



DATE=3/5/2024 TIME=4:00:42 PM  
PART NAME : Lab-3-Demo  
REV NUMBER :  
SER NUMBER :  
STATS COUNT : 1  
GD&T STANDARD : ASME Y14.5 - 2009/2018

```
STARTUP      =ALIGNMENT/START,RECALL:USE_PART_SETUP,LIST=YES
              ALIGNMENT/END
              MODE/MANUAL
              FORMAT/TEXT,OPTIONS,,HEADINGS,SYMBOLS,;NOM,TOL,MEAS,DEV,OUTTOL,,
              LOADPROBE/MSU_PROBE_D_3X50MM
              MOVESPEED/ 300
              TIP/T1A0B0,SHANKIJK=0,0,1,ANGLE=0

$$ NO,

*****
****Define "Mauual Alignment" DATUM Features
****(CMM to Part synchronization)
*****

PLN-MA      =FEAT/PLANE,CARTESIAN,TRIANGLE
              THEO/<4.2791,2.207,0.95>,<0,0,1>
              ACTL/<11.2192,13.8427,-28.5766>,<0.0001637,0.0004852,0.9999999>
              MEAS/PLANE,4
                  HIT/BASIC,NORMAL,<1.9527,3.507,0.95>,<0,0,1>,<8.8208,15.1411,-28.5772>,USE THEO=YES
                  HIT/BASIC,NORMAL,<6.9141,3.6104,0.95>,<0,0,1>,<13.856,15.1412,-28.5774>,USE THEO=YES
                  HIT/BASIC,NORMAL,<6.4521,1.0759,0.95>,<0,0,1>,<13.3923,12.5444,-28.5767>,USE THEO=YES
                  HIT/BASIC,NORMAL,<1.7974,0.6346,0.95>,<0,0,1>,<8.8078,12.5442,-28.5753>,USE THEO=YES
              ENDMEAS/

LIN-MB      =FEAT/LINE,CARTESIAN,UNBOUNDED
              THEO/<1.8515,0,0.5262>,<1,0,0>
              ACTL/<9.2024,11.8868,-28.8559>,<0.9999708,-0.0076453,0>
              MEAS/LINE,2,ZPLUS
                  HIT/BASIC,NORMAL,<1.8515,0,0.5383>,<0,-1,0>,<9.202,11.8868,-28.8559>,USE THEO=YES
                  HIT/BASIC,NORMAL,<5.5575,0,0.5141>,<0,-1,0>,<12.3331,11.8628,-28.8559>,USE THEO=YES
              ENDMEAS/

PNT-MC      =FEAT/POINT,CARTESIAN
              THEO/<0,1.1639,0.1013>,<-1,0,0>
              ACTL/<7.089,13.1192,-29.4282>,<-0.9997296,-0.0232496,0.0003861>
              MEAS/POINT,1,WORKPLANE
                  HIT/BASIC,NORMAL,<0,1.1639,0.1013>,<-1,0,0>,<7.089,13.1178,-29.4282>,USE THEO=YES
              ENDMEAS/

$$ NO,

*****
****Manual Alignment
*****

A1          =ALIGNMENT/START,RECALL:STARTUP,LIST=YES
              ALIGNMENT/LEVEL,ZPLUS,PLN-MA
              ALIGNMENT/TRANS,ZAXIS,PLN-MA
              ALIGNMENT/ROTATE,XPLUS,TO,LIN-MB,ABOUT,ZPLUS
              ALIGNMENT/TRANS,YAXIS,LIN-MB
              ALIGNMENT/TRANS,XAXIS,PNT-MC
              ALIGNMENT/END
```

\$\$ NO,

```
*****
****DCC Mode "ON"
****Define "Active Clear Plane
*****
MODE/DCC
CLEARP/ZPLUS,0.25,ZPLUS,0,OFF
```

\$\$ NO,

```
*****
****Define "DCC Alingment" DATUM Features
****with "avoid crash" Move commands
****(Precision Alignment)
*****
MOVE/CLEARPLANE
```

PLN-A

```
=FEAT/CONTACT/PLANE/ADAPTIVE_FREE_FORM_PLANE_SCAN,CARTESIAN,NONE,LEAST_SQR
THEO/<3.9385,1.9013,0>,<0,0,1>
ACTL/<3.9801,1.9014,-0.0016>,<0.0002258,0.000251,0.9999999>
TARG/<3.9385,1.9013,0>,<0,0,1>
ANGLE VEC=<1,0,0>,SQUARE
SHOW FEATURE PARAMETERS=NO
SHOW CONTACT PARAMETERS=YES
  NUMHITS=2339,NUMROWS=3
  SPACER=0
  AVOIDANCE MOVE=BOTH,DISTANCE BEFORE=0,DISTANCE AFTER=0.3937,DIRECTION=ALONG FEATURE VECTOR
  USE BOUNDARY OFFSET=YES,OFFSET=0.2394
SHOW HITS=NO
MOVE/CLEARPLANE
```

PLN-B

```
=FEAT/CONTACT/PLANE/ADAPTIVE_FREE_FORM_PLANE_SCAN,CARTESIAN,NONE,LEAST_SQR
THEO/<4.3628,0,-0.4559>,<0,-1,0>
ACTL/<4.4276,-0.0019,-0.4539>,<0.0001333,-1,0.0000369>
TARG/<4.3628,0,-0.4559>,<0,-1,0>
ANGLE VEC=<1,0,0>,SQUARE
SHOW FEATURE PARAMETERS=NO
SHOW CONTACT PARAMETERS=YES
  NUMHITS=2324,NUMROWS=3
  SPACER=0
  AVOIDANCE MOVE=BOTH,DISTANCE BEFORE=0,DISTANCE AFTER=0.3937,DIRECTION=ALONG FEATURE VECTOR
  USE BOUNDARY OFFSET=YES,OFFSET=0.2394
SHOW HITS=NO
MOVE/CLEARPLANE
```

PLN-C

```
=FEAT/CONTACT/PLANE/ADAPTIVE_FREE_FORM_PLANE_SCAN,CARTESIAN,NONE,LEAST_SQR
THEO/<0,1.6726,-0.8122>,<-1,0,0>
ACTL/<0.0316,1.6751,-0.8141>,<-0.9999936,0.0035228,0.0006127>
TARG/<0,1.6726,-0.8122>,<-1,0,0>
ANGLE VEC=<0,0,1>,SQUARE
SHOW FEATURE PARAMETERS=NO
SHOW CONTACT PARAMETERS=YES
  NUMHITS=454,NUMROWS=3
  SPACER=0
  AVOIDANCE MOVE=BOTH,DISTANCE BEFORE=0,DISTANCE AFTER=0.3937,DIRECTION=ALONG FEATURE VECTOR
  USE BOUNDARY OFFSET=YES,OFFSET=0.2394
SHOW HITS=NO
MOVE/CLEARPLANE
```

\$\$ NO,

```
*****
****DCC Alignment
*****
```

A2

```
=ALIGNMENT/START,RECALL:A1,LIST=YES
  ALIGNMENT/LEVEL,ZPLUS,PLN-A
  ALIGNMENT/TRANS,ZAXIS,PLN-A
  ALIGNMENT/ROTATE,YMINUS,TO,PLN-B,ABOUT,ZPLUS
  ALIGNMENT/TRANS,YAXIS,PLN-B
  ALIGNMENT/TRANS,XAXIS,PLN-C
ALIGNMENT/END
```

\$\$ NO,

```
*****
****Insert Features with "avoid crash"Moves commands
*****
```

CYL1

```
=FEAT/CONTACT/CYLINDER/ADAPTIVE_CYLINDER_SPIRAL_SCAN,CARTESIAN,IN,LEAST_SQR
```

THEO/<1,1,0>,<0,0,1>,1,0.95  
ACTL/<0.9862,1.0134,0>,<0.00219,-0.0001013,0.9999976>,1.0009,0.95  
TARG/<1,1,0>,<0,0,1>  
START ANG=0,END ANG=360  
ANGLE VEC=<1,0,0>  
DIRECTION=CCW  
SHOW FEATURE PARAMETERS=NO  
SHOW CONTACT PARAMETERS=YES  
NUMHITS=2261,NUMLEVELS=4,DEPTH=0.1433,END OFFSET=0.063,PITCH=0.1394  
SAMPLE METHOD=SAMPLE\_HITS  
SAMPLE HITS=3,SPACER=0  
AVOIDANCE MOVE=BEFORE,DISTANCE BEFORE=0.3,DIRECTION=ALONG FEATURE VECTOR  
FIND HOLE=DISABLED,ONERROR=NO,READ POS=NO

SHOW HITS=NO  
MOVE/CLEARPLANE  
CYL2 =FEAT/CONTACT/CYLINDER/ADAPTIVE\_CYLINDER\_LINE\_SCAN,CARTESIAN,IN,LEAST\_SQR  
THEO/<1,3,0>,<0,0,1>,1,0.95  
ACTL/<0.9947,3.0132,0>,<0.0031395,0.0010164,0.9999946>,1.0008,0.95  
TARG/<1,3,0>,<0,0,1>  
START ANG=0,END ANG=360  
ANGLE VEC=<1,0,0>  
DIRECTION=CCW  
SHOW FEATURE PARAMETERS=NO  
SHOW CONTACT PARAMETERS=YES  
NUMHITS=376,NUMLEVELS=4,DEPTH=0.1433,END OFFSET=0.063,PITCH=0.1394  
SAMPLE METHOD=SAMPLE\_HITS  
SAMPLE HITS=3,SPACER=0  
AVOIDANCE MOVE=BEFORE,DISTANCE BEFORE=0.3,DIRECTION=ALONG FEATURE VECTOR  
FIND HOLE=DISABLED,ONERROR=NO,READ POS=NO

SHOW HITS=NO  
MOVE/CLEARPLANE  
CIR3 =FEAT/CONTACT/CIRCLE/ADAPTIVE\_CIRCLE\_SCAN,CARTESIAN,IN,LEAST\_SQR  
THEO/<8.008,1,0>,<0,0,1>,1  
ACTL/<7.993,0.9836,0>,<0,0,1>,1.001  
TARG/<8.008,1,0>,<0,0,1>  
START ANG=0,END ANG=360  
ANGLE VEC=<1,0,0>  
DIRECTION=CCW  
SHOW FEATURE PARAMETERS=NO  
SHOW CONTACT PARAMETERS=YES  
NUMHITS=421,DEPTH=0.1,PITCH=0  
SAMPLE METHOD=SAMPLE\_HITS  
SAMPLE HITS=0,SPACER=0  
AVOIDANCE MOVE=BOTH,DISTANCE BEFORE=0.3,DISTANCE AFTER=0.3,DIRECTION=ALONG FEATURE VECTOR  
FIND HOLE=DISABLED,ONERROR=NO,READ POS=NO

SHOW HITS=NO  
MOVE/CLEARPLANE  
CYL-RB =FEAT/CONTACT/CYLINDER/ADAPTIVE\_CYLINDER\_CONCENTRIC\_CIRCLE\_SCAN,CARTESIAN,IN,LEAST\_SQR  
THEO/<8.008,3,0>,<0,0,1>,1,0.95  
ACTL/<8.0011,2.9836,0>,<-0.0029584,0.0003287,0.9999956>,1.0007,0.95  
TARG/<8.008,3,0>,<0,0,1>  
START ANG=0,END ANG=360  
ANGLE VEC=<1,0,0>  
DIRECTION=CCW  
SHOW FEATURE PARAMETERS=NO  
SHOW CONTACT PARAMETERS=YES  
NUMHITS=1602,NUMLEVELS=4,DEPTH=0.1433,END OFFSET=0.063,PITCH=0.1394  
SAMPLE METHOD=SAMPLE\_HITS  
SAMPLE HITS=3,SPACER=0  
AVOIDANCE MOVE=BEFORE,DISTANCE BEFORE=0.3,DIRECTION=ALONG FEATURE VECTOR  
FIND HOLE=DISABLED,ONERROR=NO,READ POS=NO

SHOW HITS=NO  
MOVE/CLEARPLANE  
PLN-TOP =FEAT/CONTACT/PLANE/ADAPTIVE\_FREE\_FORM\_PLANE\_SCAN,CARTESIAN,NONE,LEAST\_SQR  
THEO/<4.6122,1.9044,0>,<0,0,1>  
ACTL/<4.6949,1.9035,0.0011>,<-0.0005952,-0.0001283,0.9999998>  
TARG/<4.6122,1.9044,0>,<0,0,1>  
ANGLE VEC=<1,0,0>,SQUARE  
SHOW FEATURE PARAMETERS=NO

PART NUMBER=Lab-3-Demo      DATE=3/5/2024      TIME=4:00:43 PM      PAGE#=4  
SHOW CONTACT PARAMETERS=YES  
NUMHITS=3254,NUMROWS=3  
SPACER=0  
AVOIDANCE MOVE=BOTH,DISTANCE BEFORE=0,DISTANCE AFTER=0.3937,DIRECTION=ALONG FEATURE VECTOR  
USE BOUNDARY OFFSET=YES,OFFSET=0.2394  
SHOW HITS=NO  
MOVE/CLEARPLANE

\$\$ NO,

\*\*\*\*\*  
\*\*\*\*\*Insert Dimensions  
\*\*\*\*\*

FCFFLAT1 =GEOMETRIC\_TOLERANCE/STANDARD=ASME Y14.5,SHOWEXPANDED=YES,  
DESCRIPTION=OFF,,  
UNITS=IN,OUTPUT=BOTH,ARROWDENSITY=100,  
SEGMENT\_1,FLATNESS,0.01,TOL\_ZONE\_MATH=DEFAULT,  
TEXT=OFF,CADGRAPH=OFF,REPORTGRAPH=OFF,MULT=10,  
MEASURED:  
PLN-TOP:0.0073,  
ADD  
FEATURES/PLN-TOP,,  
FCFCIRTY1 =GEOMETRIC\_TOLERANCE/STANDARD=ASME Y14.5,SHOWEXPANDED=YES,  
DESCRIPTION=OFF,,  
FEATURE\_MATH=DEFAULT,  
UNITS=IN,OUTPUT=BOTH,ARROWDENSITY=100,  
SIZE/NOMINAL=1,UPPER TOLERANCE=0.005,LOWER TOLERANCE=0.005,  
REPORT\_LOCAL\_SIZE=OFF,  
CIR3:  
UAME SIZE:1.0008,  
SEGMENT\_1,CIRCULARITY,0.005,TOL\_ZONE\_MATH=DEFAULT,  
TEXT=OFF,CADGRAPH=OFF,REPORTGRAPH=OFF,MULT=10,  
MEASURED:  
CIR3:0.0003,  
FEATURES/CIR3,,  
FCFCYLY1 =GEOMETRIC\_TOLERANCE/STANDARD=ASME Y14.5,SHOWEXPANDED=YES,  
DESCRIPTION=OFF,,  
FEATURE\_MATH=DEFAULT,  
UNITS=IN,OUTPUT=BOTH,ARROWDENSITY=100,  
SIZE/NOMINAL=1,UPPER TOLERANCE=0.005,LOWER TOLERANCE=0.005,  
REPORT\_LOCAL\_SIZE=OFF,  
CYL1:  
UAME SIZE:1.0005,  
SEGMENT\_1,CYLINDRICITY,0.005,TOL\_ZONE\_MATH=DEFAULT,  
TEXT=OFF,CADGRAPH=OFF,REPORTGRAPH=OFF,MULT=10,  
MEASURED:  
CYL1:0.0005,  
FEATURES/CYL1,,

END OF MEASUREMENT FOR  
PN=Lab-3-Demo      DWG=      SN=  
TOTAL # OF MEAS =5      # OUT OF TOL =0      # OF HOURS =00:05:16