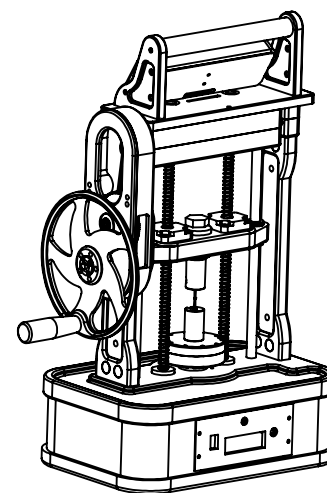



ITEM #	PART NAME	QTY	DWG #
1	SHAFT ASSEMBLY	1	1C-00
2	TTTF BASE ASSEMBLY	1	2-00
3	CROSS MEMBER ASSEMBLY	1	3-00
4	WORM SHAFT ASSEMBLY	1	4-00
5	DISPLAY ASSEMBLY	1	5-00
6	LOAD AND MOUNT ASSEMBLY	1	6-00
7	TRANSMISSION ASSEMBLY	1	7-00
8	TTTF RIGHT UPRIGHT	1	1A-00
9	TTTF LEFT UPRIGHT	1	1B-00
10	LINEAR SHAFT	2	N/A



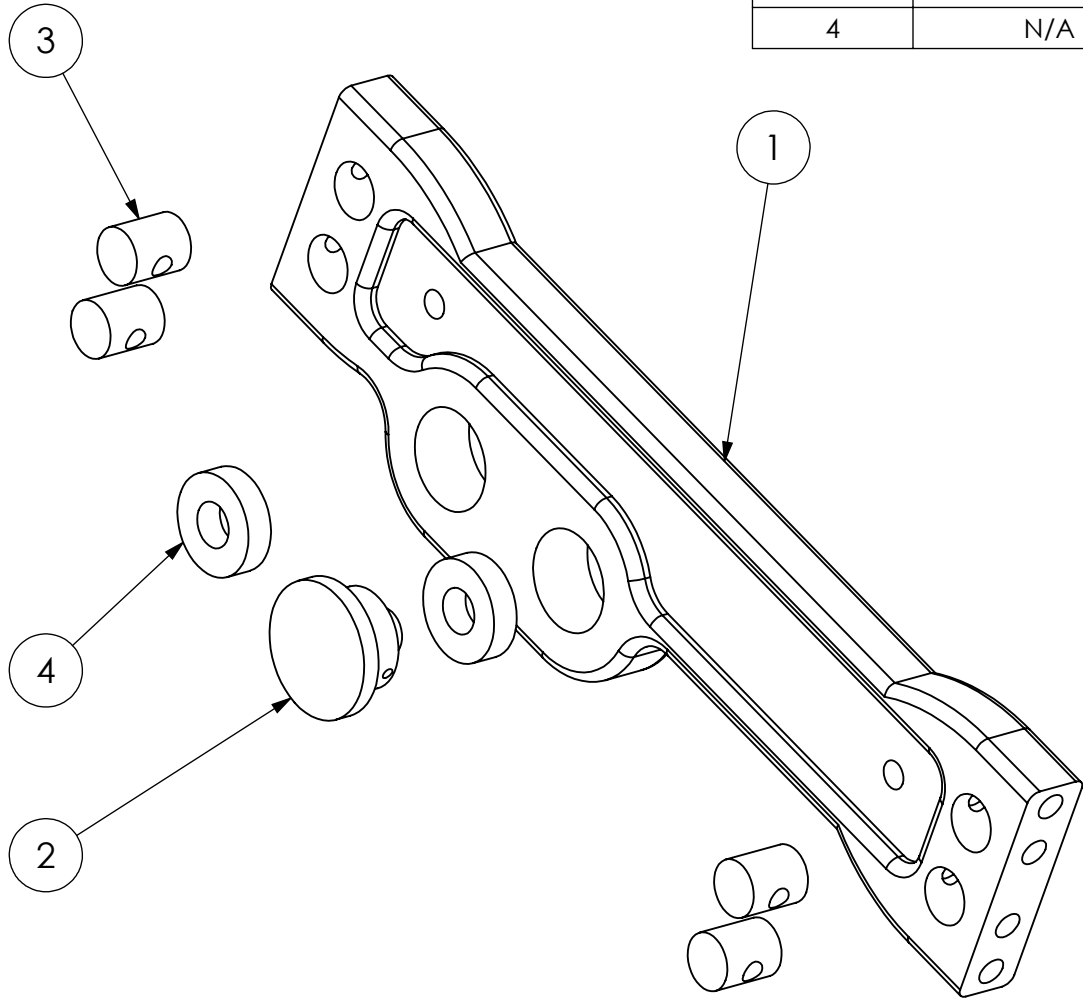
SCALE: 1:10

NOTE: #10 \varnothing .5" X 13" PRECISION DRILL ROD


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DIMENSIONS ARE IN INCHES		THIRD ANGLE PROJECTION 		VARIOUS <small>Material:</small>		<i>Stretch Armstrong</i>	
DEFAULT TOLERANCES:		FINAL ASSEMBLY					
LINEAR: X. ± .1 X.X ± .01 X.XX ± .001 X.XXX ± .005		ANGULAR: X. ± 2 X.X ± 1 X.XX ± 0 30'		DESCRIPTION:		UNIVERSITY OF IDAHO ME DEPARTMENT	
				CHECKED BY:	DATE:		
				DRAWN BY: SPENCER OLDEMEYER		5/7/2009	
				FILE NAME: Final Assembly		CAD Application SolidWorks	
						Part #: 0-00	
						QTY: 1	
						Scale: 1:5	
						SHEET 1 OF 62	

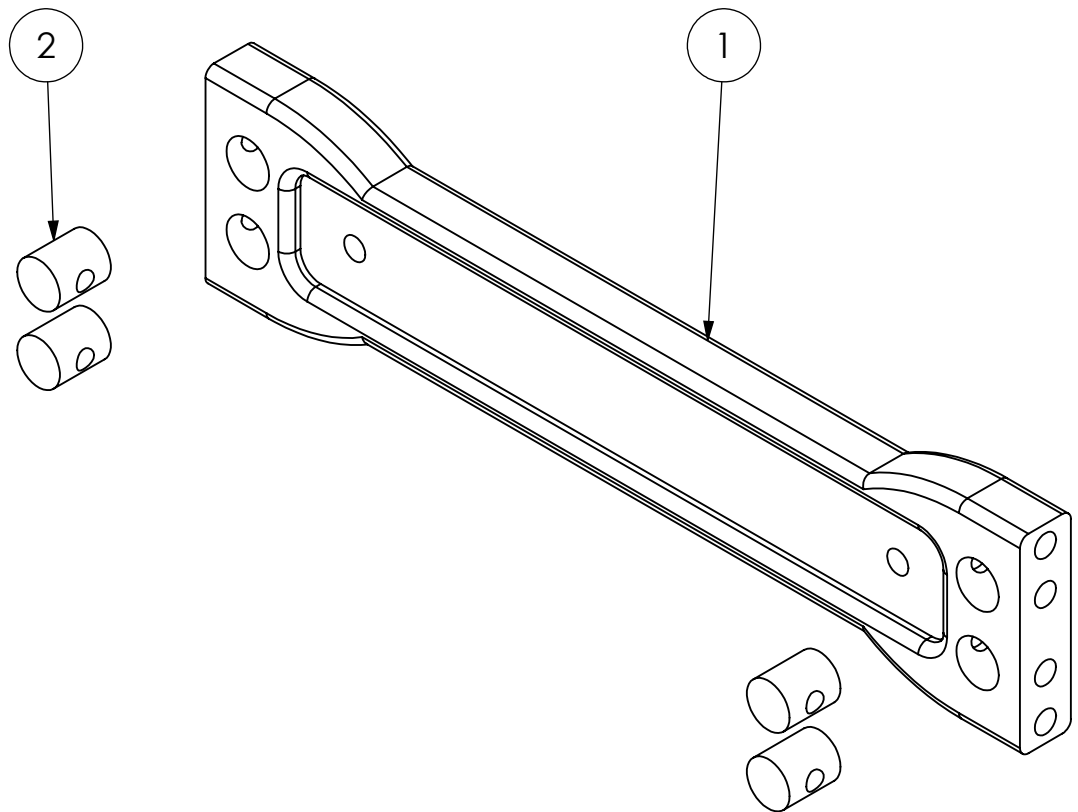
ITEM NO.	PART #	DESCRIPTION	QTY.
1	1-61	UPRIGHT2	1
2	1-62	QUICK RELEASE LOCK	1
3	1-52	UPRIGHT BARRELNUT	4
4	N/A	R8 BEARING	2




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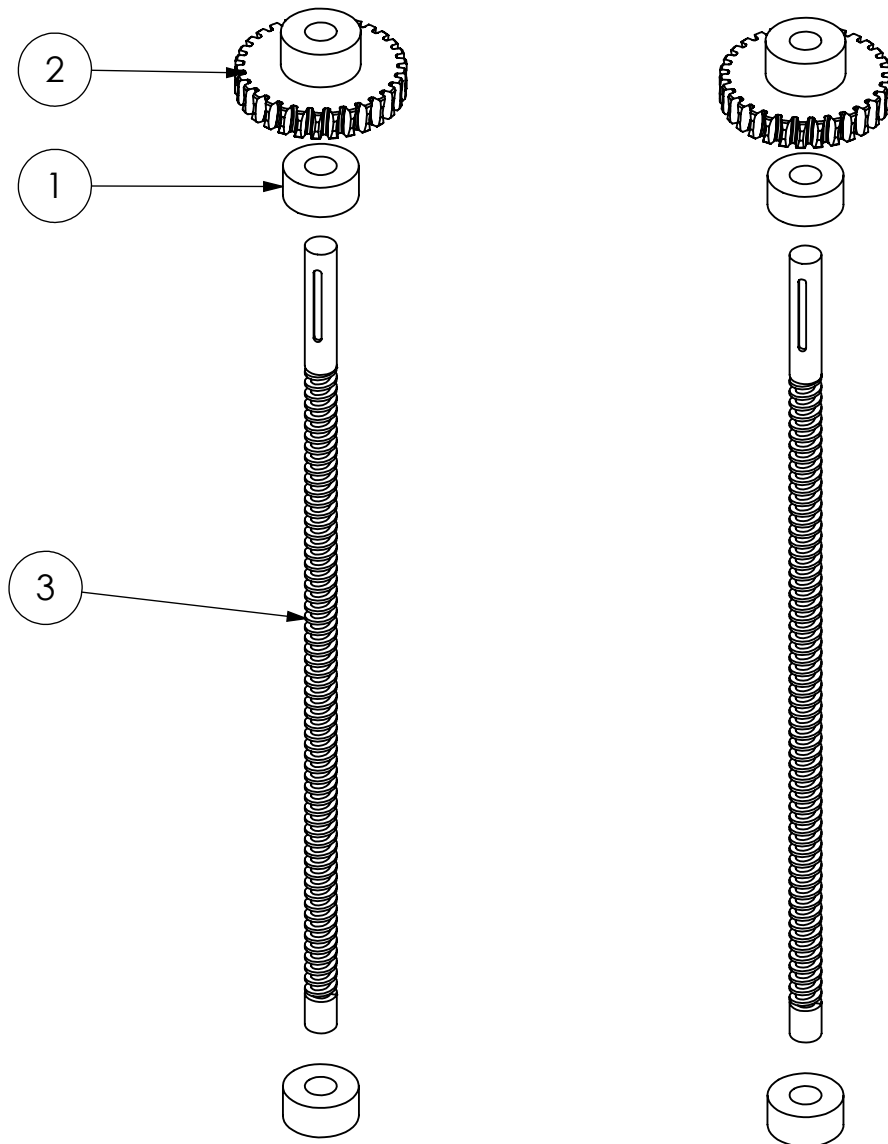
DIMENSIONS ARE IN INCHES		VARIOUS		<i>Stretch Armstrong</i>	
THIRD ANGLE PROJECTION 		Material:			
DEFAULT TOLERANCES:		TTTF RIGHT UPRIGHT ASSEMBLY		UNIVERSITY OF IDAHO ME DEPARTMENT	
LINEAR: X. ± .1 X.X ± .01 X.XX ± .001 X.XXX ± .005	ANGULAR: X. ± 2 X.X ± 1 X.XX ± 0.30°	DESCRIPTION:			
		CHECKED BY:	DATE:	Part #: 1A-00	
		CARLOS DUARTE	5/1/2009		
		DRAWN BY:	DATE:	QTY: 1	
		FILE NAME: TTTF Upright2 Assembly	CAD Application SolidWorks	Scale: 1:2	
				SHEET 2 OF 62	

ITEM NO.	PART #	DESCRIPTION	QTY.
1	1-51	UPRIGHT1	1
2	1-52	UPRIGHT BARRELNUT	4



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
DIMENSIONS ARE IN INCHES		VARIOUS		<i>Stretch Armstrong</i>		
THIRD ANGLE PROJECTION 		Material:				
DEFAULT TOLERANCES:		TTTF LEFT UPRIGHT ASSEMBLY		UNIVERSITY OF IDAHO ME DEPARTMENT		
LINEAR: X: ± .1 X.X ± .01 X.XX ± .001 X.XXX ± .005	ANGULAR: X: ± 2 X.X ± 1 X.XX ± 0.30°	DESCRIPTION:				Part #: 1B-00
		CHECKED BY:	DATE:			
		CARLOS DUARTE		4/29/2009		
		DRAWN BY:	DATE:			
		FILE NAME: TTTF Upright1 Assembly		CAD Application SolidWorks		
				Scale: 1:2	SHEET 3 OF 62	

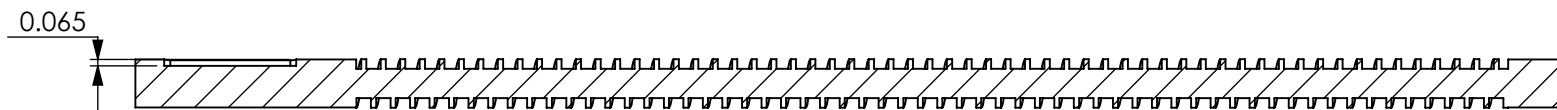
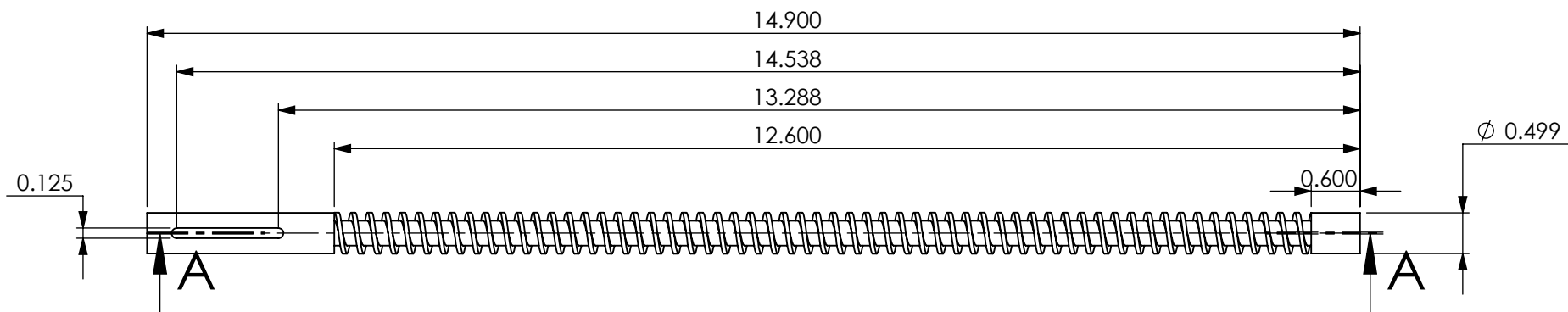


ITEM NO.	PART #	DESCRIPTION	QTY.
1	N/A	THRUST BEARING	4
2	N/A	WORM GEAR	2
3	1-21	BALL SCREWS	2

NOTE:
#1 IS A THRUST BALL BEARING .5" ID x 1.1875" OD
#2 IS A BRONZE WORM GEAR 12 PITCH, 30 TEETH, .5" BORE
(MSC #04169470)
BROACH 1/8" KEYWAY AND DRILL FOR SET SCREW

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DIMENSIONS ARE IN INCHES		THIRD ANGLE PROJECTION 		VARIOUS Material:		<i>Stretch Armstrong</i>			
DEFAULT TOLERANCES:		SHAFT ASSEMBLY							
LINEAR: X: ±.1 X.X ±.01 X.XX ±.001 X.XXX ±.005	ANGULAR: X: ± 2 X.X ± 1 X.XX ± 0.30'	DESCRIPTION:				UNIVERSITY OF IDAHO ME DEPARTMENT			
		CHECKED BY:		DATE:					
		DRAWN BY: CARLOS DUARTE		DATE: 5/4/2009		Part #: 1C-00		QTY: 1	
		FILE NAME: Shaft Assembly		CAD Application SolidWorks					
						Scale: 1:3		SHEET 4 OF 62	

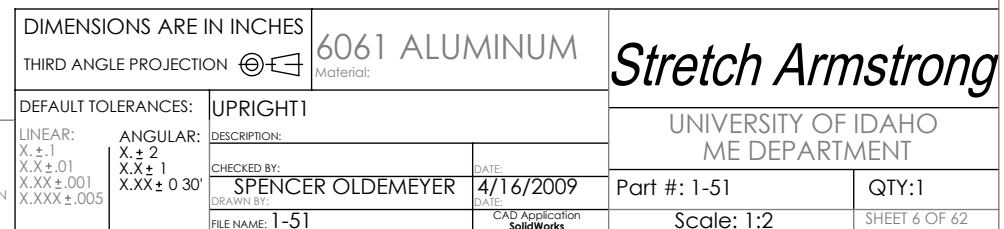
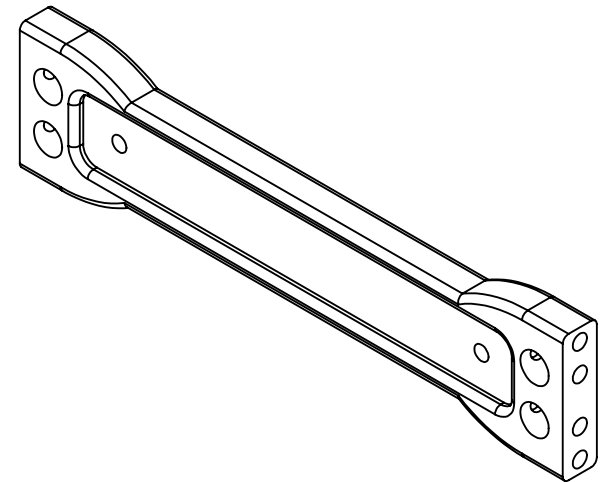


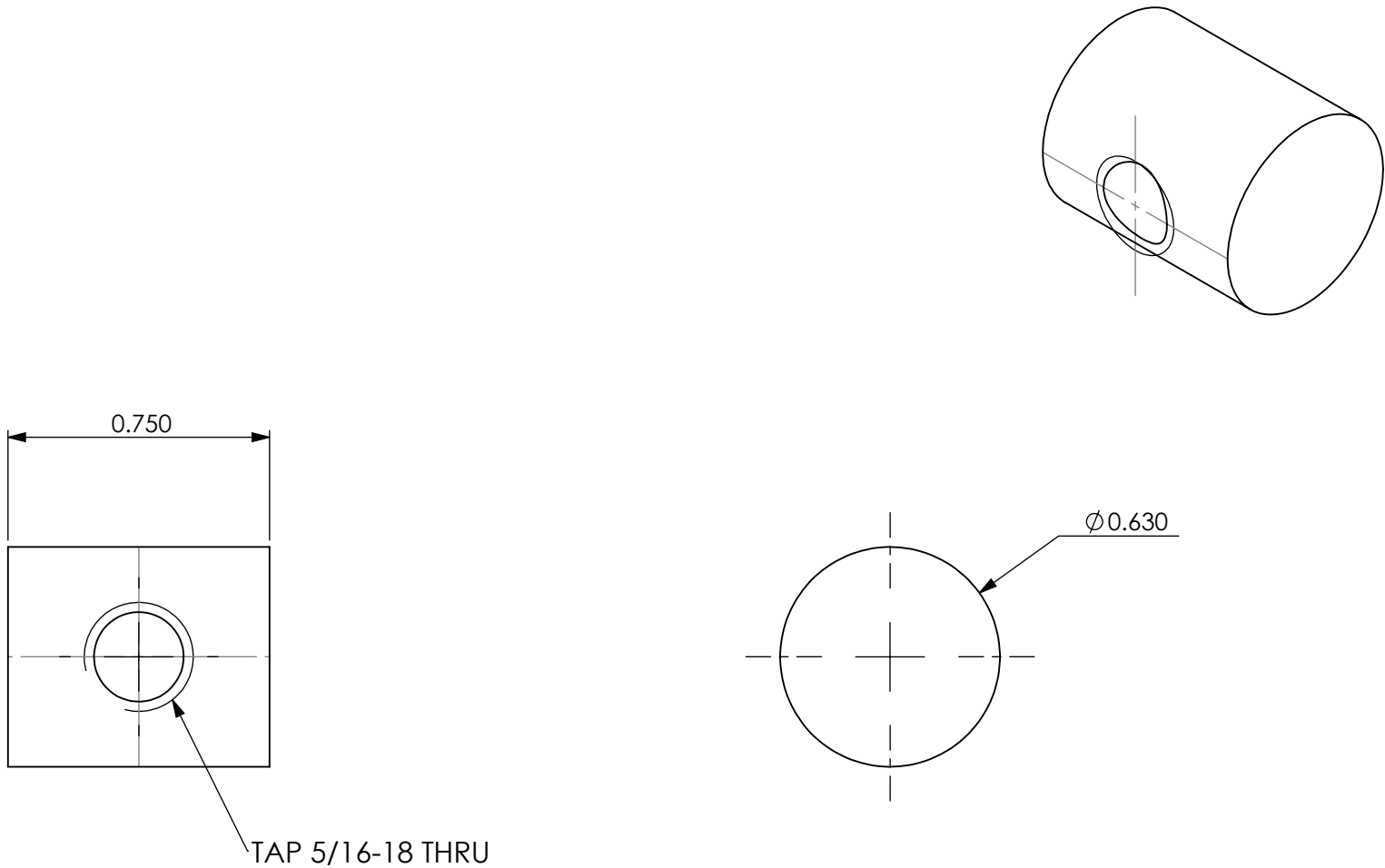
SECTION A-A

NOTE: TURN ENDS OF BALL SCREW TO \varnothing 0.50 AND MILL
1/8 KEYWAY
(McMASTER-CARR #5966K26)


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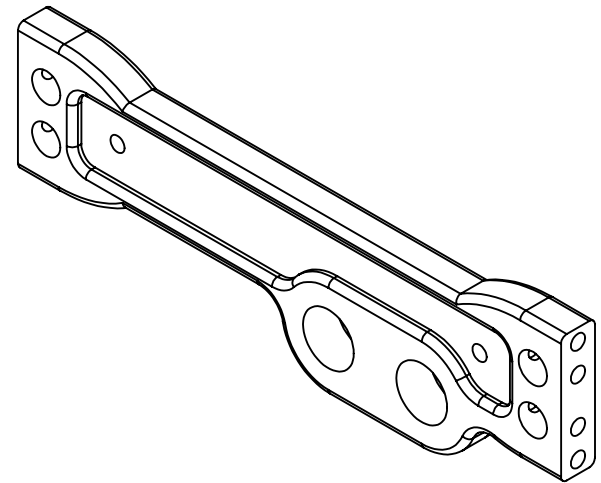
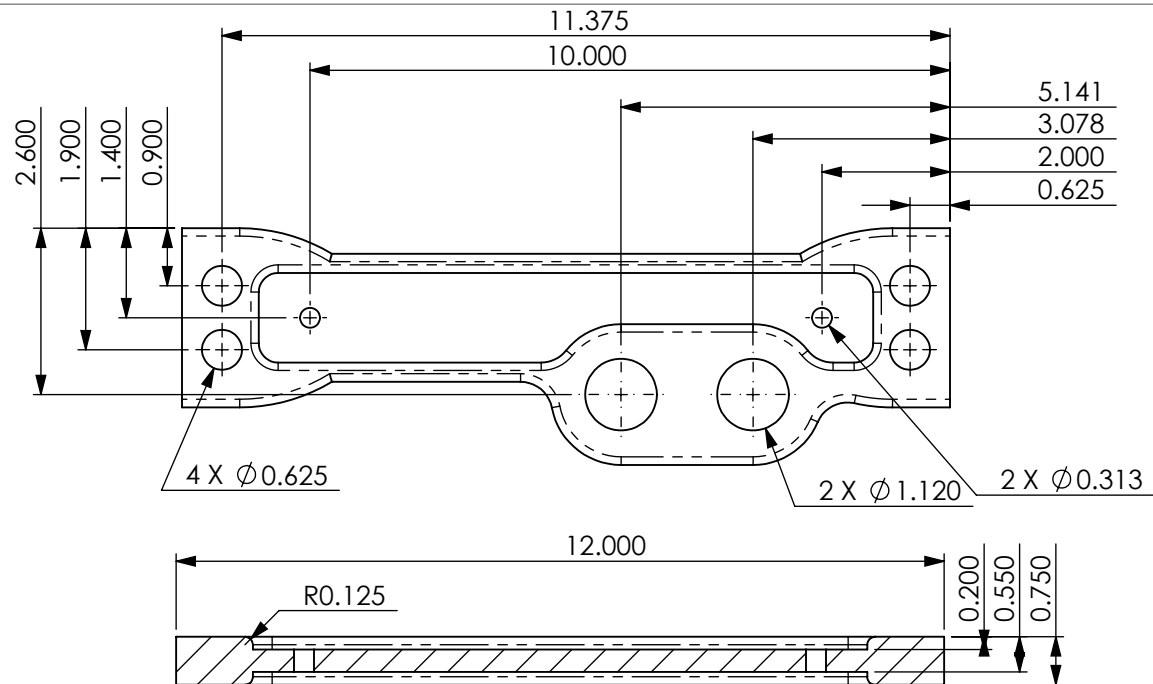
DIMENSIONS ARE IN INCHES		STEEL ALLOY		<i>Stretch Armstrong</i>	
THIRD ANGLE PROJECTION 		Material:			
DEFAULT TOLERANCES:		BALL SCREWS		UNIVERSITY OF IDAHO ME DEPARTMENT	
LINEAR: X. \pm .1 X.X \pm .01 X.XX \pm .001 X.XXX \pm .005	ANGULAR: X. \pm 2 X.X \pm 1 X.XX \pm 0.30'	DESCRIPTION:			
		CHECKED BY:	DATE:		
		CARLOS DUARTE	4/29/2009		
		DRAWN BY:	DATE:		
		FILE NAME: 1-21	CAD Application SolidWorks		
				Part #: 1-21	QTY:2
				Scale: 1:2	SHEET 5 OF 62



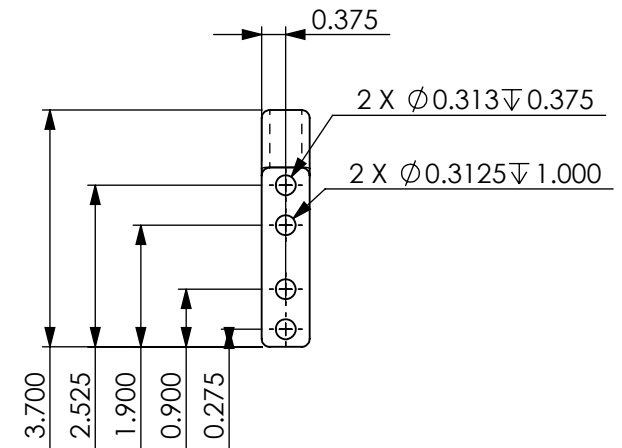
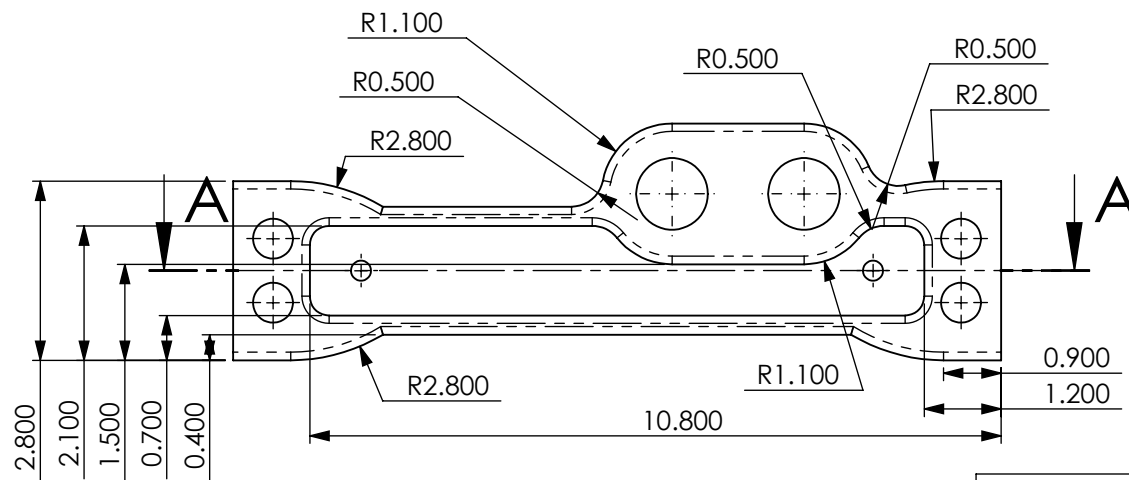


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DIMENSIONS ARE IN INCHES		6061 ALUMINUM		<i>Stretch Armstrong</i>	
THIRD ANGLE PROJECTION 		Material:			
DEFAULT TOLERANCES:		UPRIGHT BARRELNUT		UNIVERSITY OF IDAHO ME DEPARTMENT	
LINEAR: X. ± .1 X.X ± .01 X.XX ± .001 X.XXX ± .005		ANGULAR: X. ± 2 X.X ± 1 X.XX ± 0 30'			
		DESCRIPTION:			
		CHECKED BY:		DATE:	
		CARLOS DUARTE		4/29/2009	
		DRAWN BY:		DATE:	
		FILE NAME: 1-52		CAD Application SolidWorks	
				Part #: 1-52	
				Scale: 2:1	
				QTY:8	
				SHEET 7 OF 62	



SECTION A-A



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DIMENSIONS ARE IN INCHES
 THIRD ANGLE PROJECTION

6061 ALUMINUM
 Material:

DEFAULT TOLERANCES: UPRIGHT2

LINEAR:
 X. ± .1
 X.X ± .01
 X.XX ± .001
 X.XXX ± .005

ANGULAR:
 X. ± 2
 X.X ± 1
 X.XX ± 0.30°

DESCRIPTION:

CHECKED BY: SPENCER OLDEMEYER
 DRAWN BY: SPENCER OLDEMEYER
 FILE NAME: 1-61

DATE: 4/16/2009
 DATE: 4/16/2009
 CAD Application
 SolidWorks

Stretch Armstrong

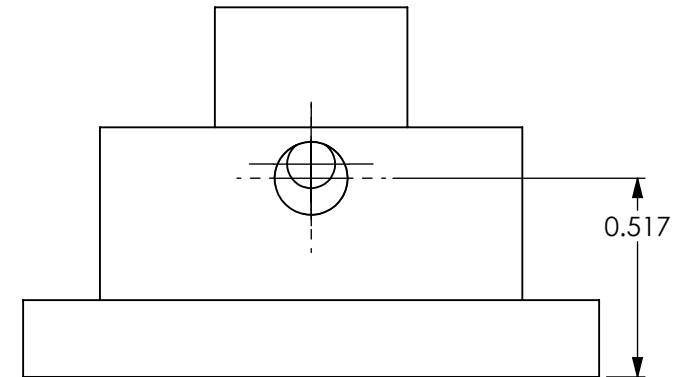
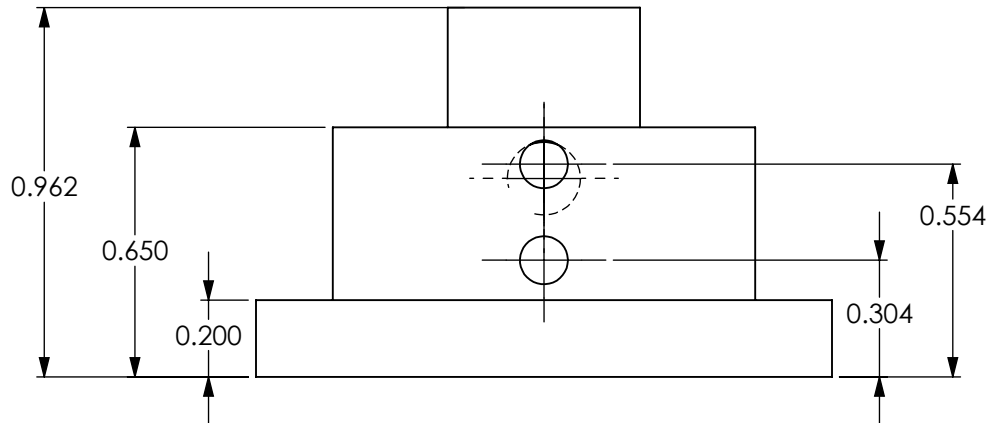
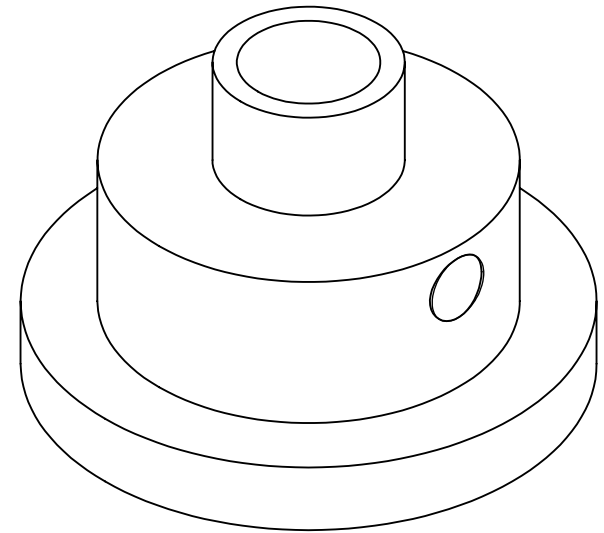
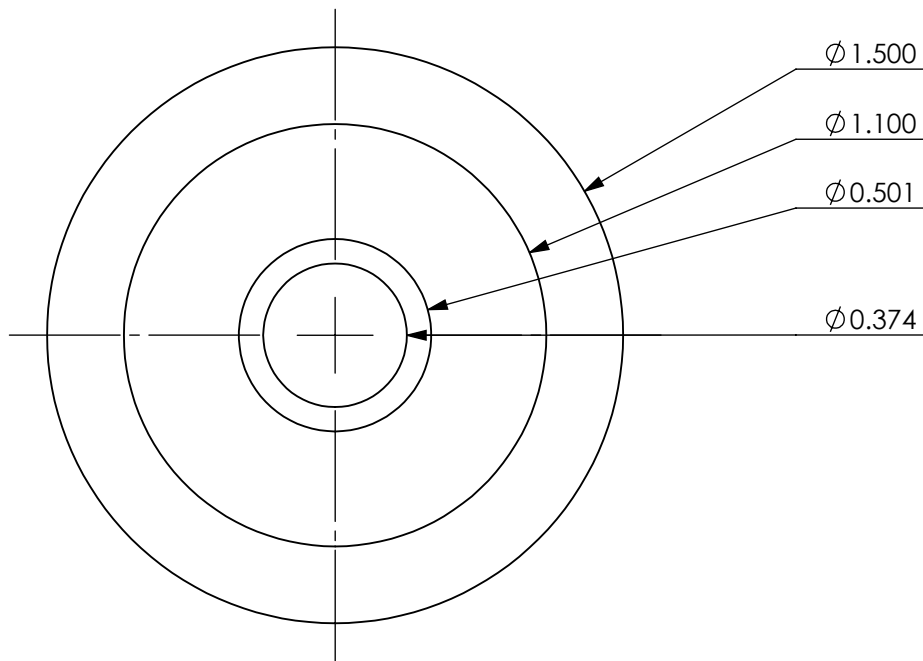
UNIVERSITY OF IDAHO
 ME DEPARTMENT

Part #: 1-61


QTY: 1

Scale: 1:2

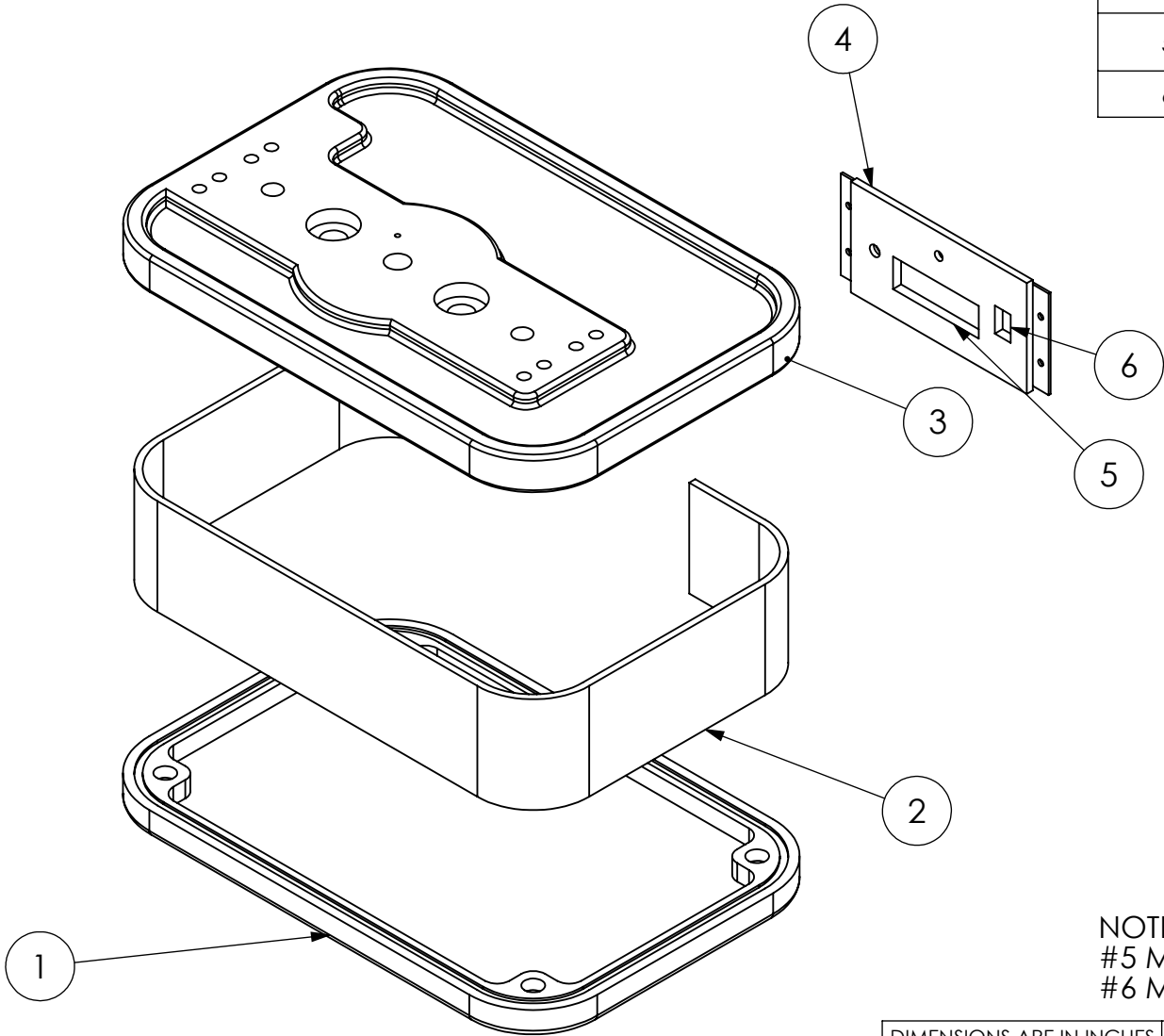
SHEET 8 OF 62



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
DIMENSIONS ARE IN INCHES		BRASS		<i>Stretch Armstrong</i>	
THIRD ANGLE PROJECTION 		Material:			
DEFAULT TOLERANCES:		QUICK RELEASE LOCK		UNIVERSITY OF IDAHO ME DEPARTMENT	
LINEAR: X: ± .1 X.X: ± .01 X.XX: ± .001 X.XXX: ± .005		ANGULAR: X: ± 2 X.X: ± 1 X.XX: ± 0.30°			
CHECKED BY:		DATE:		Part #: 1-62	
DRAWN BY: CARLOS DUARTE		DATE: 4/29/2009			
FILE NAME: 1-62		CAD Application SolidWorks			
				Scale: 2:1	
				SHEET 9 OF 62	

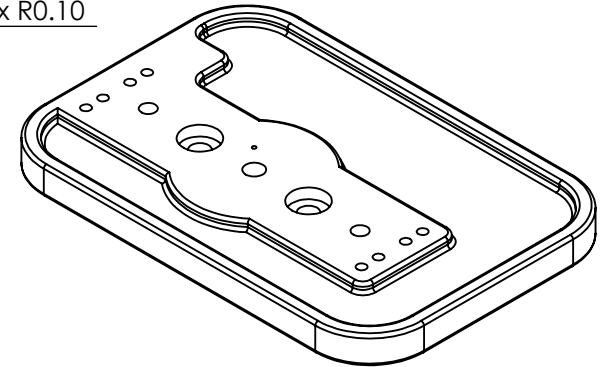
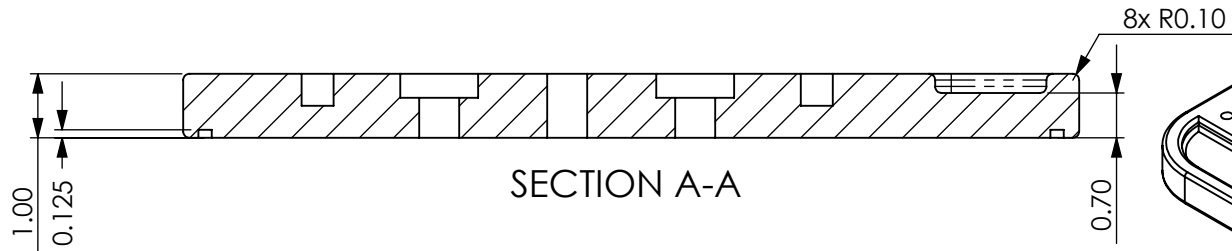
ITEM NO.	PART #	DESCRIPTION	QTY.
1	2-03	COVER	1
2	2-04	BASEWALL	1
3	2-01	BASE	1
4	2-02	BASEWALL PANEL	1
5	N/A	DIGITAL PANEL VOLTMETER	1
6	N/A	TOGGLE SWITCH	1



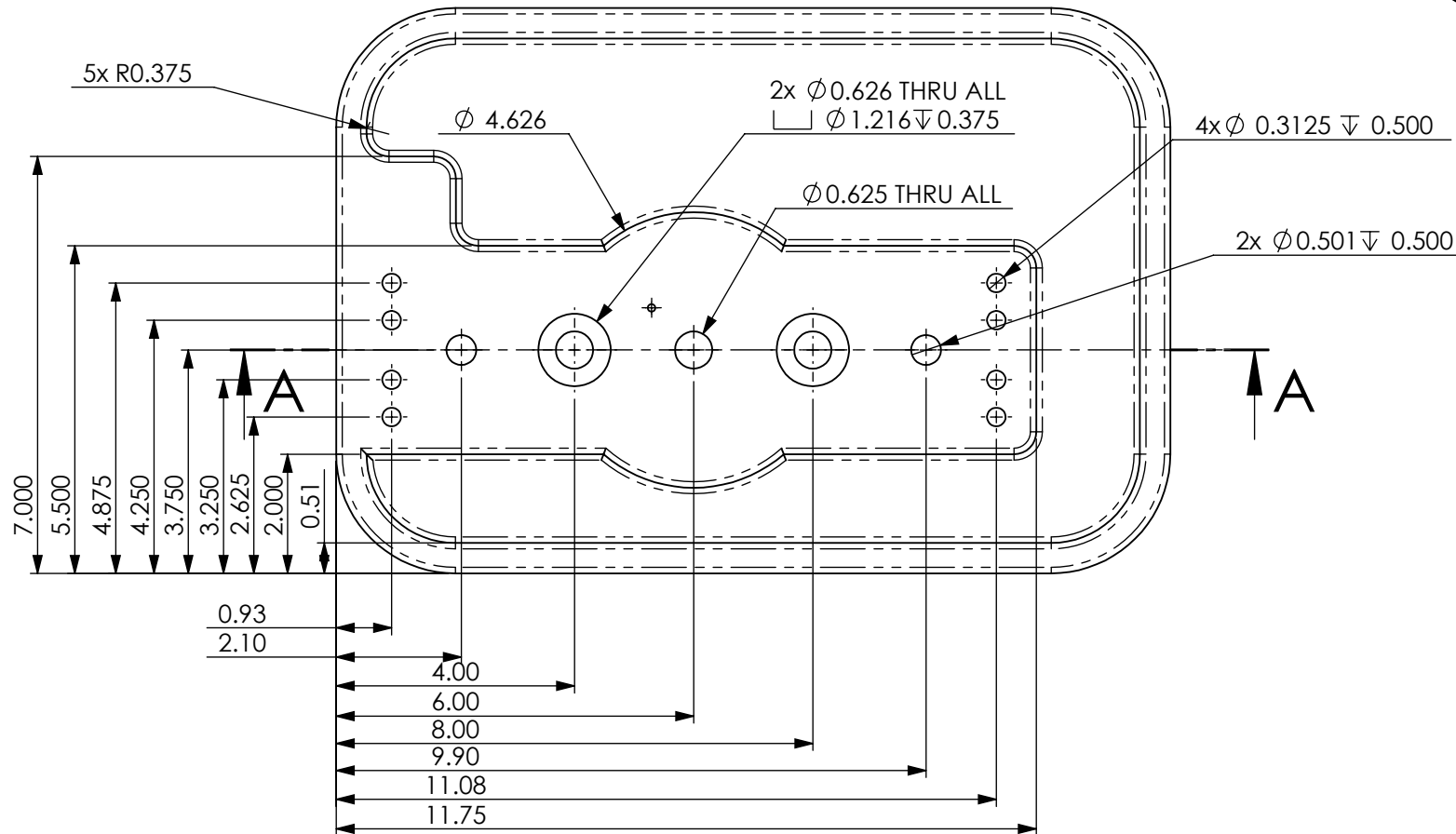
NOTE:
#5 McMASTER ITEM #8339T5
#6 McMASTER ITEM #7343K184

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DIMENSIONS ARE IN INCHES		VARIOUS		<i>Stretch Armstrong</i>	
THIRD ANGLE PROJECTION 		Material:			
DEFAULT TOLERANCES:		TTTF BASE ASSEMBLY		UNIVERSITY OF IDAHO ME DEPARTMENT	
LINEAR: X: ± .1 X.X ± .01 X.XX ± .001 X.XXX ± .005	ANGULAR: X: ± 2 X.X ± 1 X.XX ± 0.30°	DESCRIPTION:			
		CHECKED BY:	DATE:		
		DRAWN BY: CARLOS DUARTE		5/7/2009	
		FILE NAME: TTTF Base Assembly		CAD Application SolidWorks	
				Part #: 2-00	QTY: 1
				Scale: 1:4	SHEET 10 OF 62



SCALE 1:5



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DIMENSIONS ARE IN INCHES
THIRD ANGLE PROJECTION

6061 ALUMINUM
Material:

DEFAULT TOLERANCES:

LINEAR:
X: ± 0.1
X.X: ± 0.01
X.XX: ± 0.001
X.XXX: ± 0.0005

ANGULAR:
X: ± 2
X.X: ± 1
X.XX: $\pm 0.30'$

BASE

DESCRIPTION:

CHECKED BY: CARLOS DUARTE
DATE: 4/27/2009

DRAWN BY: CARLOS DUARTE
FILE NAME: 2-01

DATE: 4/27/2009
SolidWorks

Stretch Armstrong

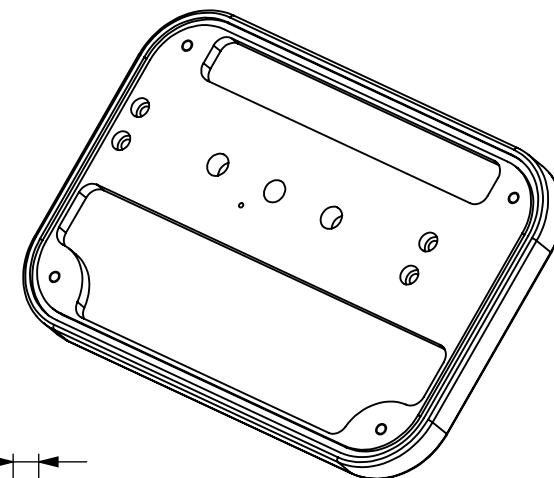
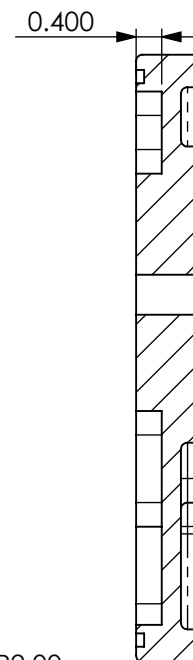
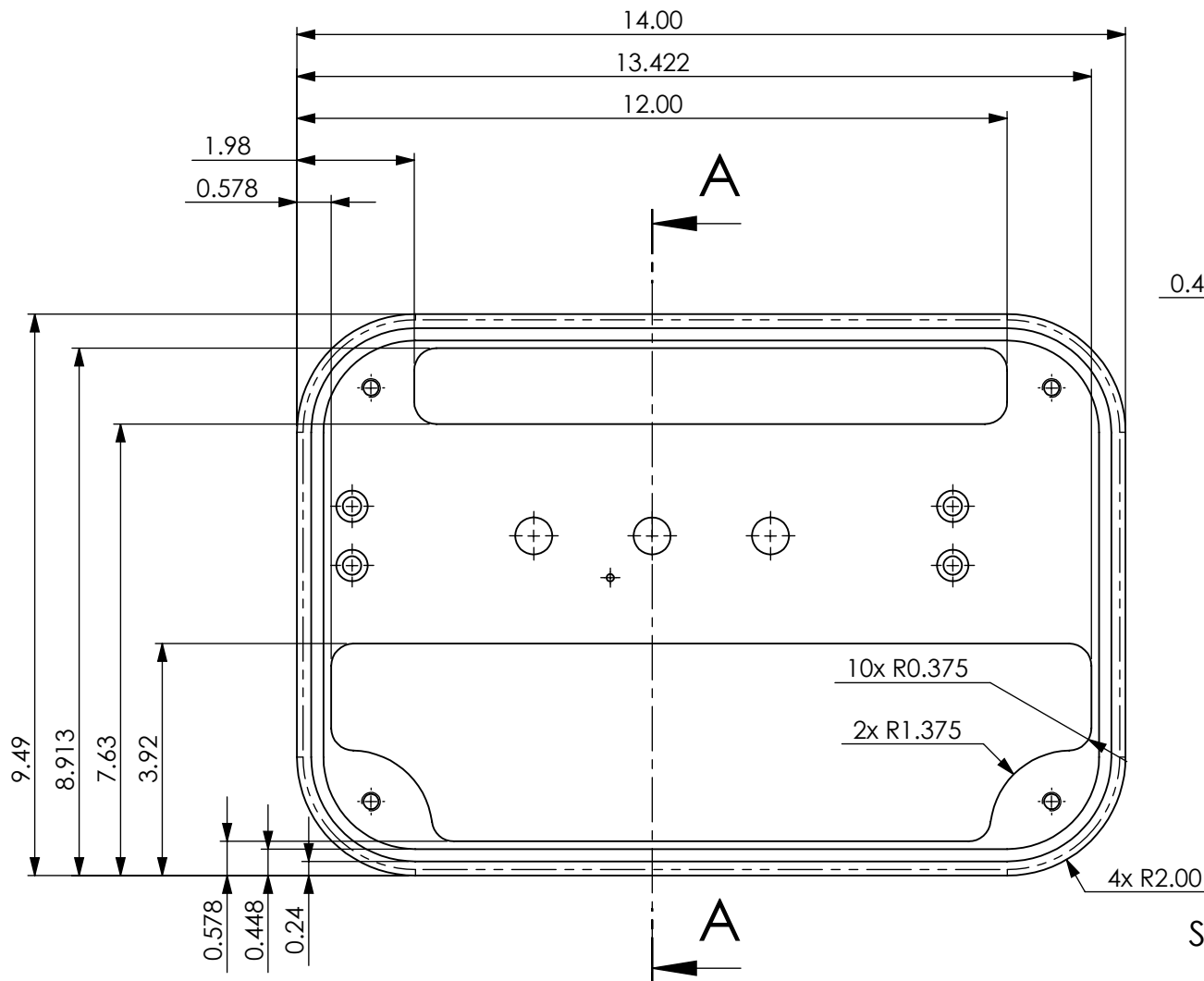
UNIVERSITY OF IDAHO
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Part #: 2-01 (1 OF 3)

QTY: 1


Scale: 1:3

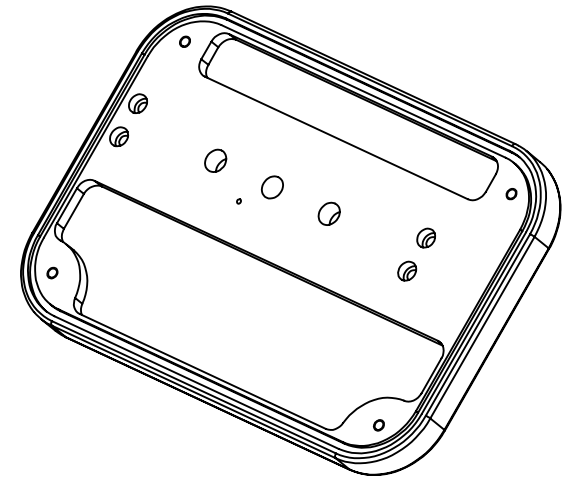
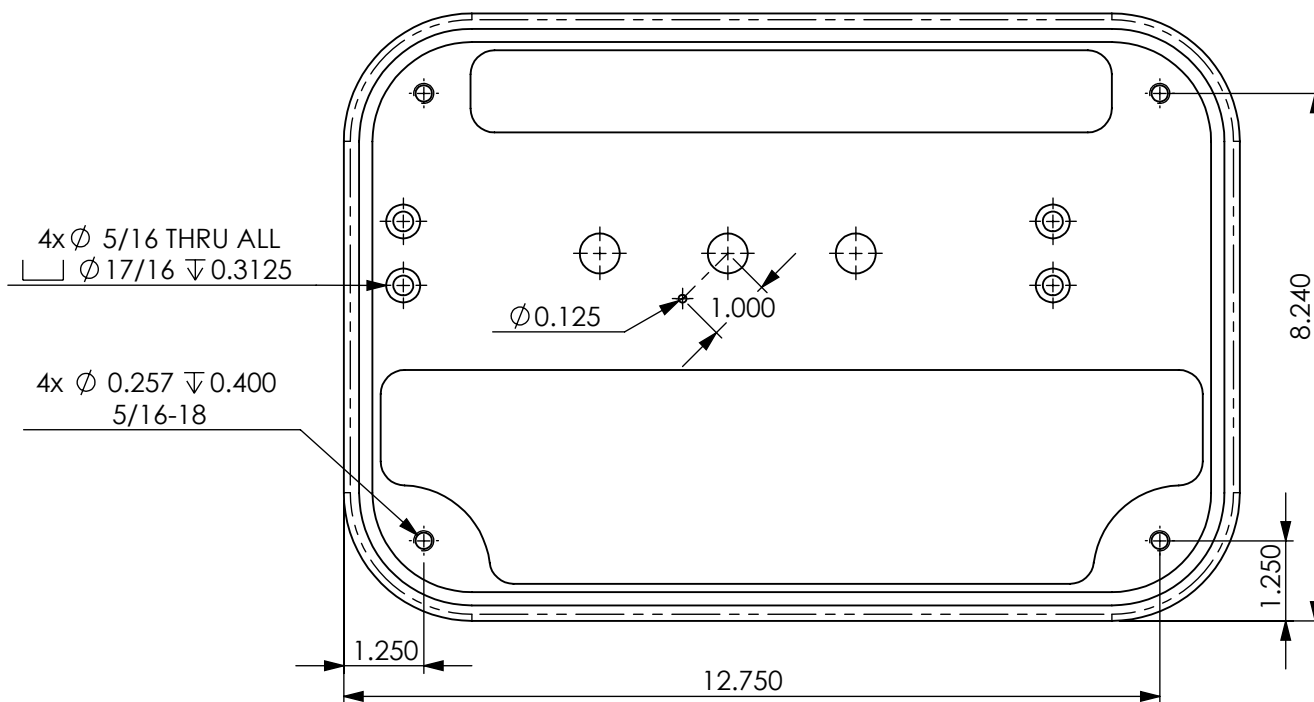
SHEET 11 OF 62



SCALE 1:5


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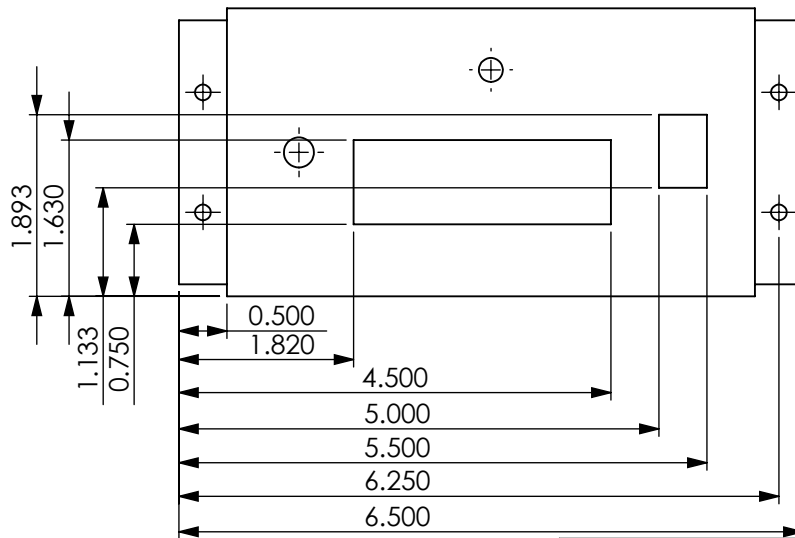
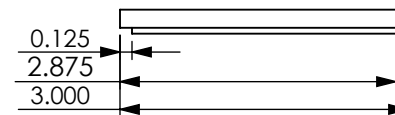
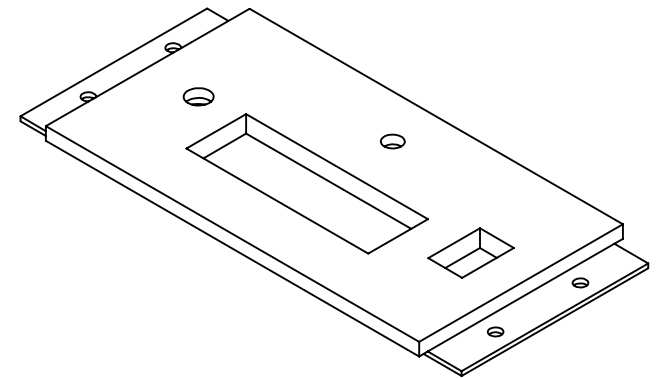
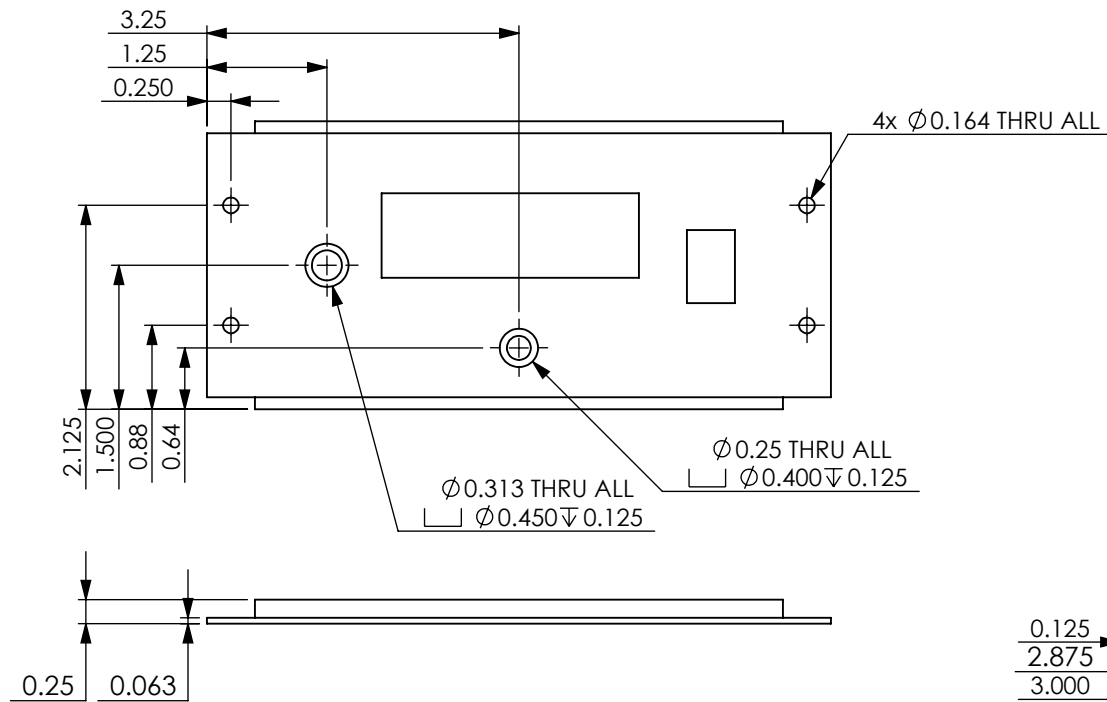
DIMENSIONS ARE IN INCHES		6061 ALUMINUM		<i>Stretch Armstrong</i>	
THIRD ANGLE PROJECTION 		Material:			
DEFAULT TOLERANCES:		BASE		UNIVERSITY OF IDAHO ME DEPARTMENT	
LINEAR: X. ± .1 X.X ± .01 X.XX ± .001 X.XXX ± .005	ANGULAR: X. ± 2 X.X ± 1 X.XX ± 0.30'	DESCRIPTION:			
		CHECKED BY:	DATE:		
		CARLOS DUARTE	4/27/2009		
		DRAWN BY:	DATE:		
FILE NAME: 2-01		CAD Application SolidWorks		Part # : 2-01 (2 OF 3)	
				QTY: 1	
				Scale: 1:3	
				SHEET 12 OF 62	




SCALE 1:5

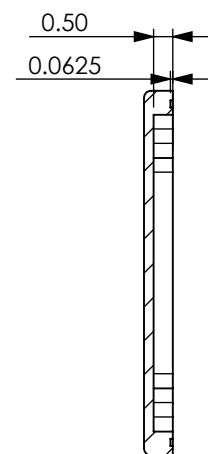
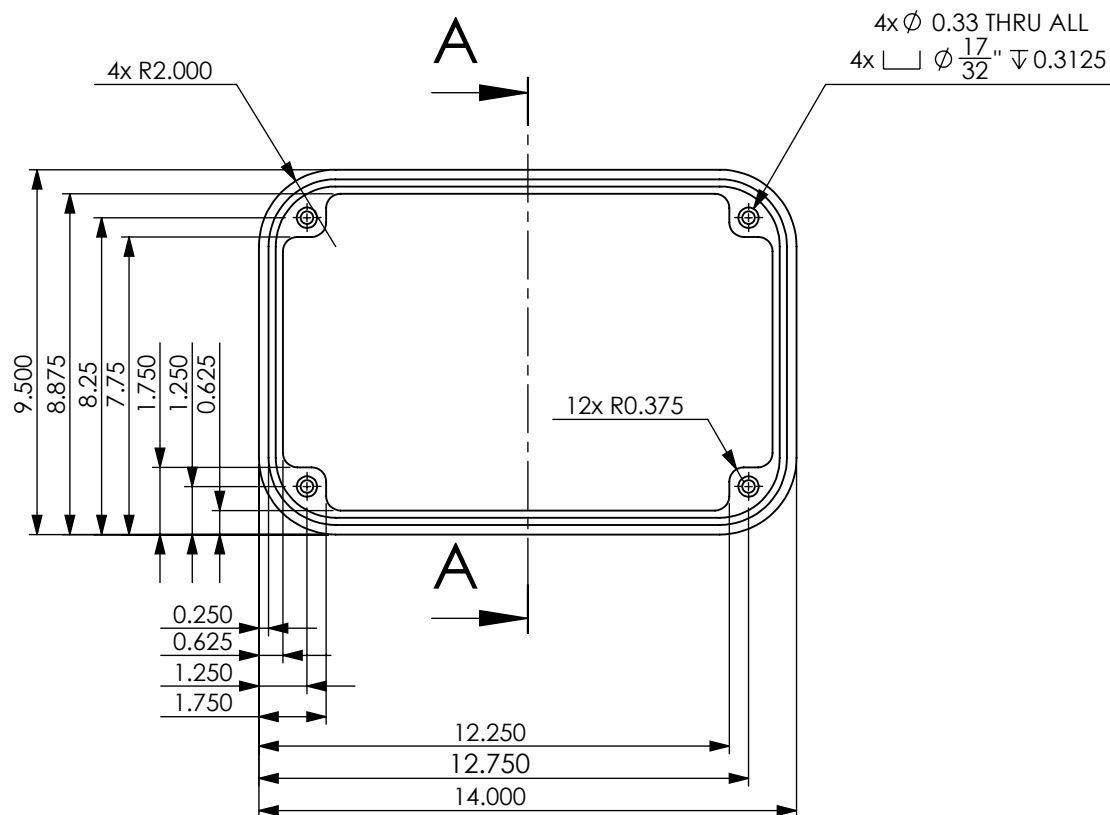
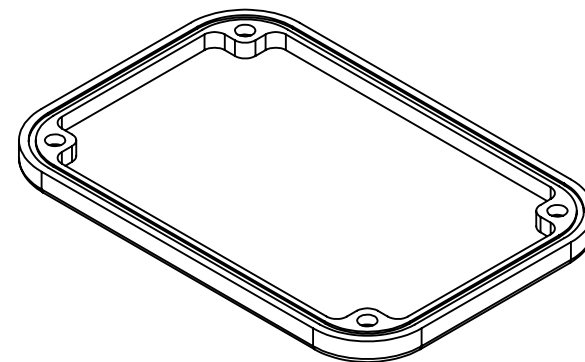
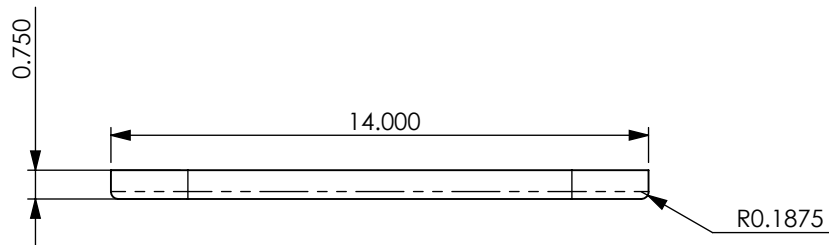
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DIMENSIONS ARE IN INCHES		6061 ALUMINUM		<i>Stretch Armstrong</i>	
THIRD ANGLE PROJECTION 		Material:			
DEFAULT TOLERANCES:		BASE		UNIVERSITY OF IDAHO ME DEPARTMENT	
LINEAR: X. ± .1 X.X ± .01 X.XX ± .001 X.XXX ± .005	ANGULAR: X. ± 2 X.X ± 1 X.XX ± 0.30'	DESCRIPTION:			
		CHECKED BY: CARLOS DUARTE	DATE: 4/27/2009	Part #: 2-01 (3 OF 3) QTY:1	
		DRAWN BY:	DATE:		
		FILE NAME: 2-01	CAD Application SolidWorks	Scale: 1:3 SHEET 13 OF 62	




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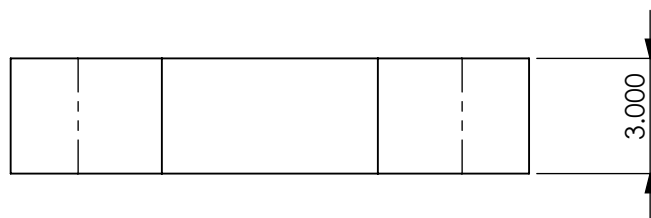
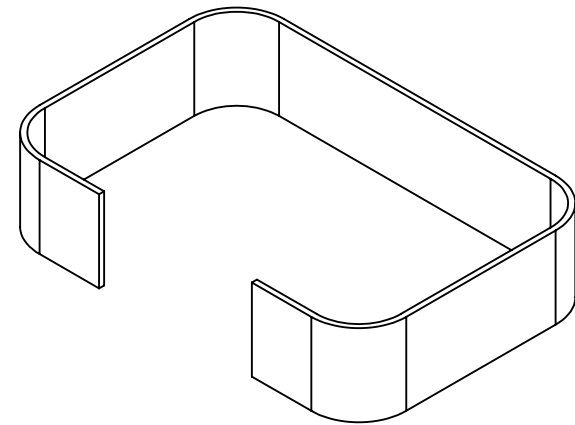
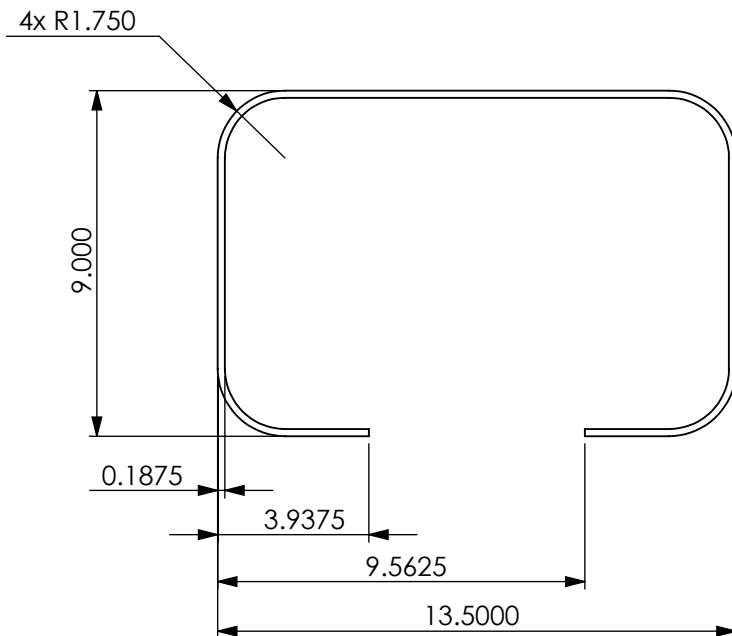
DIMENSIONS ARE IN INCHES		6061 ALUMINUM		<i>Stretch Armstrong</i>	
THIRD ANGLE PROJECTION 		Material:			
DEFAULT TOLERANCES:		BASEWALL PANEL		UNIVERSITY OF IDAHO ME DEPARTMENT	
LINEAR: X. $\pm .1$ X.X $\pm .01$ X.XX $\pm .001$ X.XXX $\pm .005$	ANGULAR: X. ± 2 X.X ± 1 X.XX $\pm 0.30'$	DESCRIPTION:			
		CHECKED BY:	DATE:		
		CARLOS DUARTE		5/4/2009	
		DRAWN BY:		DATE:	
FILE NAME: 2-02		CAD Application SolidWorks		Part #: 2-02	
				Scale: 1:2	
				QTY:1	
				SHEET 14 OF 62	




SECTION A-A

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DIMENSIONS ARE IN INCHES		6061 ALUMINUM		<i>Stretch Armstrong</i>	
THIRD ANGLE PROJECTION 		Material:			
DEFAULT TOLERANCES:		COVER		UNIVERSITY OF IDAHO ME DEPARTMENT	
LINEAR: X. ± .1 X.X ± .01 X.XX ± .001 X.XXX ± .005	ANGULAR: X. ± 2 X.X ± 1 X.XX ± 0.30'	DESCRIPTION:			
		CHECKED BY:	DATE:	Part # : 2-03	
		CARLOS DUARTE	4/22/2009		
		DRAWN BY:	DATE:	QTY: 1	
		FILE NAME: 2-03	CAD Application SolidWorks	Scale: 1:5	
				SHEET 15 OF 62	

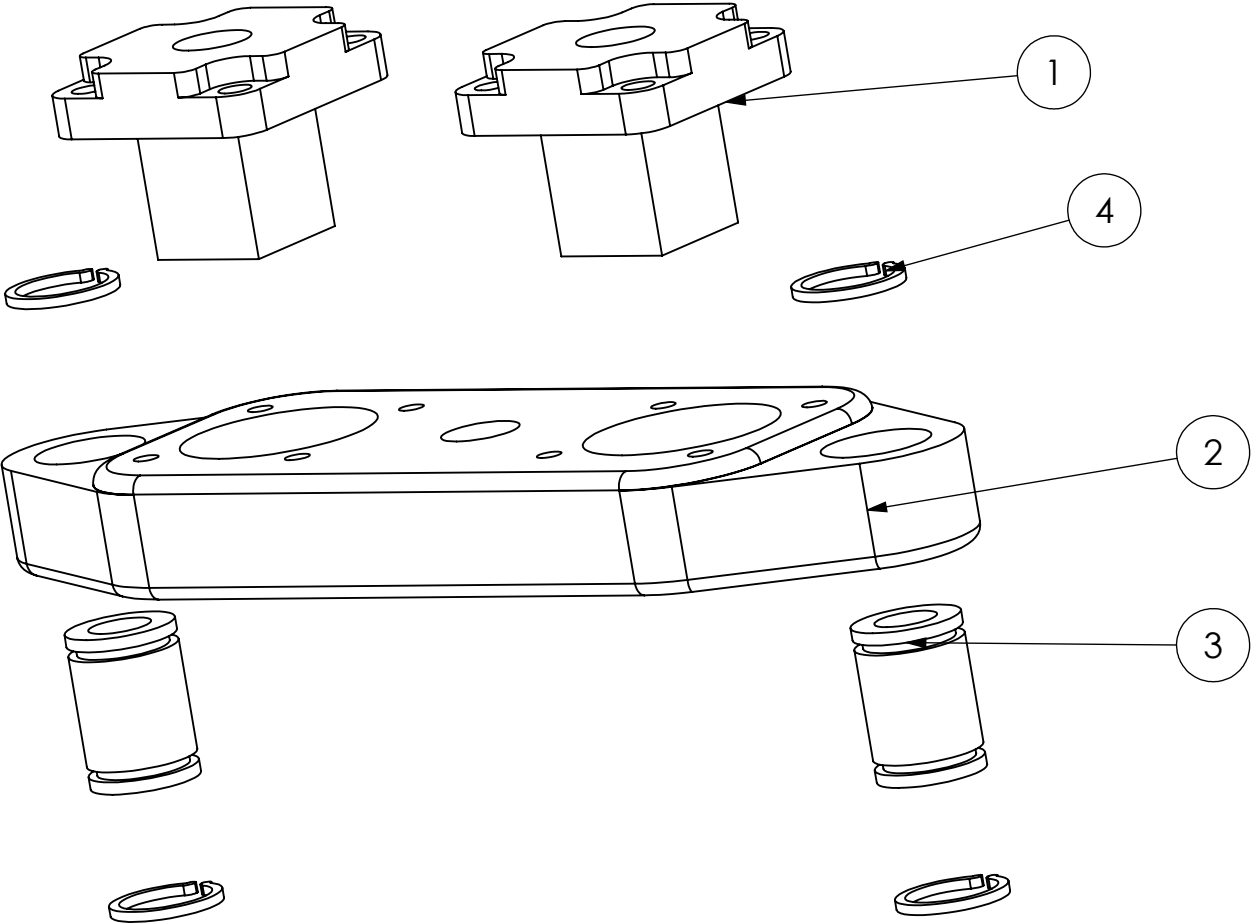


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DIMENSIONS ARE IN INCHES		6061 ALUMINUM		<i>Stretch Armstrong</i>	
THIRD ANGLE PROJECTION 		Material:			
DEFAULT TOLERANCES:		BASEWALL		UNIVERSITY OF IDAHO ME DEPARTMENT	
LINEAR: X. ± .1 X.X ± .01 X.XX ± .001 X.XXX ± .005	ANGULAR: X. ± 2 X.X ± 1 X.XX ± 0.30°	DESCRIPTION:			
		CHECKED BY:	DATE:		
		CARLOS DUARTE4/29/2009			
		DRAWN BY:	DATE:		
		FILE NAME: 2-04		CAD Application SolidWorks	
				Part #: 2-04	QTY:1
				Scale: 1:5	SHEET 16 OF 62

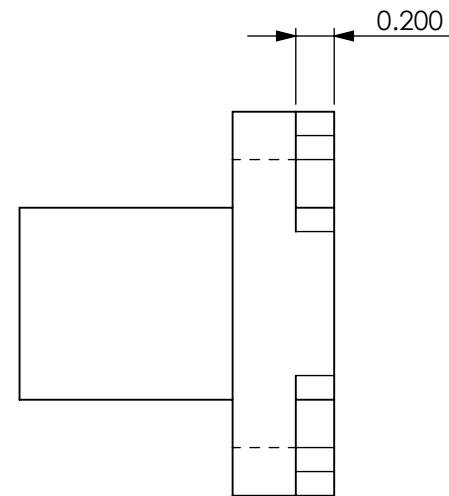
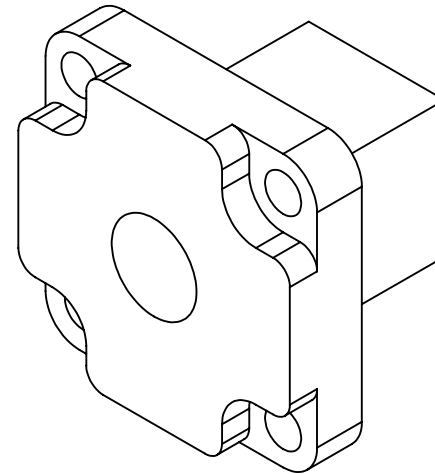
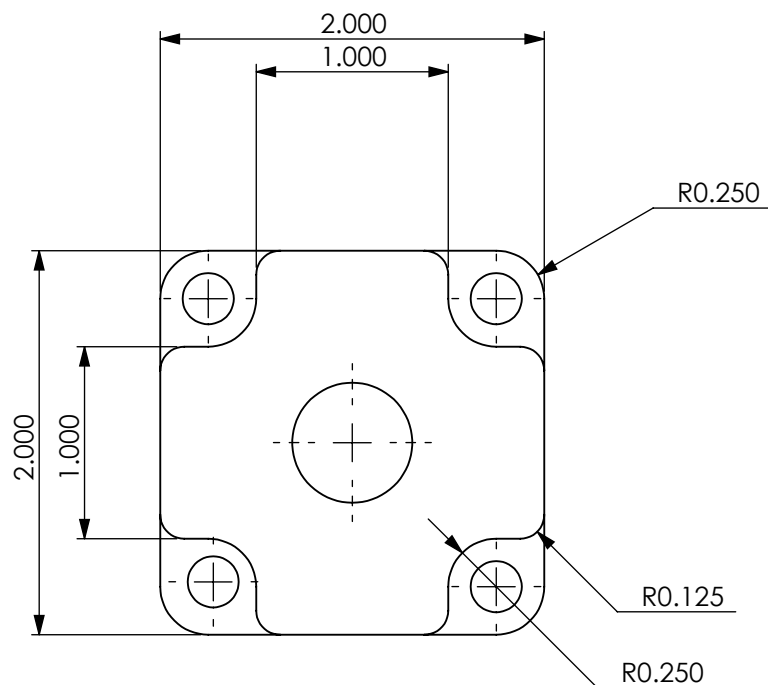
NOTE:
#3 CLOSED FRELON LINED BEARING
.5" ID X .875" OD X 1.25"
6061 - T6 ANODIZED ALUMINUM
(MCMaster CARR #5986K83)
#4 SNAP RETAINING RING TO FIT #3

ITEM NO.	PART #	DESCRIPTION	QTY.
1	3-01	FLANGED BALL NUT	2
2	3-02	CROSS	1
3	N/A	LINEAR BUSHING	2
4	N/A	RETAINING RING	4




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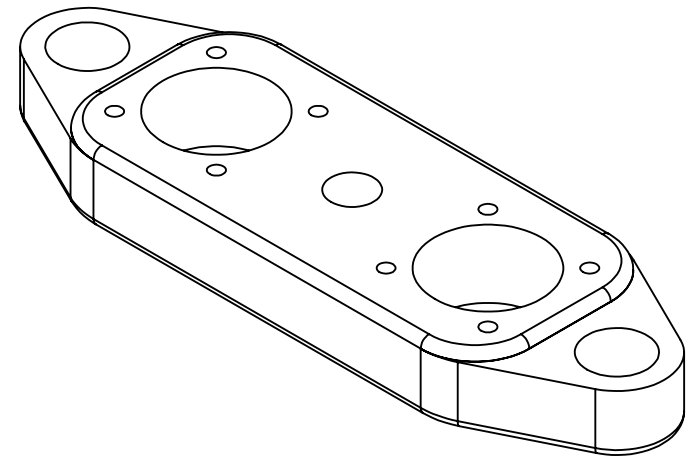
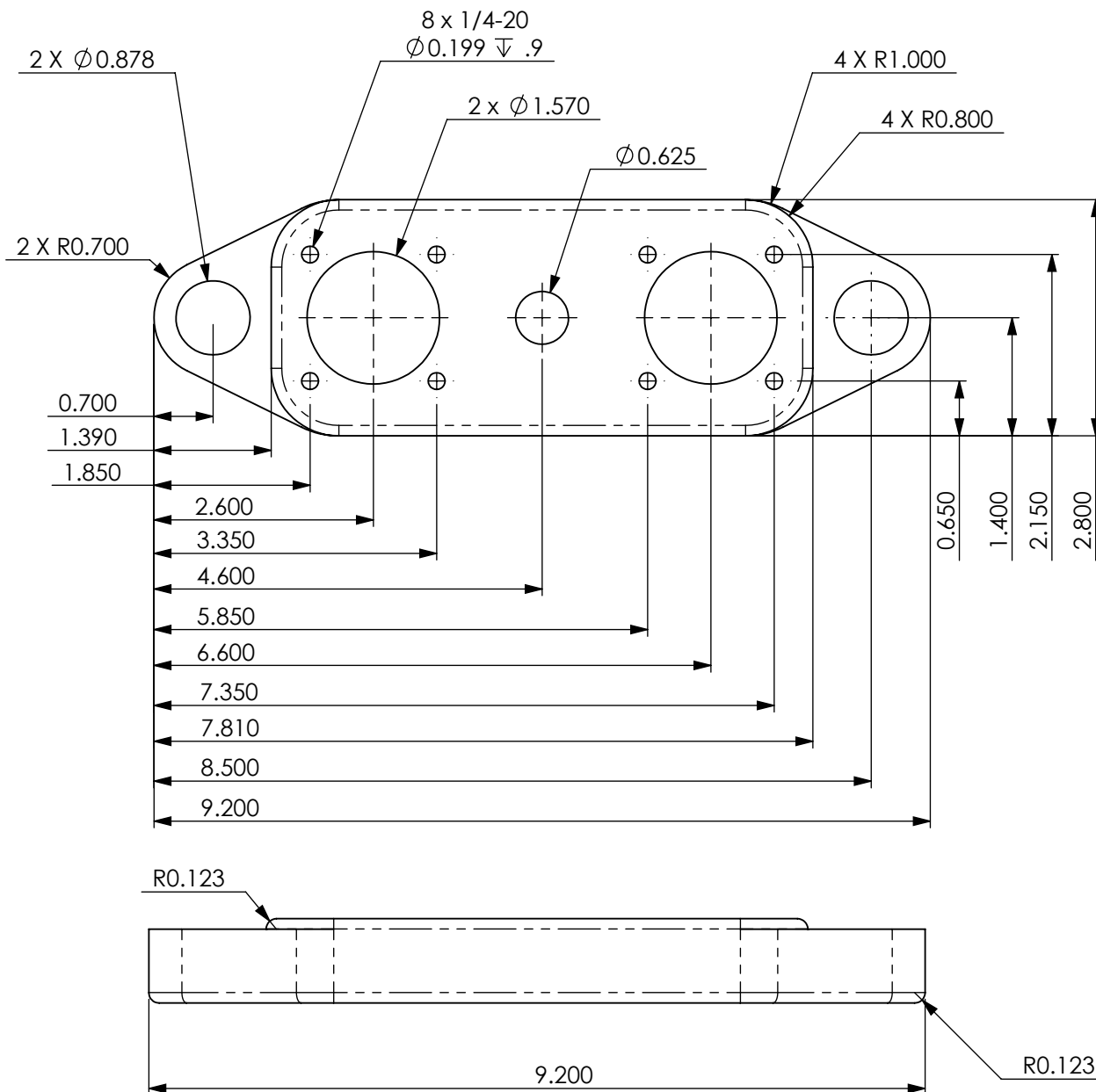
DIMENSIONS ARE IN INCHES		<div>VARIOUS</div> <div>Material:</div>		<div>Stretch Armstrong</div>	
THIRD ANGLE PROJECTION 					
DEFAULT TOLERANCES:		CROSS MEMBER ASSEMBLY			
LINEAR: X. ± .1 X.X ± .01 X.XX ± .001 X.XXX ± .005		ANGULAR: X. ± 2 X.X ± 1 X.XX ± 0.30°			
CHECKED BY: SPENCER OLDEMEYER		DATE: 5/7/2009			
DRAWN BY:		DATE:		Part #: 3-00	
FILE NAME: 3-00		CAD Application SolidWorks		QTY: 1	
				Scale: 1:1.5	
				SHEET 17 OF 62	



NOTE: MODIFICATIONS TO PURCHASED FLANGE (MCMASTER #5966K46)

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DIMENSIONS ARE IN INCHES		6061 ALUMINUM		<i>Stretch Armstrong</i>	
THIRD ANGLE PROJECTION 		Material:			
DEFAULT TOLERANCES:		FLANGED BALL NUT		UNIVERSITY OF IDAHO ME DEPARTMENT	
LINEAR: X: ± .1 X.X ± .01 X.XX ± .001 X.XXX ± .005	ANGULAR: X: ± 2 X.X ± 1 X.XX ± 0.30°	DESCRIPTION:			
		CHECKED BY:	DATE:		
		SPENCER OLDEMEYER			
		5/6/2009			
		DRAWN BY:		DATE:	
FILE NAME: 3-01		CAD Application SolidWorks		Part #: 3-01	QTY:2
				Scale: 1:1	SHEET 18 OF 62



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DIMENSIONS ARE IN INCHES
 THIRD ANGLE PROJECTION

6061 ALUMINUM
 Material:

DEFAULT TOLERANCES:

LINEAR:
 X. $\pm .1$
 X.X $\pm .01$
 X.XX $\pm .001$
 X.XXX $\pm .005$

ANGULAR:
 X. ± 2
 X.X ± 1
 X.XX $\pm 0.30'$

CROSS

DESCRIPTION:

CHECKED BY: SPENCER OLDEMEYER

DATE: 5/1/2009

DRAWN BY:

DATE:

FILE NAME: 3-02

CAD Application
 SolidWorks

Stretch Armstrong

UNIVERSITY OF IDAHO
 ME DEPARTMENT

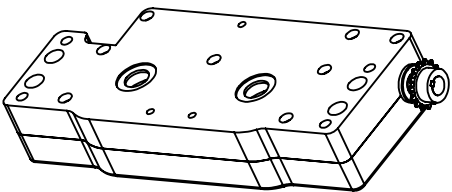
Part #: 3-02

QTY: 1

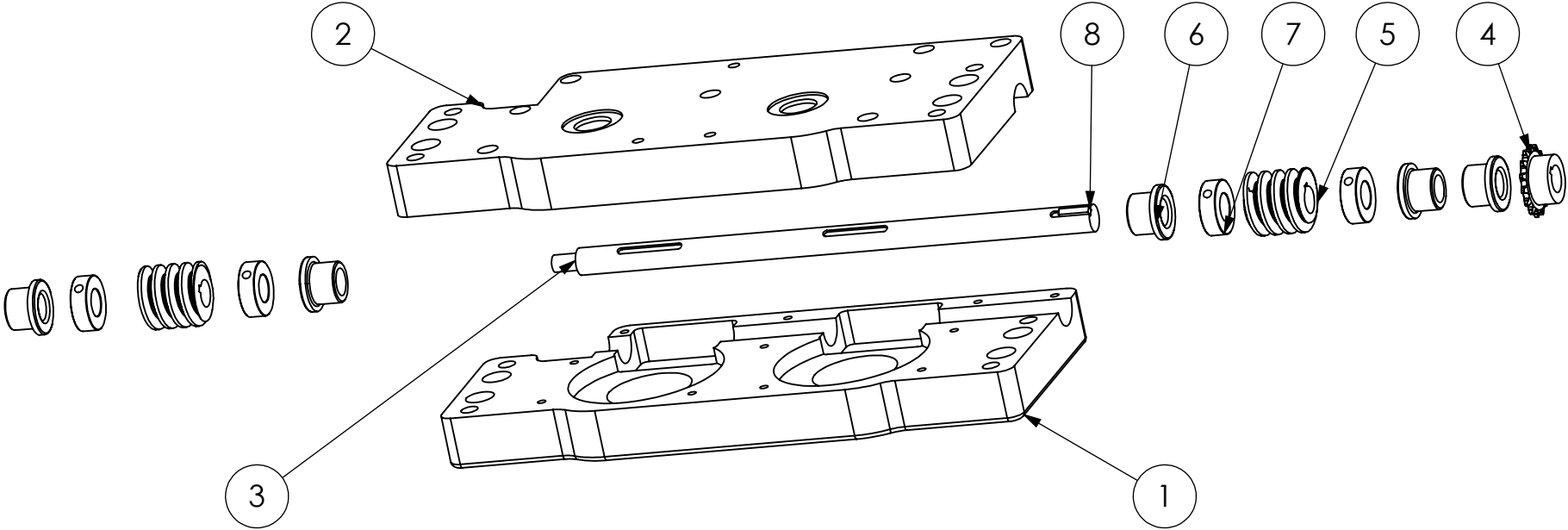
Scale: 1:2

SHEET 19 OF 62


ITEM NO.	PART #	DESCRIPTION	QTY.
1	4-01	BOTTOM HOUSING	1
2	4-02	TOP HOUSING	1
3	4-03	WORM GEAR SHAFT	1
4	N/A	TOOTH SPROCKET	1
5	N/A	WORM	2
6	N/A	BRONZE BUSHING	5
7	4-07	MODIFIED SHAFT COLLAR	4
8	N/A	PIN	1

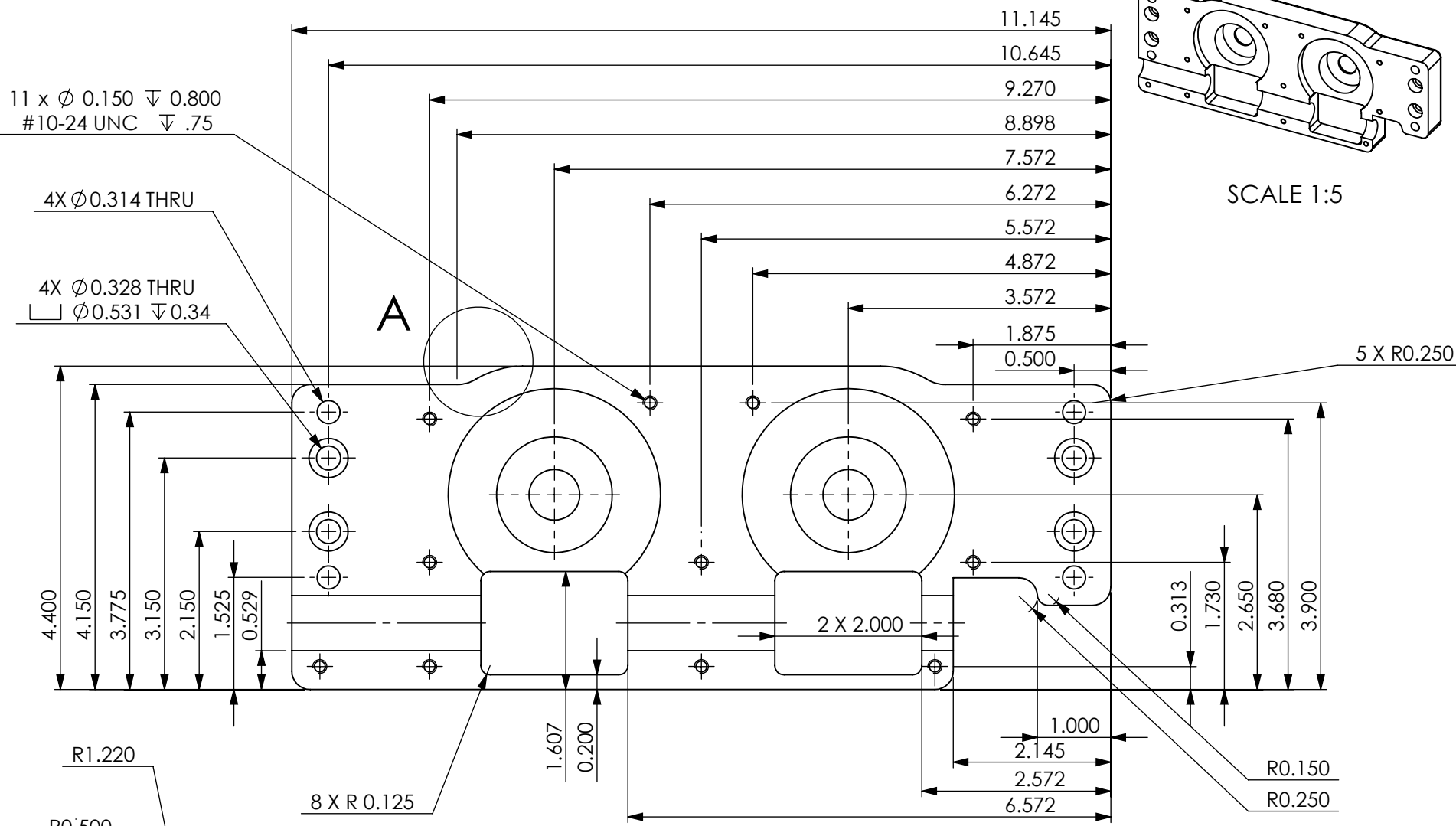



SCALE: 1:5



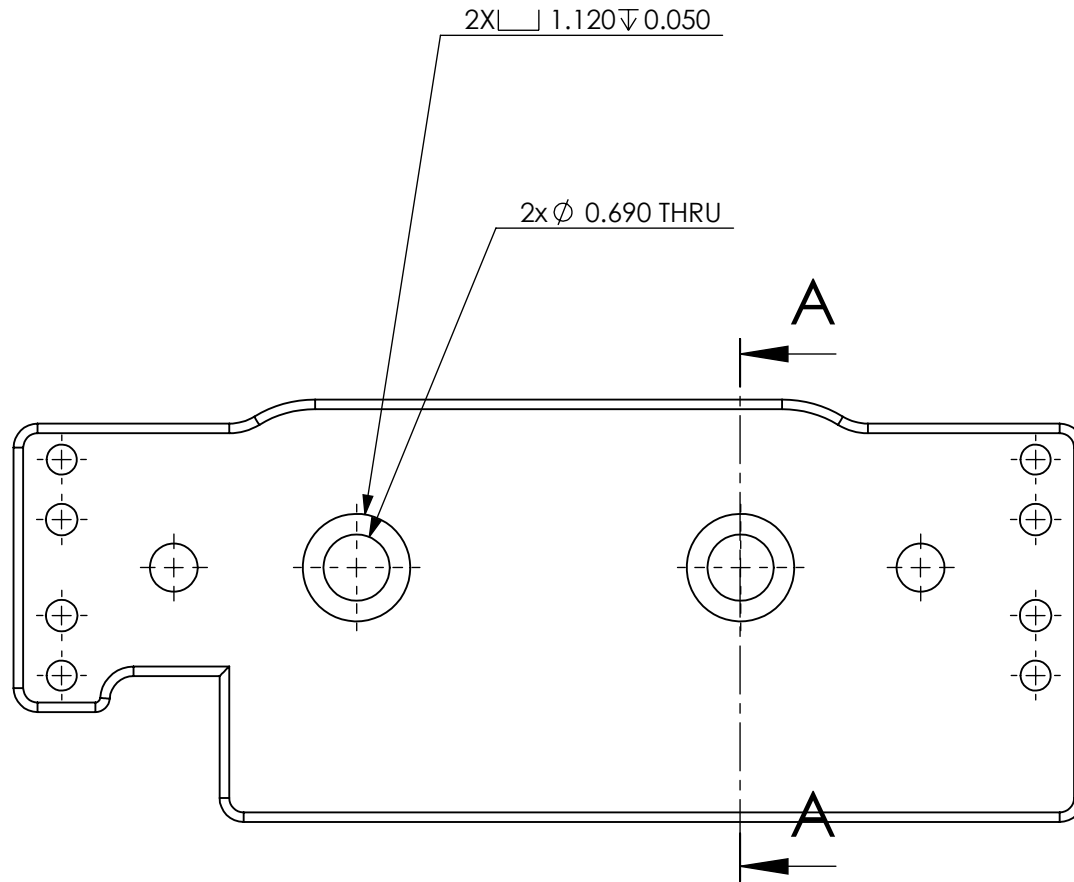
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DIMENSIONS ARE IN INCHES		THIRD ANGLE PROJECTION 		VARIOUS		
		Material:		<i>Stretch Armstrong</i>		
DEFAULT TOLERANCES:		WORM SHAFT ASSEMBLY				
LINEAR: X: ± .1 X.X ± .01 X.XX ± .001 X.XXX ± .005	ANGULAR: X: ± 2 X.X ± 1 X.XX ± 0.30°	DESCRIPTION:		UNIVERSITY OF IDAHO		
				ME DEPARTMENT		
		CHECKED BY:	DATE:	Part #: 4-00		QTY: 1
		JUSTIN RUEGSEGGER		5/4/2009		
		DRAWN BY:	DATE:			
FILE NAME: Worm Shaft Assembly		CAD Application SolidWorks		Scale: 1:3		
				SHEET 20 OF 62		

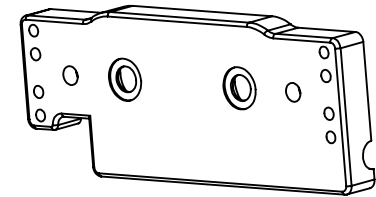


DIMENSIONS ARE IN INCHES		6061 ALUMINUM		<i>Stretch Armstrong</i>				
THIRD ANGLE PROJECTION 		Material:						
DEFAULT TOLERANCES:		BOTTOM HOUSING		UNIVERSITY OF IDAHO ME DEPARTMENT				
LINEAR: X.±.1 X.X±.01 X.XX±.001 X.XXX±.005	ANGULAR: X.± 2 X.X± 1 X.XX± 0.30'	DESCRIPTION:				Part #: 4-01 (1 OF 2)	QTY:1	
		CHECKED BY:	DATE:	Scale: 1:2	SHEET 21 OF 62			
		JUSTIN RUEGSEGGER						5/5/2009
		DRAWN BY:						
		FILE NAME: 4-01 Bottom Housing						CAD Application SolidWorks

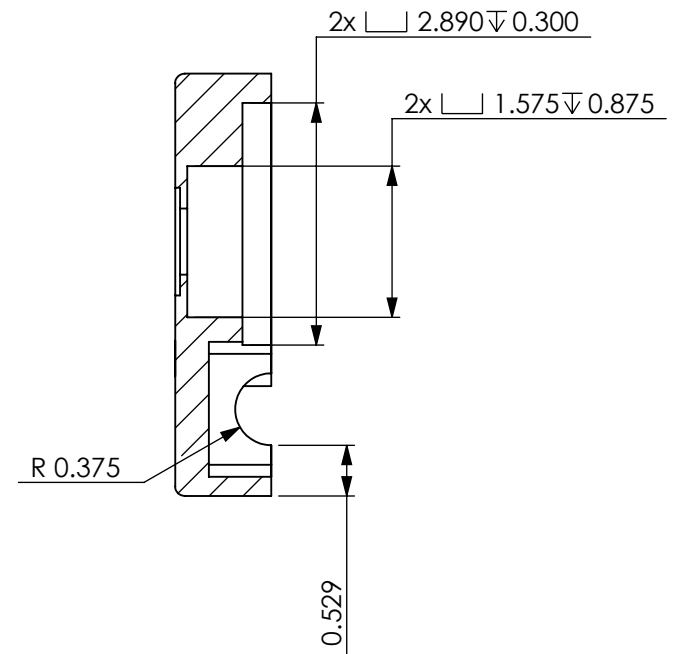
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BACK VIEW




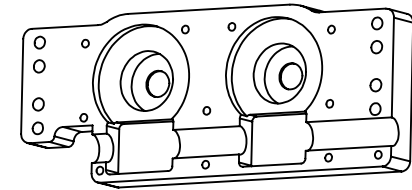
SCALE: 1:5



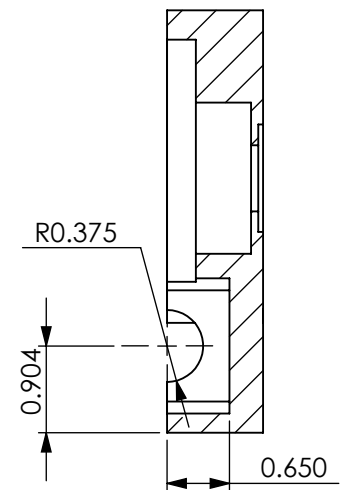
SECTION A-A

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DIMENSIONS ARE IN INCHES		6061 ALUMINUM		<i>Stretch Armstrong</i>	
THIRD ANGLE PROJECTION 		Material:			
DEFAULT TOLERANCES:		BOTTOM HOUSING		UNIVERSITY OF IDAHO ME DEPARTMENT	
LINEAR: X. ± .1 X.X ± .01 X.XX ± .001 X.XXX ± .005	ANGULAR: X. ± 2 X.X ± 1 X.XX ± 0.30'	DESCRIPTION:			
		CHECKED BY:	DATE:		
		JUSTIN RUEGSEGGER		5/5/2009	
		DRAWN BY:		DATE:	
		FILE NAME: 4-01 Bottom Housing		CAD Application SolidWorks	
				Part #: 4-01 (2 OF 2)	QTY:1
				Scale: 1:2	SHEET 22 OF 62



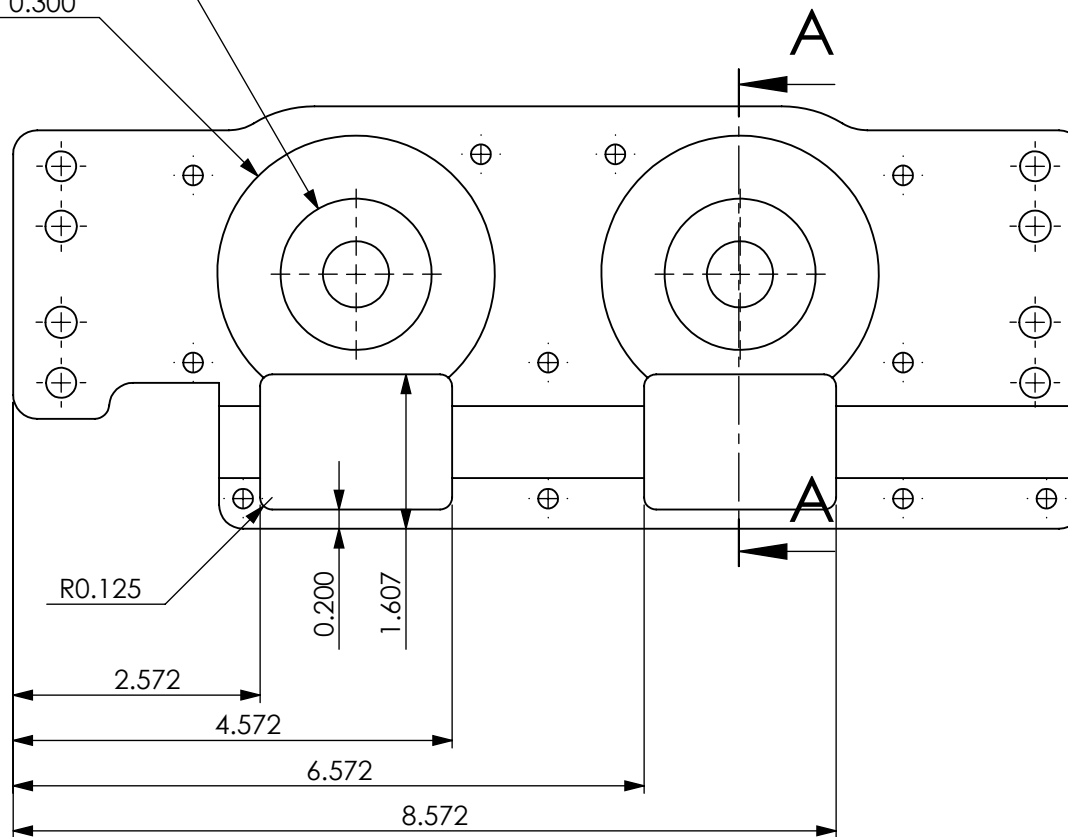
SCALE: 1.5



SECTION A-A

2 x \varnothing 1.505 ∇ 0.575

2 x R1.445 ∇ 0.300



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DIMENSIONS ARE IN INCHES

THIRD ANGLE PROJECTION

6061 ALUMINUM
Material:

DEFAULT TOLERANCES:

LINEAR:
X. \pm .1
X.X \pm .01
X.XX \pm .001
X.XXX \pm .005

ANGULAR:
X. \pm 2
X.X \pm 1
X.XX \pm 0.30°

TOP HOUSING

DESCRIPTION:

CHECKED BY:
JUSTIN RUEGSEGGGER

DATE:
5/5/2009

FILE NAME: 4-02 Top Housing

CAD Application
SolidWorks

Stretch Armstrong

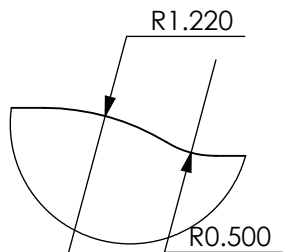
UNIVERSITY OF IDAHO
ME DEPARTMENT

Part #: 4-02 (1 OF 2)

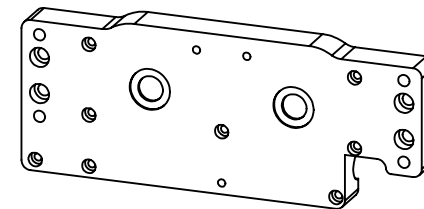
QTY:1

Scale: 1:2

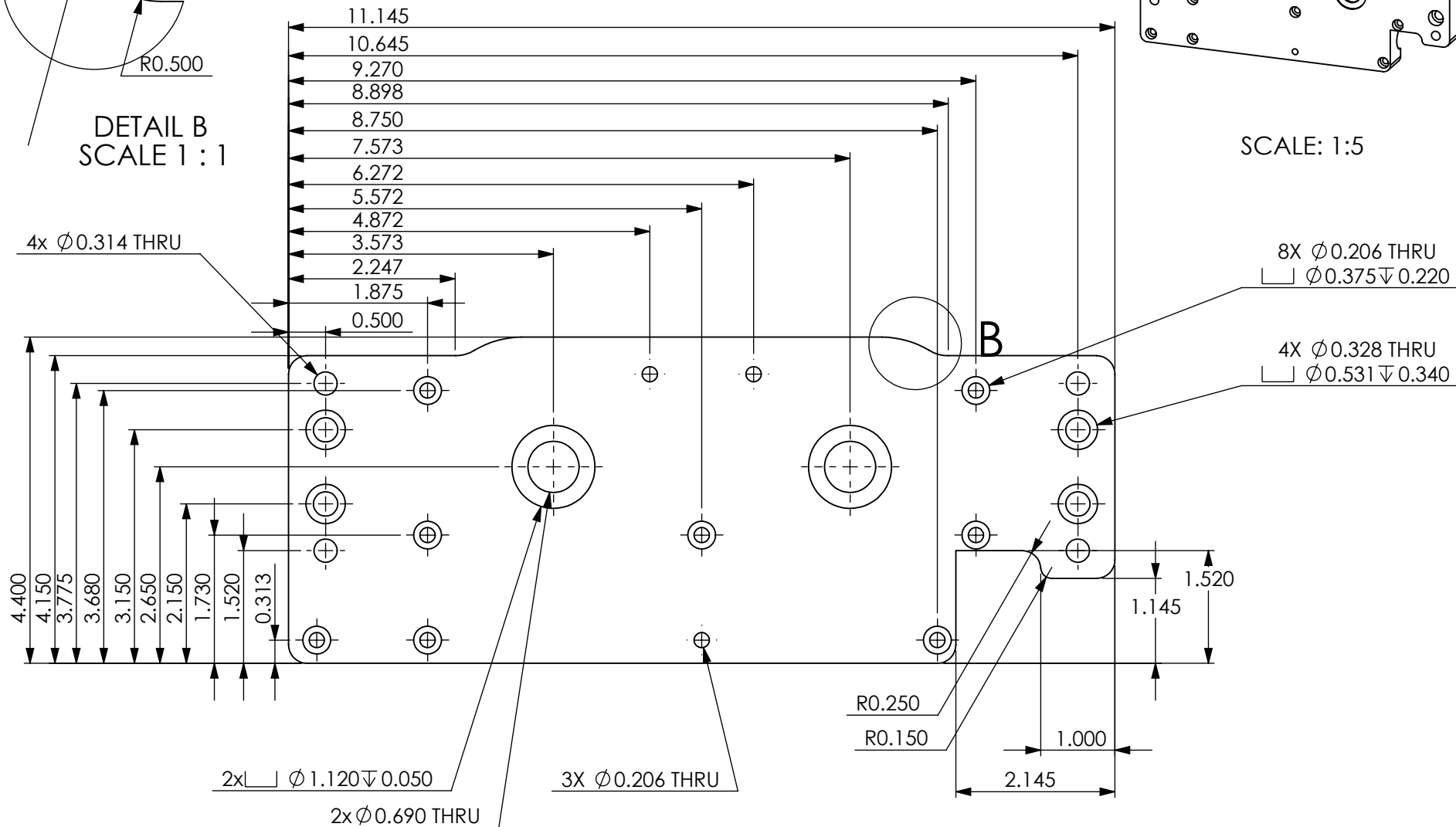
SHEET 23 OF 62




DETAIL B
SCALE 1 : 1

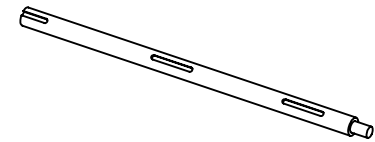


SCALE: 1:5

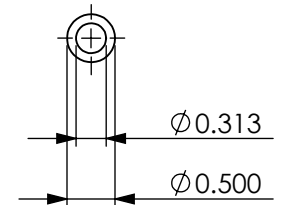
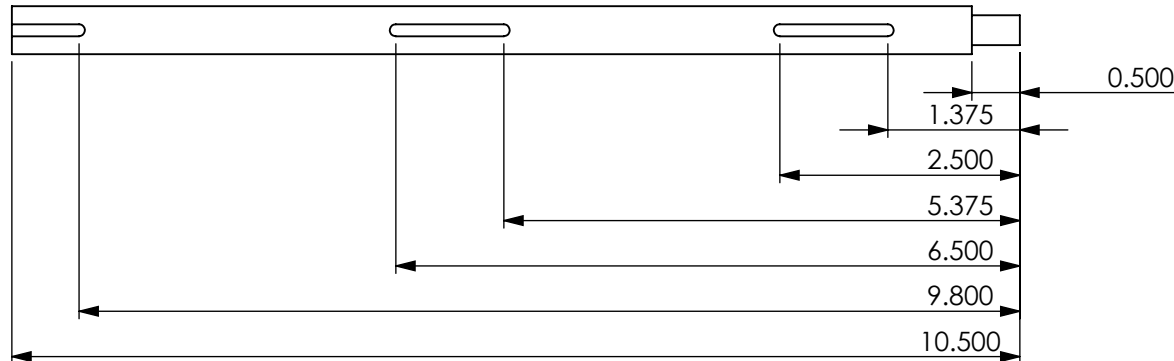
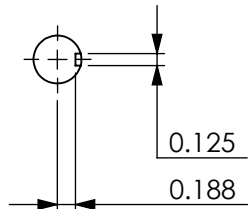


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
DIMENSIONS ARE IN INCHES		6061 ALUMINUM		<i>Stretch Armstrong</i>	
THIRD ANGLE PROJECTION 		Material:			
DEFAULT TOLERANCES:		TOP HOUSING		UNIVERSITY OF IDAHO ME DEPARTMENT	
LINEAR: X. ± .1 X.X ± .01 X.XX ± .001 X.XXX ± .005	ANGULAR: X. ± 2 X.X ± 1 X.XX ± 0.30°	DESCRIPTION:			
		CHECKED BY:	DATE:	Part # : 4-02 (1 OF 2)	
		JUSTIN RUEGSEGGER	5/5/2009		
		DRAWN BY:	DATE:	Scale: 1:2	
		4-02 Top Housing	CAD Application SolidWorks		
				SHEET 24 OF 62	

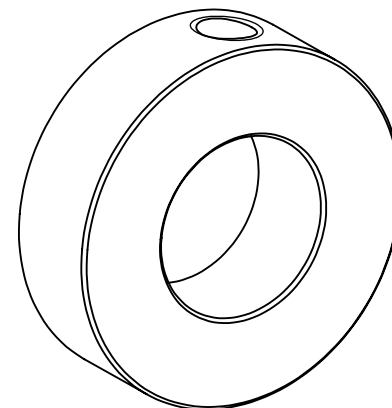
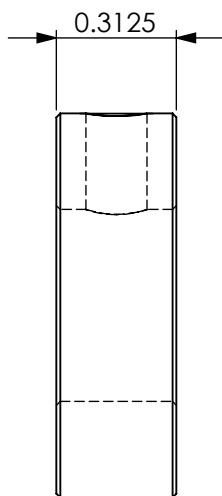


SCALE: 1:5




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DIMENSIONS ARE IN INCHES		6061 ALUMINUM		<i>Stretch Armstrong</i>	
THIRD ANGLE PROJECTION 		Material:			
DEFAULT TOLERANCES:		WORM GEAR SHAFT		UNIVERSITY OF IDAHO ME DEPARTMENT	
LINEAR: X. ± .1 X.X ± .01 X.XX ± .001 X.XXX ± .005	ANGULAR: X. ± 2 X.X ± 1 X.XX ± 0.30°	DESCRIPTION:			
		CHECKED BY:	DATE:		
		JUSTIN RUEGSEGGER			
		5/5/2009			
		Part #: 4-03		QTY:1	
DRAWN BY:		DATE:		Scale: 1:2	
FILE NAME: 4-03 Wormshaft		CAD Application SolidWorks		SHEET 25 OF 62	

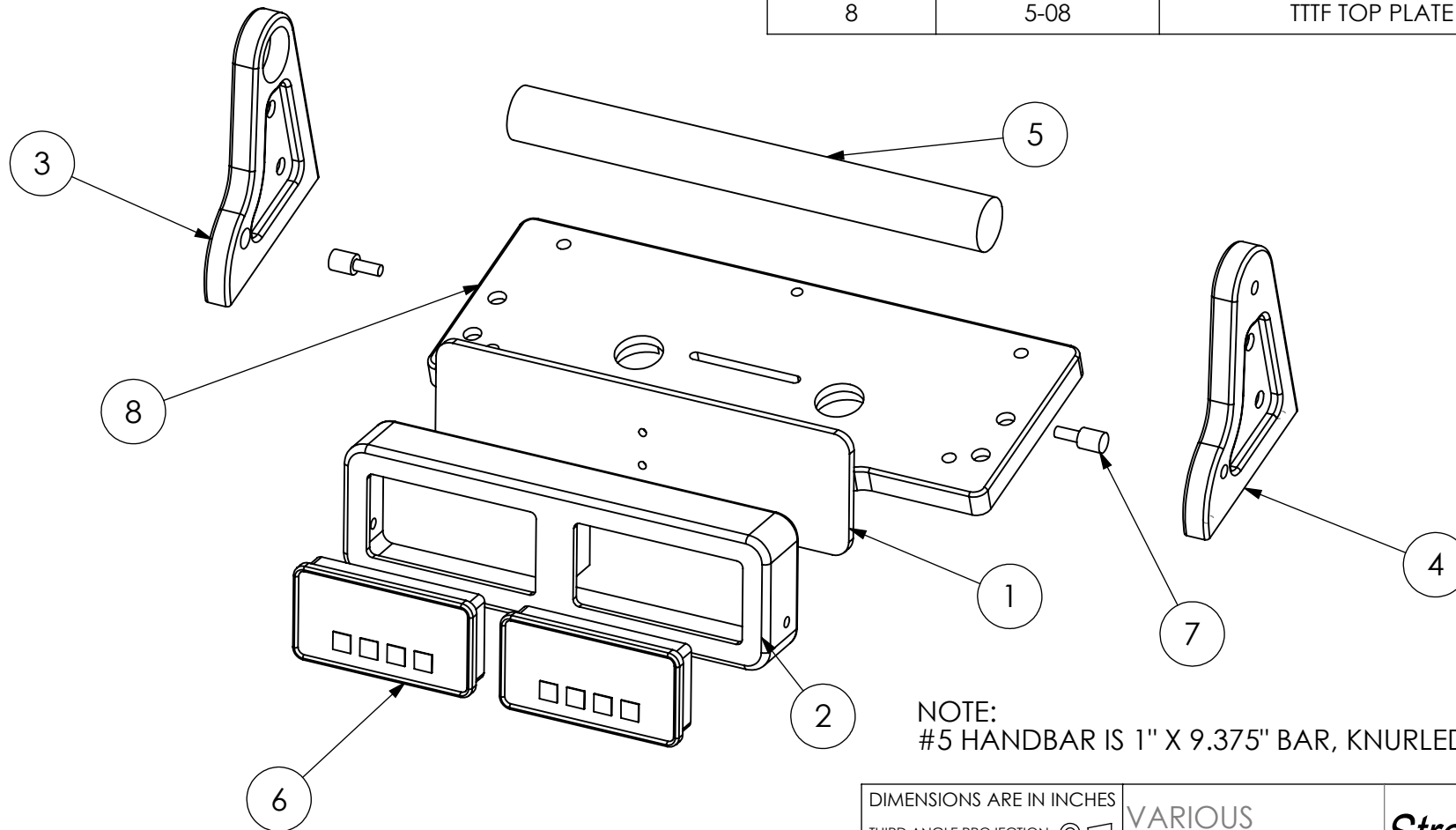


NOTE: MODIFICATION TO MSC PURCHASED PART (MSC#: 35463652)

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DIMENSIONS ARE IN INCHES		STEEL		<i>Stretch Armstrong</i>			
THIRD ANGLE PROJECTION 		Material:					
DEFAULT TOLERANCES:		MODIFIED SHAFT COLLAR		UNIVERSITY OF IDAHO ME DEPARTMENT			
LINEAR: X. ± .1 X.X ± .01 X.XX ± .001 X.XXX ± .005	ANGULAR: X. ± 2 X.X ± 1 X.XX ± 0.30°	DESCRIPTION:		Part # : 4-07			
		CHECKED BY:	DATE:				
		JUSTIN RUEGSEGGGER	5/5/2009				
		DRAWN BY:		FILE NAME: 4-07 Modified Shaft Collar		Scale: 2:1	
				CAD Application SolidWorks		QTY: 4	
						SHEET 26 OF 62	

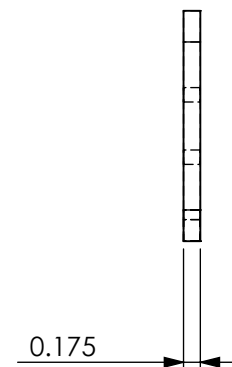
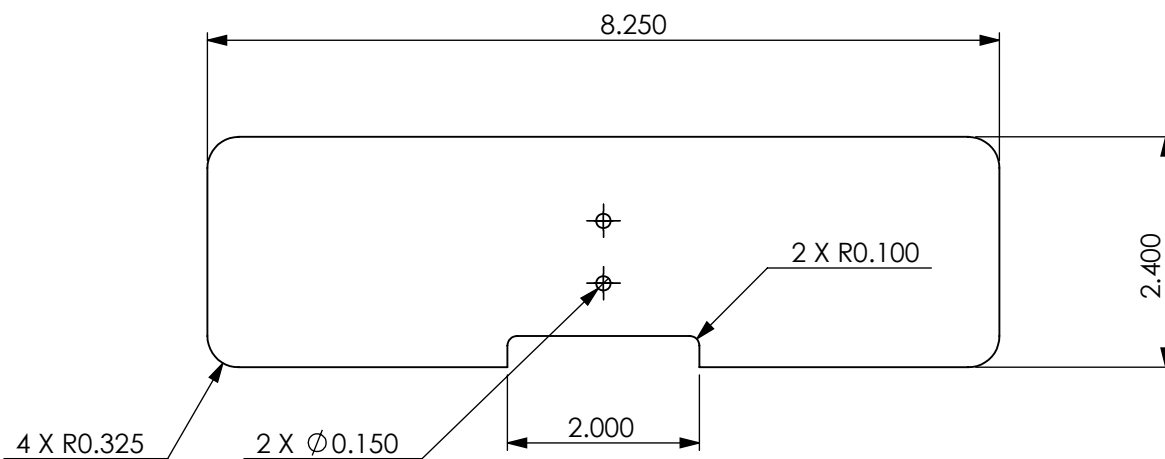
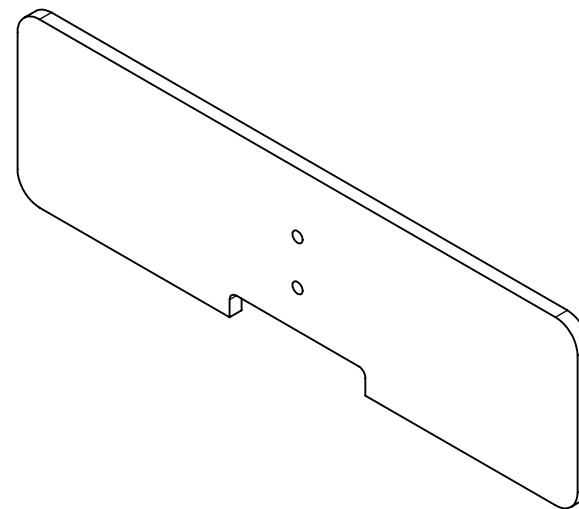
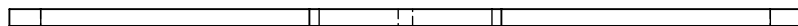
ITEM NO.	PART #	DESCRIPTION	QTY.
1	5-01	HOUSING BACKING	1
2	5-02	DISPLAY HOUSING	1
3	5-03	DISPLAY ASSEMBLY - LEFT UPRIGHT	1
4	5-04	DISPLAY ASSEMBLY - RIGHT UPRIGHT	1
5	N/A	HANDBAR	1
6	N/A	LED FACE	2
7	N/A	DISPLAY PIVOT	2
8	5-08	TTTF TOP PLATE	1




NOTE:
#5 HANDBAR IS 1" X 9.375" BAR, KNURLED FOR TEXTURE

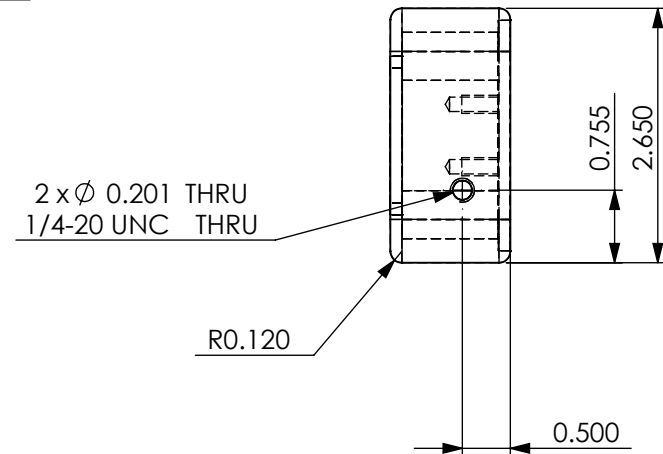
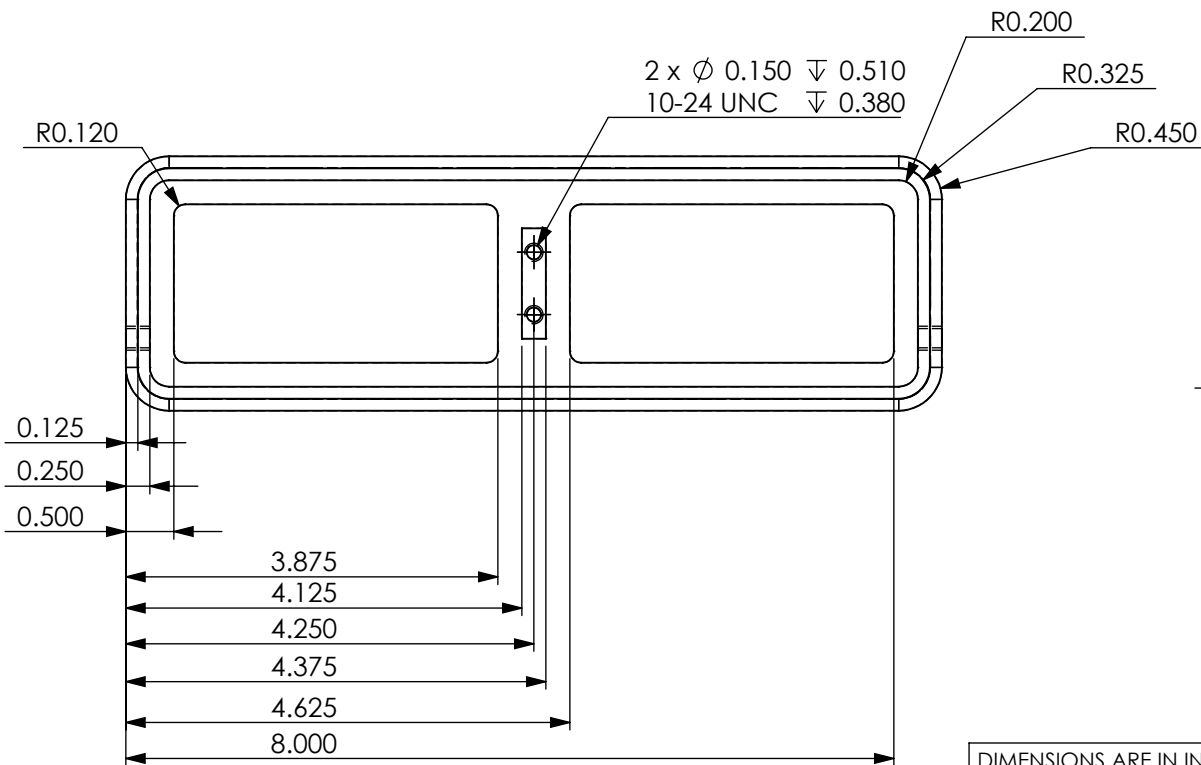
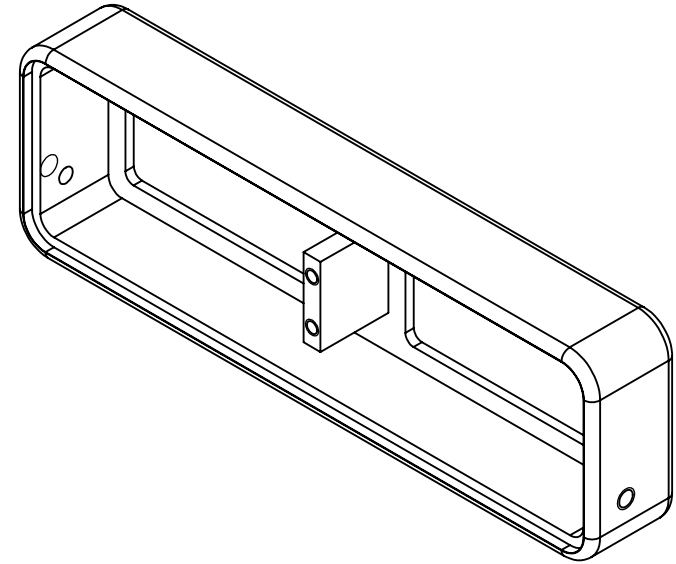
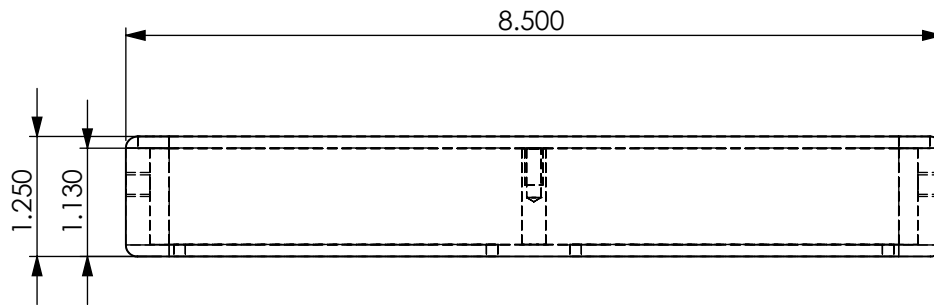
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DIMENSIONS ARE IN INCHES		THIRD ANGLE PROJECTION 		VARIOUS Material:		<i>Stretch Armstrong</i>			
DEFAULT TOLERANCES:		DISPLAY ASSEMBLY							
LINEAR: X: ±.1 X.X: ±.01 X.XX ±.001 X.XXX ±.005	ANGULAR: X: ± 2 X.X ± 1 X.XX ± 0.30°	DESCRIPTION:				UNIVERSITY OF IDAHO ME DEPARTMENT			
		CHECKED BY:		DATE:					
		DRAWN BY:		DATE:		Part #: 5-00		QTY: 1	
		FILE NAME: 5-00		CAD Application SolidWorks		Scale: 1:3		SHEET 27 OF 62	




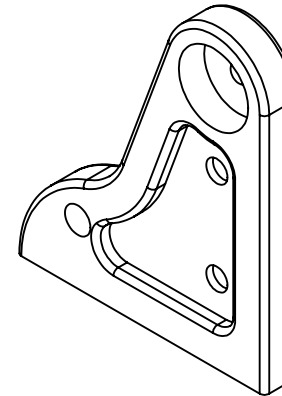
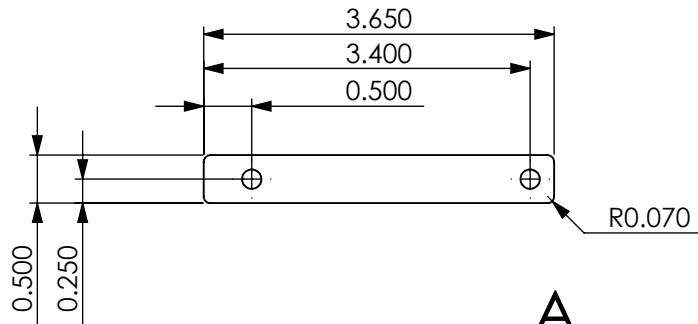
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DIMENSIONS ARE IN INCHES		CLEAR CAST ACRYLIC		<i>Stretch Armstrong</i>	
THIRD ANGLE PROJECTION 		Material:			
DEFAULT TOLERANCES:		HOUSING BACKING		UNIVERSITY OF IDAHO ME DEPARTMENT	
LINEAR: X. ± .1 X.X ± .01 X.XX ± .001 X.XXX ± .005	ANGULAR: X. ± 2 X.X ± 1 X.XX ± 0.30°	DESCRIPTION:			
		CHECKED BY:	DATE:		
		SPENCER OLDEMEYER		5/1/2009	
		DRAWN BY:		DATE:	
		FILE NAME: 5-01		CAD Application SolidWorks	
				Part #: 5-01	QTY: 1
				Scale: 1:2	SHEET 28 OF 62

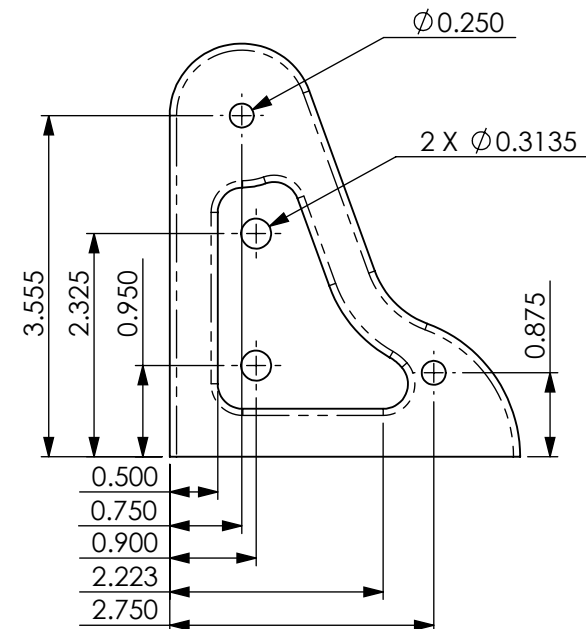
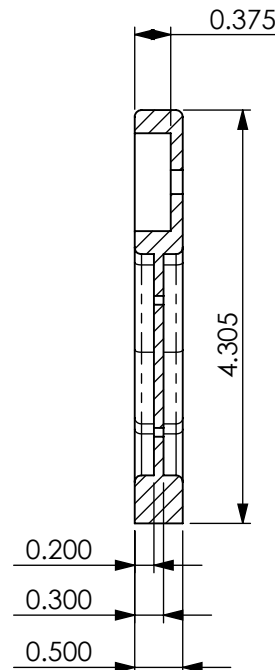
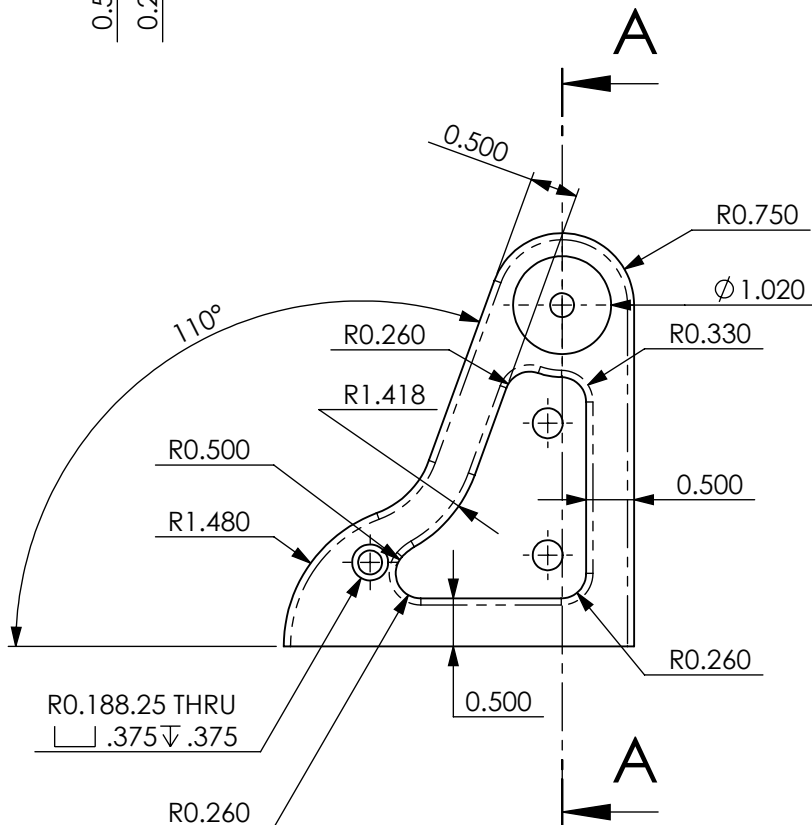


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DIMENSIONS ARE IN INCHES		6061 ALUMINUM		<i>Stretch Armstrong</i>	
THIRD ANGLE PROJECTION 		Material:			
DEFAULT TOLERANCES:		DISPLAY HOUSING		UNIVERSITY OF IDAHO ME DEPARTMENT	
LINEAR: X: ± .1 X.X ± .01 X.XX ± .001 X.XXX ± .005	ANGULAR: X: ± 2 X.X ± 1 X.XX ± 0.30°	DESCRIPTION:			
		CHECKED BY:	DATE:		
		SPENCER OLDEMEYER		5/1/2009	
		DRAWN BY:		DATE:	
FILE NAME: 5-02		CAD Application SolidWorks		Part #: 5-02	QTY:1
				Scale: 1:2	SHEET 29 OF 62



SECTION A-A



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DIMENSIONS ARE IN INCHES
THIRD ANGLE PROJECTION

6061 ALUMINUM
Material:

Stretch Armstrong

DEFAULT TOLERANCES:

LINEAR:
X. ± .1
X.X ± .01
X.XX ± .001
X.XXX ± .005

ANGULAR:
X. ± 2
X.X ± 1
X.XX ± 0.30°

DISPLAY ASSEMBLY - LEFT UPRIGHT

DESCRIPTION:

CHECKED BY: SPENCER OLDEMEYER

DATE: 5/1/2009

DRAWN BY:

DATE:

FILE NAME: 5-03

CAD Application
SolidWorks

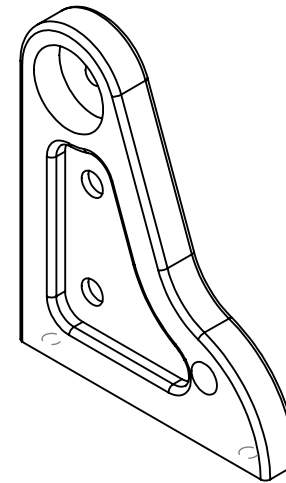
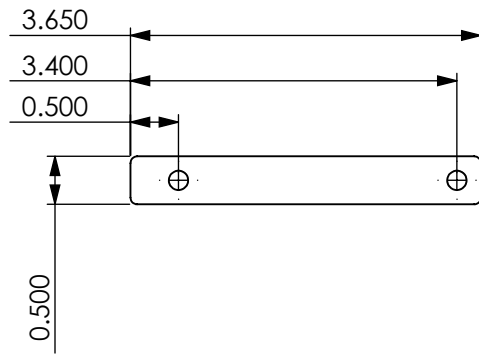
UNIVERSITY OF IDAHO
ME DEPARTMENT

Part #: 5-03

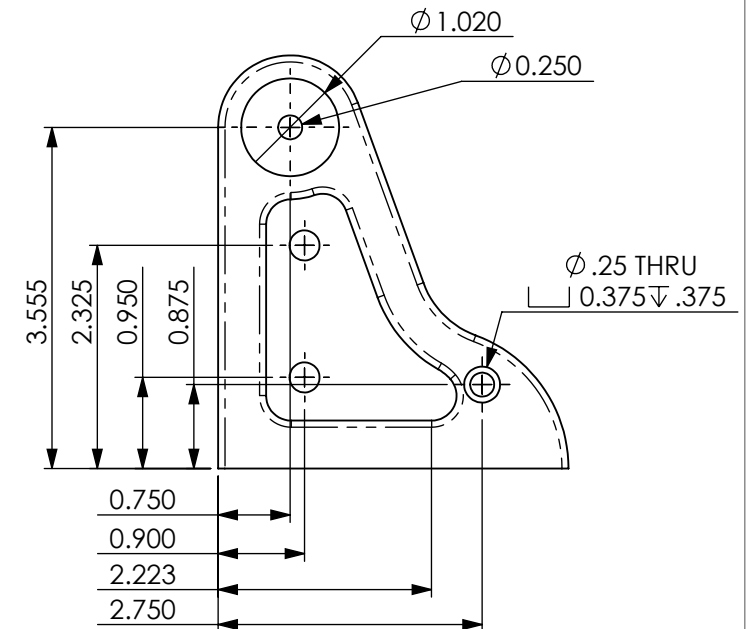
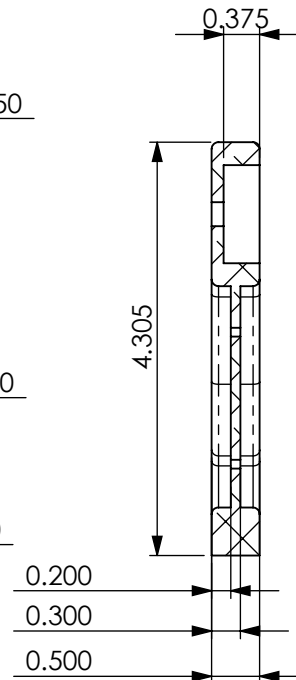
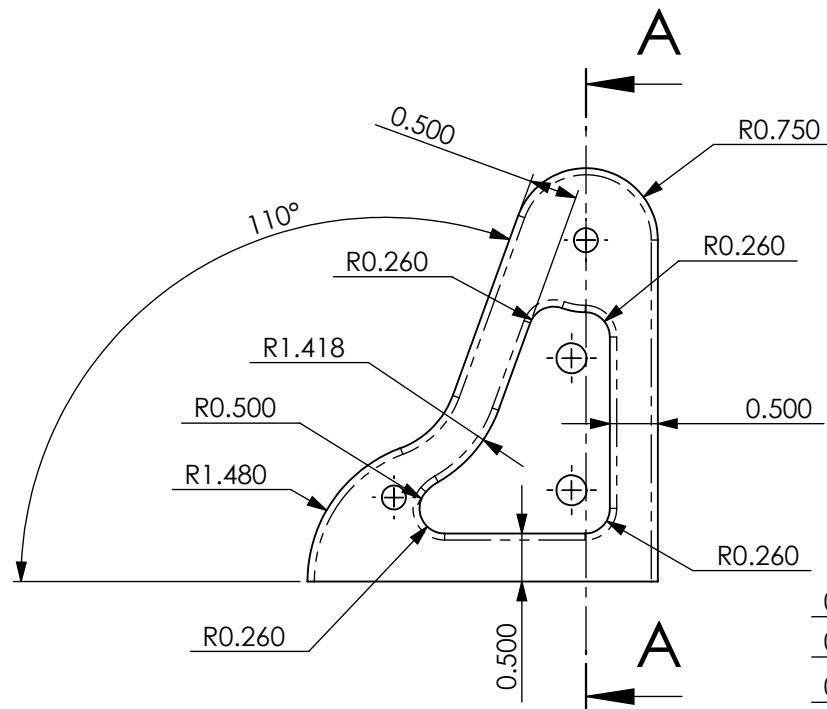
QTY: 1

Scale: 1:2

SHEET 30 OF 62



SECTION A-A



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DIMENSIONS ARE IN INCHES
THIRD ANGLE PROJECTION

6061 ALUMINUM
Material:

Stretch Armstrong

DEFAULT TOLERANCES:

LINEAR:
X: ±.1
X.X: ±.01
X.XX: ±.001
X.XXX: ±.005

ANGULAR:
X: ± 2
X.X: ± 1
X.XX: ± 0.30°

DISPLAY ASSEMBLY - RIGHT UPRIGHT

DESCRIPTION:
CHECKED BY: SPENCER OLDEMEYER
DRAWN BY: SPENCER OLDEMEYER
FILE NAME: 5-04

DATE: 5/1/2009
DATE: 5/1/2009
CAD Application: SolidWorks

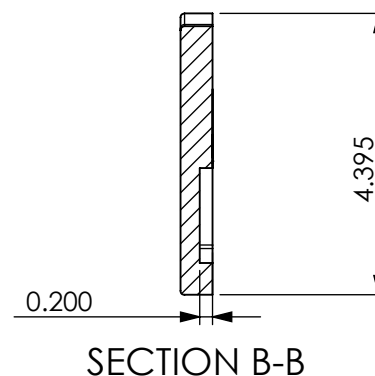
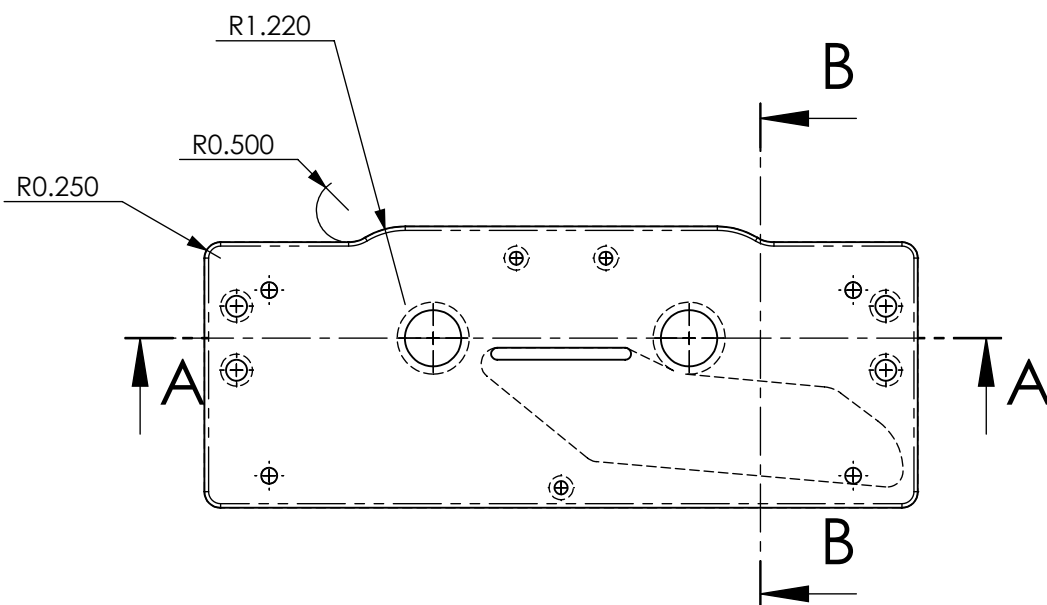
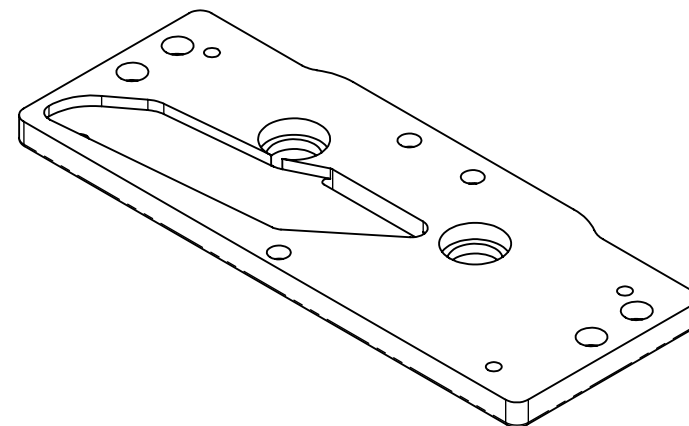
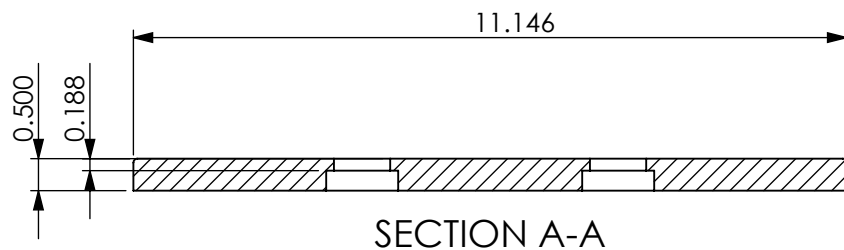
UNIVERSITY OF IDAHO
ME DEPARTMENT

Part #: 5-04


QTY:2

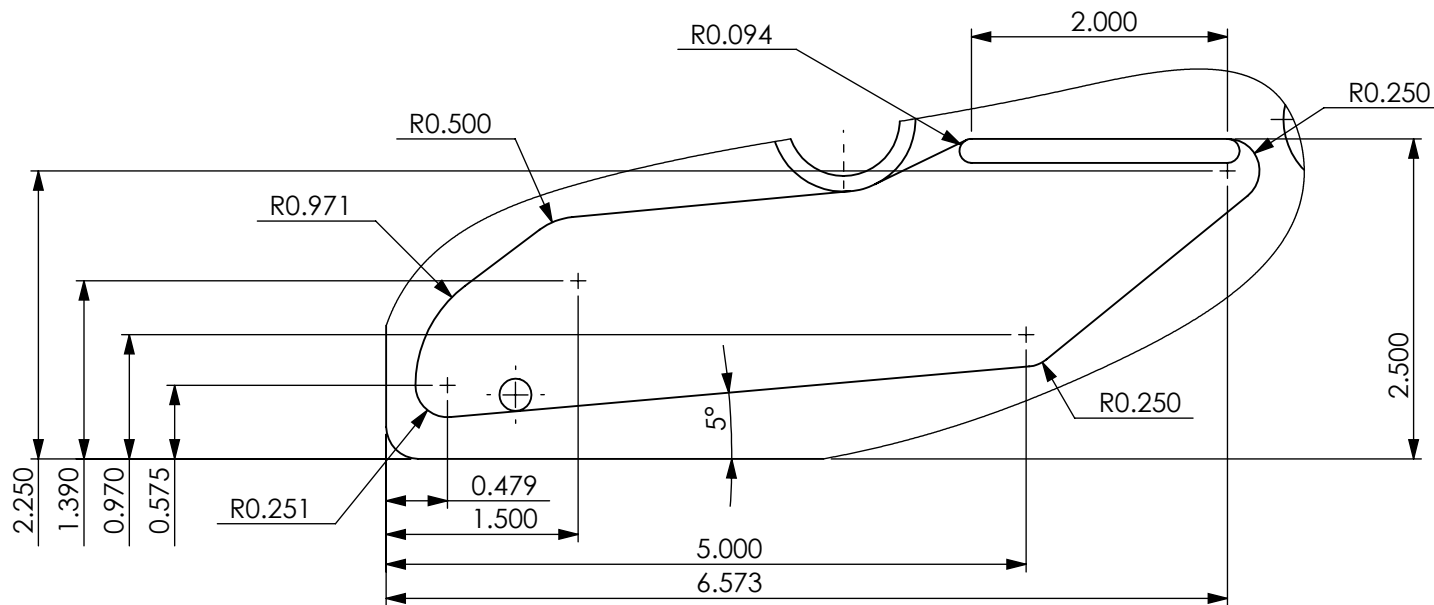
Scale: 1:2

SHEET 31 OF 62

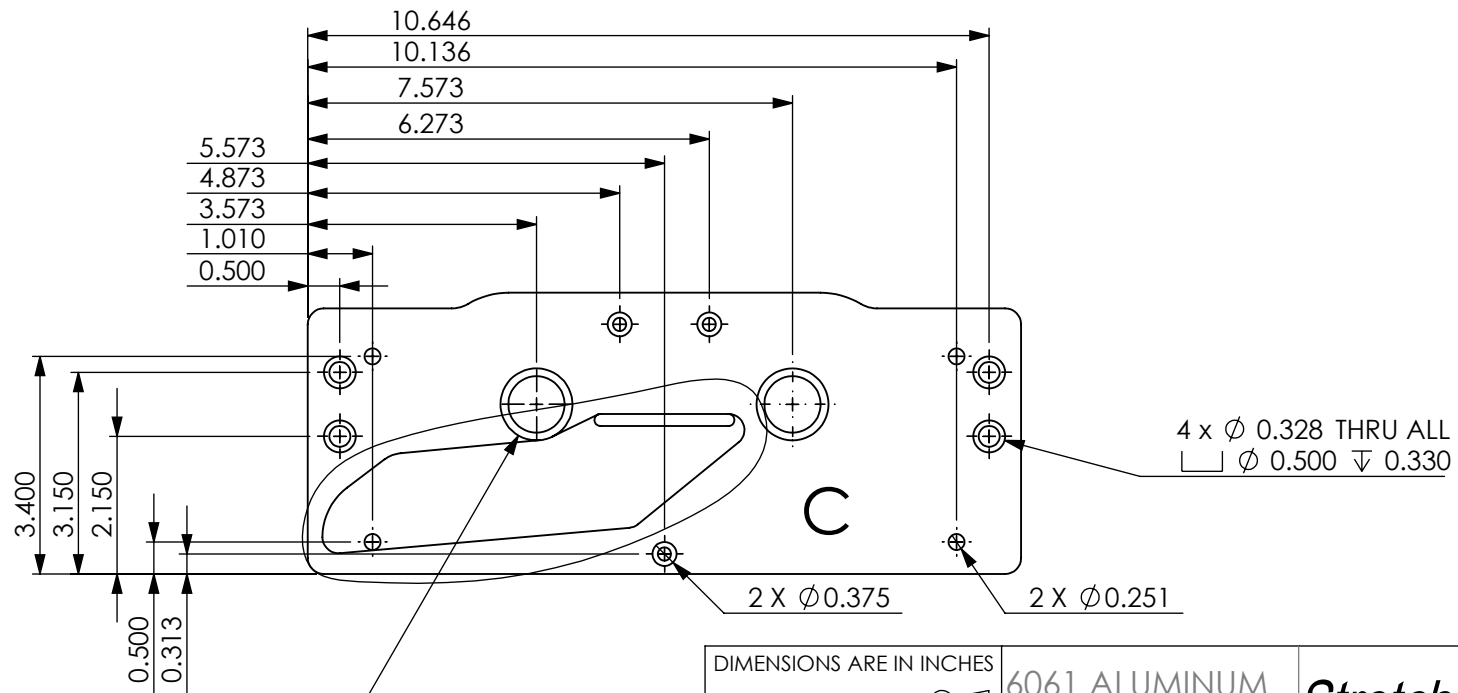


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DIMENSIONS ARE IN INCHES		6061 ALUMINUM		<i>Stretch Armstrong</i>		
THIRD ANGLE PROJECTION 		Material:				
DEFAULT TOLERANCES:		TTTF TOP PLATE		UNIVERSITY OF IDAHO ME DEPARTMENT		
LINEAR: X. ± .1 X.X ± .01 X.XX ± .001 X.XXX ± .005	ANGULAR: X. ± 2 X.X ± 1 X.XX ± 0.30°	DESCRIPTION:		Part # : 5-08 (1 OF 2)		
		CHECKED BY: SPENCER OLDEMEYER	DATE: 5/5/2009			
		DRAWN BY:		FILE NAME: 5-08		Scale: 1:3
				CAD Application SolidWorks		SHEET 32 OF 62



DETAIL C
SCALE 1 : 1.5



2 x Ø 0.880 THRU ALL
Ø 1.125 ± 0.313

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DIMENSIONS ARE IN INCHES

THIRD ANGLE PROJECTION

6061 ALUMINUM
Material:

DEFAULT TOLERANCES:

LINEAR:
X. ± .1
X.X ± .01
X.XX ± .001
X.XXX ± .005

ANGULAR:
X. ± 2
X.X ± 1
X.XX ± 0.30°

TTTF TOP PLATE

DESCRIPTION:

CHECKED BY: SPENCER OLDEMEYER
DRAWN BY:
FILE NAME: 5-08

DATE: 5/5/2009
DATE:
CAD Application
SolidWorks

Stretch Armstrong

UNIVERSITY OF IDAHO
ME DEPARTMENT

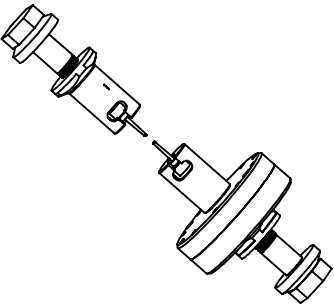
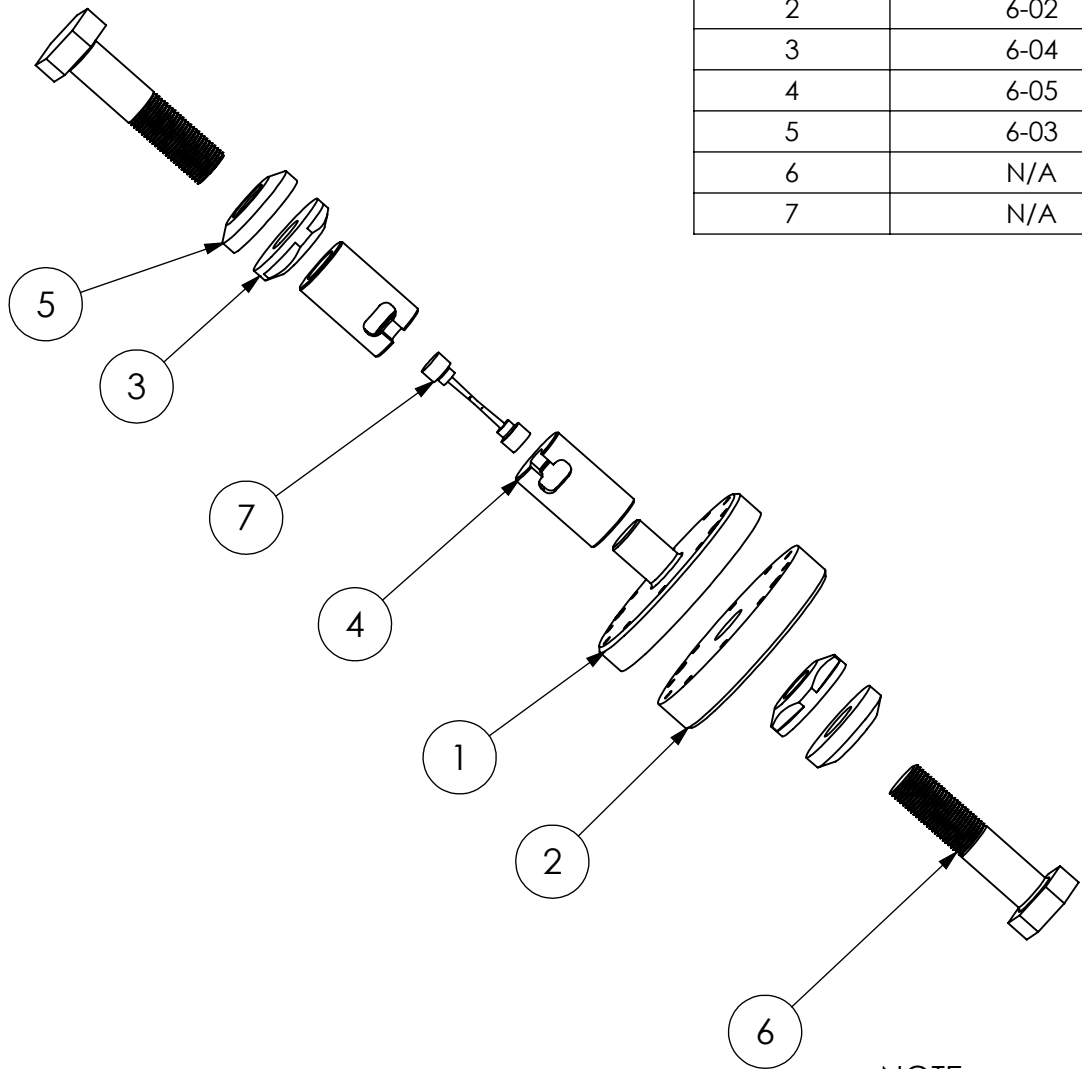
Part #: 5-08 (2 OF 2)

QTY: 1

Scale: 1:3

SHEET 33 OF 62


ITEM NO.	PART #	DESCRIPTION	QTY.
1	6-01	LOADCELL	1
2	6-02	LOADCELL ATTACHMENT PLATE	1
3	6-04	LOAD SPREADING NUT	2
4	6-05	SPECIMEN GRIP	2
5	6-03	LOAD SPREADING WASHER	2
6	N/A	GRADE 8 BOLT	2
7	N/A	TENSILE SPECIMEN	2

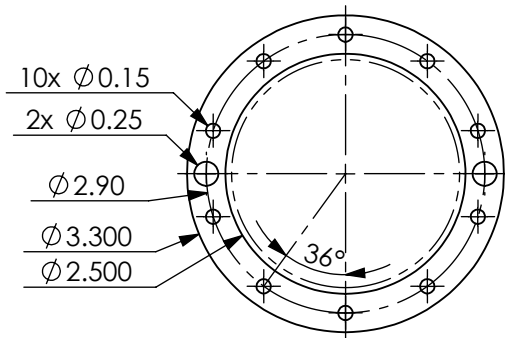
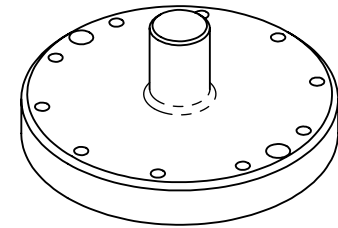
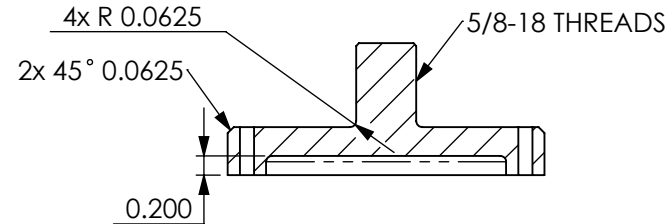
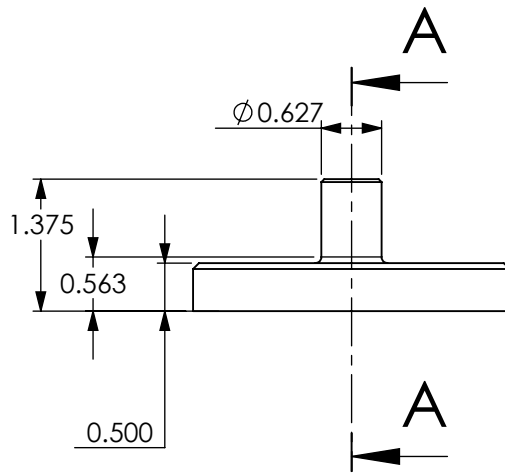


SCALE 1:5


NOTE:
 #6 IS A GRADE 8 BOLT 5/8-18 x 3"
 #7 IS A STANDARD TENSILE SPECIMEN

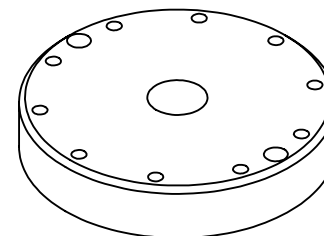
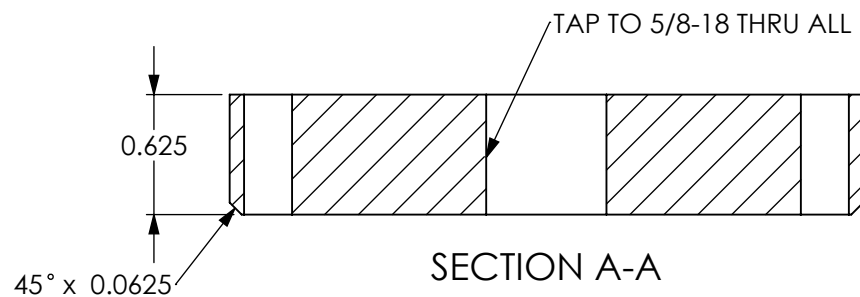
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DIMENSIONS ARE IN INCHES		VARIOUS		<i>Stretch Armstrong</i>	
THIRD ANGLE PROJECTION 		Material:			
DEFAULT TOLERANCES:		LOAD AND MOUNTING ASSEMBLY		UNIVERSITY OF IDAHO ME DEPARTMENT	
LINEAR: X: ± .1 X.X ± .01 X.XX ± .001 X.XXX ± .005	ANGULAR: X ± 2 X.X ± 1 X.XX ± 0.30°	DESCRIPTION:			
		CHECKED BY:	DATE:	Part #: 6-00	
		CARLOS DUARTE	5/5/2009		
		DRAWN BY:	DATE:	QTY: 1	
		FILE NAME: ITTF Loadcell and Mounting Assembly	CAD Application SolidWorks	Scale: 1:3	
				SHEET 34 OF 62	

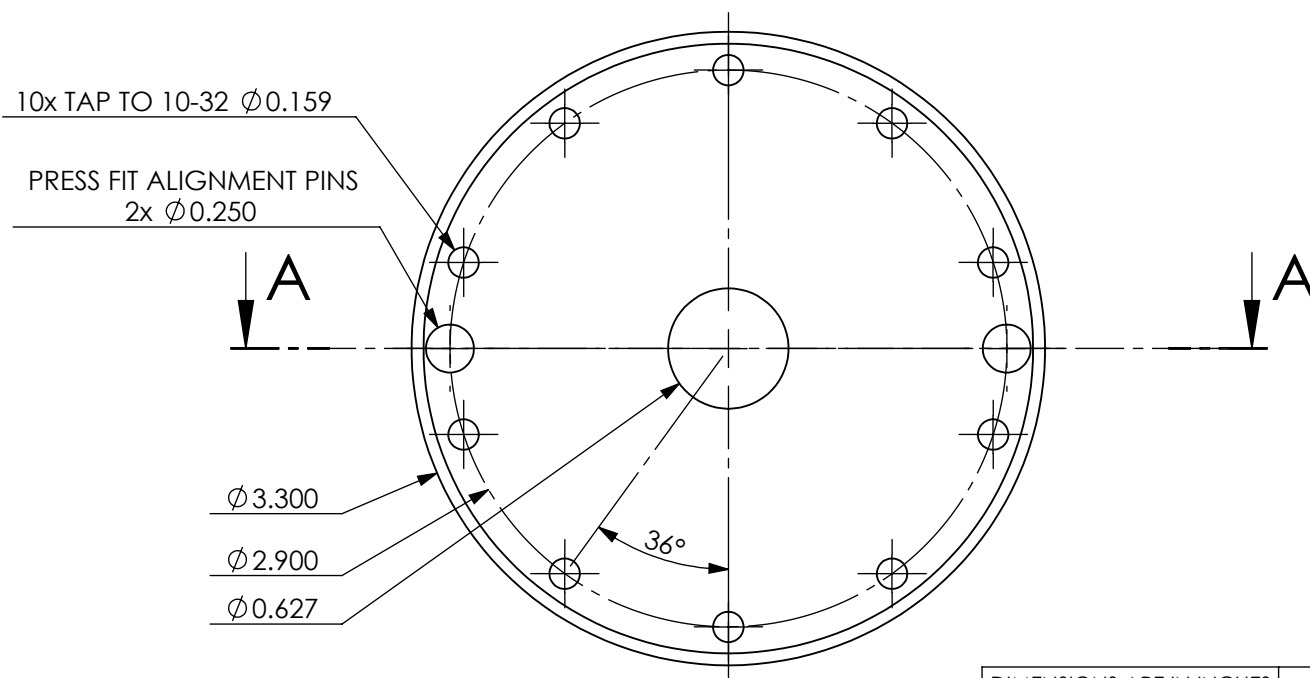


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DIMENSIONS ARE IN INCHES		4150 STEEL		<i>Stretch Armstrong</i>	
THIRD ANGLE PROJECTION 		Material:			
DEFAULT TOLERANCES:		LOADCELL		UNIVERSITY OF IDAHO ME DEPARTMENT	
LINEAR: X. ± .1 X.X ± .01 X.XX ± .001 X.XXX ± .005	ANGULAR: X. ± 2 X.X ± 1 X.XX ± 0.30°	DESCRIPTION:			
		CHECKED BY:		DATE:	
		CARLOS DUARTE		4/26/2009	
		DRAWN BY:		DATE:	
		FILE NAME: 6-01A		CAD Application SolidWorks	
				Part #: 6-01	QTY: 1
				Scale: 1:2	SHEET 35 OF 62



SCALE 1:2



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DIMENSIONS ARE IN INCHES

THIRD ANGLE PROJECTION

4140 STEEL
Material:

DEFAULT TOLERANCES:

LINEAR:
X. ± .1
X.X ± .01
X.XX ± .001
X.XXX ± .005

ANGULAR:
X. ± 2
X.X ± 1
X.XX ± 0.30°

DESCRIPTION: LOADCELL ATTACHMENT PLATE

CHECKED BY: CARLOS DUARTE

DRAWN BY: CARLOS DUARTE

FILE NAME: 6-02

DATE: 4/15/2009

DATE: 4/15/2009

CAO Application
SolidWorks

Stretch Armstrong

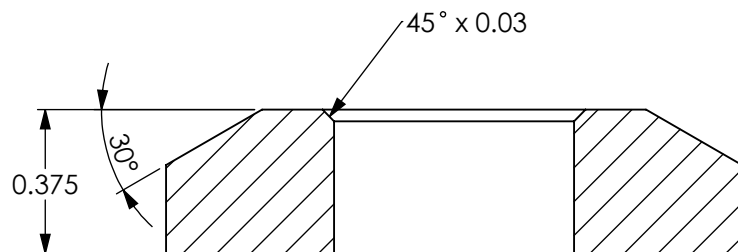
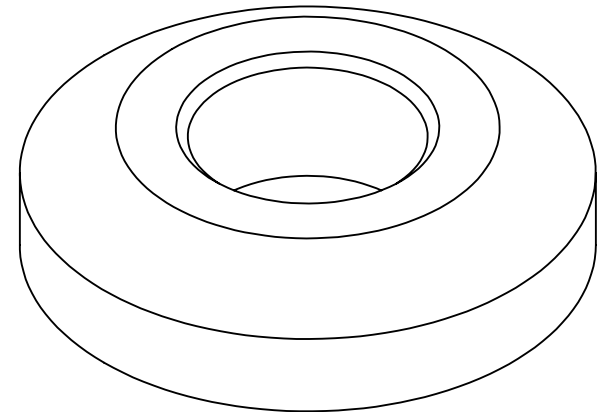
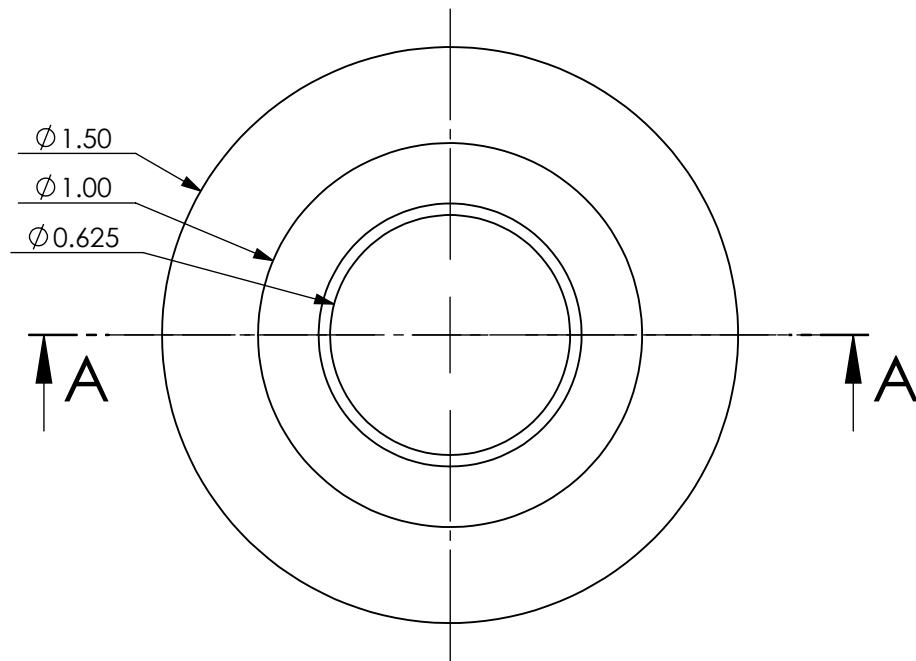
UNIVERSITY OF IDAHO
ME DEPARTMENT

Part #: 6-02

QTY: 1


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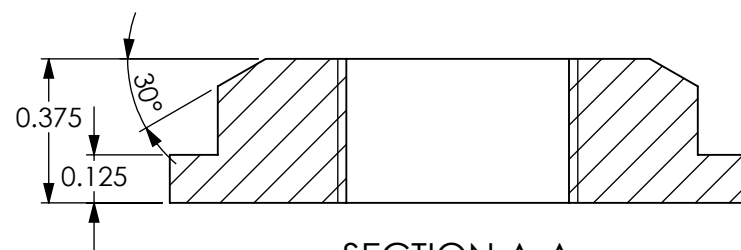
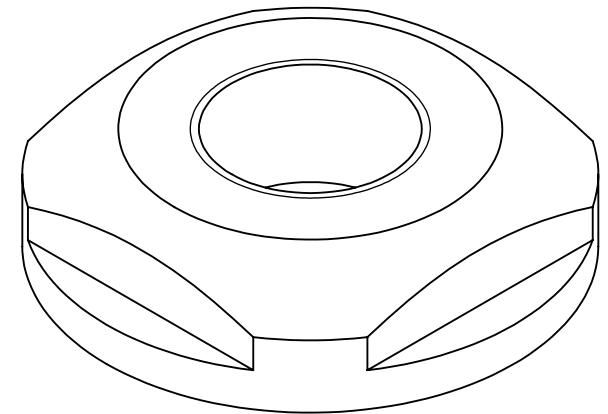
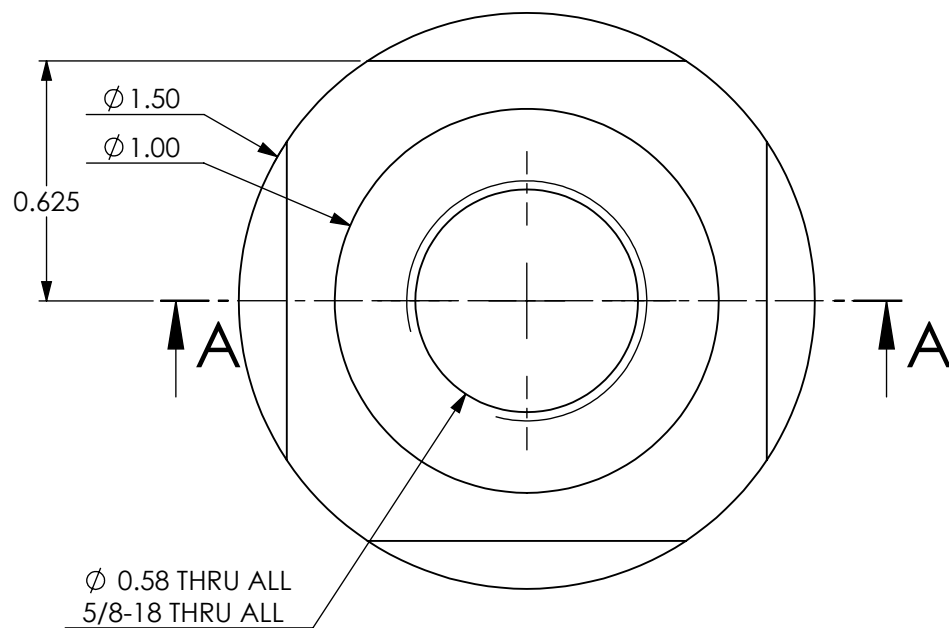
SHEET 36 OF 62



SECTION A-A


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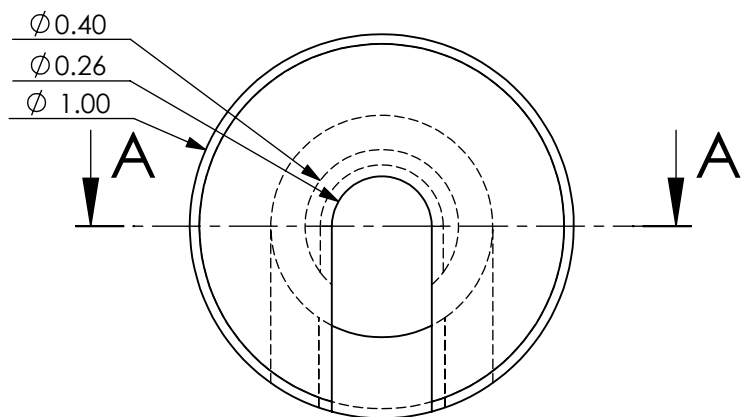
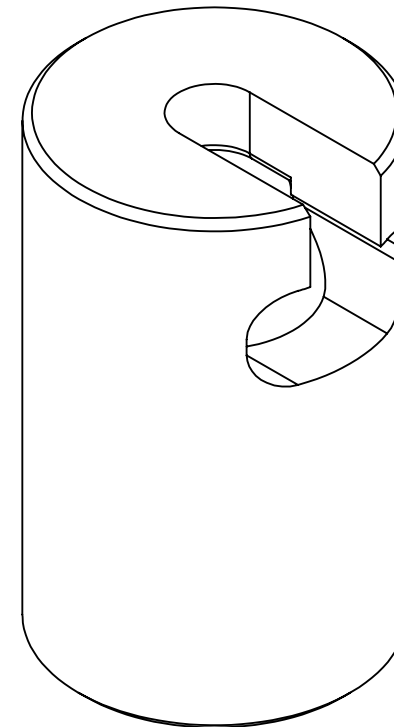
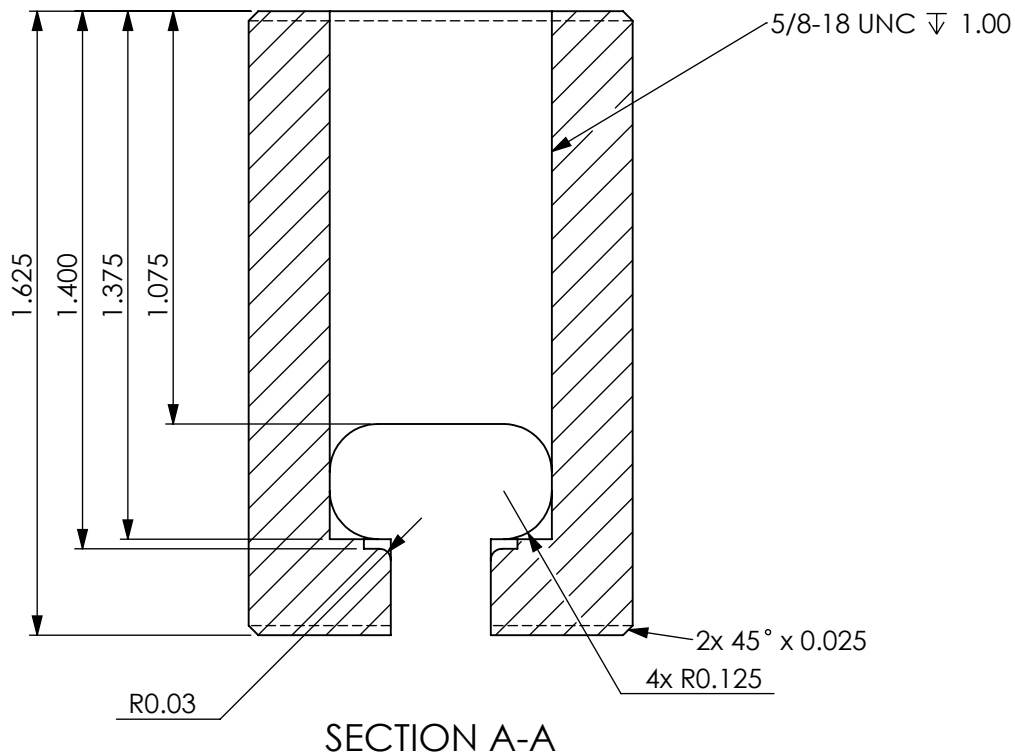
DIMENSIONS ARE IN INCHES		4140 STEEL		<i>Stretch Armstrong</i>	
THIRD ANGLE PROJECTION 		Material:			
DEFAULT TOLERANCES:		LOAD SPREADING WASHER		UNIVERSITY OF IDAHO ME DEPARTMENT	
LINEAR: X. ± .1 X.X ± .01 X.XX ± .001 X.XXX ± .005	ANGULAR: X. ± 2 X.X ± 1 X.XX ± 0.30°	DESCRIPTION:			
		CHECKED BY:	DATE:		
		CARLOS DUARTE		4/15/2009	
		DRAWN BY:			
FILE NAME: 6-03		CAD Application SolidWorks		Part #: 6-03	QTY:2
				Scale: 2:1	SHEET 37 OF 62




SECTION A-A

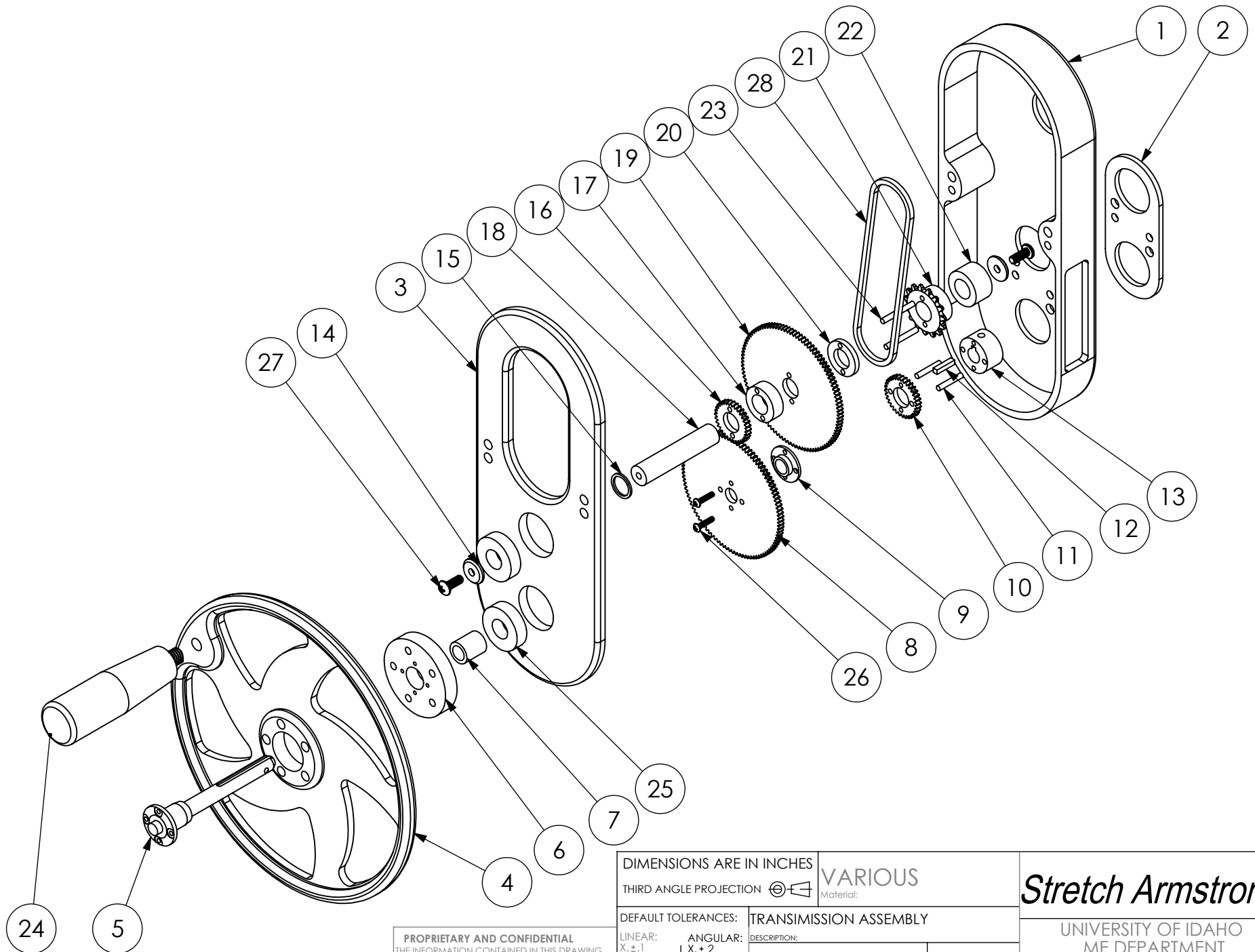
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DIMENSIONS ARE IN INCHES		4140 STEEL		<i>Stretch Armstrong</i>	
THIRD ANGLE PROJECTION 		Material:			
DEFAULT TOLERANCES:		LOAD SPREADING NUT		UNIVERSITY OF IDAHO ME DEPARTMENT	
LINEAR: X. ± .1 X.X ± .01 X.XX ± .001 X.XXX ± .005	ANGULAR: X. ± 2 X.X ± 1 X.XX ± 0.30°	DESCRIPTION:			
		CHECKED BY:	DATE:	Part #: 6-04	
		CARLOS DUARTE	4/15/2009		
		DRAWN BY:	DATE:	QTY:2	
		FILE NAME: 6-04	CAD Application SolidWorks	Scale: 2:1	
				SHEET 38 OF 62	



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DIMENSIONS ARE IN INCHES		4140 STEEL		<i>Stretch Armstrong</i>	
THIRD ANGLE PROJECTION 		Material:			
DEFAULT TOLERANCES:		SPECIMEN GRIP		UNIVERSITY OF IDAHO ME DEPARTMENT	
LINEAR: X. ± .1 X.XX ± .01 X.XX ± .001 X.XXX ± .005	ANGULAR: X. ± 2 X.X ± 1 X.XX ± 0.30'	DESCRIPTION:			
		CHECKED BY:	CARLOS DUARTE	DATE:	4/29/2009
		DRAWN BY:		FILE NAME: 6-05	
				CAB Application SolidWorks	
				Part # : 6-05	
				QTY:2	
		Scale: 2:1		SHEET 39 OF 62	



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DIMENSIONS ARE IN INCHES

THIRD ANGLE PROJECTION

VARIOUS
 Material:

DEFAULT TOLERANCES:

LINEAR:
 X. ± .1
 X.X ± .01
 X.XX ± .001
 X.XXX ± .005

ANGULAR:
 X. ± 2
 X.X ± 1
 X.XX ± 0.30°

TRANSMISSION ASSEMBLY

DESCRIPTION:

CHECKED BY:

AMANDA BOLLAND

DRAWN BY:

FILE NAME: 7

DATE:

5/4/2009

DATE:

CAD Application
 SolidWorks

Stretch Armstrong

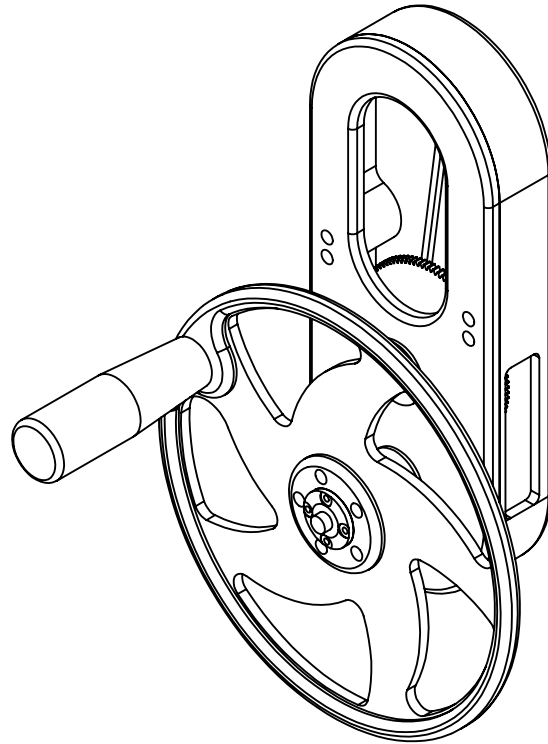
UNIVERSITY OF IDAHO
 ME DEPARTMENT

Part #: 7-00 (1 OF 2)

QTY: 1


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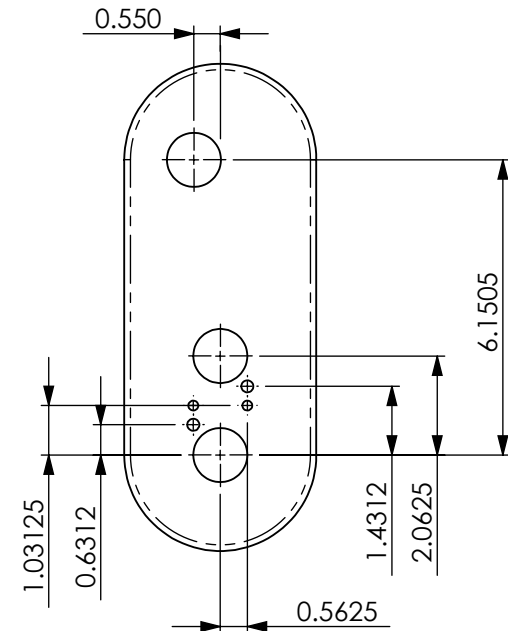
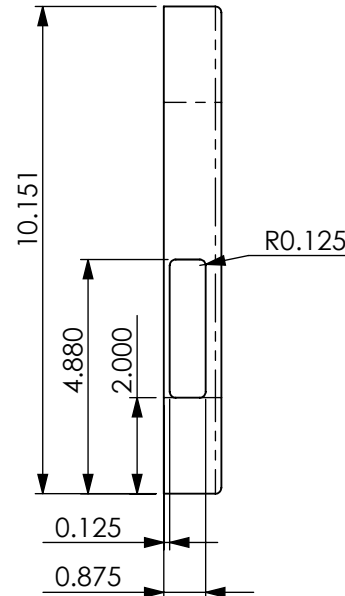
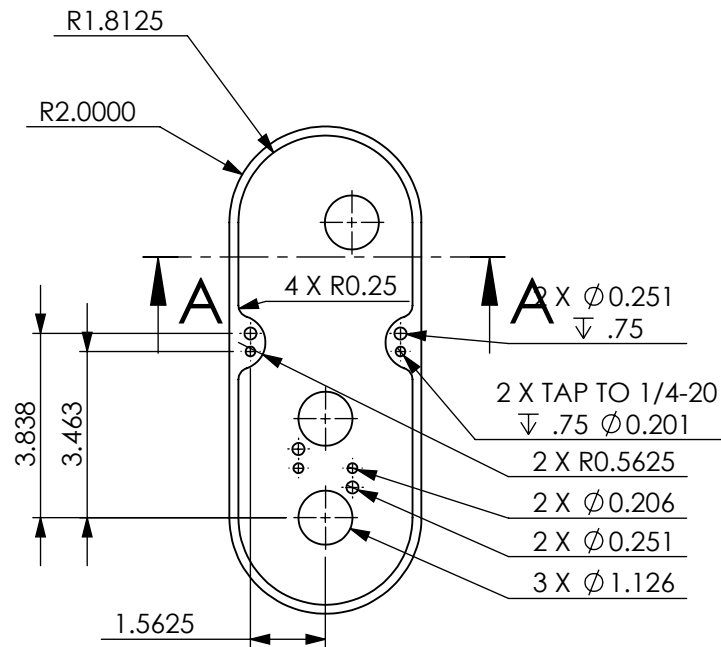
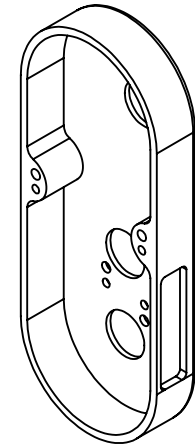
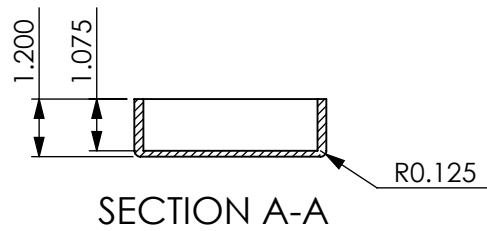
SHEET 40 OF 62




ITEM NO.	PART #	DESCRIPTION	QTY.
1	7-01	CHAIN HOUSE	1
2	7-02	CHAIN HOUSE SPACER	1
3	7-03	CHAIN COVER	1
4	7-04	WHEEL	1
5	7-05	QUICK PIN	1
6	7-06	CRANK HANDLE SUPPORT	1
7	7-07	LOWER SLIDE SPACER	1
8	7-08	LOWER GEAR 100	1
9	7-09	LOWER MIDDLE SPACER	1
10	7-10	LOWER GEAR 32	1
11	N/A	EIGHTH X THREEQUARTER DOWEL PIN	2
12	7-12	LOWER SHAFT KEY	1
13	7-13	LOWER SHAFT SLEEVE	1
14	7-14	SHAFT END CAP	2
15	7-15	UPPER SPACER 1	1
16	7-16	UPPER GEAR 32	1
17	7-17	UPPER SPACER 2	1
18	7-18	UPPER SHAFT	1
19	7-19	UPPER GEAR 100	1
20	7-20	UPPER SPACER 3	1
21	7-21	UPPER SPROCKET	1
22	7-22	UPPER SPACER 4	1
23	N/A	EIGHTH X ONE DOWEL PIN	2
24	N/A	HANDLE	1
25	N/A	R8 BEARING	2
26	N/A	4-40 X HALF SCREW	2
27	N/A	10-32 X HALF SCREW	2
28	N/A	CHAIN SIZE #25	1

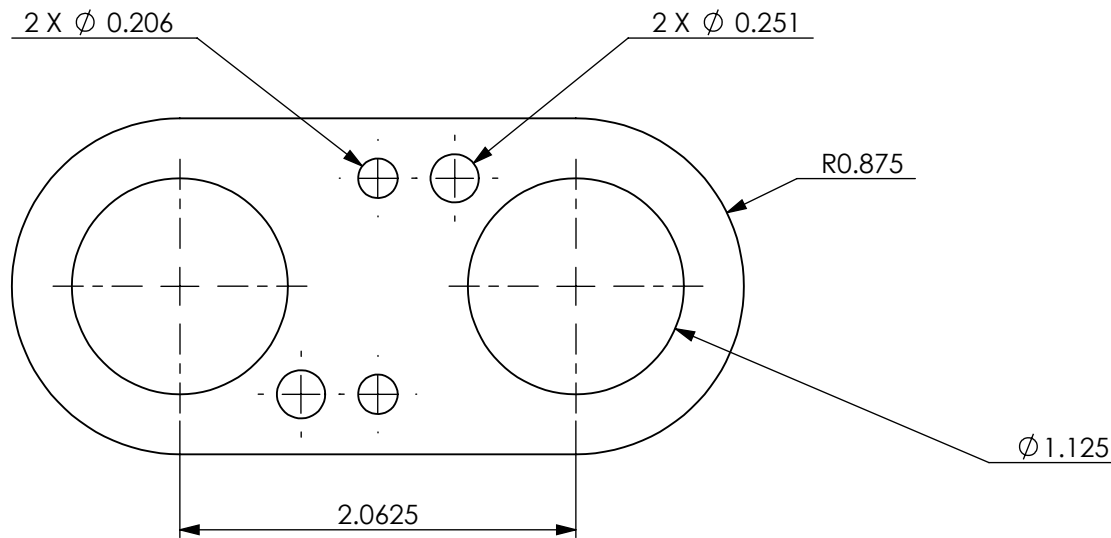
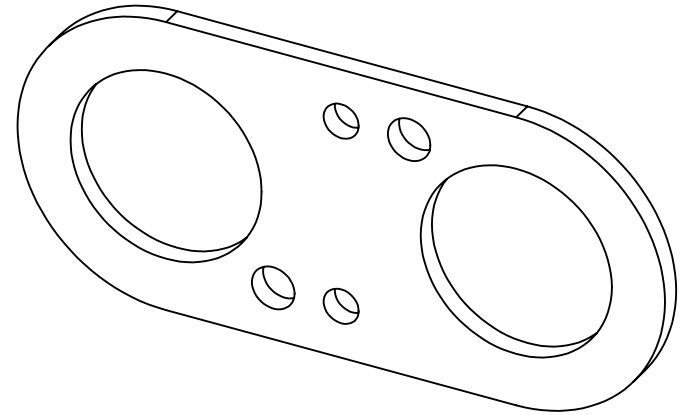
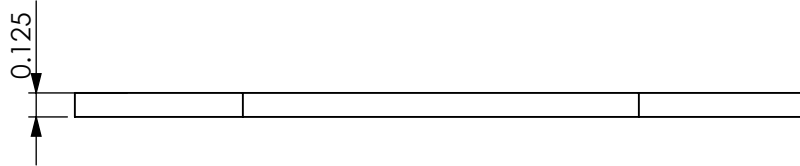
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DIMENSIONS ARE IN INCHES		THIRD ANGLE PROJECTION 		VARIOUS Material:		<i>Stretch Armstrong</i>	
DEFAULT TOLERANCES:		TRANSMISSION ASSEMBLY		DESCRIPTION:			
LINEAR: X. ± .1 X.X ± .01 X.XX ± .001 X.XXX ± .005	ANGULAR: X. ± 2 X.X ± 1 X.XX ± 0.30°	CHECKED BY: AMANDA BOLLAND	DATE: 5/4/2009	UNIVERSITY OF IDAHO ME DEPARTMENT		Part #:	QTY:
DRAWN BY: FILE NAME: 7		DATE: SolidWorks		Scale: 1:3		SHEET 41 OF 62	




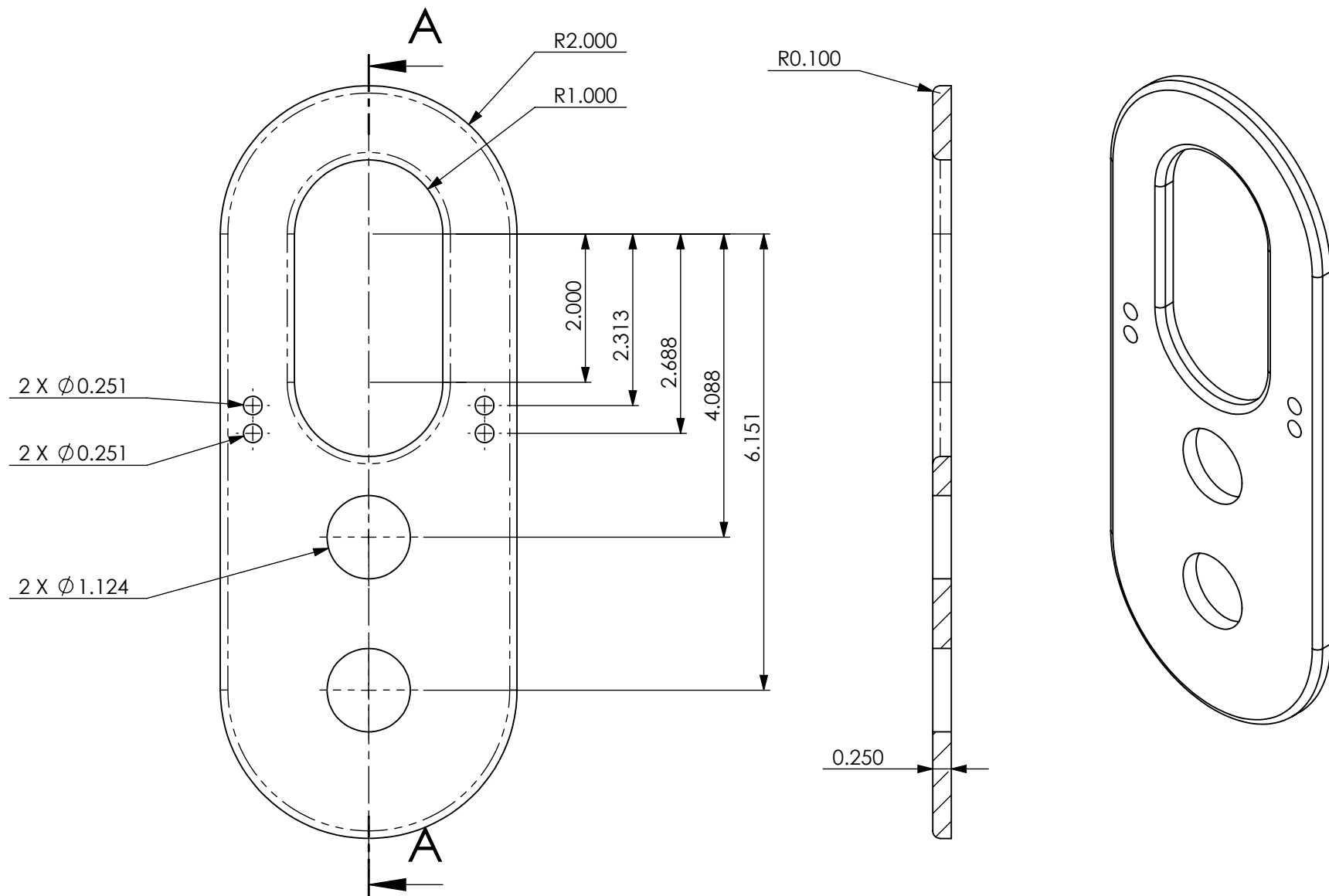
PROPRIETARY AND CONFIDENTIAL
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DIMENSIONS ARE IN INCHES		6061 ALUMINUM		<i>Stretch Armstrong</i>	
THIRD ANGLE PROJECTION 		Material:			
DEFAULT TOLERANCES:		CHAIN HOUSE		UNIVERSITY OF IDAHO ME DEPARTMENT	
LINEAR: X. ± .1 X.X ± .01 X.XX ± .001 X.XXX ± .005	ANGULAR: X. ± 2 X.X ± 1 X.XX ± 0.30°	DESCRIPTION:			
		CHECKED BY:			
		AMANDA BOLLAND	DATE:	4/30/2009	
		DRAWN BY:		Part #: 7-01	
		FILE NAME: 7-01		QTY: 1	
			CAD Application SolidWorks	Scale: 1:4	
				SHEET 42 OF 62	




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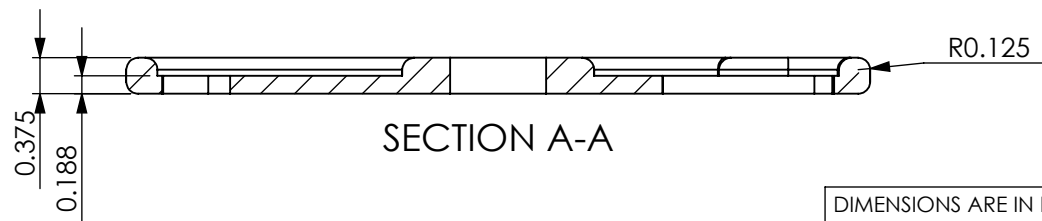
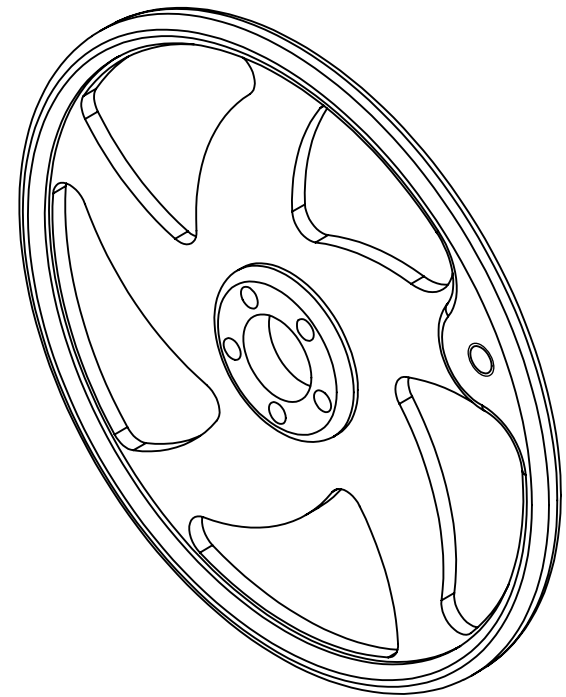
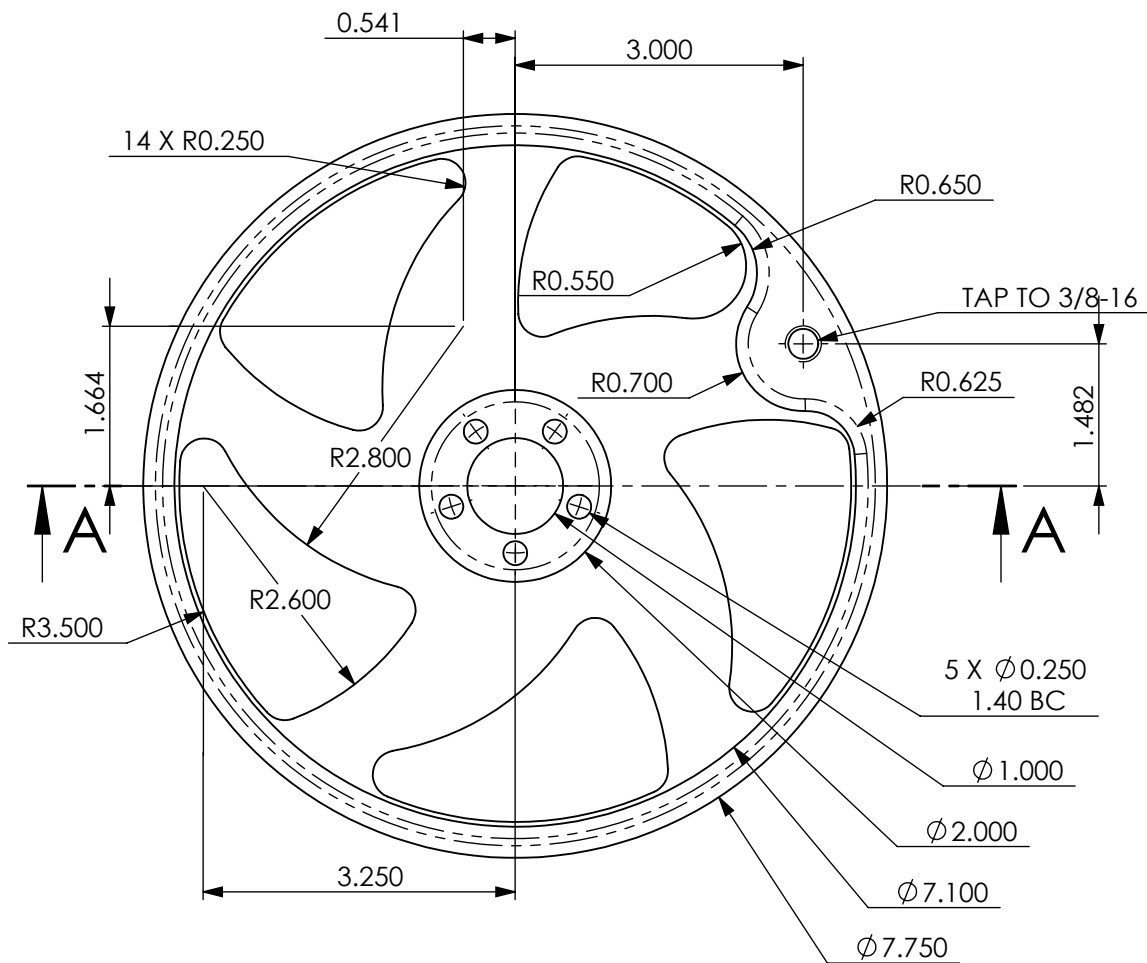
DIMENSIONS ARE IN INCHES		6061 ALUMINUM		<i>Stretch Armstrong</i>	
THIRD ANGLE PROJECTION 		Material:			
DEFAULT TOLERANCES:		CHAIN HOUSE SPACER		UNIVERSITY OF IDAHO ME DEPARTMENT	
LINEAR: X. ± .1 X.X ± .01 X.XX ± .001 X.XXX ± .005	ANGULAR: X. ± 2 X.X ± 1 X.XX ± 0.30°	DESCRIPTION:			
		CHECKED BY:	DATE:		
		AMANDA BOLLAND		4/26/2009	
		DRAWN BY:	DATE:		
		FILE NAME: 7-02		CAD Application SolidWorks	
				Part #: 7-02	QTY:1
				Scale: 1:1	SHEET 43 OF 62



SECTION A-A

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DIMENSIONS ARE IN INCHES		6061 ALUMINUM		<i>Stretch Armstrong</i>	
THIRD ANGLE PROJECTION 		Material:			
DEFAULT TOLERANCES:		CHAIN COVER		UNIVERSITY OF IDAHO ME DEPARTMENT	
LINEAR: X. ± .1 X.X ± .01 X.XX ± .001 X.XXX ± .005	ANGULAR: X. ± 2 X.X ± 1 X.XX ± 0.30'	DESCRIPTION:			
		CHECKED BY: AMANDA BOLLAND	DATE: 4/26/2009	Part #: 7-03	
		DRAWN BY: 7-03	DATE: CAD Application SolidWorks		
				Scale: 1:2	SHEET 44 OF 62



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DIMENSIONS ARE IN INCHES
THIRD ANGLE PROJECTION

6061 ALUMINUM
Material:

DEFAULT TOLERANCES:

LINEAR:
X. ± 0.1
X.X ± 0.01
X.XX ± 0.001
X.XXX ± 0.005

ANGULAR:
X. ± 2
X.X ± 1
X.XX $\pm 0.30^\circ$

DESCRIPTION:

CHECKED BY:
AMANDA BOLLAND

DATE:
4/26/2009

FILE NAME: 7-04

DATE:
4/26/2009

CAO Application
SolidWorks

Stretch Armstrong

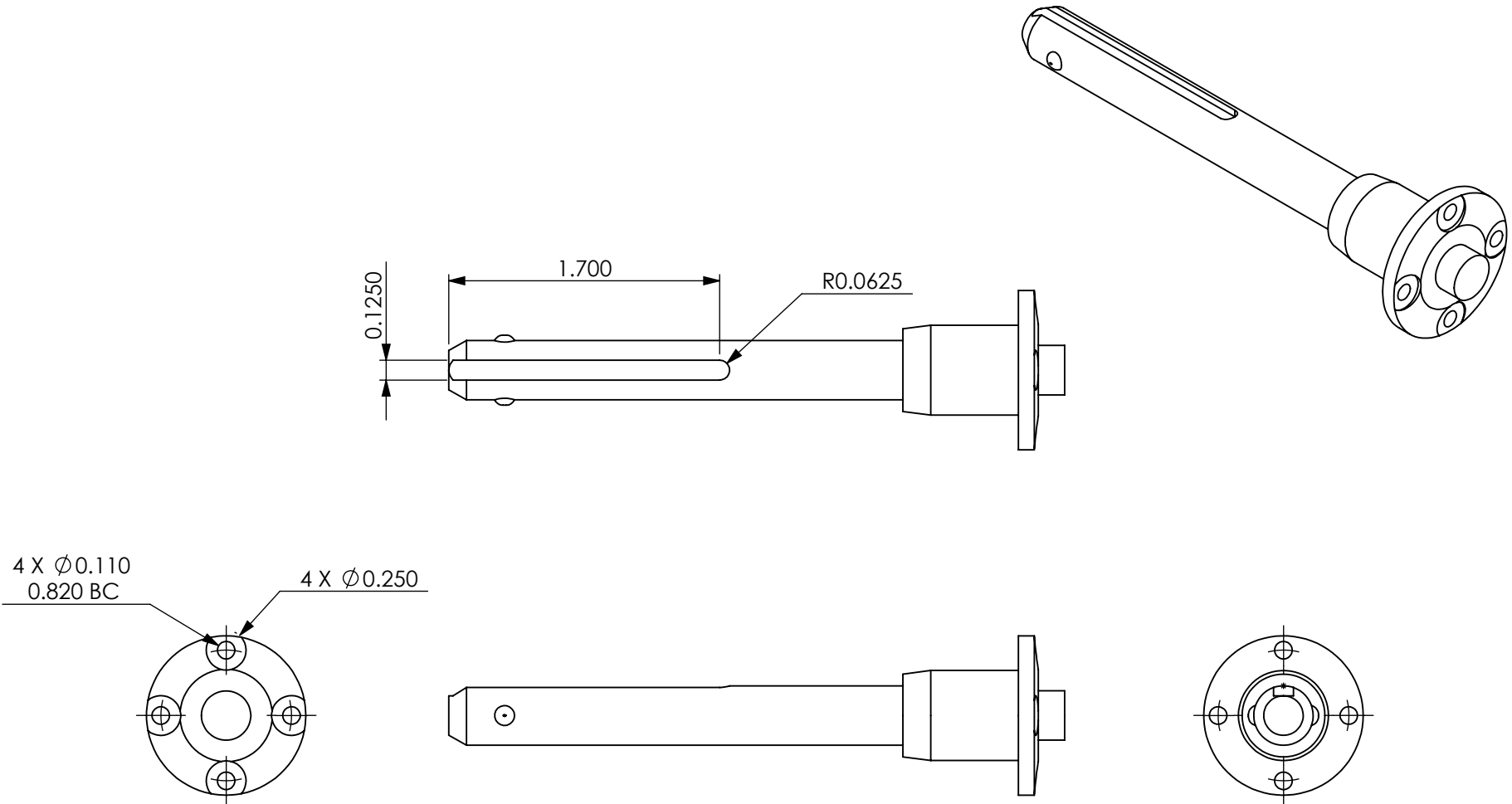
UNIVERSITY OF IDAHO
ME DEPARTMENT

Part #: 7-04

QTY: 1


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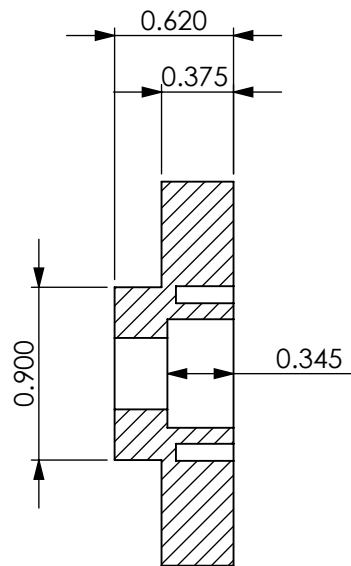
SHEET 45 OF 62



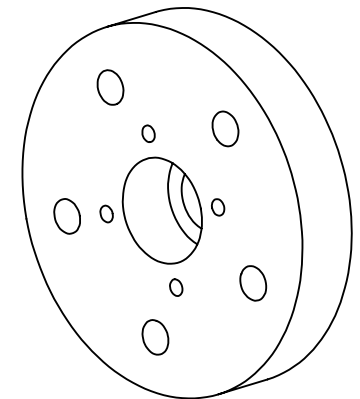
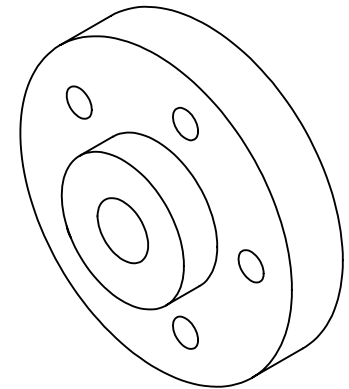
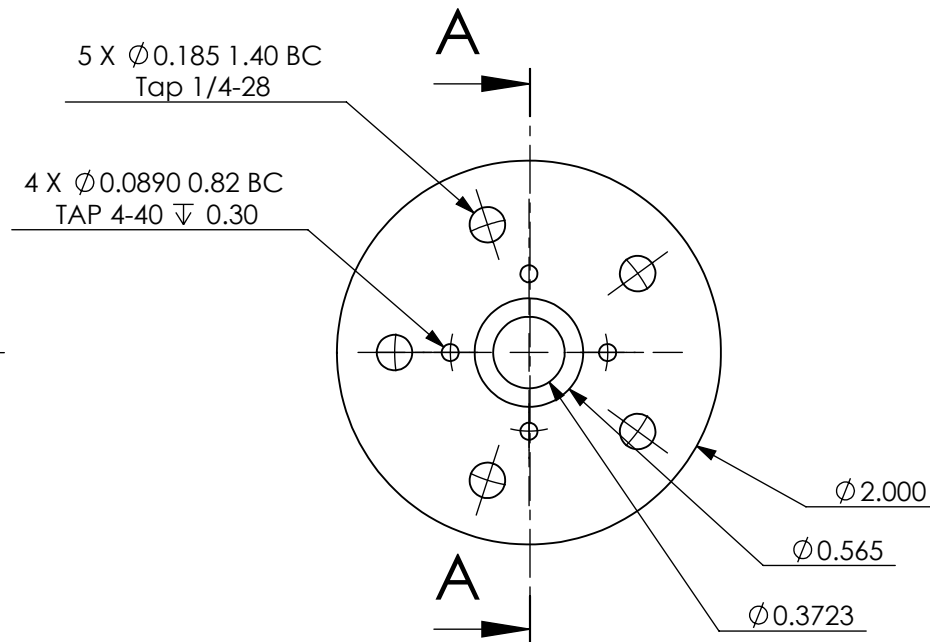
NOTE: PART FROM MSC # 60010501

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DIMENSIONS ARE IN INCHES		6061 ALUMINUM		<i>Stretch Armstrong</i>	
THIRD ANGLE PROJECTION 		Material:			
DEFAULT TOLERANCES:		QUICK PIN		UNIVERSITY OF IDAHO ME DEPARTMENT	
LINEAR: X. ± .1 X.X ± .01 X.XX ± .001 X.XXX ± .005	ANGULAR: X. ± 2 X.X ± 1 X.XX ± 0.30°	DESCRIPTION:			
		CHECKED BY:	DATE:		
		AMANDA BOLLAND		4/26/2009	
		DRAWN BY:		DATE:	
		FILE NAME: 7-05		CAD Application SolidWorks	
				Part #: 7-05	QTY: 1
				Scale: 1:1	SHEET 46 OF 62

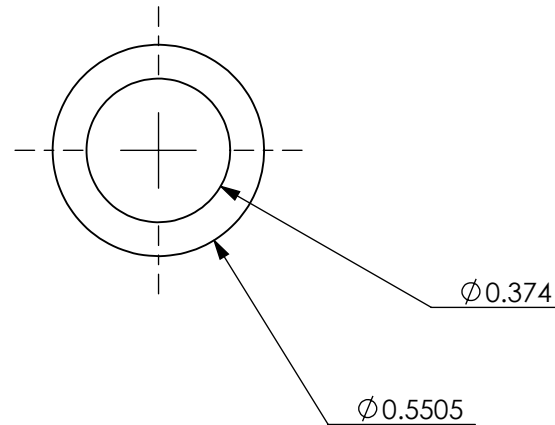
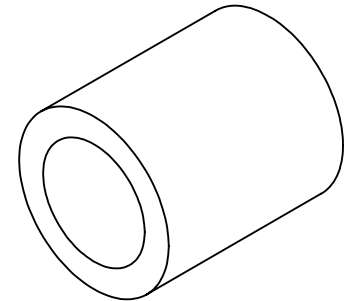


SECTION A-A




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DIMENSIONS ARE IN INCHES		6061 ALUMINUM		<i>Stretch Armstrong</i>	
THIRD ANGLE PROJECTION 		Material:			
DEFAULT TOLERANCES:		CRANK HANDLE SUPPORT		UNIVERSITY OF IDAHO ME DEPARTMENT	
LINEAR: X. ± .1 X.X ± .01 X.XX ± .001 X.XXX ± .005	ANGULAR: X. ± 2 X.X ± 1 X.XX ± 0.30°	DESCRIPTION:			
		CHECKED BY:	DATE:		
		AMANDA BOLLAND			
		DRAWN BY:	DATE:		
		7-06		CAD Application SolidWorks	Scale: 1:1

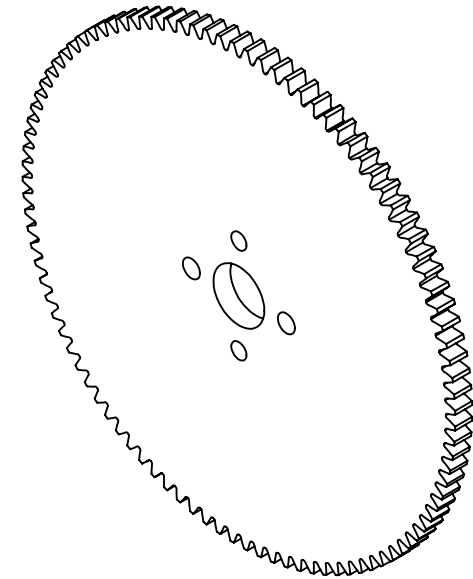
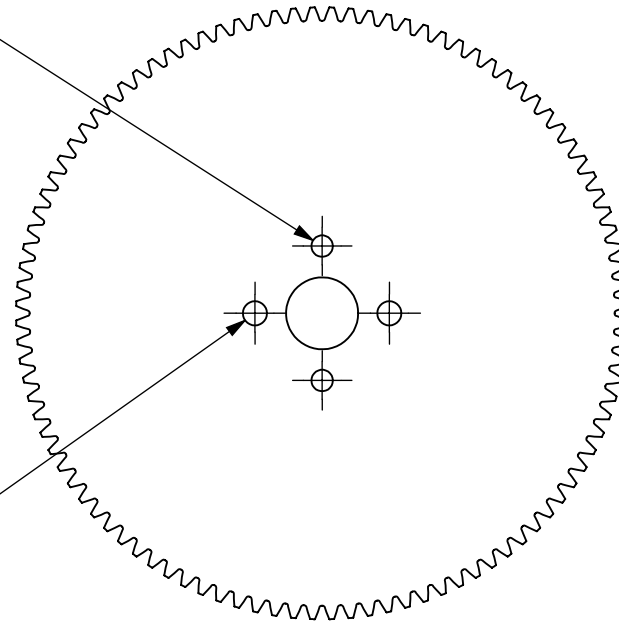


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
DIMENSIONS ARE IN INCHES		6061 ALUMINUM		<i>Stretch Armstrong</i>	
THIRD ANGLE PROJECTION 		Material:			
DEFAULT TOLERANCES:		LOWER SLIDE SPACER		UNIVERSITY OF IDAHO ME DEPARTMENT	
LINEAR: X. $\pm .1$ X.X $\pm .01$ X.XX $\pm .001$ X.XXX $\pm .005$	ANGULAR: X. ± 2 X.X ± 1 X.XX $\pm 0.30'$	DESCRIPTION:			
		CHECKED BY:	DATE:		
		AMANDA BOLLAND		4/26/2009	
		DRAWN BY:		DATE:	
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				Part #: 7-07	QTY:1
				Scale: 2:1	SHEET 48 OF 62

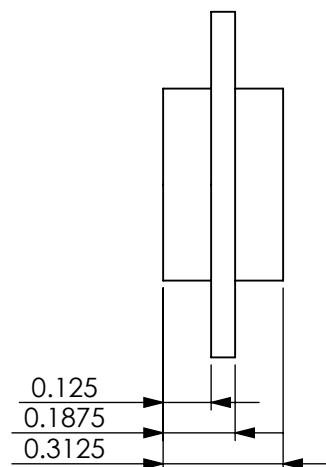
2 X $\phi 0.112$
@ 180° 0.70 BC

2 X $\phi 0.126$
@ 180° 0.70 BC

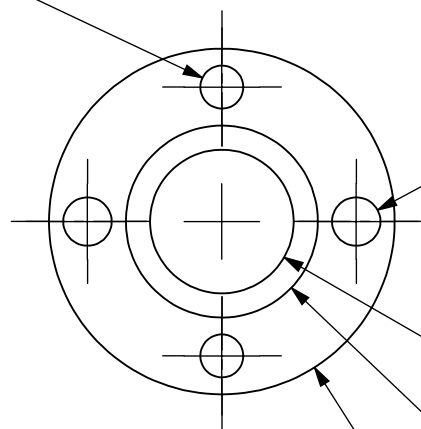


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DIMENSIONS ARE IN INCHES		STAINLESS STEEL		<i>Stretch Armstrong</i>	
THIRD ANGLE PROJECTION 		Material:			
DEFAULT TOLERANCES:		LOWER GEAR 100		UNIVERSITY OF IDAHO ME DEPARTMENT	
LINEAR: X. $\pm .1$ X.X $\pm .01$ X.XX $\pm .001$ X.XXX $\pm .005$	ANGULAR: X. ± 2 X.X ± 1 X.XX $\pm 0.30'$	DESCRIPTION:			
		CHECKED BY:	DATE:	Part #: 7-08	
		AMANDA BOLLAND	4/26/2009		
		DRAWN BY:	DATE:	QTY: 1	
		FILE NAME: 7-08	CAD Application SolidWorks		
				Scale: 1:1	
				SHEET 49 OF 62	



2 X $\phi 0.112$
@ 180° 0.70 BC

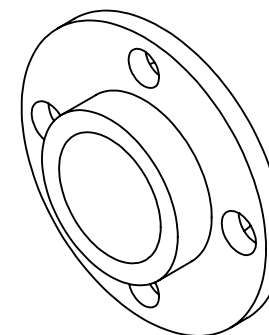


2 X $\phi 0.126$
@ 180° 0.70 BC


$\phi 0.374$

$\phi 0.500$

$\phi 0.900$

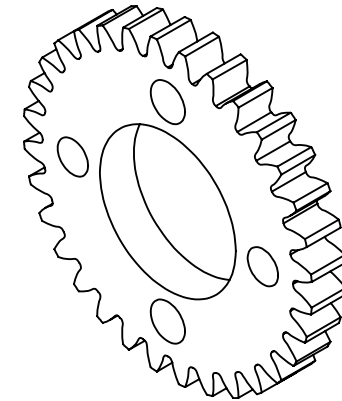
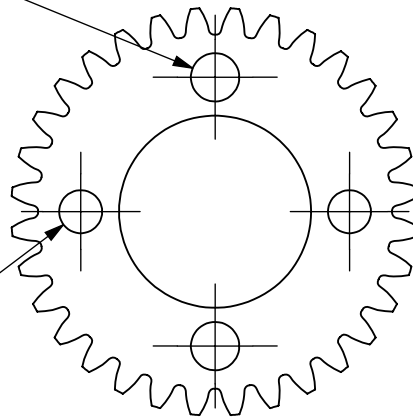


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DIMENSIONS ARE IN INCHES		6061 ALUMINUM		<i>Stretch Armstrong</i>			
THIRD ANGLE PROJECTION 		Material:					
DEFAULT TOLERANCES:		LOWER MIDDLE SPACER		UNIVERSITY OF IDAHO ME DEPARTMENT			
LINEAR: X. ± .1 X.X ± .01 X.XX ± .001 X.XXX ± .005	ANGULAR: X. ± 2 X.X ± 1 X.XX ± 0.30°	DESCRIPTION:		Part # : 7-09			
		CHECKED BY:	DATE:				
		DRAWN BY:		AMANDA BOLLAND	4/26/2009	QTY: 1	
		FILE NAME: 7-09		CAD Application SolidWorks		Scale: 2:1	
						SHEET 50 OF 62	


2 X $\varnothing 0.126$
@ 180° 0.70 BC

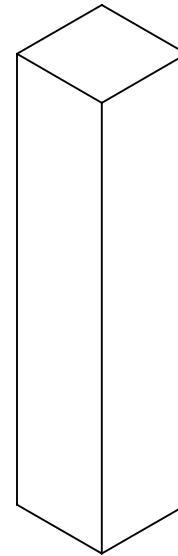
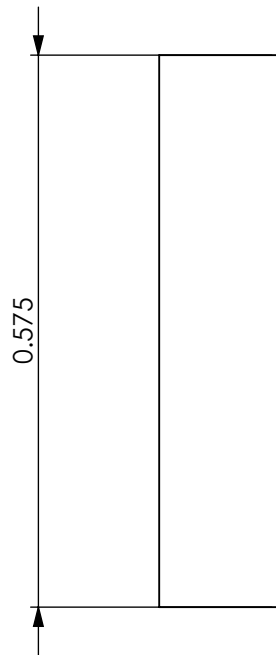
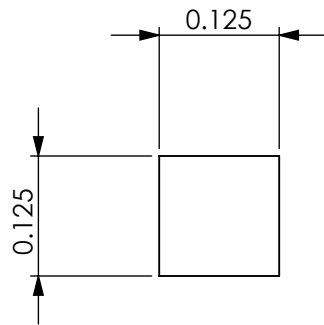
2 X $\varnothing 0.112$
@ 180° 0.70 BC




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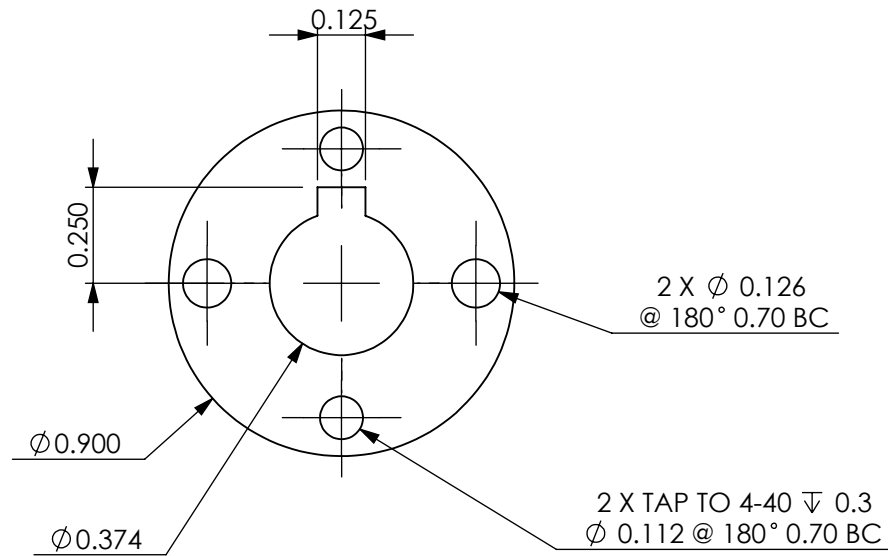
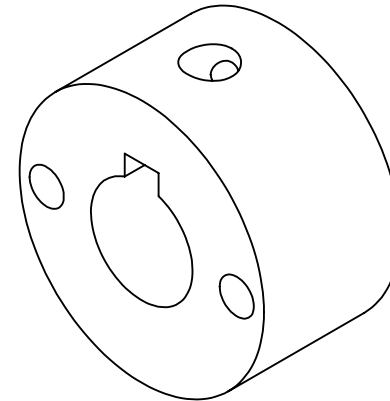
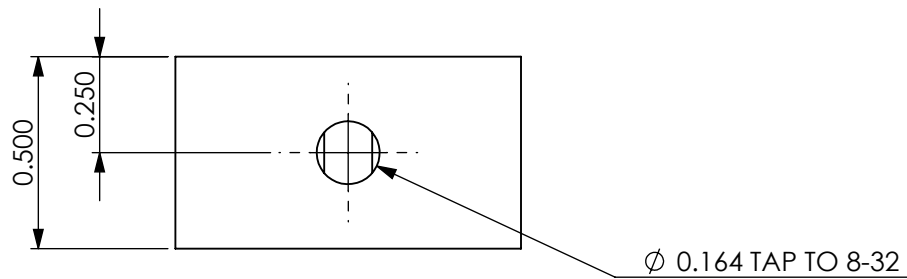
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DIMENSIONS ARE IN INCHES		STAINLESS STEEL		<i>Stretch Armstrong</i>	
THIRD ANGLE PROJECTION 		Material:			
DEFAULT TOLERANCES:		LOWER GEAR 32		UNIVERSITY OF IDAHO ME DEPARTMENT	
LINEAR: X. ± .1 X.X ± .01 X.XX ± .001 X.XXX ± .005	ANGULAR: X. ± 2 X.X ± 1 X.XX ± 0.30°	DESCRIPTION:			
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		AMANDA BOLLAND	4/26/2009		
		DRAWN BY:	DATE:	QTY: 1	
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				SHEET 51 OF 62	



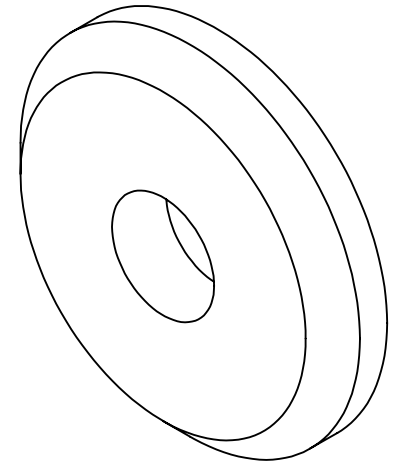
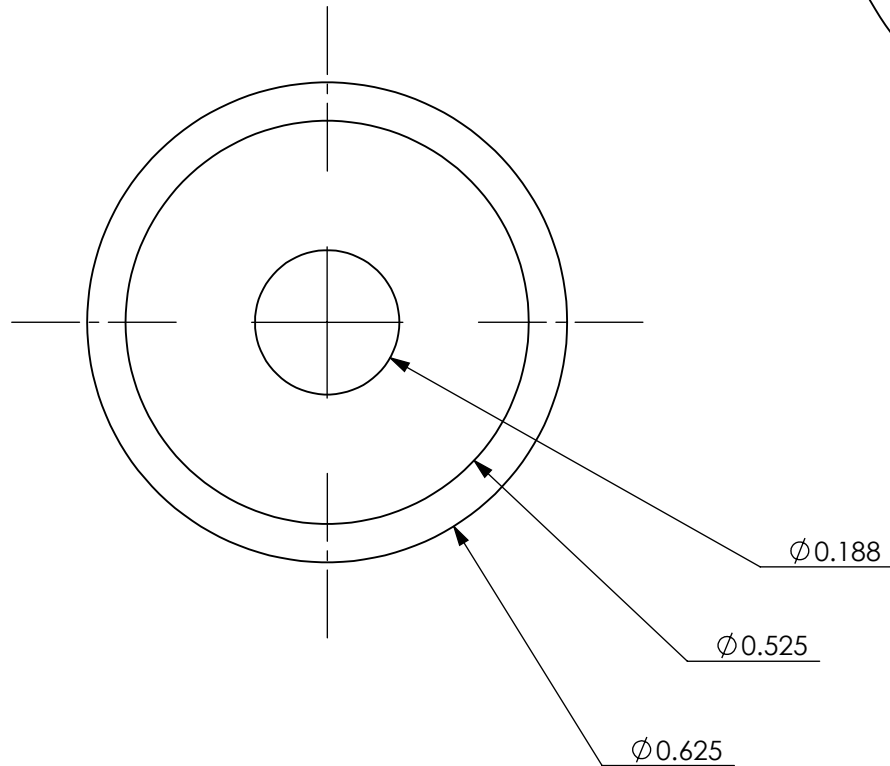
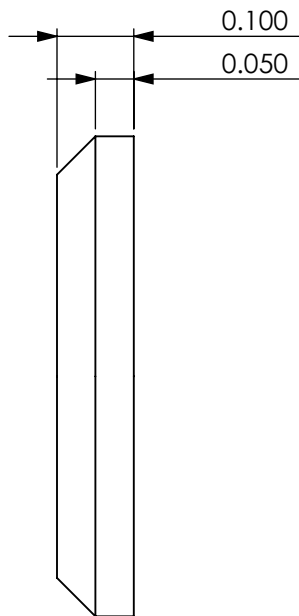
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DIMENSIONS ARE IN INCHES		6061 ALUMINUM		<i>Stretch Armstrong</i>	
THIRD ANGLE PROJECTION 		Material:			
DEFAULT TOLERANCES:		LOWER SHAFT KEY		UNIVERSITY OF IDAHO ME DEPARTMENT	
LINEAR: X. ± .1 X.X ± .01 X.XX ± .001 X.XXX ± .005	ANGULAR: X. ± 2 X.X ± 1 X.XX ± 0.30°	DESCRIPTION:			
		CHECKED BY:			
		AMANDA BOLLAND			
		DRAWN BY:			
FILE NAME: 7-12		DATE: 4/26/2009		Part #: 7-12	
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				SHEET 52 OF 62	




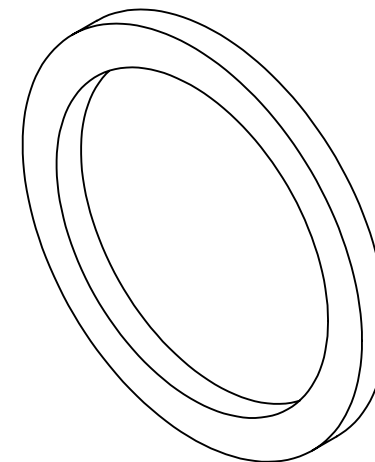
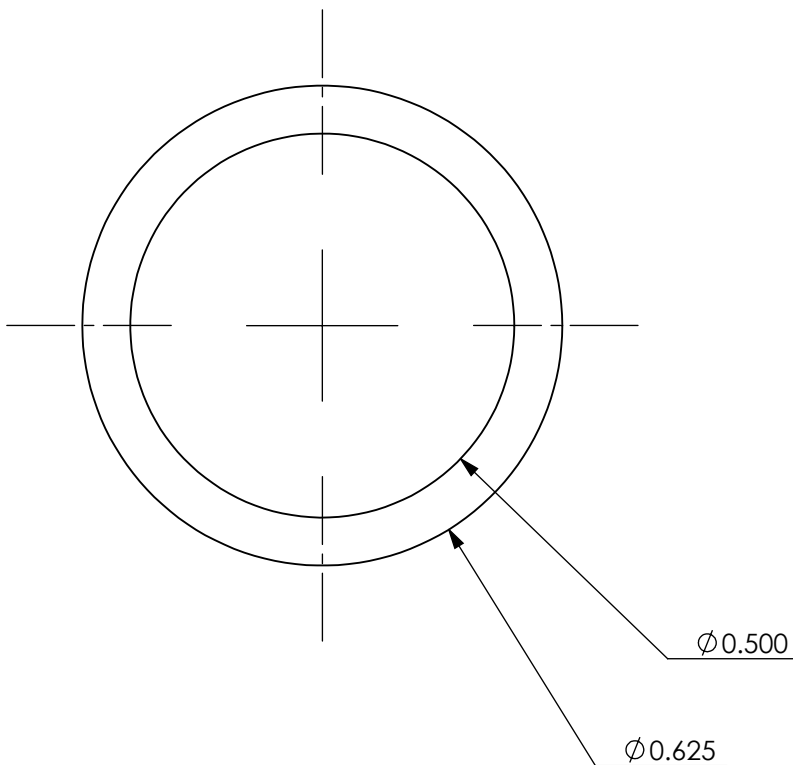
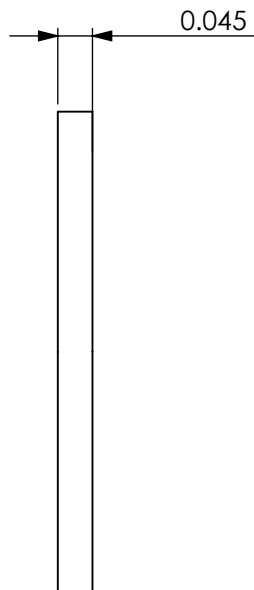
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DIMENSIONS ARE IN INCHES		6061 ALUMINUM		<i>Stretch Armstrong</i>	
THIRD ANGLE PROJECTION 		Material:			
DEFAULT TOLERANCES:		LOWER SHAFT SLEEVE		UNIVERSITY OF IDAHO ME DEPARTMENT	
LINEAR: X. ± .1 X.X ± .01 X.XX ± .001 X.XXX ± .005	ANGULAR: X. ± 2 X.X ± 1 X.XX ± 0.30°	DESCRIPTION:			
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		AMANDA BOLLAND			
		DRAWN BY:			
		FILE NAME: 7-13			
		CAD Application SolidWorks		Part #: 7-13	
				QTY:1	
				Scale: 2:1	
				SHEET 53 OF 62	



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DIMENSIONS ARE IN INCHES		6061 ALUMINUM		<i>Stretch Armstrong</i>	
THIRD ANGLE PROJECTION 		Material:			
DEFAULT TOLERANCES:		SHAFT END CAP		UNIVERSITY OF IDAHO ME DEPARTMENT	
LINEAR: X. ± .1 X.X ± .01 X.XX ± .001 X.XXX ± .005	ANGULAR: X. ± 2 X.X ± 1 X.XX ± 0.30°	DESCRIPTION:			
		CHECKED BY:	DATE:		
		JUSTIN RUEGSEGGER4/26/2009			
		DRAWN BY:	DATE:		
		FILE NAME: 7-14		CAD Application SolidWorks	
				Part #: 7-14	QTY:2
				Scale: 4:1	SHEET 54 OF 62



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DIMENSIONS ARE IN INCHES

THIRD ANGLE PROJECTION

6061 ALUMINUM
Material:

DEFAULT TOLERANCES:

LINEAR:
X. ± .1
X.X ± .01
X.XX ± .001
X.XXX ± .005

ANGULAR:
X. ± 2
X.X ± 1
X.XX ± 0.30°

DESCRIPTION: UPPER SPACER 1

CHECKED BY:

DRAWN BY: JUSTIN RUEGSEGGGER

FILE NAME: 7-15

DATE:

4/26/2009

DATE: CAD Application SolidWorks

Stretch Armstrong

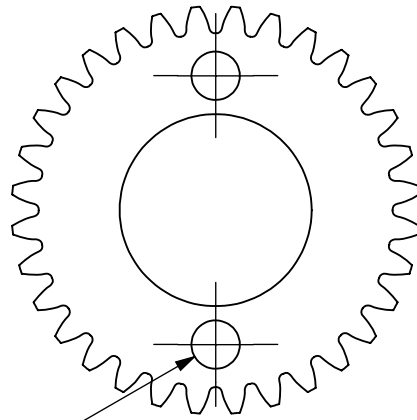
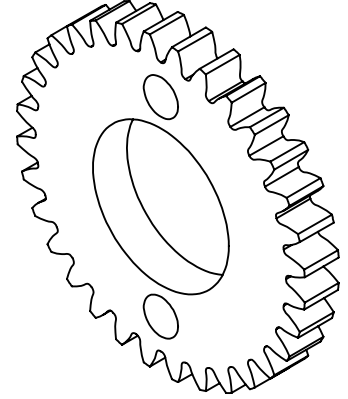
UNIVERSITY OF IDAHO
ME DEPARTMENT

Part #: 7-15

Scale: 4:1

QTY: 1


SHEET 55 OF 62

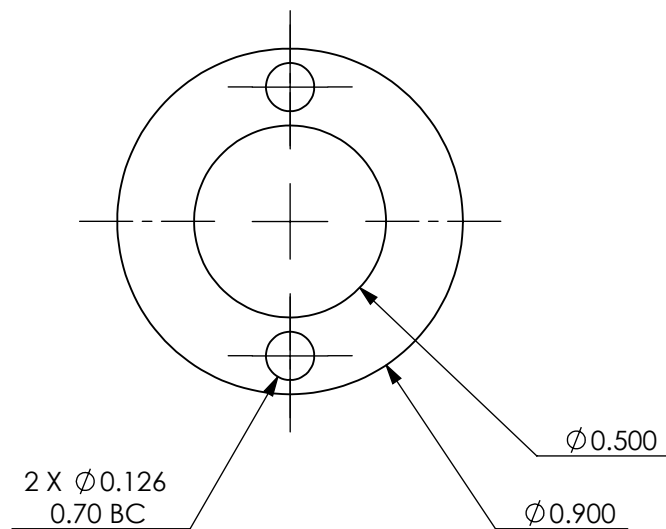
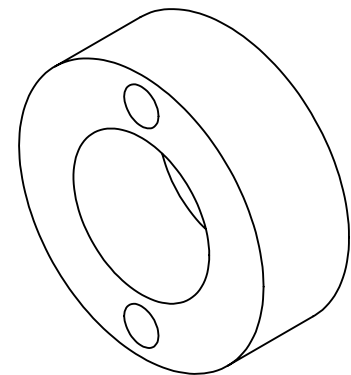
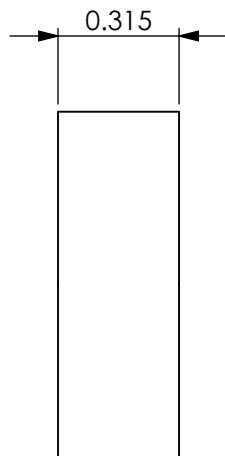


2 X Ø0.126
0.70 BC


NOTE: PART FROM W.M. Berg #F32S3-32

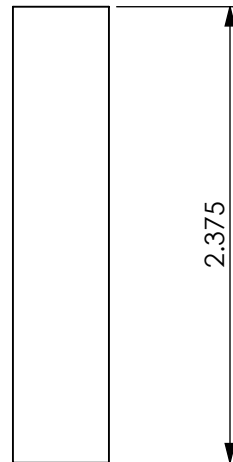
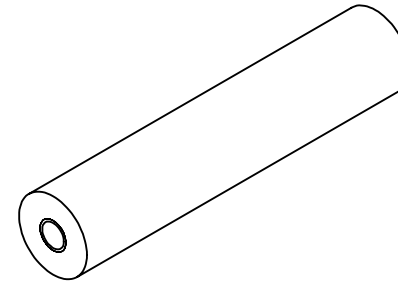
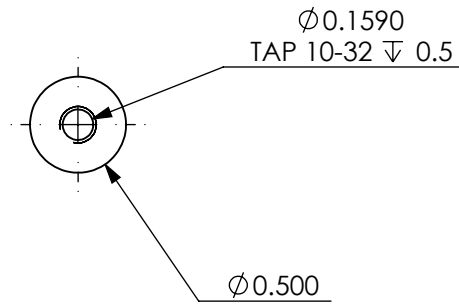
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DIMENSIONS ARE IN INCHES		STAINLESS STEEL Material:		<i>Stretch Armstrong</i>	
THIRD ANGLE PROJECTION 					
DEFAULT TOLERANCES:		UPPER GEAR 32			
LINEAR: X. ± .1 X.X ± .01 X.XX ± .001 X.XXX ± .005	ANGULAR: X. ± 2 X.X ± 1 X.XX ± 0 30'	DESCRIPTION:		UNIVERSITY OF IDAHO ME DEPARTMENT	
CHECKED BY:		DATE:		Part #: 7-16	
JUSTIN RUEGSEGGER		4/26/2009			
DRAWN BY:		DATE:			
FILE NAME: 7-16		CAD Application SolidWorks		Scale: 2:1	
				QTY:1	
				SHEET 56 OF 62	




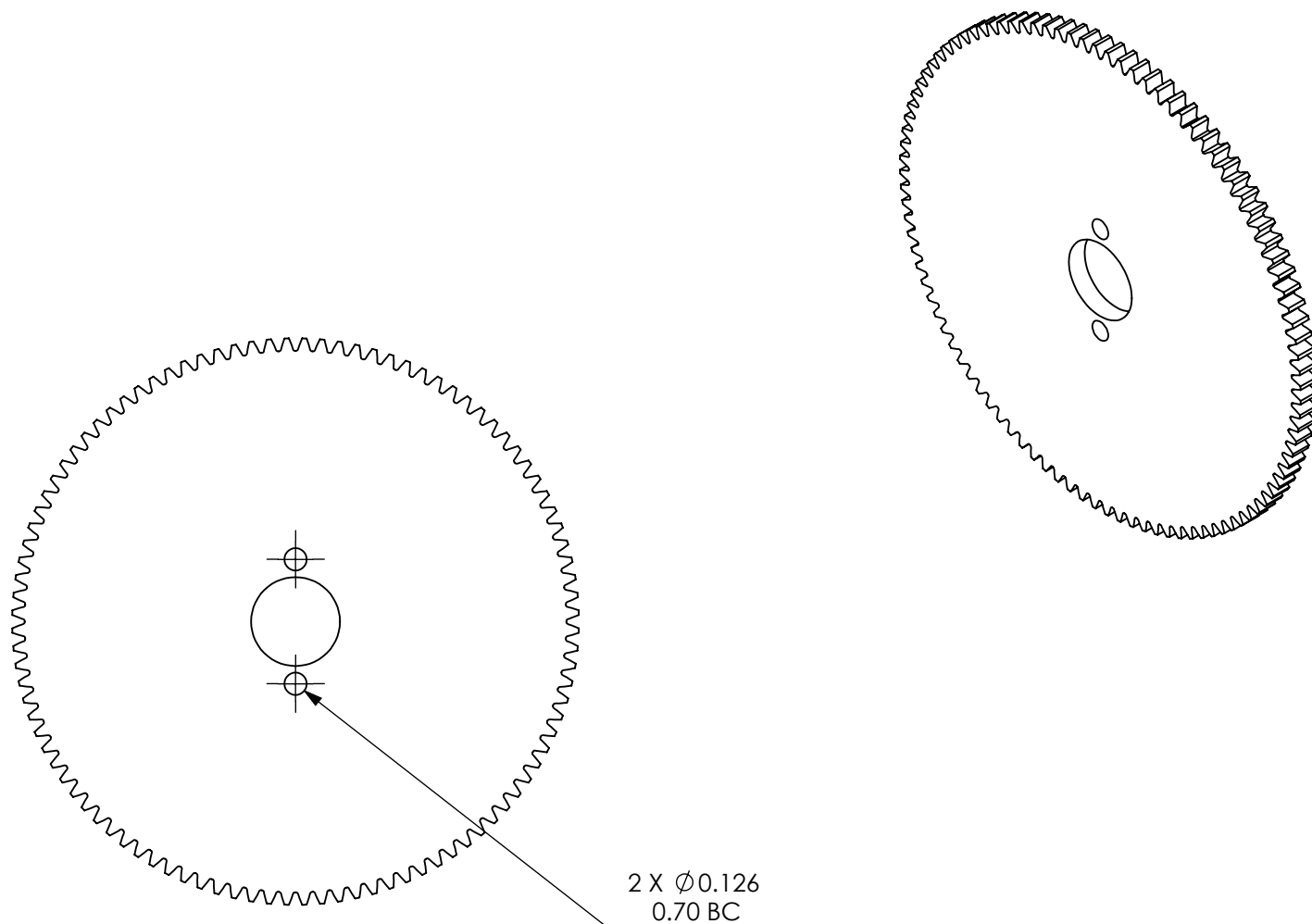
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DIMENSIONS ARE IN INCHES		6061 ALUMINUM		<i>Stretch Armstrong</i>	
THIRD ANGLE PROJECTION 		Material:			
DEFAULT TOLERANCES:		UPPER SPACER 2		UNIVERSITY OF IDAHO ME DEPARTMENT	
LINEAR: X. ± .1 X.X ± .01 X.XX ± .001 X.XXX ± .005	ANGULAR: X. ± 2 X.X ± 1 X.XX ± 0.30°	DESCRIPTION:			
		CHECKED BY:	DATE:		
		JUSTIN RUEGSEGGGER		4/26/2009	
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				Part #: 7/17	QTY:1
				Scale: 2:1	SHEET 57 OF 62




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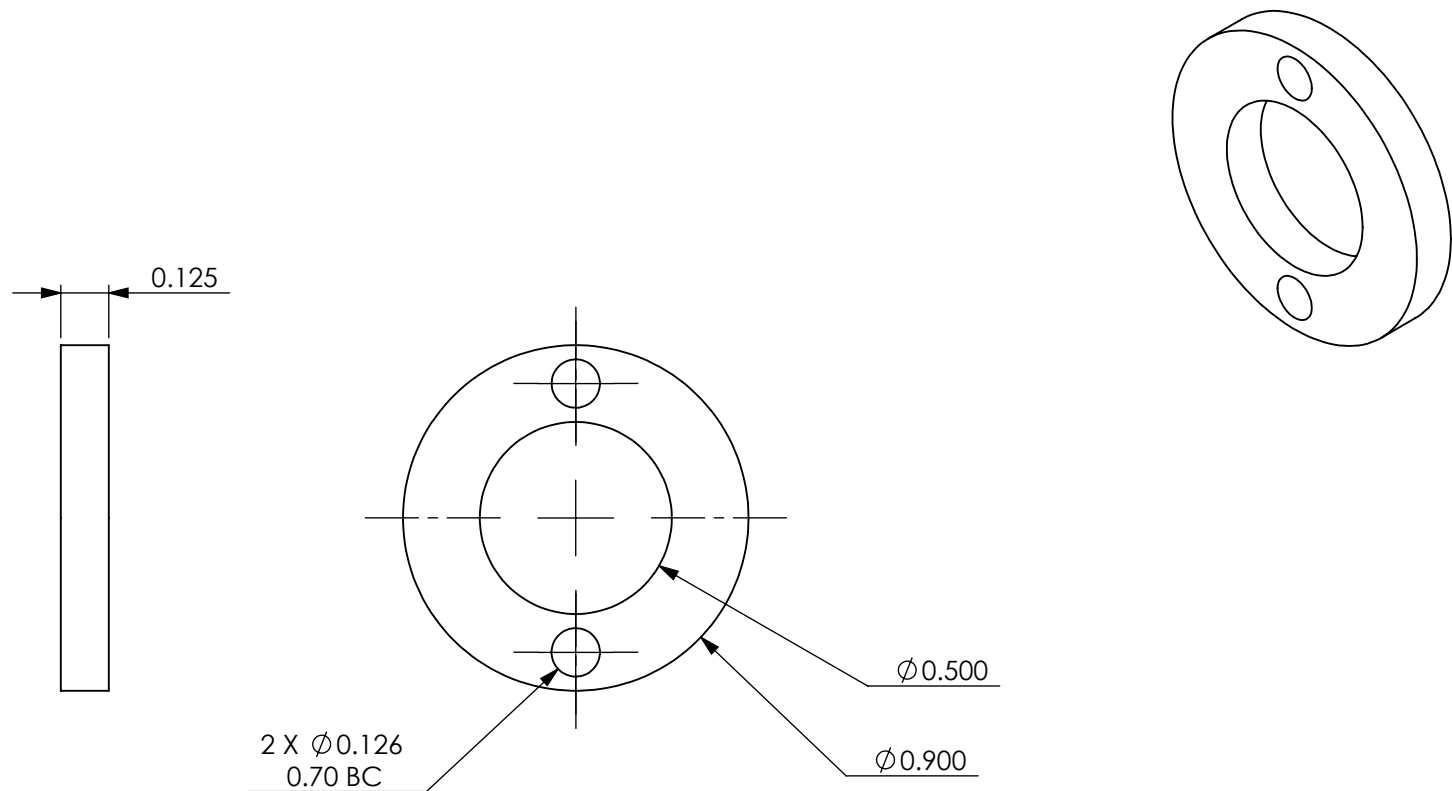
DIMENSIONS ARE IN INCHES		6061 ALUMINUM		<i>Stretch Armstrong</i>	
THIRD ANGLE PROJECTION 		Material:			
DEFAULT TOLERANCES:		UPPER SHAFT		UNIVERSITY OF IDAHO ME DEPARTMENT	
LINEAR: X. ± .1 X.X ± .01 X.XX ± .001 X.XXX ± .005	ANGULAR: X. ± 2 X.X ± 1 X.XX ± 0.30°	DESCRIPTION:			
		CHECKED BY:	DATE:	Part #: 7-18	
		JUSTIN RUEGSEGGER	4/27/2009		
		DRAWN BY:	DATE:	QTY:1	
		FILE NAME: 7-18	CAD Application SolidWorks		
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				SHEET 58 OF 62	




NOTE: PART FROM W. M.BERG #F32S3-100

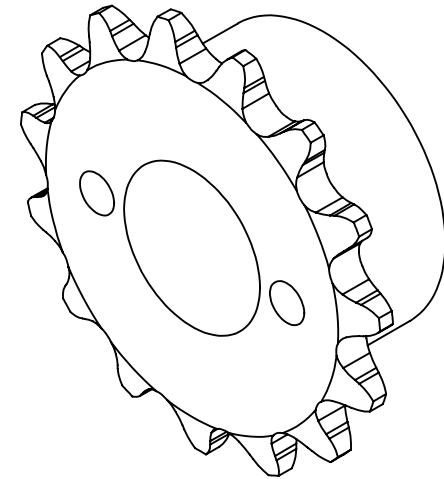
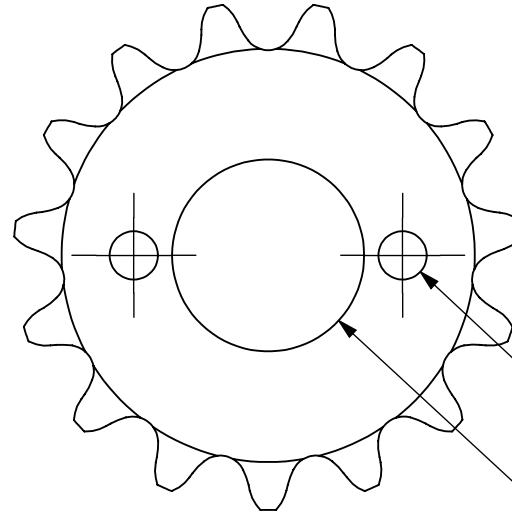
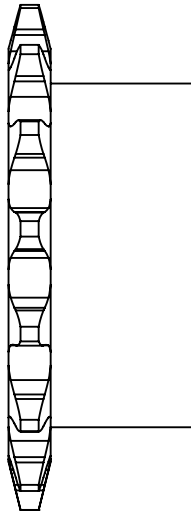
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DIMENSIONS ARE IN INCHES		STAINLESS STEEL		<i>Stretch Armstrong</i>	
THIRD ANGLE PROJECTION 		Material:			
DEFAULT TOLERANCES:		UPPER GEAR 100		UNIVERSITY OF IDAHO ME DEPARTMENT	
LINEAR: X. ± .1 X.X ± .01 X.XX ± .001 X.XXX ± .005		ANGULAR: X. ± 2 X.X ± 1 X.XX ± 0.30°			
		DESCRIPTION:		Part #: 7-19	
		CHECKED BY: AMANDA BOLLAND			
		DATE: 4/26/2009		QTY:1	
		DRAWN BY: AMANDA BOLLAND			
		FILE NAME: 7-19		Scale: 1:1	
		CAD Application SolidWorks			
				SHEET 59 OF 62	




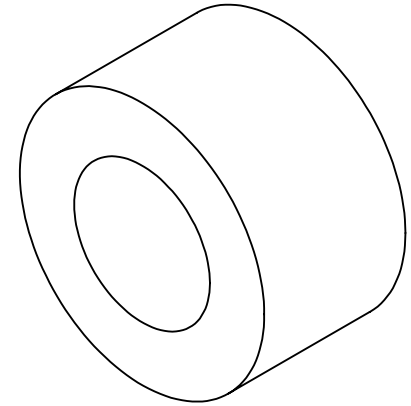
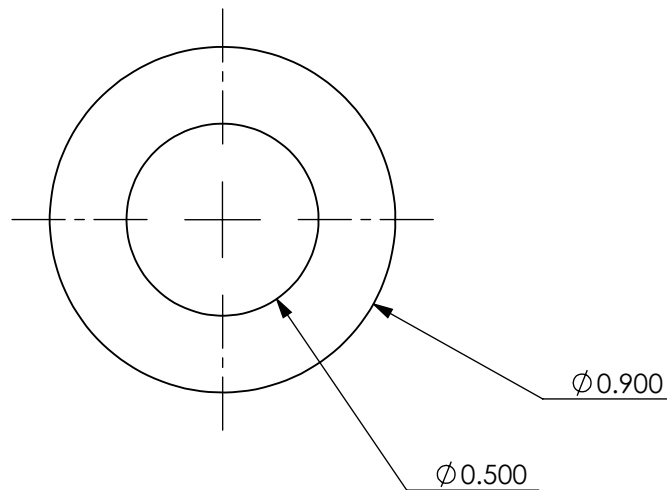
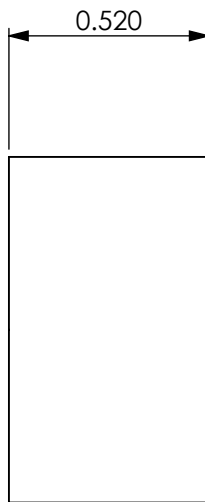
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DIMENSIONS ARE IN INCHES		6061 ALUMINUM		<i>Stretch Armstrong</i>	
THIRD ANGLE PROJECTION 		Material:			
DEFAULT TOLERANCES:		UPPER SPACER 3		UNIVERSITY OF IDAHO ME DEPARTMENT	
LINEAR: X. ± .1 X.X ± .01 X.XX ± .001 X.XXX ± .005	ANGULAR: X. ± 2 X.X ± 1 X.XX ± 0.30°	DESCRIPTION:			
		CHECKED BY:	DATE:		
		JUSTIN RUEGSEGGER		4/26/2009	
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				Part #: 7-20	QTY:1
				Scale: 2:1	SHEET 60 OF 62




NOTE: PART FROM MCMaster # 2737T7

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	DEFAULT TOLERANCES:		UPPER SPROCKET						
	LINEAR: X: ± .1 X.X ± .01 X.XX ± .001 X.XXX ± .005		ANGULAR: X: ± 2 X.X ± 1 X.XX ± 0.30°		DESCRIPTION:				
					CHECKED BY: JUSTIN RUEGSEGGER		DATE: 4/26/2009		
					DRAWN BY: FILE NAME: 7-21		DATE: CAD Application SolidWorks		
						Part #: 7-21		QTY: 1	
						Scale: 2:1		SHEET 61 OF 62	



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DIMENSIONS ARE IN INCHES		6061 ALUMINUM		<i>Stretch Armstrong</i>	
THIRD ANGLE PROJECTION 		Material:			
DEFAULT TOLERANCES:		UPPER SPACER 4		UNIVERSITY OF IDAHO ME DEPARTMENT	
LINEAR: X. ± .1 X.X ± .01 X.XX ± .001 X.XXX ± .005	ANGULAR: X. ± 2 X.X ± 1 X.XX ± 0.30°	DESCRIPTION:			
		CHECKED BY:	DATE:		
		JUSTIN RUEGSEGGER		4/26/2009	
		DRAWN BY:		DATE:	
FILE NAME: 7-22		CAD Application SolidWorks		Part #: 7-22	QTY:1
				Scale: 2:1	SHEET 62 OF 62