

ITEM NO.	DESCRIPTION	PART NUMBER	QTY.
1	0.75in Bearing	McMaster 6383K490	6
2	Intermediate Journal	ENG-120-01	3
3	Main Journal	ENG-120-02	2
4	Counterweight Assembly	ENG-121-00	6
5	0.75in Retaining Ring	McMaster 91590A128	12
6	Final End Shaft Engine	ENG-120-03	1

ALL DIMENSIONS ARE IN INCHES - INTERPRET DRAWINGS PER ASME Y14.5-1994

TOLERANCES UNLESS OTHERWISE SPECIFIED:
 X.X ±0.03
 X.XX ±0.01
 X.XXX ±0.005

±0.5° 125/

REMOVE ALL BURRS AND SHARP EDGES 0.005 R OR CHAMFER MAX.

UNLESS OTHERWISE SPECIFIED:		
QTY:	1	MATERIAL: Assorted
DIMENSIONS ARE IN INCHES.		
ENGINEER	landrade	12/14/2015
DRAWN	landrade	12/14/2015
CHECKED	hmskin	12/14/2015

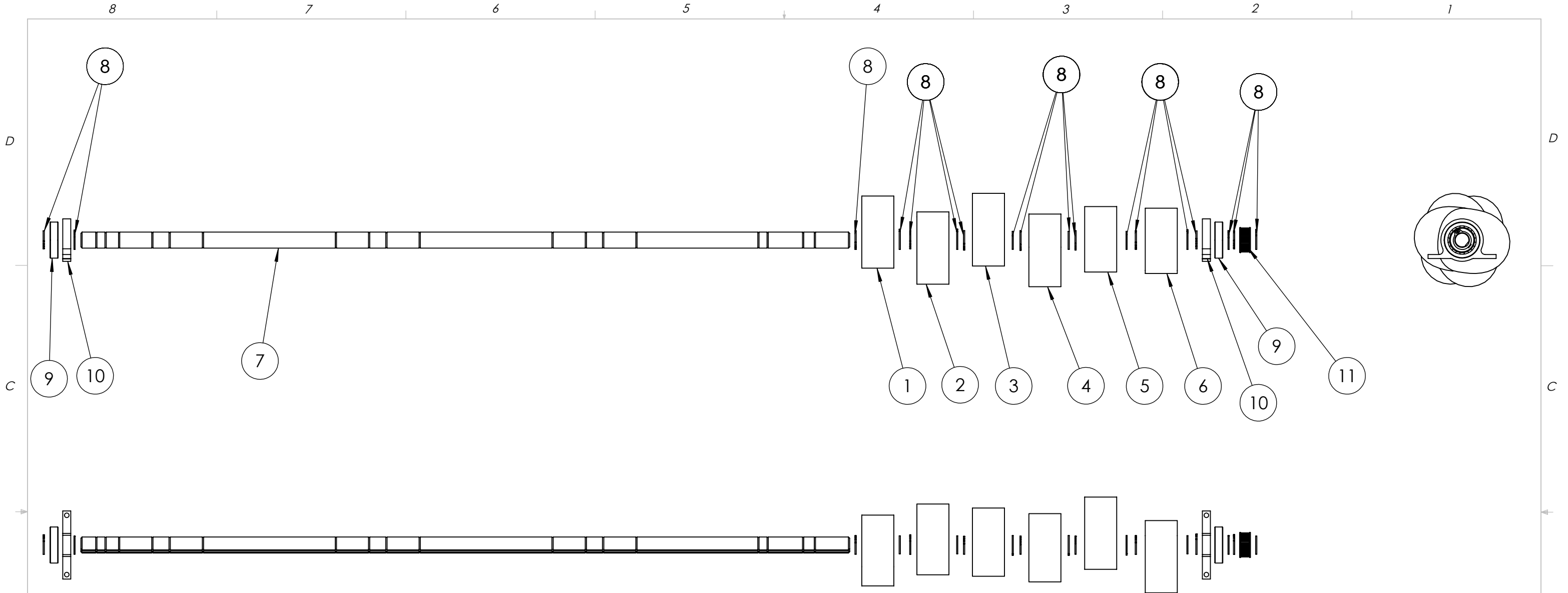
Olin College of Engineering

TITLE: **Crank Shaft Assembly**

SIZE: **B** PART NO.: **ENG-120-00** REV: **N**

SCALE: 2:1 DO NOT SCALE PRINT SHEET 1 OF 1

THIS DRAWING CONTAINS INFORMATION WHICH IS CONFIDENTIAL AND PROPRIETARY TO ENGR2340, AND MAY NOT BE COPIED, DIVULGED OR USED IN PART OR AS A WHOLE, WITHOUT EXPRESSED WRITTEN CONSENT.



ITEM NO.	DESCRIPTION	PART NUMBER	SW-Configuration Name(Configuration Name)	QTY.
1	Valve Cam	ENG-500-03	First Valve Cam	1
2	Valve Cam	ENG-500-04	Second Valve Cam	1
3	Valve Cam	ENG-500-05	Third Valve Cam	1
4	Valve Cam	ENG-500-06	Forth Valve Cam	1
5	Valve Cam	ENG-500-07	Fifth Valve Cam	1
6	Valve Cam	ENG-500-08	Sixth Valve Cam	1
7	Left Keyed Cam Shaft	ENG-500-02	Default	1
8	0.5in Retaining Ring	McMaster 97633A200	Default	18
9	0.5in Bearing	McMaster 60355K505	Default	2
10	Cam Shaft Bearing Housing	ENG-510-01	Default	2
11	Cam Shaft Timing Pulley	ENG-400-07	Default	1

UNLESS OTHERWISE SPECIFIED:
 QTY: 1 MATERIAL: Assorted
 DIMENSIONS ARE IN INCHES.

ENGINEER	landrade	12/13/2015
DRAWN	landrade	12/13/2015
CHECKED	hmskin	12/13/2015

ALL DIMENSIONS ARE IN INCHES - INTERPRET DRAWINGS PER ASME Y14.5-1994
 TOLERANCES UNLESS OTHERWISE SPECIFIED:
 X.X ±0.03
 X.XX ±0.01
 X.XXX ±0.005
 ±0.5° 125/

REMOVE ALL BURRS AND SHARP EDGES 0.005 R OR CHAMFER MAX.

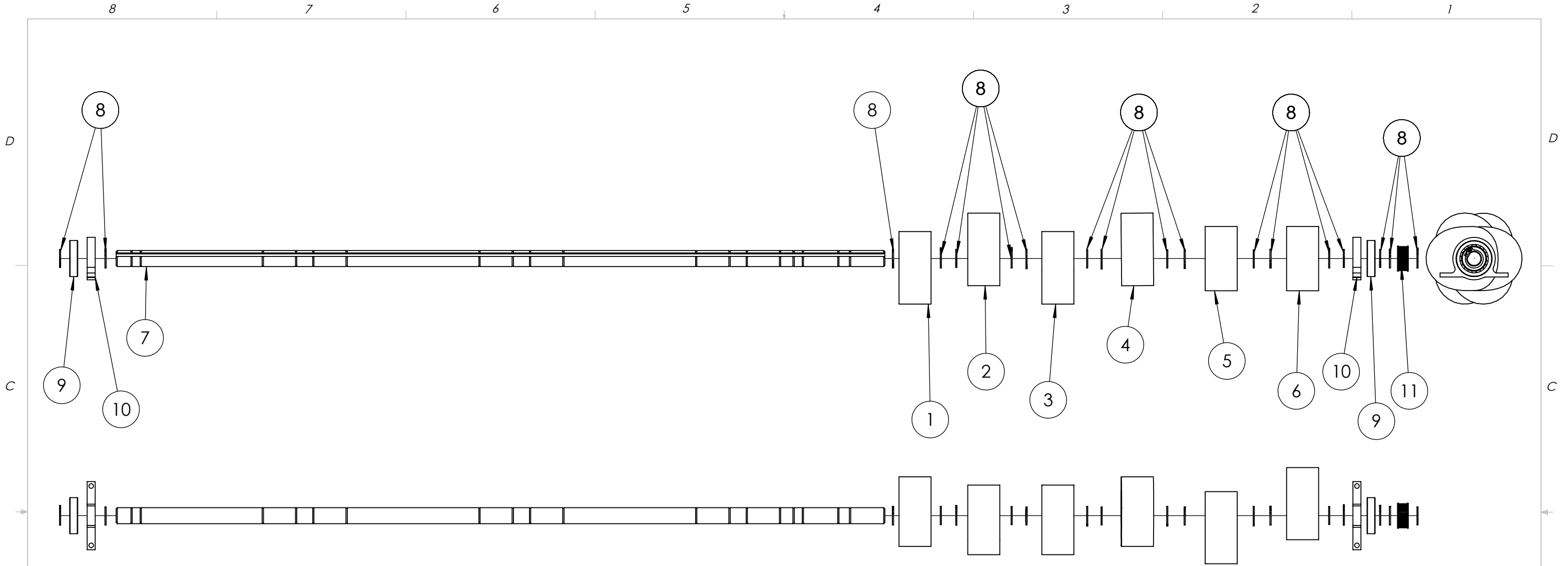
THIS DRAWING CONTAINS INFORMATION WHICH IS CONFIDENTIAL AND PROPRIETARY TO ENGR2340, AND MAY NOT BE COPIED, DIVULGED OR USED IN PART OR AS A WHOLE, WITHOUT EXPRESSED WRITTEN CONSENT.

Olin College of Engineering

TITLE: **Left Cam Valve Assembly**

SIZE	PART NO.	REV
B	ENG-500-00	D

SCALE: 2:1 DO NOT SCALE PRINT SHEET 1 OF 1



ITEM NO.	DESCRIPTION	PART NUMBER	SW-Configuration Name(Configuration Name)	QTY.
1	Valve Cam	ENG-500-03	First Valve Cam	1
2	Valve Cam	ENG-500-04	Second Valve Cam	1
3	Valve Cam	ENG-500-05	Third Valve Cam	1
4	Valve Cam	ENG-500-06	Forth Valve Cam	1
5	Valve Cam	ENG-500-07	Fifth Valve Cam	1
6	Valve Cam	ENG-500-08	Sixth Valve Cam	1
7	Right Keyed Cam Shaft	McMaster 1497K310	Default	1
8	0.5in Retaining Ring	McMaster 97633A200	Default	18
9	0.5in Bearing	McMaster 6383K340	Default	2
10	Cam Shaft Bearing Housing	ENG-510-01	Default	2
11	Cam Shaft Timing Pulley	ENG-500-01	Default	1

UNLESS OTHERWISE SPECIFIED:
 QTY: 1 MATERIAL: Assorted

DIMENSIONS ARE IN INCHES.

ENGINEER	landrade	12/13/2015
DRAWN	landrade	12/13/2015
CHECKED	hmskin	12/13/2015

ALL DIMENSIONS ARE IN INCHES - INTERPRET DRAWINGS PER ASME Y14.5-1994

TOLERANCES UNLESS OTHERWISE SPECIFIED:
 X.X ±0.03
 X.XX ±0.01
 X.XXX ±0.005

±0.5° 125/

REMOVE ALL BURRS AND SHARP EDGES 0.005 R OR CHAMFER MAX.

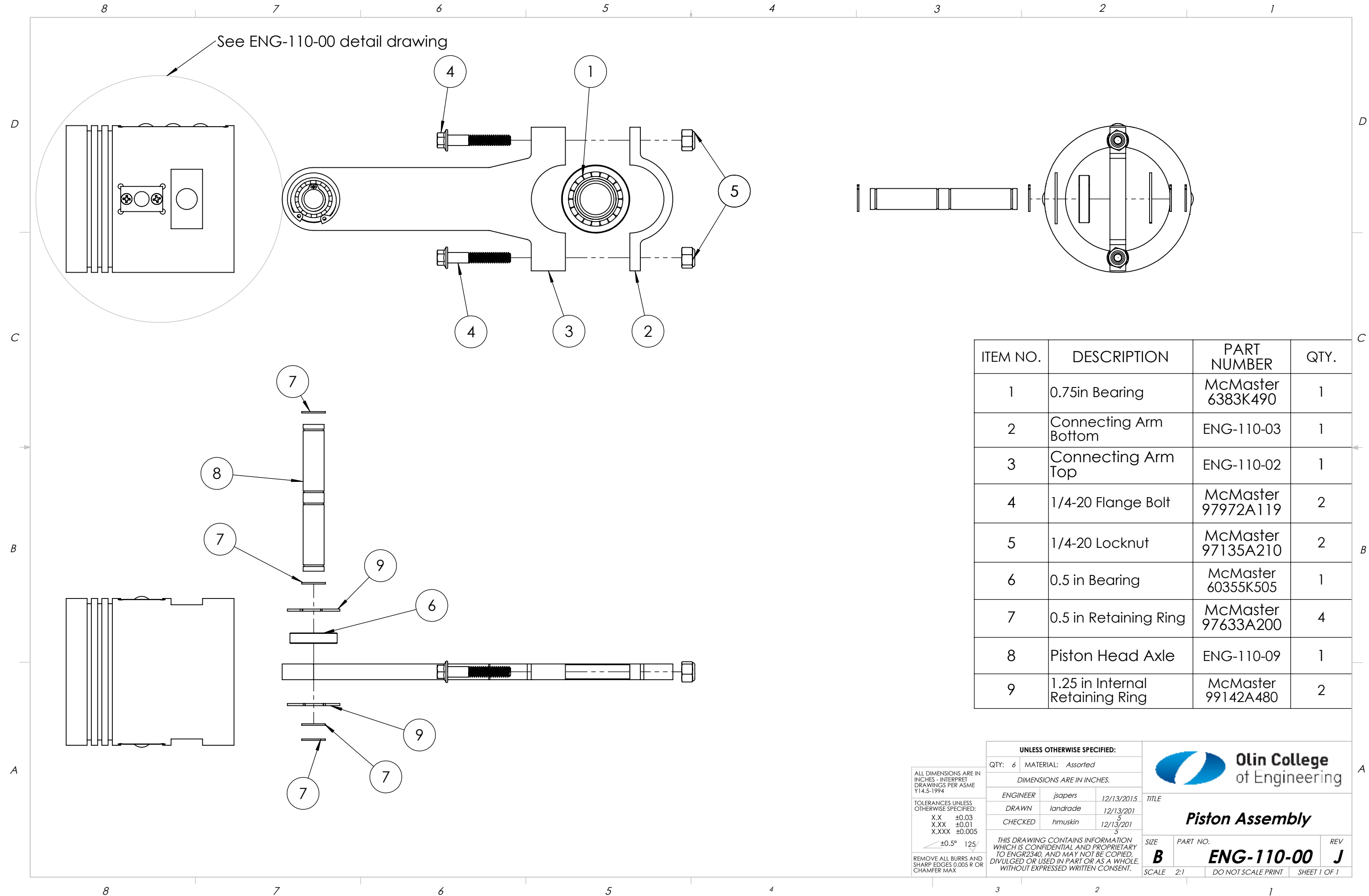
Olin College of Engineering

TITLE: **Right Valve Cam Assembly**

SIZE: **B** PART NO.: **ENG-600-00** REV: **C**

SCALE: 2:1 DO NOT SCALE PRINT SHEET 1 OF 1

THIS DRAWING CONTAINS INFORMATION WHICH IS CONFIDENTIAL AND PROPRIETARY TO ENGR2340, AND MAY NOT BE COPIED, DIVULGED OR USED IN PART OR AS A WHOLE, WITHOUT EXPRESSED WRITTEN CONSENT.



ITEM NO.	DESCRIPTION	PART NUMBER	QTY.
1	0.75in Bearing	McMaster 6383K490	1
2	Connecting Arm Bottom	ENG-110-03	1
3	Connecting Arm Top	ENG-110-02	1
4	1/4-20 Flange Bolt	McMaster 97972A119	2
5	1/4-20 Locknut	McMaster 97135A210	2
6	0.5 in Bearing	McMaster 60355K505	1
7	0.5 in Retaining Ring	McMaster 97633A200	4
8	Piston Head Axle	ENG-110-09	1
9	1.25 in Internal Retaining Ring	McMaster 99142A480	2

ALL DIMENSIONS ARE IN INCHES - INTERPRET DRAWINGS PER ASME Y14.5-1994

TOLERANCES UNLESS OTHERWISE SPECIFIED:
 X.X ±0.03
 X.XX ±0.01
 X.XXX ±0.005

±0.5° 125/

REMOVE ALL BURRS AND SHARP EDGES 0.005 R OR CHAMFER MAX.

UNLESS OTHERWISE SPECIFIED:
 QTY: 6 MATERIAL: Assorted

DIMENSIONS ARE IN INCHES.

ENGINEER	jsapers	12/13/2015
DRAWN	landrade	12/13/201
CHECKED	hmskin	12/13/201

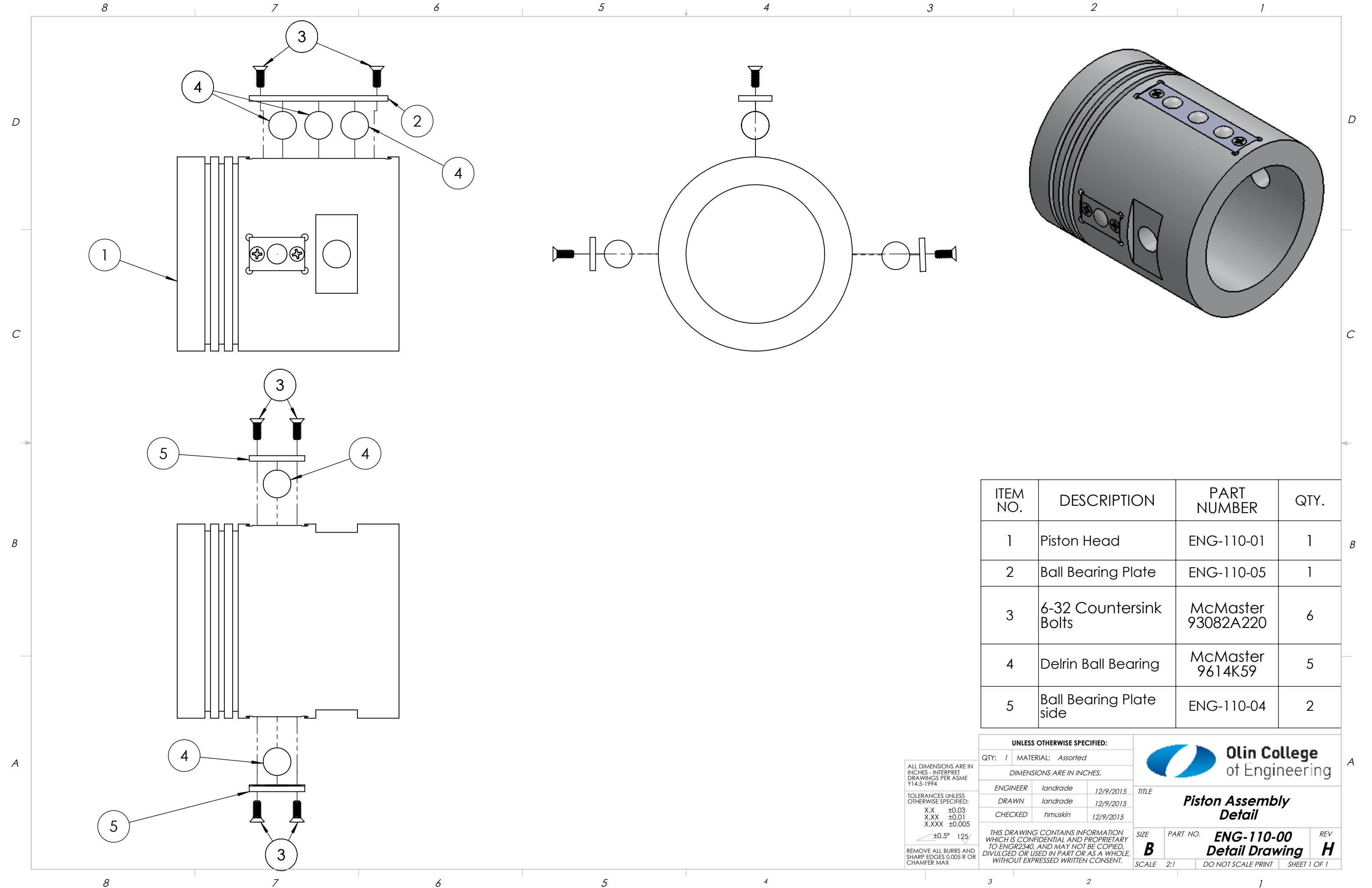
THIS DRAWING CONTAINS INFORMATION WHICH IS CONFIDENTIAL AND PROPRIETARY TO ENGR2340, AND MAY NOT BE COPIED, DIVULGED OR USED IN PART OR AS A WHOLE, WITHOUT EXPRESSED WRITTEN CONSENT.



TITLE
Piston Assembly

SIZE B	PART NO. ENG-110-00	REV J
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SCALE 2:1 DO NOT SCALE PRINT SHEET 1 OF 1



ITEM NO.	DESCRIPTION	PART NUMBER	QTY.
1	Piston Head	ENG-110-01	1
2	Ball Bearing Plate	ENG-110-05	1
3	6-32 Countersink Bolts	McMaster 93082A220	6
4	Delrin Ball Bearing	McMaster 9614K59	5
5	Ball Bearing Plate side	ENG-110-04	2

ALL DIMENSIONS ARE IN INCHES - INTERPRET DRAWINGS PER ASME Y14.5-1994

TOLERANCES UNLESS OTHERWISE SPECIFIED:
 X.X ±0.03
 X.XX ±0.01
 X.XXX ±0.005

±0.5° 125/

REMOVE ALL BURRS AND SHARP EDGES 0.005 R OR CHAMFER MAX.

UNLESS OTHERWISE SPECIFIED:

QTY: 1 MATERIAL: Assorted

DIMENSIONS ARE IN INCHES.

ENGINEER	landrade	12/9/2015
DRAWN	landrade	12/9/2015
CHECKED	hmskin	12/9/2015

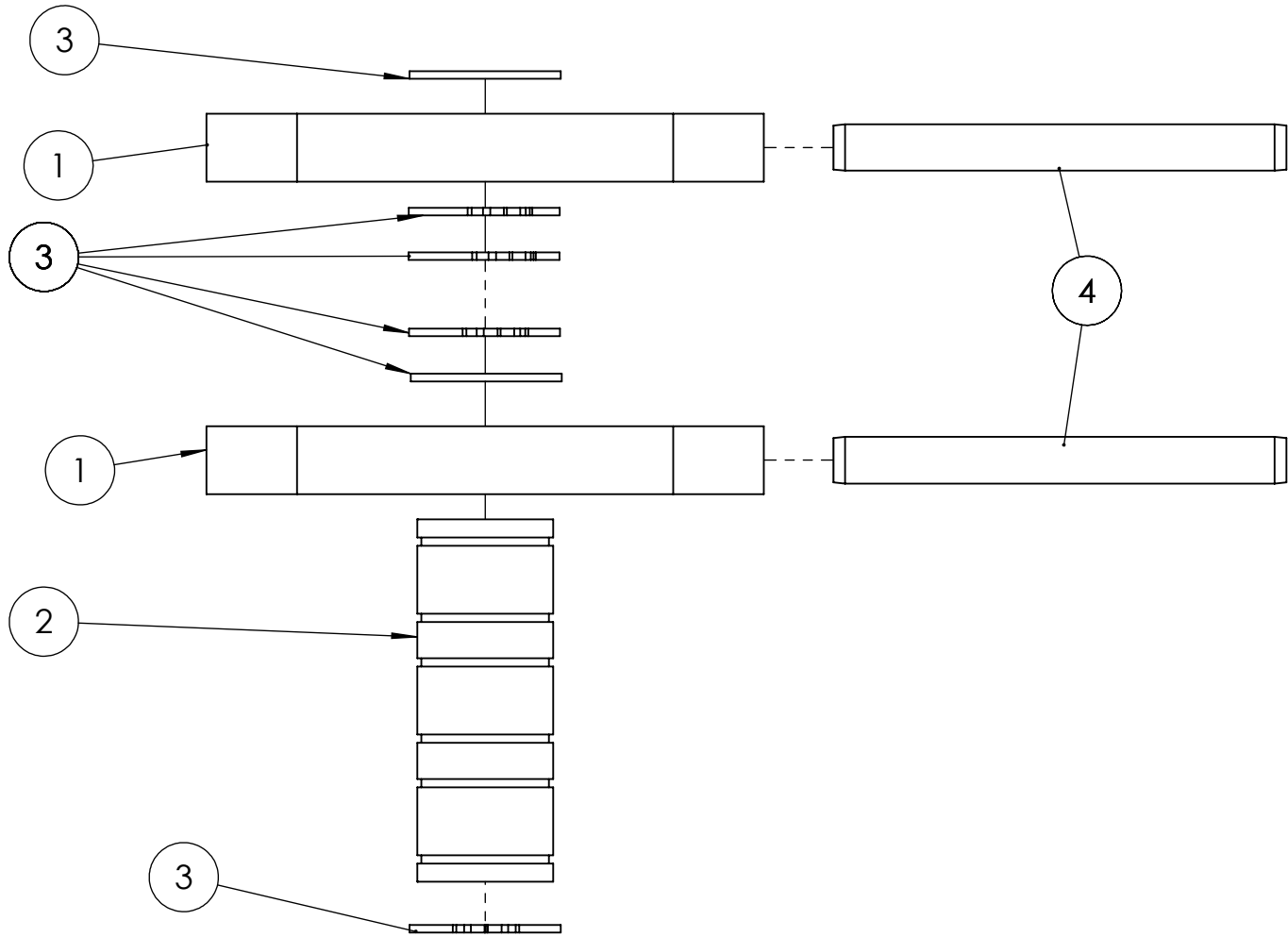
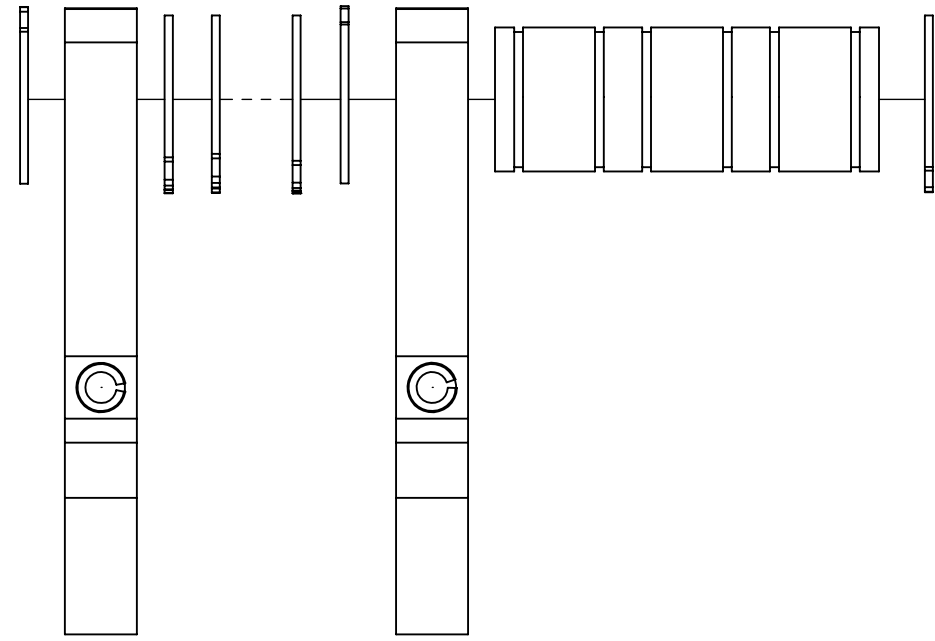
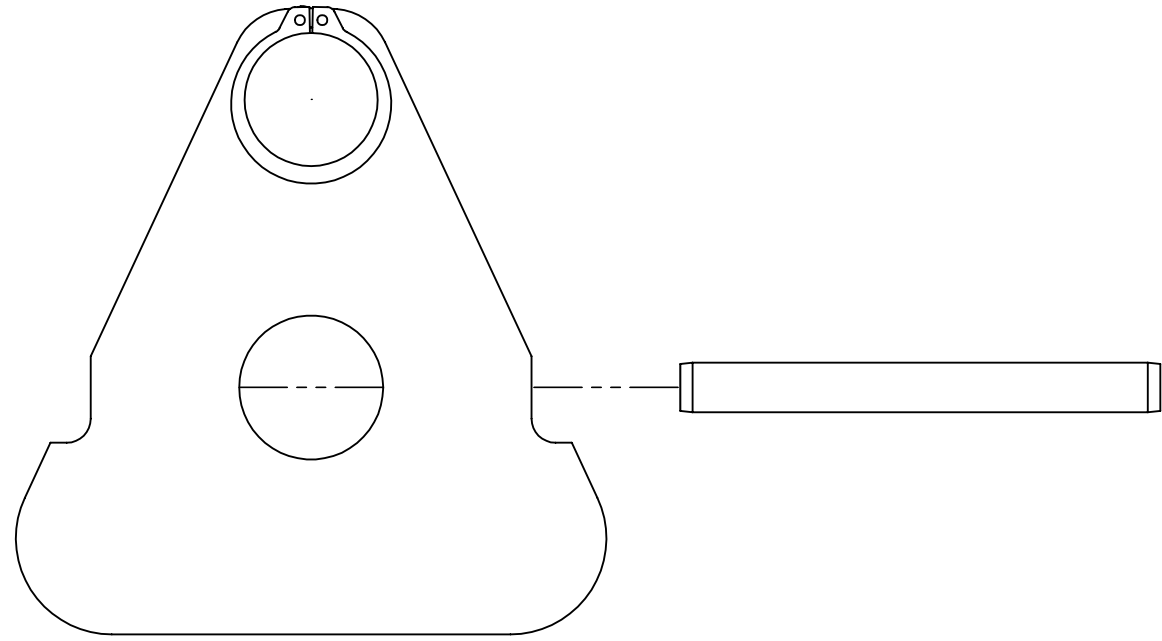
Olin College of Engineering

TITLE: **Piston Assembly Detail**

SIZE: **B** PART NO.: **ENG-110-00** REV: **H**

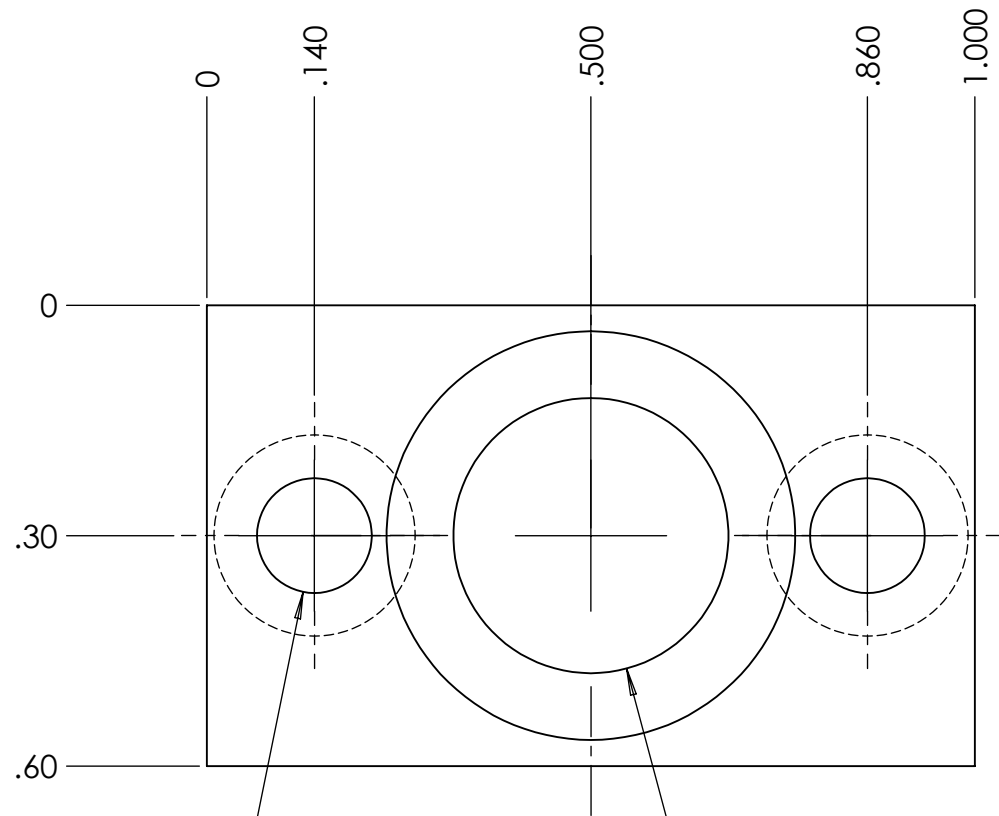
SCALE: 2:1 DO NOT SCALE PRINT SHEET 1 OF 1

THIS DRAWING CONTAINS INFORMATION WHICH IS CONFIDENTIAL AND PROPRIETARY TO ENGR2340, AND MAY NOT BE COPIED, DIVULGED OR USED IN PART OR AS A WHOLE, WITHOUT EXPRESSED WRITTEN CONSENT.



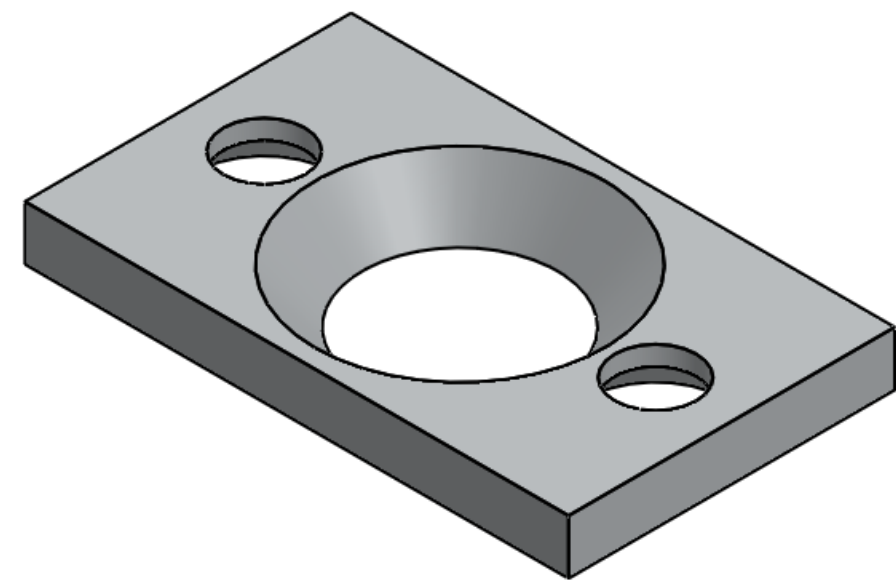
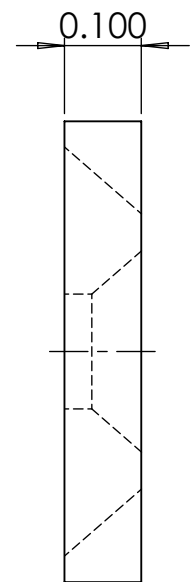
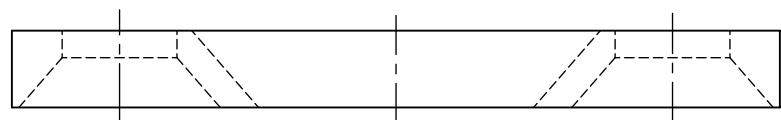
ITEM NO.	DESCRIPTION	PART NUMBER	QTY.
1	Counterweight Plate	ENG-121-01	2
2	Connecting Rod Journal	ENG-121-02	1
3	0.75in Retaining Ring	McMaster 91590A128	6
4	.25 Spring Pin	McMaster 92373A385	2

<p>ALL DIMENSIONS ARE IN INCHES - INTERPRET DRAWINGS PER ASME Y14.5-1994</p> <p>TOLERANCES UNLESS OTHERWISE SPECIFIED: X.X ±0.03 X.XX ±0.01 X.XXX ±0.005</p> <p>±0.5° 125/</p> <p>REMOVE ALL BURRS AND SHARP EDGES 0.005 R OR CHAMFER MAX.</p>	<p>UNLESS OTHERWISE SPECIFIED:</p> <p>QTY: 6 MATERIAL: Assorted</p> <p>DIMENSIONS ARE IN INCHES.</p>			<p>Olin College of Engineering</p>
	ENGINEER	landrade	12/13/2015	
	DRAWN	landrade	12/13/2015	
	CHECKED	hmskin	12/13/2015	
<p>THIS DRAWING CONTAINS INFORMATION WHICH IS CONFIDENTIAL AND PROPRIETARY TO ENGR2340, AND MAY NOT BE COPIED, DIVULGED OR USED IN PART OR AS A WHOLE, WITHOUT EXPRESSED WRITTEN CONSENT.</p>			<p>TITLE</p> <p>Counterweight Assembly</p>	
SIZE	PART NO.	REV		
B	ENG-121-00	F		
SCALE	2:1	DO NOT SCALE PRINT	SHEET 1 OF 1	



2X ϕ .15 THRU ALL
 \sphericalangle .262 x 82°

ϕ .344 THRU ALL
 \sphericalangle .532 x 82°



ALL DIMENSIONS ARE IN INCHES - INTERPRET DRAWINGS PER ASME Y14.5-1994

TOLERANCES UNLESS OTHERWISE SPECIFIED:
 X.X ±0.03
 X.XX ±0.01
 X.XXX ±0.005

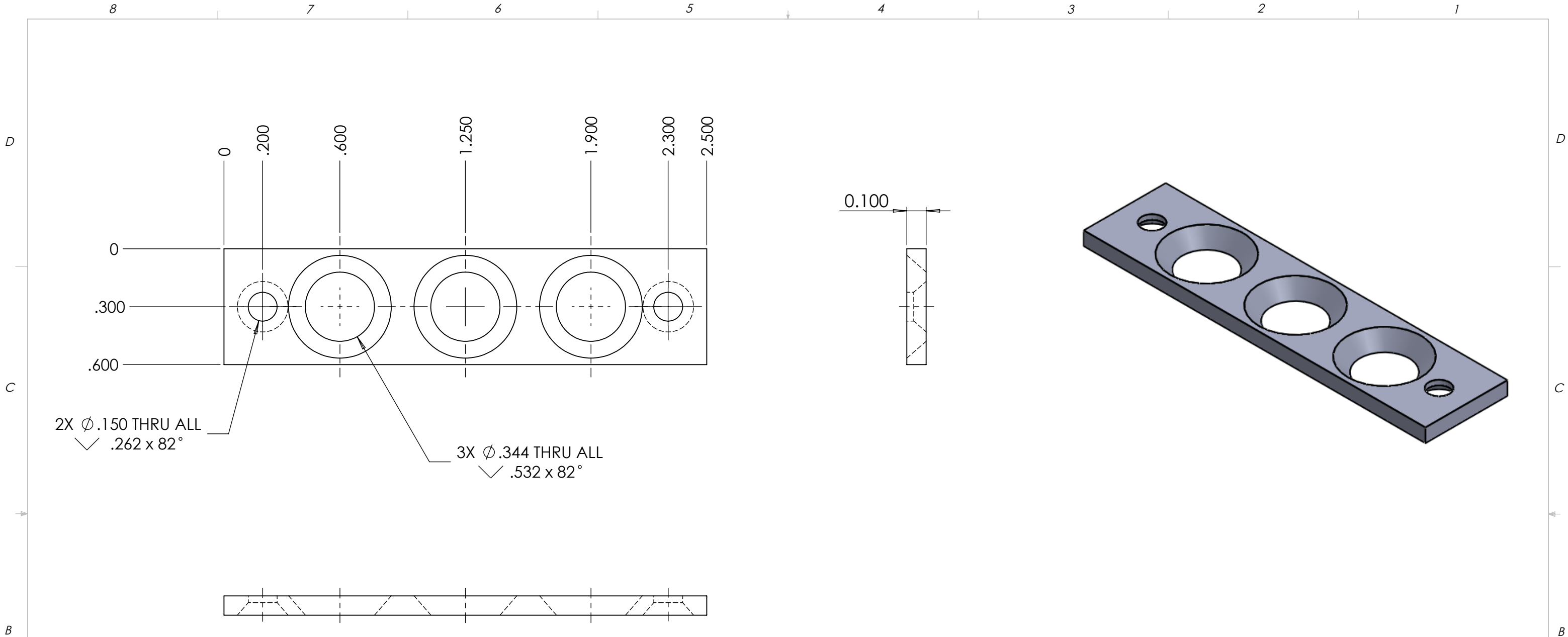
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REMOVE ALL BURRS AND SHARP EDGES 0.005 R OR CHAMFER MAX.

UNLESS OTHERWISE SPECIFIED:		
QTY: 12	MATERIAL: 6061 ALUMINUM	
DIMENSIONS ARE IN INCHES.		
ENGINEER	landrade	12/10/2015
DRAWN	landrade	12/10/2015
CHECKED	hmskin	12/10/2015
THIS DRAWING CONTAINS INFORMATION WHICH IS CONFIDENTIAL AND PROPRIETARY TO ENGR2340, AND MAY NOT BE COPIED, DIVULGED OR USED IN PART OR AS A WHOLE, WITHOUT EXPRESSED WRITTEN CONSENT.		



TITLE		
Ball Bearing Plate Side		
SIZE	PART NO.	REV
B	ENG-110-04	B
SCALE 4:1	DO NOT SCALE PRINT	SHEET 1 OF 1



UNLESS OTHERWISE SPECIFIED:			Olin College of Engineering		
QTY: 6 MATERIAL: 6061 ALUMINUM			TITLE		
DIMENSIONS ARE IN INCHES.			Ball Bearing Plate		
ENGINEER	landrade	12/6/2015	SIZE	PART NO.	REV
DRAWN	landrade	12/6/2015	B	ENG-110-05	A
CHECKED	hmskin	12/6/2015	SCALE	DO NOT SCALE PRINT	SHEET 1 OF 1
ALL DIMENSIONS ARE IN INCHES - INTERPRET DRAWINGS PER ASME Y14.5-1994 TOLERANCES UNLESS OTHERWISE SPECIFIED: X.X ±0.03 X.XX ±0.01 X.XXX ±0.005 $\sphericalangle \pm 0.5^\circ$ 125/			THIS DRAWING CONTAINS INFORMATION WHICH IS CONFIDENTIAL AND PROPRIETARY TO ENGR2340, AND MAY NOT BE COPIED, DIVULGED OR USED IN PART OR AS A WHOLE, WITHOUT EXPRESSED WRITTEN CONSENT.		
REMOVE ALL BURRS AND SHARP EDGES 0.005 R OR CHAMFER MAX.					

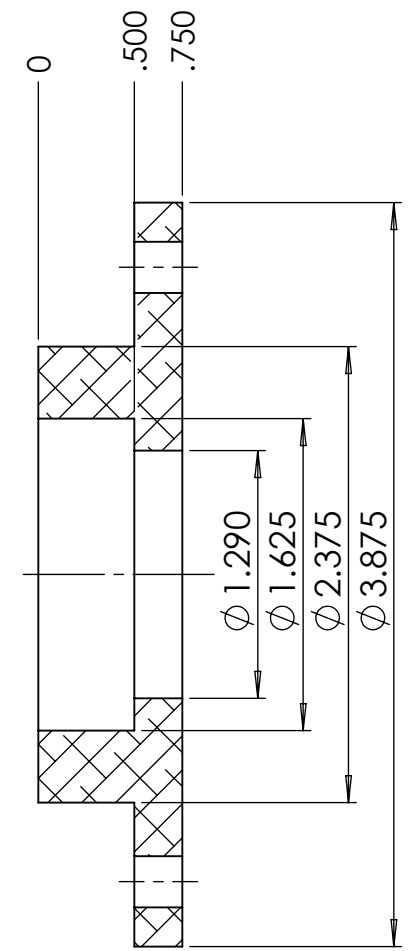
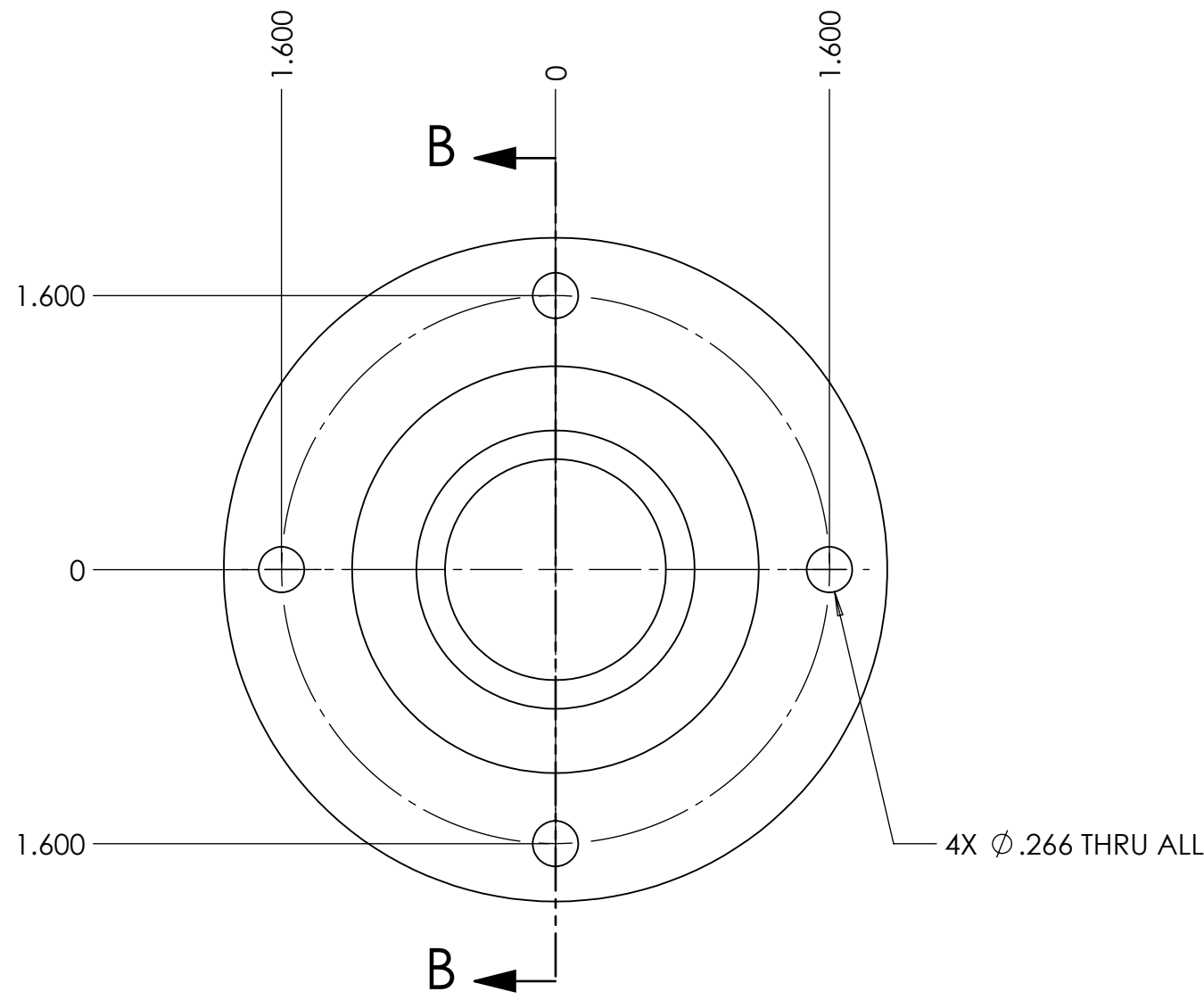
8 7 6 5 4 3 2 1

D

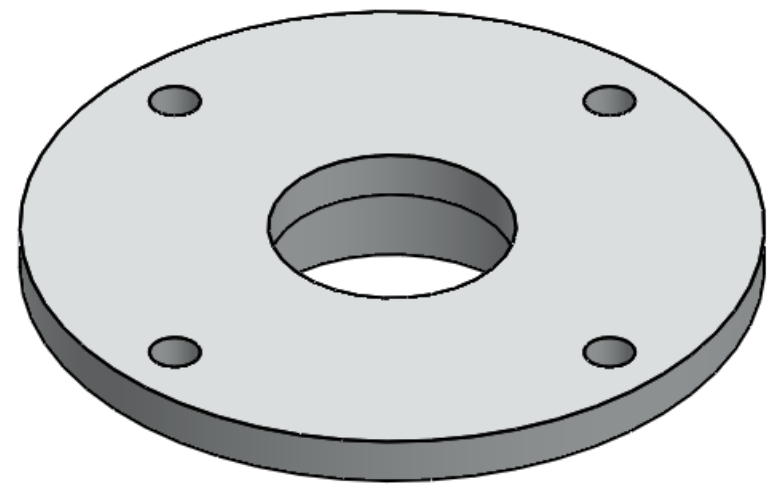
C

B

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SECTION B-B

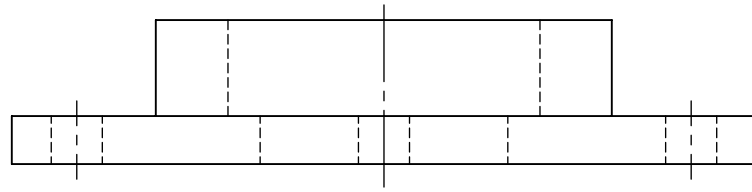


D

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B

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ALL DIMENSIONS ARE IN INCHES - INTERPRET DRAWINGS PER ASME Y14.5-1994

TOLERANCES UNLESS OTHERWISE SPECIFIED:
 X.X ±0.03
 X.XX ±0.01
 X.XXX ±0.005

\angle ±0.5° 125/

REMOVE ALL BURRS AND SHARP EDGES 0.005 R OR CHAMFER MAX.

UNLESS OTHERWISE SPECIFIED:		
QTY:	1	MATERIAL: 6061 ALUMINUM
DIMENSIONS ARE IN INCHES.		
ENGINEER	hmskin	12/12/2015
DRAWN	landrade	12/12/2015
CHECKED	hmskin	12/12/2015

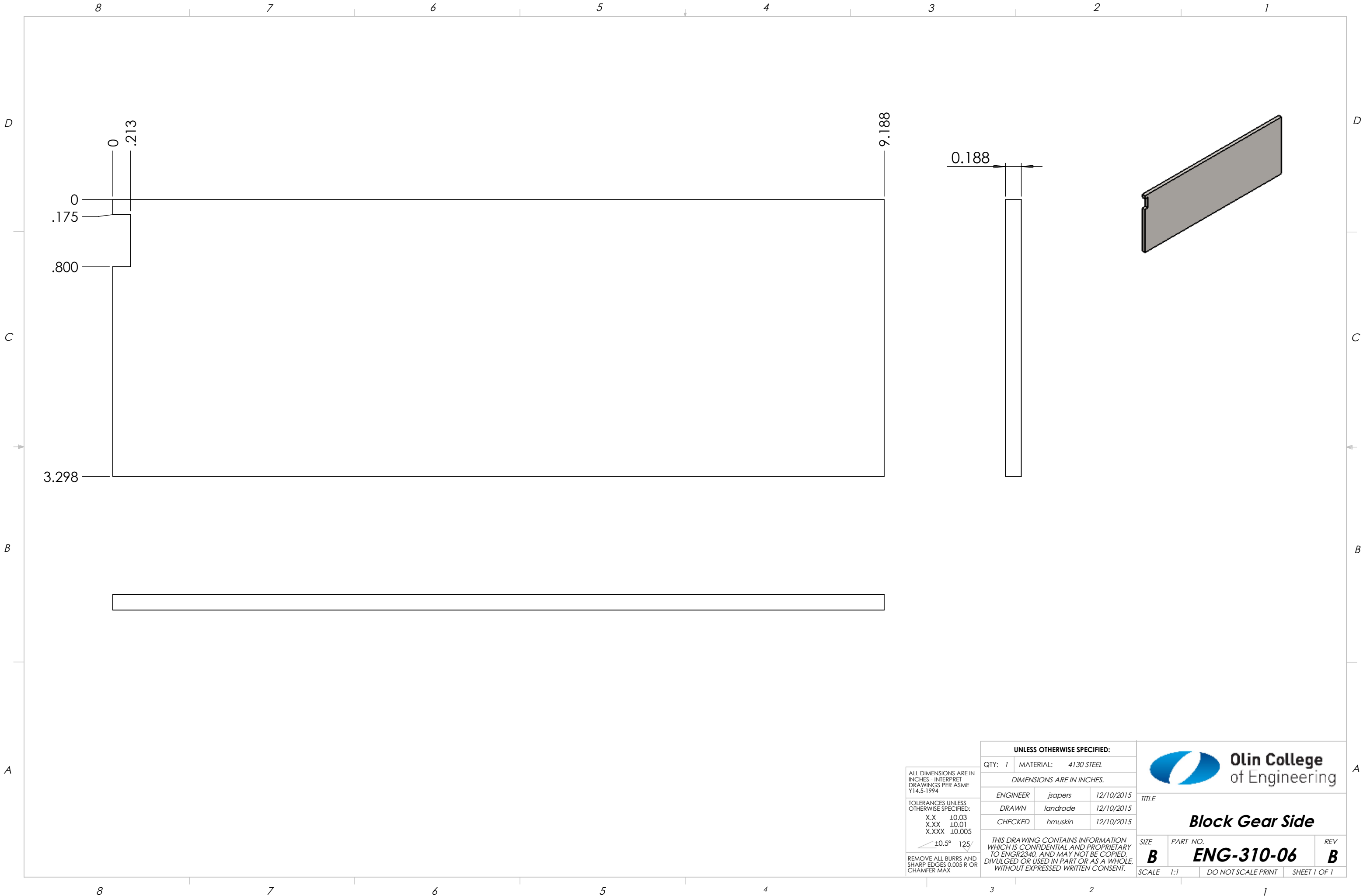
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TITLE
**Bearing Housing
 Turbine Shaft**

SIZE B	PART NO. ENG-233-01	REV B
SCALE 1:1	DO NOT SCALE PRINT	SHEET 1 OF 1

8 7 6 5 4 3 2 1




ALL DIMENSIONS ARE IN INCHES - INTERPRET DRAWINGS PER ASME Y14.5-1994

TOLERANCES UNLESS OTHERWISE SPECIFIED:
 X.X ±0.03
 X.XX ±0.01
 X.XXX ±0.005

∠±0.5° 125/

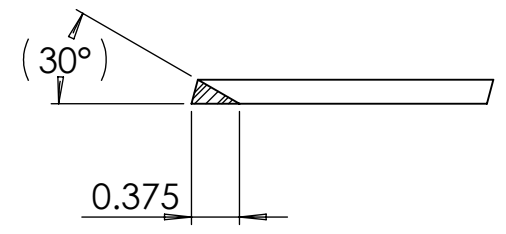
REMOVE ALL BURRS AND SHARP EDGES 0.005 R OR CHAMFER MAX

UNLESS OTHERWISE SPECIFIED:		
QTY: 1	MATERIAL: 4130 STEEL	
DIMENSIONS ARE IN INCHES.		
ENGINEER	jsapers	12/10/2015
DRAWN	landrade	12/10/2015
CHECKED	hmskin	12/10/2015

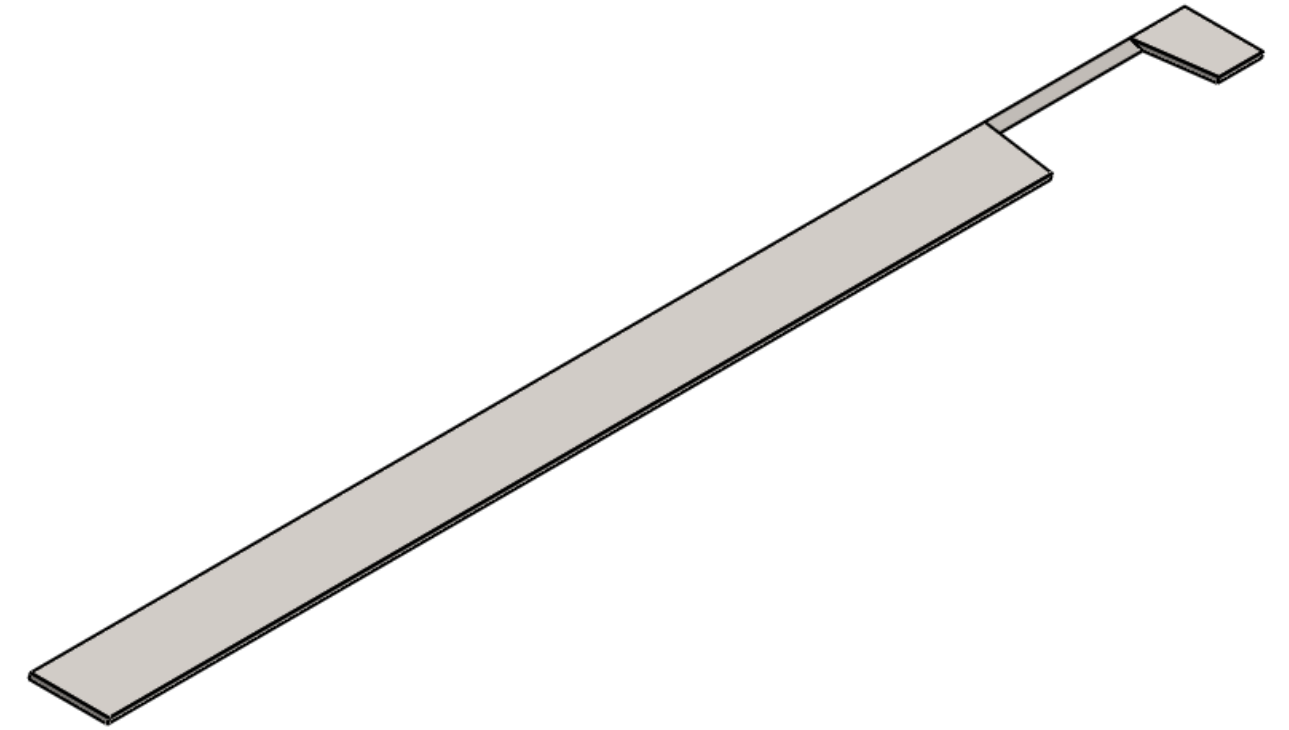
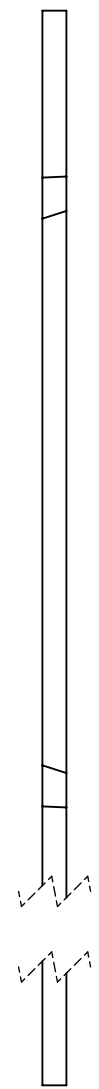
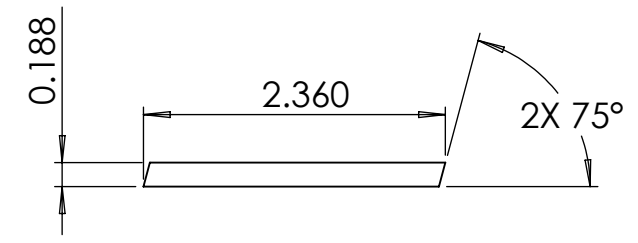
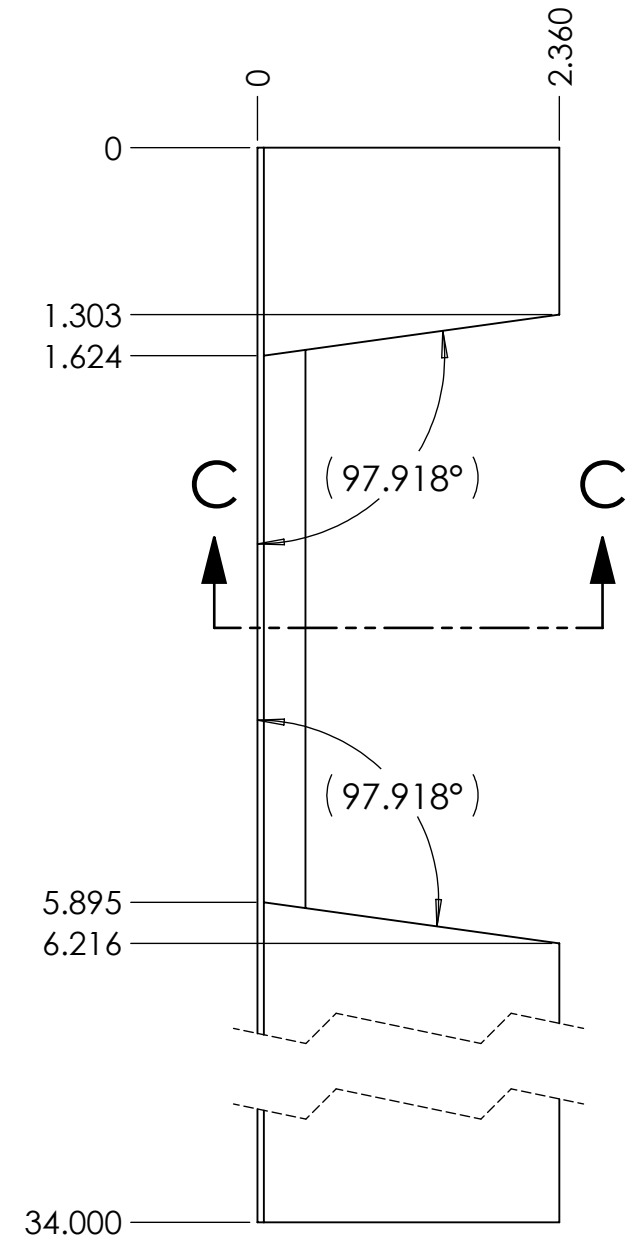
		
TITLE		
Block Gear Side		
SIZE	PART NO.	REV
B	ENG-310-06	B
SCALE 1:1	DO NOT SCALE PRINT	SHEET 1 OF 1

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8 7 6 5 4 3 2 1



SECTION C-C
SCALE 1:1.5



D
C
B
A

D
C
B
A

8 7 6 5 4 3 2 1

ALL DIMENSIONS ARE IN INCHES - INTERPRET DRAWINGS PER ASME Y14.5-1994

TOLERANCES UNLESS OTHERWISE SPECIFIED:
 X.X ±0.03
 X.XX ±0.01
 X.XXX ±0.005

±0.5° 125/

REMOVE ALL BURRS AND SHARP EDGES 0.005 R OR CHAMFER MAX.

UNLESS OTHERWISE SPECIFIED:		
QTY: 1	MATERIAL: 4130 STEEL	
DIMENSIONS ARE IN INCHES.		
ENGINEER	jsapers	12/13/2015
DRAWN	landrade	12/13/2015
CHECKED	hmskin	12/13/2015



TITLE		
Block Right Angle		
SIZE	PART NO.	REV
B	ENG-310-13	A
SCALE	DO NOT SCALE PRINT	SHEET 1 OF 1
2:1		

THIS DRAWING CONTAINS INFORMATION WHICH IS CONFIDENTIAL AND PROPRIETARY TO ENGR2340, AND MAY NOT BE COPIED, DIVULGED OR USED IN PART OR AS A WHOLE, WITHOUT EXPRESSED WRITTEN CONSENT.

8 7 6 5 4 3 2 1

D

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B

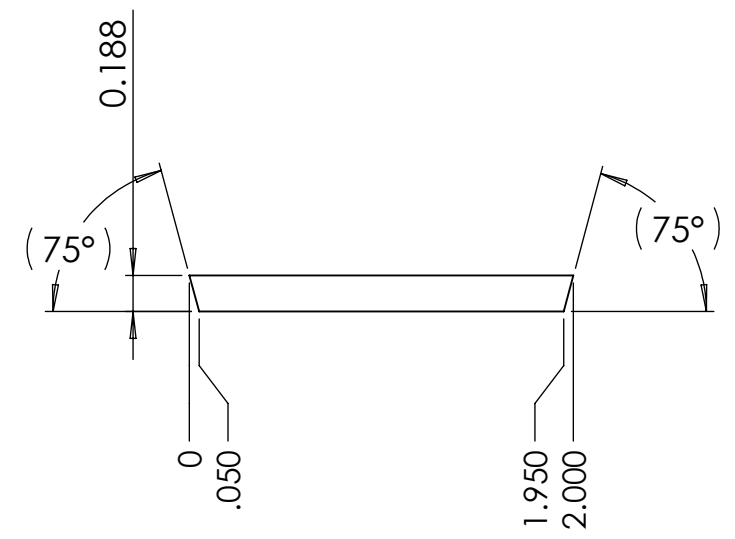
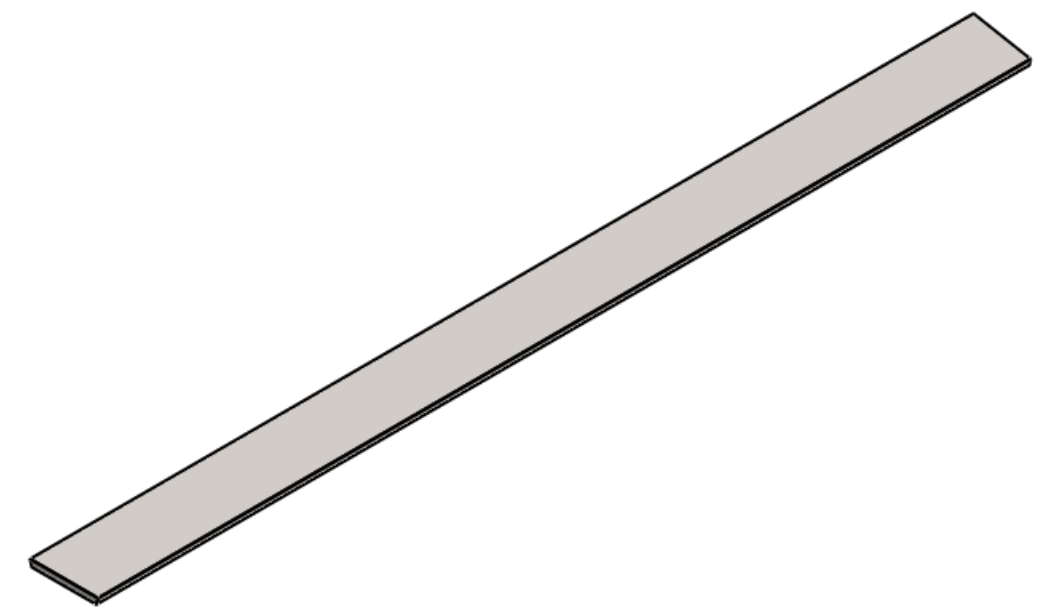
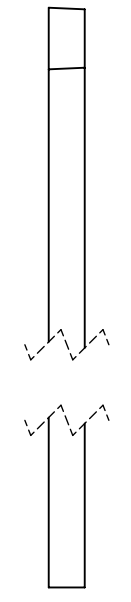
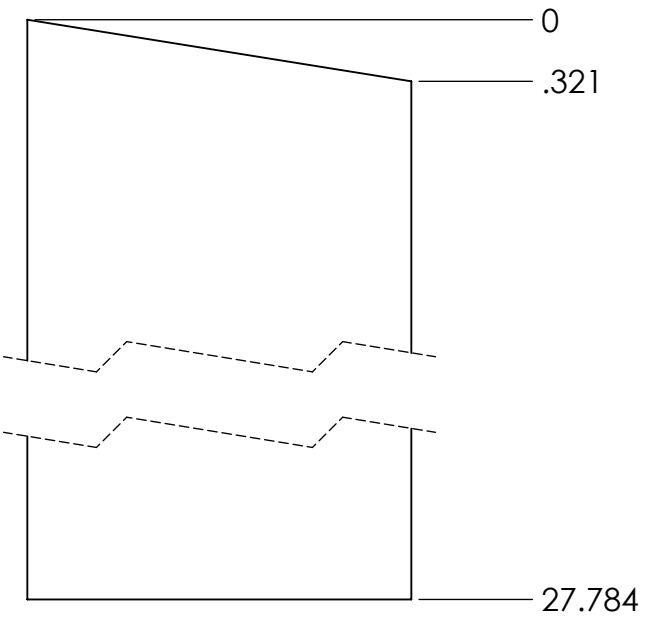
A

D

C

B

A



ALL DIMENSIONS ARE IN INCHES - INTERPRET DRAWINGS PER ASME Y14.5-1994

TOLERANCES UNLESS OTHERWISE SPECIFIED:
 X.X ±0.03
 X.XX ±0.01
 X.XXX ±0.005

∠±0.5° 125

REMOVE ALL BURRS AND SHARP EDGES 0.005 R OR CHAMFER MAX.

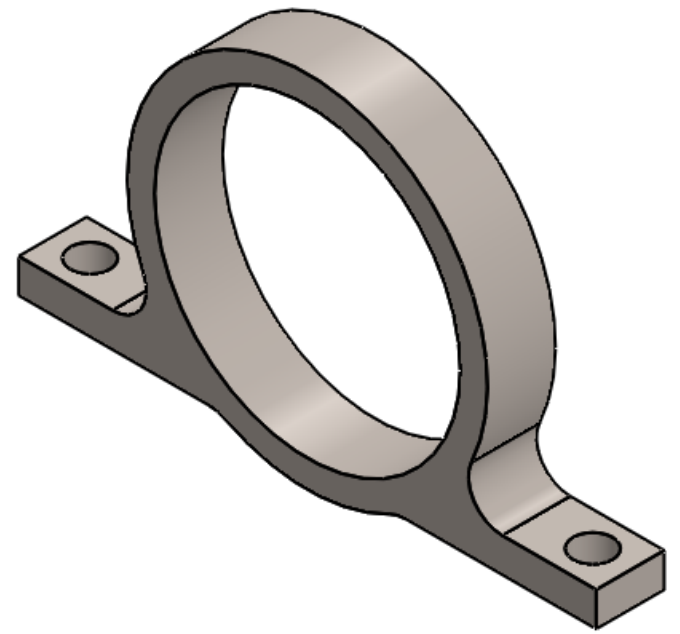
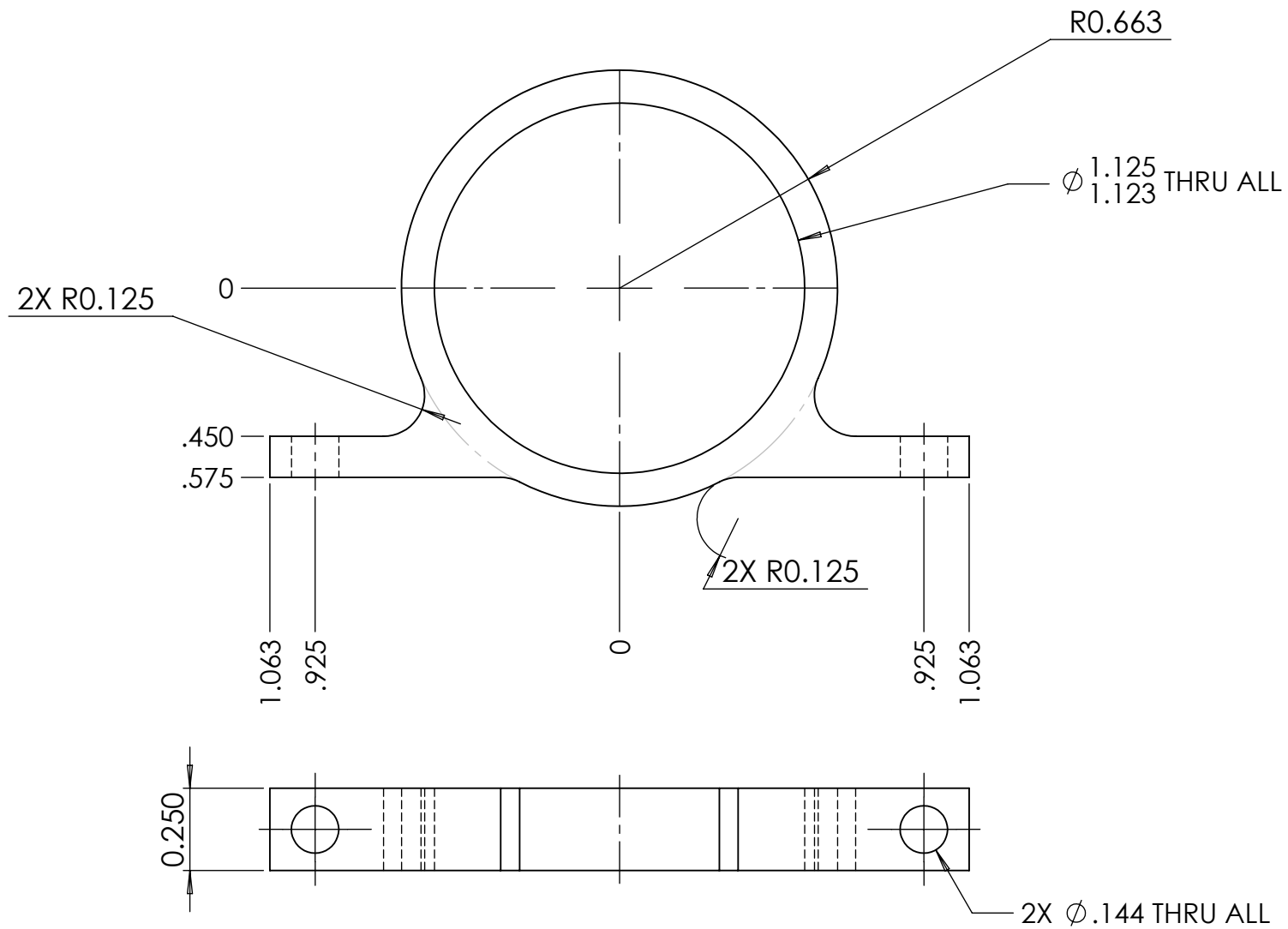
UNLESS OTHERWISE SPECIFIED:		
QTY: 1	MATERIAL: 4130 STEEL	
DIMENSIONS ARE IN INCHES.		
ENGINEER	jsapers	12/10/2015
DRAWN	landrade	12/10/2015
CHECKED	hmskin	12/10/2015



TITLE
Block Right Top 1

SIZE B	PART NO. ENG-310-14	REV B
SCALE 2:1	DO NOT SCALE PRINT	SHEET 1 OF 1

8 7 6 5 4 3 2 1



NOTE:
1. SEE 'CAM SHAFT BEARING HOUSING.SLDPRT' FOR PROFILE.

ALL DIMENSIONS ARE IN INCHES - INTERPRET DRAWINGS PER ASME Y14.5-1994

TOLERANCES UNLESS OTHERWISE SPECIFIED:
 X.X ±0.03
 X.XX ±0.01
 X.XXX ±0.005

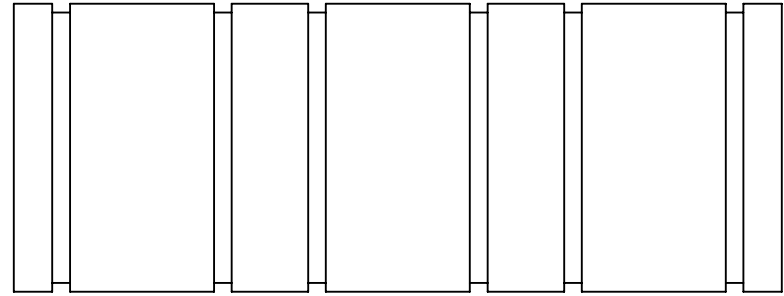
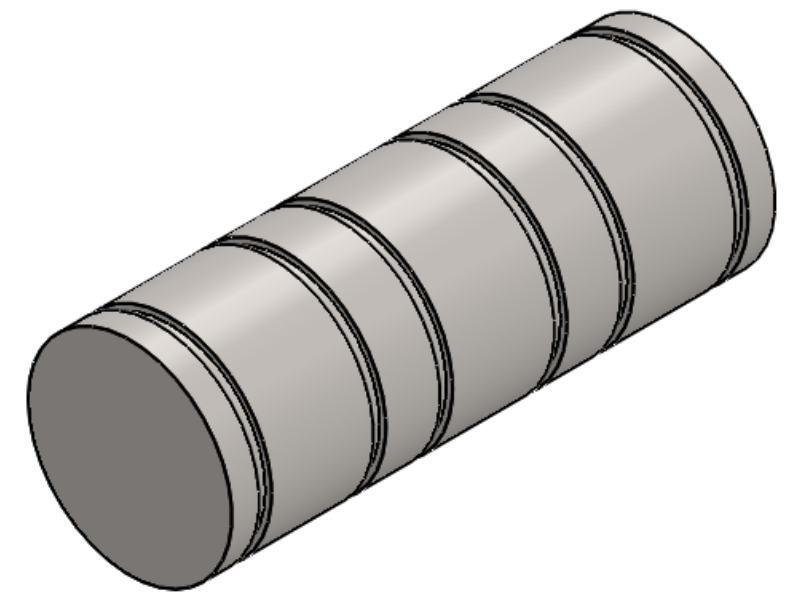
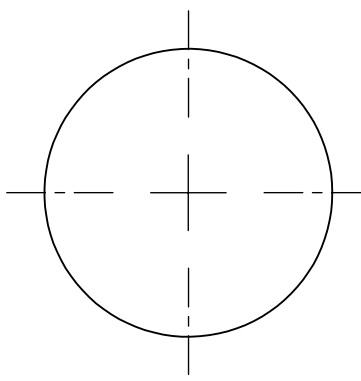
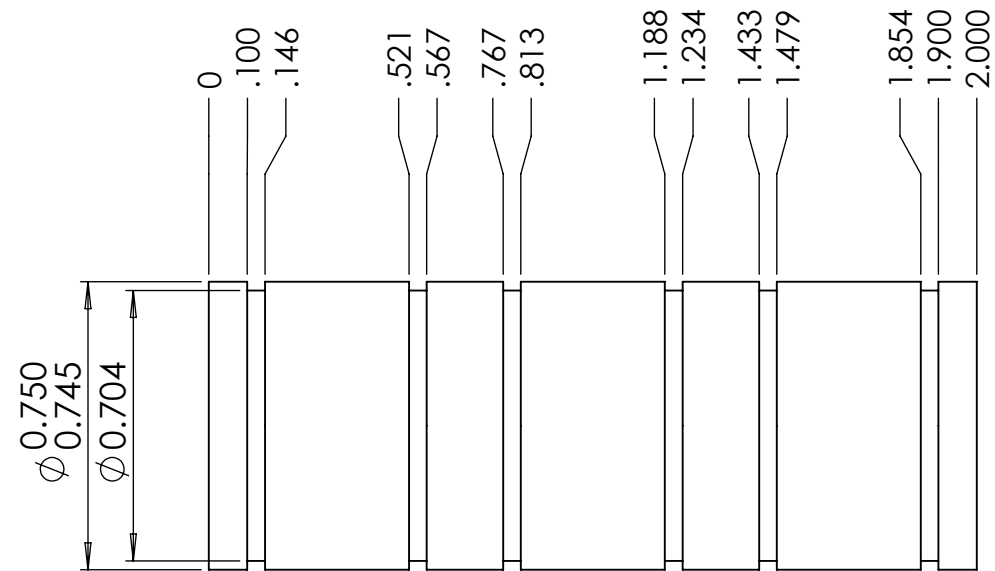
±0.5° 125/

REMOVE ALL BURRS AND SHARP EDGES 0.005 R OR CHAMFER MAX.

UNLESS OTHERWISE SPECIFIED:		
QTY: 2	MATERIAL: 6061 ALUMINUM	
DIMENSIONS ARE IN INCHES.		
ENGINEER	landrade	12/10/2015
DRAWN	landrade	12/10/201
CHECKED	hmskin	12/10/201
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TITLE		
Cam Shaft Bearing Housing		
SIZE	PART NO.	REV
B	ENG-510-01	A
SCALE	DO NOT SCALE PRINT	SHEET 1 OF 1
2:1		




ALL DIMENSIONS ARE IN INCHES - INTERPRET DRAWINGS PER ASME Y14.5-1994

TOLERANCES UNLESS OTHERWISE SPECIFIED:
 X.X ±0.03
 X.XX ±0.01
 X.XXX ±0.005

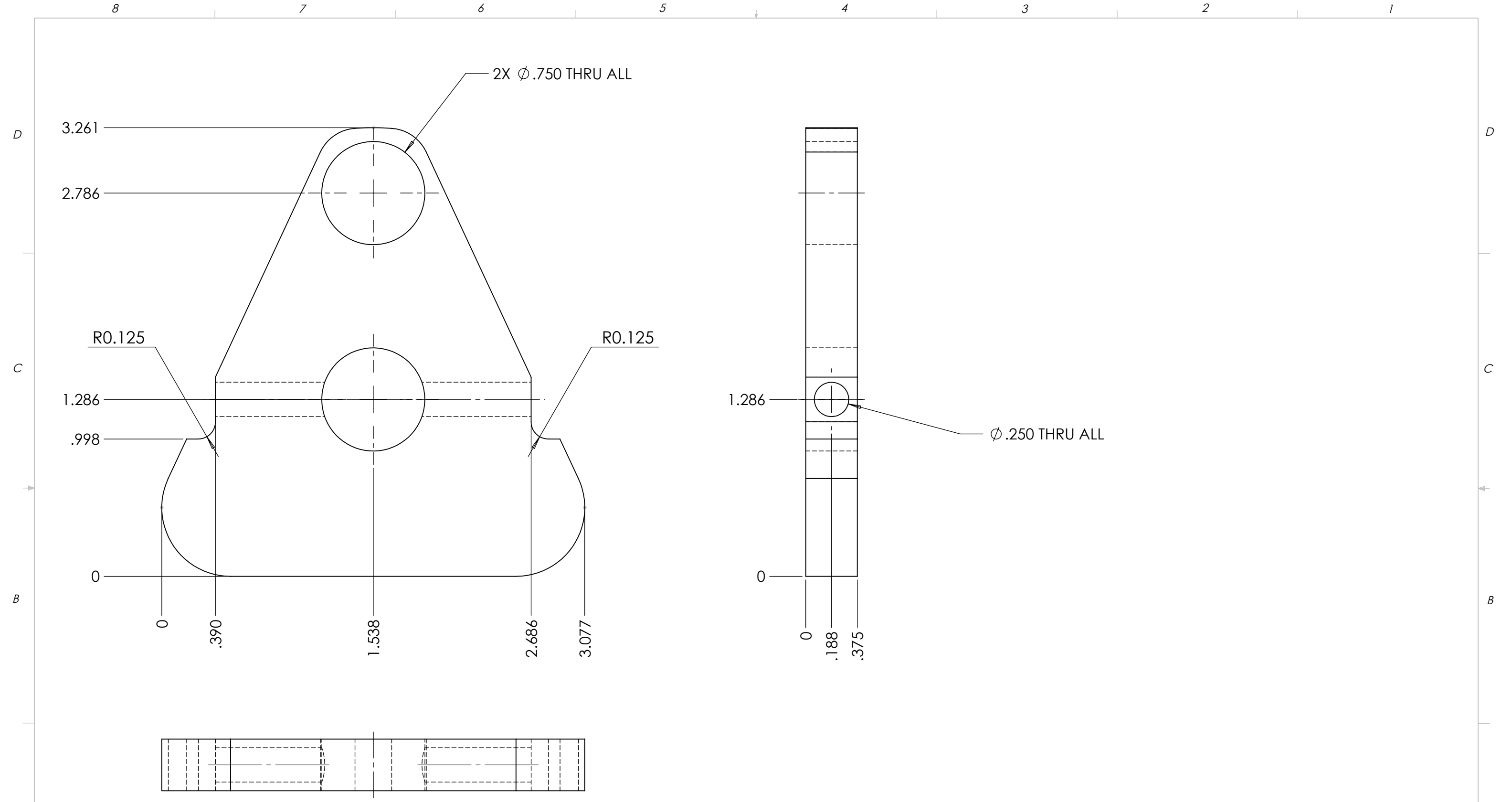
∠±0.5° 125/

REMOVE ALL BURRS AND SHARP EDGES 0.005 R OR CHAMFER MAX.

UNLESS OTHERWISE SPECIFIED:		
QTY: 6	MATERIAL: 6061 ALUMINUM	
DIMENSIONS ARE IN INCHES.		
ENGINEER	landrade	12/6/2015
DRAWN	landrade	12/6/2015
CHECKED	hmskin	12/6/2015

		
TITLE		
Connecting Rod Journal		
SIZE	PART NO.	REV
B	ENG-121-02	B
SCALE 2:1	DO NOT SCALE PRINT	SHEET 1 OF 1

THIS DRAWING CONTAINS INFORMATION WHICH IS CONFIDENTIAL AND PROPRIETARY TO ENGR2340, AND MAY NOT BE COPIED, DIVULGED OR USED IN PART OR AS A WHOLE, WITHOUT EXPRESSED WRITTEN CONSENT.



NOTE:
1. SEE SOLIDWORKS PART "COUNTERWEIGHT PLATE.SLDPRT" FOR OUTER CONTOUR


ALL DIMENSIONS ARE IN INCHES - INTERPRET DRAWINGS PER ASME Y14.5-1994

TOLERANCES UNLESS OTHERWISE SPECIFIED:
 X.X ±0.03
 X.XX ±0.01
 X.XXX ±0.005

±0.5° 125/

REMOVE ALL BURRS AND SHARP EDGES 0.005 R OR CHAMFER MAX

UNLESS OTHERWISE SPECIFIED:		
QTY: 12	MATERIAL: 6061 ALUMINUM	
DIMENSIONS ARE IN INCHES.		
ENGINEER	ckissel	12/10/2015
DRAWN	ckissel	12/10/2015
CHECKED	hmskin	12/10/2015

		
TITLE Counterweight Plate		
SIZE B	PART NO. ENG-121-01	REV F
SCALE 3:2	DO NOT SCALE PRINT	SHEET 1 OF 1

8 7 6 5 4 3 2 1

D

D

C

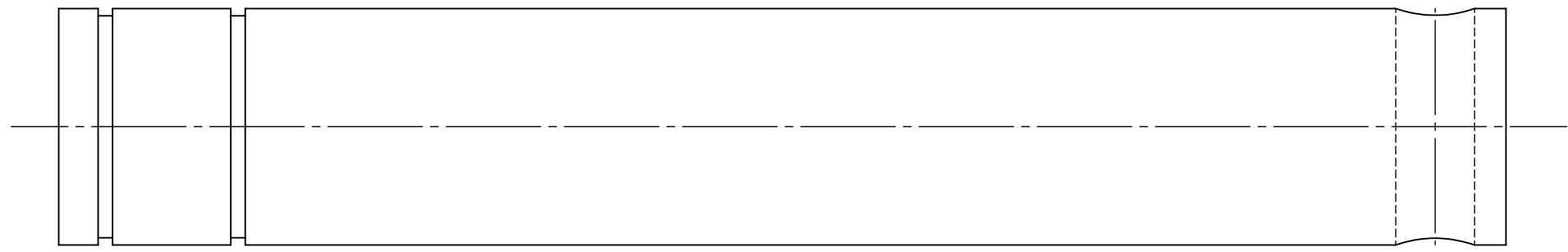
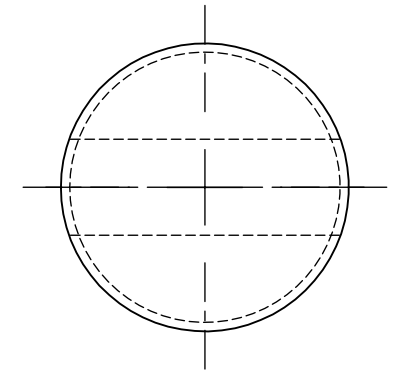
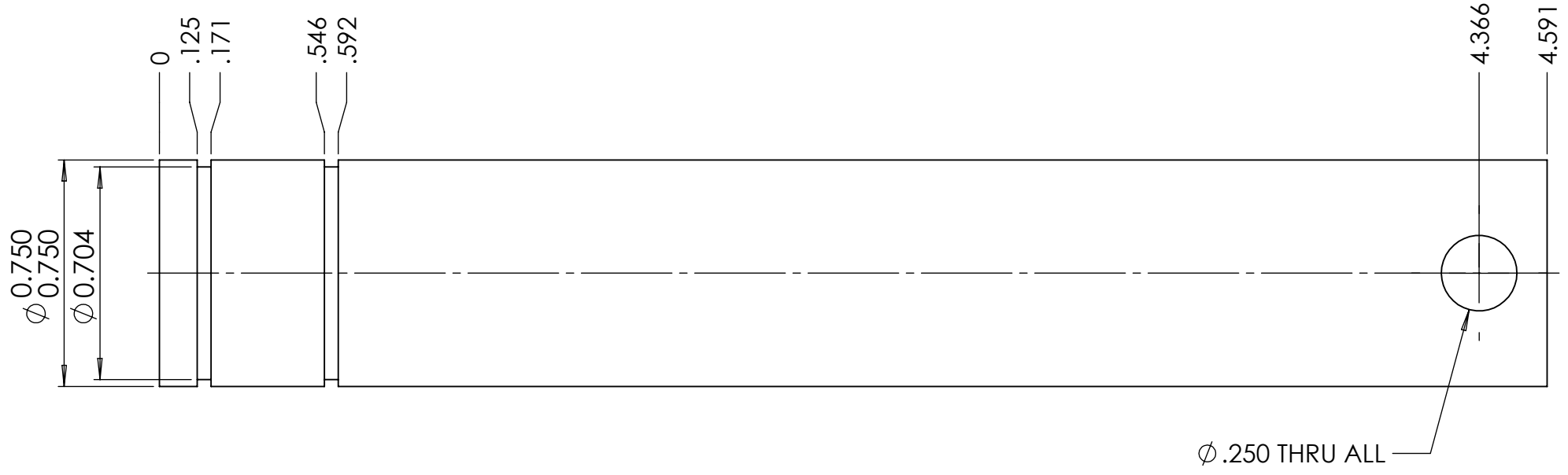
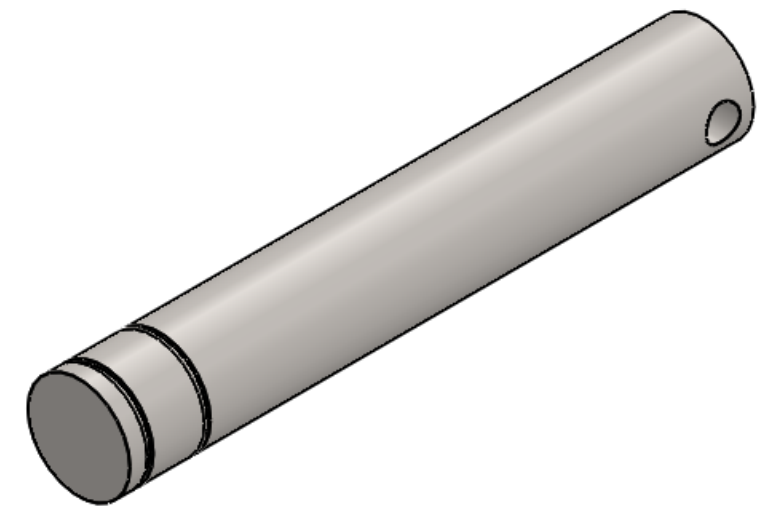
C

B

B

A

A



ALL DIMENSIONS ARE IN INCHES - INTERPRET DRAWINGS PER ASME Y14.5-1994
TOLERANCES UNLESS OTHERWISE SPECIFIED:
X.X ±0.03
X.XX ±0.01
X.XXX ±0.005
±0.5° 125/

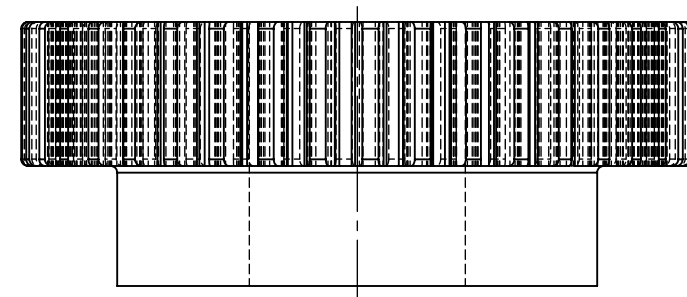
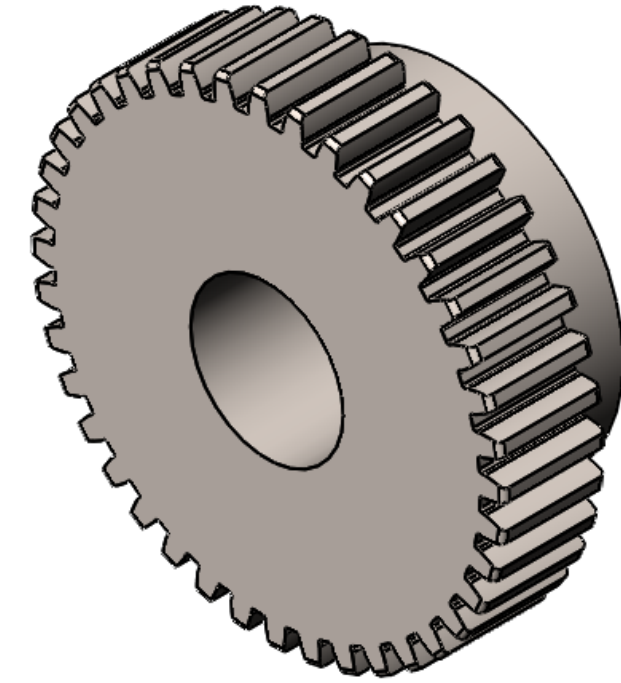
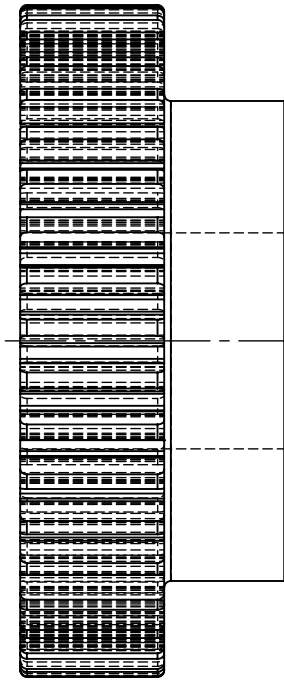
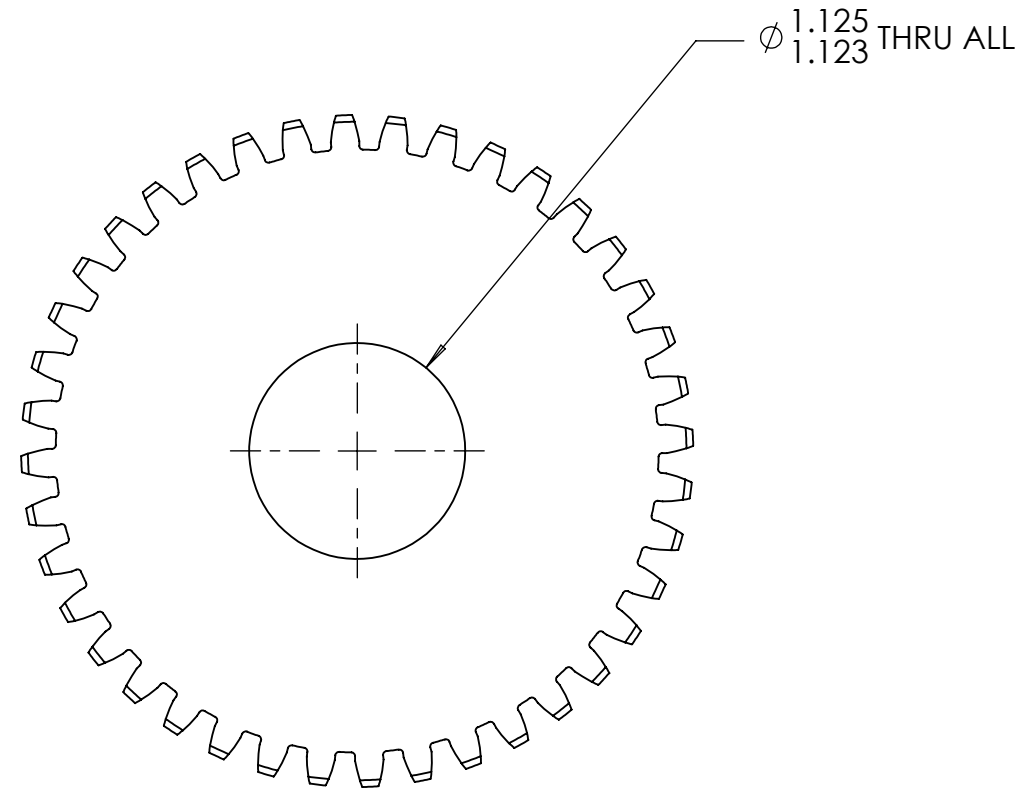
UNLESS OTHERWISE SPECIFIED:		
QTY: 1	MATERIAL:	6061 ALUMINUM
DIMENSIONS ARE IN INCHES.		
ENGINEER	landrade	12/9/2015
DRAWN	landrade	12/9/2015
CHECKED	hmskin	12/9/2015



TITLE
Final End Shaft Engine

SIZE B	PART NO. ENG-120-03	REV C
SCALE 2:1	DO NOT SCALE PRINT	SHEET 1 OF 1

8 7 6 5 4 3 2 1



NOTE:
1. THIS PART IS MODIFIED FROM MCMASTER PART 6325K2

ALL DIMENSIONS ARE IN INCHES - INTERPRET DRAWINGS PER ASME Y14.5-1994

TOLERANCES UNLESS OTHERWISE SPECIFIED:
X.X ±0.03
X.XX ±0.01
X.XXX ±0.005

±0.5° 125/

REMOVE ALL BURRS AND SHARP EDGES 0.005 R OR CHAMFER MAX.

UNLESS OTHERWISE SPECIFIED:

QTY: 1 MATERIAL: STEEL

DIMENSIONS ARE IN INCHES.

ENGINEER ckissel 12/13/2015

DRAWN landrade 12/13/2015

CHECKED hmuskin 12/13/2015

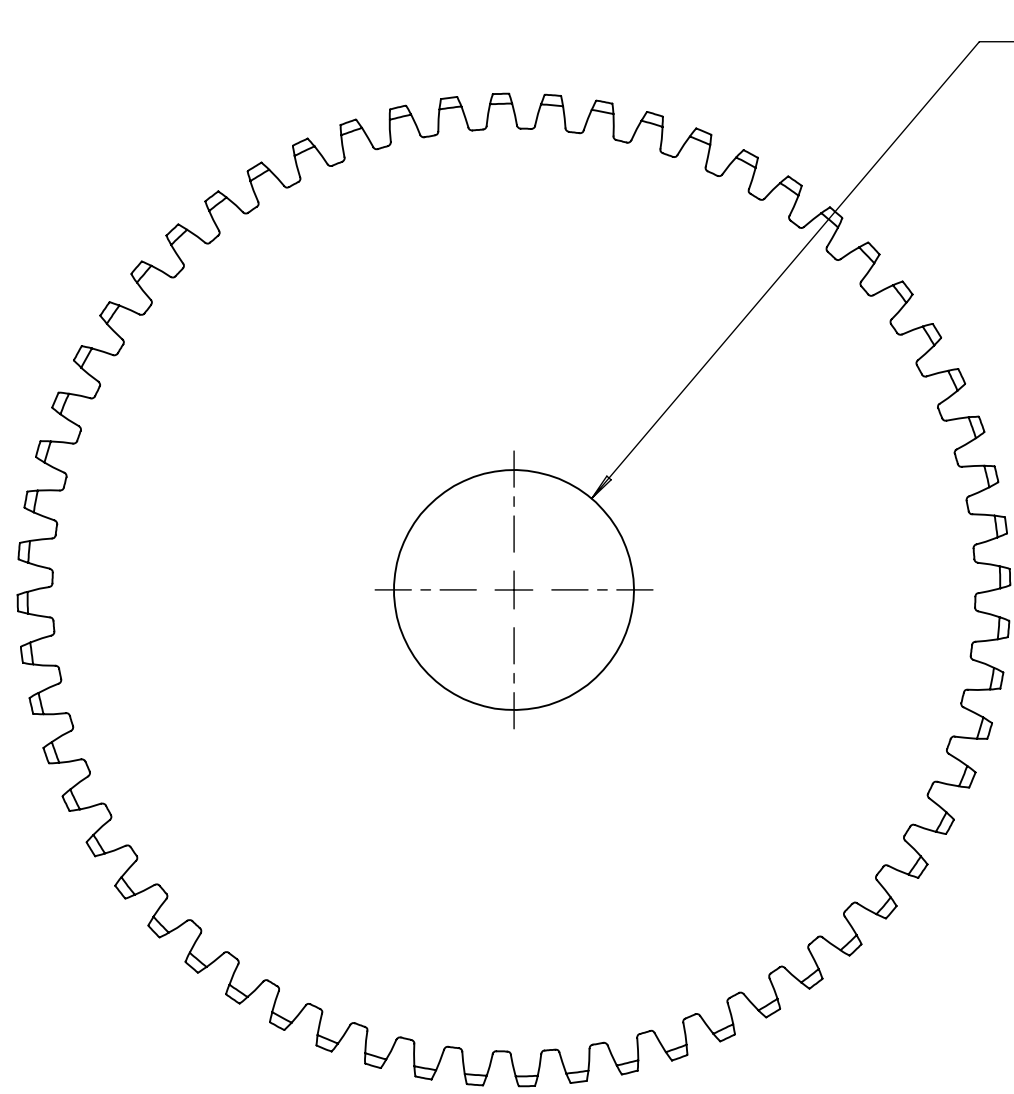
THIS DRAWING CONTAINS INFORMATION WHICH IS CONFIDENTIAL AND PROPRIETARY TO ENGR3330, AND MAY NOT BE COPIED, DIVULGED OR USED IN PART OR AS A WHOLE, WITHOUT EXPRESSED WRITTEN CONSENT.



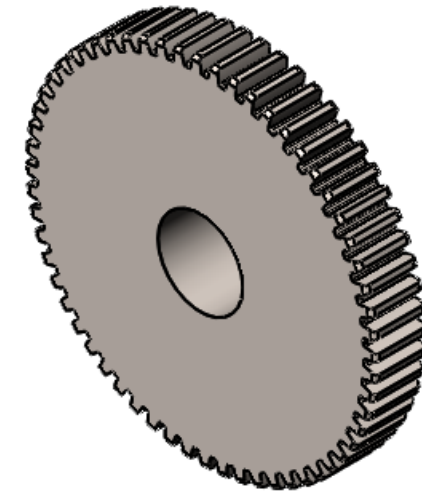
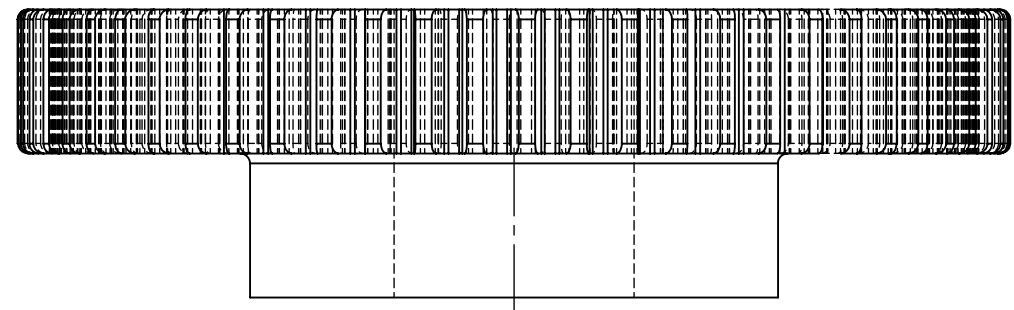
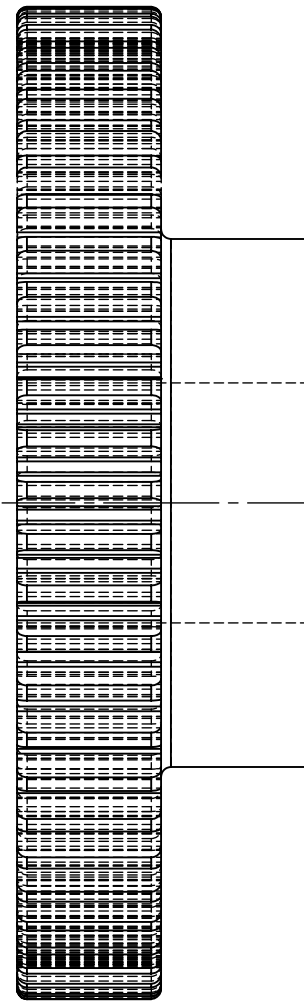
TITLE
40 tooth

SIZE **B** PART NO. **6325K2** REV **A**

SCALE 2:1 DO NOT SCALE PRINT SHEET 1 OF 1



Ø 1.250
1.248 THRU ALL



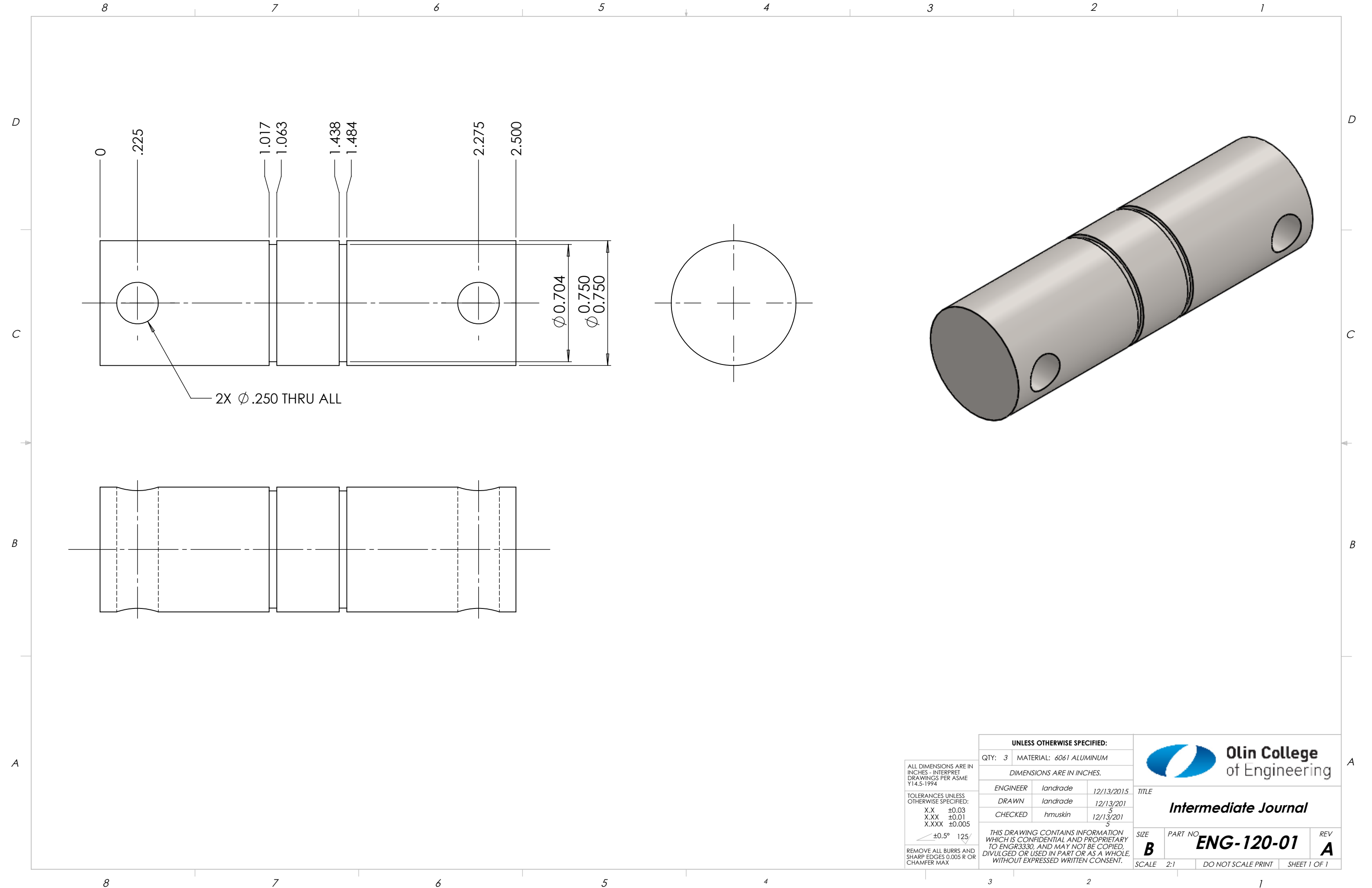
NOTE:
1. THIS PART IS MODIFIED FROM MCMASTER PART 6325K4

ALL DIMENSIONS ARE IN INCHES - INTERPRET DRAWINGS PER ASME Y14.5-1994
TOLERANCES UNLESS OTHERWISE SPECIFIED:
X.X ±0.03
X.XX ±0.01
X.XXX ±0.005
±0.5° 125/

UNLESS OTHERWISE SPECIFIED:		
QTY: 1	MATERIAL: STEEL	
DIMENSIONS ARE IN INCHES.		
ENGINEER	ckissel	12/13/2015
DRAWN	landrade	12/13/2015
CHECKED	hmskin	12/13/2015
THIS DRAWING CONTAINS INFORMATION WHICH IS CONFIDENTIAL AND PROPRIETARY TO ENGR2340, AND MAY NOT BE COPIED, DIVULGED OR USED IN PART OR AS A WHOLE, WITHOUT EXPRESSED WRITTEN CONSENT.		



TITLE 60 Tooth		
SIZE B	PART NO. 6325K4	REV A
SCALE 2:1	DO NOT SCALE PRINT	SHEET 1 OF 1



2X ϕ .250 THRU ALL

ϕ 0.704
 ϕ 0.750
 ϕ 0.750

UNLESS OTHERWISE SPECIFIED:		QTY: 3		MATERIAL: 6061 ALUMINUM	
ALL DIMENSIONS ARE IN INCHES - INTERPRET DRAWINGS PER ASME Y14.5-1994					
DIMENSIONS ARE IN INCHES.					
TOLERANCES UNLESS OTHERWISE SPECIFIED:		ENGINEER	landrade	12/13/2015	TITLE
X.X	±0.03	DRAWN	landrade	12/13/201	Intermediate Journal
X.XX	±0.01	CHECKED	hmskin	12/13/201	
X.XXX	±0.005	THIS DRAWING CONTAINS INFORMATION WHICH IS CONFIDENTIAL AND PROPRIETARY TO ENGR3330, AND MAY NOT BE COPIED, DIVULGED OR USED IN PART OR AS A WHOLE, WITHOUT EXPRESSED WRITTEN CONSENT.			SIZE
\angle ±0.5°	125/				B
REMOVE ALL BURRS AND SHARP EDGES 0.005 R OR CHAMFER MAX.		PART NO.		ENG-120-01	
		SCALE		2:1	
		DO NOT SCALE PRINT		SHEET 1 OF 1	
		REV		A	



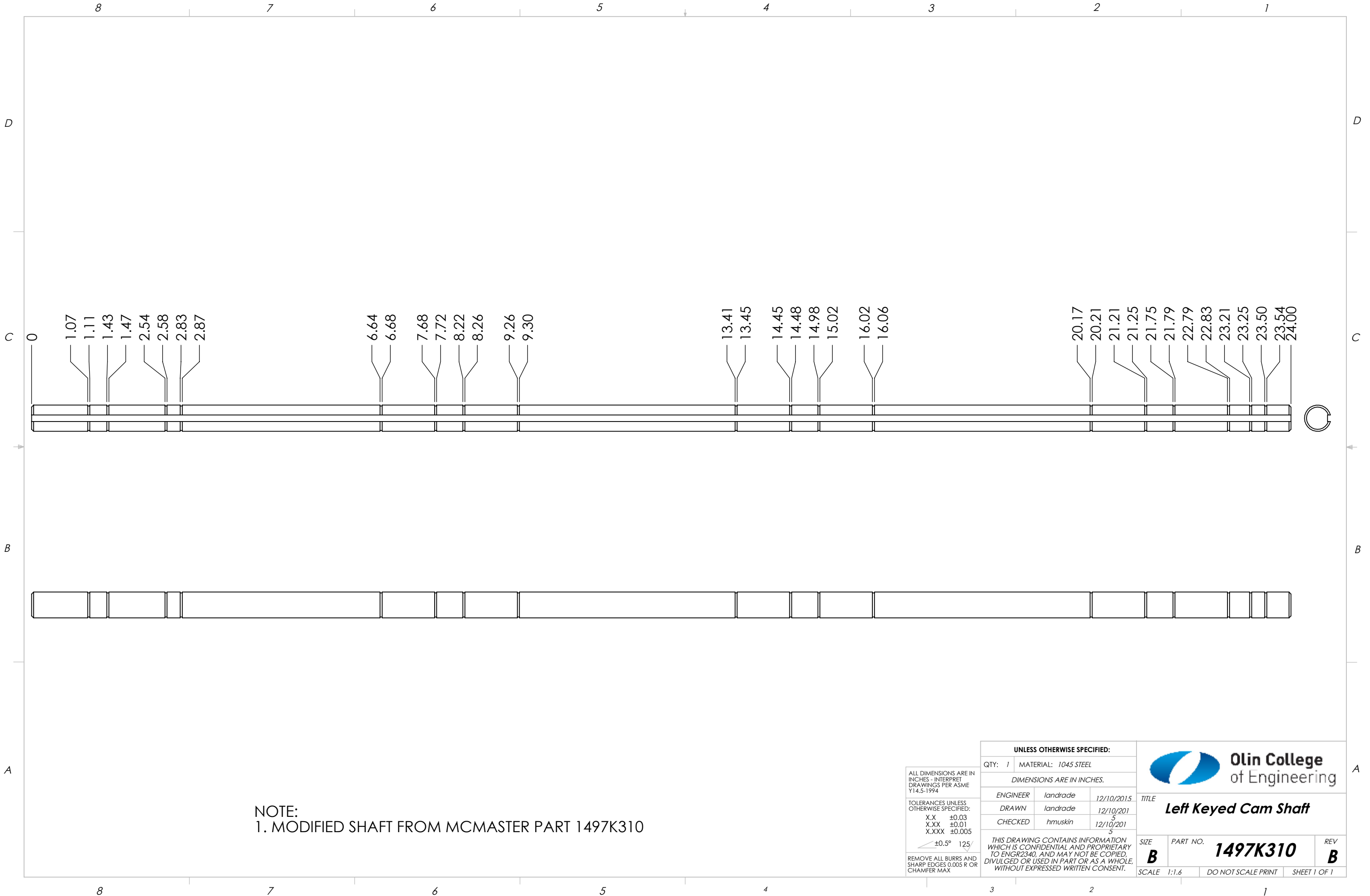
Intermediate Journal

ENG-120-01

B

A


SCALE 2:1 DO NOT SCALE PRINT SHEET 1 OF 1



NOTE:
1. MODIFIED SHAFT FROM MCMASTER PART 1497K310

ALL DIMENSIONS ARE IN INCHES - INTERPRET DRAWINGS PER ASME Y14.5-1994
TOLERANCES UNLESS OTHERWISE SPECIFIED:
X.X ±0.03
X.XX ±0.01
X.XXX ±0.005
±0.5° 125
REMOVE ALL BURRS AND SHARP EDGES 0.005 R OR CHAMFER MAX

UNLESS OTHERWISE SPECIFIED:		
QTY:	1	MATERIAL: 1045 STEEL
DIMENSIONS ARE IN INCHES.		
ENGINEER	landrade	12/10/2015
DRAWN	landrade	12/10/2015
CHECKED	hmskin	12/10/2015
THIS DRAWING CONTAINS INFORMATION WHICH IS CONFIDENTIAL AND PROPRIETARY TO ENGR2340, AND MAY NOT BE COPIED, DIVULGED OR USED IN PART OR AS A WHOLE, WITHOUT EXPRESSED WRITTEN CONSENT.		



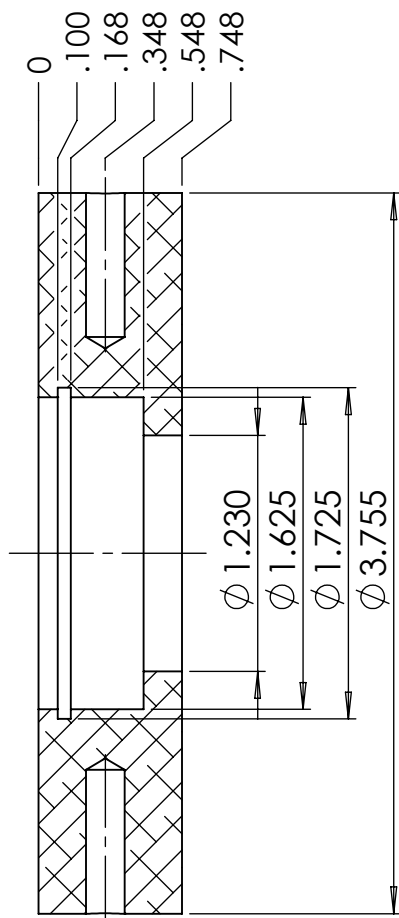
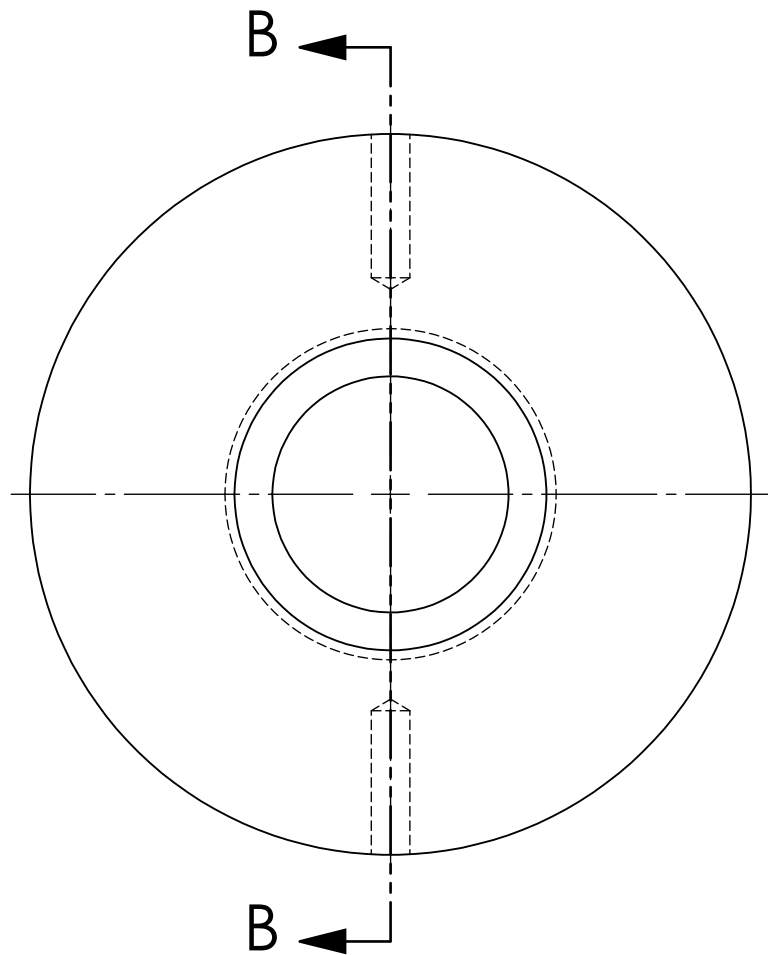
Olin College
of Engineering

TITLE
Left Keyed Cam Shaft

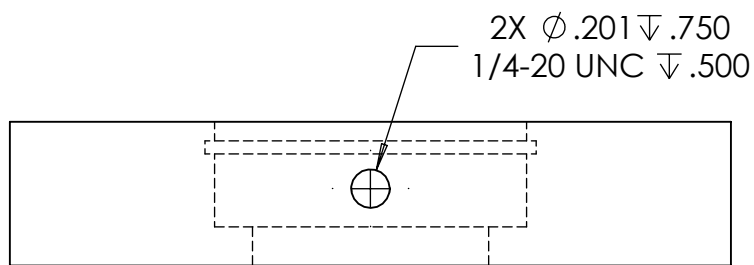
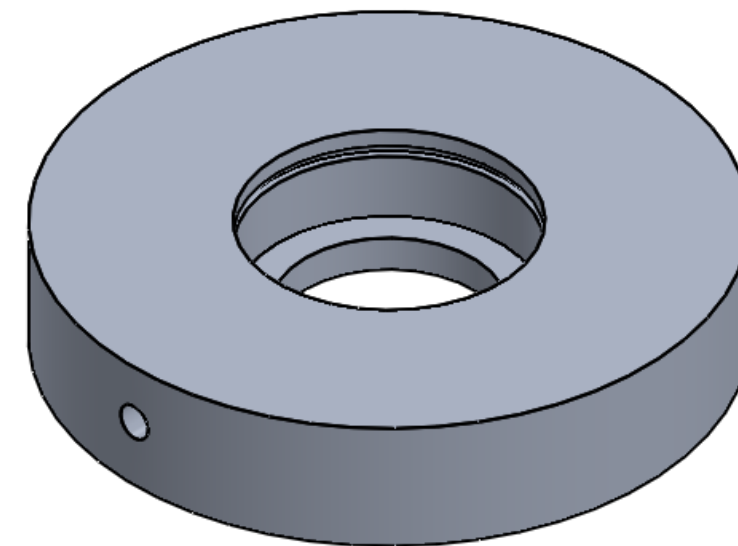
SIZE B	PART NO. 1497K310	REV B
------------------	-----------------------------	-----------------

SCALE 1:1.6 DO NOT SCALE PRINT SHEET 1 OF 1

8 7 6 5 4 3 2 1



SECTION B-B



ALL DIMENSIONS ARE IN INCHES - INTERPRET DRAWINGS PER ASME Y14.5-1994

TOLERANCES UNLESS OTHERWISE SPECIFIED:

X.X	± 0.03
X.XX	± 0.01
X.XXX	± 0.005

$\angle \pm 0.5^\circ$ 125

REMOVE ALL BURRS AND SHARP EDGES 0.005 R OR CHAMFER MAX.

UNLESS OTHERWISE SPECIFIED:		
QTY: 1	MATERIAL: 6061 ALUMINUM	
DIMENSIONS ARE IN INCHES.		
ENGINEER	hmskin	12/12/2015
DRAWN	landrade	12/12/2015
CHECKED	hmskin	12/12/2015

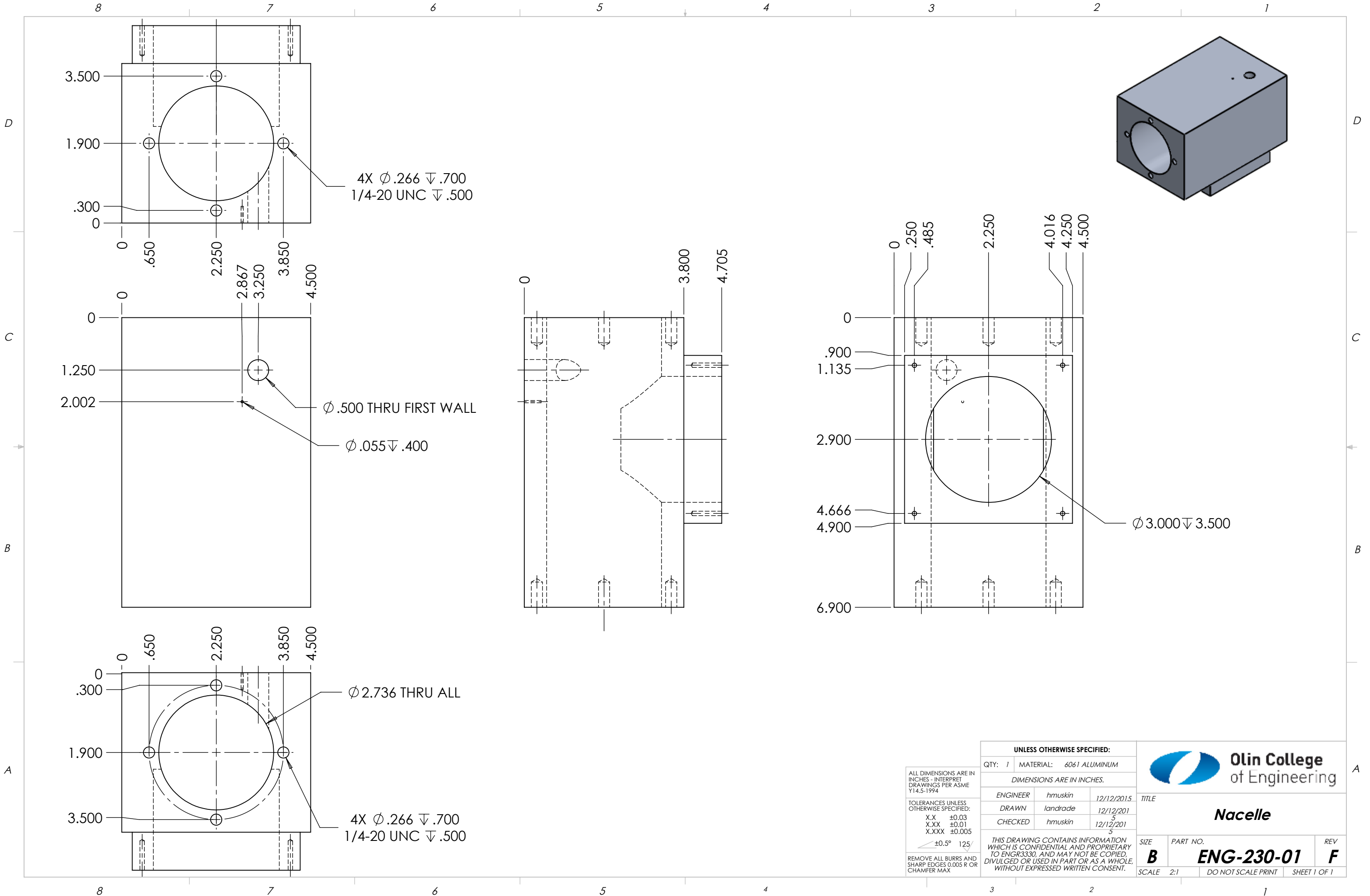


TITLE

Lower Driveshaft Bearing Holder

SIZE	PART NO.	REV
B	ENG-221-01	B
SCALE 2:1	DO NOT SCALE PRINT	SHEET 1 OF 1

8 7 6 5 4 3 2 1




ALL DIMENSIONS ARE IN INCHES - INTERPRET DRAWINGS PER ASME Y14.5-1994

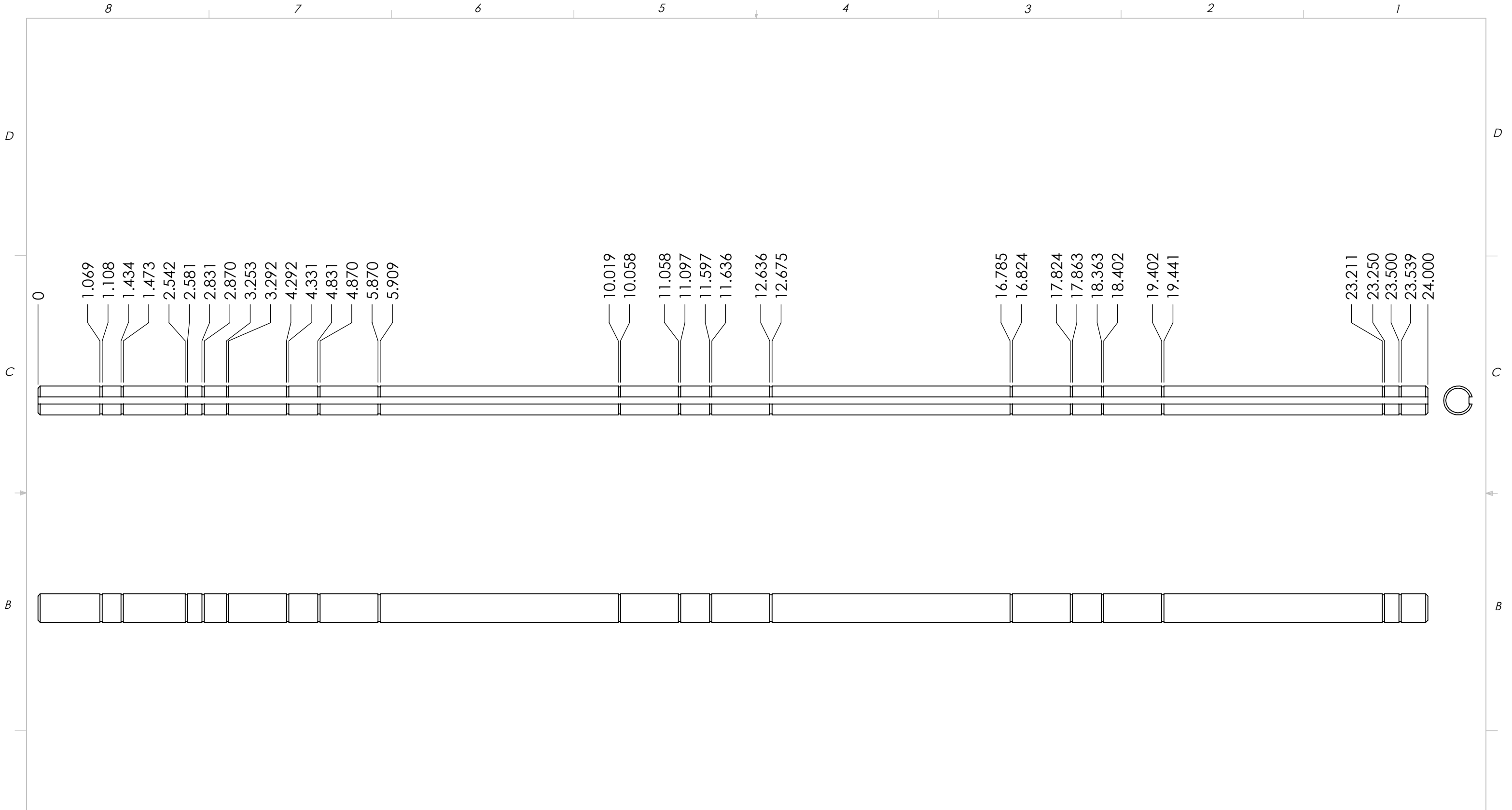
TOLERANCES UNLESS OTHERWISE SPECIFIED:
 X.X ±0.03
 X.XX ±0.01
 X.XXX ±0.005

±0.5° 125/

REMOVE ALL BURRS AND SHARP EDGES 0.005 R OR CHAMFER MAX.

UNLESS OTHERWISE SPECIFIED:		
QTY: 1	MATERIAL: 6061 ALUMINUM	
DIMENSIONS ARE IN INCHES.		
ENGINEER	hmskin	12/12/2015
DRAWN	landrade	12/12/2015
CHECKED	hmskin	12/12/2015
THIS DRAWING CONTAINS INFORMATION WHICH IS CONFIDENTIAL AND PROPRIETARY TO ENGR3330, AND MAY NOT BE COPIED, DIVULGED OR USED IN PART OR AS A WHOLE, WITHOUT EXPRESSED WRITTEN CONSENT.		

 Olin College of Engineering		
TITLE		
Nacelle		
SIZE	PART NO.	REV
B	ENG-230-01	F
SCALE 2:1	DO NOT SCALE PRINT	SHEET 1 OF 1



0
 1.069
 1.108
 1.434
 1.473
 2.542
 2.581
 2.831
 2.870
 3.253
 3.292
 4.292
 4.331
 4.831
 4.870
 5.870
 5.909

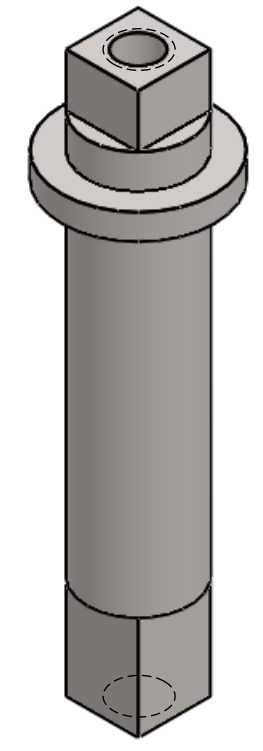
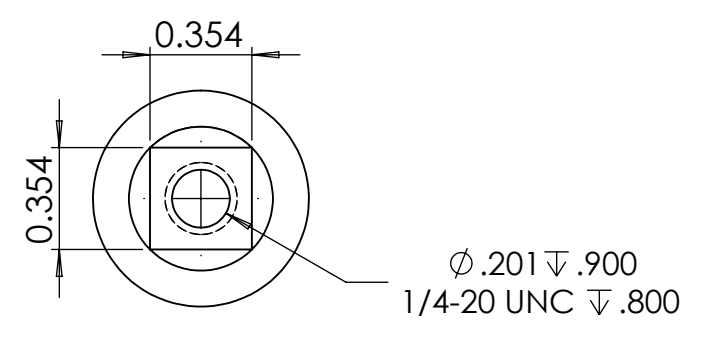
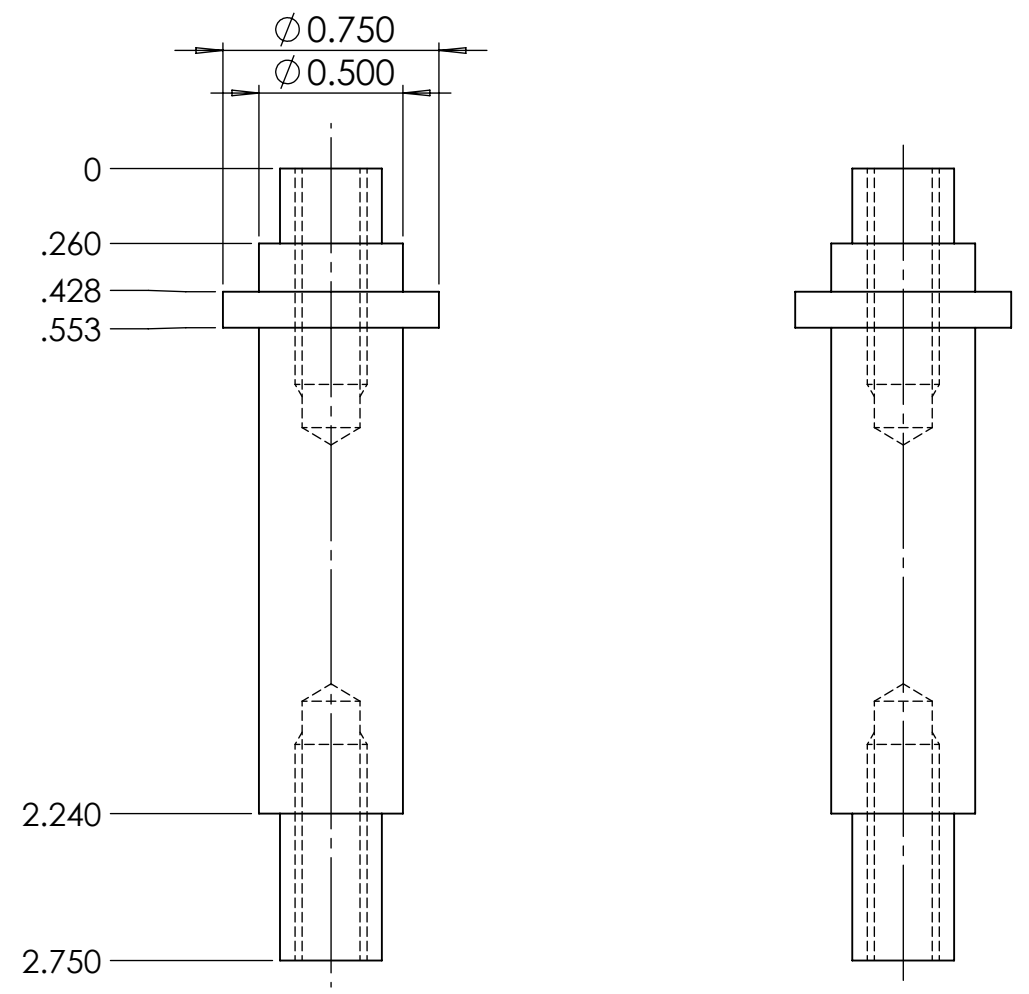
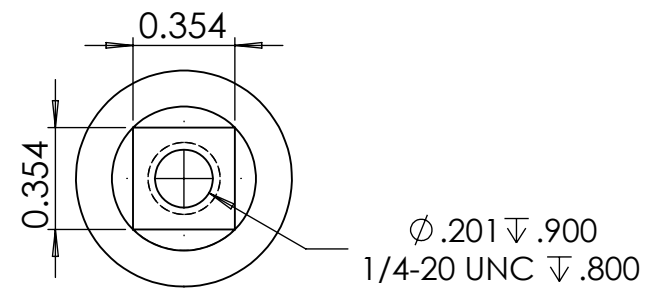
 10.019
 10.058
 11.058
 11.097
 11.597
 11.636
 12.636
 12.675

 16.785
 16.824
 17.824
 17.863
 18.363
 18.402
 19.402
 19.441

 23.211
 23.250
 23.500
 23.539
 24.000

NOTE:
 1. MODIFIED SHAFT FROM MCMASTER PART 1497K310

ALL DIMENSIONS ARE IN INCHES - INTERPRET DRAWINGS PER ASME Y14.5-1994 TOLERANCES UNLESS OTHERWISE SPECIFIED: X.X ±0.03 X.XX ±0.01 X.XXX ±0.005 $\angle \pm 0.5^\circ$ 125 REMOVE ALL BURRS AND SHARP EDGES 0.005 R OR CHAMFER MAX.	UNLESS OTHERWISE SPECIFIED:		
	QTY: 1	MATERIAL: 1045 STEEL	
	DIMENSIONS ARE IN INCHES.		SIZE B PART NO. 1497K310 REV B
	ENGINEER	landrade	
DRAWN	landrade	12/10/2015	
CHECKED	hmuskin	12/10/2015	
THIS DRAWING CONTAINS INFORMATION WHICH IS CONFIDENTIAL AND PROPRIETARY TO ENGR3330, AND MAY NOT BE COPIED, DIVULGED OR USED IN PART OR AS A WHOLE, WITHOUT EXPRESSED WRITTEN CONSENT.			




ALL DIMENSIONS ARE IN INCHES - INTERPRET DRAWINGS PER ASME Y14.5-1994

TOLERANCES UNLESS OTHERWISE SPECIFIED:
 X.X ±0.03
 X.XX ±0.01
 X.XXX ±0.005

125°
 ±0.5°

REMOVE ALL BURRS AND SHARP EDGES 0.005 R OR CHAMFER MAX.

UNLESS OTHERWISE SPECIFIED:		
QTY: 1	MATERIAL: 6061 ALUMINUM	
DIMENSIONS ARE IN INCHES.		
ENGINEER	ckissel	12/13/2015
DRAWN	landrade	12/13/2015
CHECKED	hmskin	12/13/2015
THIS DRAWING CONTAINS INFORMATION WHICH IS CONFIDENTIAL AND PROPRIETARY TO ENGR3330, AND MAY NOT BE COPIED, DIVULGED OR USED IN PART OR AS A WHOLE, WITHOUT EXPRESSED WRITTEN CONSENT.		

		
TITLE		
Shifter pivot		
SIZE	PART NO.	REV
B	ENG-800-04	B
SCALE 1.5:1	DO NOT SCALE PRINT	SHEET 1 OF 1

8 7 6 5 4 3 2 1

Ø 1.000
Ø .144 THRU ALL

0.500

D

C

B

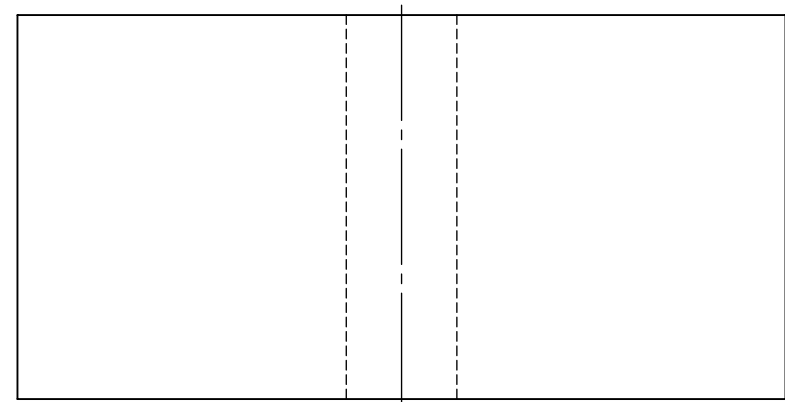
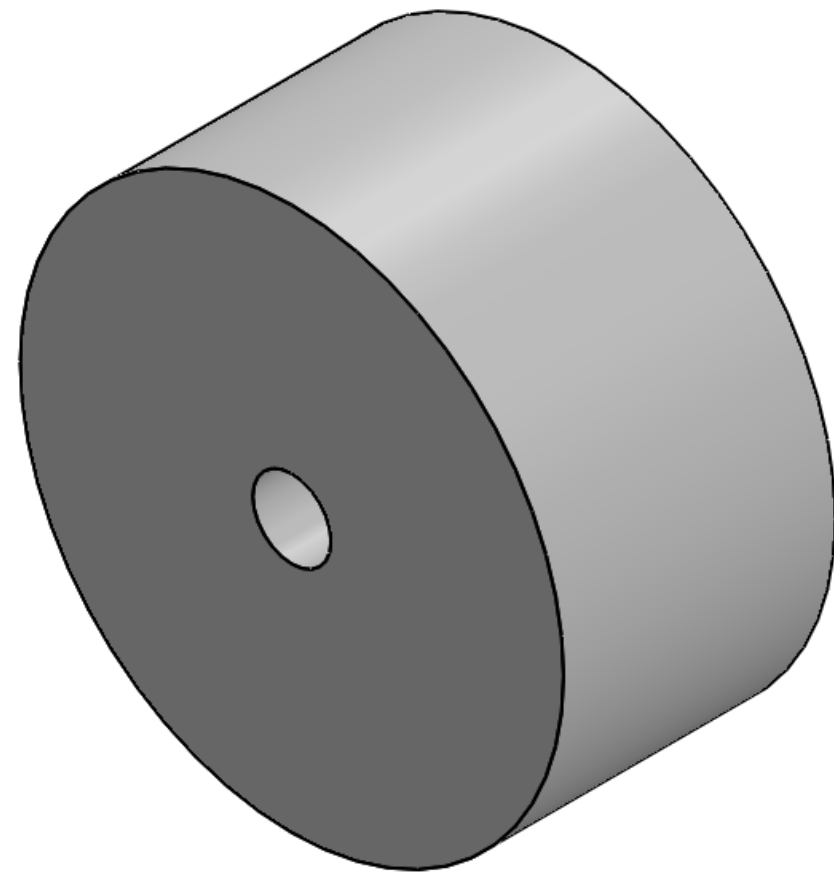
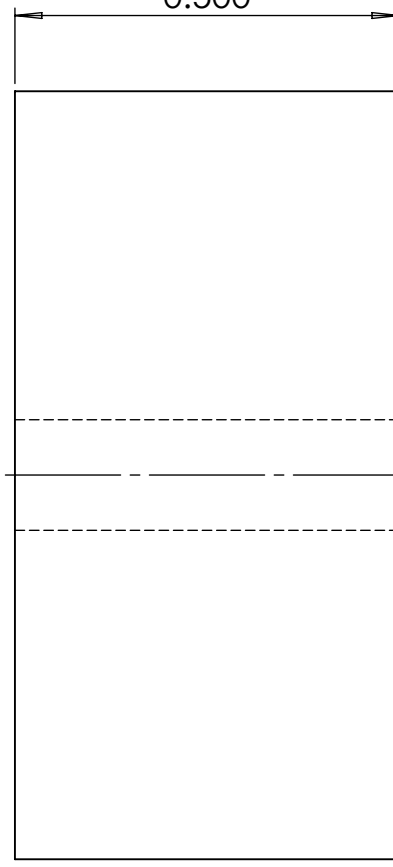
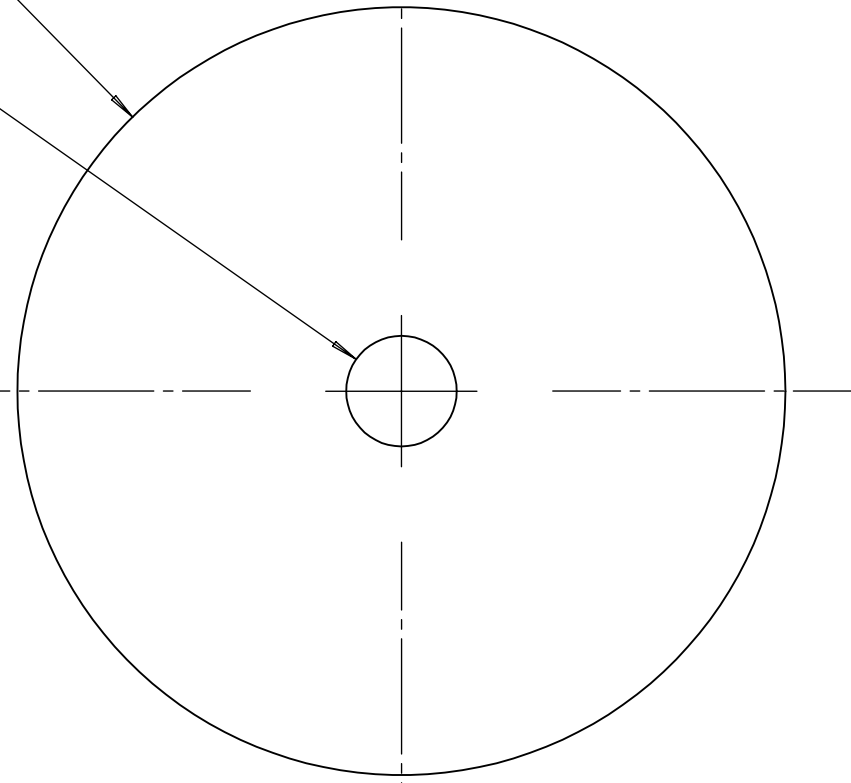
A

D

C

B

A



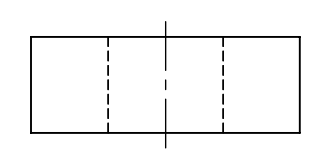
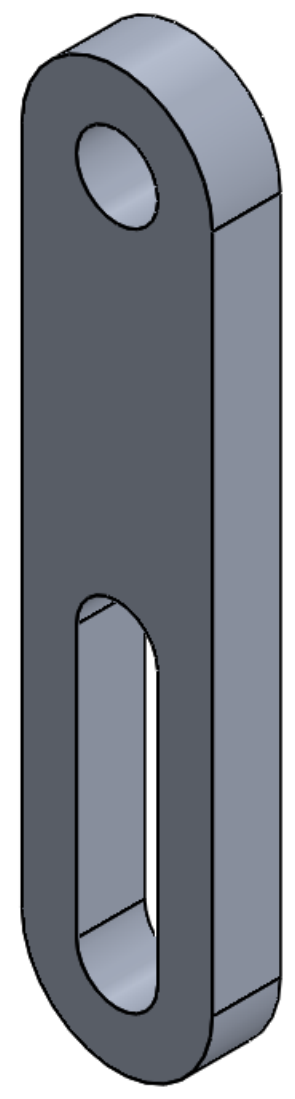
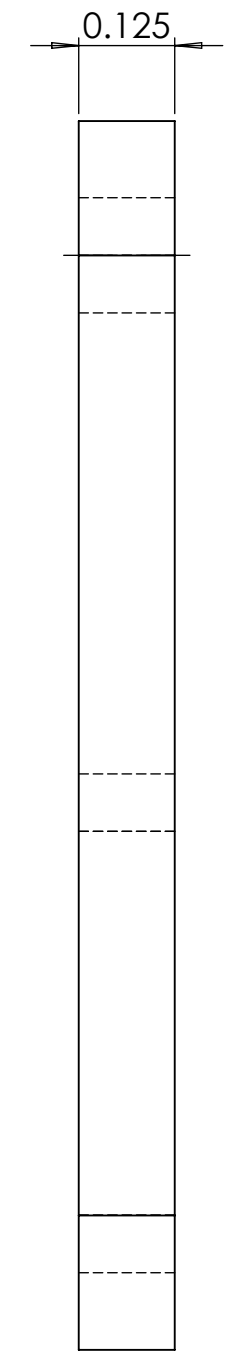
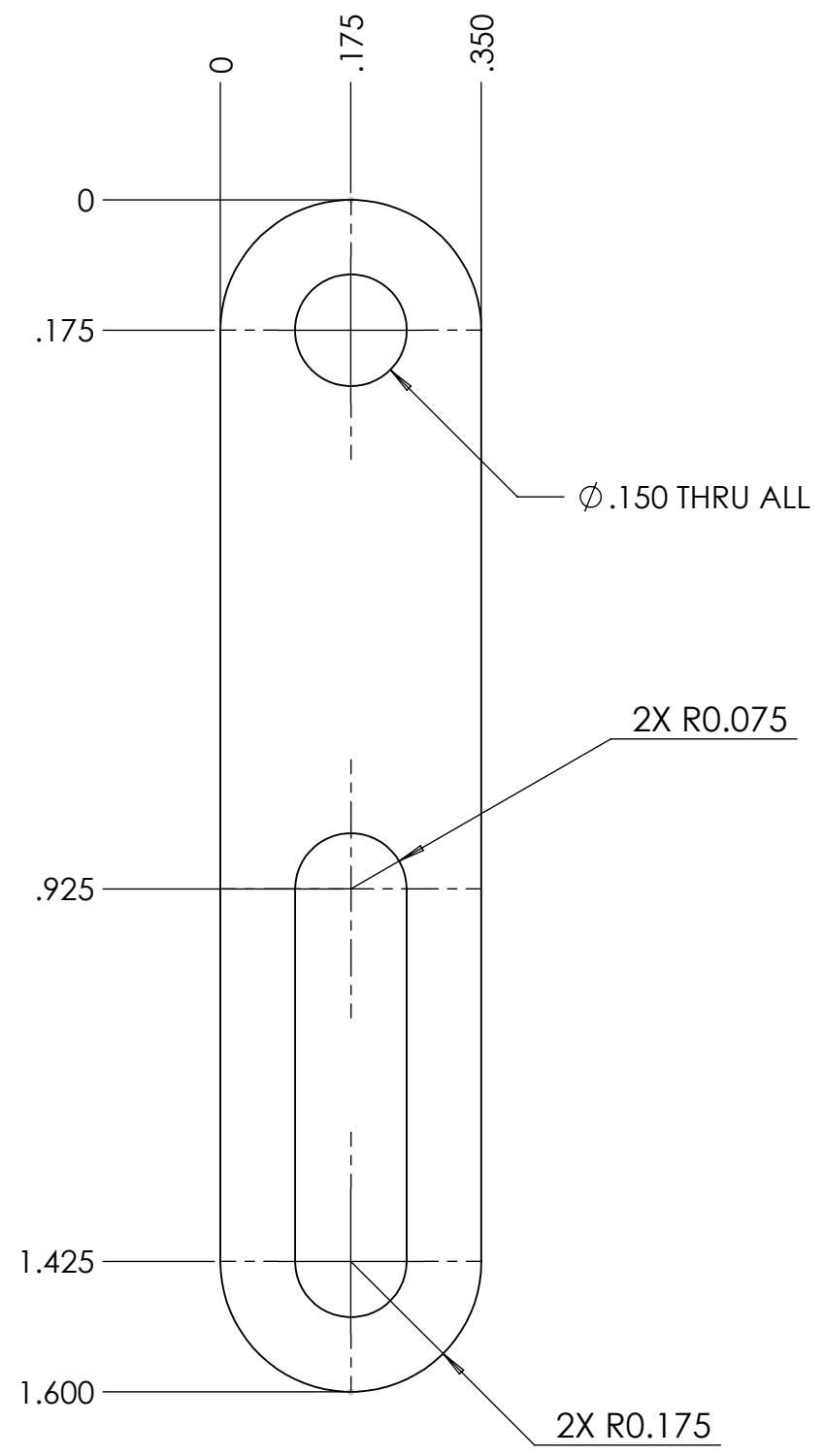
ALL DIMENSIONS ARE IN INCHES - INTERPRET DRAWINGS PER ASME Y14.5-1994
TOLERANCES UNLESS OTHERWISE SPECIFIED:
X.X ±0.03
X.XX ±0.01
X.XXX ±0.005
±0.5° 125/

UNLESS OTHERWISE SPECIFIED:		
QTY: 2	MATERIAL: DELRIN	
DIMENSIONS ARE IN INCHES.		
ENGINEER	landrade	12/13/2015
DRAWN	landrade	12/13/2015
CHECKED	hmskin	12/13/2015
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TITLE		
Tensioner Roller		
SIZE	PART NO.	REV
B	ENG-900-02	A
SCALE	DO NOT SCALE PRINT	SHEET 1 OF 1
2:1		

8 7 6 5 4 3 2 1



ALL DIMENSIONS ARE IN INCHES - INTERPRET DRAWINGS PER ASME Y14.5-1994

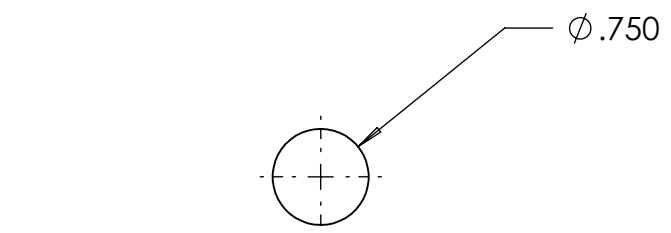
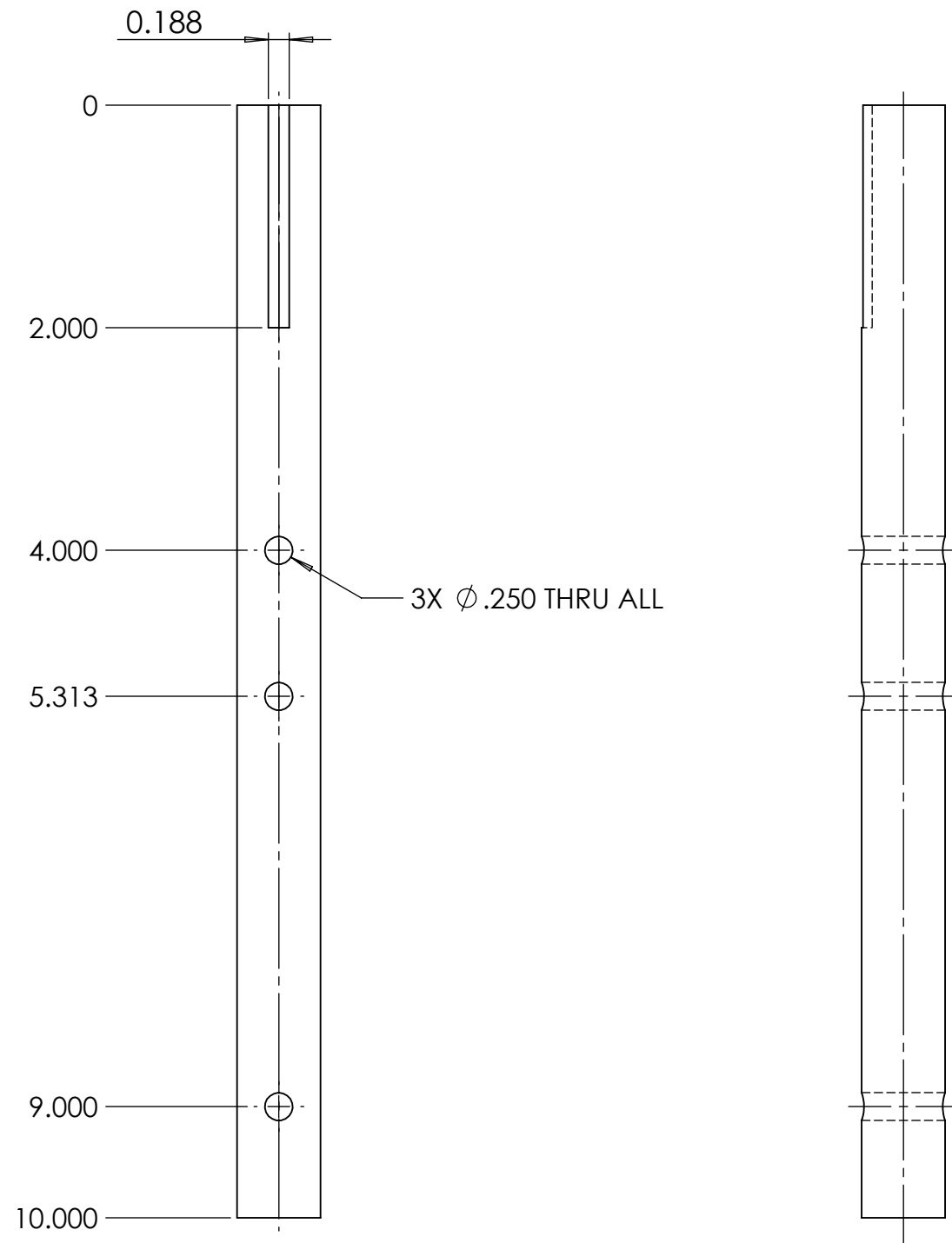
TOLERANCES UNLESS OTHERWISE SPECIFIED:
 X.X ±0.03
 X.XX ±0.01
 X.XXX ±0.005

±0.5° 125/

REMOVE ALL BURRS AND SHARP EDGES 0.005 R OR CHAMFER MAX.

UNLESS OTHERWISE SPECIFIED:		
QTY: 4	MATERIAL: 6061 ALUMINUM	
DIMENSIONS ARE IN INCHES.		
ENGINEER	landrade	12/13/2015
DRAWN	landrade	12/13/2015
CHECKED	hmskin	12/13/2015
THIS DRAWING CONTAINS INFORMATION WHICH IS CONFIDENTIAL AND PROPRIETARY TO ENGR3330, AND MAY NOT BE COPIED, DIVULGED OR USED IN PART OR AS A WHOLE, WITHOUT EXPRESSED WRITTEN CONSENT.		

TITLE		
Tensioner Slide		
SIZE	PART NO.	REV
B	ENG-900-03	A
SCALE 4:1	DO NOT SCALE PRINT	SHEET 1 OF 1



ALL DIMENSIONS ARE IN INCHES - INTERPRET DRAWINGS PER ASME Y14.5-1994

TOLERANCES UNLESS OTHERWISE SPECIFIED:
 X.X ±0.03
 X.XX ±0.01
 X.XXX ±0.005

±0.5° 125/

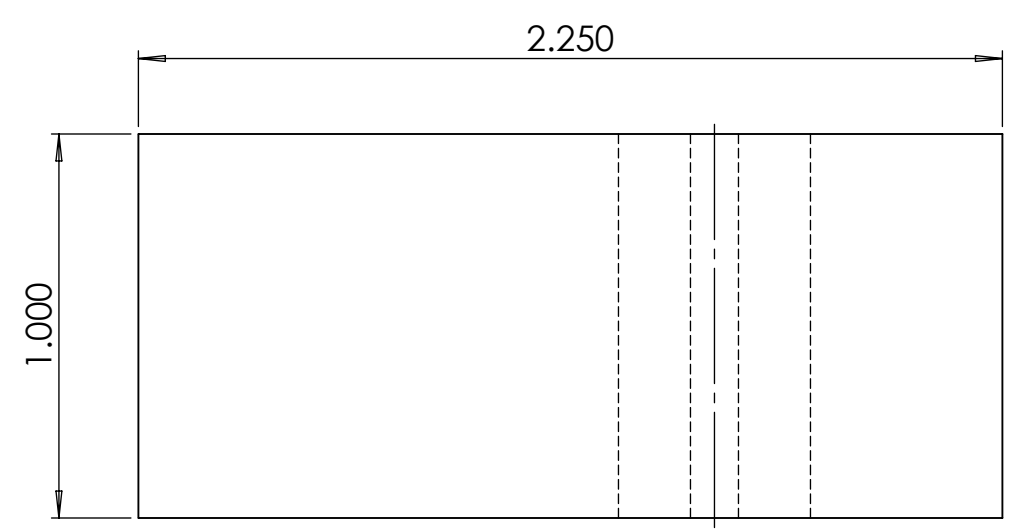
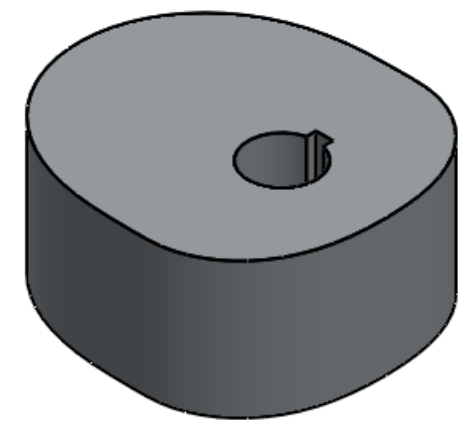
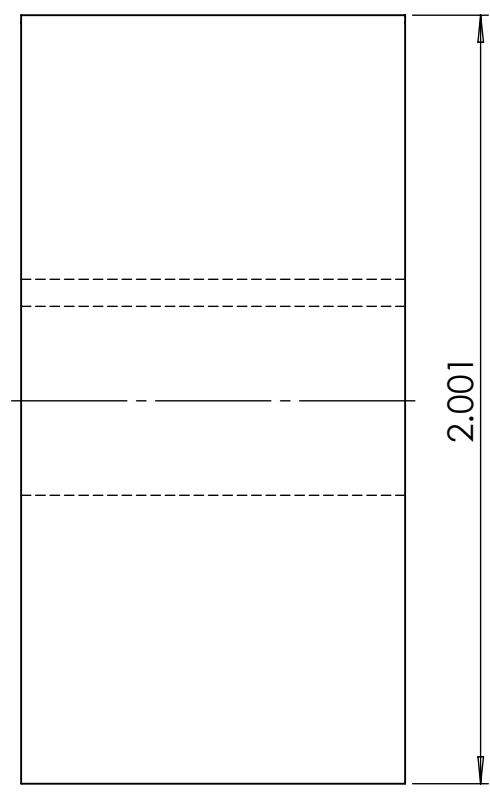
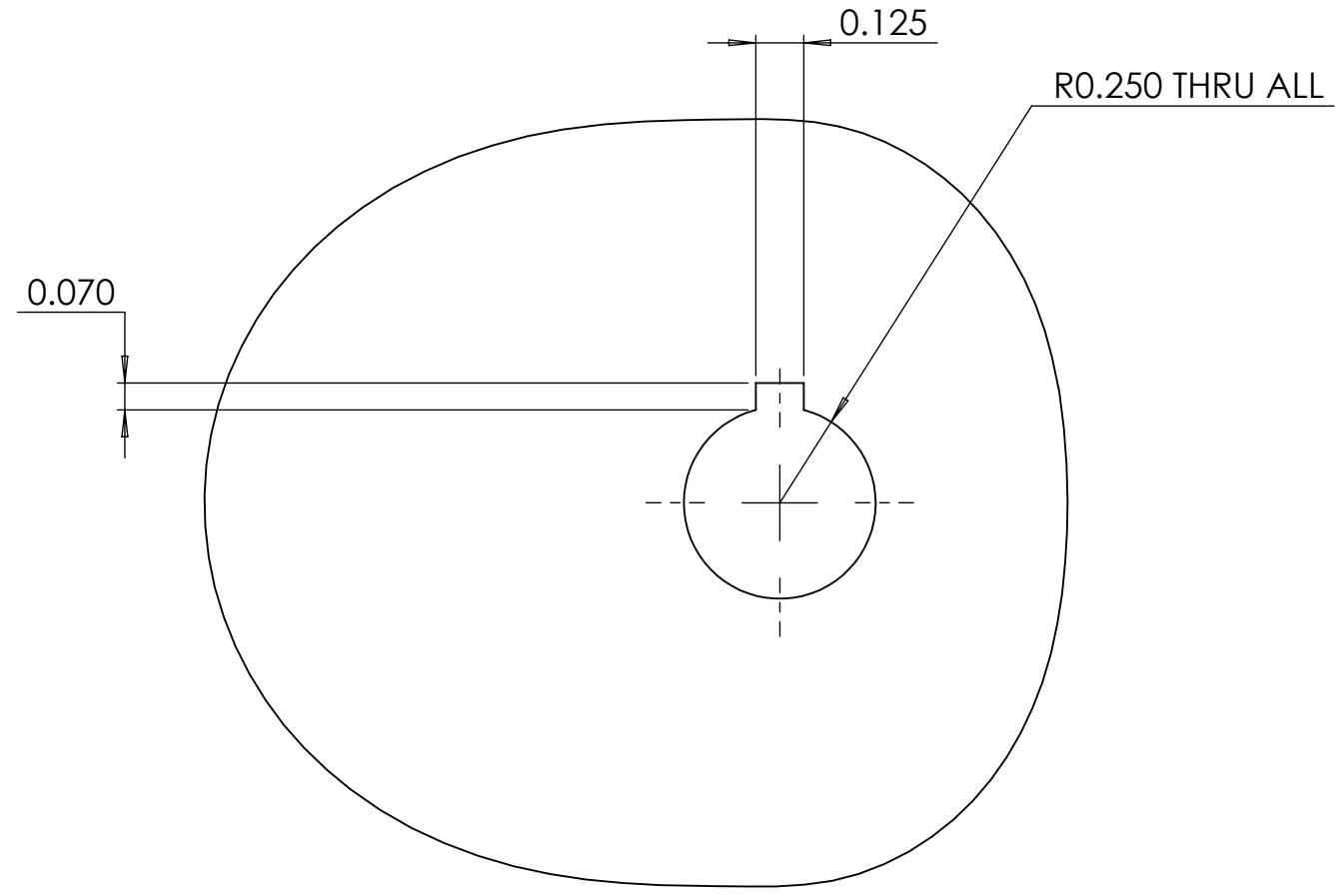
REMOVE ALL BURRS AND SHARP EDGES 0.005 R OR CHAMFER MAX.

UNLESS OTHERWISE SPECIFIED:		
QTY: 1	MATERIAL: 6061 ALUMINUM	
DIMENSIONS ARE IN INCHES.		
ENGINEER	hmskin	12/13/2015
DRAWN	landrade	12/13/2015
CHECKED	hmskin	12/13/2015

THIS DRAWING CONTAINS INFORMATION WHICH IS CONFIDENTIAL AND PROPRIETARY TO ENGR3330, AND MAY NOT BE COPIED, DIVULGED OR USED IN PART OR AS A WHOLE, WITHOUT EXPRESSED WRITTEN CONSENT.



TITLE		
Turbine Shaft		
SIZE	PART NO.	REV
B	ENG-2322-02	B
SCALE	DO NOT SCALE PRINT	SHEET 1 OF 1
2:3		

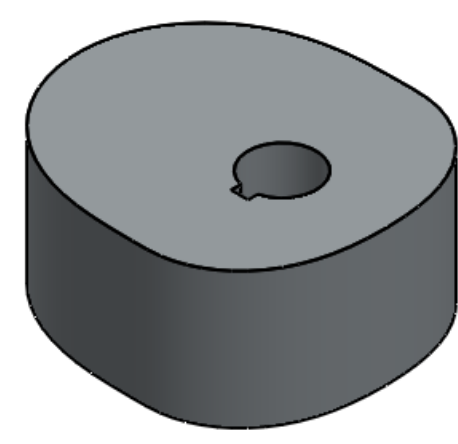
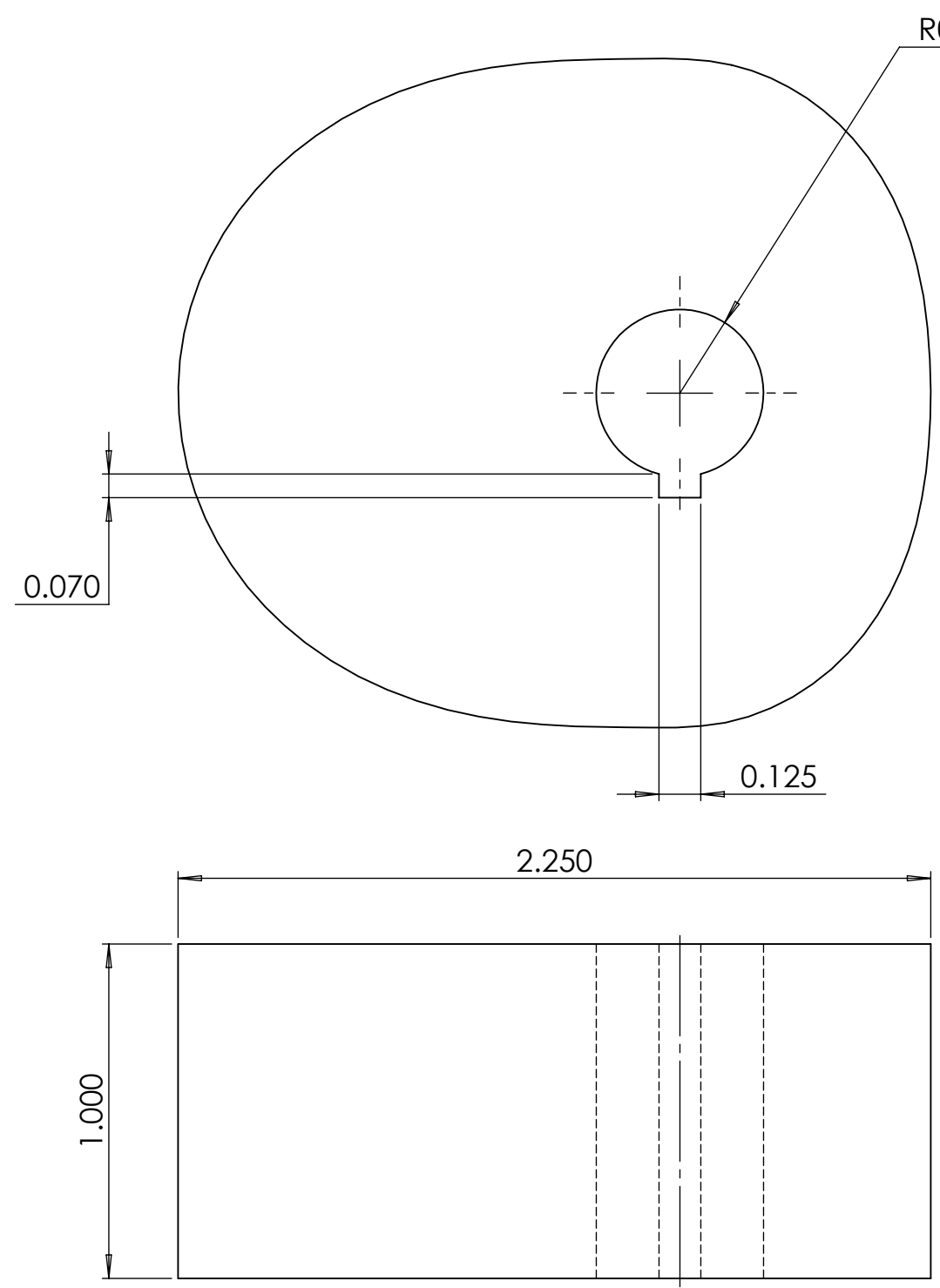


NOTE:
 1. SEE SOLIDWORKS PART "VALVE CAM.SLDPRT", CONFIGURATION "FIRST VALVE CAM" FOR PROFILE.
 2. PART SHOULD BE 3D PRINTED

ALL DIMENSIONS ARE IN INCHES - INTERPRET DRAWINGS PER ASME Y14.5-1994
 TOLERANCES UNLESS OTHERWISE SPECIFIED:
 X.X ±0.03
 X.XX ±0.01
 X.XXX ±0.005
 ±0.5° 125/

UNLESS OTHERWISE SPECIFIED:		
QTY: 2	MATERIAL: ABS	
DIMENSIONS ARE IN INCHES.		
ENGINEER	landrade	12/10/2015
DRAWN	landrade	12/10/2015
CHECKED	hmskin	12/10/2015
THIS DRAWING CONTAINS INFORMATION WHICH IS CONFIDENTIAL AND PROPRIETARY TO ENGR3330, AND MAY NOT BE COPIED, DIVULGED OR USED IN PART OR AS A WHOLE, WITHOUT EXPRESSED WRITTEN CONSENT.		

TITLE		
Valve Cam 1		
SIZE	PART NO.	REV
B	ENG-500-03	B
SCALE	DO NOT SCALE PRINT	
2:1	SHEET 1 OF 1	



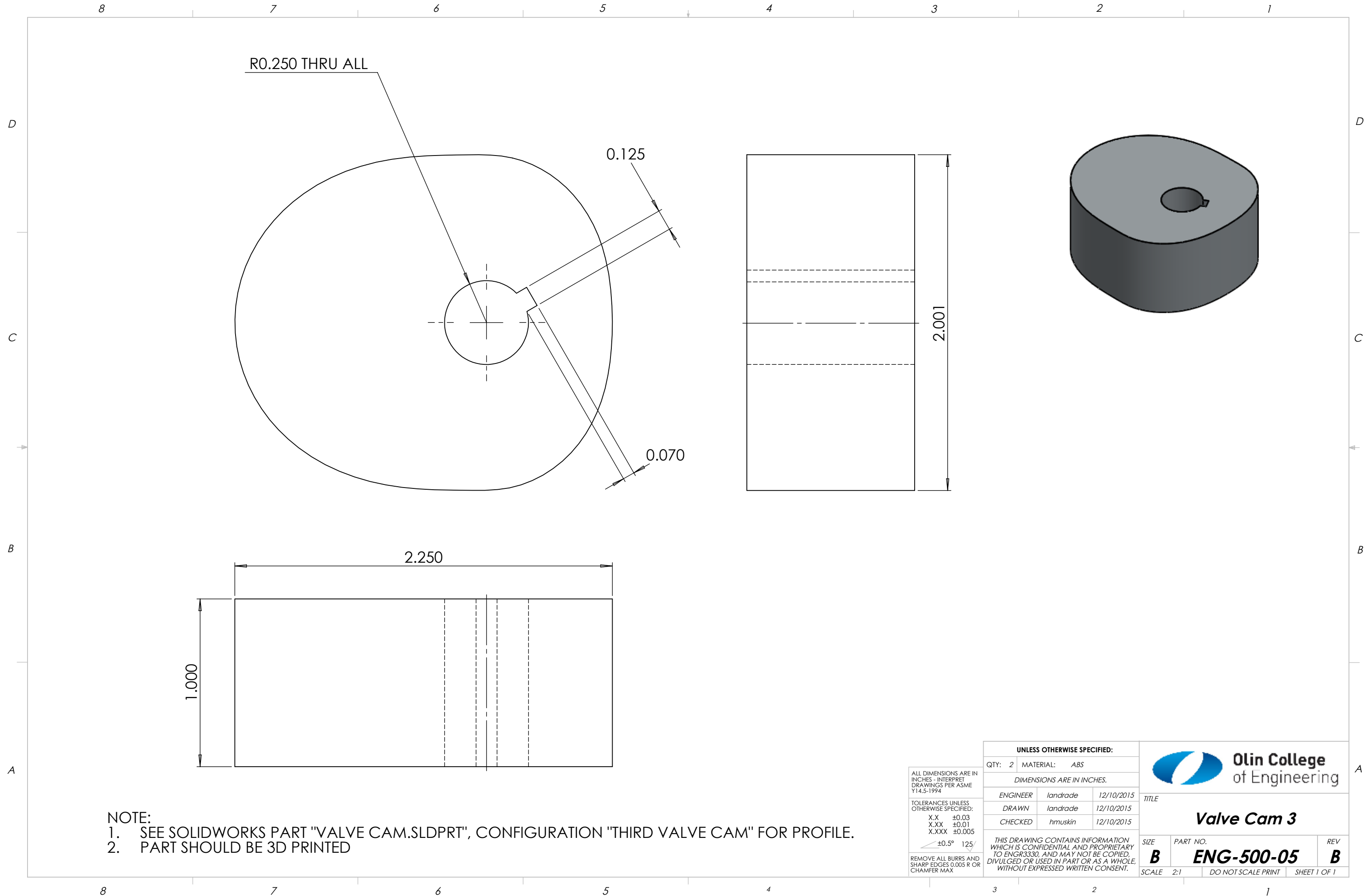
- NOTE:
 1. SEE SOLIDWORKS PART "VALVE CAM.SLDPRT", CONFIGURATION "SECOND VALVE CAM" FOR PROFILE.
 2. PART SHOULD BE 3D PRINTED

ALL DIMENSIONS ARE IN INCHES - INTERPRET DRAWINGS PER ASME Y14.5-1994
 TOLERANCES UNLESS OTHERWISE SPECIFIED:
 X.X ±0.03
 X.XX ±0.01
 X.XXX ±0.005
 ±0.5° 125/

UNLESS OTHERWISE SPECIFIED:		
QTY: 2	MATERIAL: ABS	
DIMENSIONS ARE IN INCHES.		
ENGINEER	landrade	12/10/2015
DRAWN	landrade	12/10/2015
CHECKED	hmskin	12/10/2015

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TITLE		
Valve Cam 2		
SIZE	PART NO.	REV
B	ENG-500-04	B
SCALE	DO NOT SCALE PRINT	SHEET 1 OF 1
2:1		



RO.250 THRU ALL

0.125

0.070

2.001

1.000


2.250

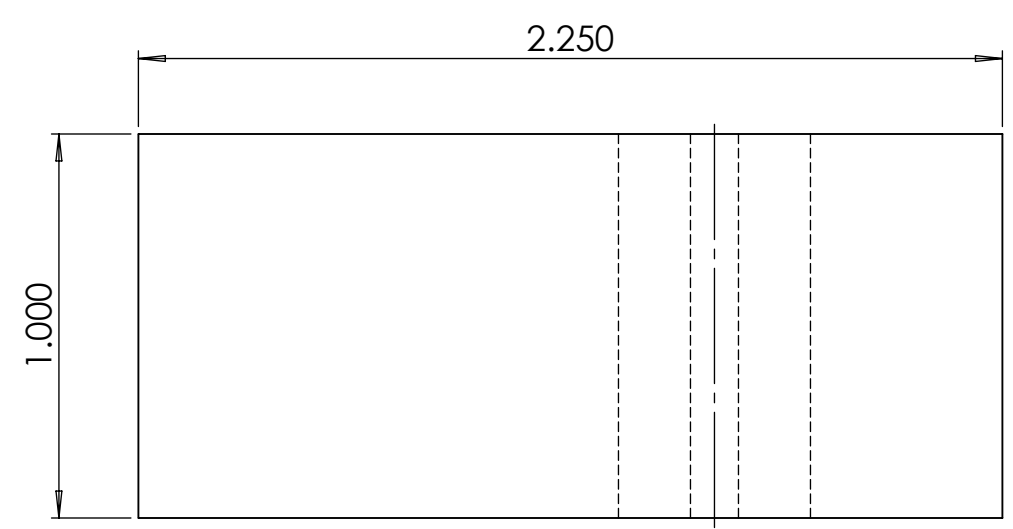
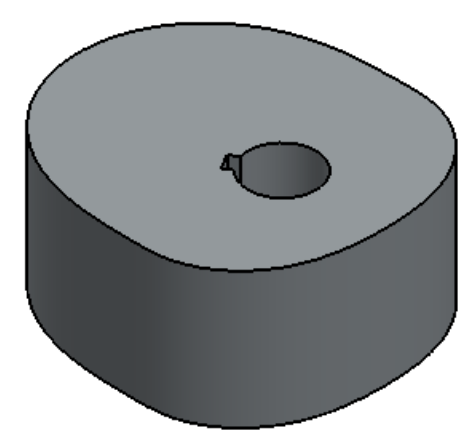
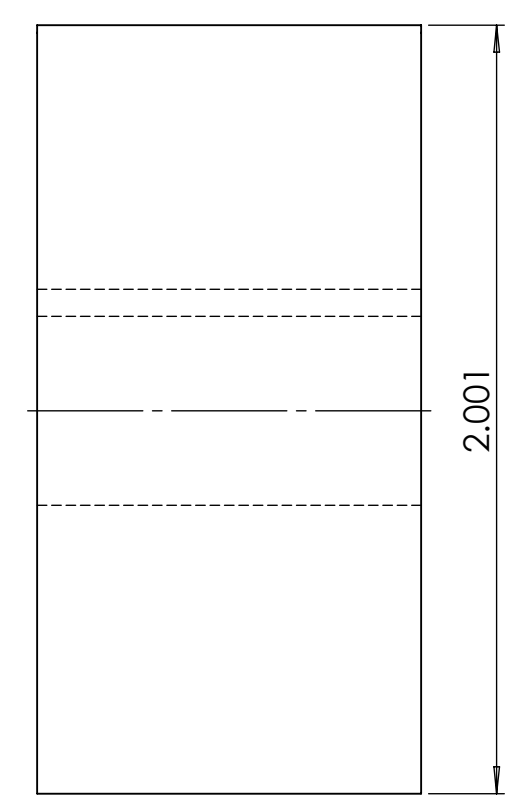
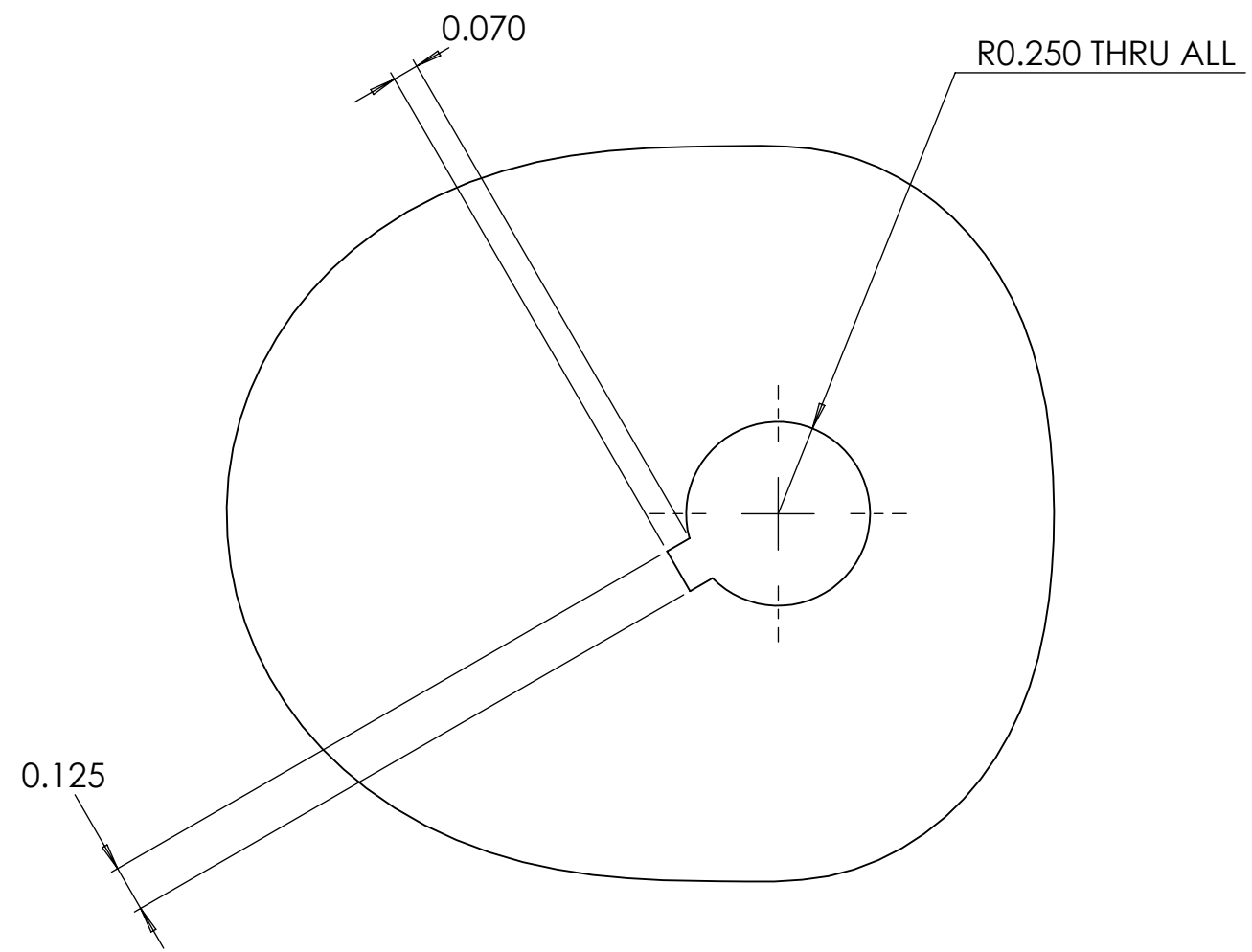
NOTE:

1. SEE SOLIDWORKS PART "VALVE CAM.SLDPRT", CONFIGURATION "THIRD VALVE CAM" FOR PROFILE.
2. PART SHOULD BE 3D PRINTED

ALL DIMENSIONS ARE IN INCHES - INTERPRET DRAWINGS PER ASME Y14.5-1994
 TOLERANCES UNLESS OTHERWISE SPECIFIED:
 X.X ±0.03
 X.XX ±0.01
 X.XXX ±0.005
 ±0.5° 125/
 REMOVE ALL BURRS AND SHARP EDGES 0.005 R OR CHAMFER MAX

UNLESS OTHERWISE SPECIFIED:		
QTY: 2	MATERIAL: ABS	
DIMENSIONS ARE IN INCHES.		
ENGINEER	landrade	12/10/2015
DRAWN	landrade	12/10/2015
CHECKED	hmskin	12/10/2015

		
TITLE		
<p align="center">Valve Cam 3</p>		
SIZE	PART NO.	REV
B	ENG-500-05	B
SCALE	DO NOT SCALE PRINT	SHEET 1 OF 1
2:1		




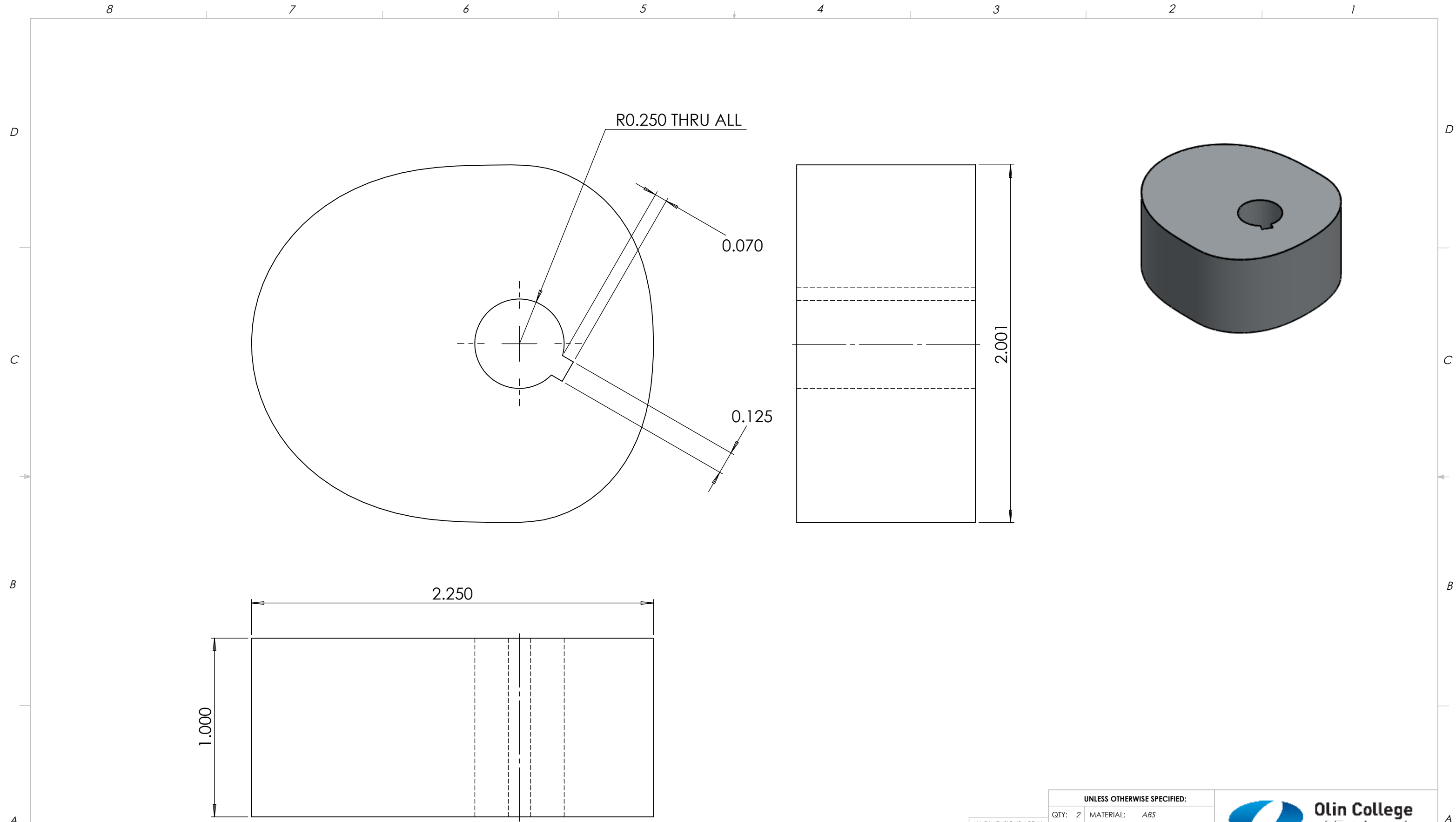
NOTE:
 1. SEE SOLIDWORKS PART "VALVE CAM.SLDPRT", CONFIGURATION "FORTH VALVE CAM" FOR PROFILE.
 2. PART SHOULD BE 3D PRINTED

ALL DIMENSIONS ARE IN INCHES - INTERPRET DRAWINGS PER ASME Y14.5-1994
 TOLERANCES UNLESS OTHERWISE SPECIFIED:
 X.X ±0.03
 X.XX ±0.01
 X.XXX ±0.005
 ±0.5° 125/

UNLESS OTHERWISE SPECIFIED:		
QTY: 2	MATERIAL: ABS	
DIMENSIONS ARE IN INCHES.		
ENGINEER	landrade	12/10/2015
DRAWN	landrade	12/10/2015
CHECKED	hmskin	12/10/2015

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TITLE		
Valve Cam 4		
SIZE	PART NO.	REV
B	ENG-500-06	B
SCALE	DO NOT SCALE PRINT	
2:1	SHEET 1 OF 1	



NOTE:
 1. SEE SOLIDWORKS PART "VALVE CAM.SLDPRT", CONFIGURATION "FIFTH VALVE CAM" FOR PROFILE.
 2. PART SHOULD BE 3D PRINTED

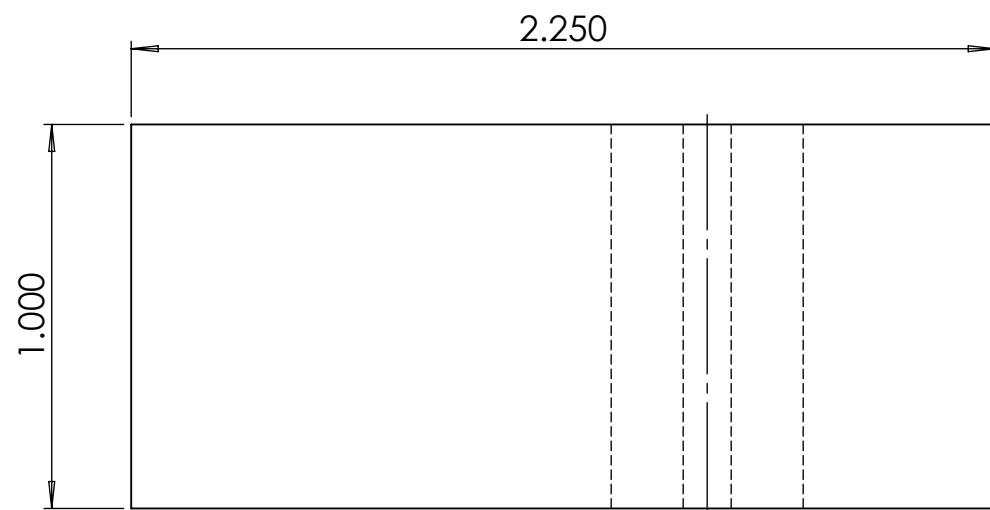
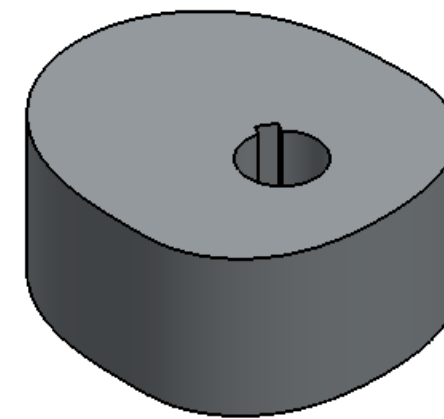
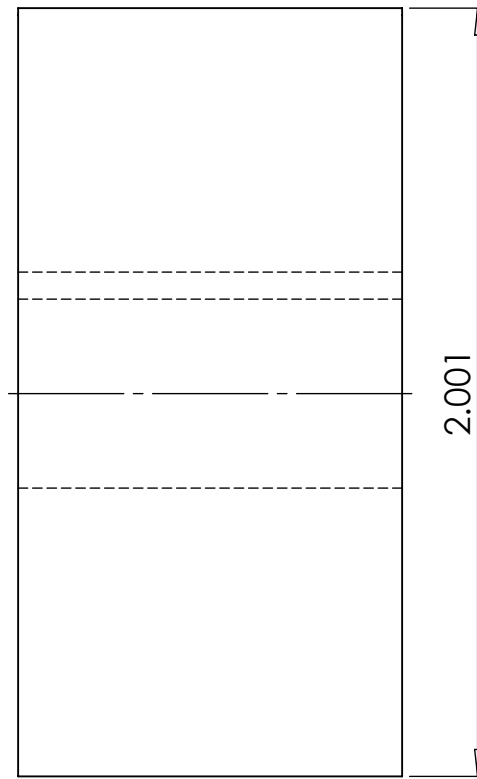
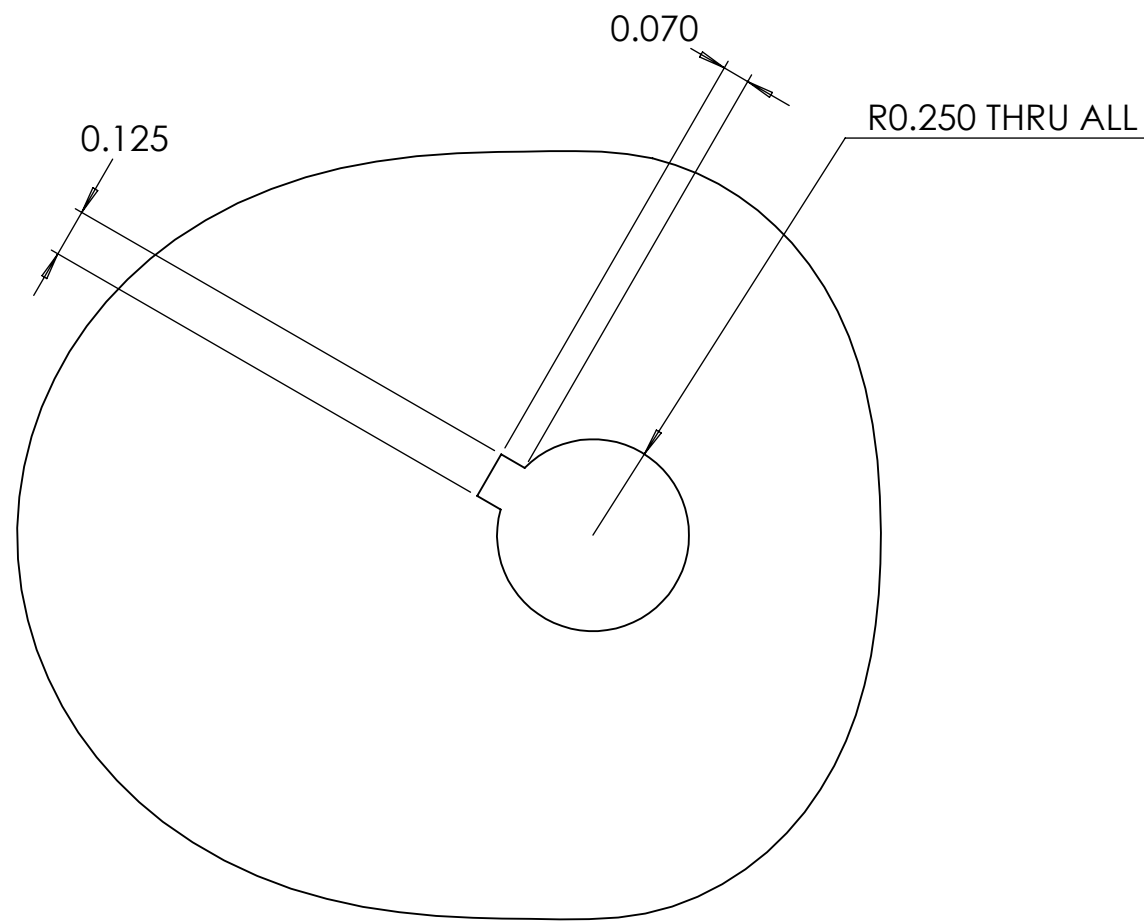
ALL DIMENSIONS ARE IN INCHES - INTERPRET DRAWINGS PER ASME Y14.5-1994
 TOLERANCES UNLESS OTHERWISE SPECIFIED:
 X.X ±0.03
 X.XX ±0.01
 X.XXX ±0.005
 ±0.5° 125/
 REMOVE ALL BURRS AND SHARP EDGES 0.005 R OR CHAMFER MAX

UNLESS OTHERWISE SPECIFIED:		
QTY: 2	MATERIAL: ABS	
DIMENSIONS ARE IN INCHES.		
ENGINEER	landrade	12/10/2015
DRAWN	landrade	12/10/2015
CHECKED	hmskin	12/10/2015

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TITLE		
Valve Cam 5		
SIZE	PART NO.	REV
B	ENG-500-07	B
SCALE	DO NOT SCALE PRINT	SHEET 1 OF 1
2:1		



- NOTE:
1. SEE SOLIDWORKS PART "VALVE CAM.SLDPRT", CONFIGURATION "SIXTH VALVE CAM" FOR PROFILE.
 2. PART SHOULD BE 3D PRINTED

ALL DIMENSIONS ARE IN INCHES - INTERPRET DRAWINGS PER ASME Y14.5-1994

TOLERANCES UNLESS OTHERWISE SPECIFIED:
 X.X ±0.03
 X.XX ±0.01
 X.XXX ±0.005

±0.5° 125/

REMOVE ALL BURRS AND SHARP EDGES 0.005 R OR CHAMFER MAX

UNLESS OTHERWISE SPECIFIED:		
QTY: 2	MATERIAL: ABS	
DIMENSIONS ARE IN INCHES.		
ENGINEER	landrade	12/10/2015
DRAWN	landrade	12/10/2015
CHECKED	hmskin	12/10/2015

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TITLE		
Valve Cam 6		
SIZE	PART NO.	REV
B	ENG-500-08	B
SCALE	DO NOT SCALE PRINT	
2:1	SHEET 1 OF 1	