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Introduction

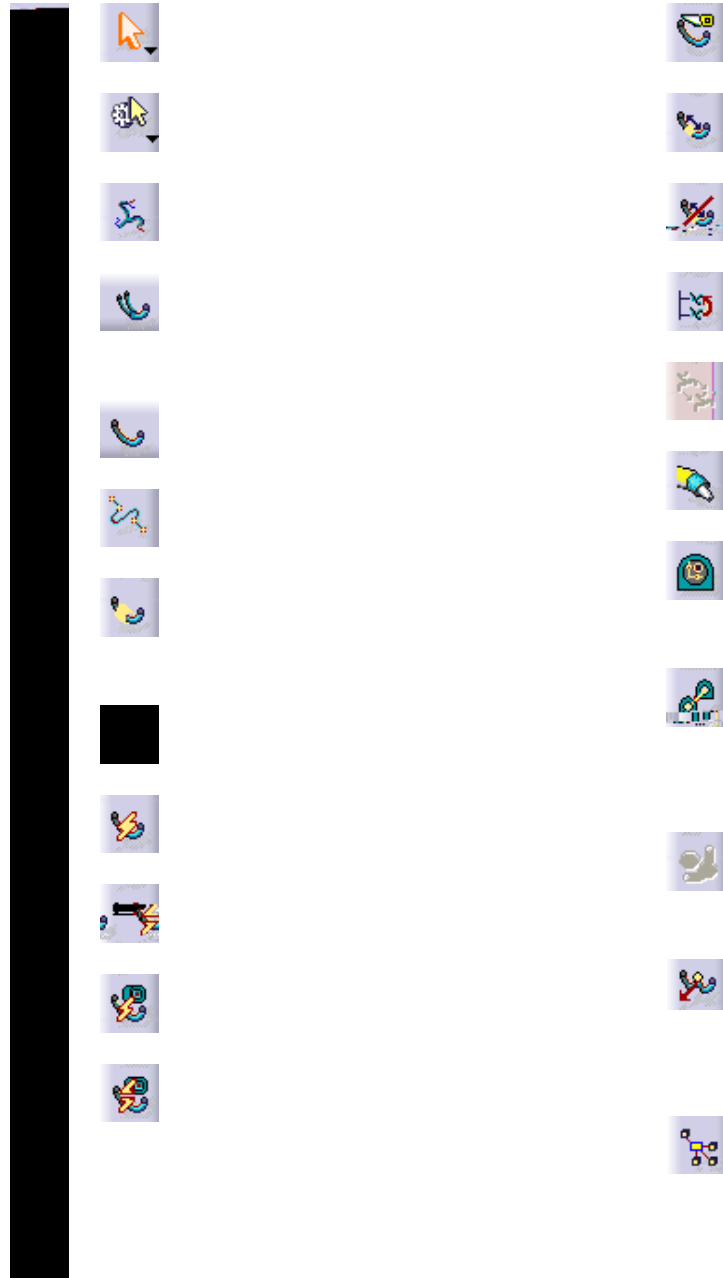
CATIA Version 5 Electrical Harness Design

Electrical Harness Design

Electrical Harness Installation Workbench



Electrical Harness Assembly Workbench



Bottom Toolbar

Measure



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Electrical Harness Design

Defining Geometric Bundles

Create a new product named Harness 1.

If not already there, switch to the Electrical Harness Assembly workbench.

Equipment & Systems

Electrical Harness Discipline

Insert

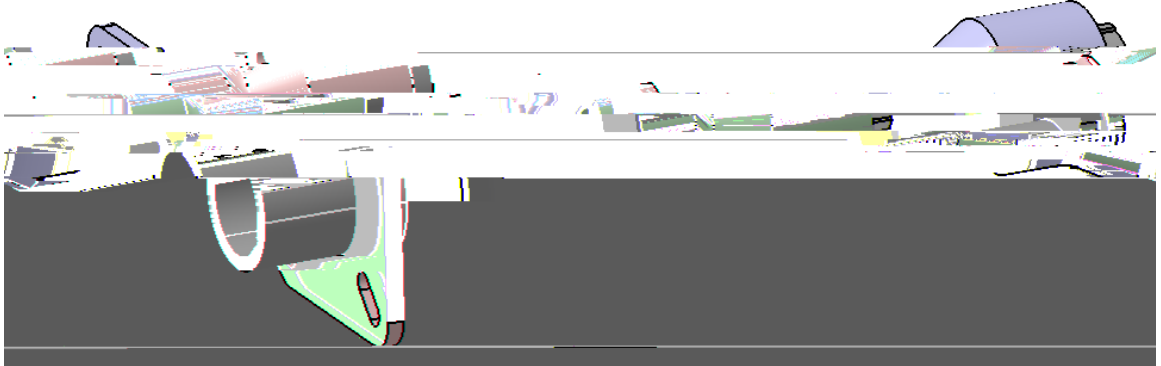
Right click on *Harness 1* in the specification tree and select *Components, Existing Component*.

File Selection

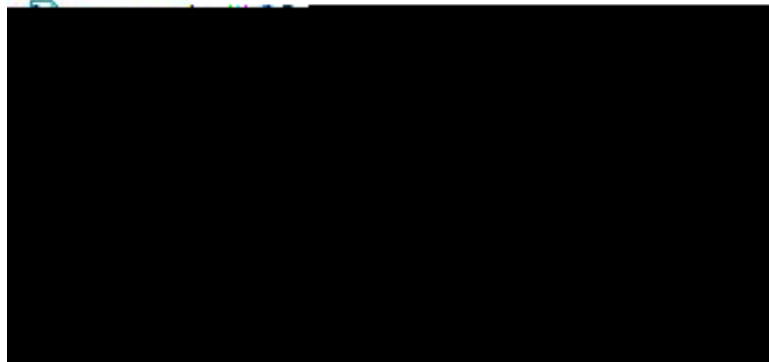
CATIA Electrical Harness Design

Close the catalog browser when done.

Using the compass or other manipulation tools, manipulate the 4 pin connector to the approximate location shown.

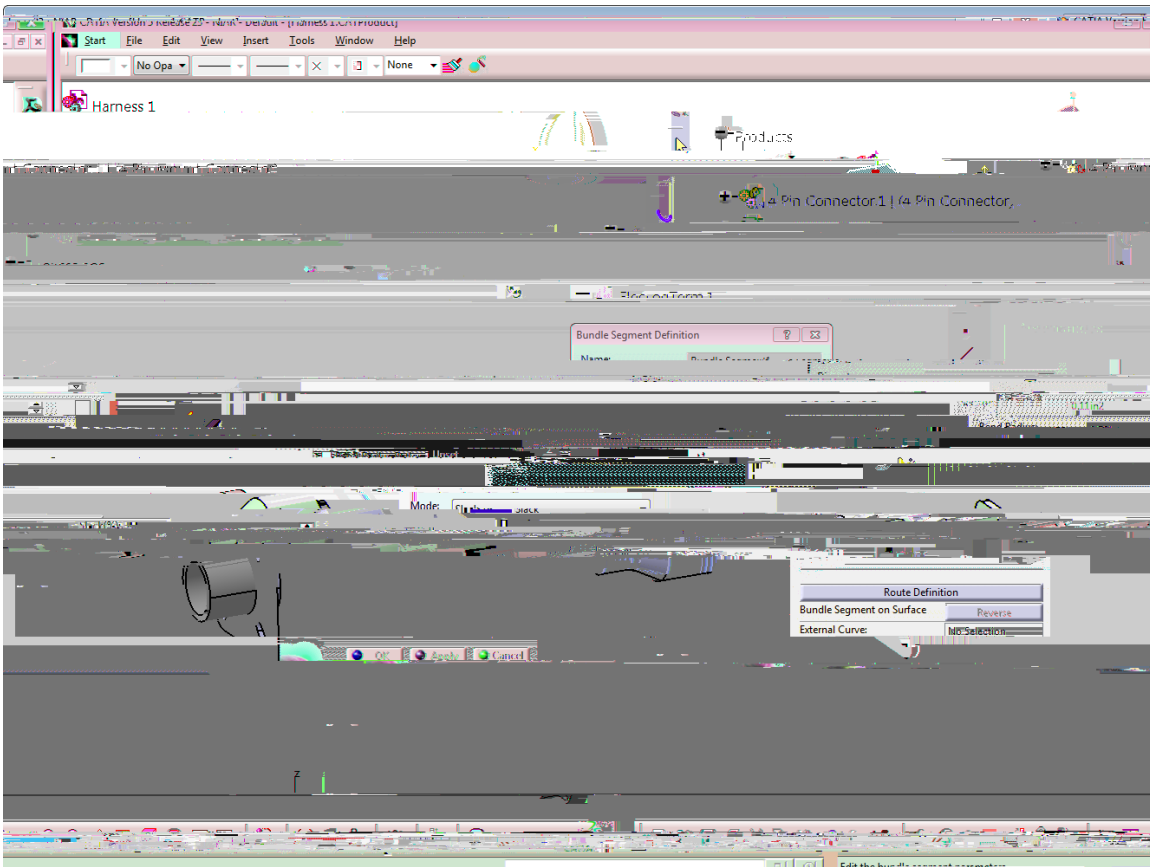


Select the **Geometrical Bundle** icon, then select *Harness 1* from the specification tree.



Select the **Bundle Segment** icon.

Bundle Segment



Length

Length

Route Definition

Bundle Segment...

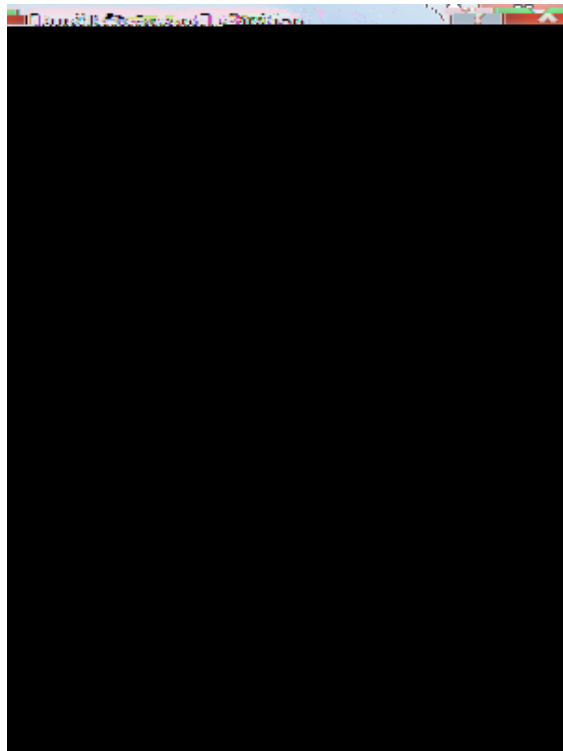
External Curve

Change the *Name* to Harness 1 Bundle.

Unless already set, change the *Diameter* to 0.5in.

Change the *Bend Radius* to 0.5in.

Change the *Build Mode* to *Slack*, and set the *Slack* percentage to 10.



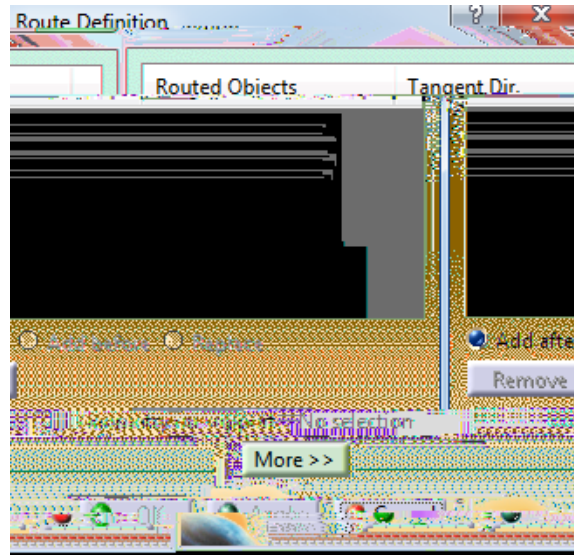
Select Route Definition.

Definition

Definition

Route

Route



Routed Objects / Tangent Dir.

Add after

Add before

Replace

Remove

Geometry on support

CATIA Electrical Harness Design

Offset Management at Creation

Automatic

Automatic with Safety Margin

Manual

Select the 4 Pin Mount Connector.

Route Definition



**Select *OK* to the *Route Definition* window.
*Definition***

Bundle Segment

Select *OK* to the *Bundle Segment Definition* window.



Select the *Exit* icon.



Save your harness.

'HILQLQJ 0XOWL %UDQFKDEOH %XQGOHV

\$OWKRJK VLQJOH EUDQFK EXQGOH WJDFU HE XQGOH KW HVX Z
RIWHQ ILQG WKDW \RX DUH QRW VZQW KW R XFWH DWHL QJCH
7KH PRVW FRPPRQ W\SH RI EXQGOH JXVPH WHU\HF QE XQUG OHV
PXOWL EUDQFKDEOH EXQGOH

2SHQ W\CHWL %UDQGRB XDHQ WMU-Branche 11 GLUHFWRXU\
ZLOO FUHDWH D PXOWL EUDQFKDEOH UBRFFRQHF WR DVLL
FRQILJXUDWLRQ

,I QRW DOUHDG\ WKKUH VZLWFK WRZWKNE(HOHF)UQJ DO +
PXOWL EUDQFKDEOH EXQGOH LQK DQ DOOL QJOJRE QD QFRK E
GRFXPHQW

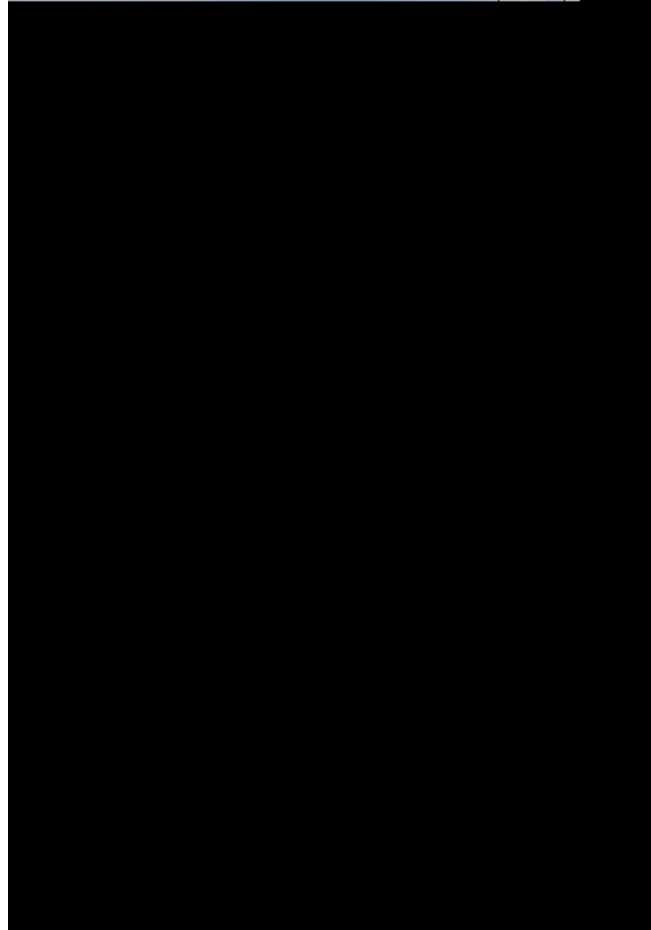
6HOHF*WRPKW ULFDO LPRQG WOKH Multi-Branchable 1SKUR GXFW
7KLV ZLOO FRQYHUW WKH HQWLUH SURGXFW LQWR D JHR

\$W WKLW SRLQWR GRXLQWHWUKHDE EXQGOH VHJPHQW

Select the **Multi-Branchable Document** icon.



Electrical Harness Installation

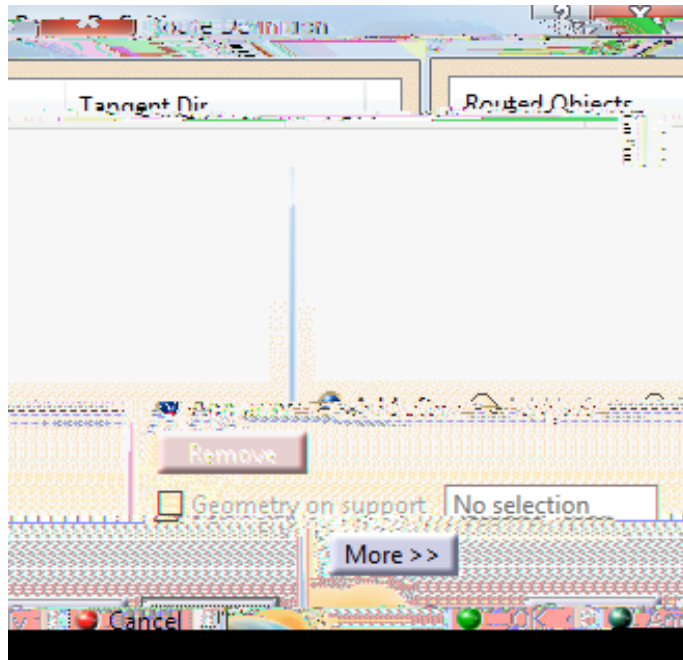


Bundle Segment Definition

Change the *Name* of the branch to **Main Branch**.

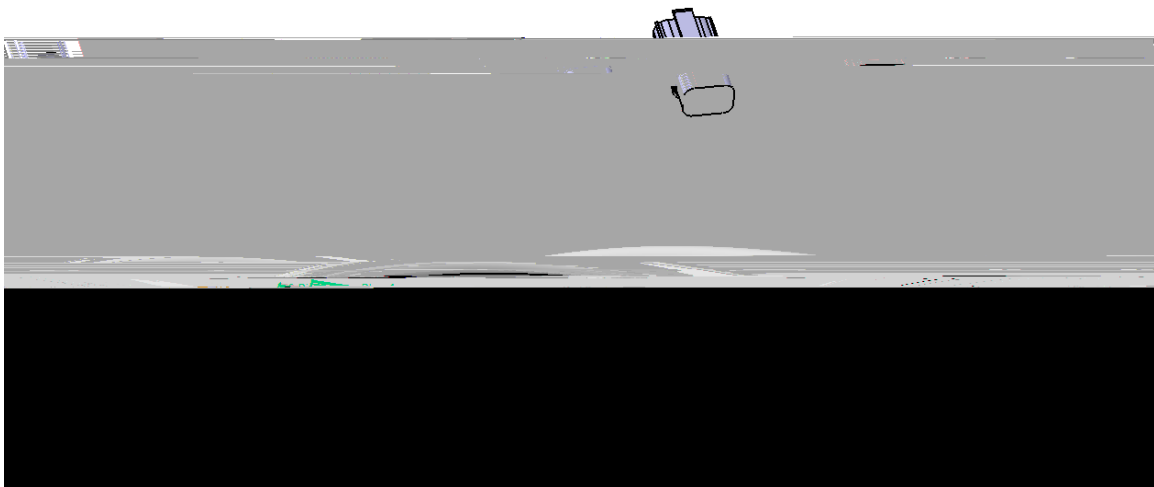
Change the *Diameter* to **0.5in** and the *Bend Radius* to **1.0in**.

With the *Build Mode* set to **Slack**, set the *Slack* percentage to **5.0**.



Geometry on support

Select the 10 pin square plug, then select the 6 pin square plug on the right.

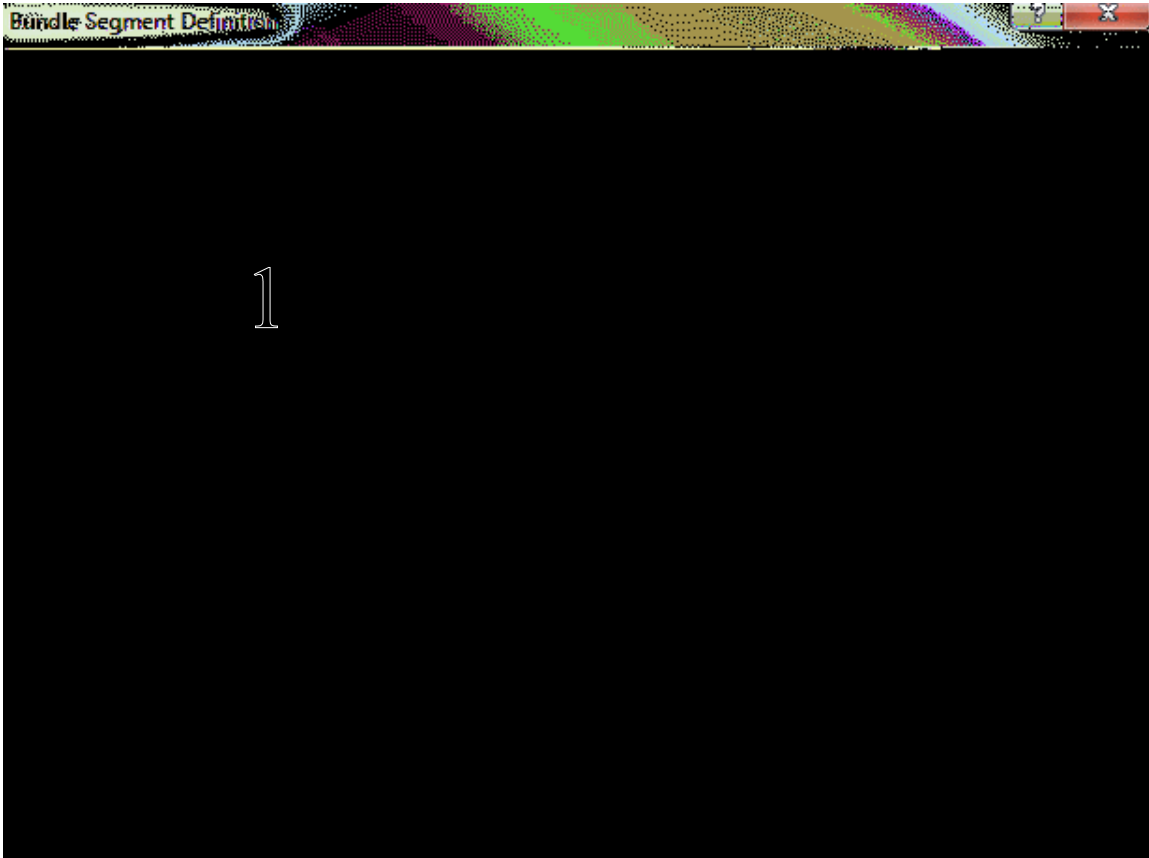


Select *OK* to the *Route Definition* window.

Bundle Segment Definition

Select *Bundle Segment Definition*.

Bundle Segment Definition



1 – Bundle Segment Definition

Name

Diameter

Color

Extremity Management

Start point

End point

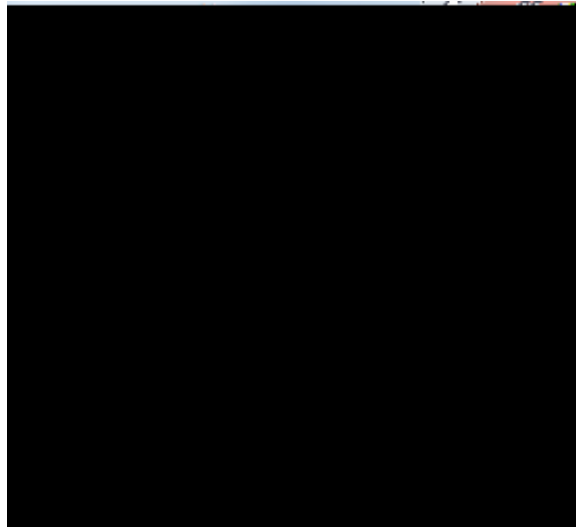
Visualization Management

Reframe on Selection



Add Branch Point

Create Branch Point



Support

Reference

Other Extremity

Distance to reference object

Length

Ratio

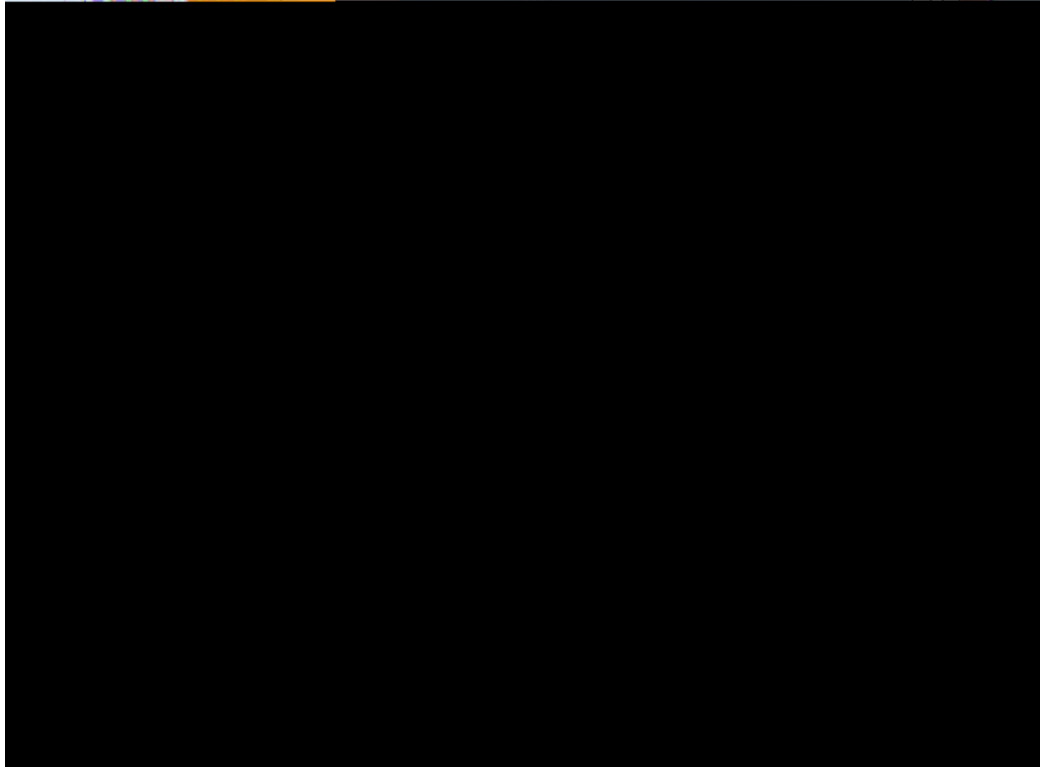
Invert Orientation



Remove Branch Point

Select the **Add a Branch Point** icon. 

Select *OK* when done.

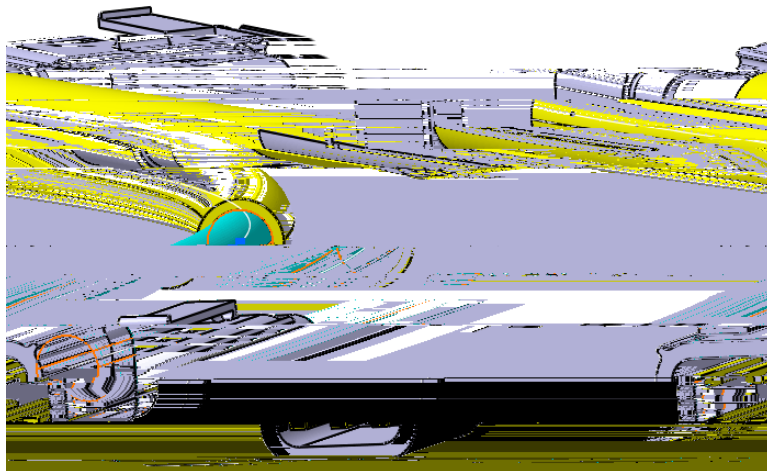


With the first bundle segment selected in the window, change the *Color* to yellow.

Extremity Management

Select bundle *No 2* and change the *Diameter* to 0.375in.

Apply

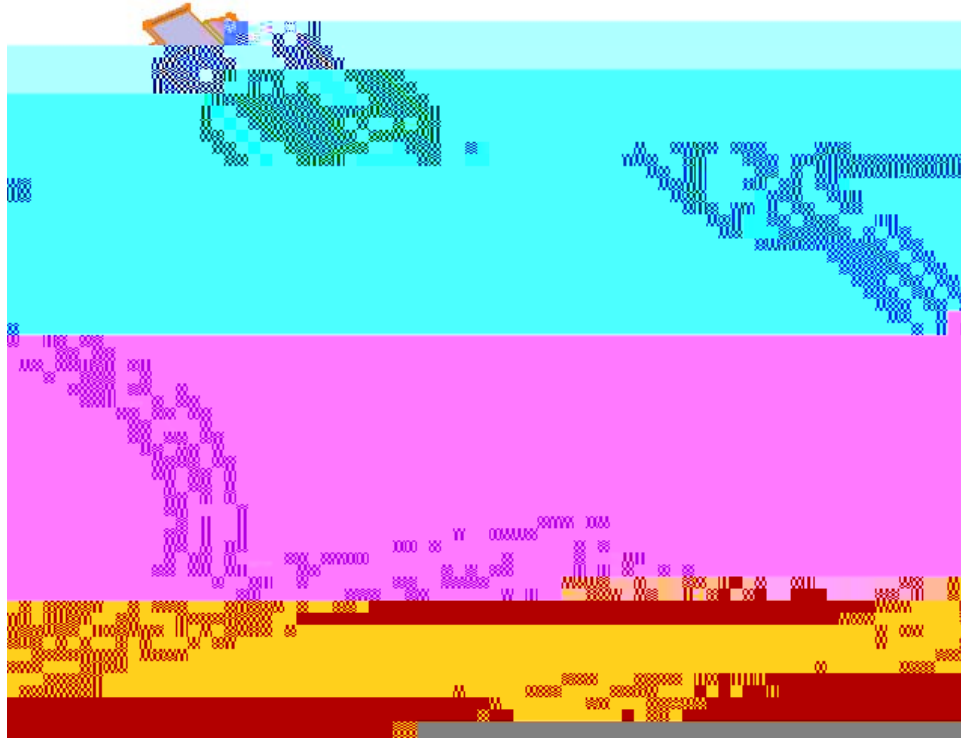


Select *OK* to the *Bundle Segment Definition* window.

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Select *OK* to the *Branch Definition* window.

Select the other 6 pin square plug.



Select *OK* to the *Route Definition* window and the *Branch Definition* window.

Exit the Electrical Harness Installation workbench, then save and close your document.

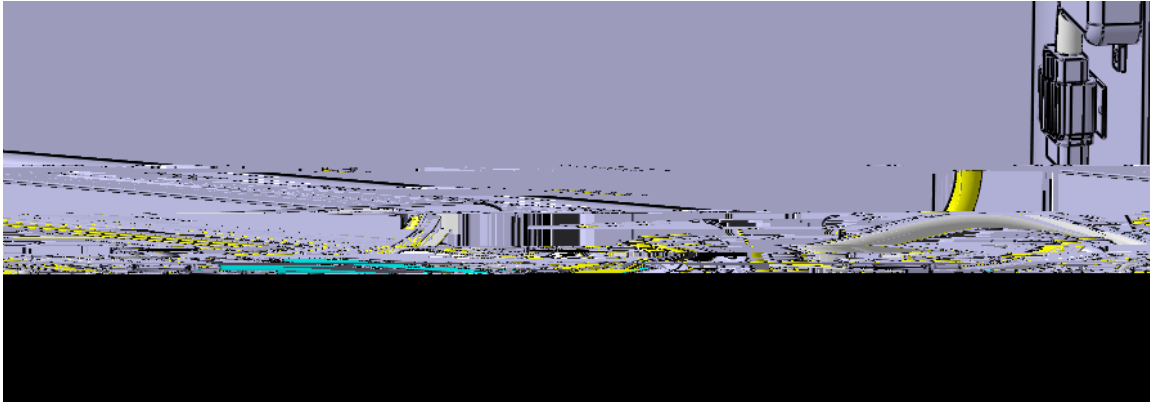
Open the **Connections** product in the *Multi-Branchable 1 Installation* directory.

With the right mouse button, select on the *Connections* product from the specification tree. Select *Components, Existing Component*. *File Selection*

Select the wire harness you just created.
Multi-Branchable 1 Installation

Multi-Branchable 1

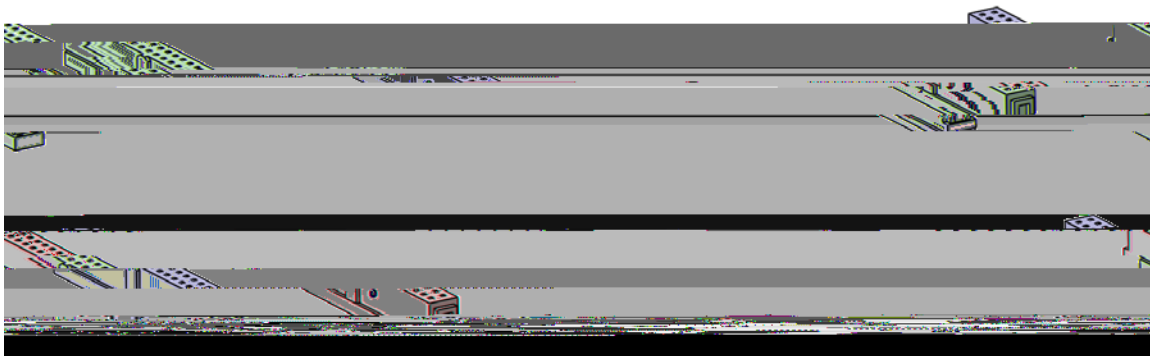
Connect the other connectors.



Save and close your document.

Bundle Profiles

Open the Flat Bundle product from the *Flat Bundle* directory.



Option

Tools,

:KHQ \RX DUH ILQLVKHG \RXU PRG WOX V K REX HOG R Z R RN VLPLOD

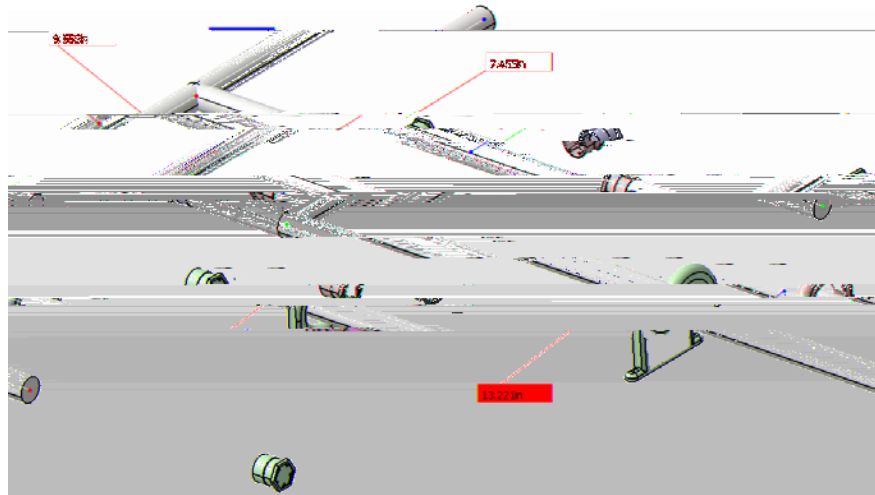
'RXEOH V H Flatting Parameters DQG V H Flatting Scaling WDE

8 QGH Apply factor to DUHD V Additional length Limited length R SWLRQ
7 KLV RSWLRQ FKDQJHV WKH VFDOH JUV RHWK RWU W HUF DWKDC V
VFDOHG VHJPHQW Additional length Limited length R SWLRQ LV FKHFNHG WKHQ
ZLOO WDNH WKH DPRXQW Limited length G HYV LG JPH Q W WLZRRDYHG DWK
EDFN Limited length)RU H[DPSOH)RU D LQ Limited length HQW ZLWK
WKH VHJPHQW LV WKUHH LQFKHV R Y Q B KMKHL O LPL W QG CHQJ S B
\LHOGV D ILQDO EXQGOH VHJPHQW R S W L R Q V X P I U D Q W Q H K H W K I
EXQGOH VHJPHQWV ZLOO QRW HQG P X S W K R U , W H W K W K D E C R R H L
H[DPSOH B Z L W S e g m e n t - w h o l e l e n g t h R S W L R Q D Q L Q H L Q F K V H J P H Q W E
LQFKHV DQG ZRXOG EH VKRUWHU W W K O I G D D Q L Q Q F R D C H I P H Q W V
WLPH 7 KLV P L J K W F D X V H Y L V X D O L J D W L R Q S U R E O H P V

&KDQJ Limited length WR LQ DQG VHOHFW

6 HOHFV D W W L R Q D Q G m e t r i c a l f u n c t i o n 3.1 I U R P W K H V S H F L I L F D W L R Q V
7 KLV ZLOO VSHFLI\ WKDW WKH HQWLUH EXQGOH VKRXO

Select **OK**.

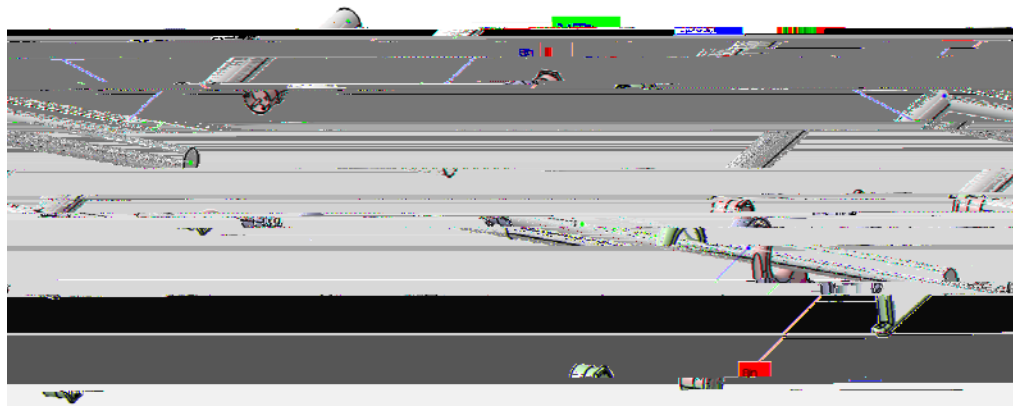


Double select the *Flattening Parameters* again and select the *Flattening Scaling* tab.

Select the *If the bundle segment length is greater than* option.

Enter a value of 8.0in and select **OK**.

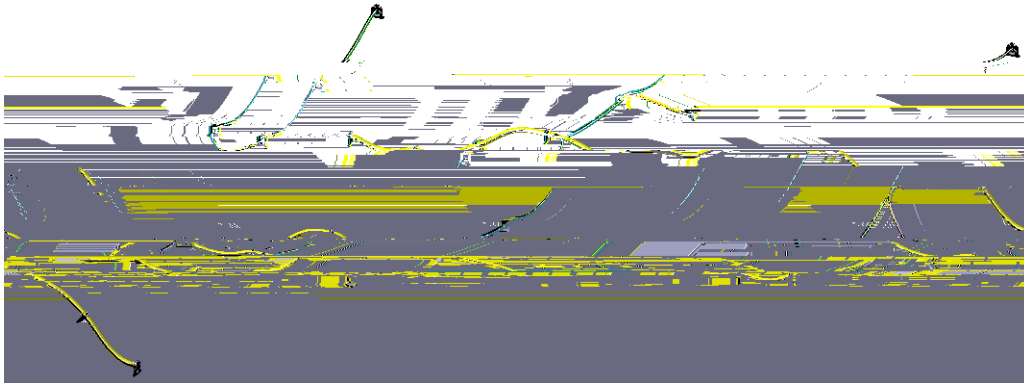
Select the **Flatten** icon and select the geometrical bundle from the specification tree and select **OK**. 



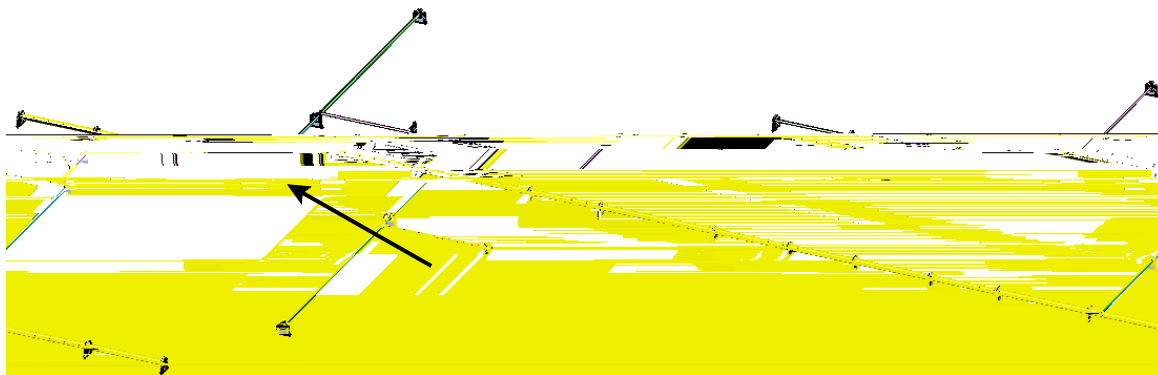
Save and close your document.

Roll - Rotate - Scale

Open the **Roll - Rotate - Scale** document from the *Roll - Rotate - Scale* directory.



Flatten the geometrical bundle.

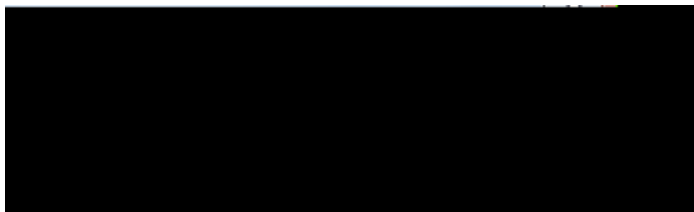


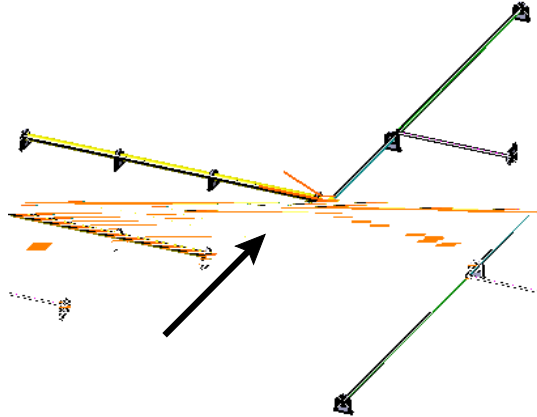
Select the **Arrange Junction - Umbrella-Like** icon.



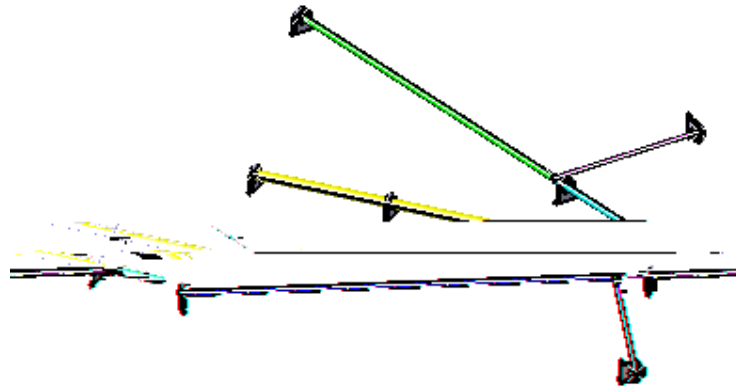
Select the junction as shown above.

Arrange Junction





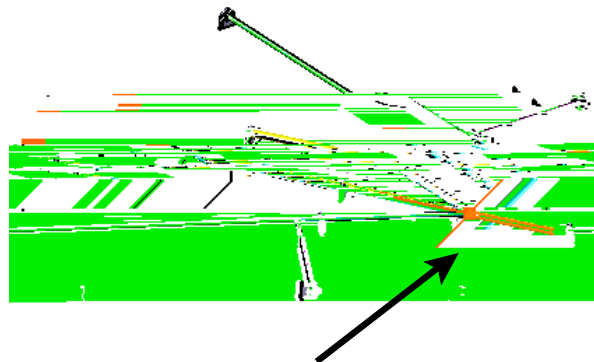
Change the value to 30deg and select *OK*.



Select the **Arrange Junction - Equal Angle** icon. Arrange Junction - Umbrella-Like

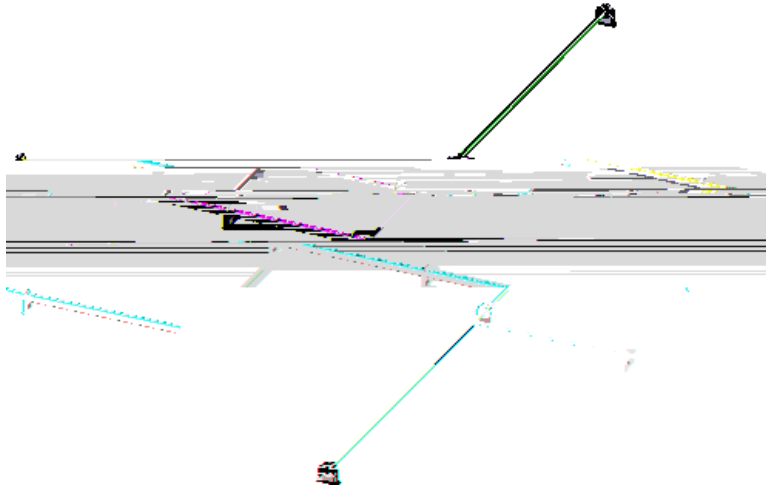


Select the geometric bundle in the same location selected previously.



Select in space.

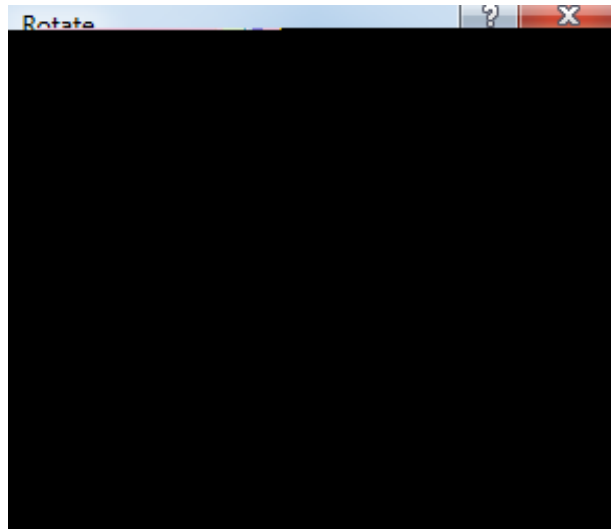
OK



Select the Rotate icon.



Rotate



Through an angle

Along direction

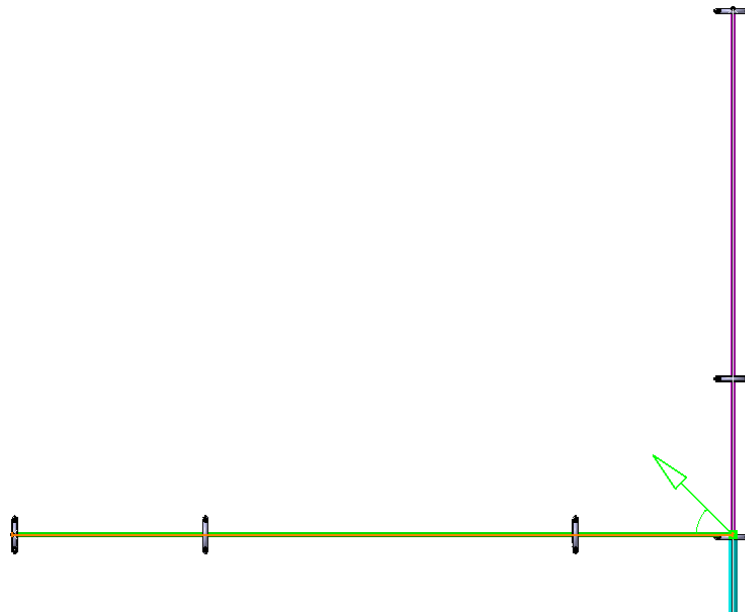
Angle

User value

Measured between

First/Second direction

Select the *Through an angle* option and enter a value of -45deg.



Select *OK*.

Select the **Rotate** icon and select the branch as shown.

