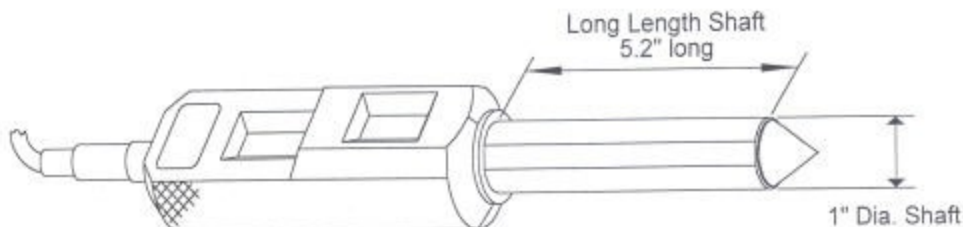
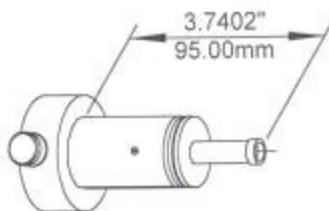


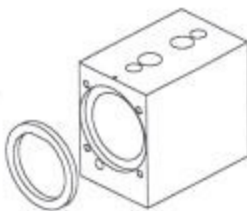
# Instructions and Guidelines for:



TP101/TP102



TP111-95

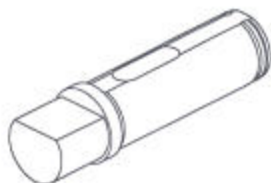


PB204-1.25(Shown),  
PB206-.5 or PB206-1.00

To install Probe Blocks, the following Tooling Aids are needed.



TA1.00-95



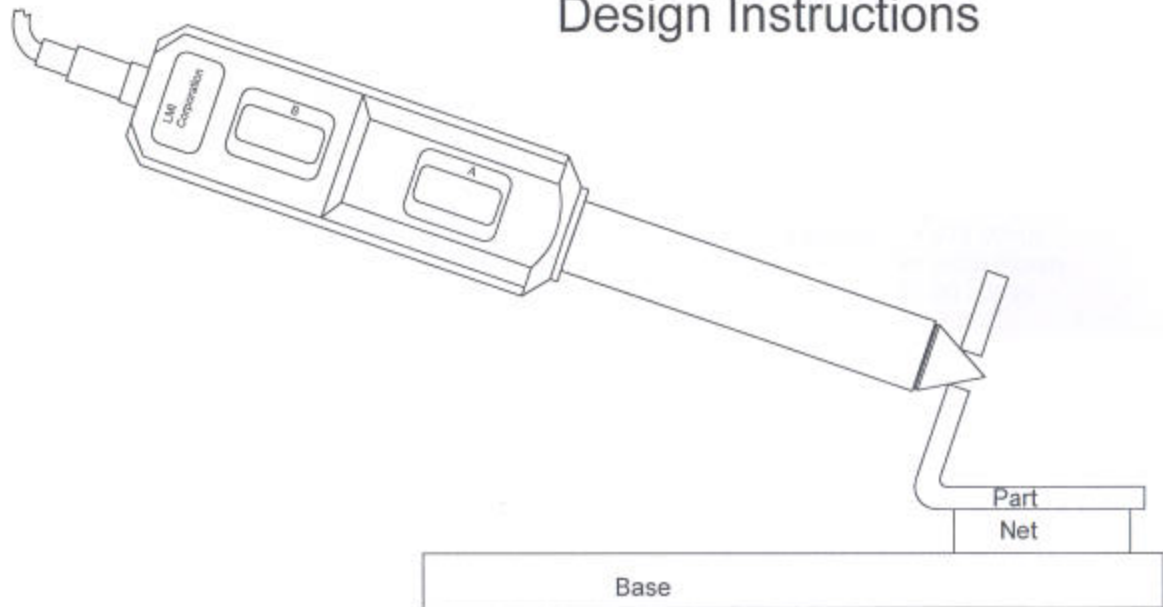
TA1.00

To facilitate the design process, CAD data is available for all of the Probes, Probe Blocks and Tooling Aids in the following formats.

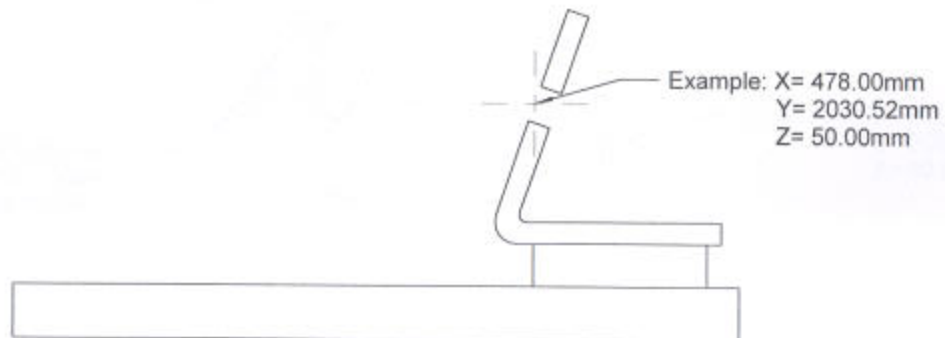
Three dimensional wire frame data, in IGES format.

Three dimensional solid Unigraphic files.

## Design Instructions

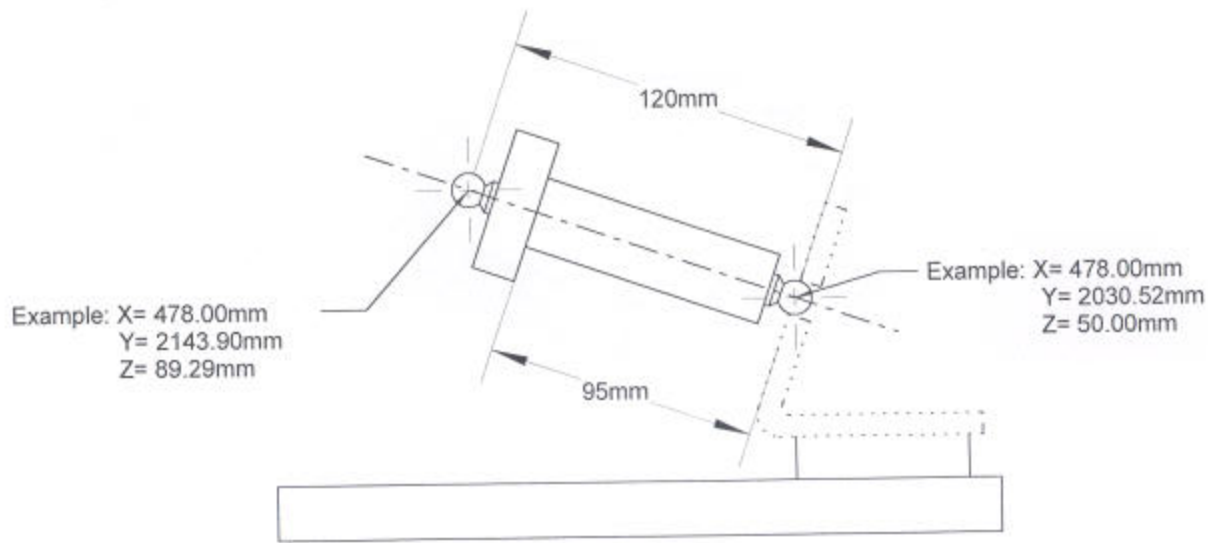


Check for interference problems by adding to the fixture design the TruPosition Probe being used. The TruPosition Probe should be aligned so that the C/L of its shaft is perpendicular to the surface of the part, around the hole being checked.



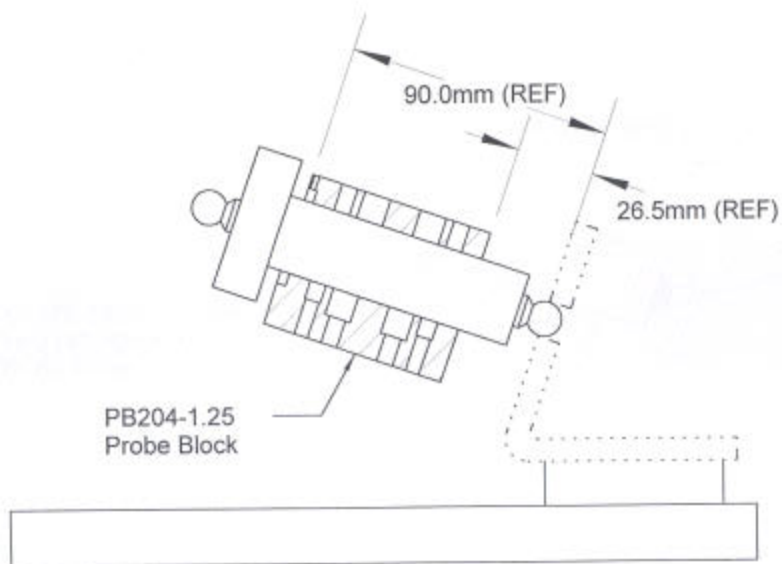
Determine what the X, Y, and Z coordinates are, at the center of the hole, and on the surface plane that is the side of the part from which the TruPosition Probe will be checking from.

The X, Y, Z coordinate can be relative to car body or fixture.

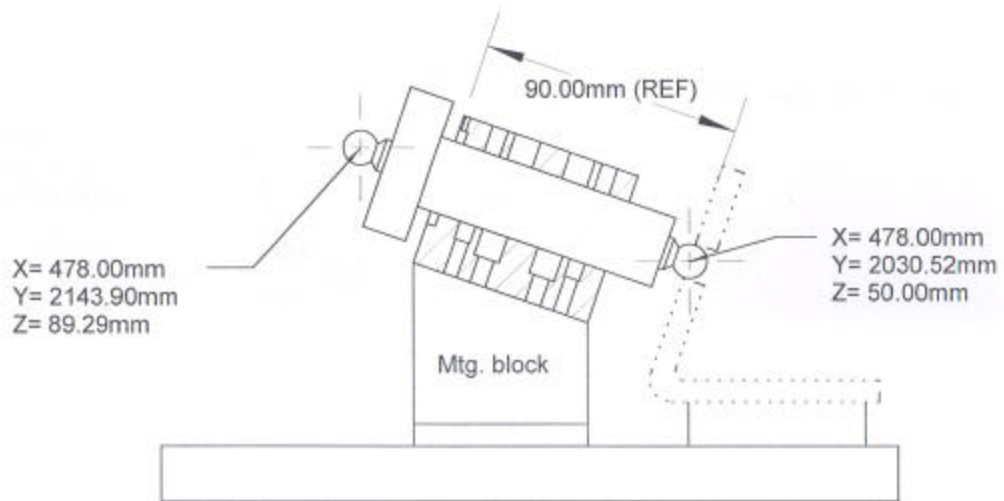


Add to the design a TA1.00-95mm Tooling Aid.

On one end of the tooling aid, place the center of the tooling ball at the same X, Y, and Z coordinates as the center of the hole on the part. From that point, project a 120mm long line perpendicular to the part. Align the tooling aid so that the center of the other tooling ball is on the end of the 120mm line. Calculate the X, Y and Z coordinates of the second tooling ball.

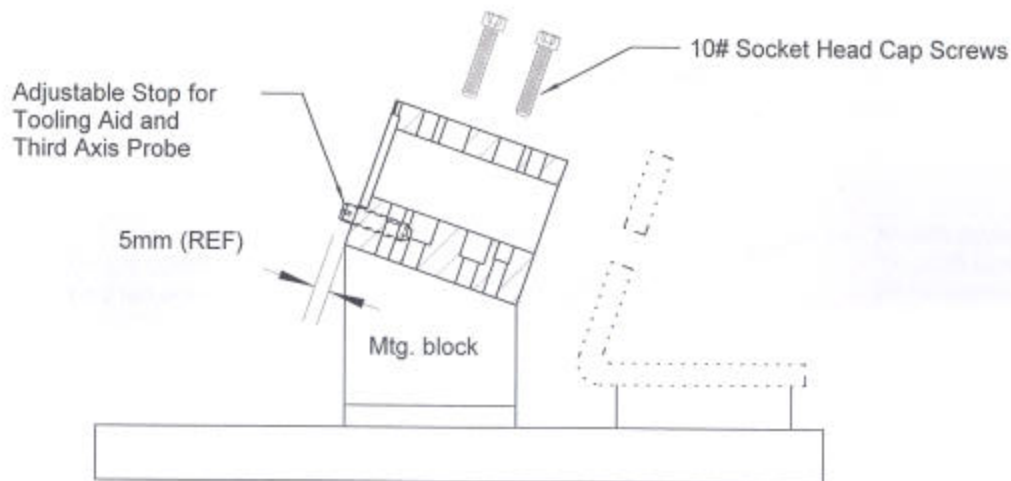


Add to the design a PB204-1.25, PB206-.5 or PB206-1.00 Probe Block. Align the C/L of the 1" dia. hole, along the C/L of the tooling aid. Use the above reference dimensions, in placing the probe block in relationship to the part.



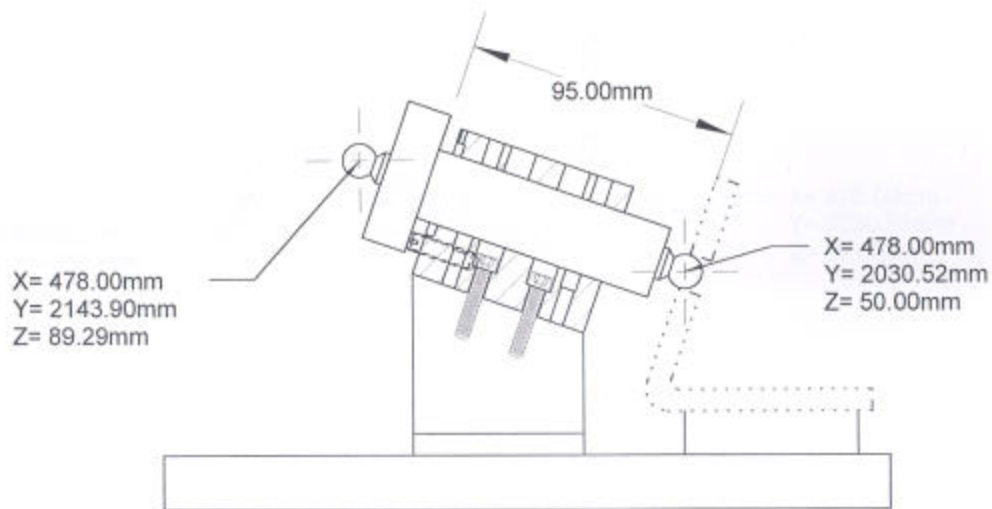
Design, and add to the fixture design a mounting block, that the Probe Block is bolted to. The final cross section design should show the X,Y and Z coordinates on both ends of the tooling aid and the reference dim. for Probe Block placement. (See above example.)

# Installation Instructions

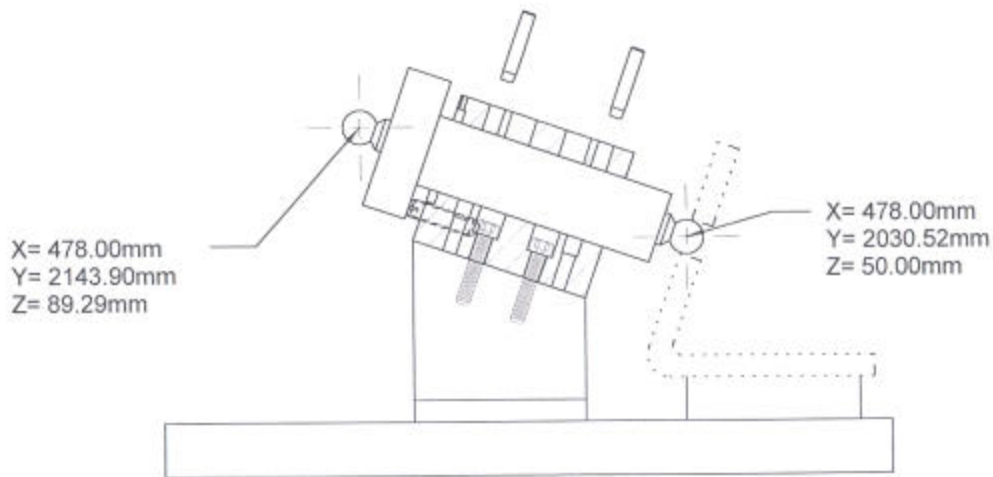


After the Mtg. Block is attached to the fixture base, attach the Probe Block to it, using Socket Head Cap Screws, lightly tightened. Also screw in the Adjustable Stop to the above REF Dimension.

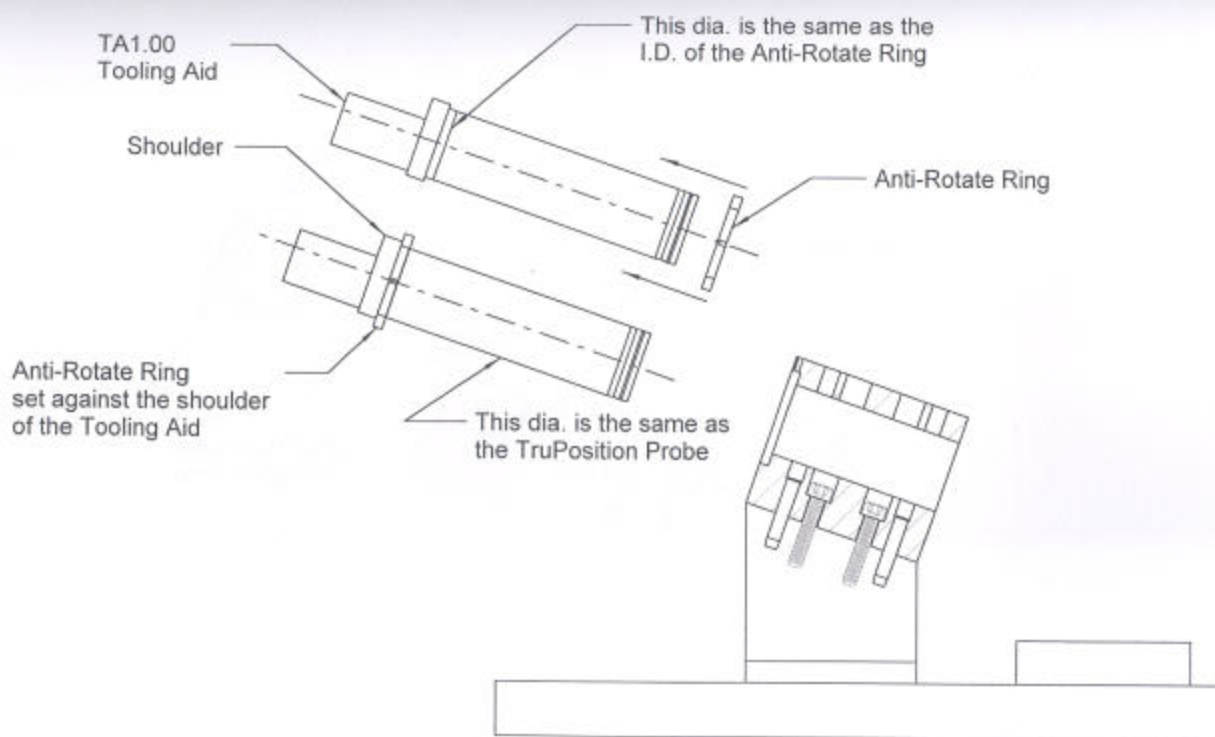




Using a CMM or other means, precisely locate the Probe Block, and adjust the adjustable stop, so that the X, Y, and Z coordinates on the tooling aid are the same as the cross section drawing. Tighten the screws and lock the adjustable stop, by tightening the set screw on the side of the Probe Block, that intersects the adjustable stop.

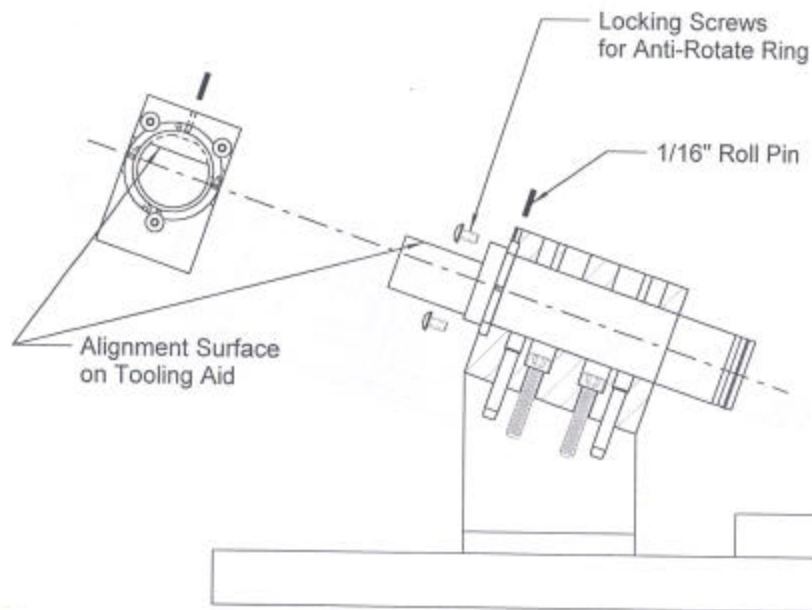


Transfer drill and ream holes for dowels. Install dowels, and recertify Probe Block location by using the tooling aid, and checking the X, Y, and Z coordinates.  
NOTE: Care must be used in installing screws and dowels. If the edges of the screw and dowel holes are hit and deformed, they may cause the TruPosition Probe to have excessive drag, or bind in the Probe Block.



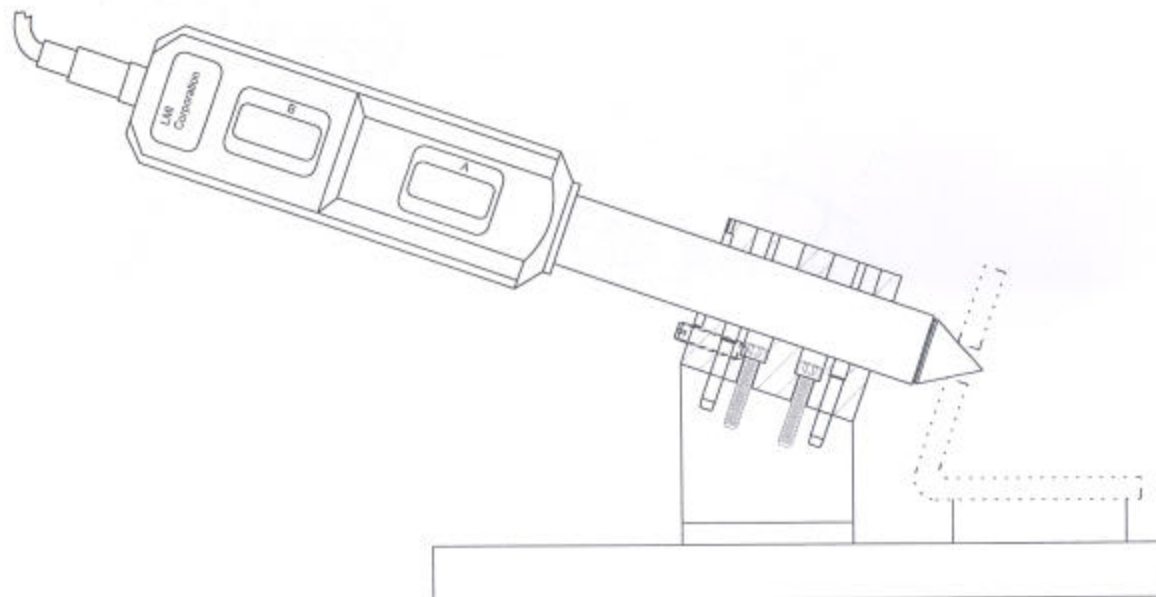
Use the TA1.00 Tooling Aid to install the Anti-Rotate Ring in the Probe Block. The Tooling Aid insures the concentricity of the Anti-Rotate Ring to the Probe Block.

**NOTE:** It is NOT advised to use a TruPosition Probe to set the concentricity, it does not have the .002" stepped dia. that the Tooling Aid has. If a TruPosition Probe is used as a Tooling Aid, it is likely the end result will be increased drag on the Probe, when inserted in the Probe Block. The increased drag will make it difficult for the operator to tell when the Probe Tip is engaged with the Part.

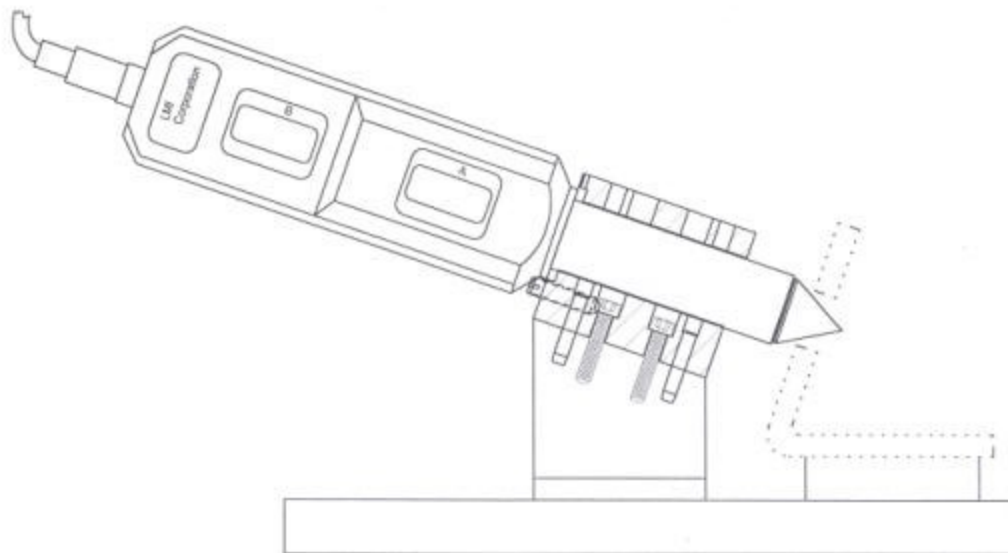


The TA1.00 is also used to set the Anti-Rotate Ring, for correct axial alignment of the TruPosition Probe. The Tooling Aid, with the Anti-Rotate Ring set against the shoulder, is inserted into the Probe Block. The Tooling Aid is then rotated to the needed axial alignment, using the alignment surface on the Tooling Aid as a guide. The Lock Screws are then tightened, and the Tooling Aid is removed.

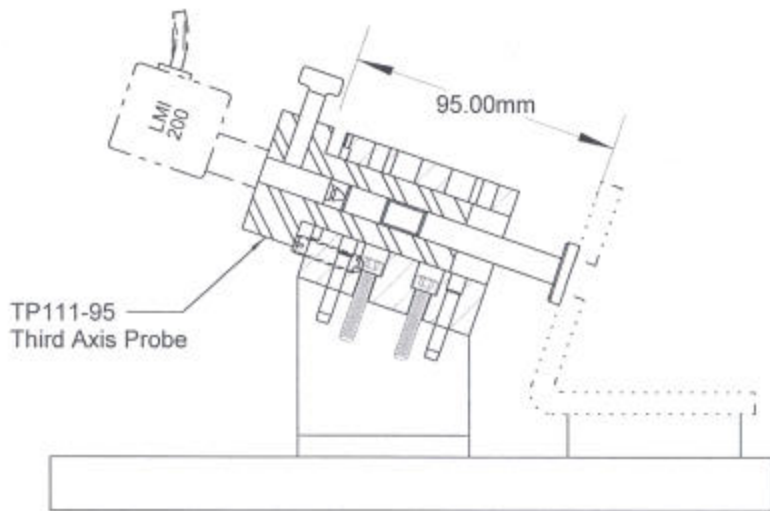
**NOTE:** If the axial alignment of the Anti-Rotate Ring is parallel or perpendicular to the bottom of the Probe Block, there are notches in the ring that simplify setting the ring for axial alignment. A 1/16" dia. roll pin can be installed in the Probe Block, to engage the notches in the ring, for axial alignment. **WARNING:** The TA1.00 is still needed, to set the concentricity of the ring to the Probe Block.



Example: Finished Assembly with a  
TP101/102 Long Shaft TruPosition Probe

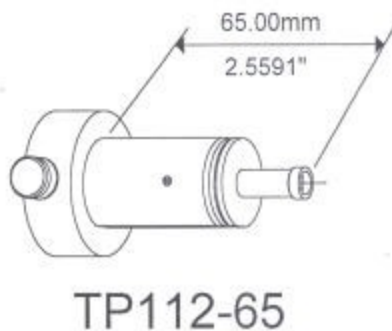
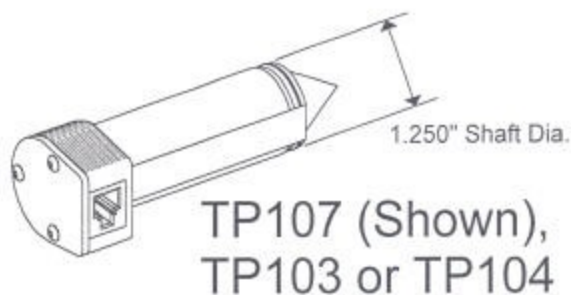


Example: Finished Assembly with a  
TP101/102 TruPosition Probe



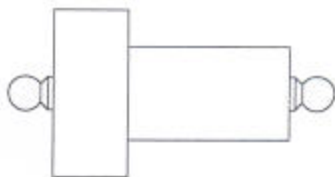
Example: Finished Assembly with a  
TP111-95 Third Axis Probe

# Instructions and Guidelines for:





To install Probe Blocks, the following Tooling Aids are needed.



TA1.25-65



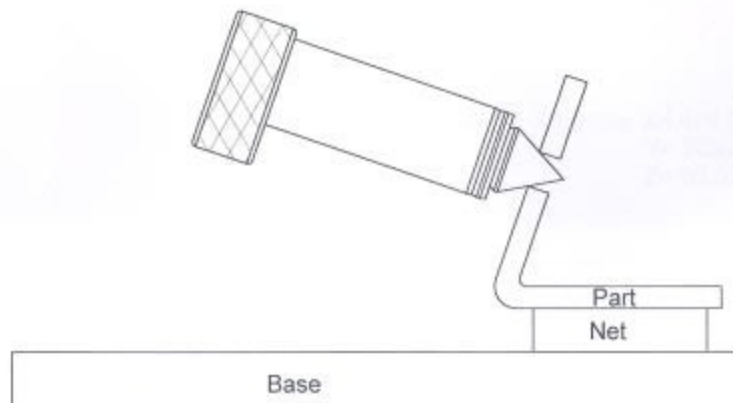
TA1.25

To facilitate the design process, CAD data is available for all of the Probes, Probe Blocks and Tooling Aids in the following formats.

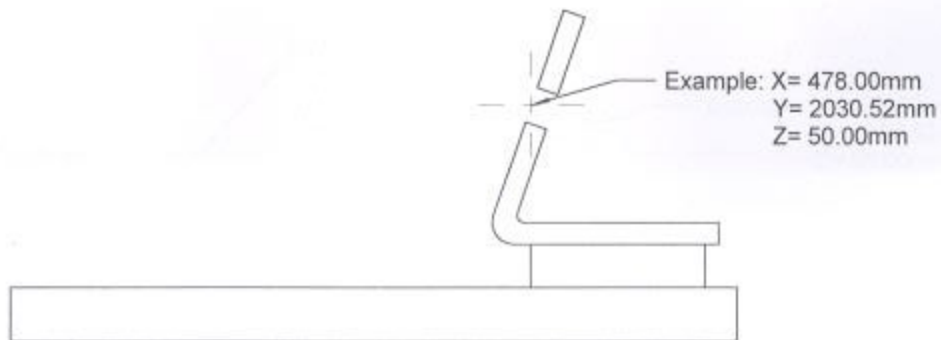
Three dimensional wire frame data, in IGES format.

Three dimensional solid Unigraphic files.

## Design Instructions

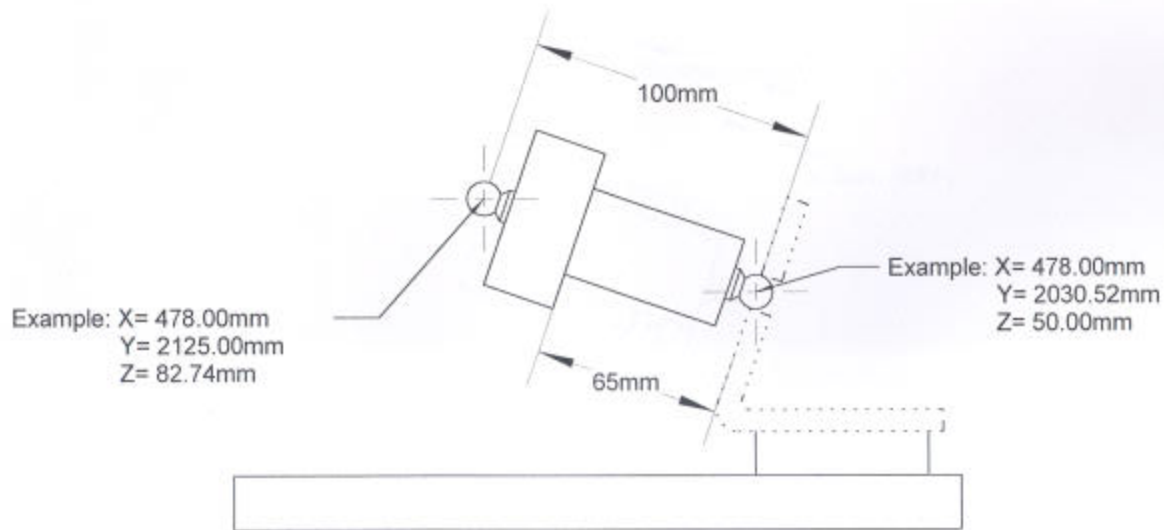


Check for interference problems by adding to the fixture design the TruPosition Probe being used. The TruPosition Probe should be aligned so that the C/L of its shaft is perpendicular to the surface of the part, around the hole being checked.



Determine what the X, Y, and Z coordinates are, at the center of the hole, and on the surface plane that is the side of the part from which the TruPosition Probe will be checking from.

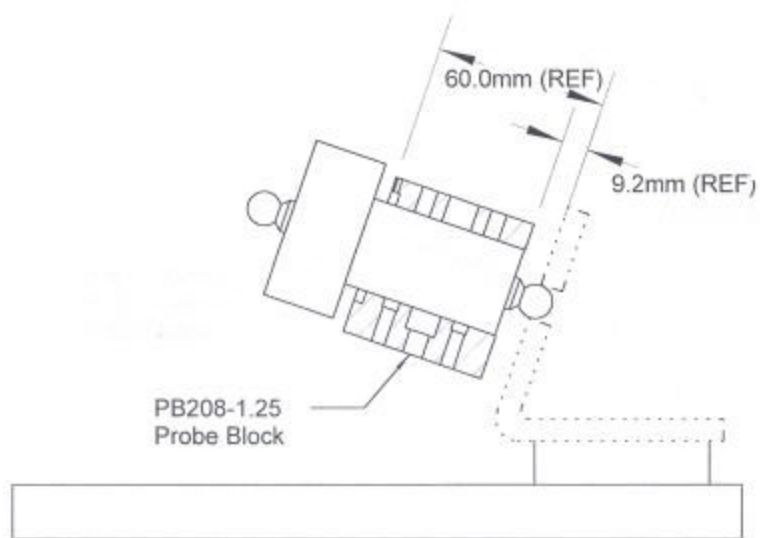
The X, Y, Z coordinate can be relative to car body or fixture.



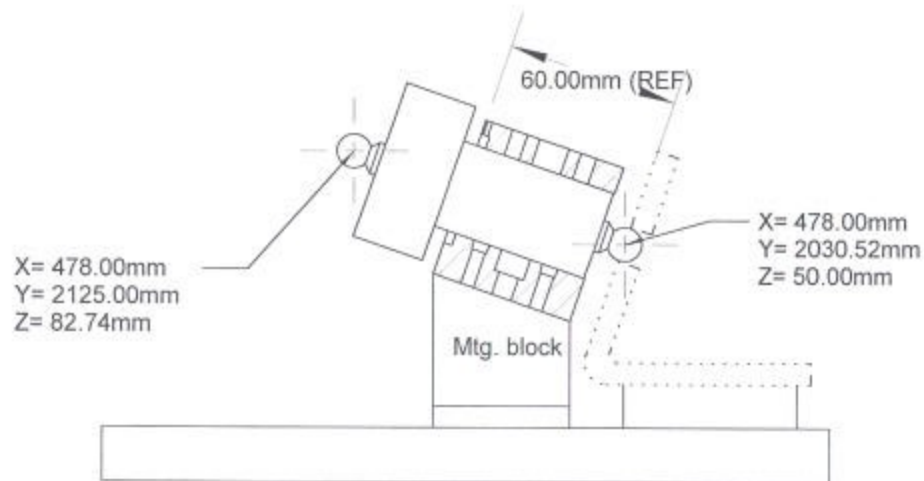
Add to the design a TA1.25-65mm Tooling Aid.

On one end of the tooling aid, place the center of the tooling ball at the same X, Y, and Z coordinates as the center of the hole on the part. From that point, project a 100mm long line perpendicular to the part. Align the tooling aid so that the center of the other tooling ball is on the end of the 100mm line.

Calculate the X, Y and Z coordinates of the second tooling ball.

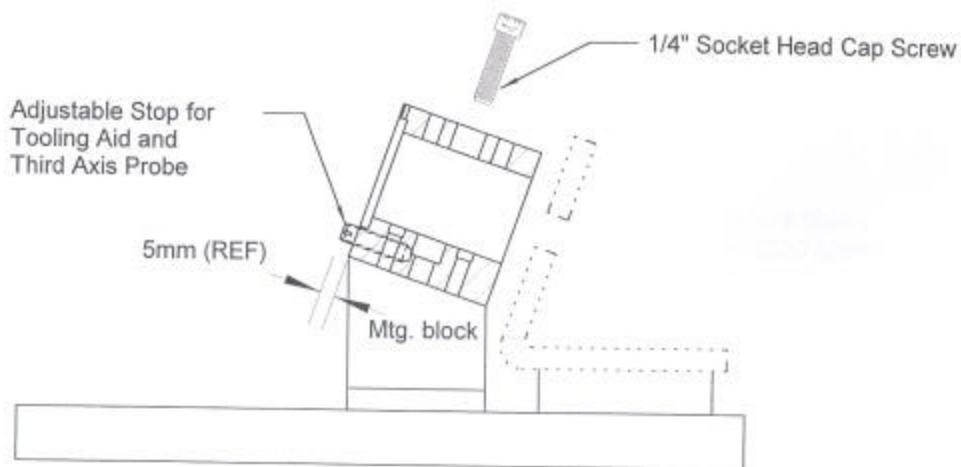


Add to the design a PB208-1.25 Probe Block. Align the C/L of the 1 1/4" dia. hole, along the C/L of the tooling aid. Use the above reference dimensions, in placing the probe block in relationship to the part.

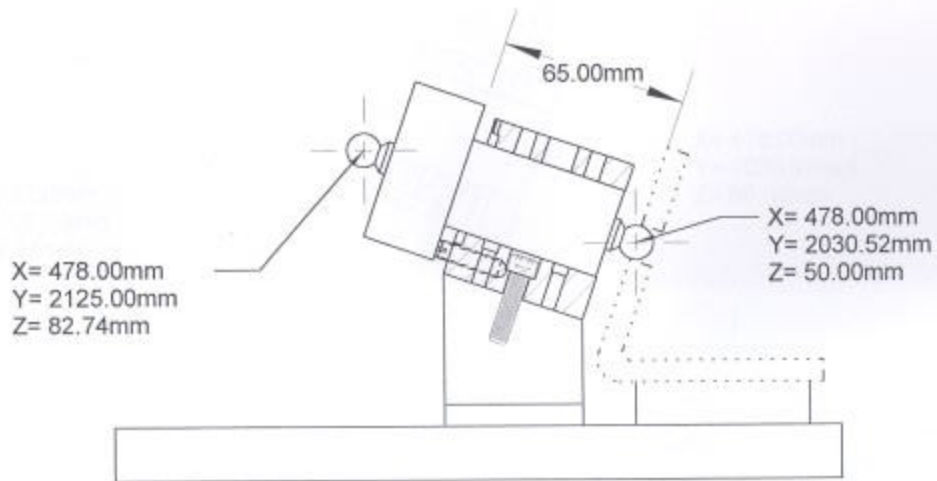


Design, and add to the fixture design a mounting block, that the Probe Block is bolted to. The final cross section design should show the X, Y and Z coordinates on both ends of the tooling aid and the reference dim. for Probe Block placement. (See above example.)

# Installation Instructions

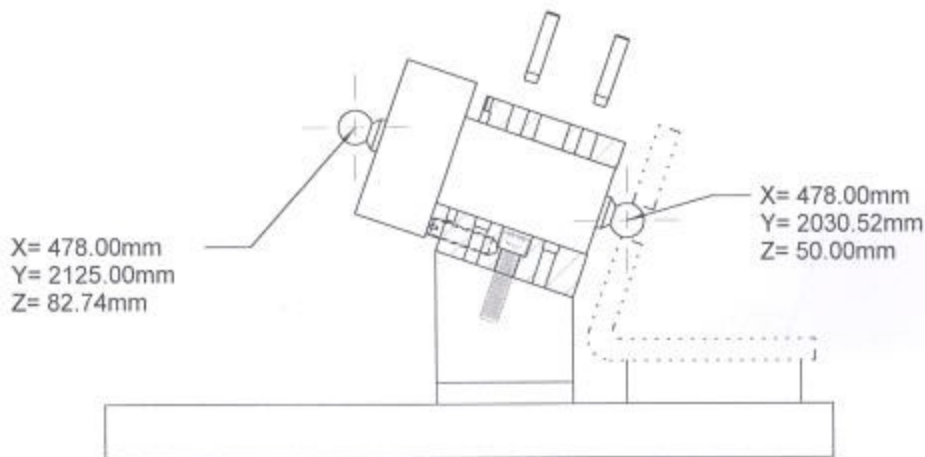


After the Mtg. Block is attached to the fixture base, attach the Probe Block to it, using Socket Head Cap Screw, lightly tightened. Also screw in the Adjustable Stop to the above REF Dimension.

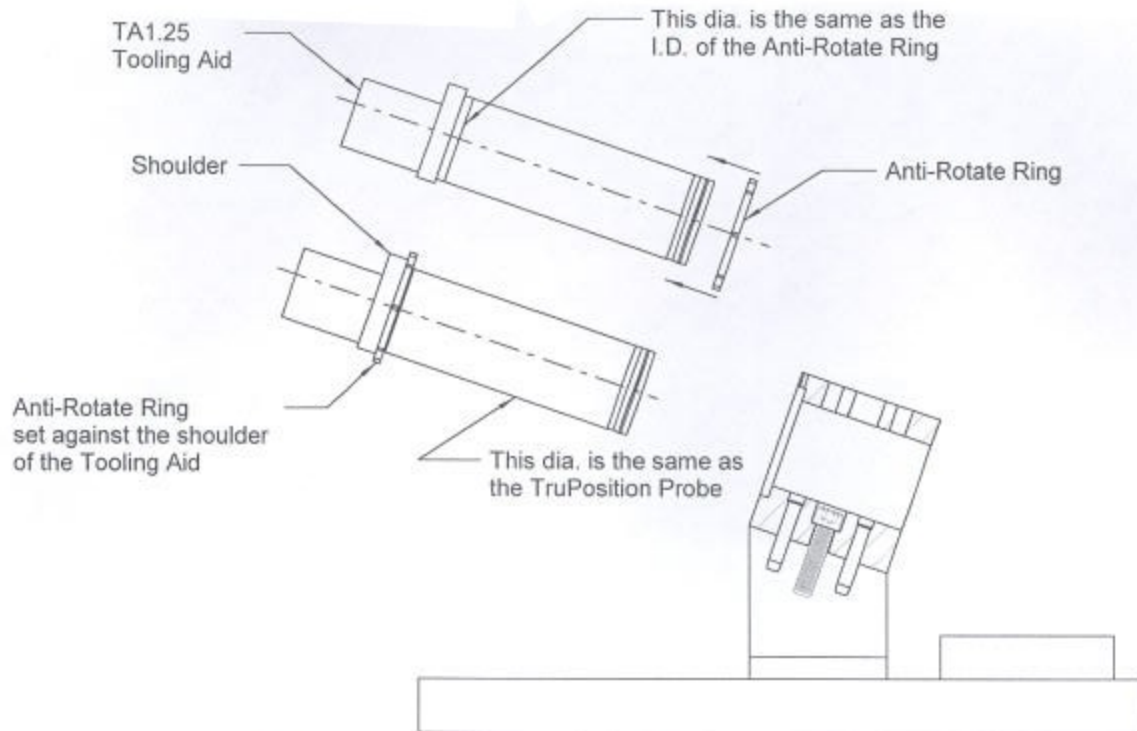


Using a CMM or other means, precisely locate the Probe Block, and adjust the adjustable stop, so that the X, Y, and Z coordinates on the tooling aid are the same as the cross section drawing. Tighten the screws and lock the adjustable stop, by tightening the set screw on the side of the Probe Block, that intersects the adjustable stop.



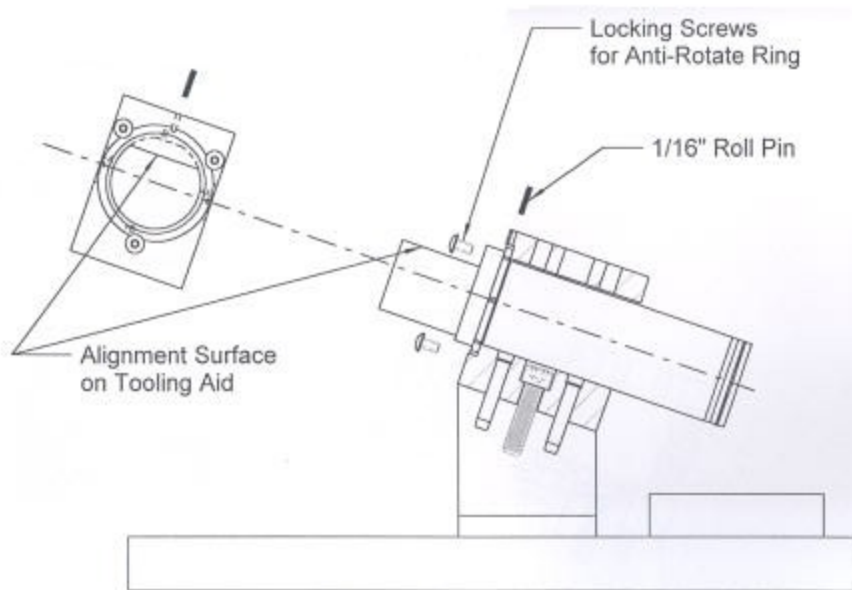


Transfer drill and ream holes for dowels. Install dowels, and recertify Probe Block location by using the tooling aid, and checking the X, Y, and Z coordinates.  
NOTE: Care must be used in installing screws and dowels. If the edges of the screw and dowel holes are hit and deformed, they may cause the TruPosition Probe to have excessive drag, or bind in the Probe Block.



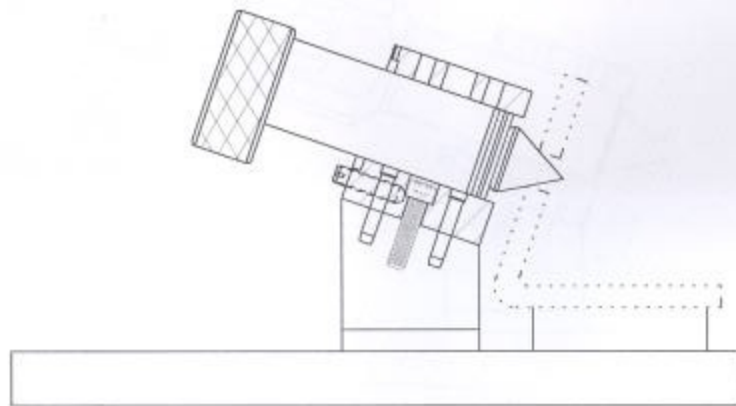
Use the TA1.25 Tooling Aid to install the Anti-Rotate Ring in the Probe Block. The Tooling Aid insures the concentricity of the Anti-Rotate Ring to the Probe Block.

**NOTE:** It is NOT advised to use a TruPosition Probe to set the concentricity, it does not have the .002" stepped dia. that the Tooling Aid has. If a TruPosition Probe is used as a Tooling Aid, it is likely the end result will be increased drag on the Probe, when inserted in the Probe Block. The increased drag will make it difficult for the operator to tell when the Probe Tip is engaged with the Part.

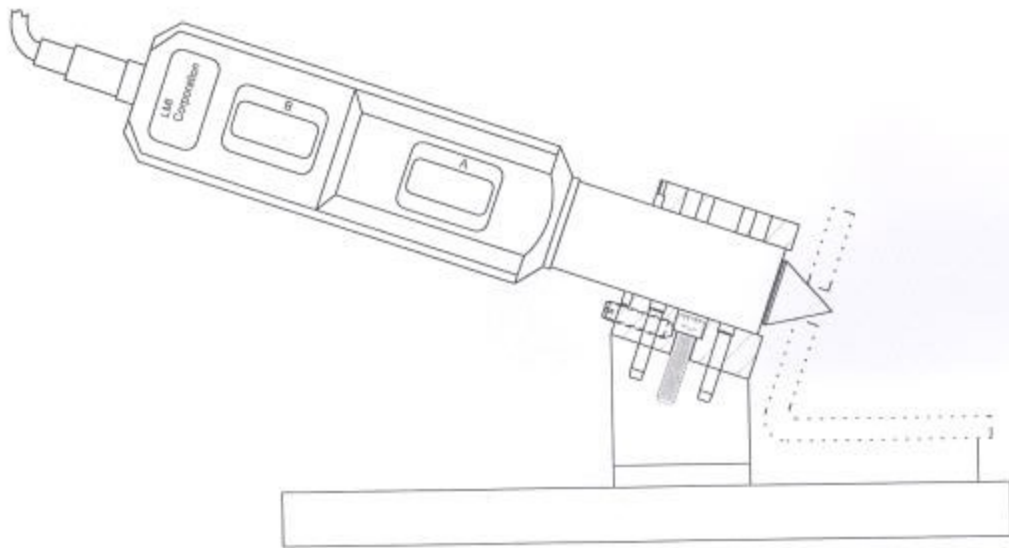


The TA1.25 is also used to set the Anti-Rotate Ring, for correct axial alignment of the TruPosition Probe. The Tooling Aid, with the Anti-Rotate Ring set against the shoulder, is inserted into the Probe Block. The Tooling Aid is then rotated to the needed axial alignment, using the alignment surface on the Tooling Aid as a guide. The Lock Screws are then tightened, and the Tooling Aid is removed.

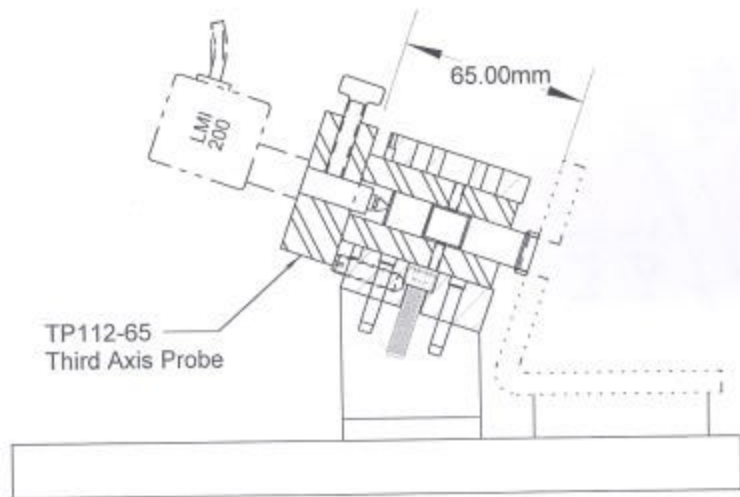
**NOTE:** If the axial alignment of the Anti-Rotate Ring is parallel or perpendicular to the bottom of the Probe Block, there are notches in the ring that simplify setting the ring for axial alignment. A 1/16" dia. roll pin can be installed in the Probe Block, to engage the notches in the ring, for axial alignment. **WARNING:** The TA1.25 is still needed, to set the concentricity of the ring to the Probe Block.



Example: Finished Assembly with a  
TP107 TruPosition Probe

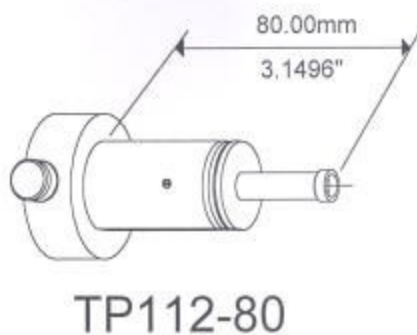
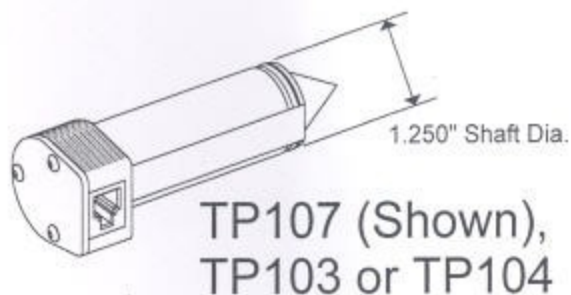


Example: Finished Assembly with a  
TP103/104 TruPosition Probe



Example: Finished Assembly with a  
TP112-65 Third Axis Probe

# Instructions and Guidelines for:



To install Probe Blocks, the following Tooling Aids are needed.



TA1.25-80



TA1.25

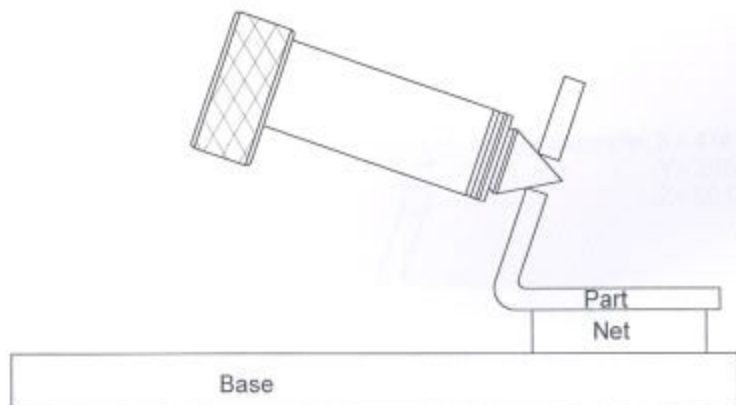
To facilitate the design process, Cad data is available for all of the Probes, Probe Blocks and Tooling Aids in the following formats.

Three dimensional wire frame data, in IGES format.

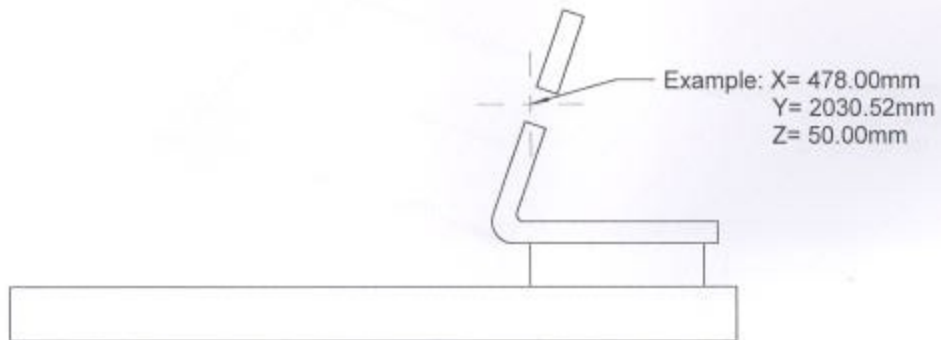
Three dimensional solid Unigraphic files.



## Design Instructions

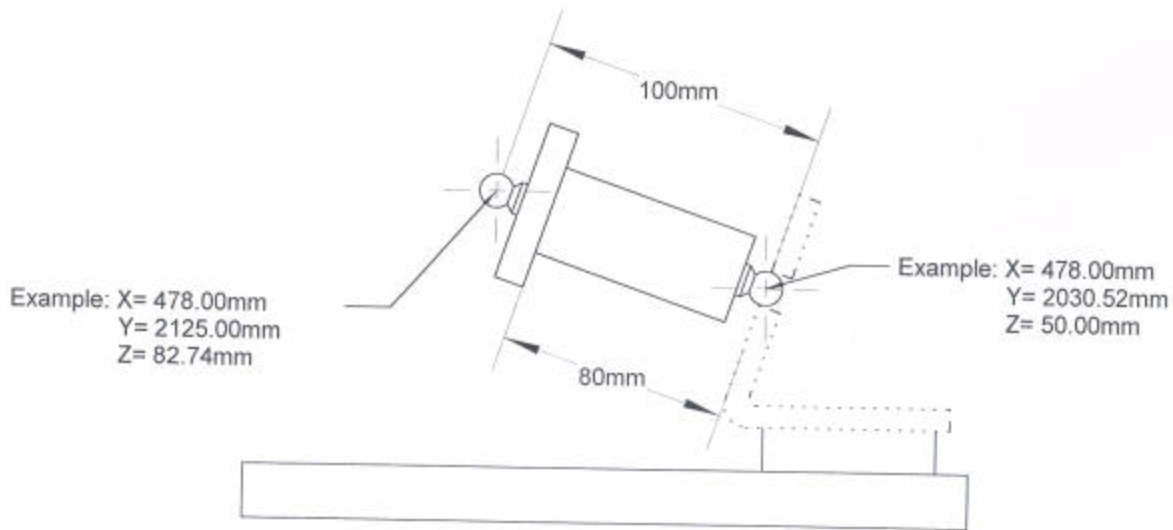


Check for interference problems by adding to the fixture design the TruPosition Probe being used. The TruPosition Probe should be aligned so that the C/L of its shaft is perpendicular to the surface of the part, around the hole being checked.



Determine what the X, Y, and Z coordinates are, at the center of the hole, and on the surface plane that is the side of the part from which the TruPosition Probe will be checking from.

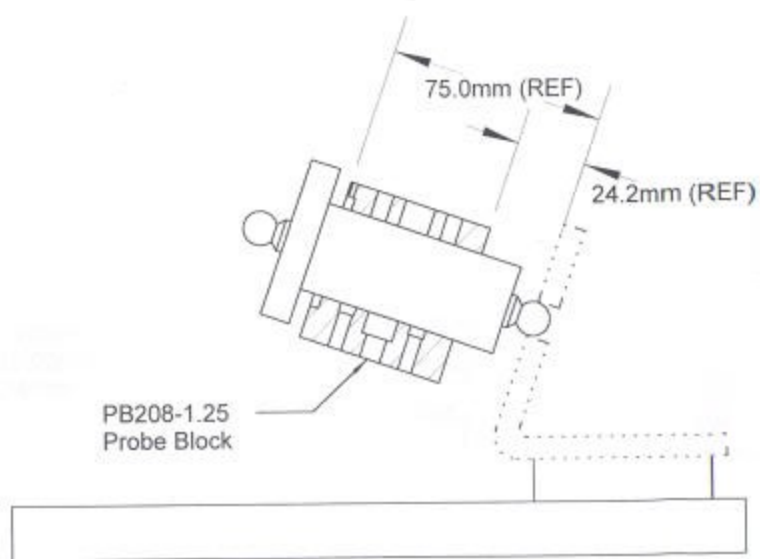
The X, Y, Z coordinate can be relative to car body or fixture.



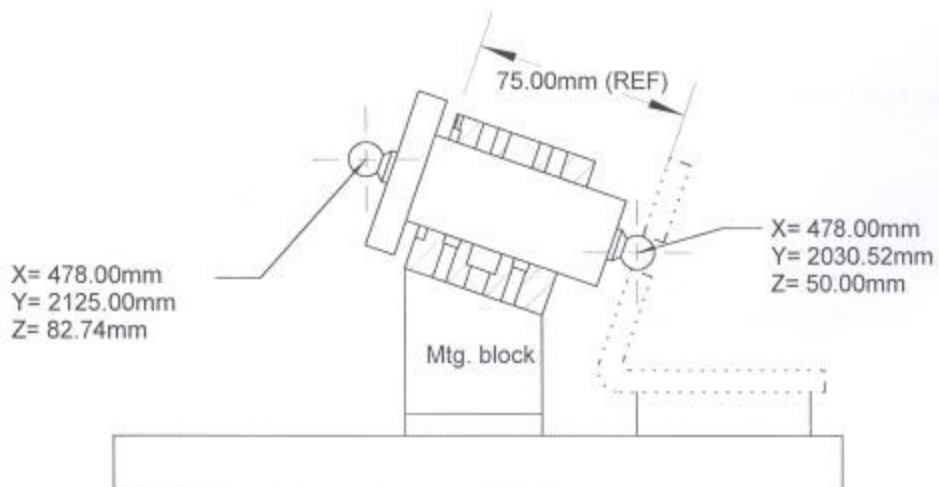
Add to the design a TA1.25-80mm Tooling Aid.

On one end of the tooling aid, place the center of the tooling ball at the same X, Y, and Z coordinates as the center of the hole on the part. From that point, project a 100mm long line perpendicular to the part. Align the tooling aid so that the center of the other tooling ball is on the end of the 100mm line.

Calculate the X, Y and Z coordinates of the second tooling ball.

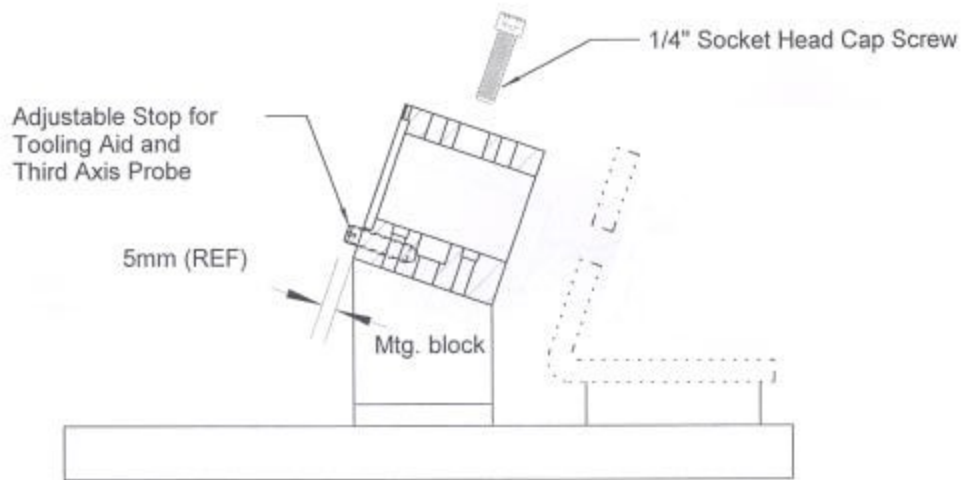


Add to the design a PB208-1.25 Probe Block. Align the C/L of the 1 1/4" dia. hole, along the C/L of the tooling aid. Use the above reference dimensions, in placing the probe block in relationship to the part.



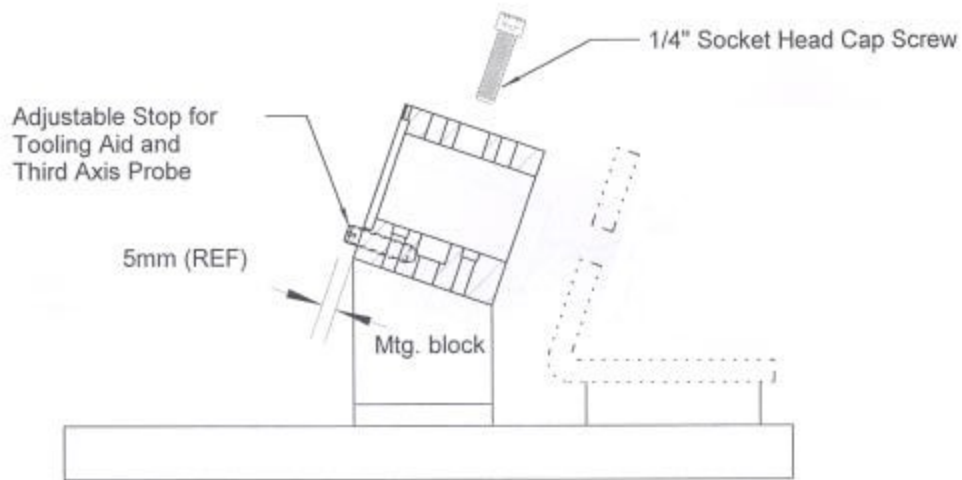
Design, and add to the fixture design a mounting block, that the Probe Block is bolted to. The final cross section design should show the X,Y and Z coordinates on both ends of the tooling aid and the reference dim. for Probe Block placement. (See above example.)

## Installation Instructions

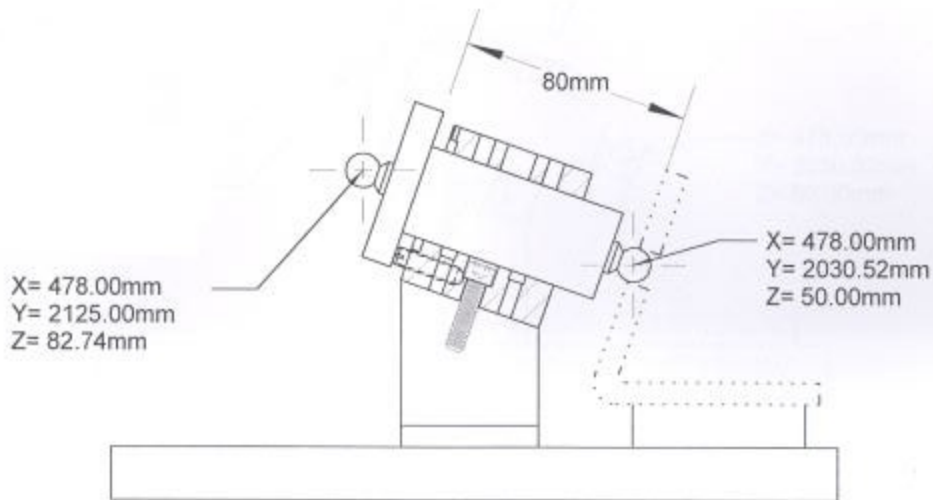


After the Mtg. Block is attached to the fixture base, attach the Probe Block to it, using Socket Head Cap Screw, lightly tightened. Also screw in the Adjustable Stop to the above REF Dimension.

## Installation Instructions

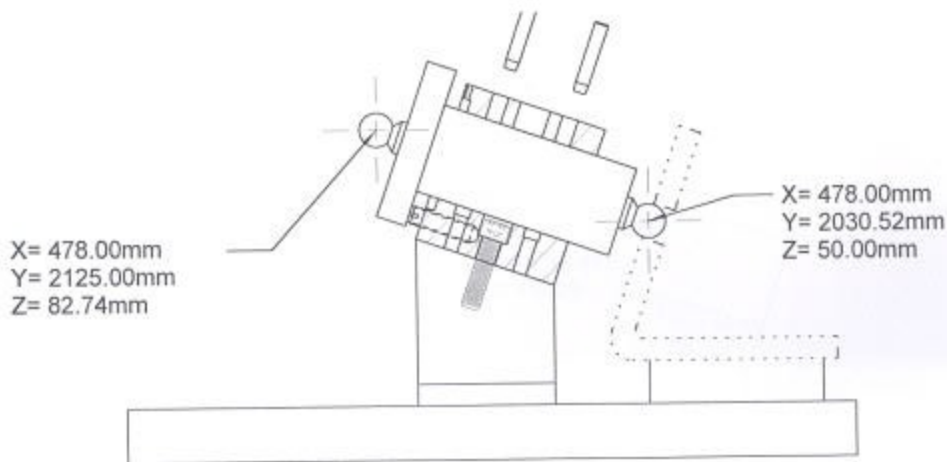


After the Mtg. Block is attached to the fixture base, attach the Probe Block to it, using Socket Head Cap Screw, lightly tightened. Also screw in the Adjustable Stop to the above REF Dimension.



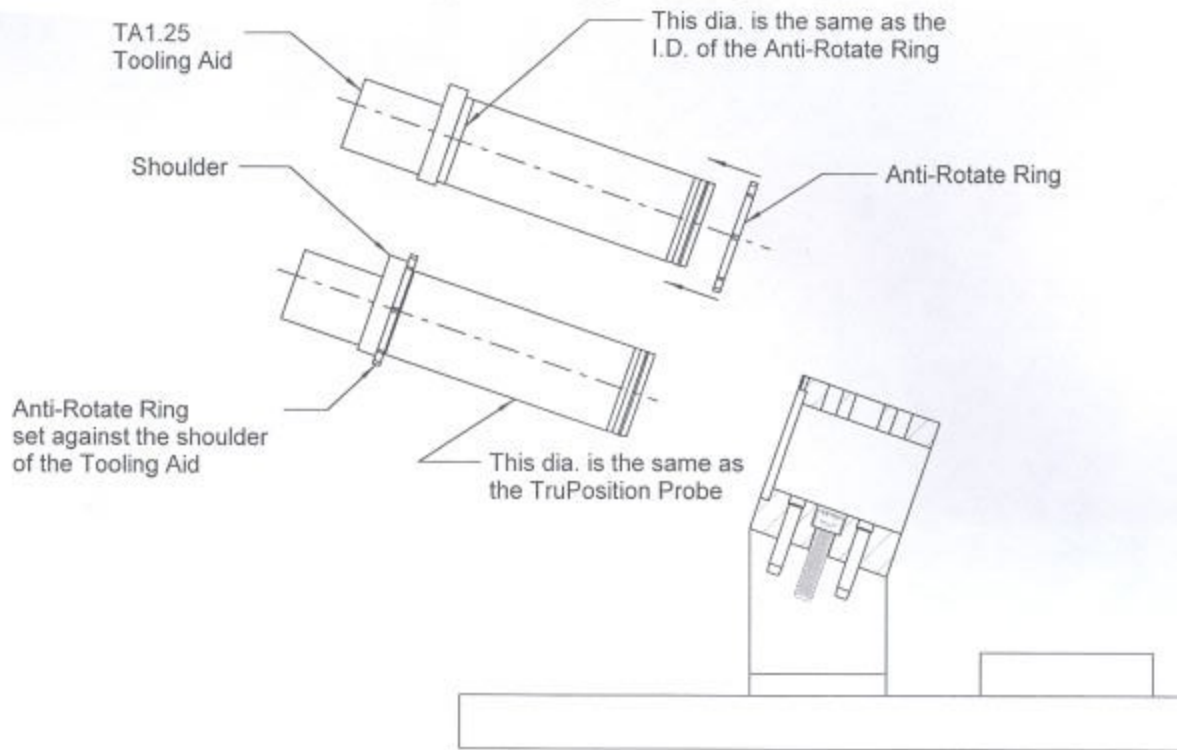
Using a CMM or other means, precisely locate the Probe Block, and adjust the adjustable stop, so that the X, Y, and Z coordinates on the tooling aid are the same as the cross section drawing. Tighten the screws and lock the adjustable stop, by tightening the set screw on the side of the Probe Block, that intersects the adjustable stop.





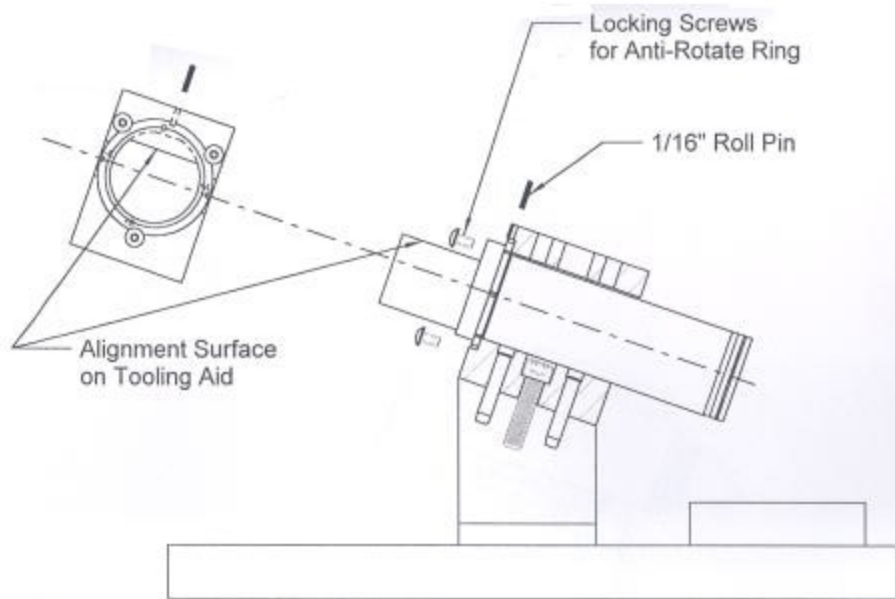
Transfer drill and ream holes for dowels. Install dowels, and recertify Probe Block location by using the tooling aid, and checking the X, Y, and Z coordinates.

**NOTE:** Care must be used in installing screws and dowels. If the edges of the screw and dowel holes are hit and deformed, they may cause the TruPosition Probe to have excessive drag, or bind in the Probe Block.



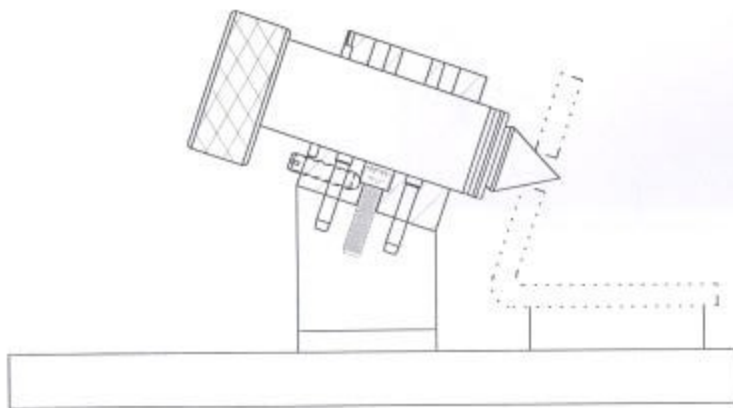
Use the TA1.25 Tooling Aid to install the Anti-Rotate Ring in the Probe Block. The Tooling Aid insures the concentricity of the Anti-Rotate Ring to the Probe Block.

**NOTE:** It is NOT advised to use a TruPosition Probe to set the concentricity, it does not have the .002" stepped dia. that the Tooling Aid has. If a TruPosition Probe is used as a Tooling Aid, it is likely the end result will be increased drag on the Probe, when inserted in the Probe Block. The increased drag will make it difficult for the operator to tell when the Probe Tip is engaged with the Part.

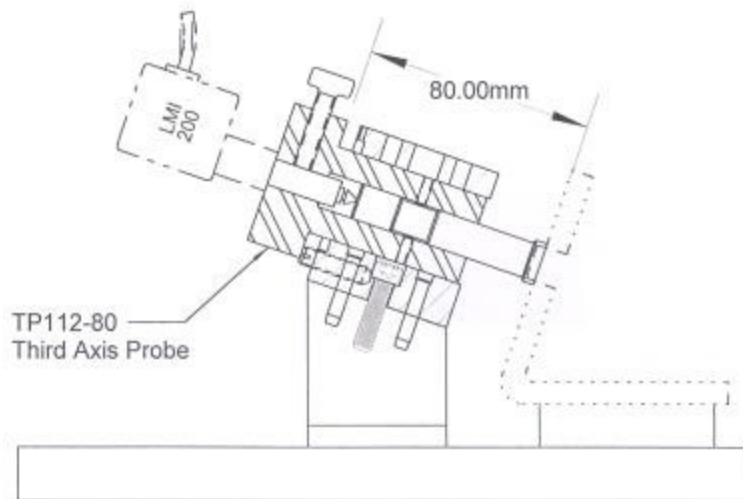


The TA1.25 is also used to set the Anti-Rotate Ring, for correct axial alignment of the TruPosition Probe. The Tooling Aid, with the Anti-Rotate Ring set against the shoulder, is inserted into the Probe Block. The Tooling Aid is then rotated to the needed axial alignment, using the alignment surface on the Tooling Aid as a guide. The Lock Screws are then tightened, and the Tooling Aid is removed.

**NOTE:** If the axial alignment of the Anti-Rotate Ring is parallel or perpendicular to the bottom of the Probe Block, there are notches in the ring that simplify setting the ring for axial alignment. A 1/16" dia. roll pin can be installed in the Probe Block, to engage the notches in the ring, for axial alignment. **WARNING:** The TA1.25 is still needed, to set the concentricity of the ring to the Probe Block.

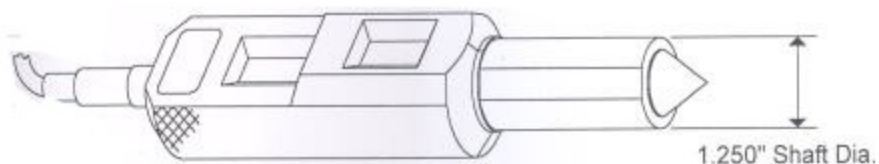


Example: Finished Assembly with a  
TP107 TruPosition Probe

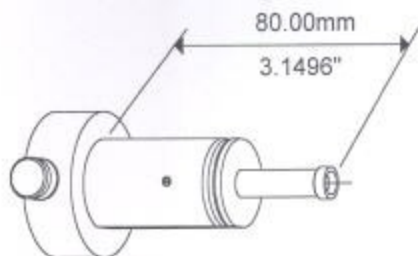


Example: Finished Assembly with a  
TP112-80 Third Axis Probe

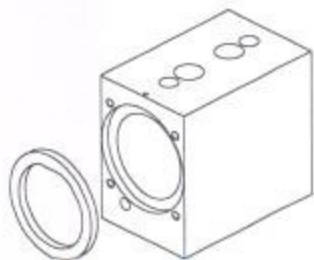
# Instructions and Guidelines for:



TP103 (Shown),  
TP104 or TP107



TP112-80



PB205-1.25 (Shown),  
PB207-.5 or PB207-1.00

To install Probe Blocks, the following Tooling Aids are needed.



TA1.25-80



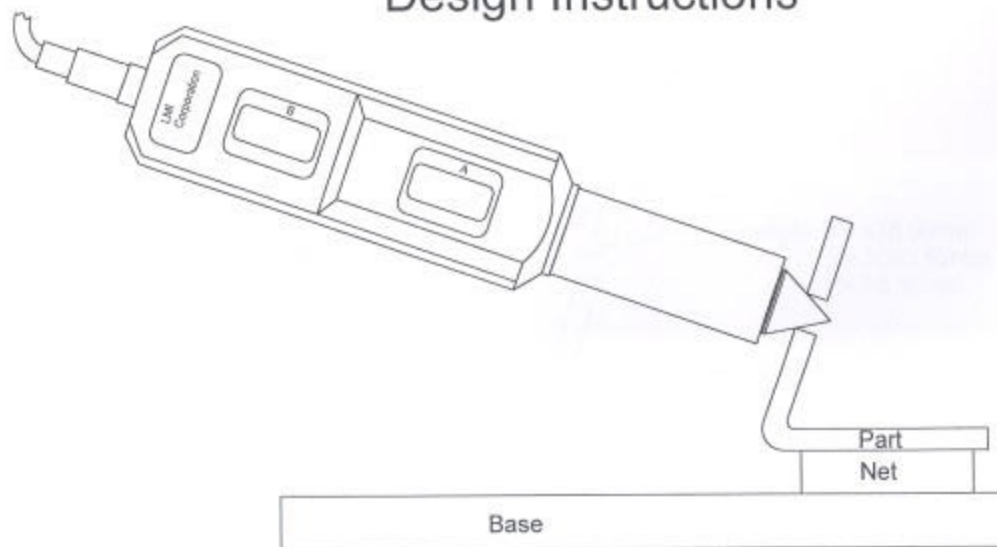
TA1.25

To facilitate the design process, CAD data is available for all of the Probes, Probe Blocks and Tooling Aids in the following formats.

Three dimensional wire frame data, in IGES format.

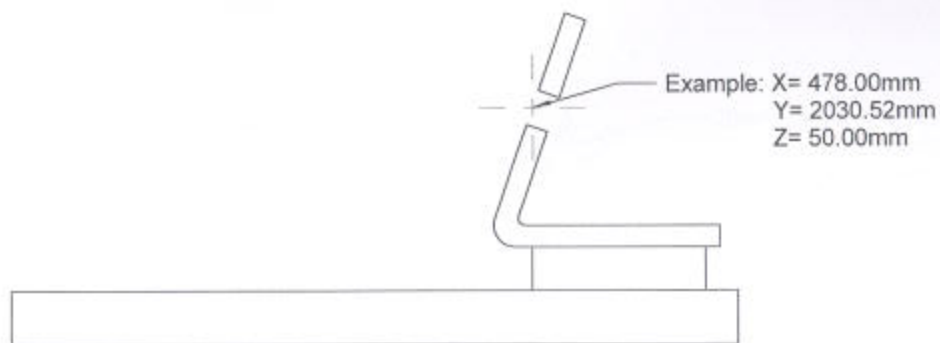
Three dimensional solid Unigraphic files.

## Design Instructions

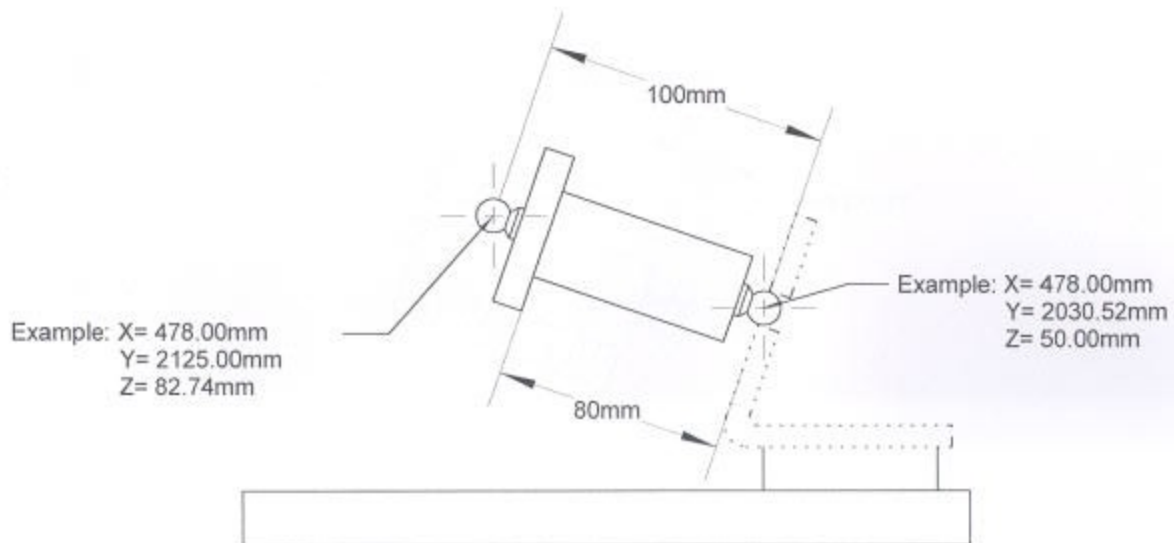


Check for interference problems by adding to the fixture design the TruPosition Probe being used. The TruPosition Probe should be aligned so that the C/L of its shaft is perpendicular to the surface of the part, around the hole being checked.





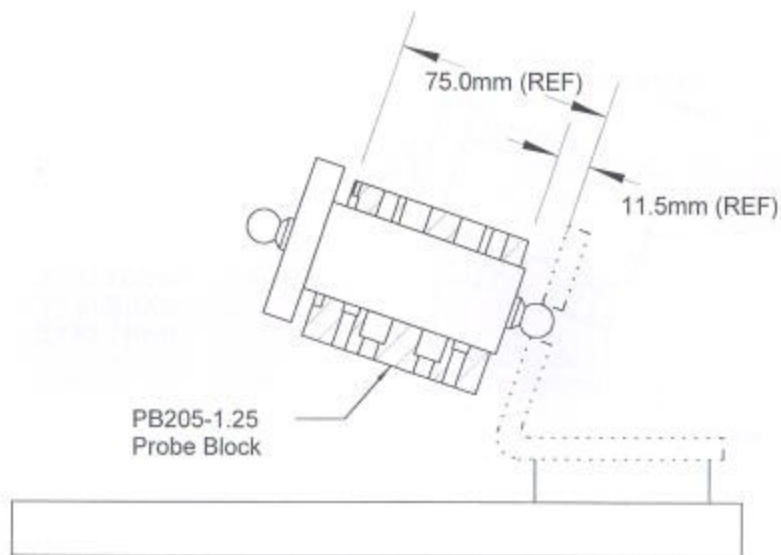
Determine what the X, Y, and Z coordinates are, at the center of the hole, and on the surface plane that is the side of the part from which the TruPosition Probe will be checking from.  
The X, Y, Z coordinate can be relative to car body or fixture.



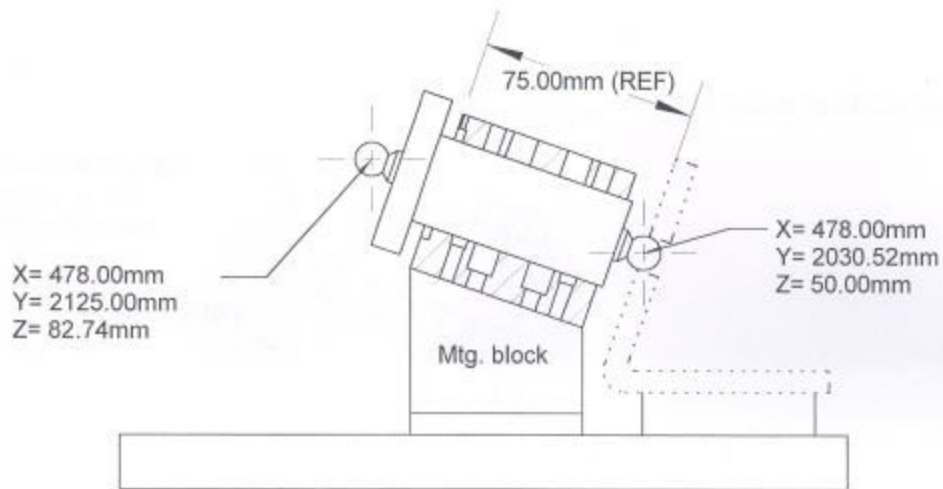
Add to the design a TA1.25-80mm Tooling Aid.

On one end of the tooling aid, place the center of the tooling ball at the same X, Y, and Z coordinates as the center of the hole on the part. From that point, project a 100mm long line perpendicular to the part. Align the tooling aid so that the center of the other tooling ball is on the end of the 100mm line.

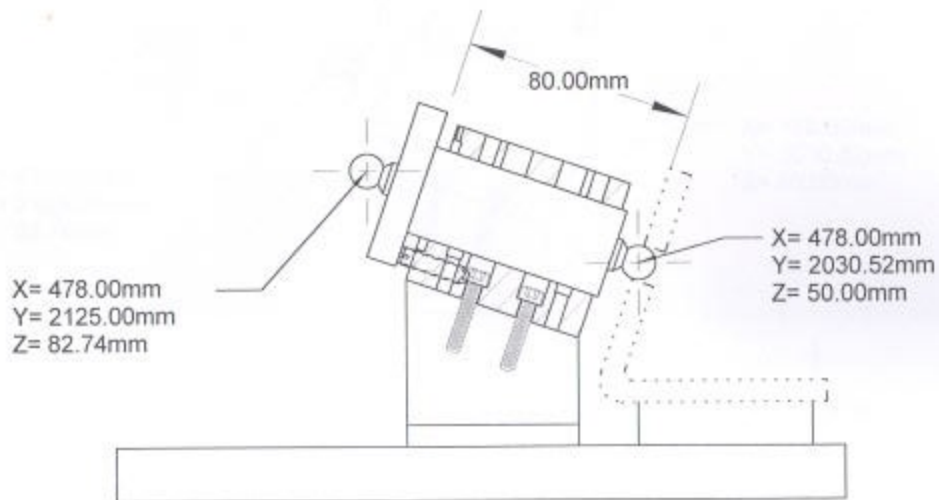
Calculate the X, Y and Z coordinates of the second tooling ball.



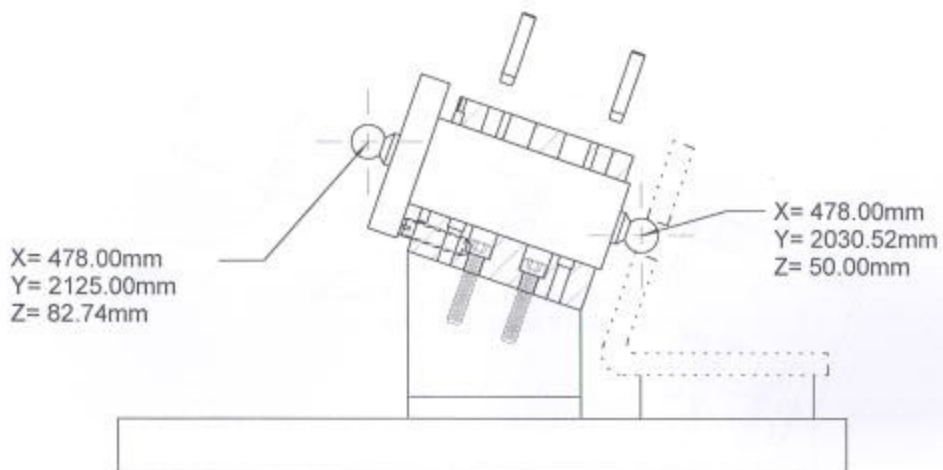
Add to the design a PB205-1.25, PB207-.5 or PB207-1.00 Probe Block. Align the C/L of the 1 1/4" dia. hole, along the C/L of the tooling aid. Use the above reference dimensions, in placing the probe block in relationship to the part.



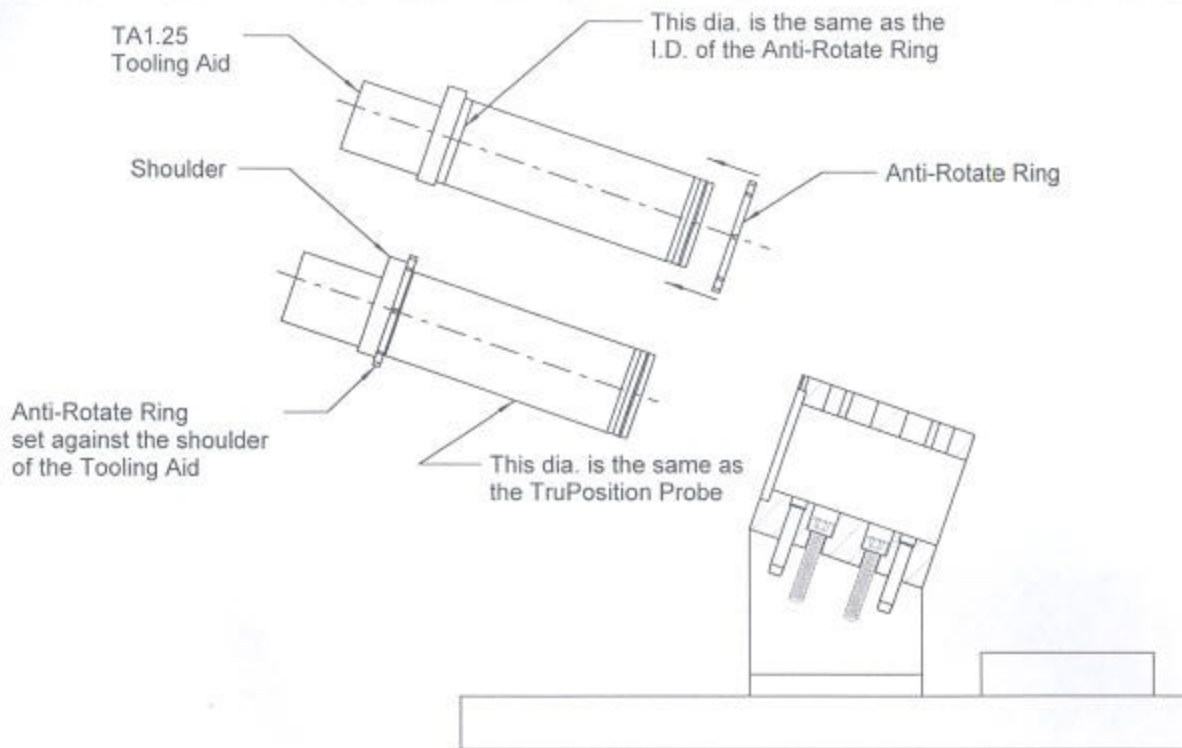
Design, and add to the fixture design a mounting block, that the Probe Block is bolted to. The final cross section design, should show the X,Y and Z coordinates on both ends of the tooling aid and the reference dim. for Probe Block placement. (See above example.)



Using a CMM or other means, precisely locate the Probe Block, and adjust the adjustable stop, so that the X, Y, and Z coordinates on the tooling aid are the same as the cross section drawing. Tighten the screws and lock the adjustable stop, by tightening the set screw on the side of the Probe Block, that intersects the adjustable stop.

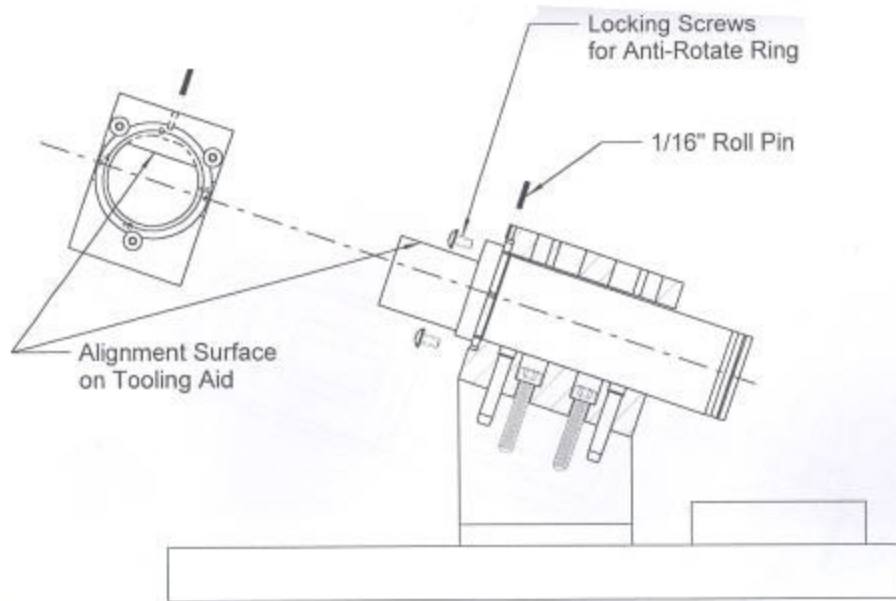


Transfer drill and ream holes for dowels. Install dowels, and recertify Probe Block location by using the tooling aid, and checking the X, Y, and Z coordinates.  
NOTE: Care must be used in installing screws and dowels. If the edges of the screw and dowel holes are hit and deformed, they may cause the TruPosition Probe to have excessive drag, or bind in the Probe Block.



Use the TA1.25 Tooling Aid to install the Anti-Rotate Ring in the Probe Block. The Tooling Aid insures the concentricity of the Anti-Rotate Ring to the Probe Block.

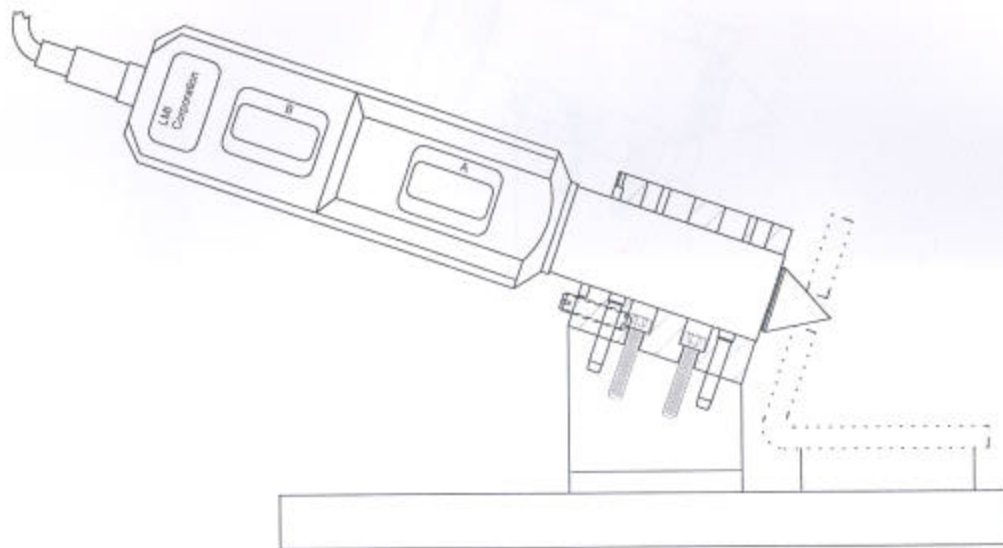
**NOTE:** It is NOT advised to use a TruPosition Probe to set the concentricity, it does not have the .002" stepped dia. that the Tooling Aid has. If a TruPosition Probe is used as a Tooling Aid, it is likely the end result will be increased drag on the Probe, when inserted in the Probe Block. The increased drag will make it difficult for the operator to tell when the Probe Tip is engaged with the Part.



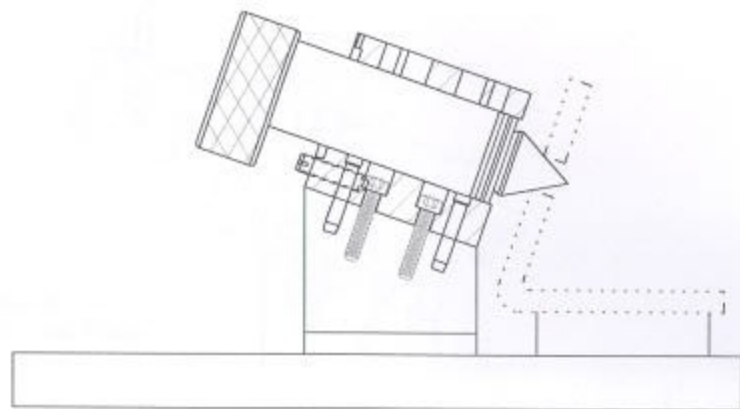
The TA1.25 is also used to set the Anti-Rotate Ring, for correct axial alignment of the TruPosition Probe. The Tooling Aid, with the Anti-Rotate Ring set against the shoulder, is inserted into the Probe Block. The Tooling Aid is then rotated to the needed axial alignment, using the alignment surface on the Tooling Aid as a guide. The Lock Screws are then tightened, and the Tooling Aid is removed.

**NOTE:** If the axial alignment of the Anti-Rotate Ring is parallel or perpendicular to the bottom of the Probe Block, there are notches in the ring that simplify setting the ring for axial alignment. A 1/16" dia. roll pin can be installed in the Probe Block, to engage the notches in the ring, for axial alignment. **WARNING:** The TA1.25 is still needed, to set the concentricity of the ring to the Probe Block.

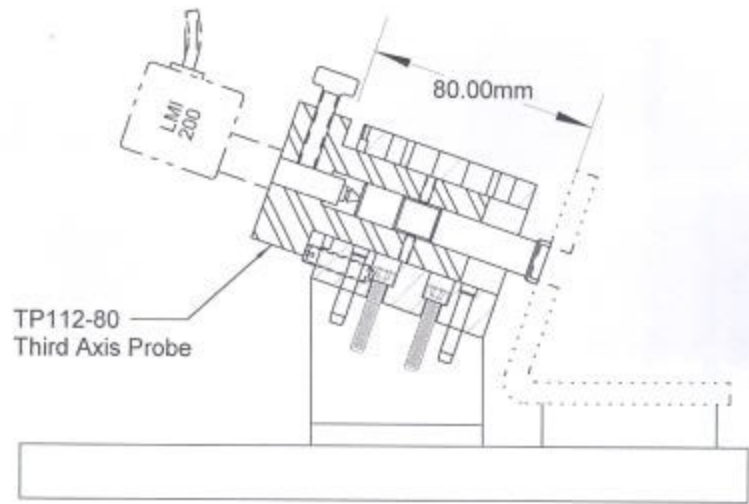




Example: Finished Assembly with a  
TP103/104 TruPosition Probe



Example: Finished Assembly with a  
TP107 TruPosition Probe



Example: Finished Assembly with a TP112-80 Third Axis Probe