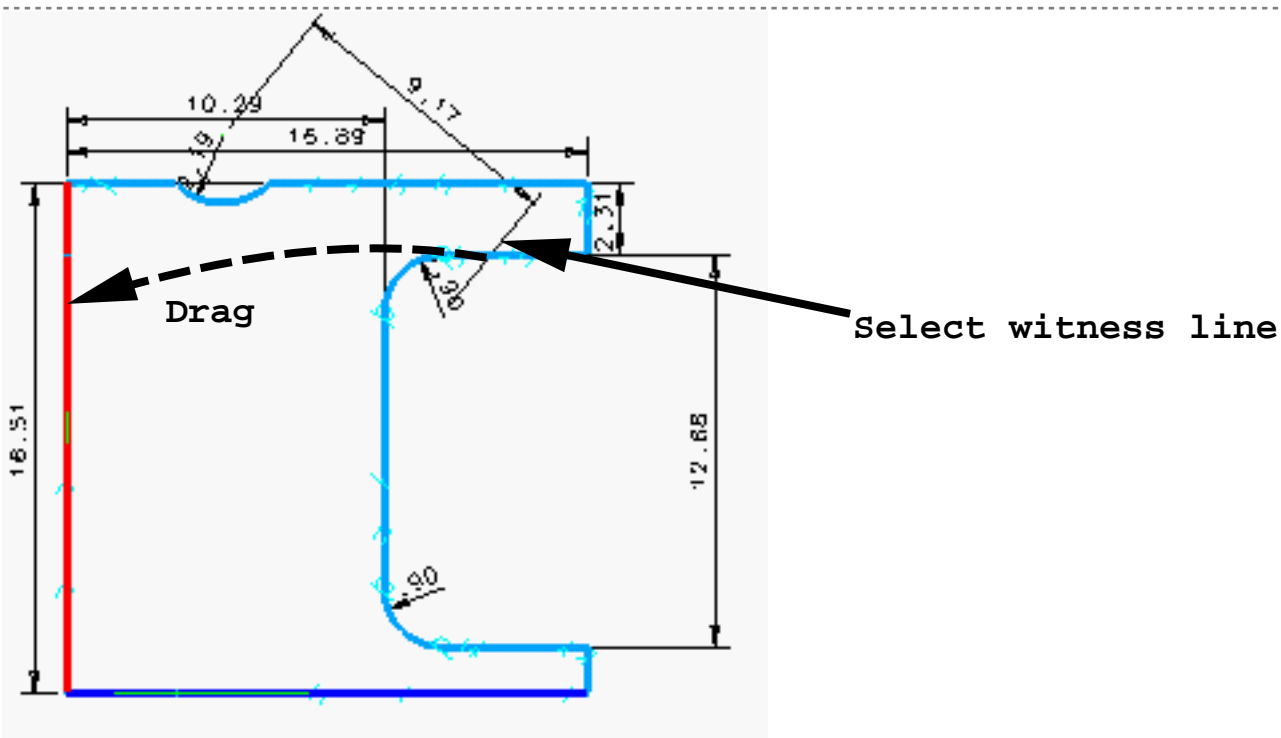
Modify
  Select part,MB2, wireframe

Constrain and dimension
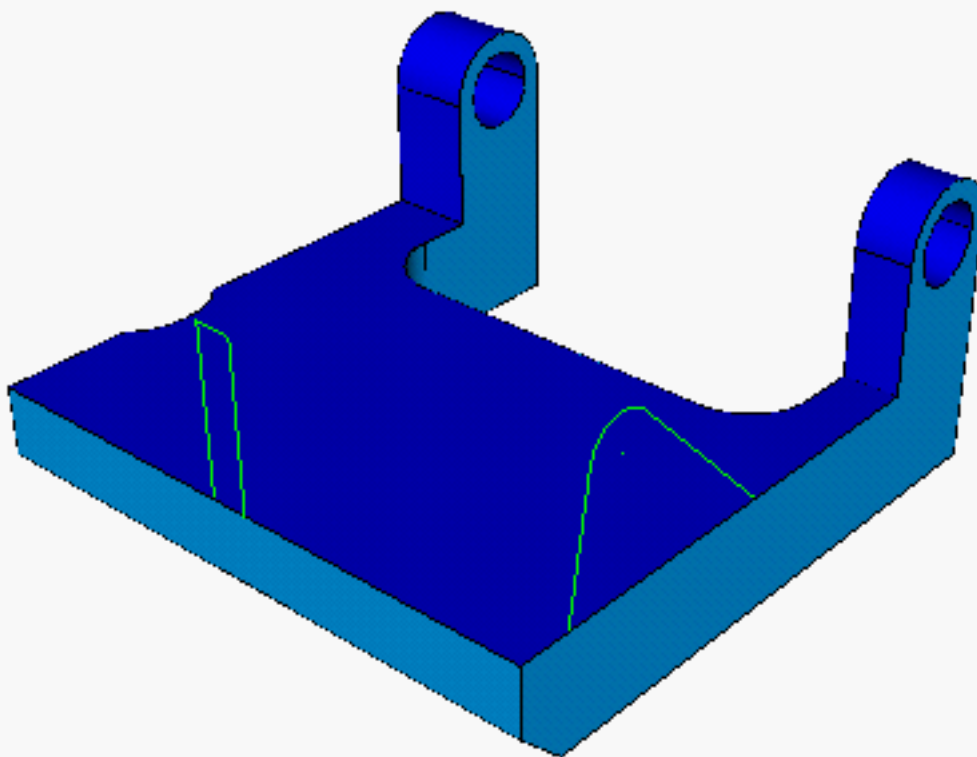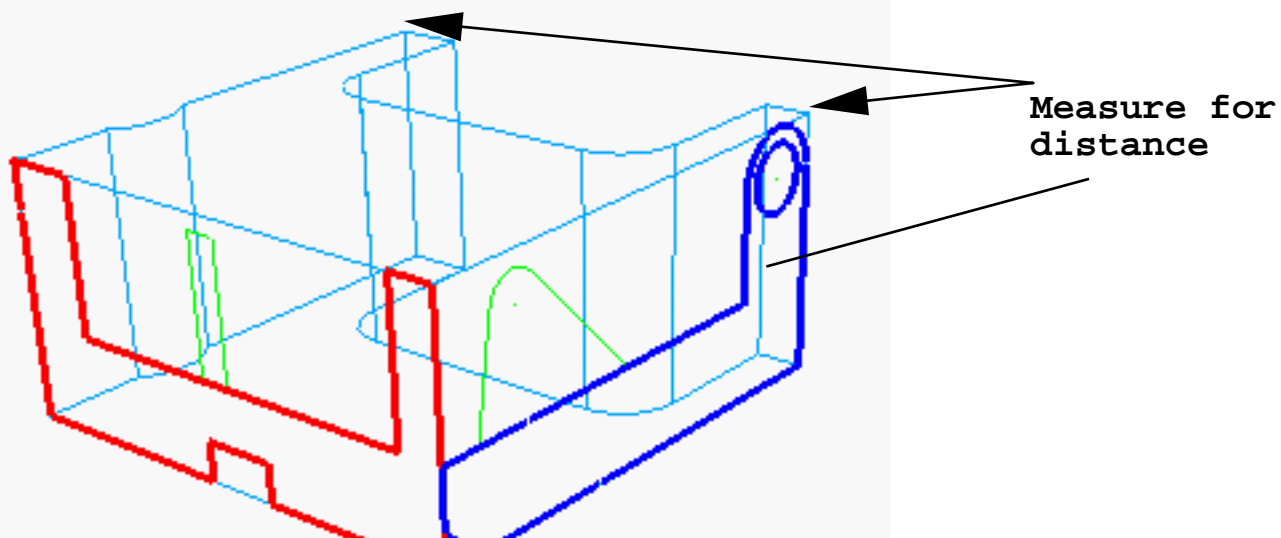 Autoconstrain, pick the opened section

Drag
  Select various dimensions and drag, cancel
  to keep at original values

  Drag witness line ot 9.17mm linear dimension,
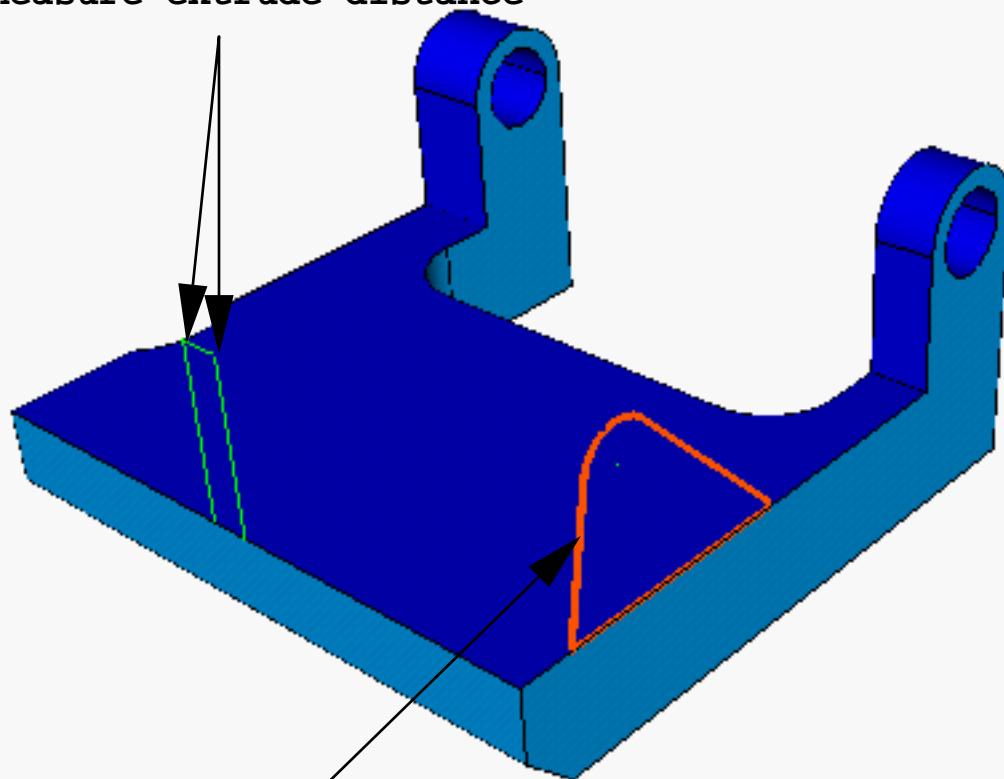 reattach it to the left side vertical line

Update

Benefit
  • *Can dynamically redefine the dimensioning scheme*
    No need to delete and reapply dimensions
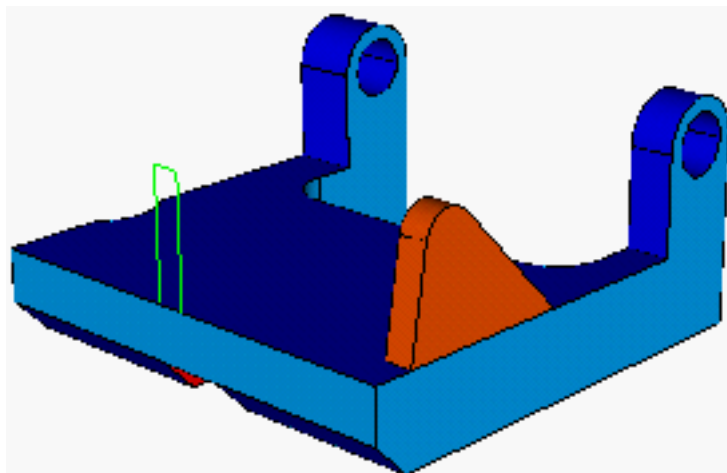
Measure for distance

Protrude

Select each section, intersect to create the part shown. Measure the distance off of the part for the intersect distance for each feature.

Measure extrude distance

**Build section, attach
workplane and add lower
line**

Build Section
  Select the section

Attach Workplane
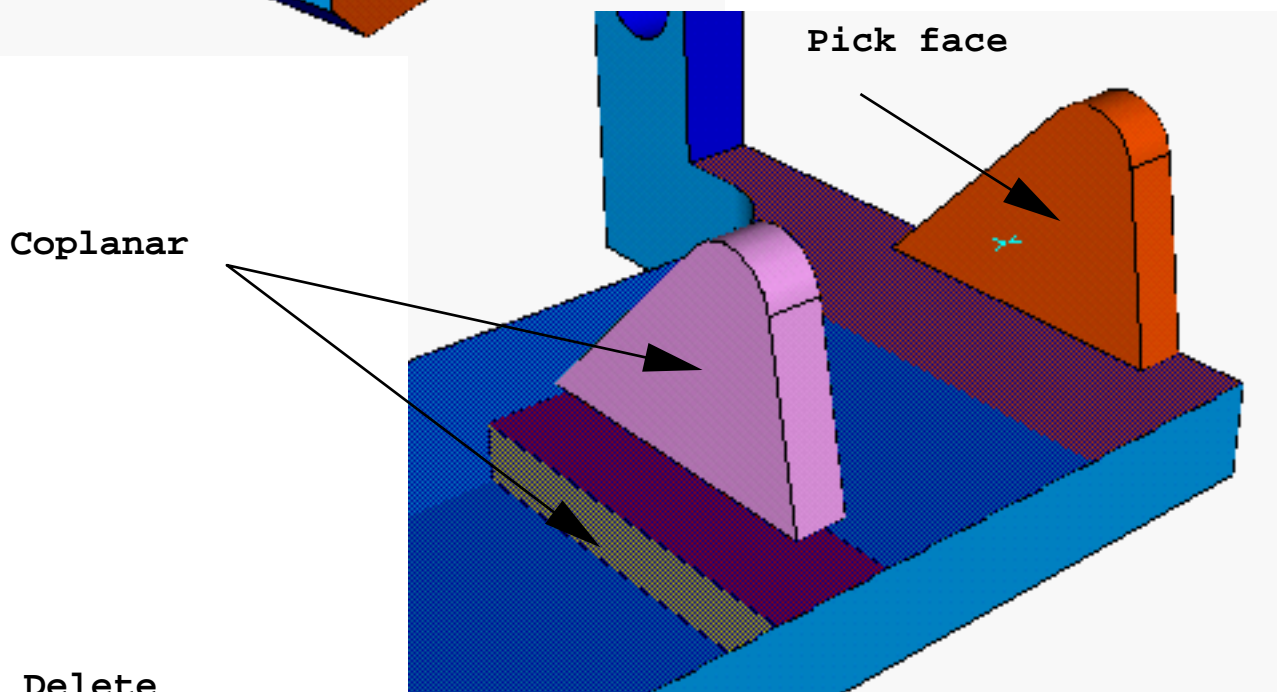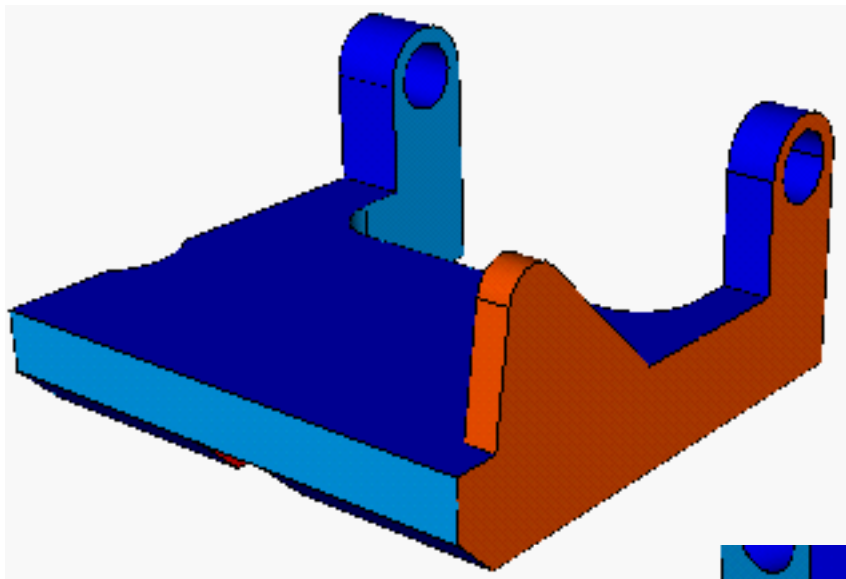 Attach the workplane to the new section

Polyline
  Connect the lower points of the section with a line

Modify
  Modify the section and add the newly created line

Extrude
  Select the section, MB2,measure distance (1 mm),
  new part, OK

Pick face

Coplanar

Delete
  Select a wireframe line, MB3 all, MB2, OK

Join
  MB3, relations off,Select the newly created part,
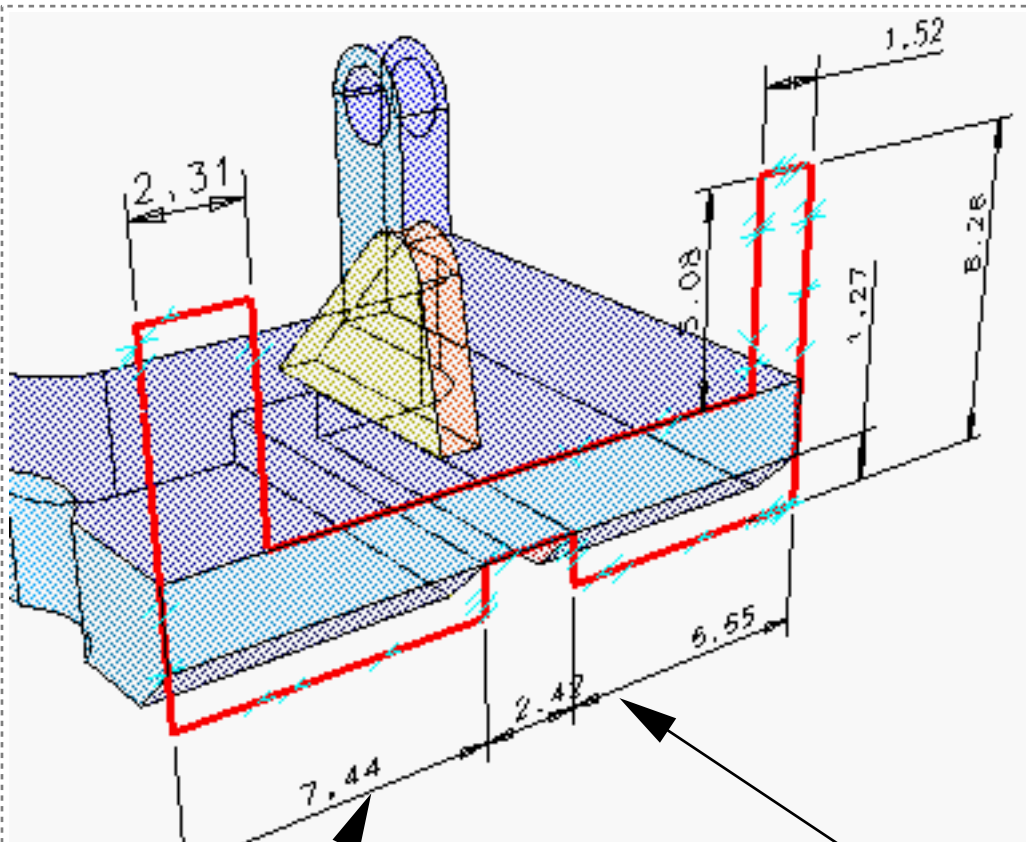 select the large part.

Drag
  Select the face shown, drag until the lower slot face
  is highlighted to establish a coplanar condition

Update

Benefit
  • *Ability to add design intent directly on the part
    using VGx technology*

Delete this dimension

Drag this end of the 6.65 dimension

Modify
 Double click the lower slot, quick wireframe

Constrain and Dimension
 Autoconstrain, pick the section, MB2

Delete
 Delete the 7.44mm dimension shown

Drag
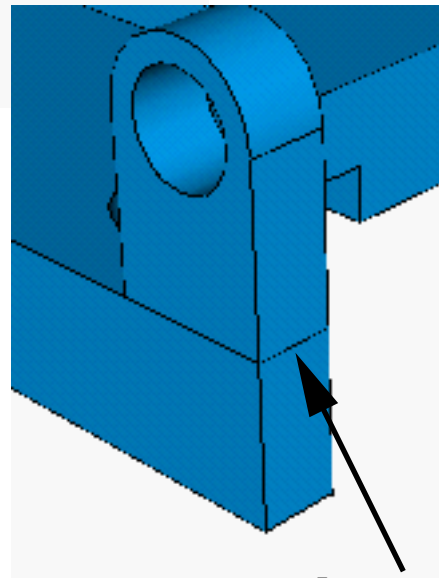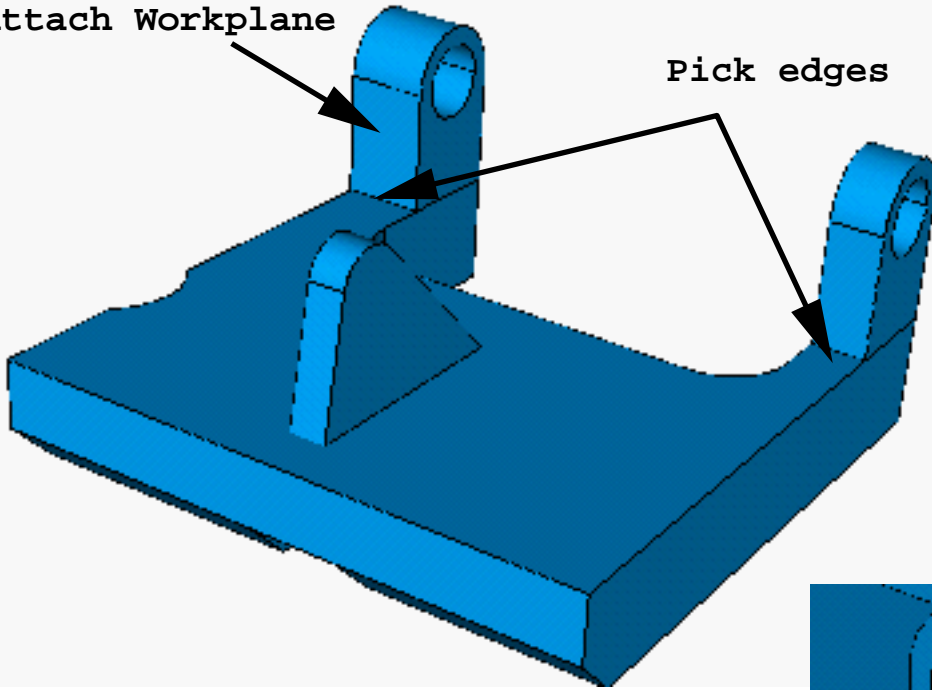 Select the 6.65mm dimension shown, MB3 to cancel

Update

Benefit
- *Through the use of VGX, we can see the affect of a dimension change – even on a feature created AFTER the feature being modified.*

- *Strength of Variational technology.*

zip 2D to 3D Vignette

Attach Workplane

Pick edges
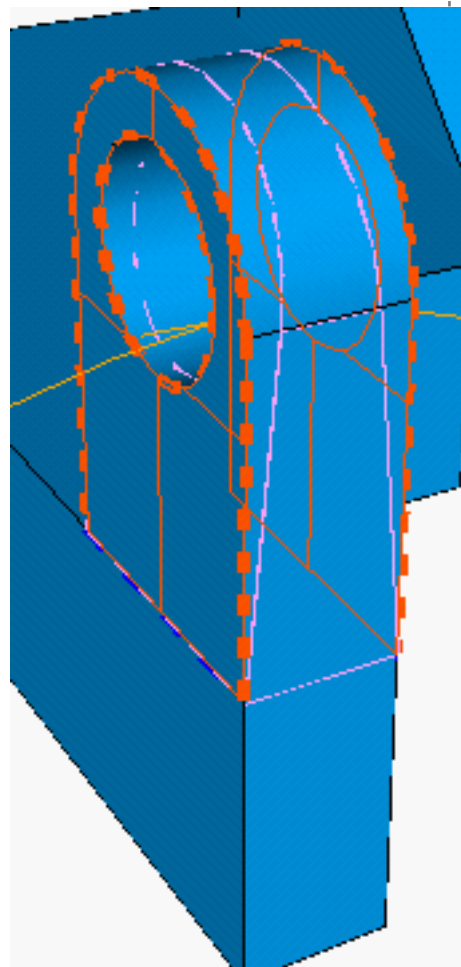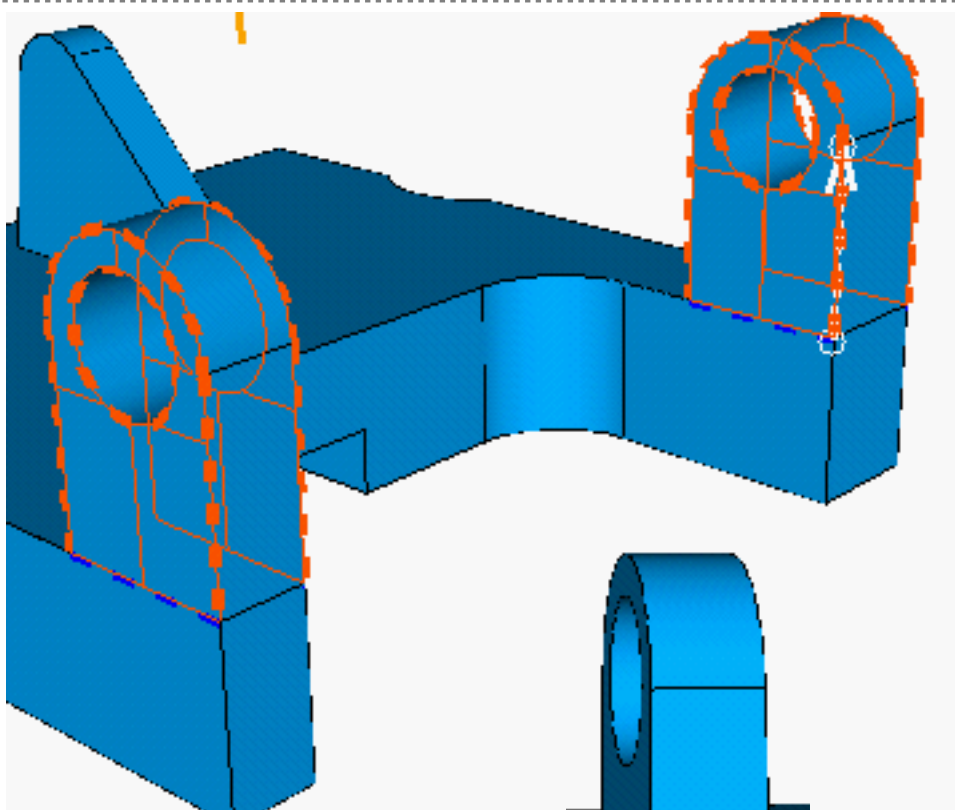
Resultant edge

Sketch in Place
  Pick surface shown

Protrude
  MB3, section options, autochain off, OK
  MB3, split durface, pick the two edges,MB2,
  OK (Thru all), MB2(All surfaces), MB2

Benefit
  • Ability to add detail (parting line)
    to solid easier than on drawing

zip 2D to 3D Vignette

Draft
  Pick direction of pull (pointing away from parting
  line)
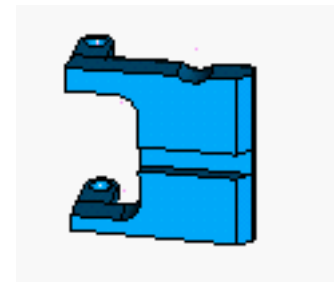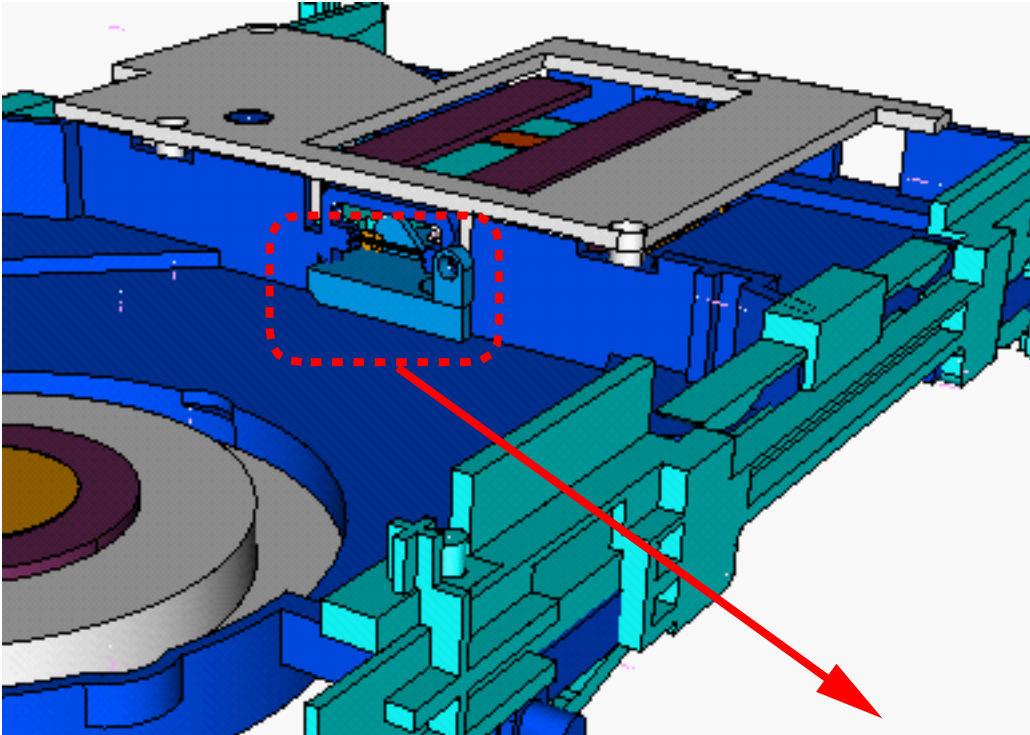 Select four outsude surfaces, MB2
  Select four stationary edges, MB2, MB2
  Constant angle = 5,, Preview
  Constant angle = 1, OK

Benefit

- Ease of adding draft detail to part
- Strength of preview in al lof Master Series
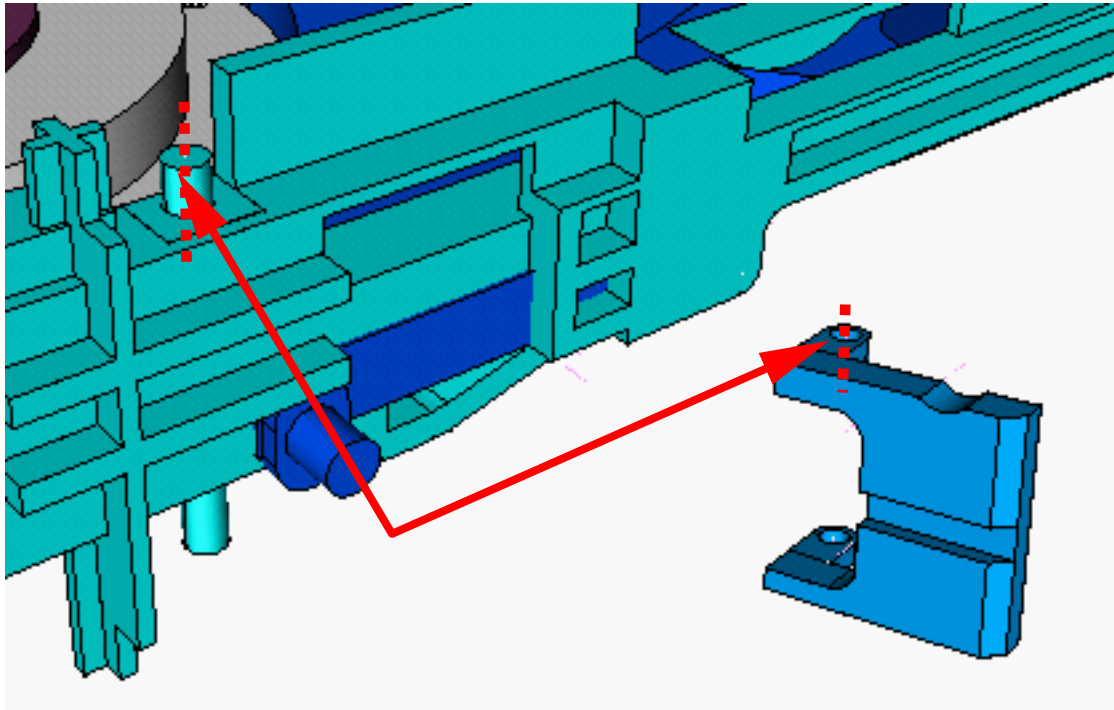

Name Parts
  Pick the part, rename it to clip

Manage Bins
  Get drive assembly

Dynamic Orient
  Select the clip, drag to the side, MB3 Rotate
  Orient to approximate orientation shown

Master Model ... Master Assembly

Heirarchy
  Highlight Top Level
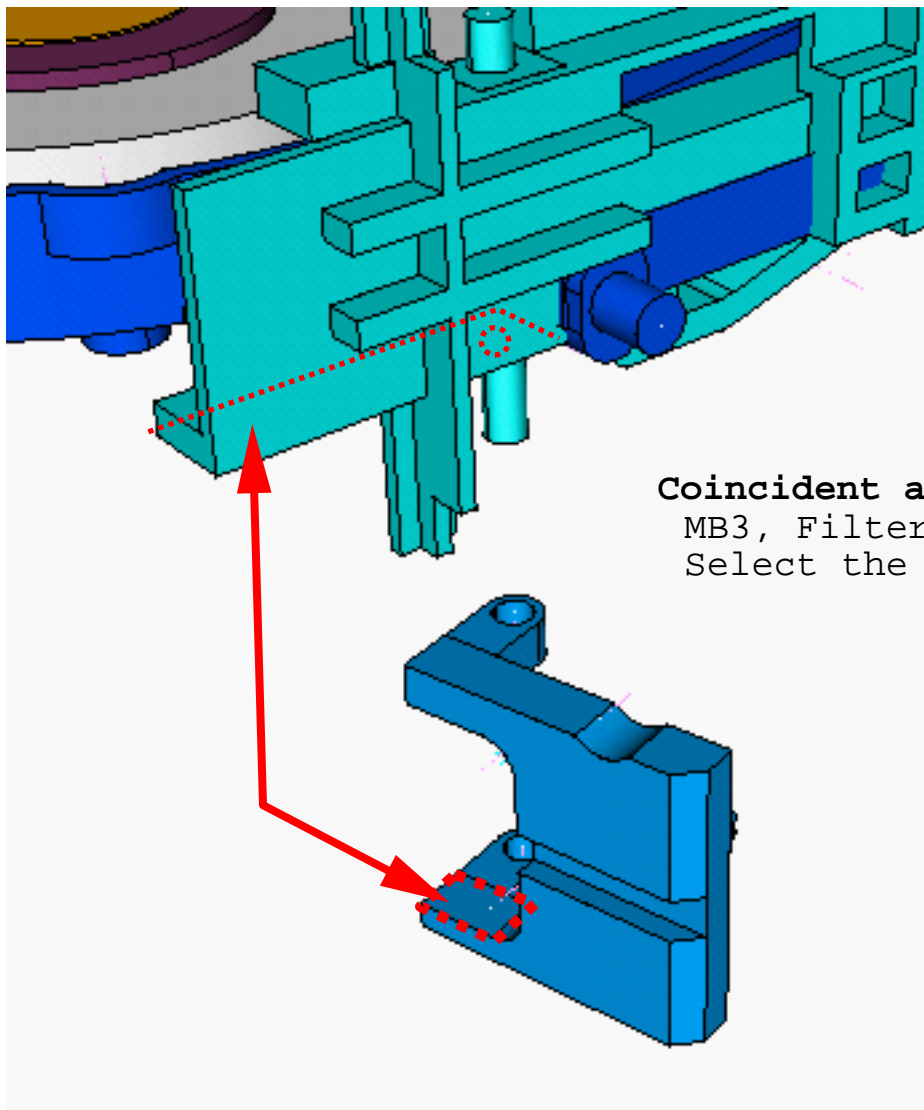 Add Instance, Select the clip from the screen
  Dismiss

Cll – Turns center line on

Redisplay

Constrain and Dimension
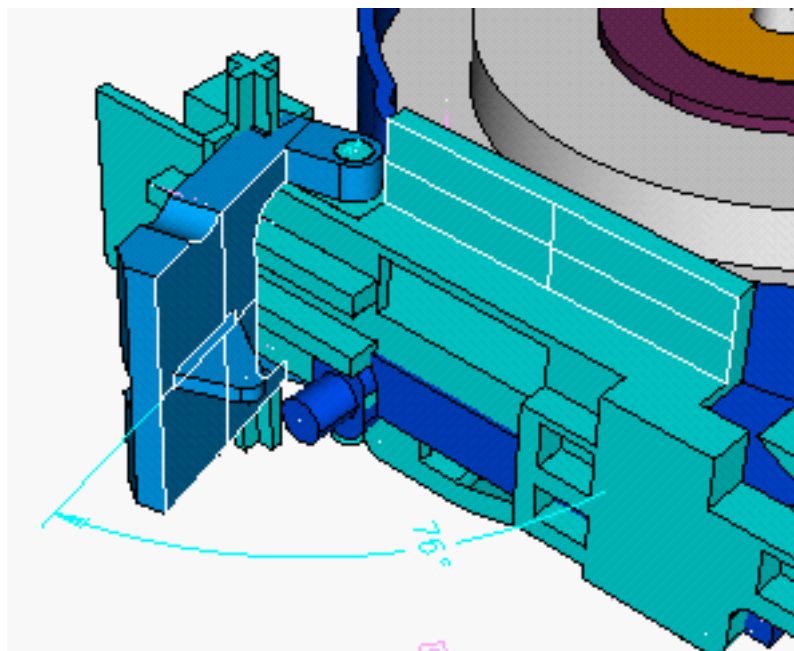 **Coincident and Colinear**
          MB3 Filter, centerline, Pick Only
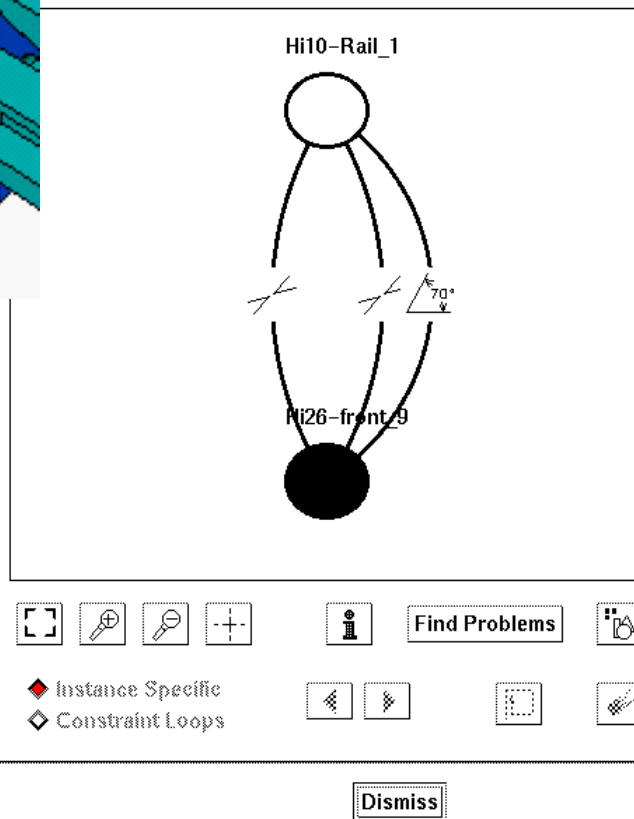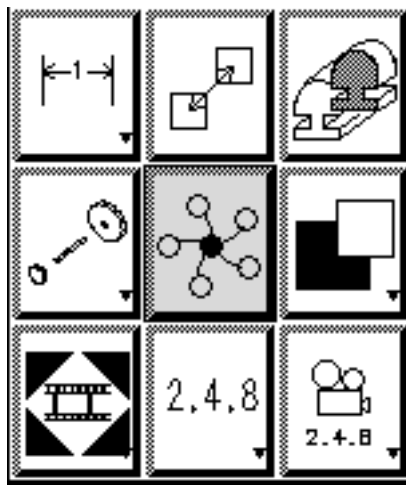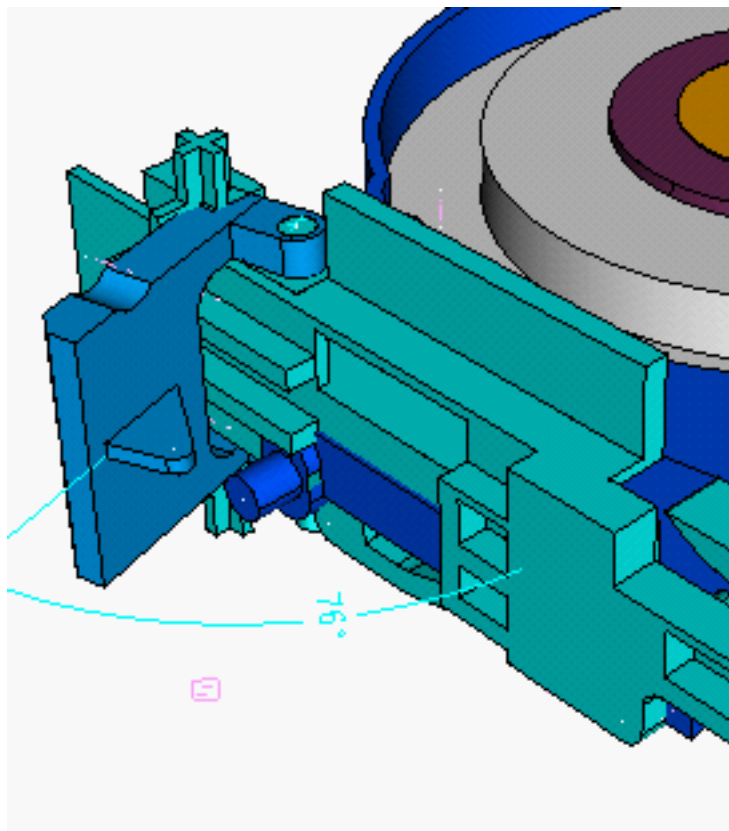   Select the clip centerline, and the
          upper pin centerline

Coincident and Colinear
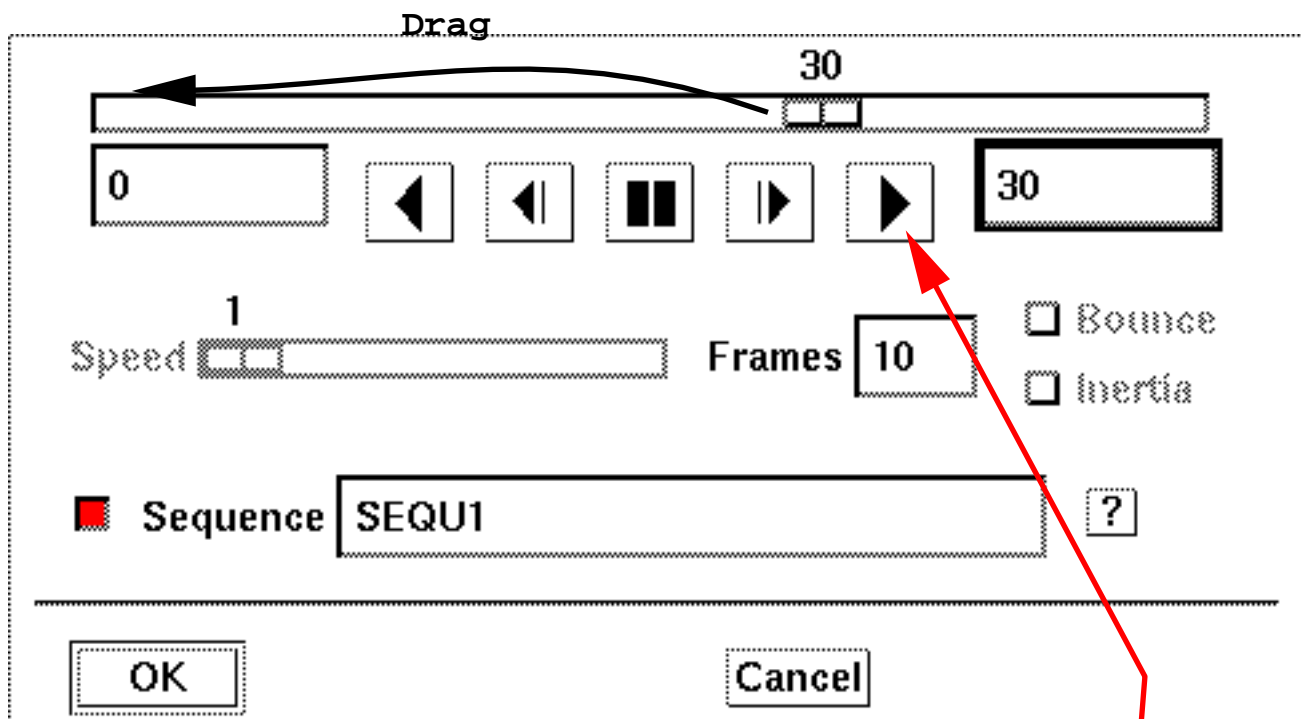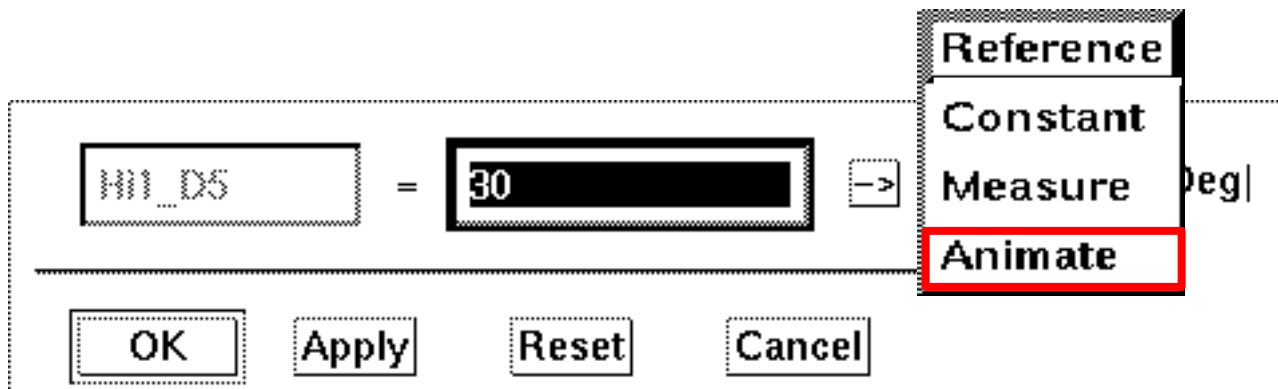 MB3, Filter, Surfaces – Pick only
  Select the two surfaces shown

Dimension
  Select the two surfaces
  shown

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Hi10-Rail_1

70°

Hi26-front_9

Instance Specific
Constraint Loops

Find Problems

Dismiss

Browse Relations
   Select the clip instance
   Show the relationships, click on the constraint
   symbols and show the associated surfaces highlight

Reference
Constant
Measure
Animate

HI1_D5 = 30   -> Deg|

OK   Apply   Reset   Cancel

Drag

30

0   ◀   ◀| ▮▮ |▶   ▶   30

1
Speed ▭   Frames 10   ☐ Bounce   ☐ Inertia

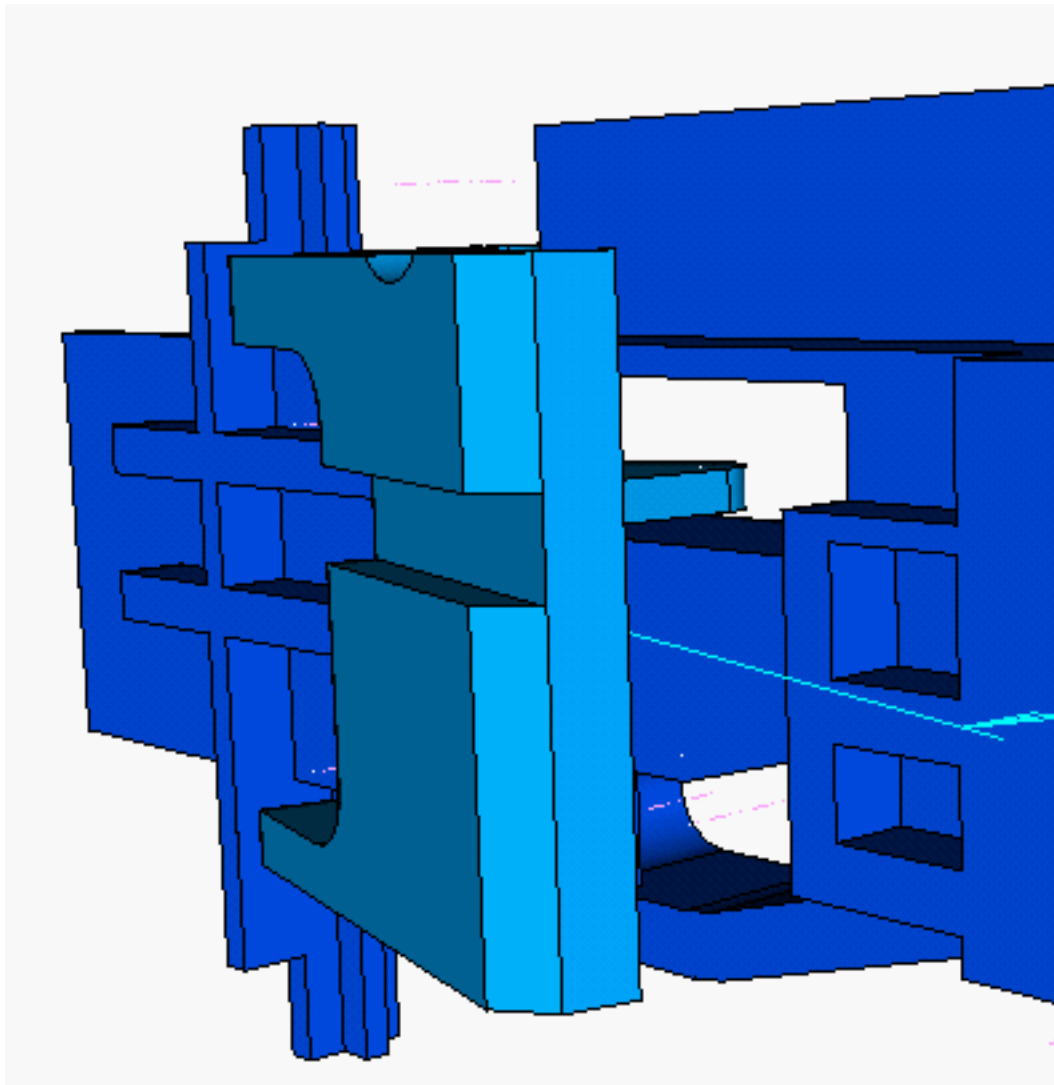■ Sequence SEQU1   ?

OK   Cancel

Modify
  Select the angular dimension, d=30
  Select the dimension again, animate
  enter 0 and 30, turn on Sequence button,
  drag the horizontal bar to the left, Forward

Animate Hardware
  Start

Modify
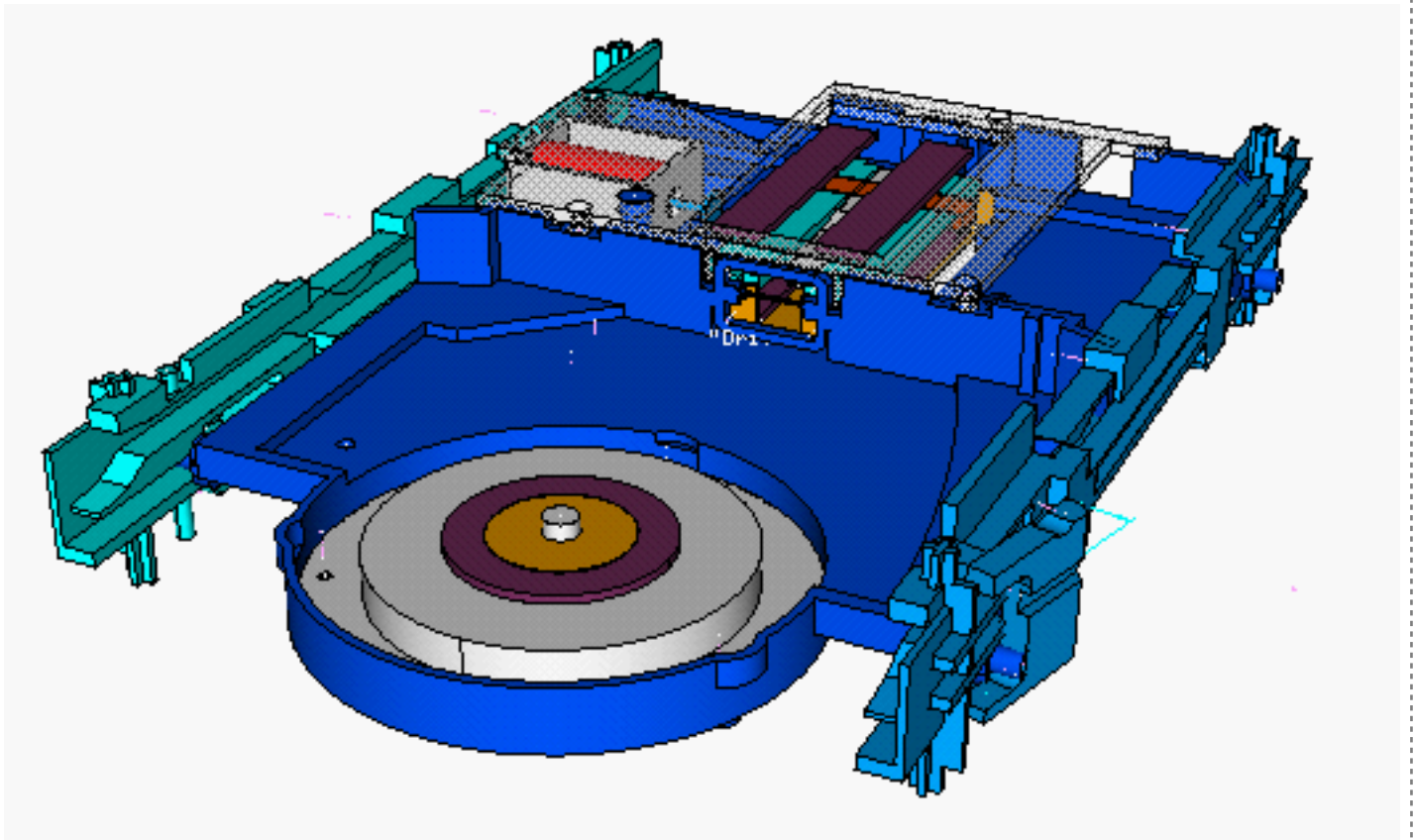 Change the angular dimension to d=15 degrees.

Modify
  Select the clip, MB2 to show the dimensions

Drag
  Select the 6.65 mm dimension to control the
  slot/tab combination position, drag to about
  9 mm

Update

Heirarchy
 Show all instances