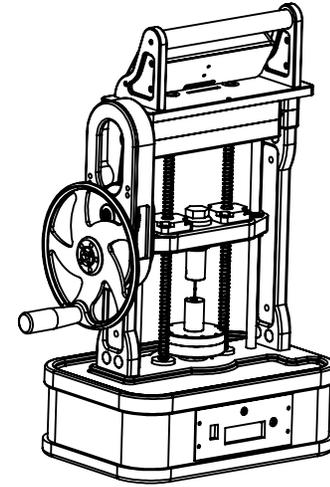


ITEM #	PART NAME	QTY	DWG #
1	SHAFT ASSEMBLY	1	1C-00
2	TTF BASE ASSEMBLY	1	2-00
3	CROSS MEMBER ASSEMBLY	1	3-00
4	WORM SHAFT ASSEMBLY	1	4-00
5	DISPLAY ASSEMBLY	1	5-00
6	LOAD AND MOUNT ASSEMBLY	1	6-00
7	TRANSMISSION ASSEMBLY	1	7-00
8	TTF RIGHT UPRIGHT	1	1A-00
9	TTF LEFT UPRIGHT	1	1B-00
10	LINEAR SHAFT	2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



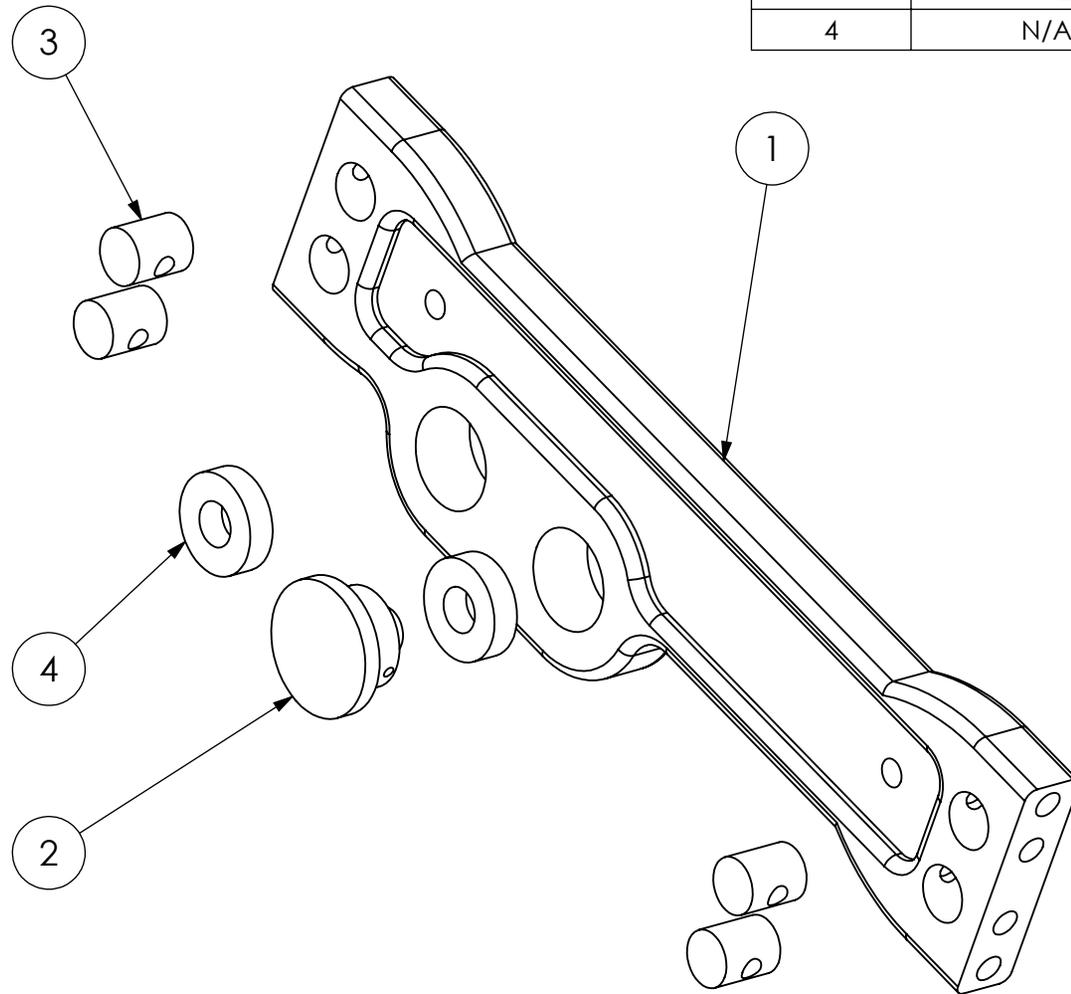
SCALE: 1:10

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

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DIMENSIONS ARE IN INCHES		THIRD ANGLE PROJECTION		VARIOUS Material:		<i>Stretch Armstrong</i>	
DEFAULT TOLERANCES:		FINAL ASSEMBLY		DESCRIPTION:			
LINEAR:	ANGULAR:	DRAWN BY: SPENCER OLDEMEYER		DATE: 5/7/2009	UNIVERSITY OF IDAHO ME DEPARTMENT		
X. ± .1	X. ± 2	FILE NAME: Final Assembly		DATE:	Part #: 0-00	QTY: 1	
X.X ± .01	X.X ± 1	CAD Application SolidWorks		Scale: 1:5	SHEET 1 OF 62		
X.XX ± .001	X.XX ± 0.30'						

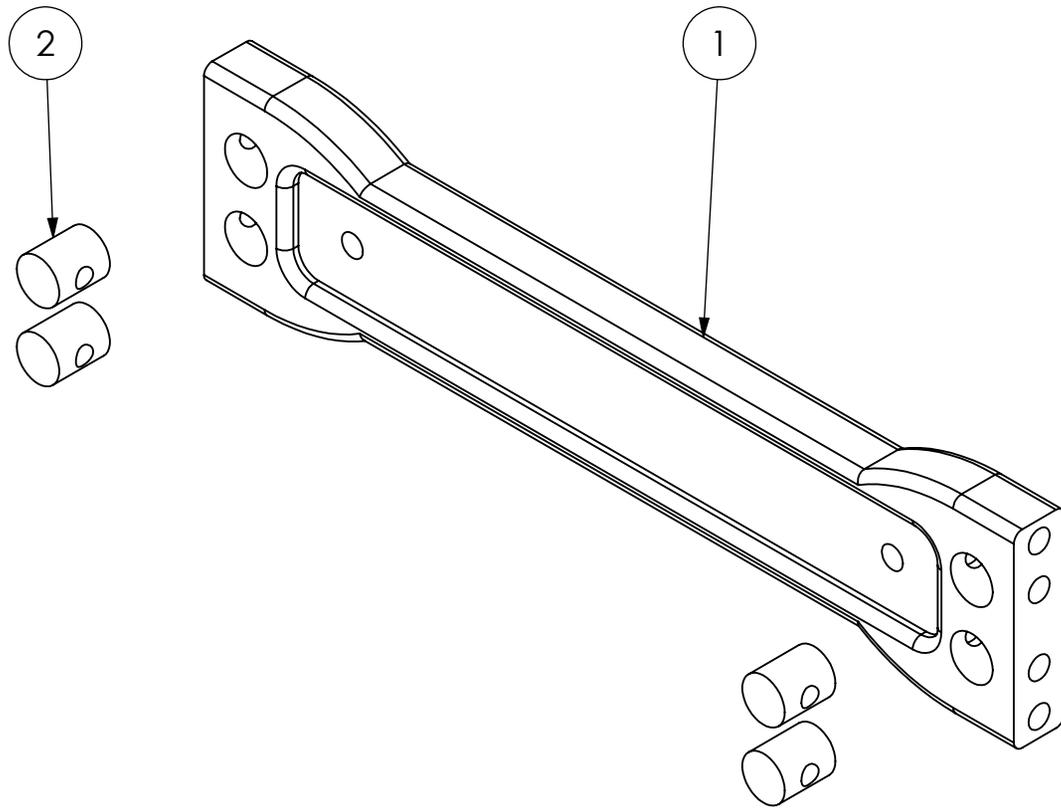
ITEM NO.	PART #	DESCRIPTION	QTY.
1	1-61	UPRIGHT2	1
2	1-62	QUICK RELEASE LOCK	1
3	1-52	UPRIGHT BARRELNUT	4
4	N/A	R8 BEARING	2



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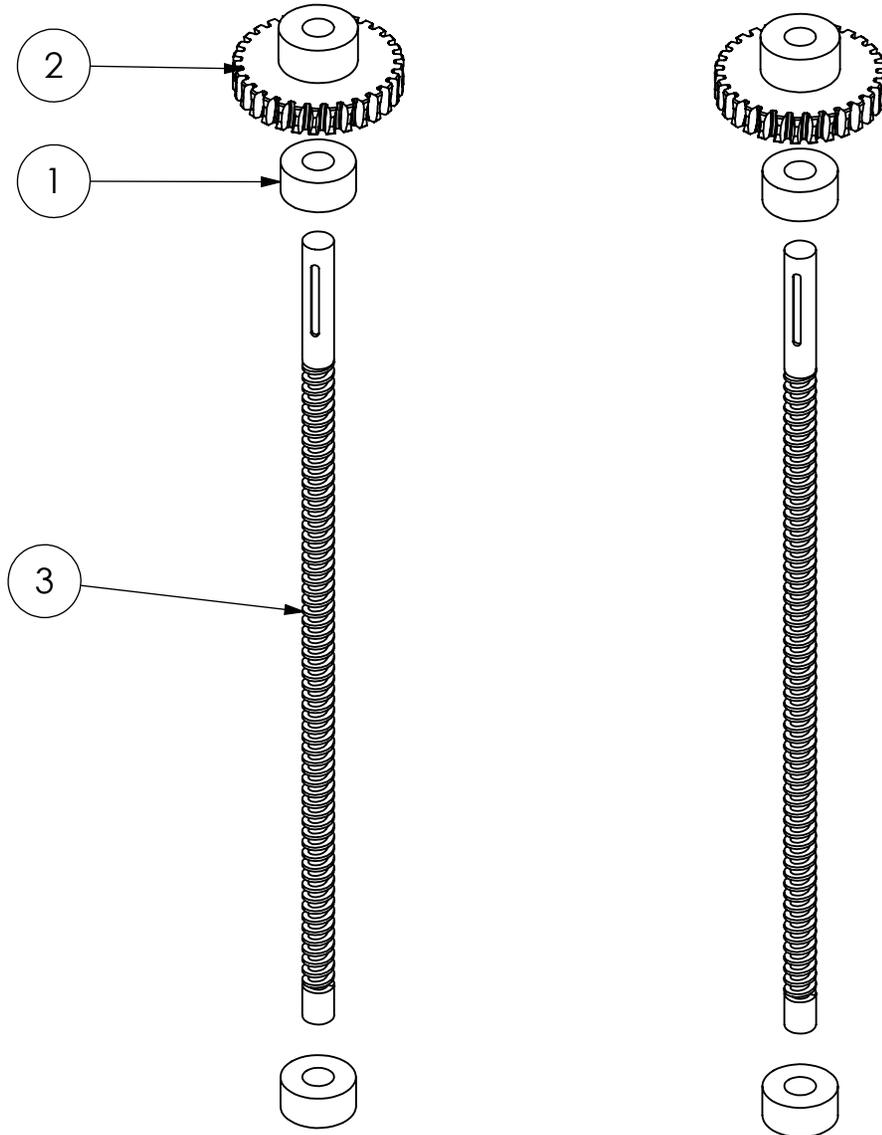
DIMENSIONS ARE IN INCHES		THIRD ANGLE PROJECTION		VARIOUS Material:		<i>Stretch Armstrong</i>	
DEFAULT TOLERANCES:		TTTF RIGHT UPRIGHT ASSEMBLY					
LINEAR: X. ± .1 X.X ± .01 X.XX ± .001 X.XXX ± .005	ANGULAR: X. ± 2 X.X ± 1 X.XX ± 0 30'	DESCRIPTION:		DATE:		UNIVERSITY OF IDAHO ME DEPARTMENT	
DRAWN BY: CARLOS DUARTE		CHECKED BY:		DATE: 5/1/2009		Part #: 1A-00	
FILE NAME: TTTF Upright2 Assembly		CAO Application SolidWorks		Scale: 1:2		QTY: 1 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		THIRD ANGLE PROJECTION		Material: VARIOUS		<i>Stretch Armstrong</i>	
DEFAULT TOLERANCES:		TTTF LEFT UPRIGHT ASSEMBLY					
LINEAR:	ANGULAR:	DESCRIPTION:		DATE:		UNIVERSITY OF IDAHO ME DEPARTMENT	
X. ± .1	X. ± 2	CHECKED BY:		DATE:		Part #: 1B-00	
X.X ± .01	X.X ± 1	DRAWN BY: CARLOS DUARTE		DATE: 4/29/2009		QTY: 1	
X.XX ± .001	X.XX ± 0.30'	FILE NAME: TTTF Upright1 Assembly		CAO Application SolidWorks		Scale: 1:2	
X.XXX ± .005						SHEET 3 OF 62	

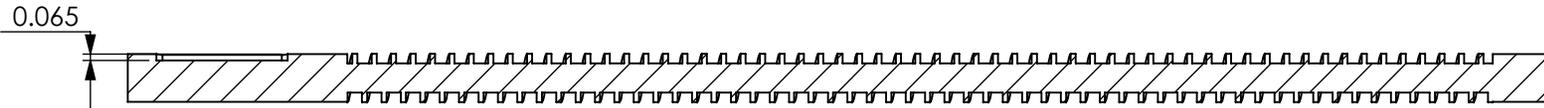
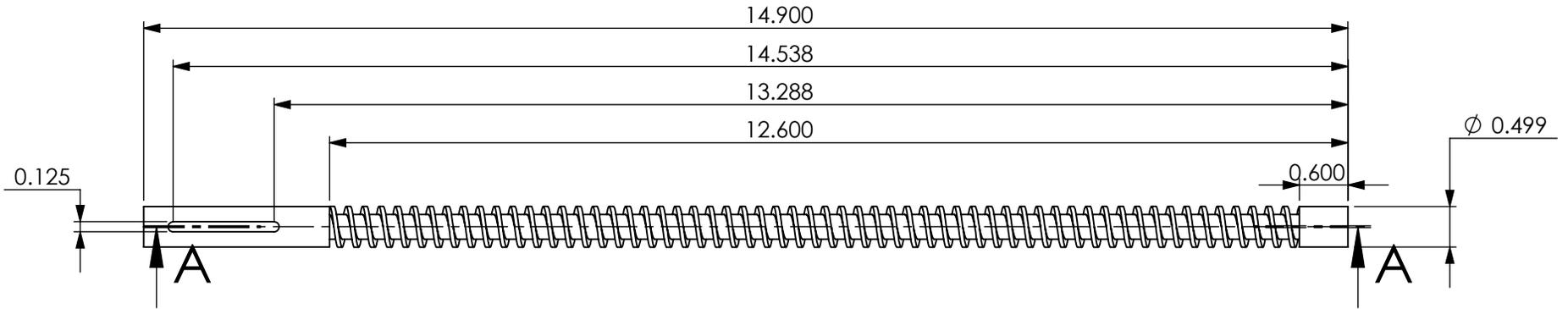


ITEM NO.	PART #	DESCRIPTION	QTY.
1	N/A	THRUST BEARING	4
2	N/A	WORM GEAR	2
3	1-21	BALL SCREWS	2

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		VARIOUS Material:	<i>Stretch Armstrong</i>	
THIRD ANGLE PROJECTION				
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: CARLOS DUARTE		DATE: 5/4/2009	Part #: 1C-00	QTY: 1
DRAWN BY:		DATE:	Scale: 1:3	SHEET 4 OF 62
FILE NAME: Shaft Assembly		CAD Application SolidWorks		

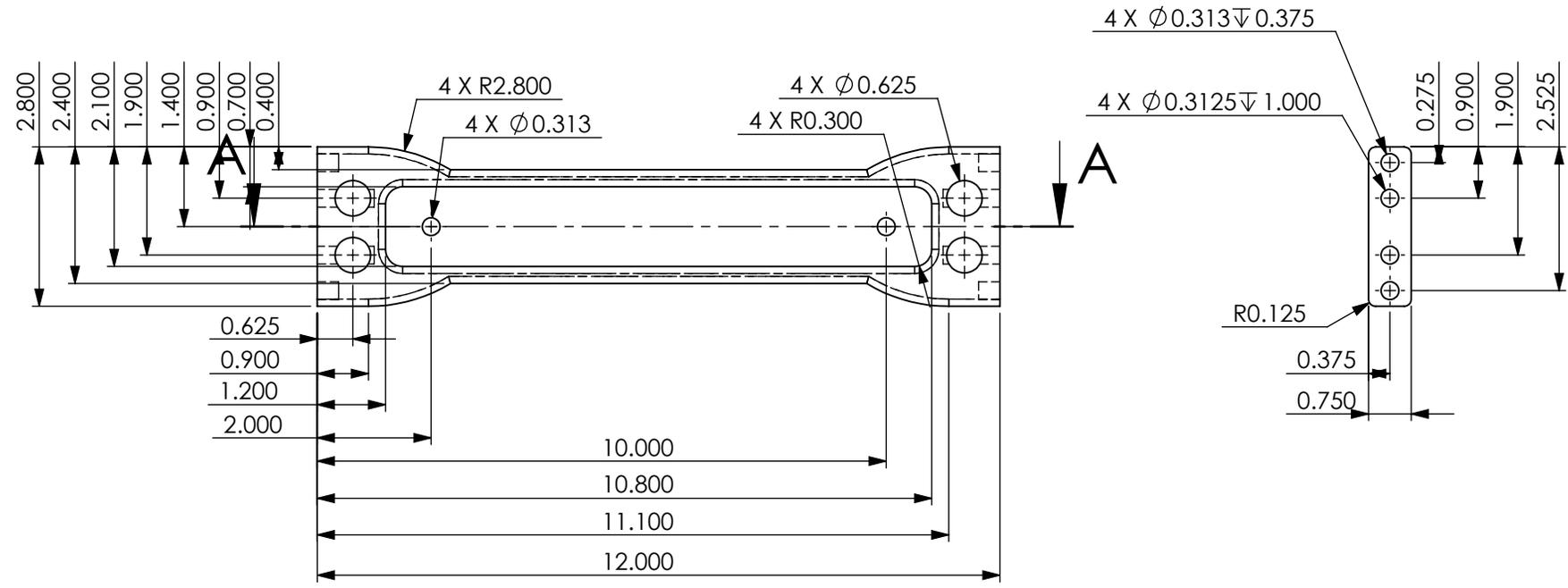
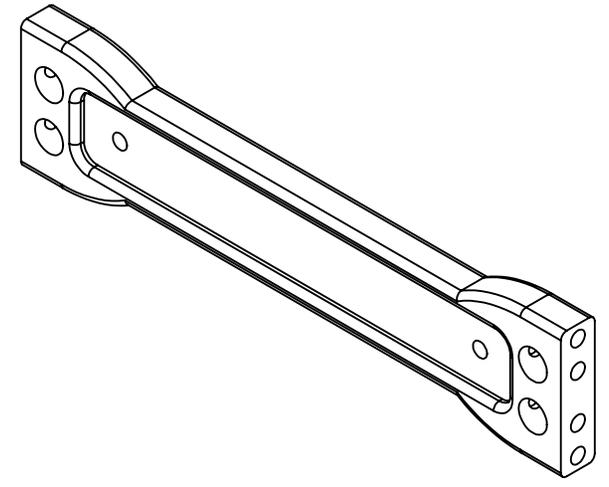
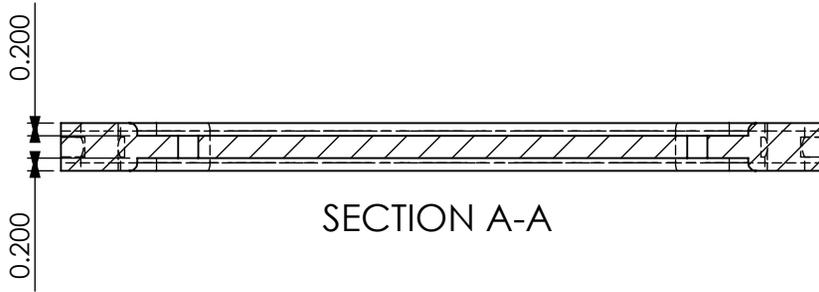


SECTION A-A

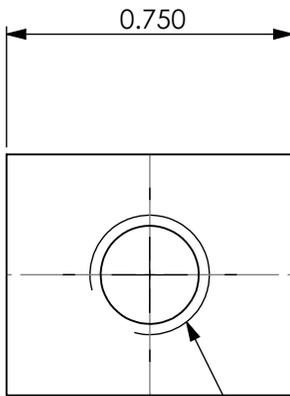
NOTE: TURN ENDS OF BALL SCREW TO ϕ 0.50 AND MILL 1/8 KEYWAY (McMASTER-CARR #5966K26)

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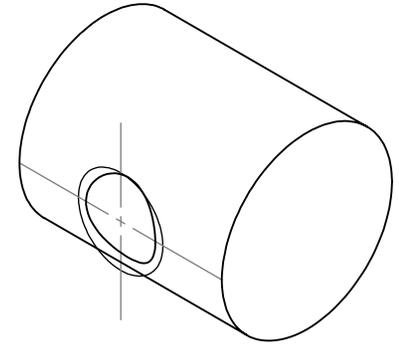
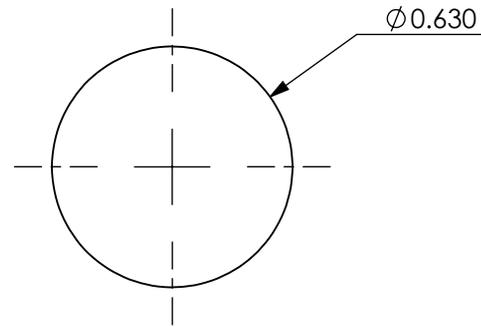
DIMENSIONS ARE IN INCHES		STEEL ALLOY		<i>Stretch Armstrong</i>
THIRD ANGLE PROJECTION		Material:		
DEFAULT TOLERANCES:		BALL SCREWS		
LINEAR:	ANGULAR:	DESCRIPTION:	DATE:	UNIVERSITY OF IDAHO ME DEPARTMENT
X. ± .1	X. ± 2	CHECKED BY:	4/29/2009	
X.X ± .01	X.X ± 1	DRAWN BY:	DATE:	Part #: 1-21
X.XX ± .001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



DIMENSIONS ARE IN INCHES		6061 ALUMINUM		<i>Stretch Armstrong</i>	
THIRD ANGLE PROJECTION		Material:			
DEFAULT TOLERANCES:		UPRIGHT 1		UNIVERSITY OF IDAHO ME DEPARTMENT	
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	X. ± .1	X. ± 2	CHECKED BY:	4/16/2009	
	X.X ± .01	X.X ± 1	DRAWN BY:	DATE:	
X.XX ± .001	X.XX ± 0.30'	FILE NAME:	1-51	CAO Application SolidWorks	QTY: 1
				Scale: 1:2	SHEET 6 OF 62

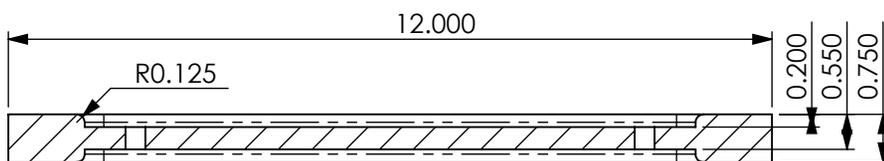
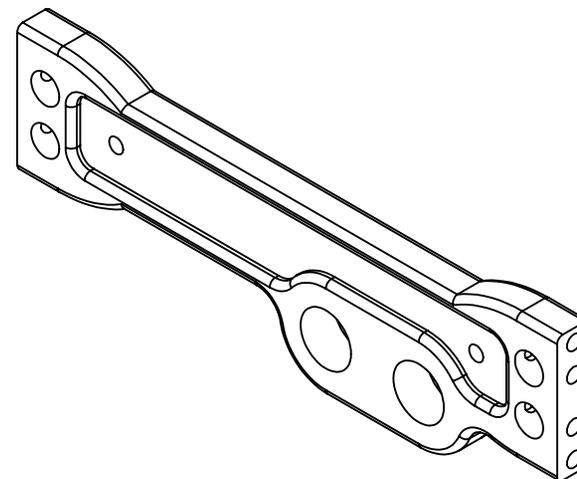
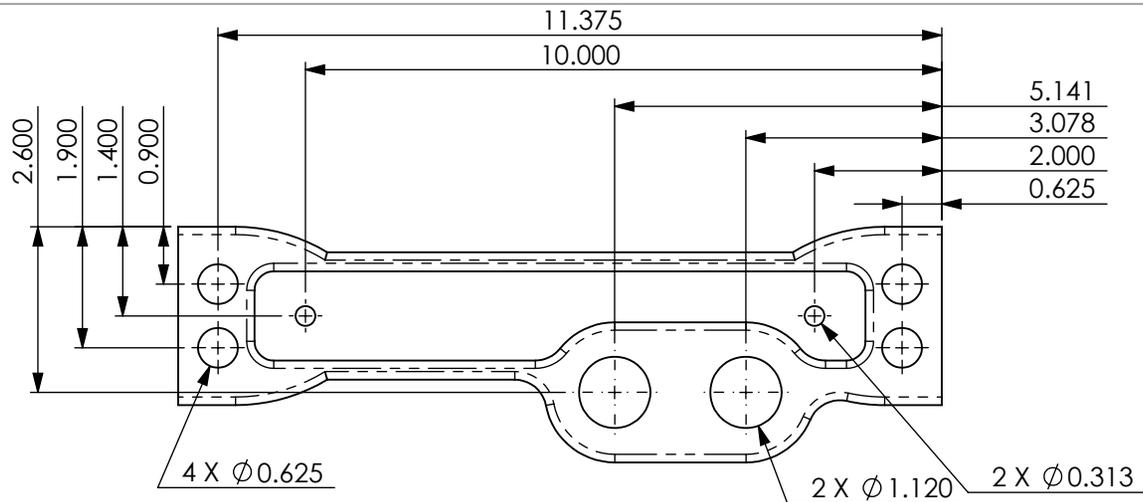


TAP 5/16-18 THRU

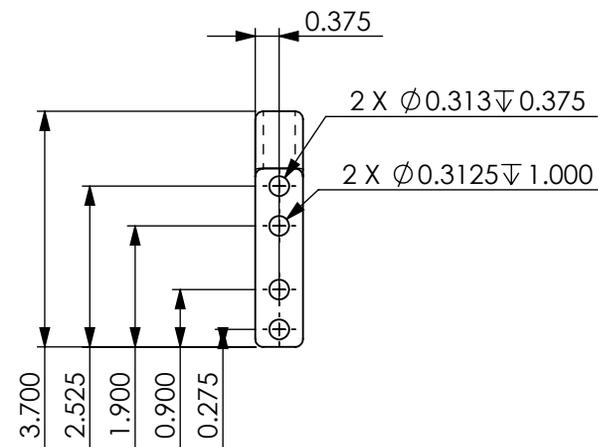
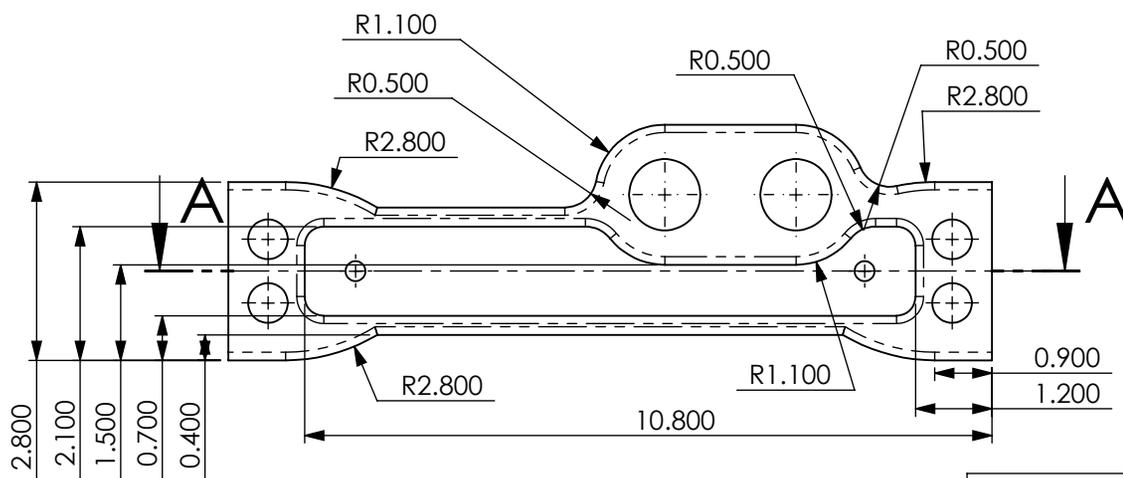


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DIMENSIONS ARE IN INCHES		6061 ALUMINUM		<i>Stretch Armstrong</i>	
THIRD ANGLE PROJECTION		Material:			
DEFAULT TOLERANCES:		UPRIGHT BARRELNUT			
LINEAR:	ANGULAR:	DESCRIPTION:		UNIVERSITY OF IDAHO ME DEPARTMENT	
X. ± .1	X. ± 2	DRAWN BY: CARLOS DUARTE		Part #: 1-52	
X.X ± .01	X.X ± 1	CHECKED BY:		QTY: 8	
X.XX ± .001	X.XX ± 0.30'	DATE: 4/29/2009		Scale: 2:1	
X.XXX ± .005		DATE:		SHEET 7 OF 62	
		FILE NAME: 1-52		CAO Application SolidWorks	



SECTION A-A



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DIMENSIONS ARE IN INCHES
 THIRD ANGLE PROJECTION

6061 ALUMINUM
 Material:

Stretch Armstrong

DEFAULT TOLERANCES:

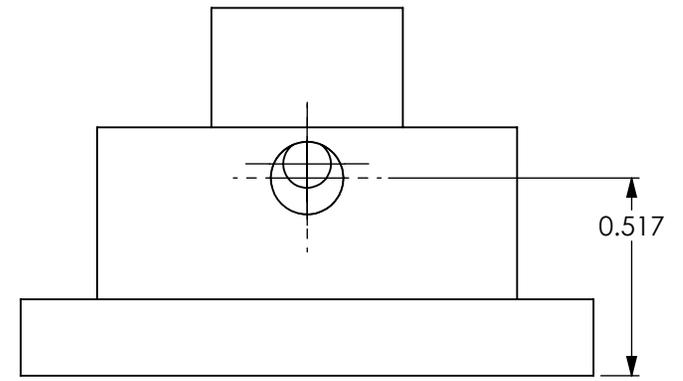
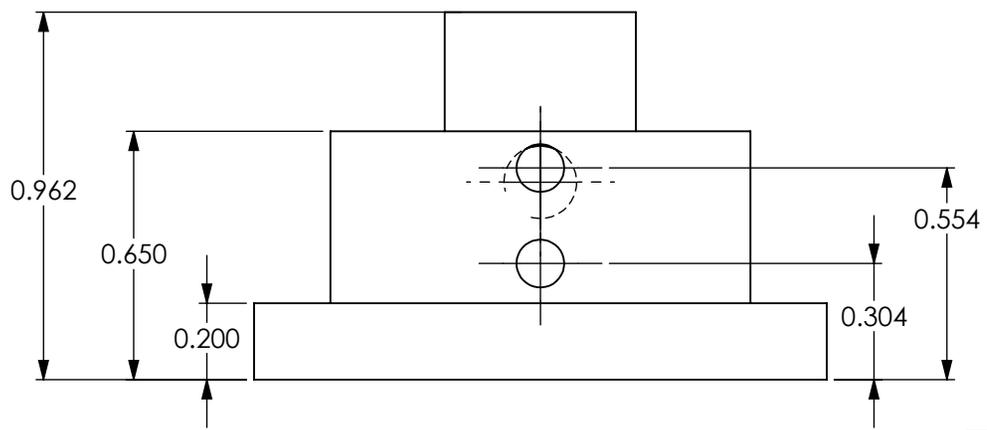
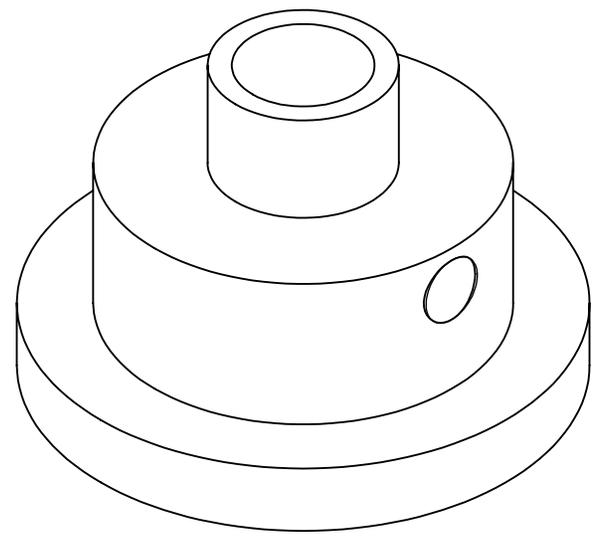
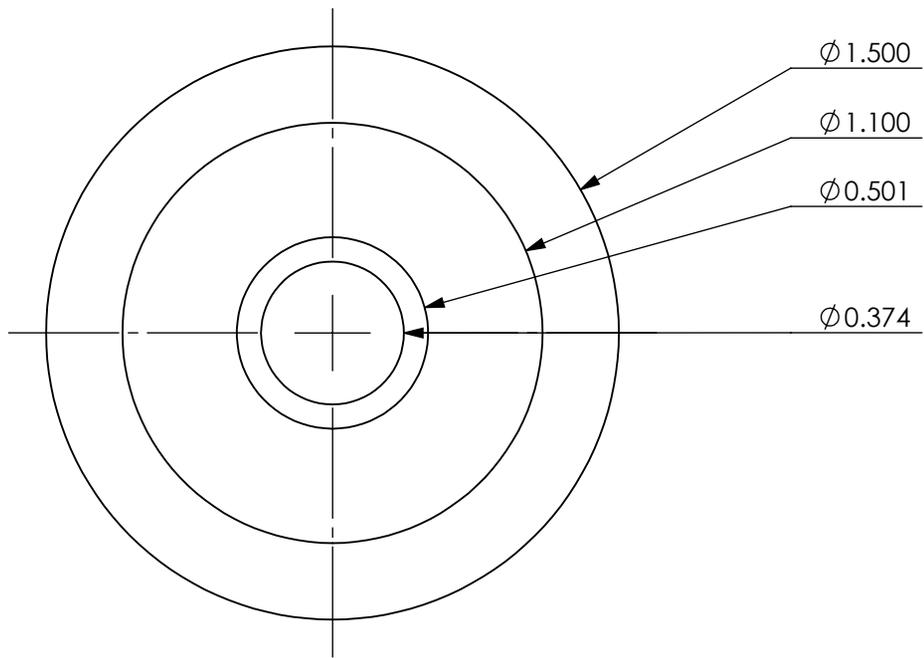
UPRIGHT2

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:
 FILE NAME: 1-61
 DATE: 4/16/2009
 CAD Application: SolidWorks

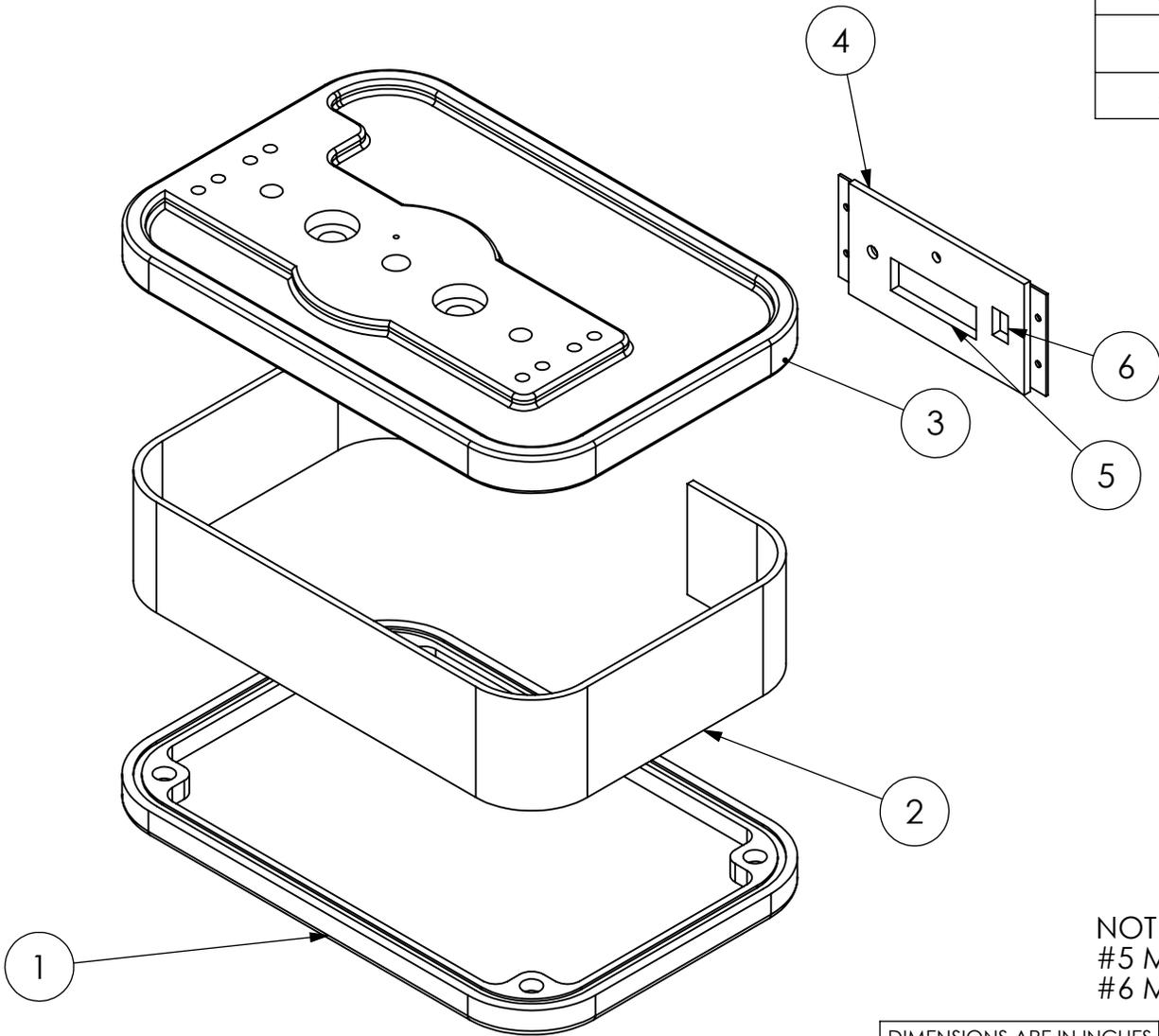
UNIVERSITY OF IDAHO
 ME DEPARTMENT
 Part #: 1-61
 QTY: 1
 Scale: 1:2
 SHEET 8 OF 62



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

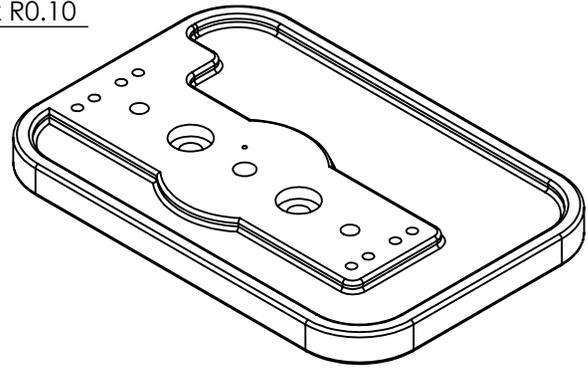
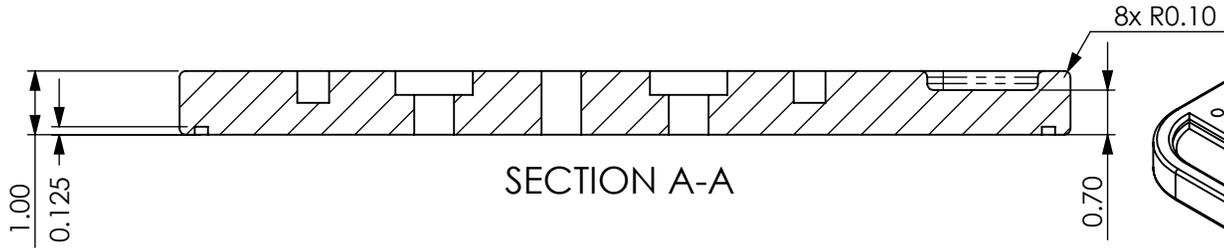
ITEM NO.	PART #	DESCRIPTION	QTY.
1	2-03	COVER	1
2	2-04	BASEWALL	1
3	2-01	BASE	1
4	2-02	BASEWALL PANEL	1
5	N/A	DIGITAL PANEL VOLTMETER	1
6	N/A	TOGGLE SWITCH	1



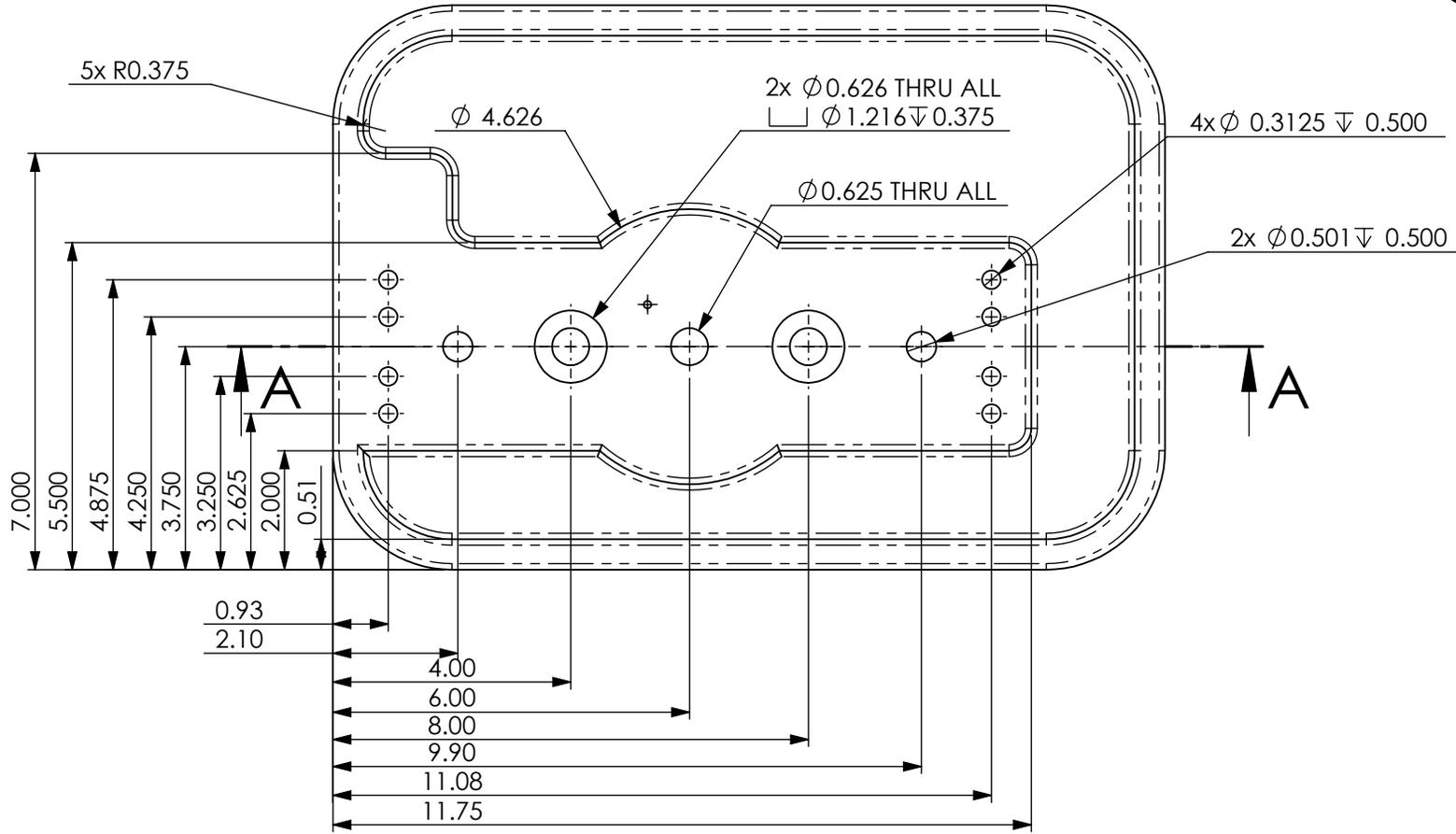
NOTE:
 #5 McMASTER ITEM #8339T5
 #6 McMASTER ITEM #7343K184

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

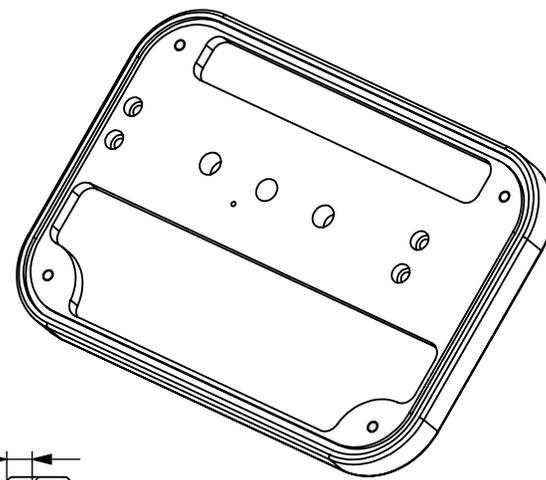
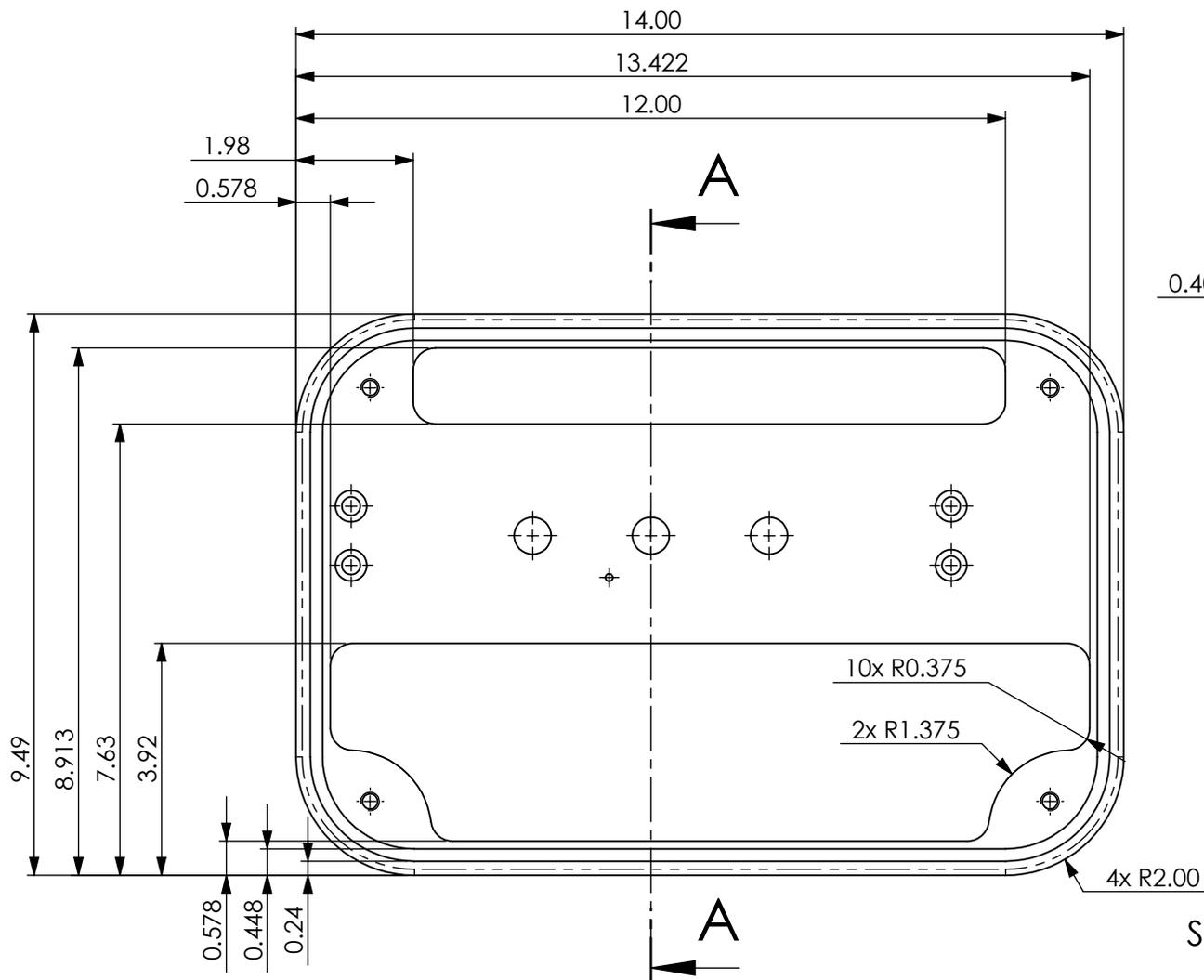


SCALE 1:5

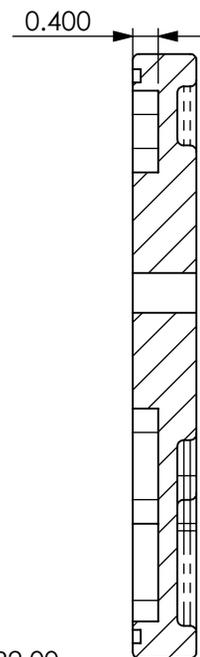


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DIMENSIONS ARE IN INCHES		6061 ALUMINUM		<i>Stretch Armstrong</i>	
THIRD ANGLE PROJECTION		Material:			
DEFAULT TOLERANCES:		BASE		UNIVERSITY OF IDAHO ME DEPARTMENT	
LINEAR:	ANGULAR:	DESCRIPTION:	DATE:	Part #: 2-01 (1 OF 3)	
X. ± .1	X. ± 2	CHECKED BY:	4/27/2009	QTY: 1	
X.X ± .01	X.X ± 1	DRAWN BY: CARLOS DUARTE	DATE:	Scale: 1:3	
X.XX ± .001	X.XX ± 0.30'	FILE NAME: 2-01	CAO Application SolidWorks	SHEET 11 OF 62	



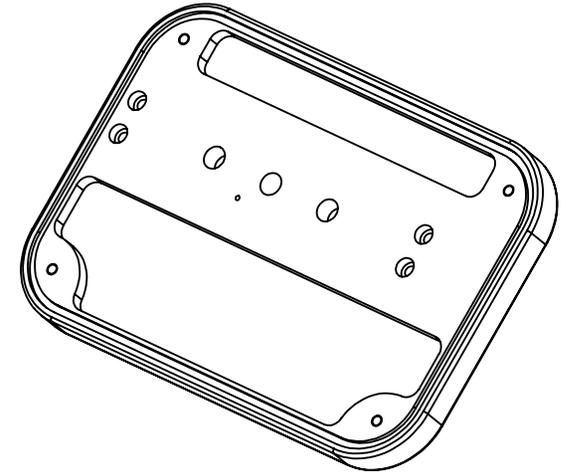
SCALE 1:5



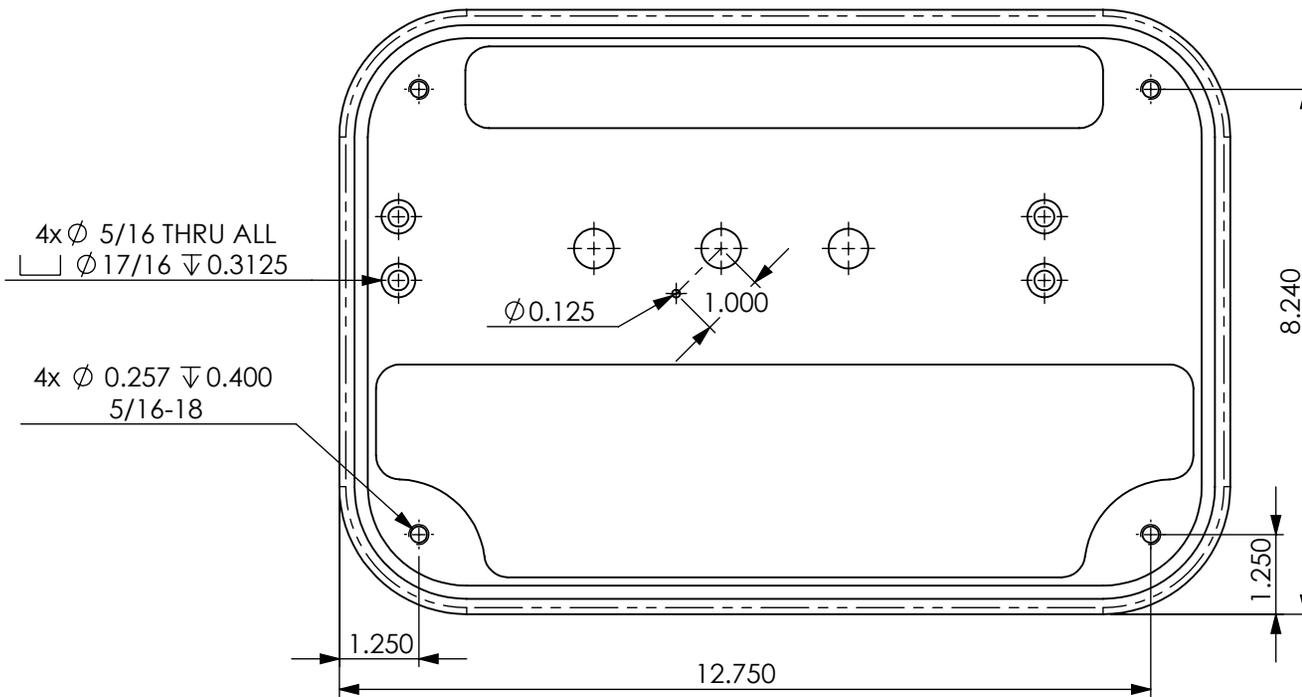
SECTION A-A

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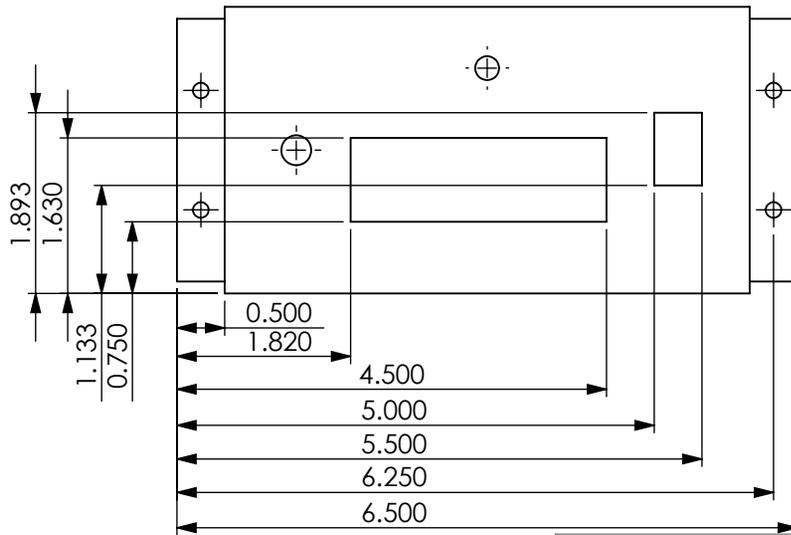
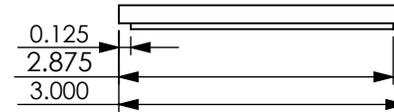
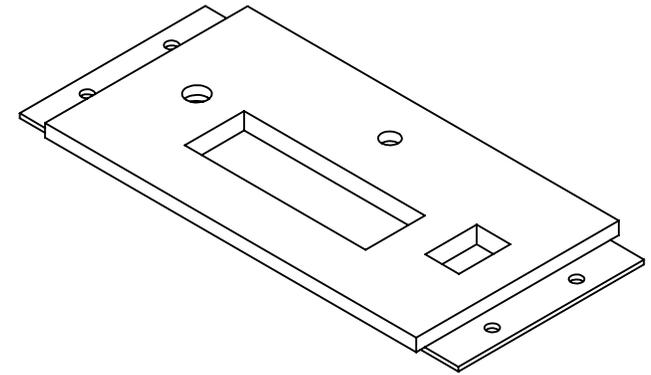
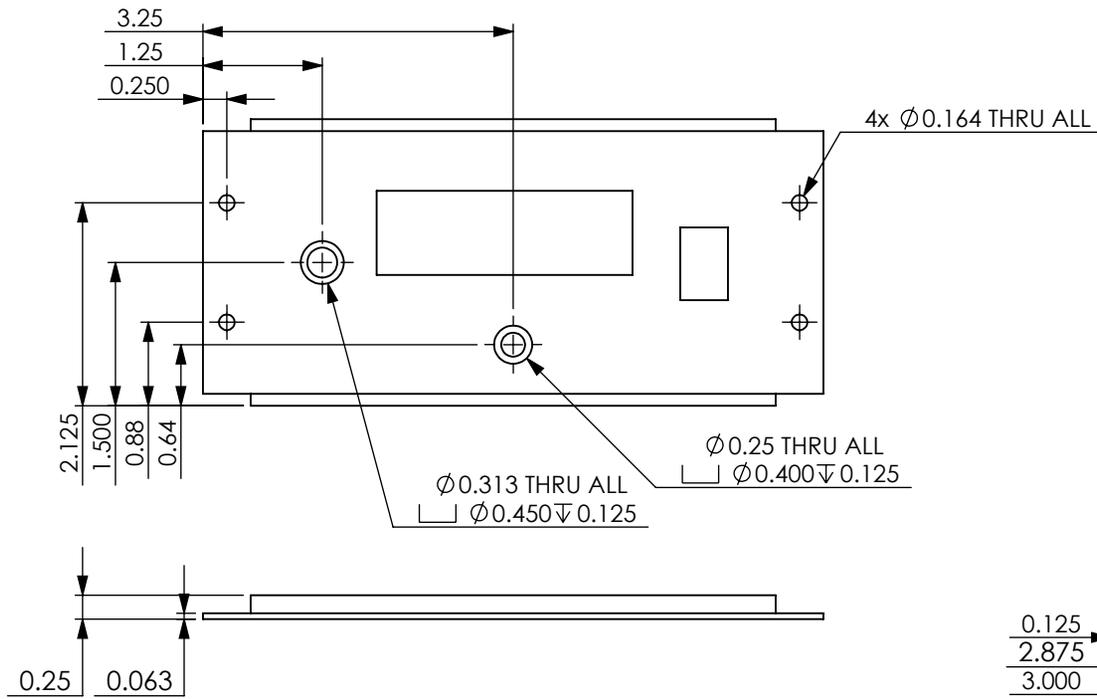
DIMENSIONS ARE IN INCHES		6061 ALUMINUM		<i>Stretch Armstrong</i>
THIRD ANGLE PROJECTION		Material:		
DEFAULT TOLERANCES:		BASE		
LINEAR:	ANGULAR:	DESCRIPTION:	DATE:	UNIVERSITY OF IDAHO ME DEPARTMENT
X. ± .1	X. ± 2	CHECKED BY:	4/27/2009	
X.X ± .01	X.X ± 1	DRAWN BY:	DATE:	Part #: 2-01 (2 OF 3)
X.XX ±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



SCALE 1:5

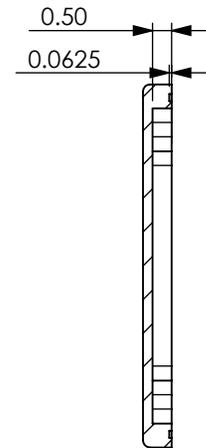
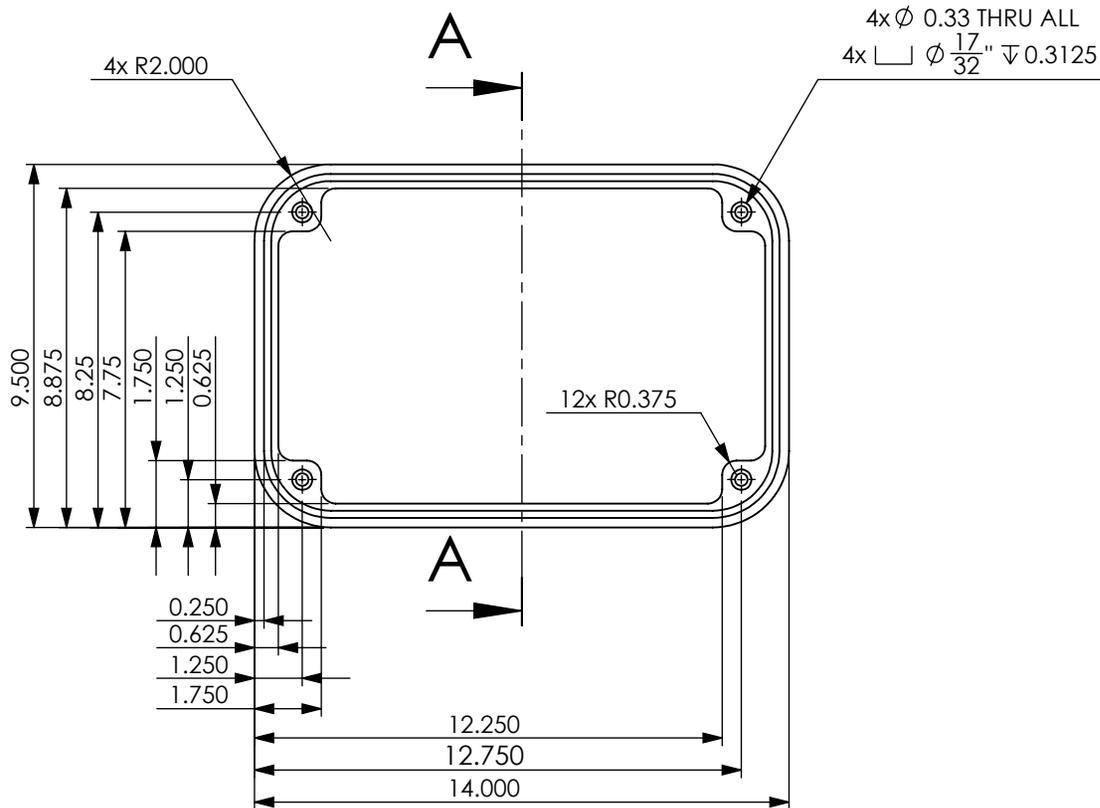
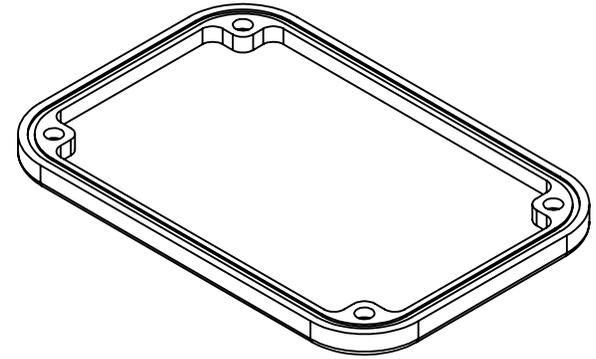
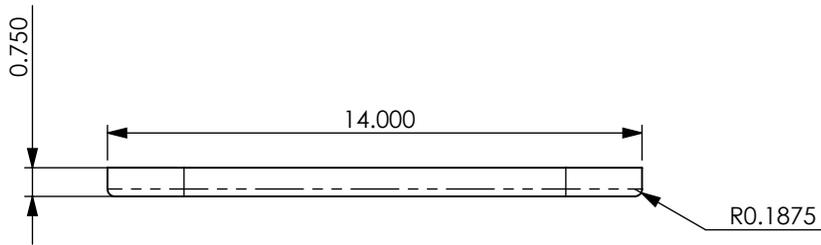


DIMENSIONS ARE IN INCHES		6061 ALUMINUM		<i>Stretch Armstrong</i>	
THIRD ANGLE PROJECTION		Material:			
DEFAULT TOLERANCES:		BASE			
LINEAR:	ANGULAR:	DESCRIPTION:		DATE:	
X. \pm .1	X. \pm 2	DRAWN BY: CARLOS DUARTE		4/27/2009	
X.X \pm .01	X.X \pm 1			DATE:	
X.XX \pm .001	X.XX \pm 0 30'			DATE:	
X.XXX \pm .005				DATE:	
		FILE NAME: 2-01	CAO Application SolidWorks		
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		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			
LINEAR:	ANGULAR:	DESCRIPTION:		UNIVERSITY OF IDAHO ME DEPARTMENT	
X. ± .1	X. ± 2	CHECKED BY:	DATE:	Part #: 2-02	
X.X ± .01	X.X ± 1	CHECKED BY: CARLOS DUARTE	DATE: 5/4/2009	QTY: 1	
X.XX ± .001	X.XX ± 0.30'	DRAWN BY:	DATE:	Scale: 1:2	
X.XXX ± .005		FILE NAME: 2-02	CAD Application SolidWorks	SHEET 14 OF 62	

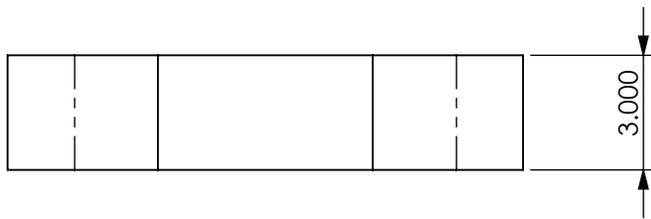
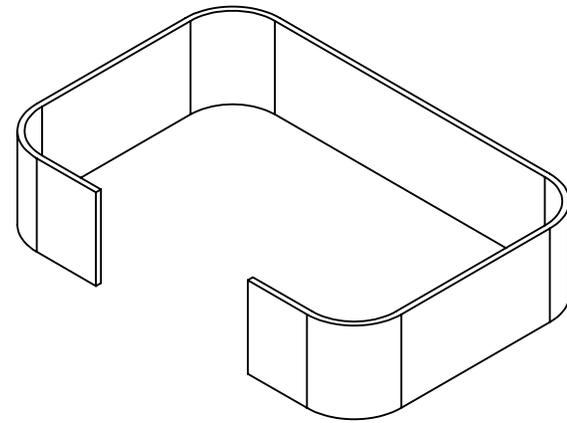
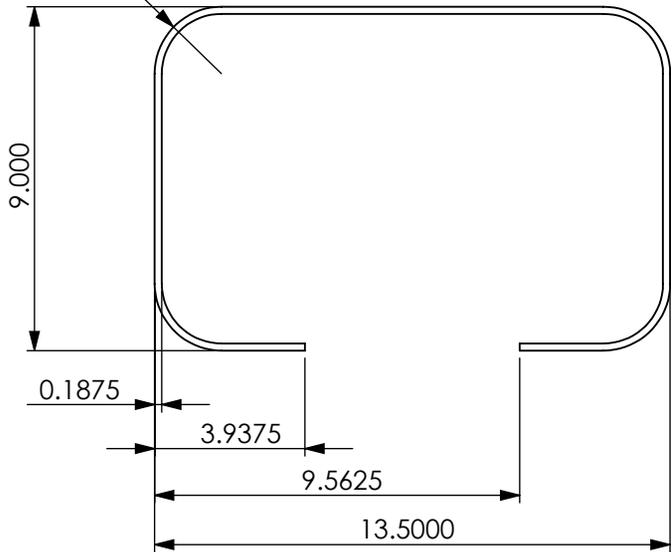


SECTION A-A

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

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4x R1.750



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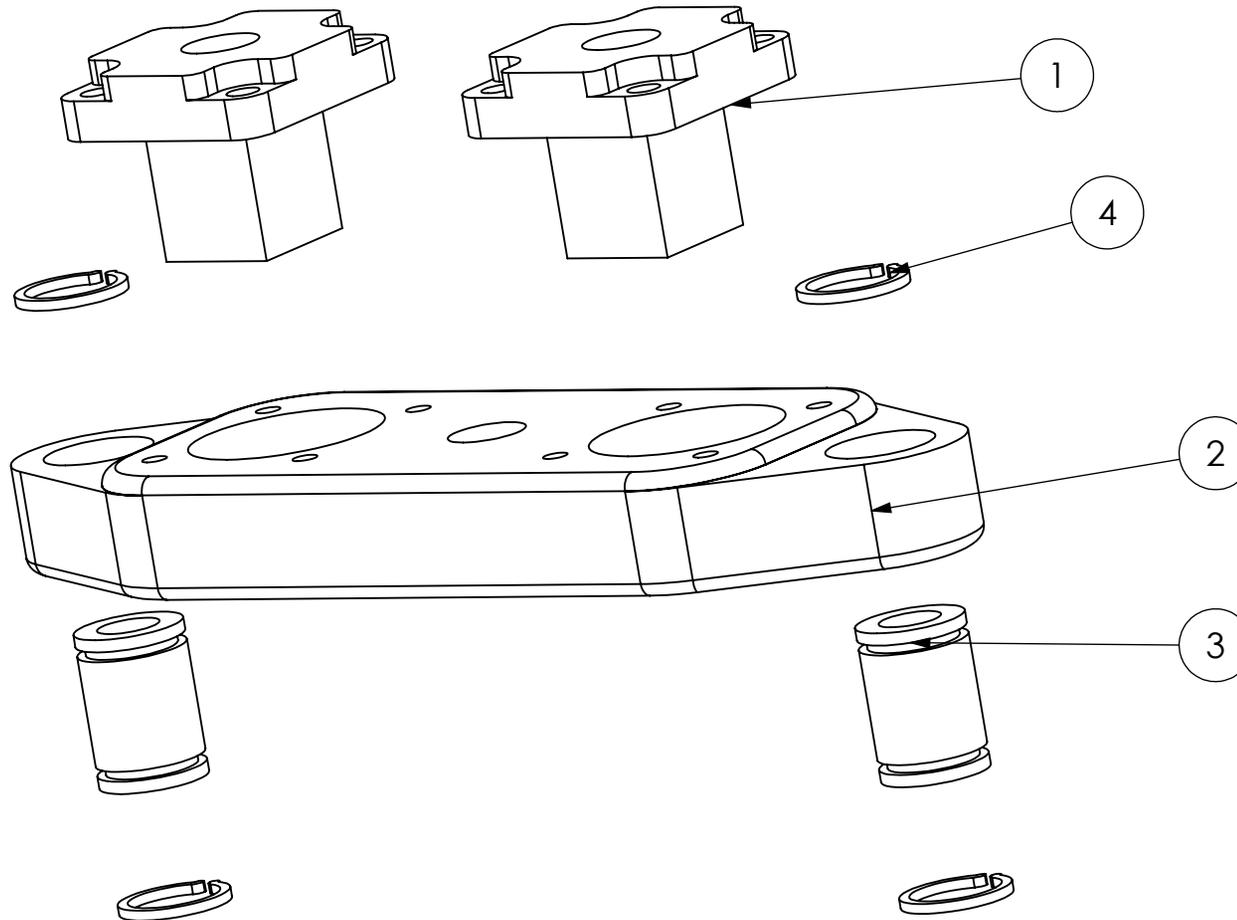
DIMENSIONS ARE IN INCHES		6061 ALUMINUM		<i>Stretch Armstrong</i>	
THIRD ANGLE PROJECTION		Material:			
DEFAULT TOLERANCES:		BASEWALL			
LINEAR:	ANGULAR:	DESCRIPTION:		DATE:	
X. ± .1	X. ± 2	DRAWN BY: CARLOS DUARTE		4/29/2009	
X.X ± .01	X.X ± 1	CHECKED BY:		DATE:	
X.XX ± .001	X.XX ± 0.30'	FILE NAME: 2-04		CAO Application SolidWorks	
X.XXX ± .005				Part #: 2-04	
				QTY: 1	
				Scale: 1:5	
				SHEET 16 OF 62	

UNIVERSITY OF IDAHO
 ME DEPARTMENT

Part #: 2-04 QTY: 1
 Scale: 1:5 SHEET 16 OF 62

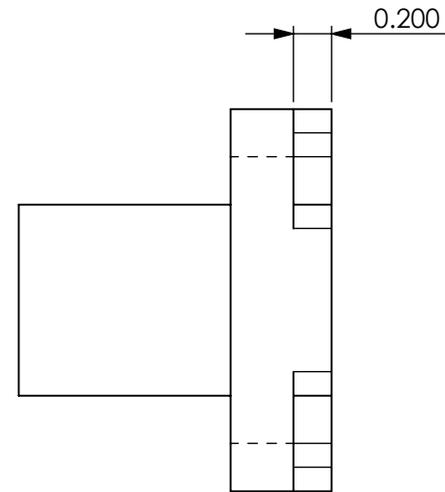
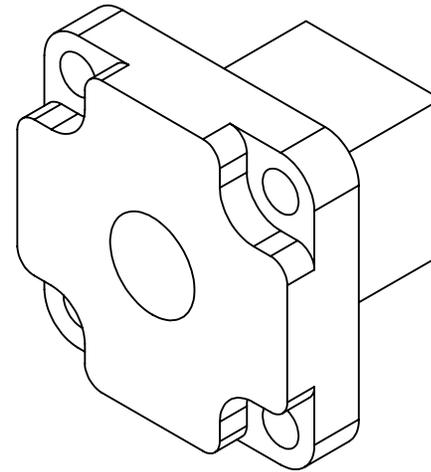
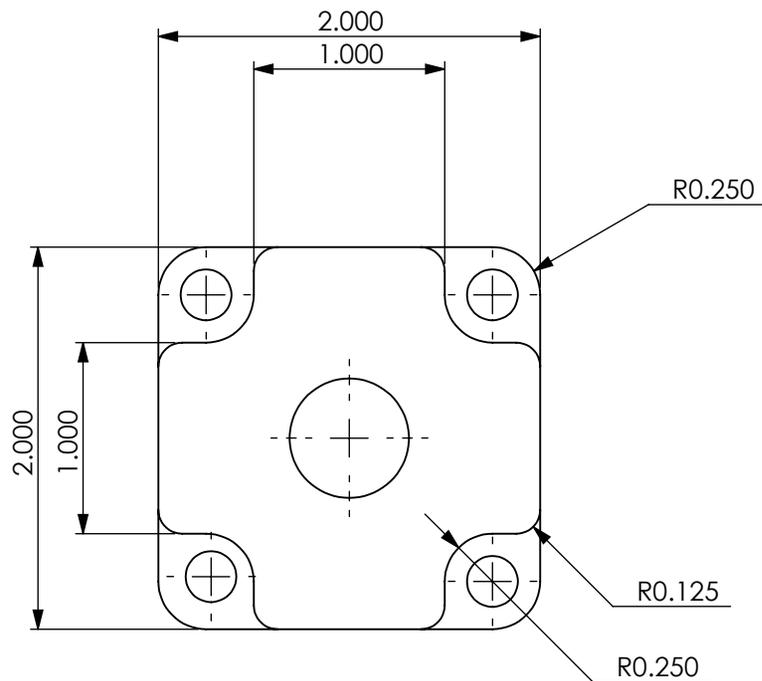
NOTE:
 #3 CLOSED FRELON LINED BEARING
 .5" ID X .875" OD X 1.25"
 6061 - T6 ANODIZED ALUMINUM
 (MCMaster CARR #5986K83)
 #4 SNAP RETAINING RING TO FIT #3

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



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



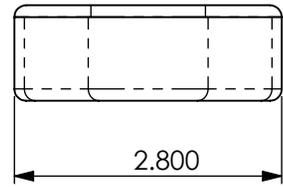
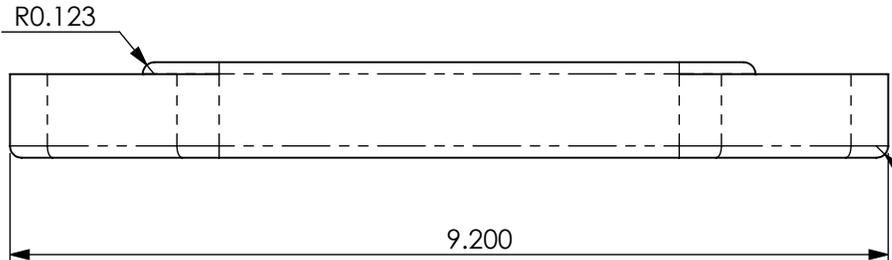
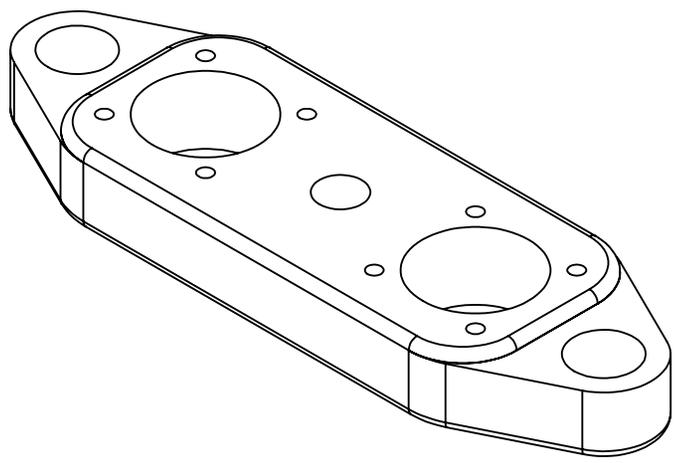
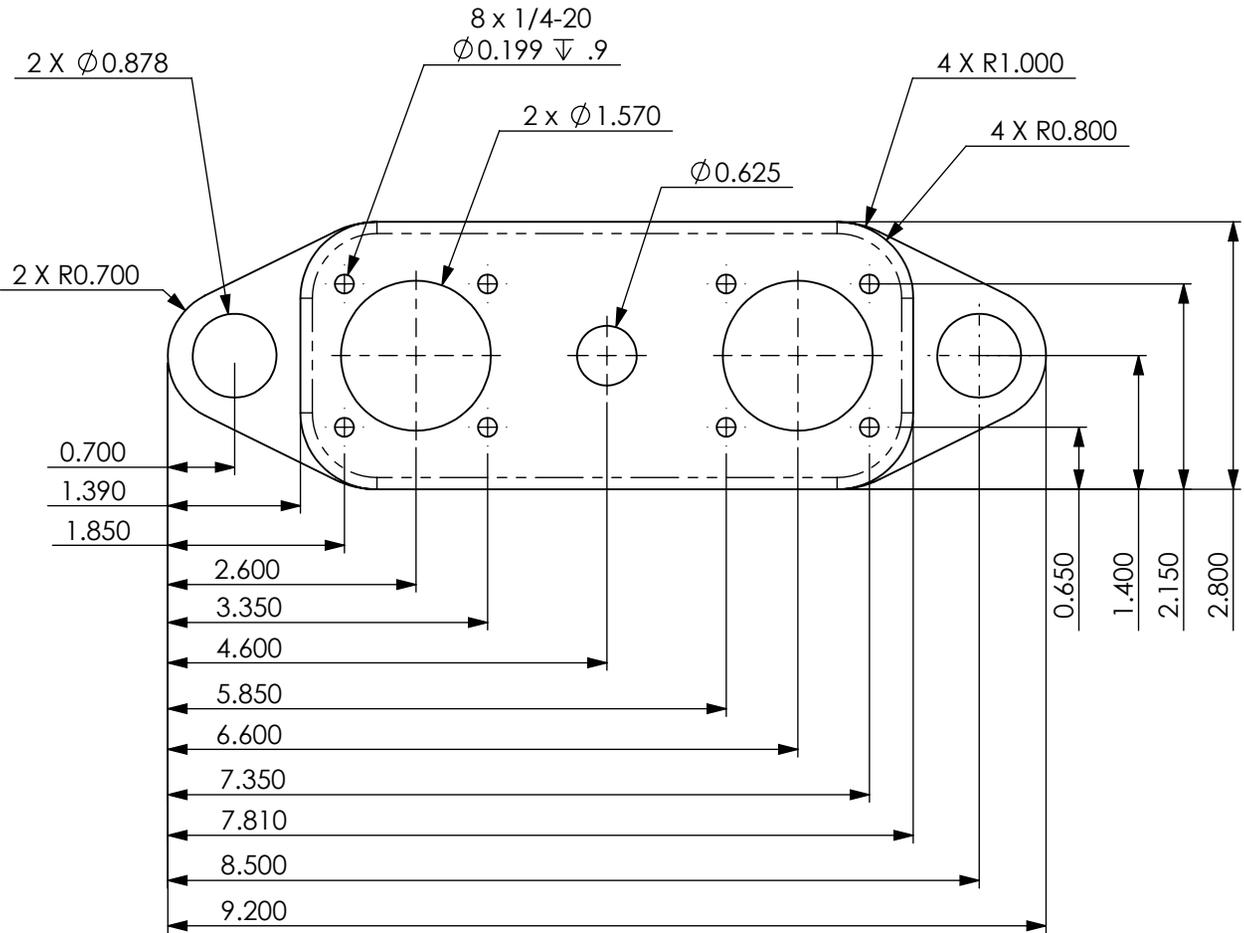
NOTE: MODIFICATIONS TO PURCHASED FLANGE (MCMASTER #5966K46)

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

UNIVERSITY OF IDAHO
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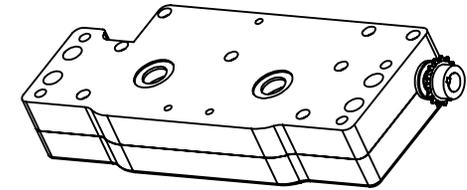
Part #: 3-01 QTY:2
 Scale: 1:1 SHEET 18 OF 62



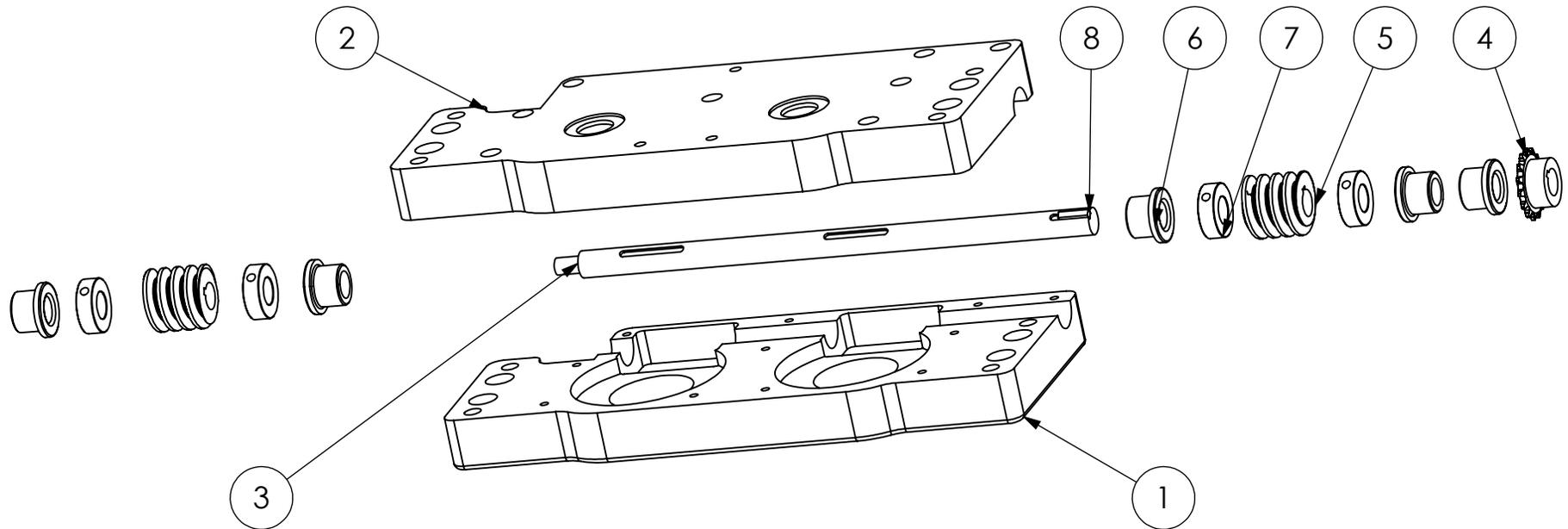
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DIMENSIONS ARE IN INCHES		6061 ALUMINUM		Stretch Armstrong
THIRD ANGLE PROJECTION		Material:		
DEFAULT TOLERANCES:		CROSS		
LINEAR:	ANGULAR:	DESCRIPTION:		
X. ± .1	X. ± 2	CHECKED BY:	DATE:	UNIVERSITY OF IDAHO ME DEPARTMENT
X.X ± .01	X.X ± 1	SPENCER OLDEMEYER	5/1/2009	
X.XX ± .001	X.XX ± 0.30'	DRAWN BY:	DATE:	Part #: 3-02
X.XXX ± .005		FILE NAME: 3-02	CAD Application SolidWorks	QTY: 1
				Scale: 1:2
				SHEET 19 OF 62

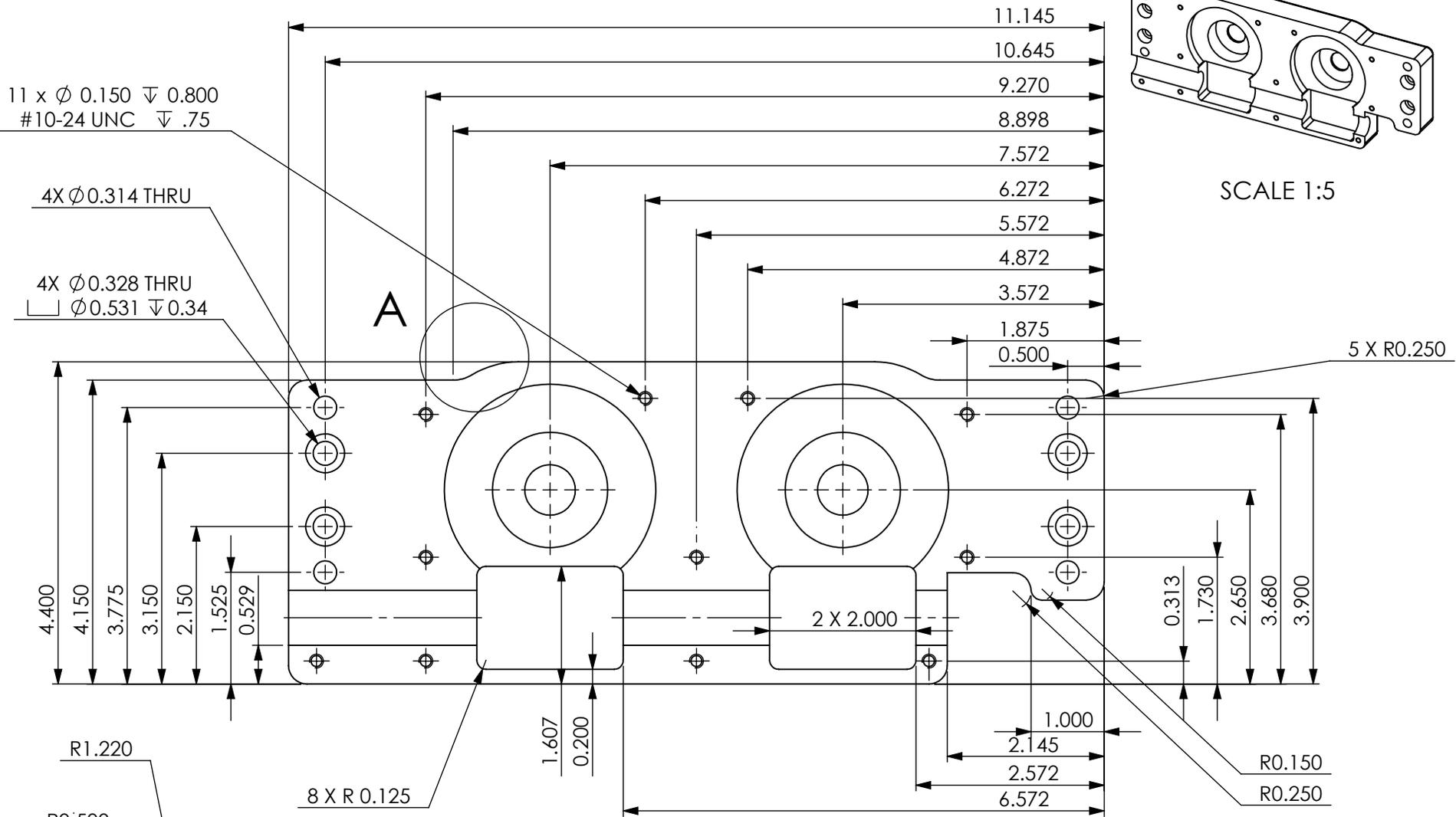
ITEM NO.	PART #	DESCRIPTION	QTY.
1	4-01	BOTTOM HOUSING	1
2	4-02	TOP HOUSING	1
3	4-03	WORM GEAR SHAFT	1
4	N/A	TOOTH SPROCKET	1
5	N/A	WORM	2
6	N/A	BRONZE BUSHING	5
7	4-07	MODIFIED SHAFT COLLAR	4
8	N/A	PIN	1



SCALE: 1:5



DIMENSIONS ARE IN INCHES		THIRD ANGLE PROJECTION		VARIOUS Material:		Stretch Armstrong	
DEFAULT TOLERANCES:		DESCRIPTION: WORM SHAFT 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'		CHECKED BY: JUSTIN RUEGSEGGER		DATE: 5/4/2009	
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		CAD Application SolidWorks		DATE:		QTY: 1	
				Scale: 1:3		SHEET 20 OF 62	

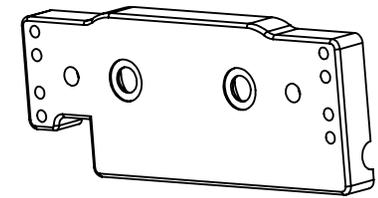
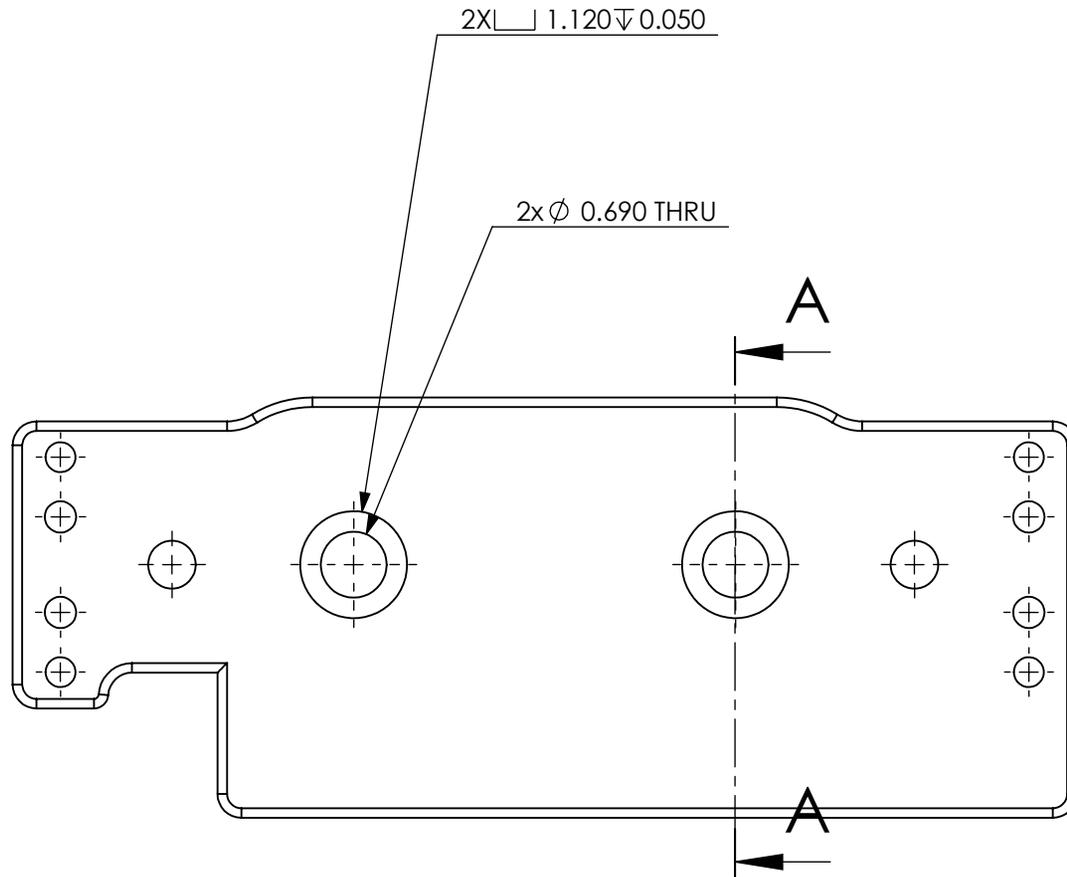


TOP VIEW

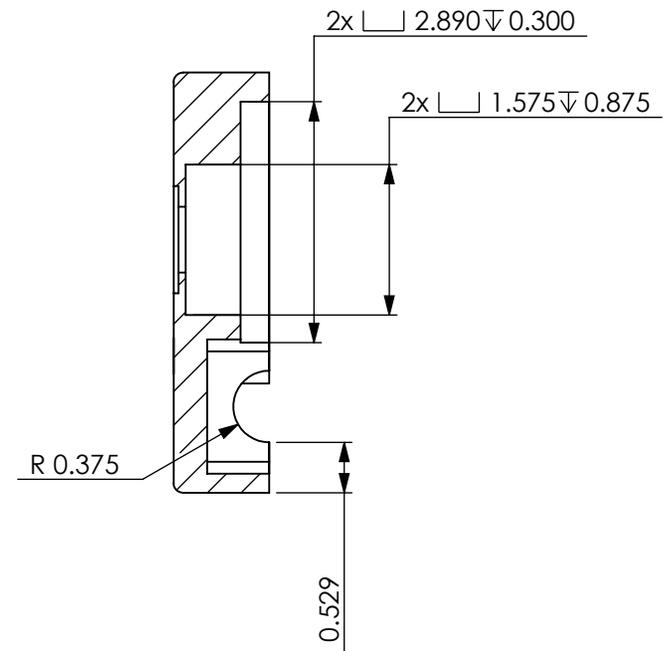
DETAIL A
SCALE 1 : 1

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DIMENSIONS ARE IN INCHES		6061 ALUMINUM		Stretch Armstrong
THIRD ANGLE PROJECTION		Material:		
DEFAULT TOLERANCES:		BOTTOM HOUSING		
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:	DATE:	UNIVERSITY OF IDAHO ME DEPARTMENT
DRAWN BY:		CHECKED BY:	DATE:	Part #: 4-01 (1 OF 2)
FILE NAME: 4-01 Bottom Housing		JUSTIN RUEGSEGGER	5/5/2009	QTY: 1
			CAD Application SolidWorks	Scale: 1:2
				SHEET 21 OF 62

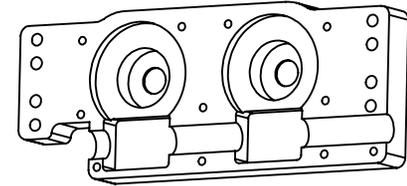


SCALE: 1:5

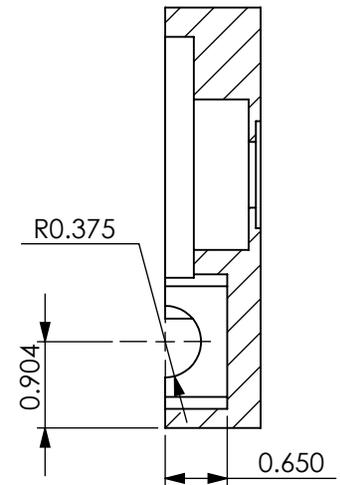


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DIMENSIONS ARE IN INCHES		6061 ALUMINUM		<i>Stretch Armstrong</i>	
THIRD ANGLE PROJECTION		Material:			
DEFAULT TOLERANCES:		BOTTOM HOUSING			
LINEAR:	ANGULAR:	DESCRIPTION:		UNIVERSITY OF IDAHO ME DEPARTMENT	
X. ± .1	X. ± 2	CHECKED BY:	DATE:	Part #: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



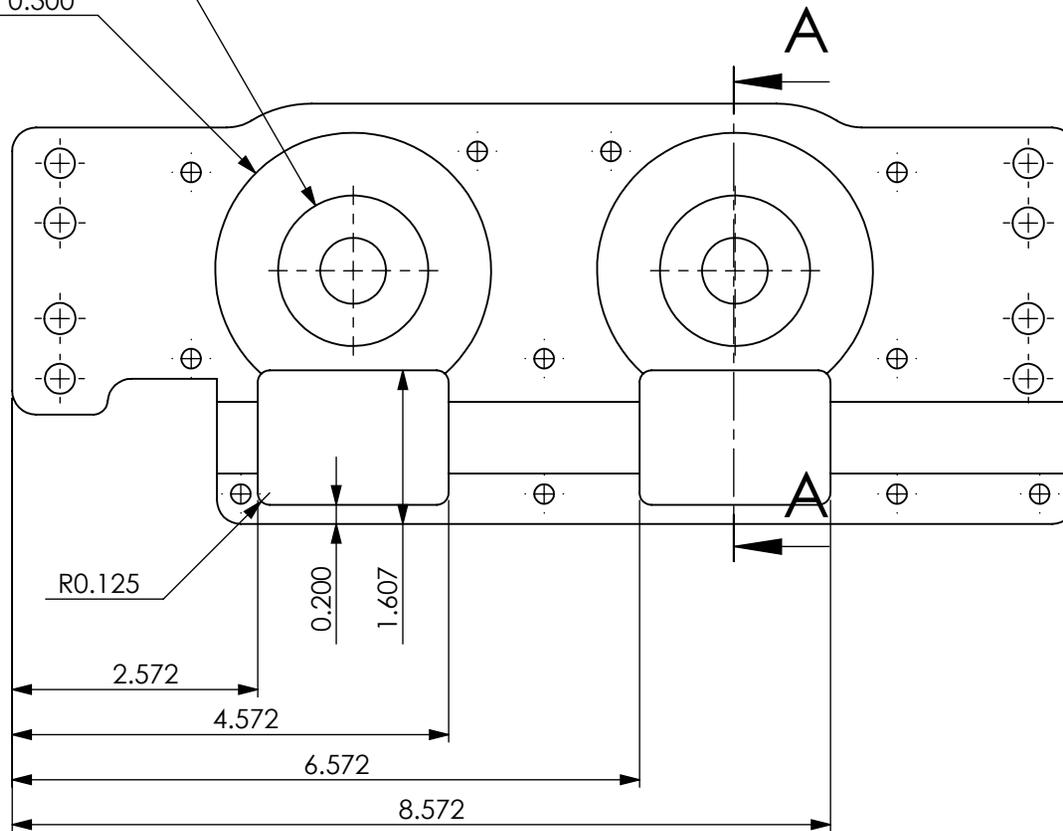
SCALE: 1.5



SECTION A-A

2 x ϕ 1.505 ∇ 0.575

2 x R1.445 ∇ 0.300



DIMENSIONS ARE IN INCHES

THIRD ANGLE PROJECTION

6061 ALUMINUM
Material:

Stretch Armstrong

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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 RUEGSEGGER
DRAWN BY:

DATE: 5/5/2009

FILE NAME: 4-02 Top Housing

CAO Application
SolidWorks

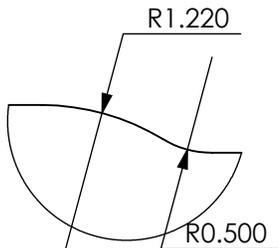
UNIVERSITY OF IDAHO
ME DEPARTMENT

Part #: 4-02 (1 OF 2)

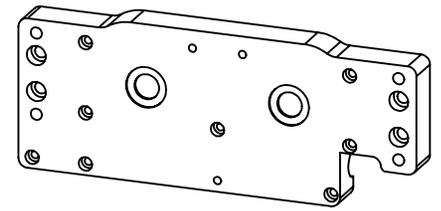
QTY: 1

Scale: 1:2

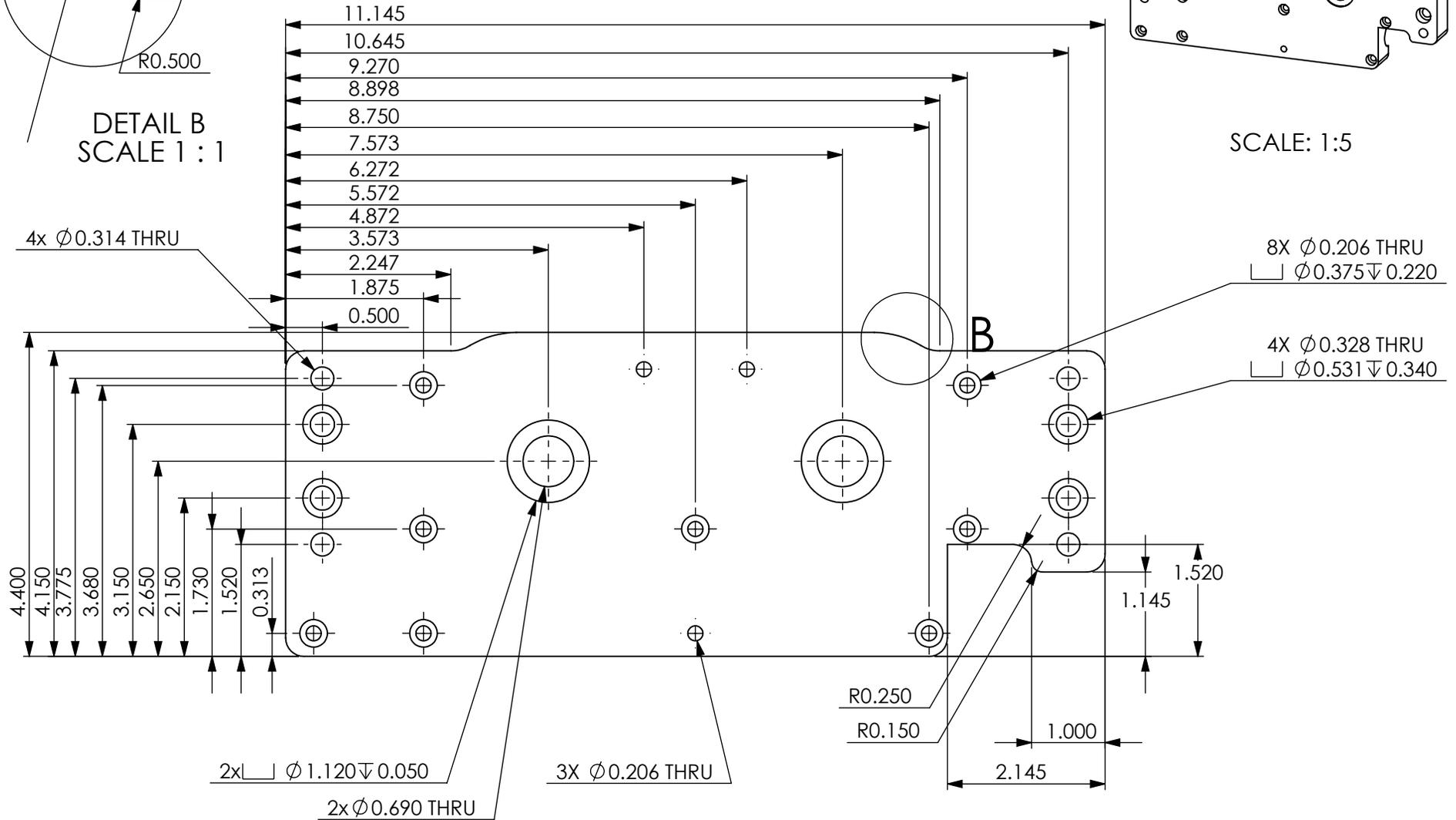
SHEET 23 OF 62



DETAIL B
SCALE 1 : 1

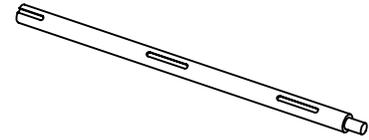


SCALE: 1:5

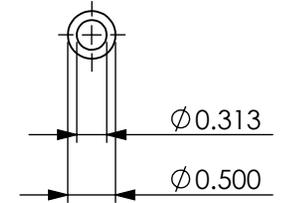
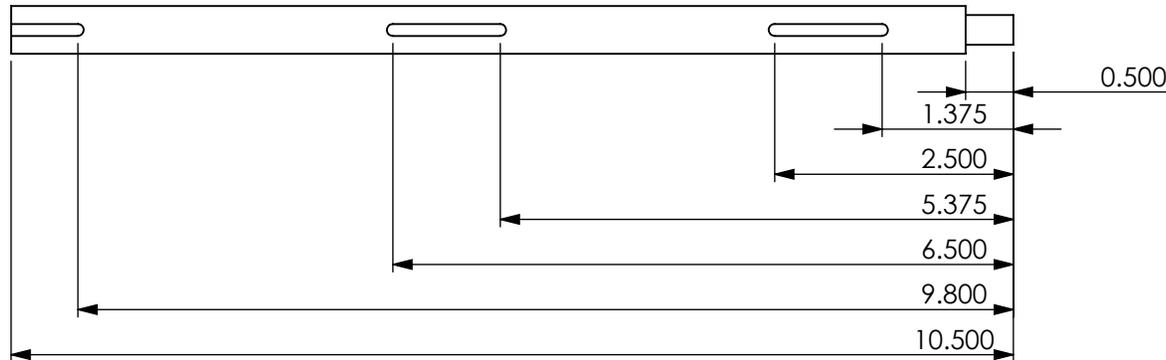
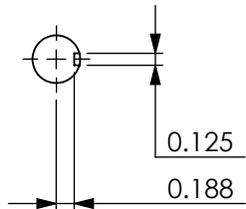


DIMENSIONS ARE IN INCHES		6061 ALUMINUM		Stretch Armstrong
THIRD ANGLE PROJECTION		Material:		
DEFAULT TOLERANCES:		TOP HOUSING		
LINEAR:	ANGULAR:	DESCRIPTION:		UNIVERSITY OF IDAHO ME DEPARTMENT
X. ± .1	X. ± 2	CHECKED BY:	DATE:	
X.X ± .01	X.X ± 1	JUSTIN RUEGSEGGER	5/5/2009	Part #: 4-02 (1 OF 2) QTY:1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

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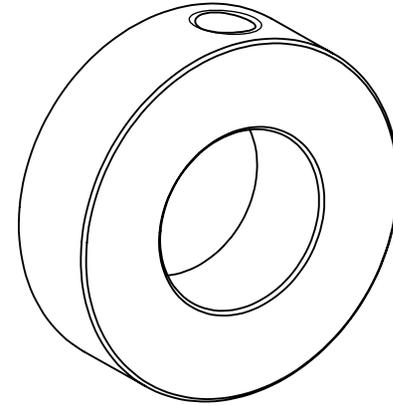
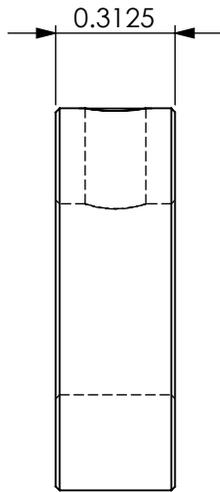


SCALE: 1:5



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

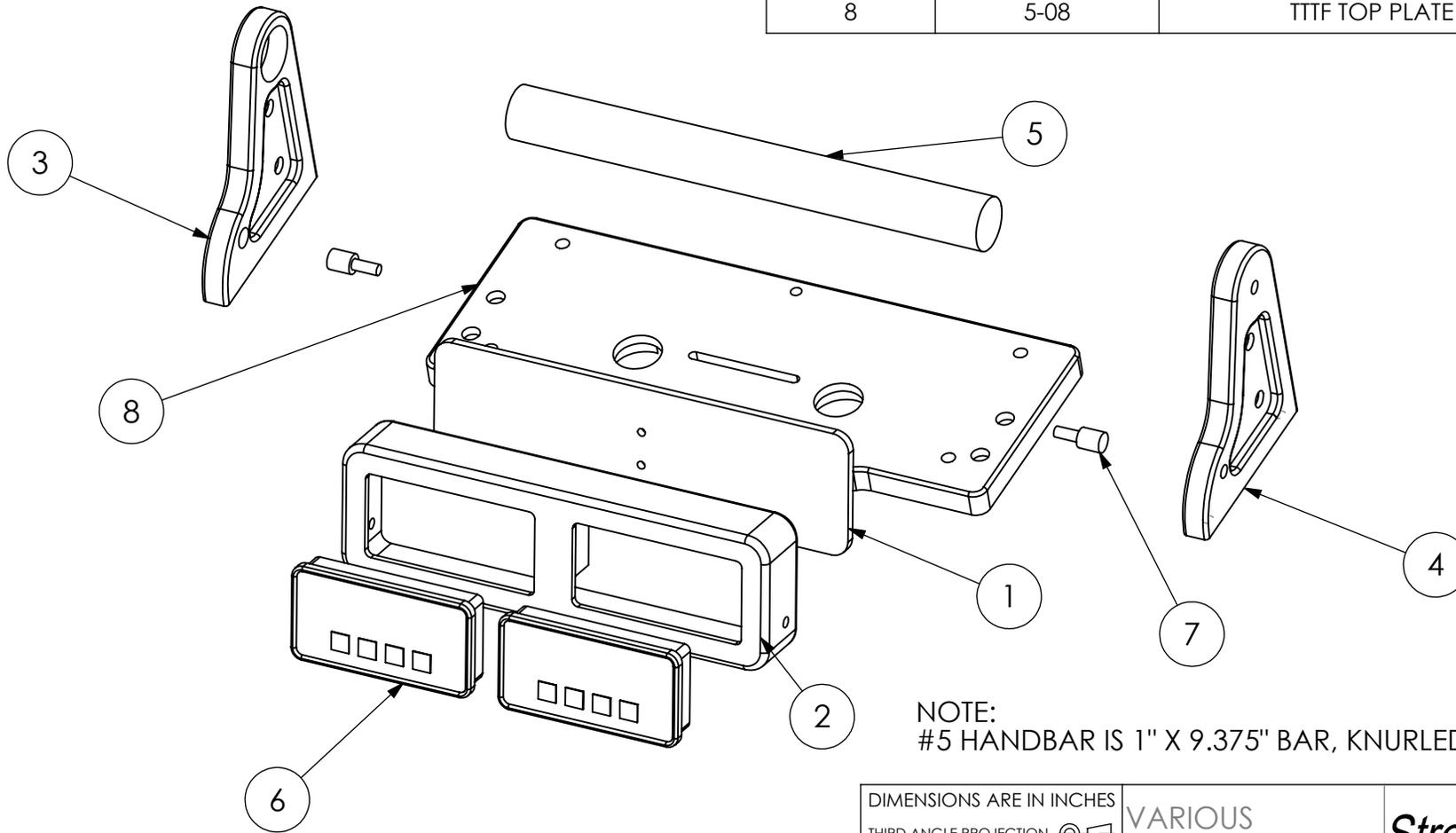


NOTE: MODIFICATION TO MSC PURCHASED PART (MSC#: 35463652)

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

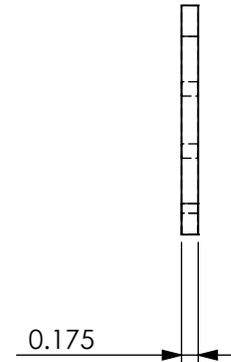
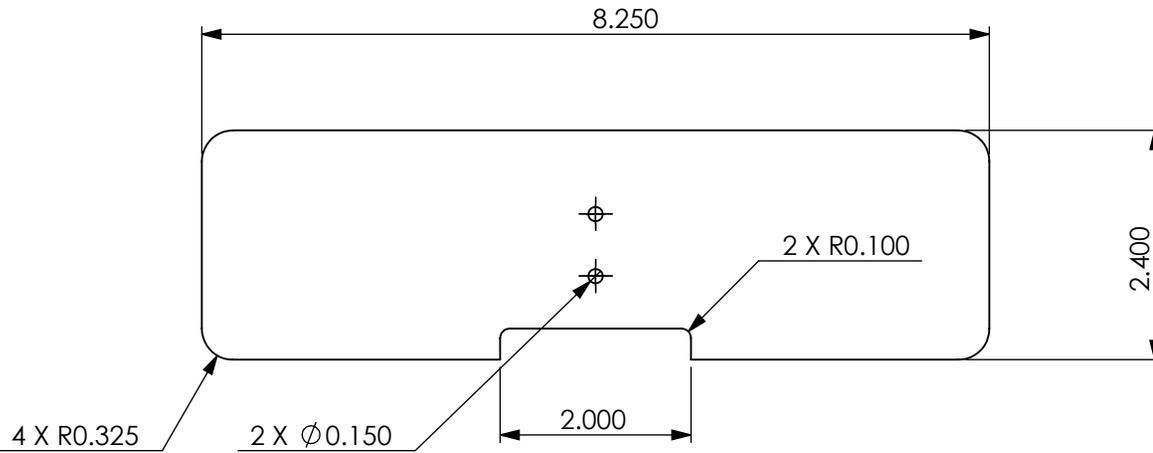
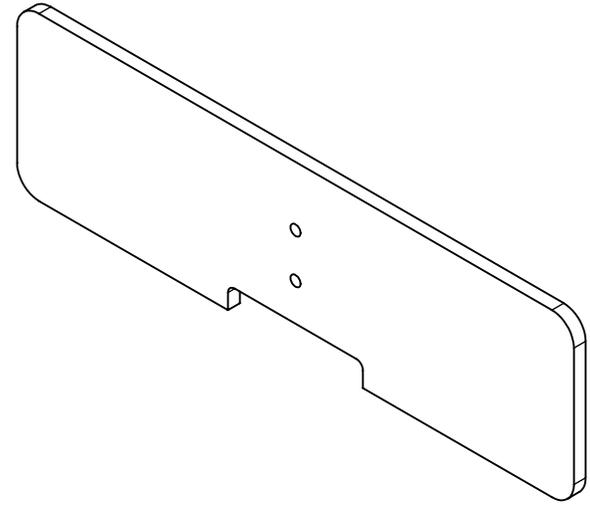
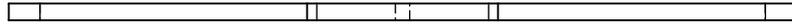
ITEM NO.	PART #	DESCRIPTION	QTY.
1	5-01	HOUSING BACKING	1
2	5-02	DISPLAY HOUSING	1
3	5-03	DISPLAY ASSEMBLY - LEFT UPRIGHT	1
4	5-04	DISPLAY ASSEMBLY - RIGHT UPRIGHT	1
5	N/A	HANDBAR	1
6	N/A	LED FACE	2
7	N/A	DISPLAY PIVOT	2
8	5-08	TTTF TOP PLATE	1



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

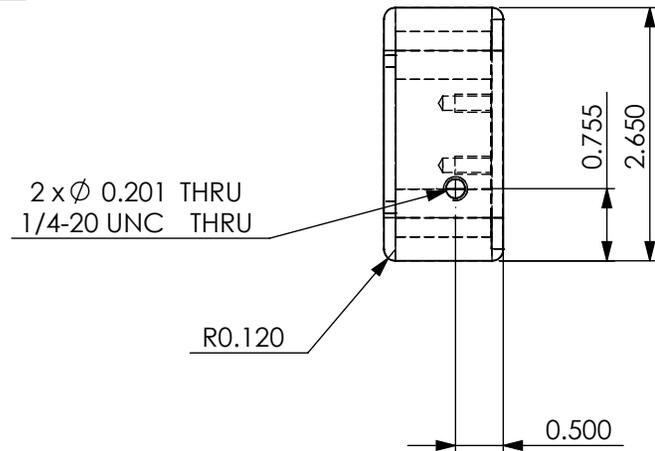
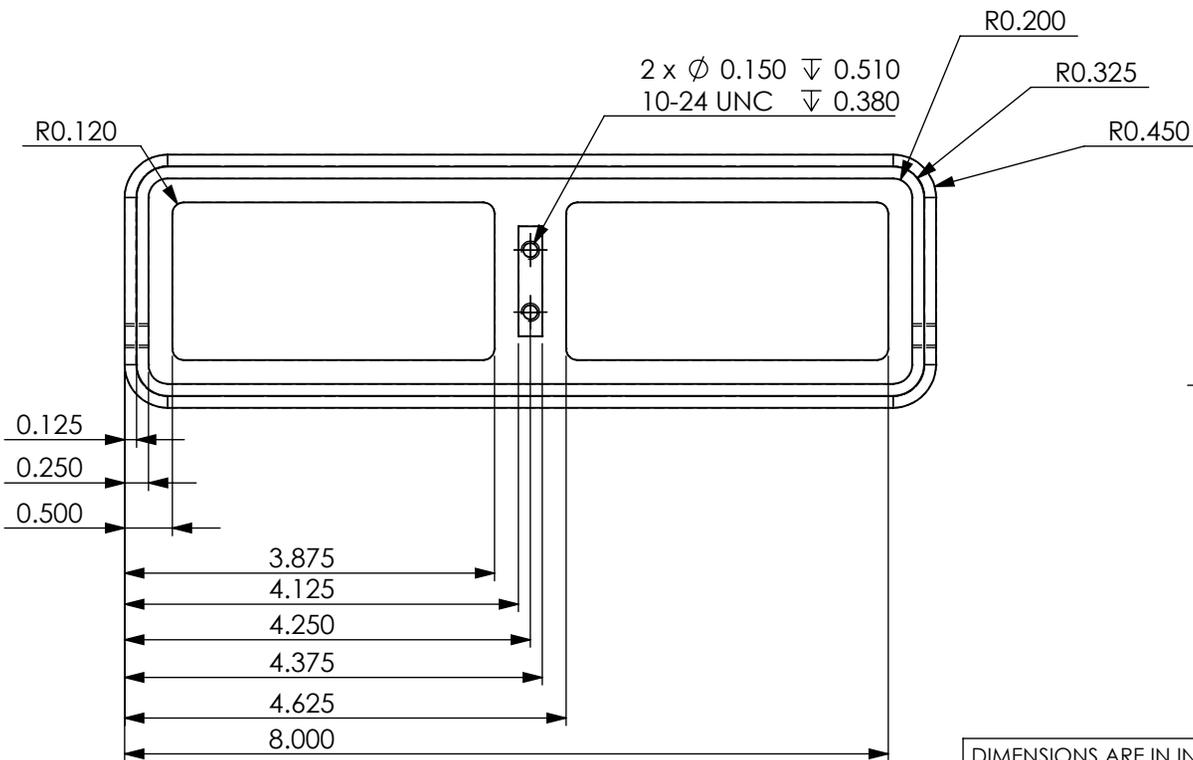
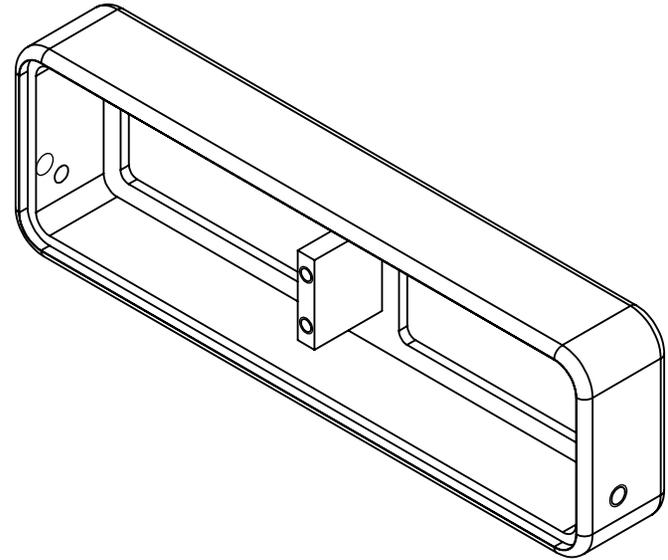
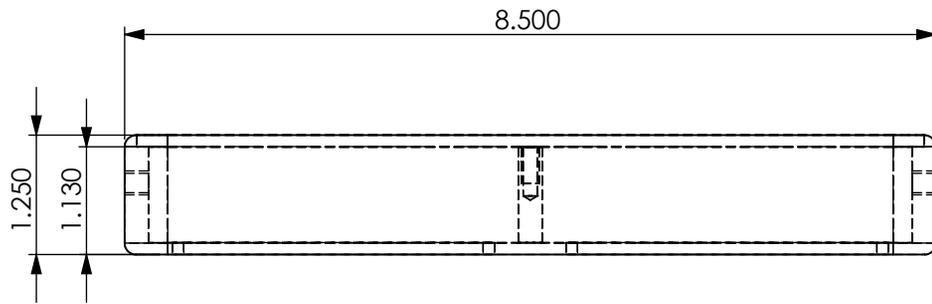
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DIMENSIONS ARE IN INCHES		VARIOUS Material:	<i>Stretch Armstrong</i>	
THIRD ANGLE PROJECTION				
DEFAULT TOLERANCES:		DISPLAY ASSEMBLY		
LINEAR: X. ± .1 X.X ± .01 X.XX ± .001 X.XXX ± .005	ANGULAR: X. ± 2 X.X ± 1 X.XX ± 0.30'	DESCRIPTION:	DATE:	UNIVERSITY OF IDAHO ME DEPARTMENT
		CHECKED BY: SPENCER OLDEMEYER	DATE: 5/4/2009	
		DRAWN BY:	DATE:	Part #: 5-00
		FILE NAME: 5-00	CAD Application SolidWorks	QTY: 1
		Scale: 1:3		SHEET 27 OF 62



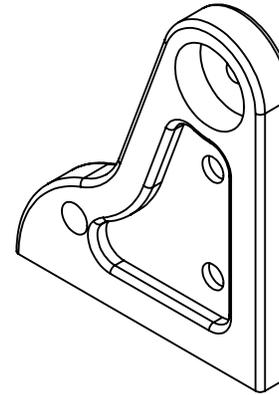
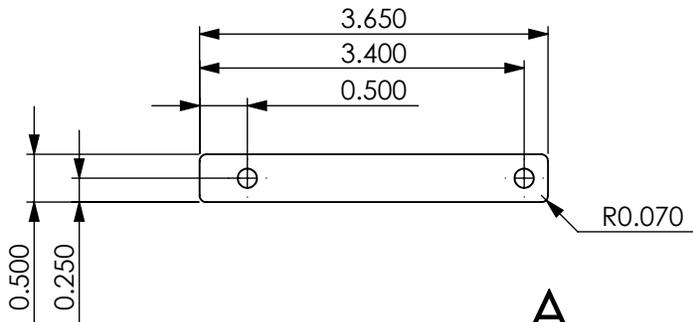
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DIMENSIONS ARE IN INCHES		CLEAR CAST ACRYLIC Material:		<i>Stretch Armstrong</i>	
THIRD ANGLE PROJECTION					
DEFAULT TOLERANCES:		HOUSING BACKING			
LINEAR: X. ± .1 X.X ± .01 X.XX ± .001 X.XXX ± .005	ANGULAR: X. ± 2 X.X ± 1 X.XX ± 0.30'	DESCRIPTION: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

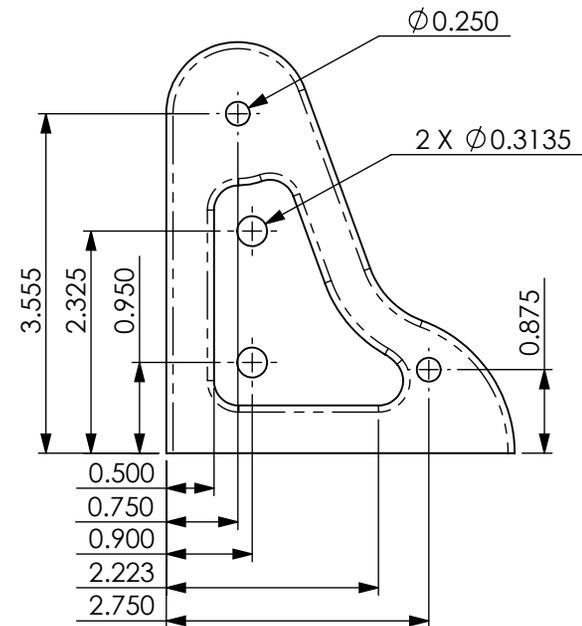
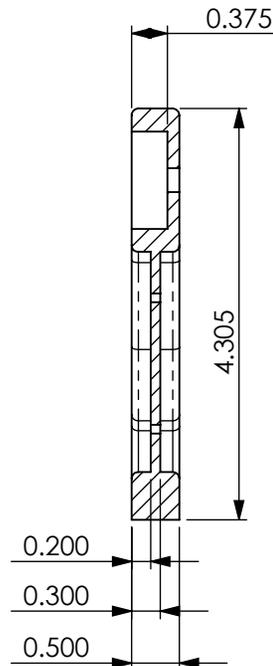
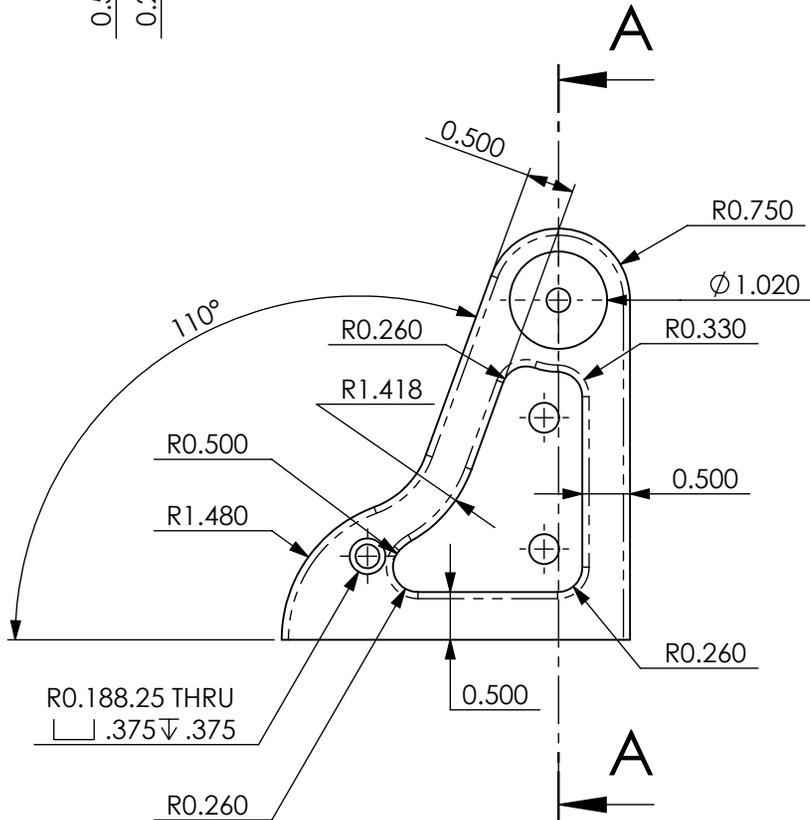


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DIMENSIONS ARE IN INCHES		6061 ALUMINUM		<i>Stretch Armstrong</i>	
THIRD ANGLE PROJECTION		Material:			
DEFAULT TOLERANCES:		DISPLAY HOUSING			
LINEAR:	ANGULAR:	DESCRIPTION:		UNIVERSITY OF IDAHO ME DEPARTMENT	
X. ± .1	X. ± 2	CHECKED BY:		Part #: 5-02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

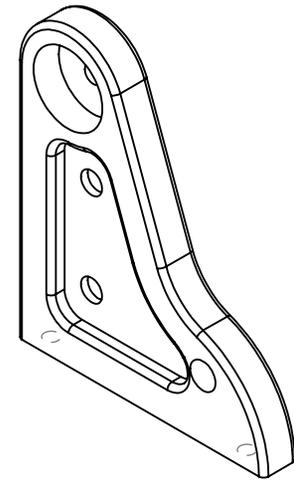
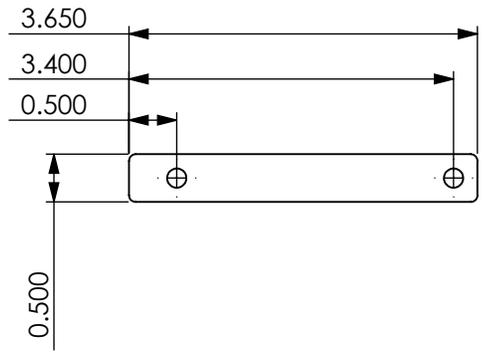


SECTION A-A

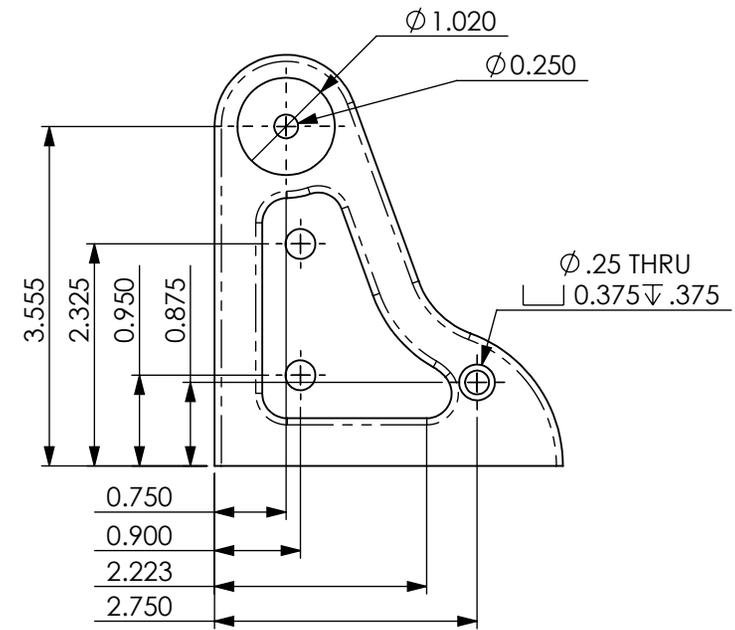
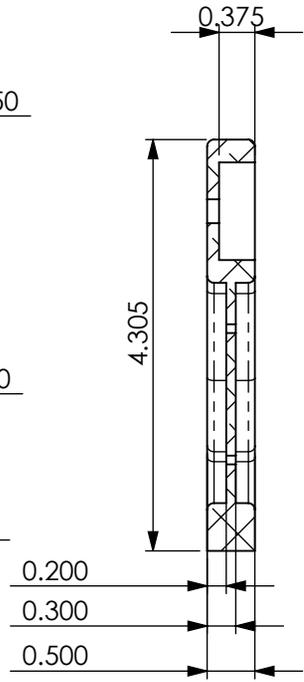
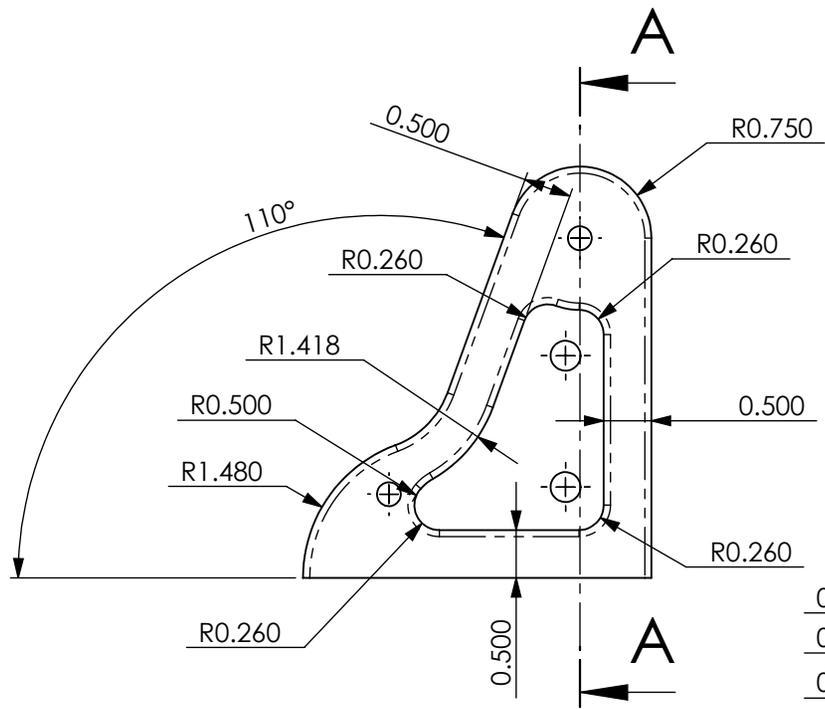


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DIMENSIONS ARE IN INCHES		6061 ALUMINUM		Stretch Armstrong
THIRD ANGLE PROJECTION		Material:		
DEFAULT TOLERANCES:		DISPLAY ASSEMBLY - LEFT UPRIGHT		
LINEAR:	ANGULAR:	DESCRIPTION:	CHECKED BY:	DATE:
X. ± .1	X. ± 2	SPENCER OLDEMEYER	SPENCER OLDEMEYER	5/1/2009
X.X ± .01	X.X ± 1	DRAWN BY:	DATE:	Part #: 5-03
X.XX ± .001	X.XX ± 0.30'	FILE NAME: 5-03	CAD Application SolidWorks	QTY: 1
X.XXX ± .005				Scale: 1:2
				SHEET 30 OF 62

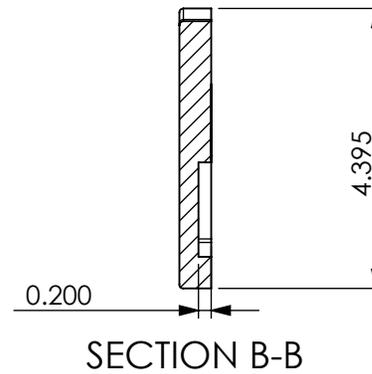
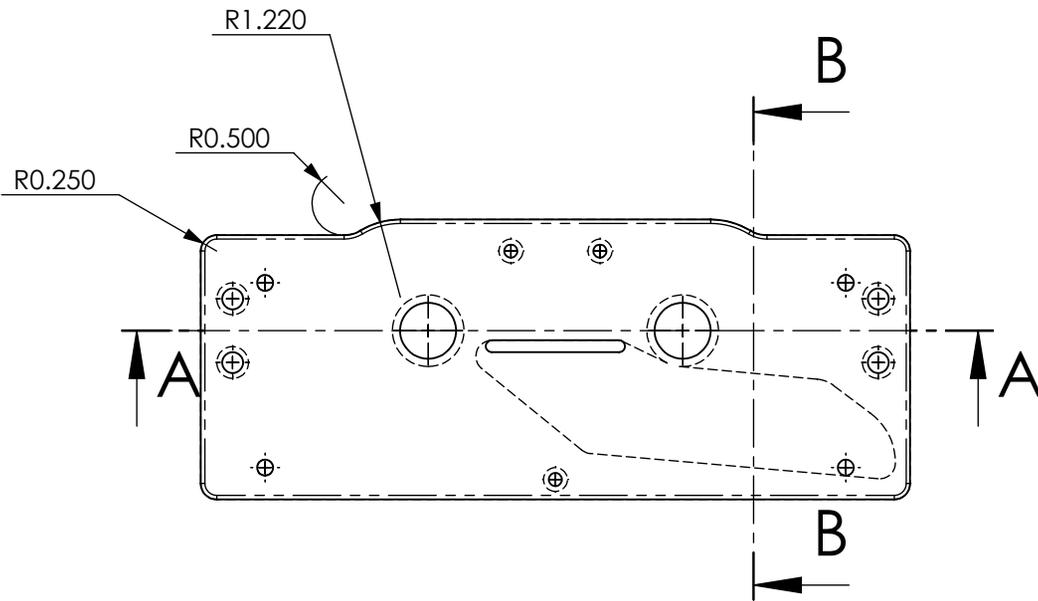
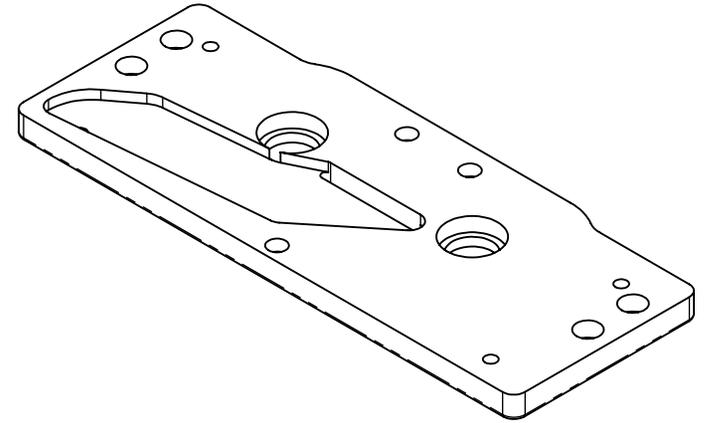
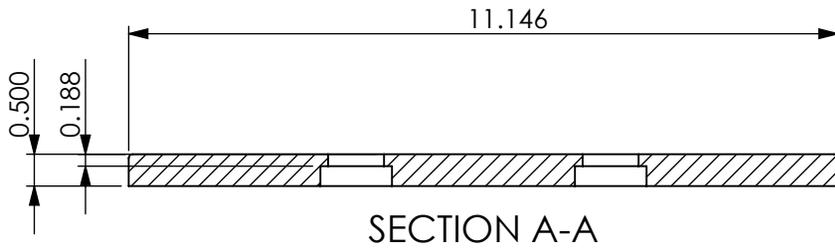


SECTION A-A



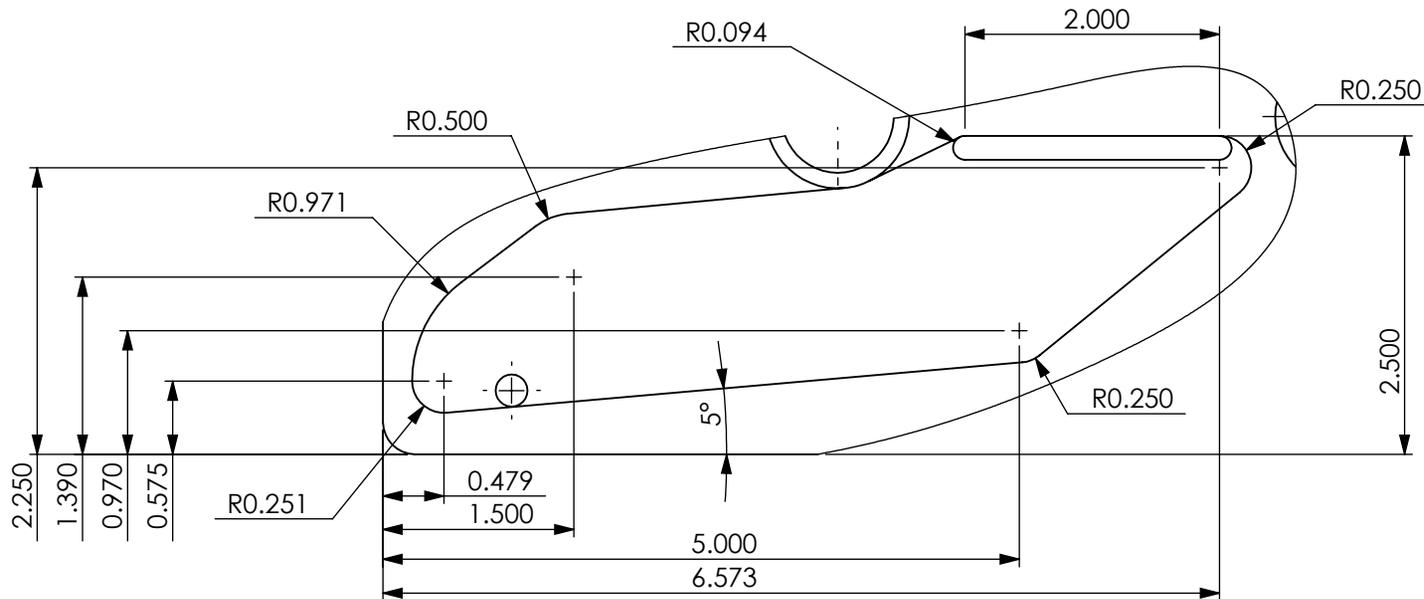
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DIMENSIONS ARE IN INCHES		6061 ALUMINUM		Stretch Armstrong
THIRD ANGLE PROJECTION		Material:		
DEFAULT TOLERANCES:		DISPLAY ASSEMBLY - RIGHT UPRIGHT		
LINEAR: X. ± .1 X.X ± .01 X.XX ± .001 X.XXX ± .005	ANGULAR: X. ± 2 X.X ± 1 X.XX ± 0.30°	DESCRIPTION:	DATE:	UNIVERSITY OF IDAHO ME DEPARTMENT
		CHECKED BY: SPENCER OLDEMEYER	DATE: 5/1/2009	Part #: 5-04
		DRAWN BY:	DATE:	QTY:2
		FILE NAME: 5-04	CAD Application SolidWorks	Scale: 1:2
				SHEET 31 OF 62

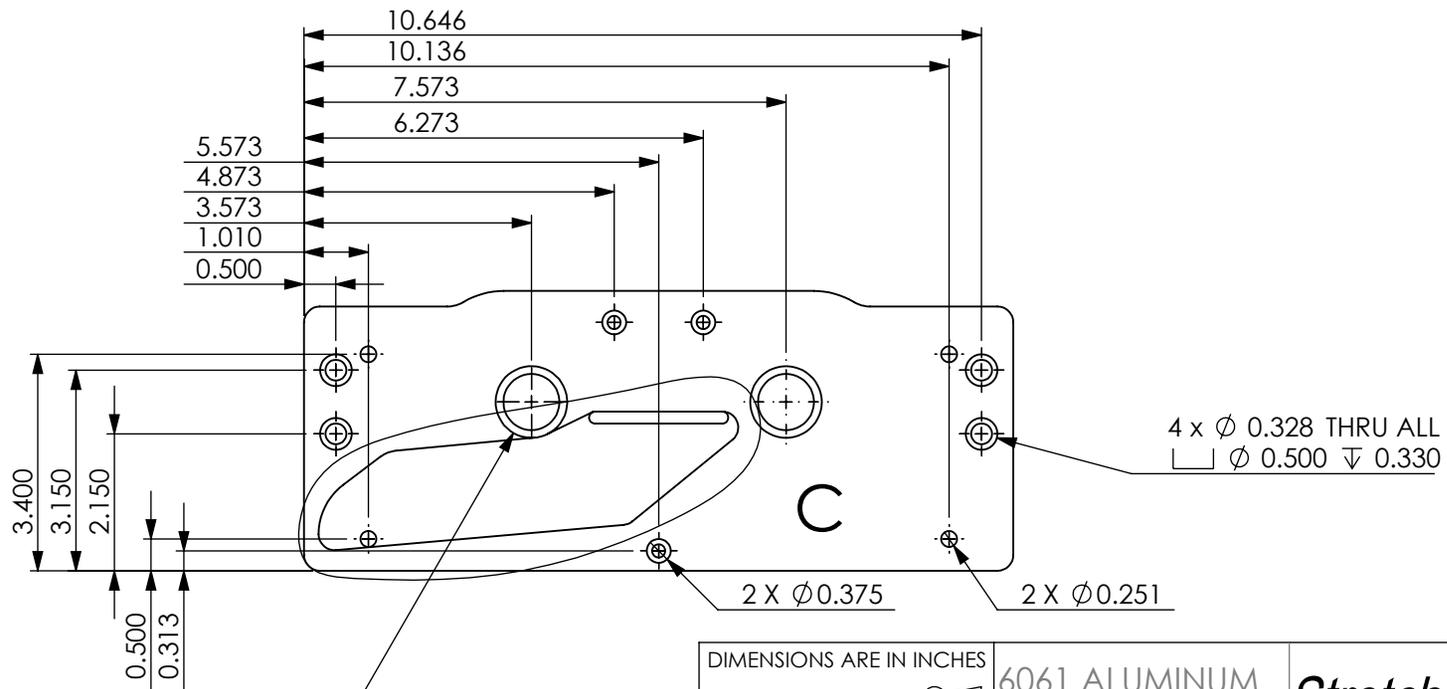


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DIMENSIONS ARE IN INCHES		6061 ALUMINUM		<i>Stretch Armstrong</i>	
THIRD ANGLE PROJECTION		Material:			
DEFAULT TOLERANCES:		TTTF TOP PLATE			
LINEAR:	ANGULAR:	DESCRIPTION:		UNIVERSITY OF IDAHO ME DEPARTMENT	
X. ± .1	X. ± 2	CHECKED BY:		Part #: 5-08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



DETAIL C
SCALE 1 : 1.5

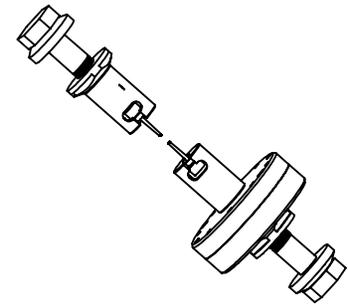
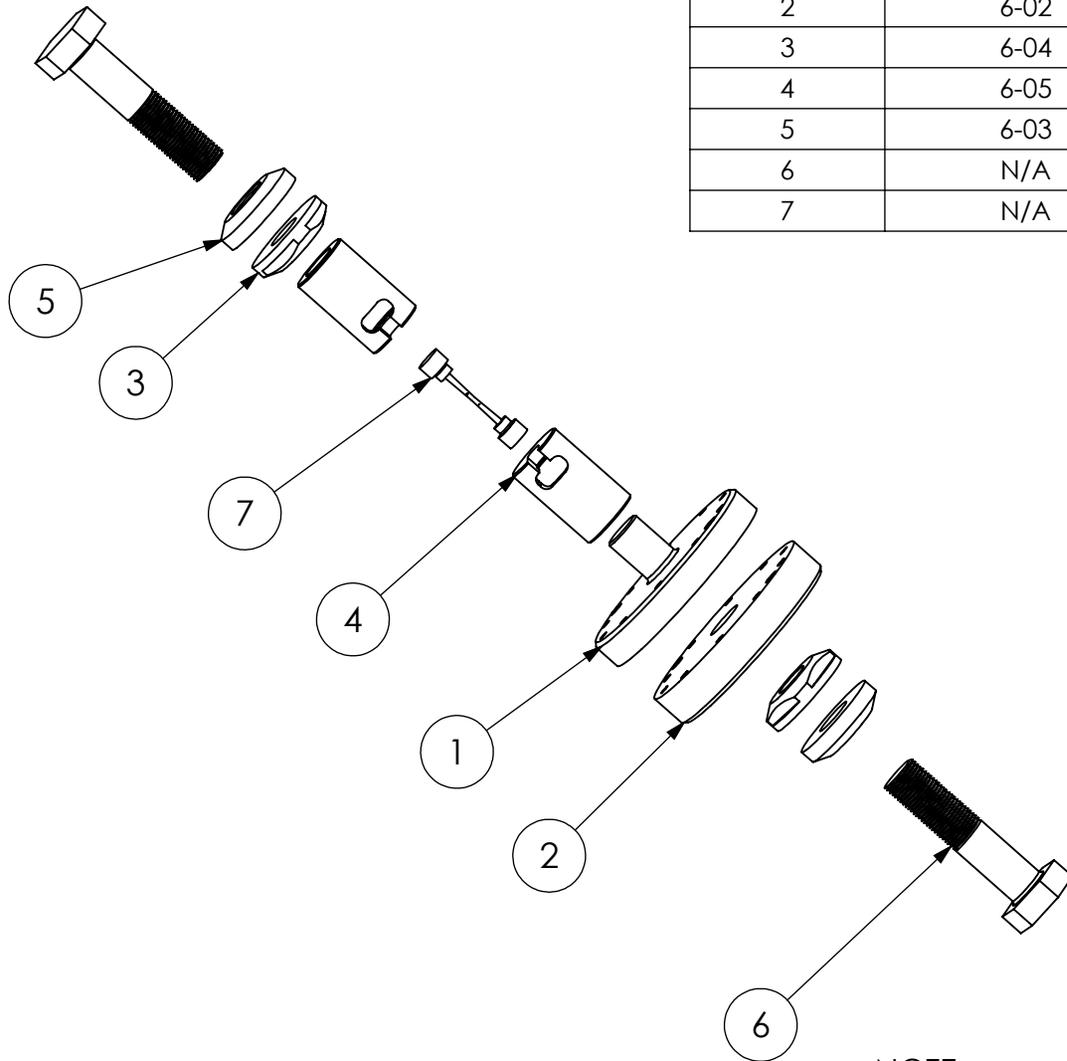


2 x Ø 0.880 THRU ALL
□ Ø 1.125 ∇ 0.313

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

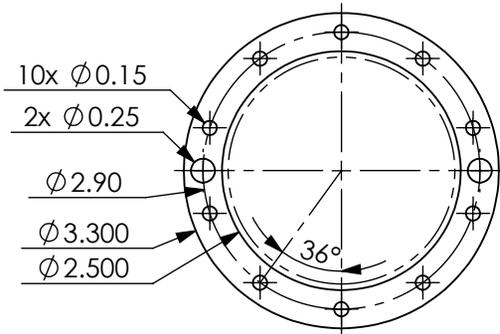
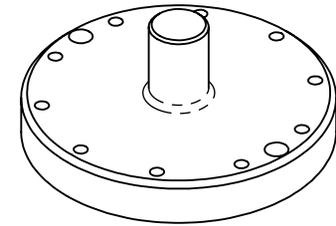
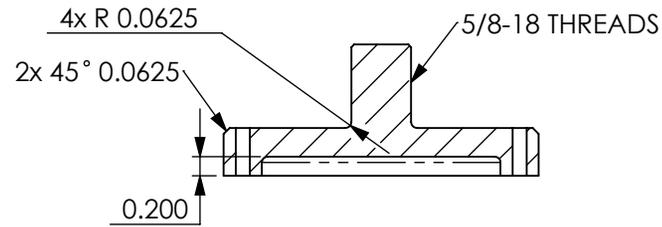
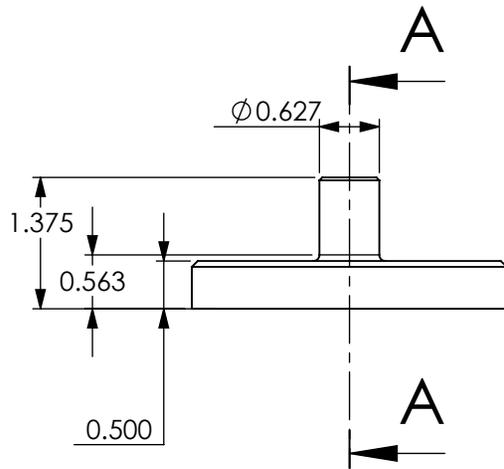


SCALE 1:5

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

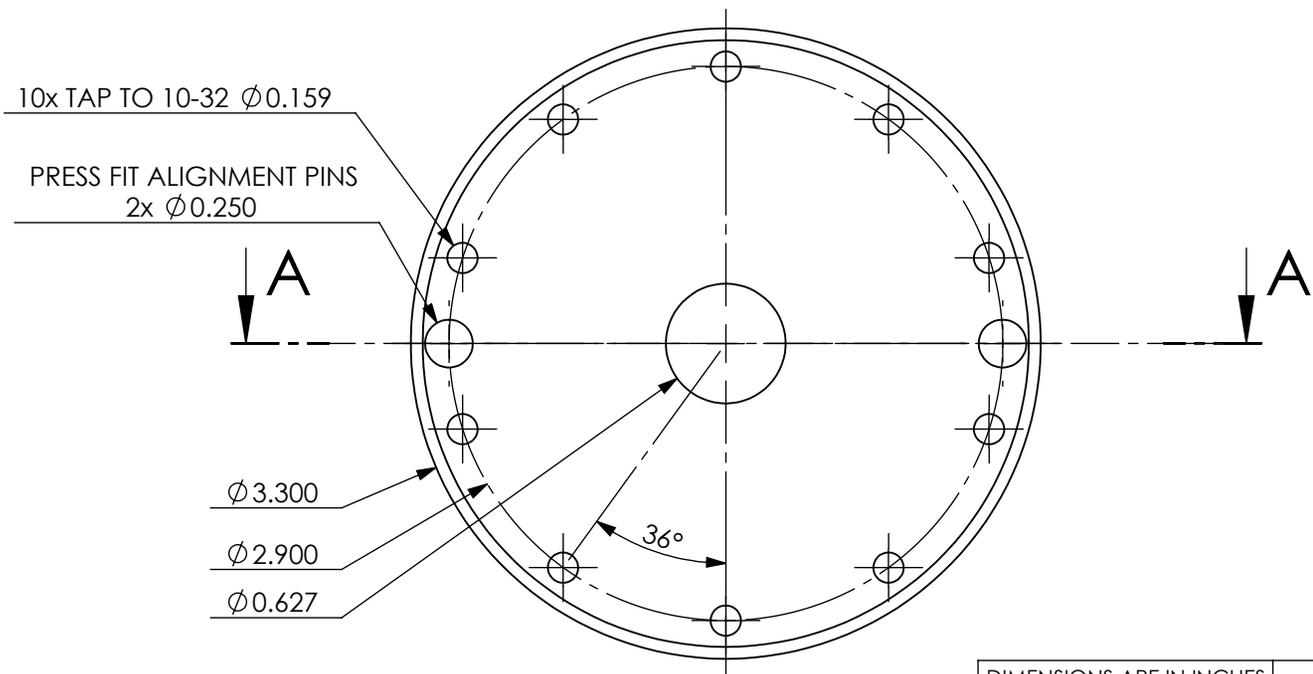
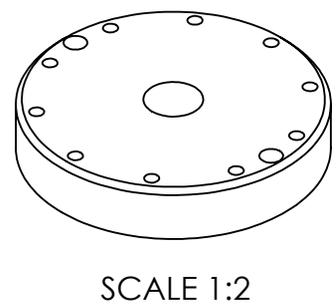
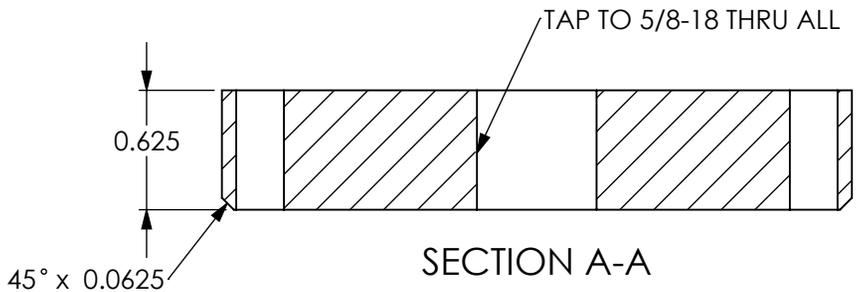
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DIMENSIONS ARE IN INCHES		THIRD ANGLE PROJECTION		VARIOUS Material:		<i>Stretch Armstrong</i>	
DEFAULT TOLERANCES:		LOAD AND MOUNTING ASSEMBLY		DESCRIPTION:			
LINEAR:	ANGULAR:	DRAWN BY: CARLOS DUARTE		DATE: 5/5/2009	UNIVERSITY OF IDAHO ME DEPARTMENT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



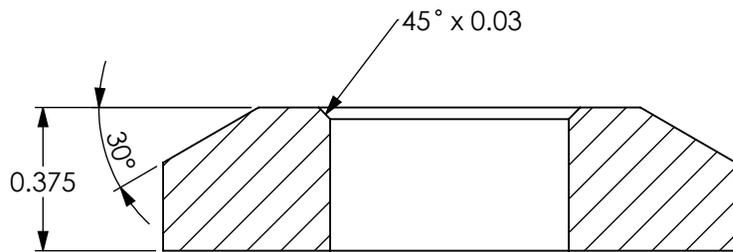
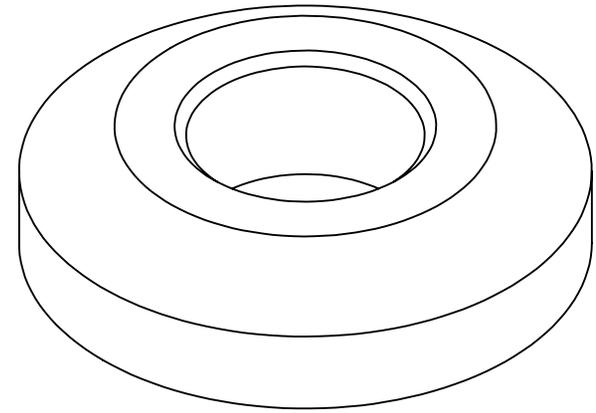
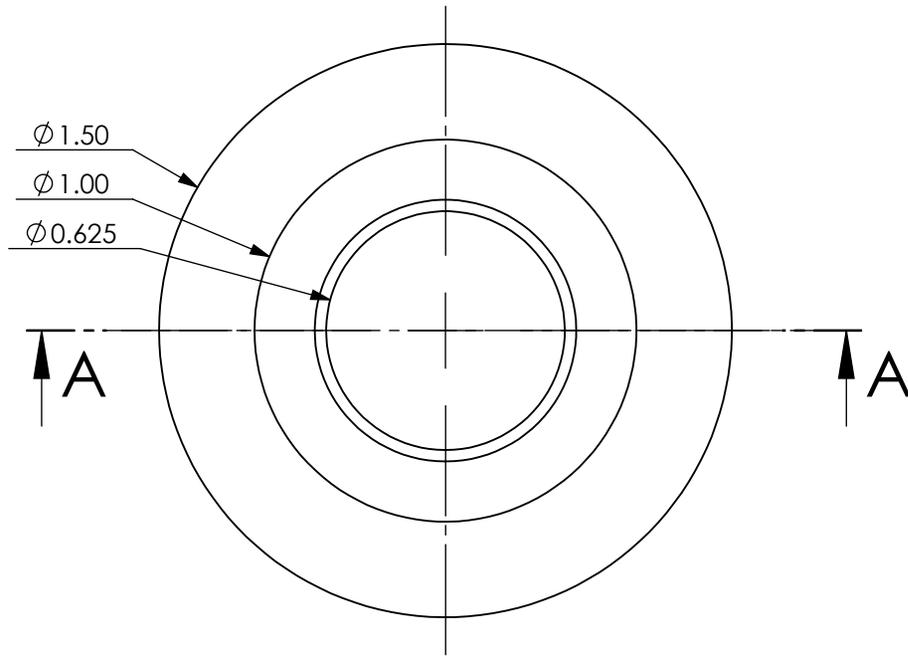
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DIMENSIONS ARE IN INCHES		4150 STEEL		Stretch Armstrong
THIRD ANGLE PROJECTION		Material:		
DEFAULT TOLERANCES:		LOADCELL		
LINEAR: X. ± .1 X.X ± .01 X.XX ± .001 X.XXX ± .005	ANGULAR: X. ± 2 X.X ± 1 X.XX ± 0.30'	DESCRIPTION:	DATE:	UNIVERSITY OF IDAHO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



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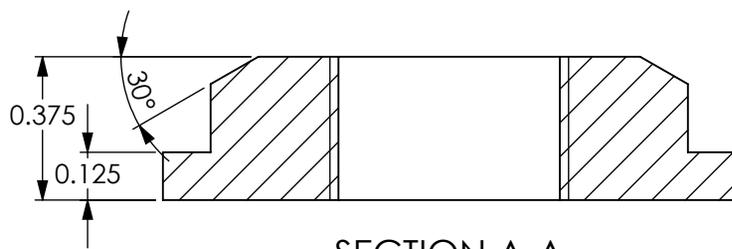
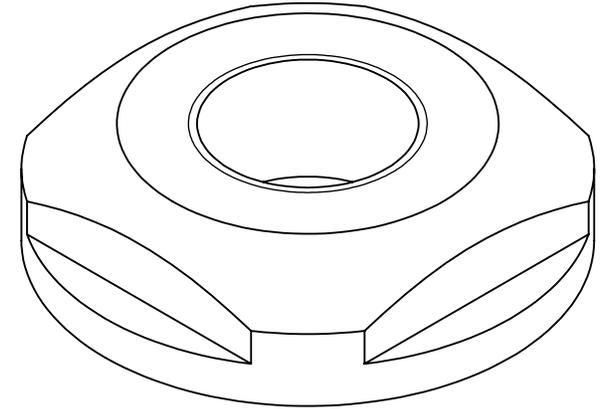
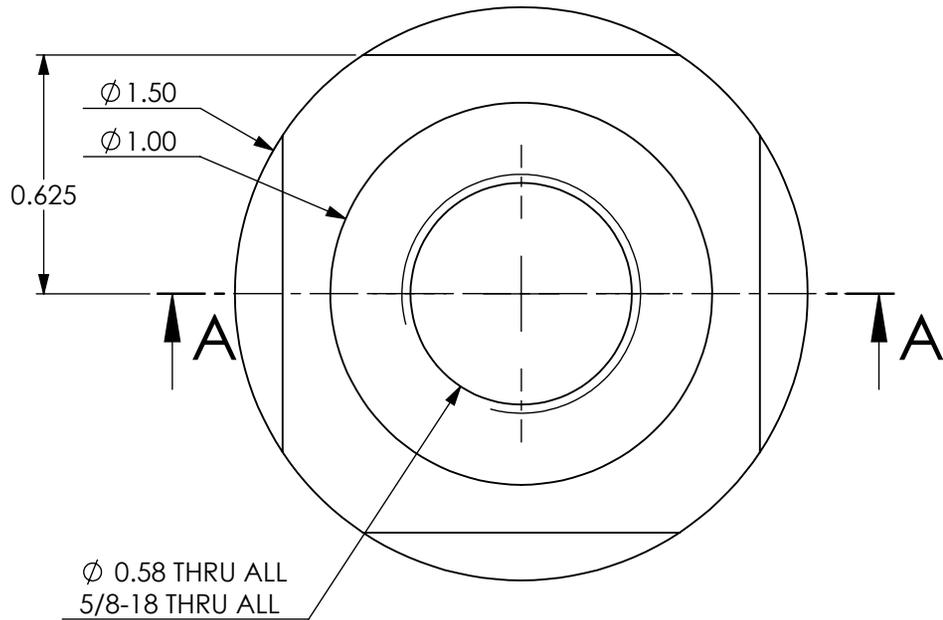
DIMENSIONS ARE IN INCHES		4140 STEEL		<i>Stretch Armstrong</i>	
THIRD ANGLE PROJECTION		Material:			
DEFAULT TOLERANCES:		LOADCELL ATTACHMENT PLATE			
LINEAR:	ANGULAR:	DESCRIPTION:		UNIVERSITY OF IDAHO ME DEPARTMENT	
X. ± .1	X. ± 2	CHECKED BY:	DATE:	Part #: 6-02	
X.X ± .01	X.X ± 1	CARLOS DUARTE	4/15/2009	QTY: 1	
X.XX ± .001	X.XX ± 0.30'	DRAWN BY:	DATE:	Scale: 1:1	
X.XXX ± .005		FILE NAME: 6-02	CAO Application SolidWorks	SHEET 36 OF 62	



SECTION A-A

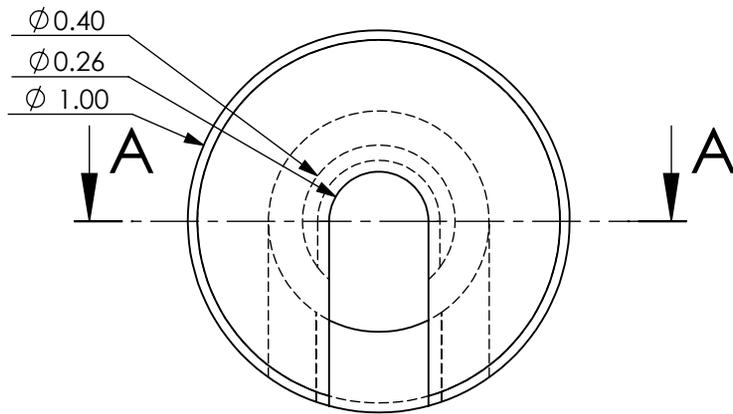
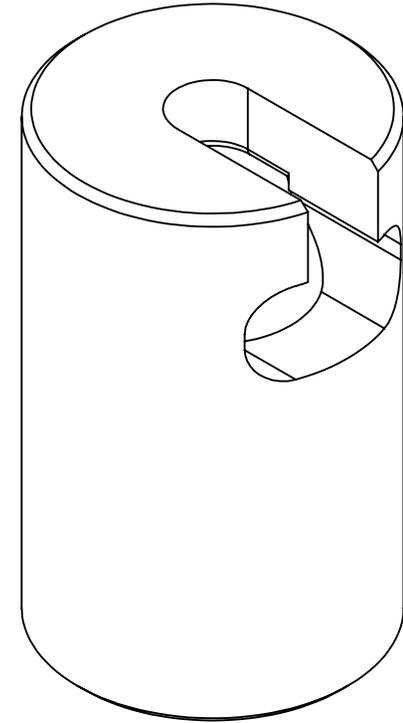
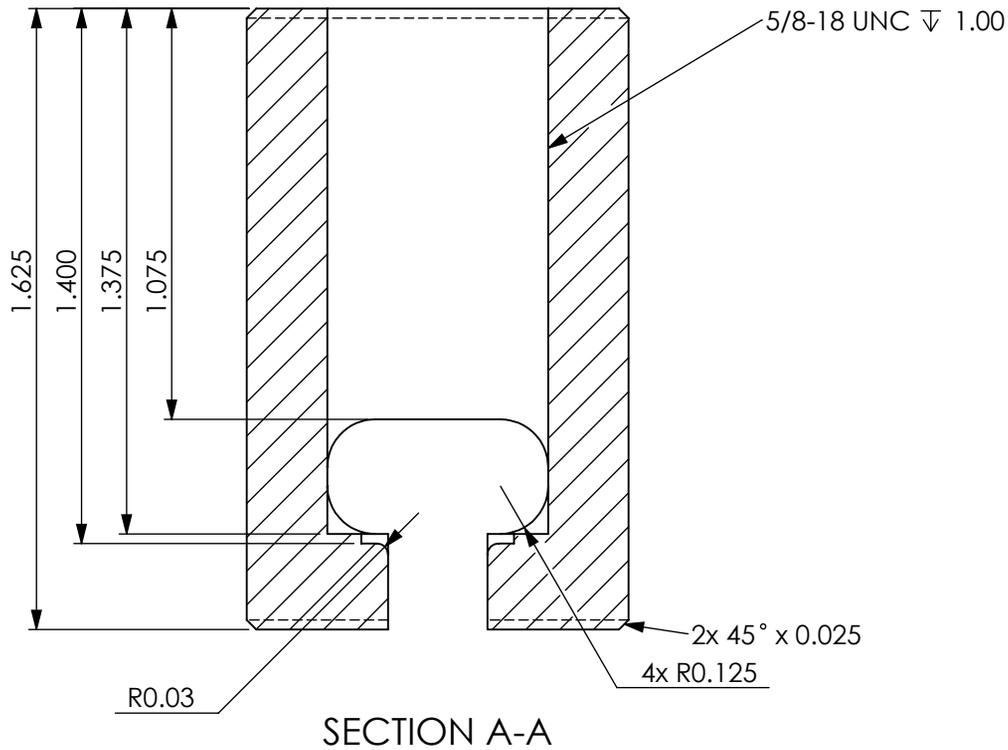
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DIMENSIONS ARE IN INCHES		4140 STEEL		<i>Stretch Armstrong</i>	
THIRD ANGLE PROJECTION		Material:			
DEFAULT TOLERANCES:		LOAD SPREADING WASHER			
LINEAR:	ANGULAR:	DESCRIPTION:		UNIVERSITY OF IDAHO ME DEPARTMENT	
X. ± .1	X. ± 2	CHECKED BY:	DATE:	Part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



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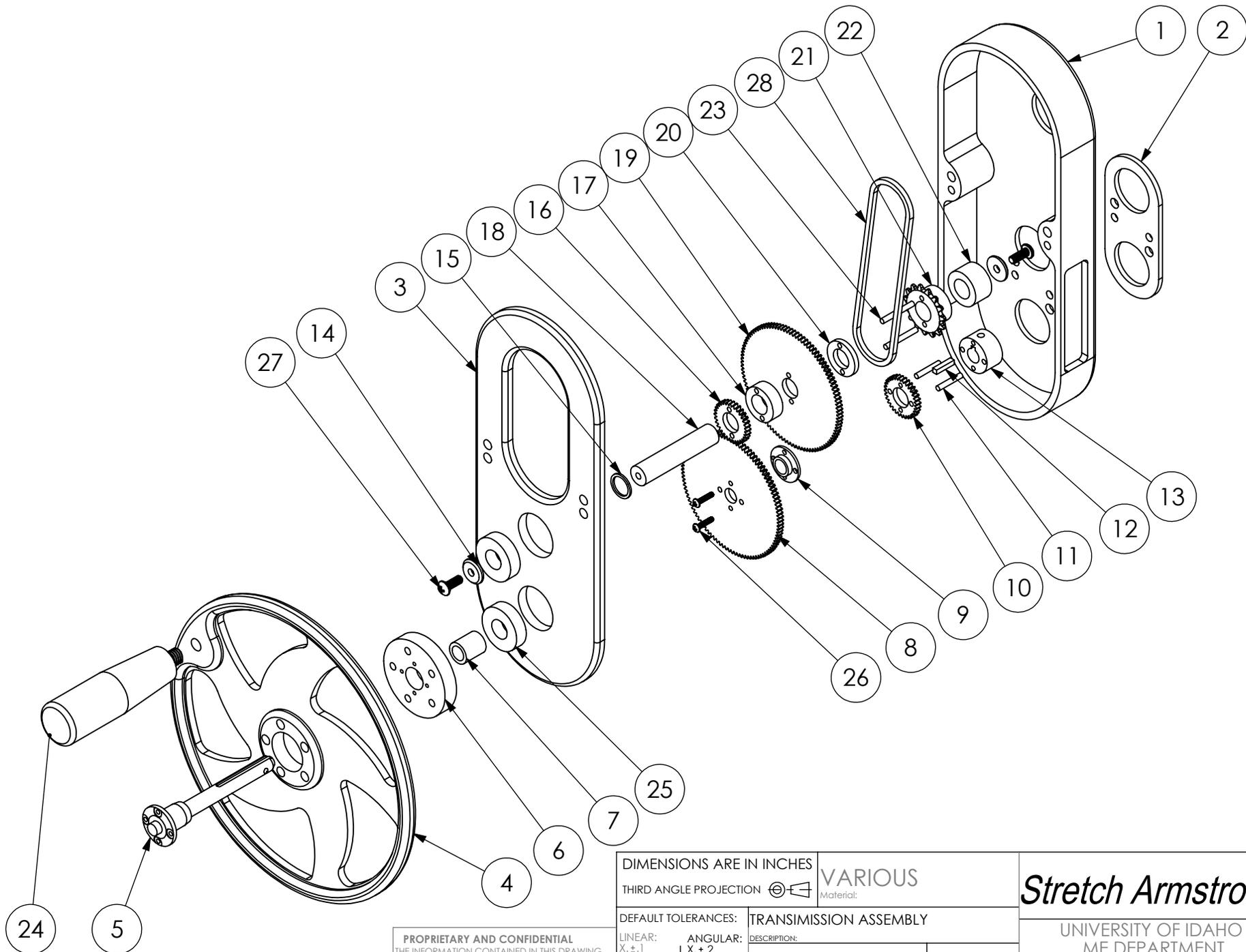
DIMENSIONS ARE IN INCHES		4140 STEEL		<i>Stretch Armstrong</i>	
THIRD ANGLE PROJECTION		Material:			
DEFAULT TOLERANCES:		LOAD SPREADING NUT			
LINEAR:	ANGULAR:	DESCRIPTION:		DATE:	
X. ± .1	X. ± 2	CHECKED BY:		4/15/2009	
X.X ± .01	X.X ± 1	DRAWN BY:		DATE:	
X.XX ± .001	X.XX ± 0.30°	CARLOS DUARTE		Part #: 6-04	
X.XXX ± .005		FILE NAME: 6-04		QTY:2	
				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			
LINEAR:	ANGULAR:	DESCRIPTION:		DATE:	
X. ± .1	X. ± 2	CHECKED BY:		4/29/2009	
X.X ± .01	X.X ± 1	DRAWN BY:		DATE:	
X.XX ± .001	X.XX ± 0.30'	CARLOS DUARTE		Part #: 6-05	
X.XXX ± .005		FILE NAME: 6-05		QTY:2	
				Scale: 2:1	
				SHEET 39 OF 62	

CAO Application
SolidWorks



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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:

CAO Application
 SolidWorks

Stretch Armstrong

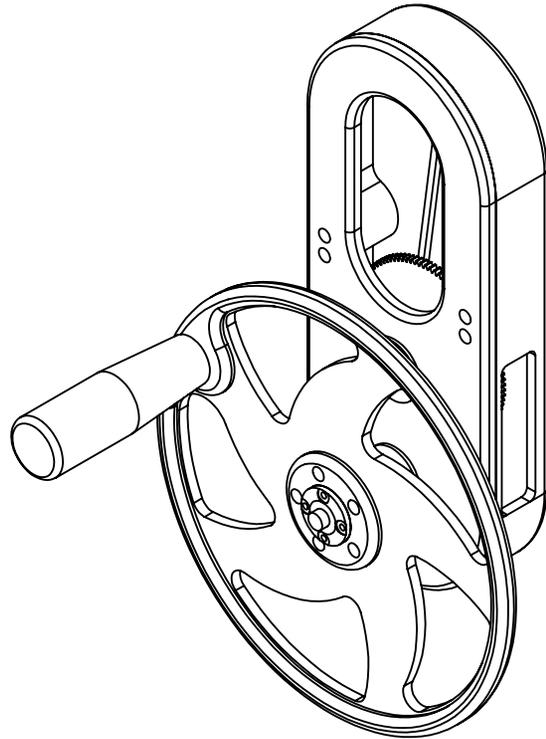
UNIVERSITY OF IDAHO
 ME DEPARTMENT

Part #: 7-00 (1 OF 2)

QTY: 1

Scale: 1:3

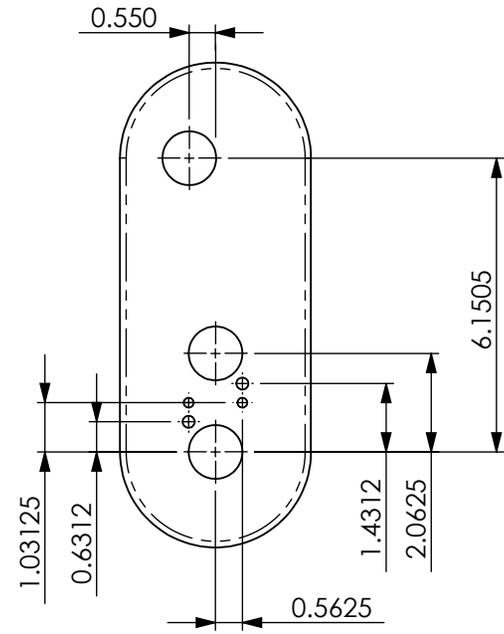
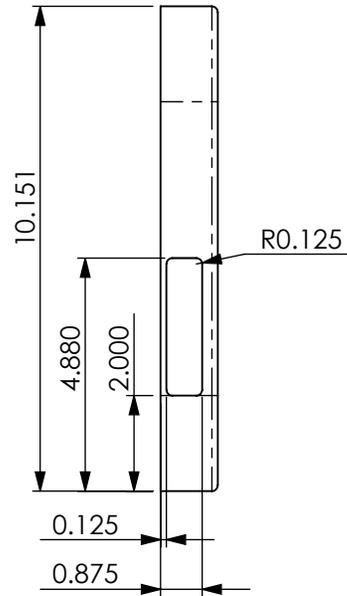
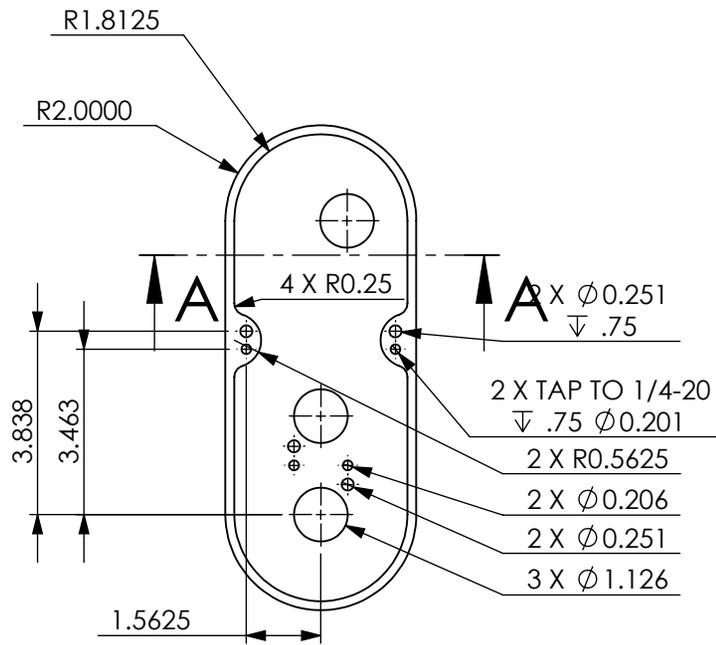
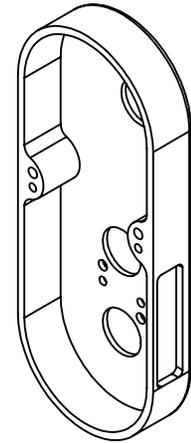
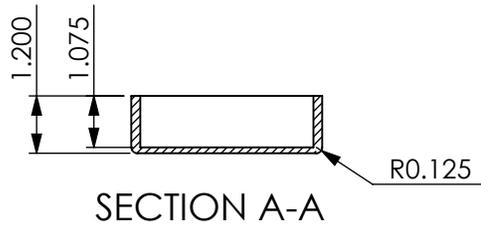
SHEET 40 OF 62



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

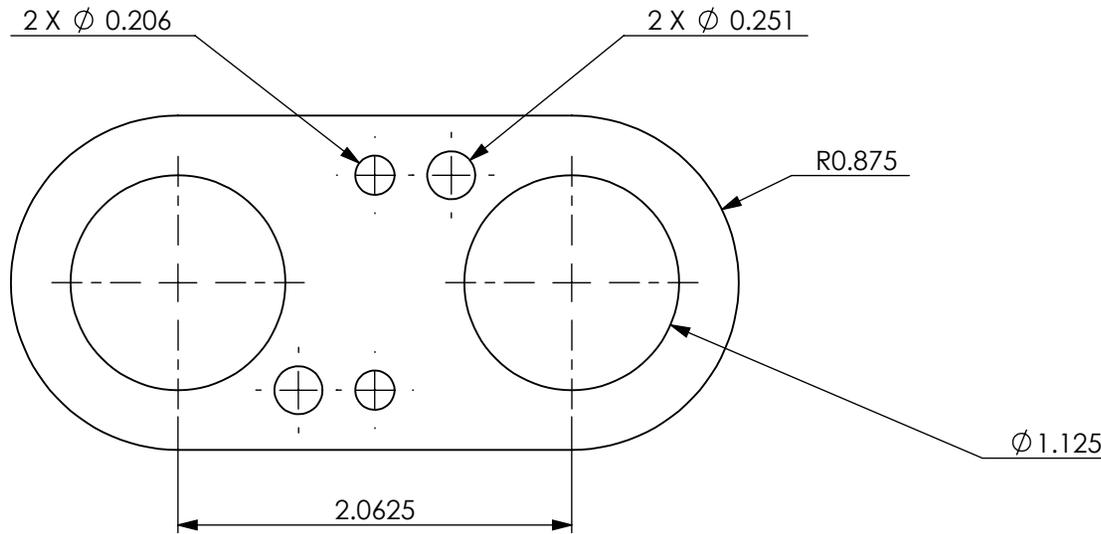
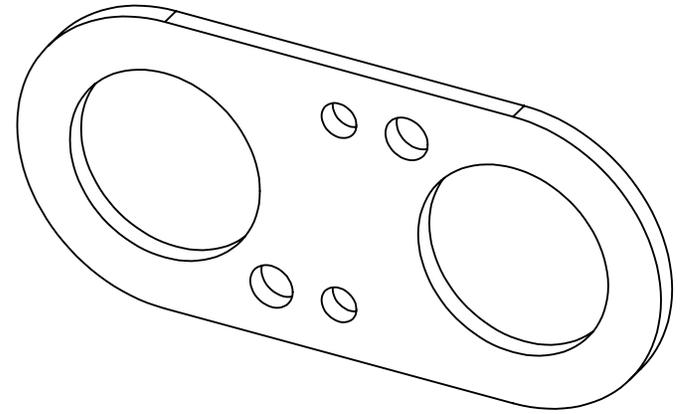
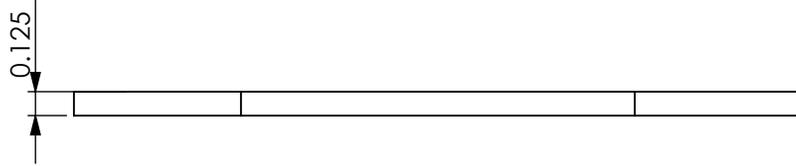
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DIMENSIONS ARE IN INCHES			VARIOUS Material:	<i>Stretch Armstrong</i> UNIVERSITY OF IDAHO ME DEPARTMENT	
THIRD ANGLE PROJECTION					
DEFAULT TOLERANCES: LINEAR: X. ± 1 X.X ± .01 X.XX ± .001 X.XXX ± .005 ANGULAR: X. ± 2 X.X ± 1 X.XX ± 0.30°		TRANSMISSION ASSEMBLY DESCRIPTION:		Part #: 7-00 (2 OF 2) QTY: 1	
		CHECKED BY: AMANDA BOLLAND DRAWN BY: AMANDA BOLLAND FILE NAME: 7	DATE: 5/4/2009 DATE:	Scale: 1:3 SHEET 41 OF 62	
		CAD Application SolidWorks			



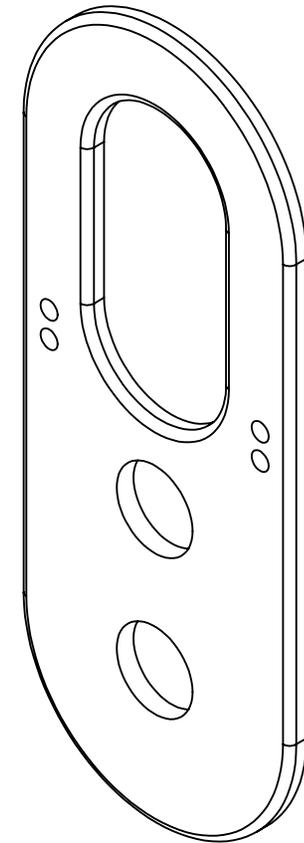
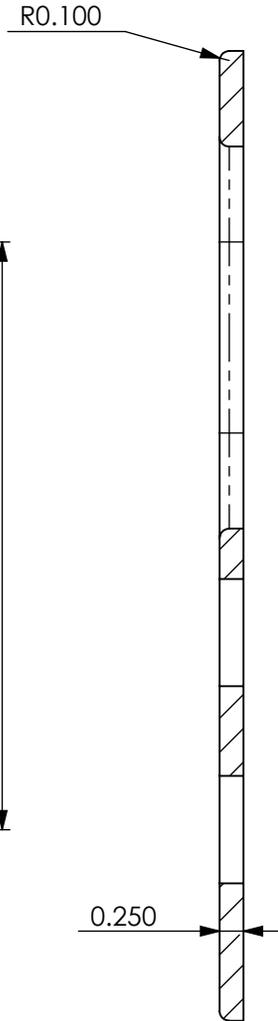
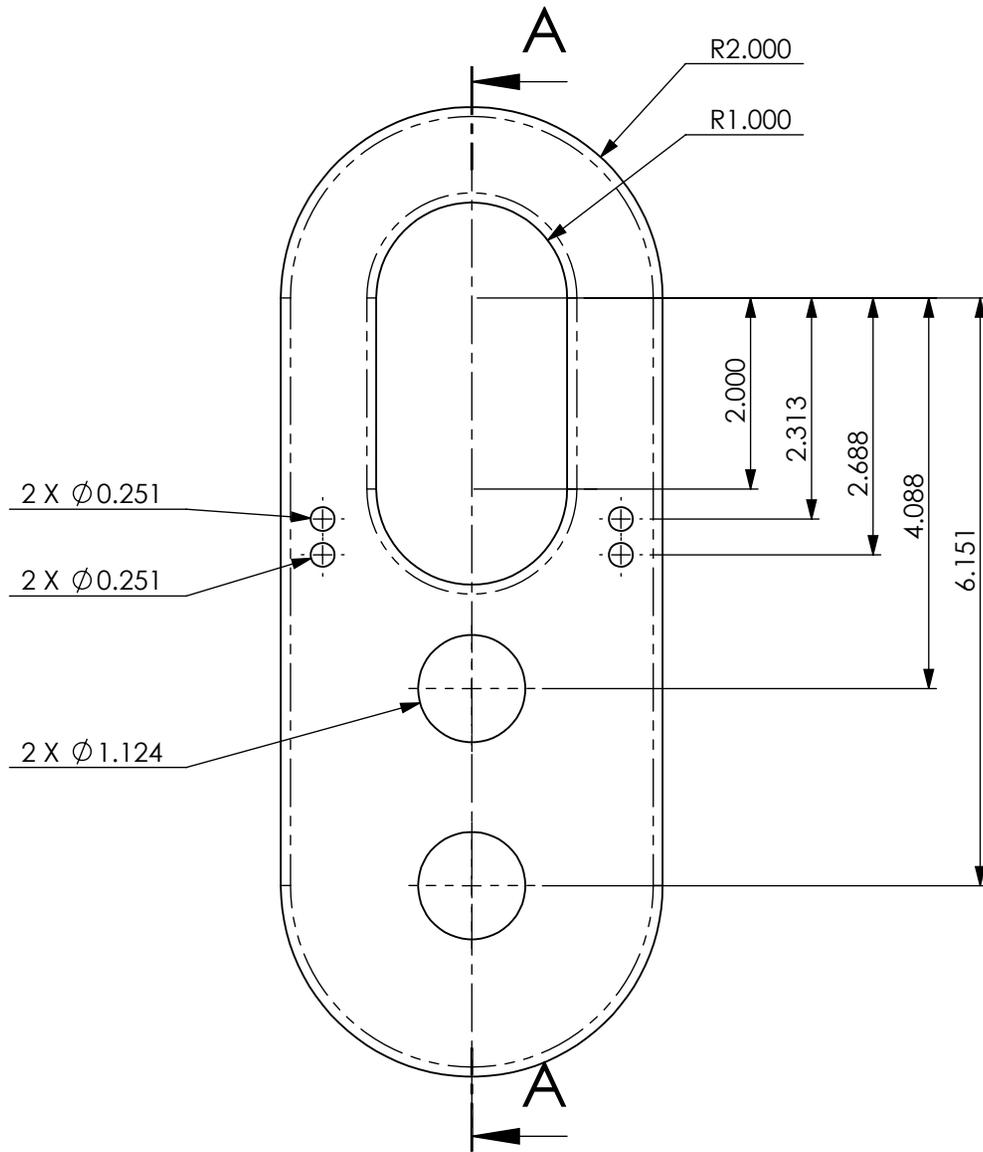
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DIMENSIONS ARE IN INCHES		6061 ALUMINUM		<i>Stretch Armstrong</i>
THIRD ANGLE PROJECTION		Material:		
DEFAULT TOLERANCES:		CHAIN HOUSE		
LINEAR: X: ± .1 X.X: ± .01 X.XX: ± .001 X.XXX: ± .005	ANGULAR: X: ± 2 X.X: ± 1 X.XX: ± 0.30'	DESCRIPTION:	DATE: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



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

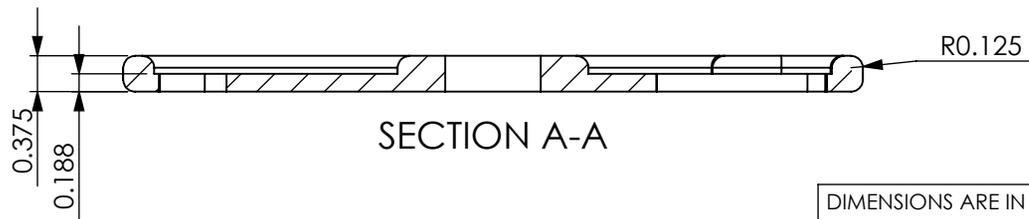
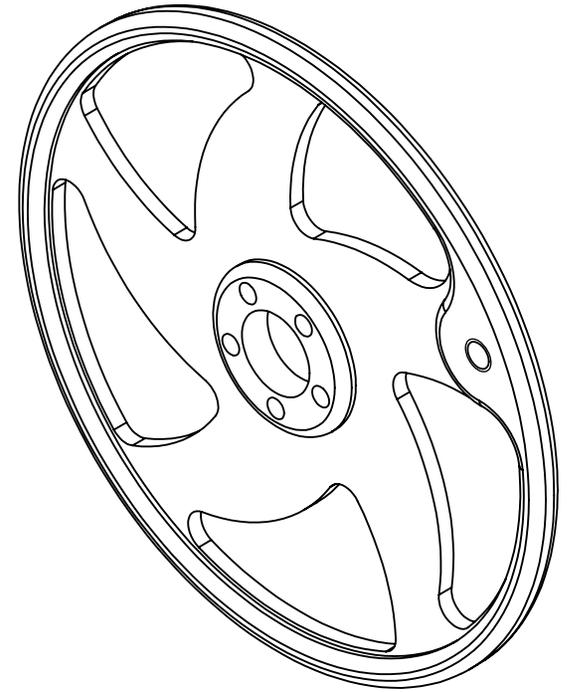
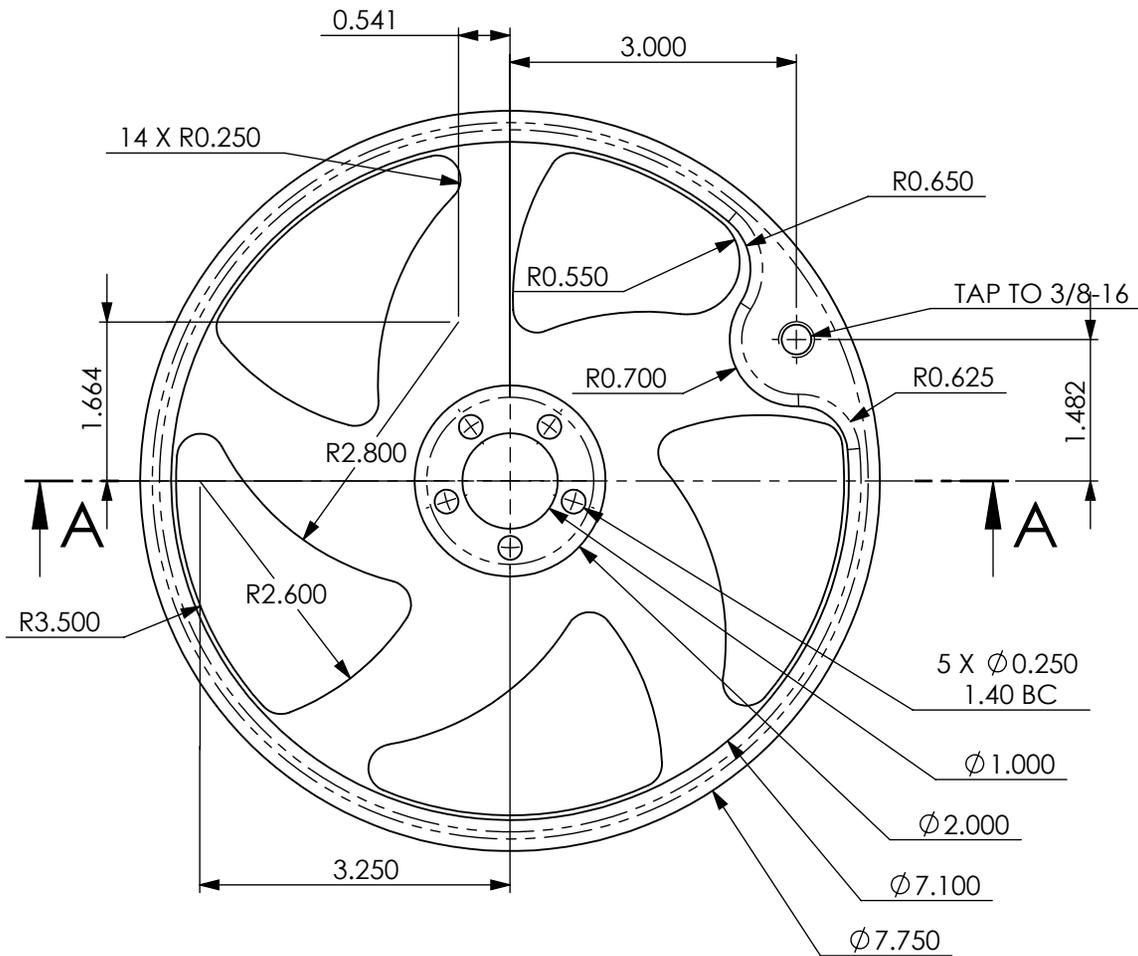
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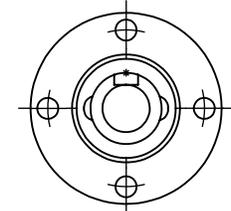
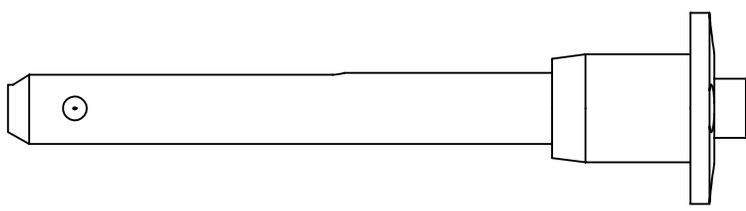
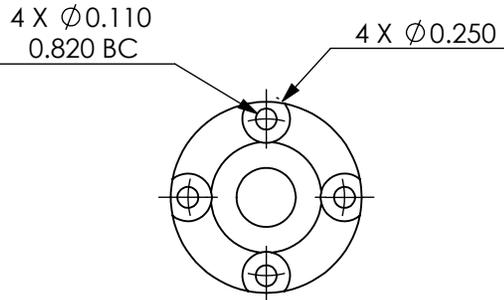
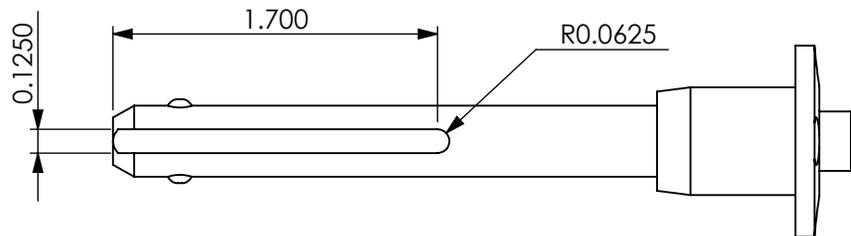
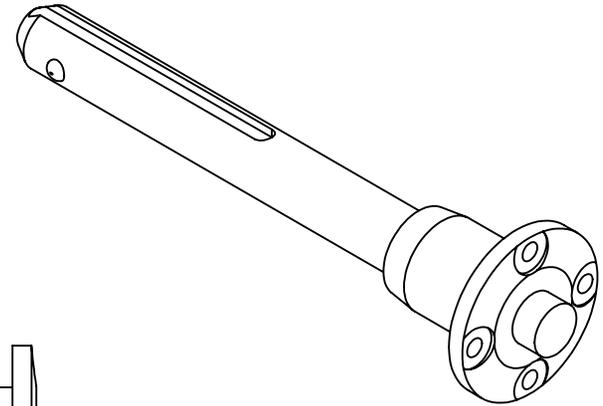
DIMENSIONS ARE IN INCHES		6061 ALUMINUM		<i>Stretch Armstrong</i>
THIRD ANGLE PROJECTION		Material:		
DEFAULT TOLERANCES:		CHAIN COVER		
LINEAR: X. ± .1 X.X ± .01 X.XX ± .001 X.XXX ± .005	ANGULAR: X. ± 2 X.X ± 1 X.XX ± 0.30'	DESCRIPTION:	DATE:	UNIVERSITY OF IDAHO ME DEPARTMENT
DRAWN BY: AMANDA BOLLAND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



SECTION A-A

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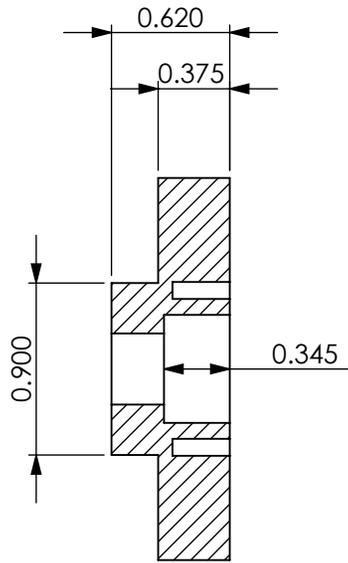
DIMENSIONS ARE IN INCHES		6061 ALUMINUM		Stretch Armstrong
THIRD ANGLE PROJECTION		Material:		
DEFAULT TOLERANCES:		WHEEL		
LINEAR: X. ± .1 X.X ± .01 X.XX ± .001 X.XXX ± .005	ANGULAR: X. ± 2 X.X ± 1 X.XX ± 0 30'	DESCRIPTION:	DATE:	UNIVERSITY OF IDAHO ME DEPARTMENT
		CHECKED BY: AMANDA BOLLAND	DATE: 4/26/2009	Part #: 7-04
		FILE NAME: 7-04	CAO Application SolidWorks	QTY: 1
				Scale: 1:2
				SHEET 45 OF 62



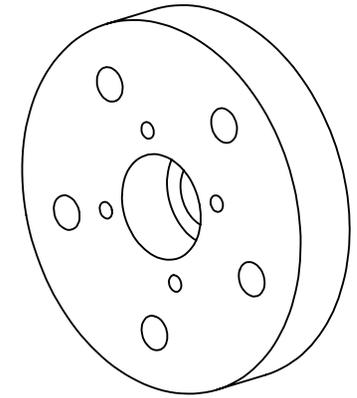
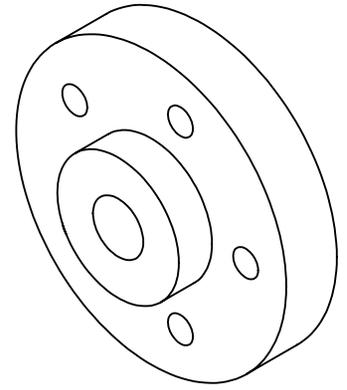
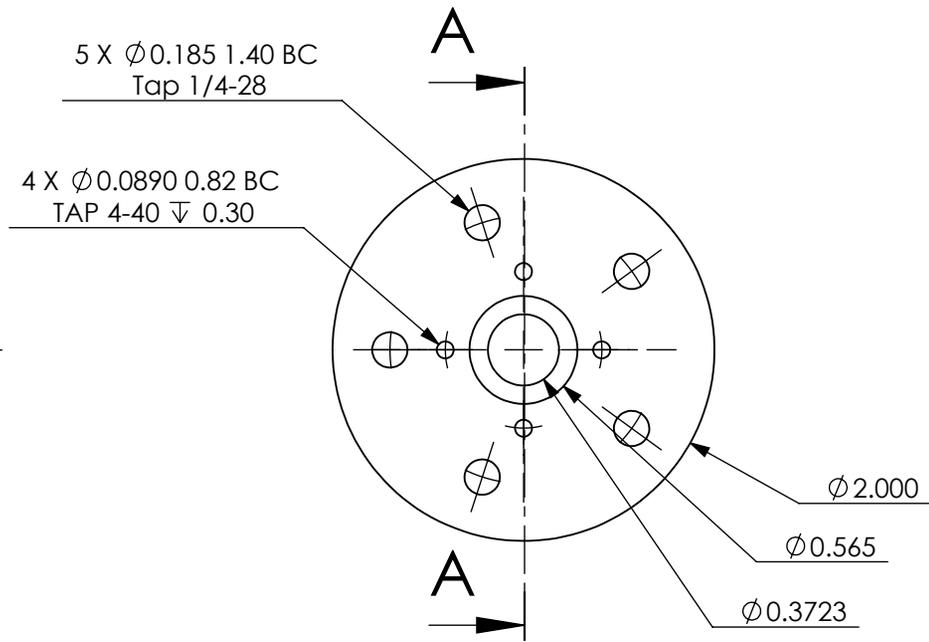
NOTE: PART FROM MSC # 60010501

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

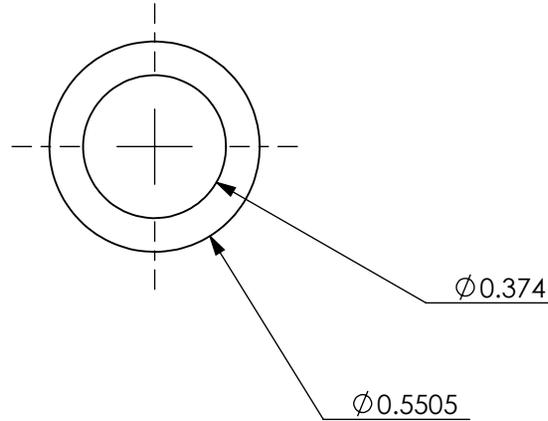
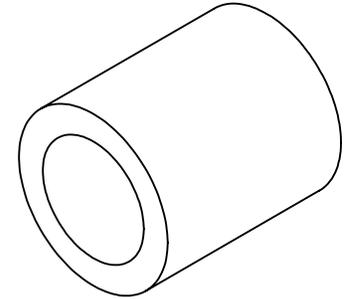
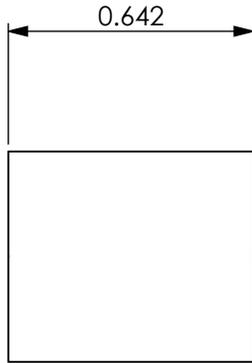


SECTION A-A



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DIMENSIONS ARE IN INCHES		6061 ALUMINUM		<i>Stretch Armstrong</i>	
THIRD ANGLE PROJECTION		Material:			
DEFAULT TOLERANCES:		CRANK HANDLE SUPPORT			
LINEAR:	ANGULAR:	DESCRIPTION:		UNIVERSITY OF IDAHO ME DEPARTMENT	
X. ± .1	X. ± 2	CHECKED BY:		Part #: 7-06	
X.X ± .01	X.X ± 1	DRAWN BY:		QTY: 1	
X.XX ± .001	X.XX ± 0.30'	FILE NAME: 7-06		Scale: 1:1	
X.XXX ± .005		DATE:		SHEET 47 OF 62	
		DATE:			
		CAO Application SolidWorks			



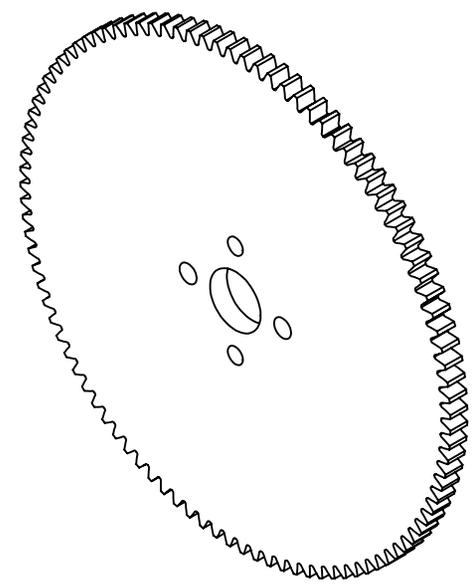
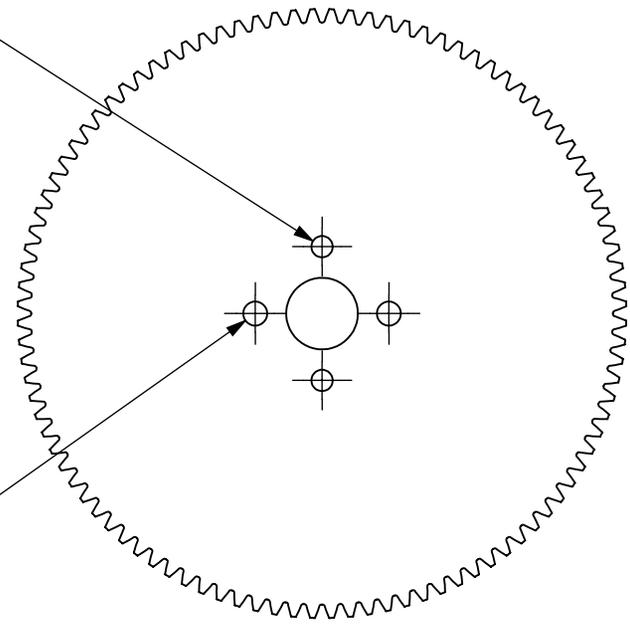
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DIMENSIONS ARE IN INCHES		6061 ALUMINUM		<i>Stretch Armstrong</i>	
THIRD ANGLE PROJECTION		Material:			
DEFAULT TOLERANCES:		LOWER SLIDE SPACER			
LINEAR:	ANGULAR:	DESCRIPTION:		UNIVERSITY OF IDAHO ME DEPARTMENT	
X. ± .1	X. ± 2	CHECKED BY:	DATE:	Part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

CAO Application
SolidWorks

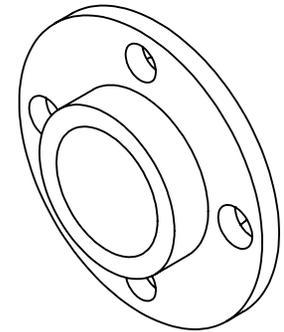
2 X $\phi 0.112$
@ 180° 0.70 BC

2 X $\phi 0.126$
@ 180° 0.70 BC



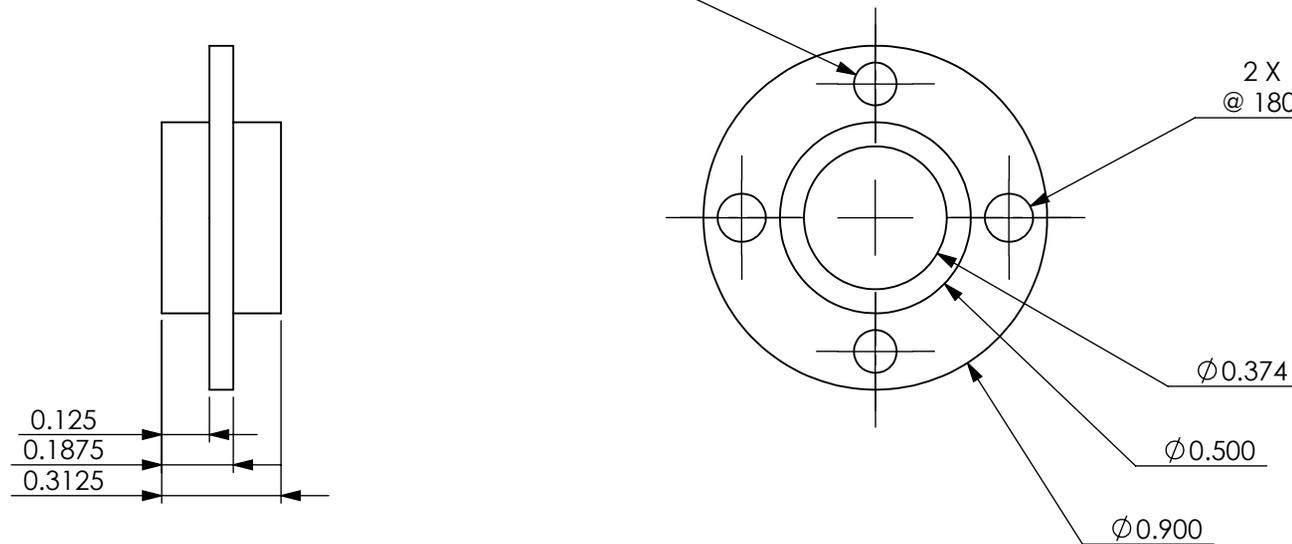
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DIMENSIONS ARE IN INCHES		STAINLESS STEEL		<i>Stretch Armstrong</i>	
THIRD ANGLE PROJECTION		Material:			
DEFAULT TOLERANCES:		LOWER GEAR 100			
LINEAR: X. ± .1 X.X ± .01 X.XX ± .001 X.XXX ± .005	ANGULAR: X. ± 2 X.X ± 1 X.XX ± 0 30'	DESCRIPTION:	DATE:	UNIVERSITY OF IDAHO ME DEPARTMENT	
DRAWN BY:		CHECKED BY:	DATE:	Part #: 7-08	QTY: 1
FILE NAME: 7-08		AMANDA BOLLAND	4/26/2009	Scale: 1:1	SHEET 49 OF 62
		CAO Application SolidWorks			



2 X $\phi 0.112$
@ 180° 0.70 BC

2 X $\phi 0.126$
@ 180° 0.70 BC



0.125
0.1875
0.3125

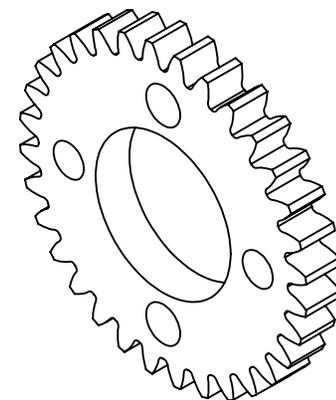
$\phi 0.374$

$\phi 0.500$

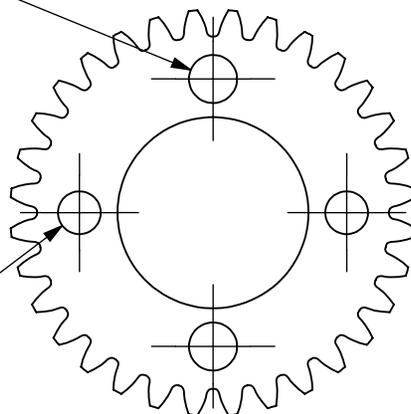
$\phi 0.900$

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



2 X \varnothing 0.126
@ 180° 0.70 BC

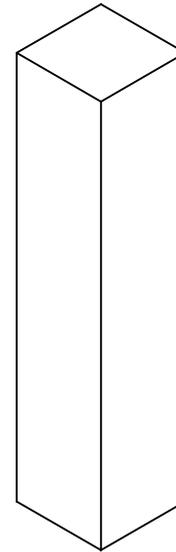
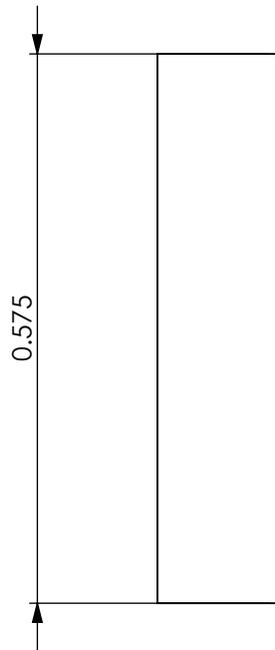
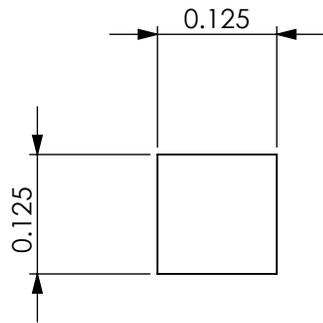


2 X \varnothing 0.112
@ 180° 0.70 BC

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

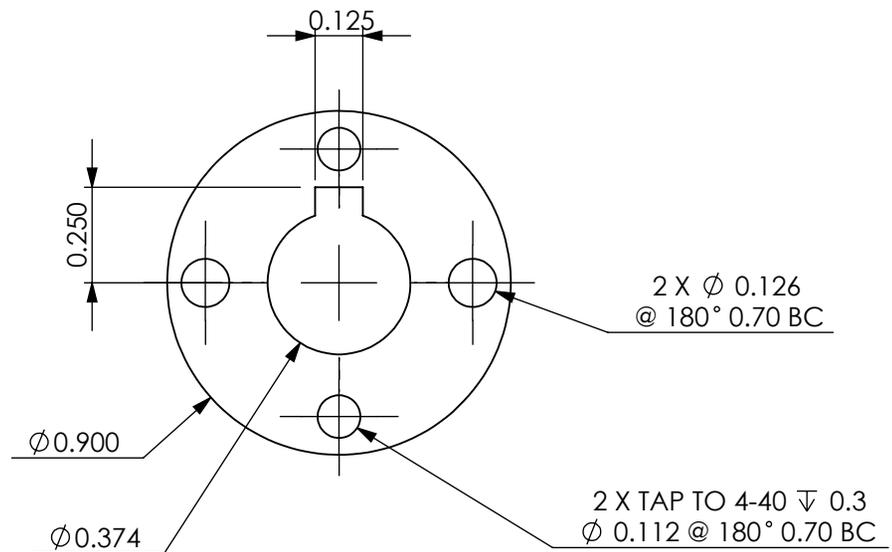
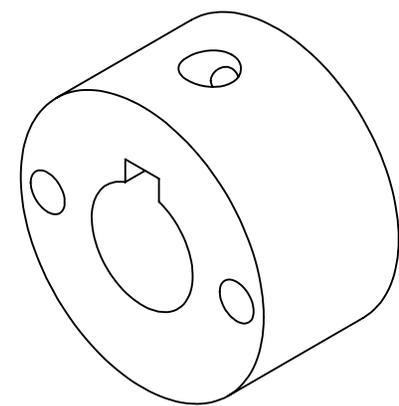
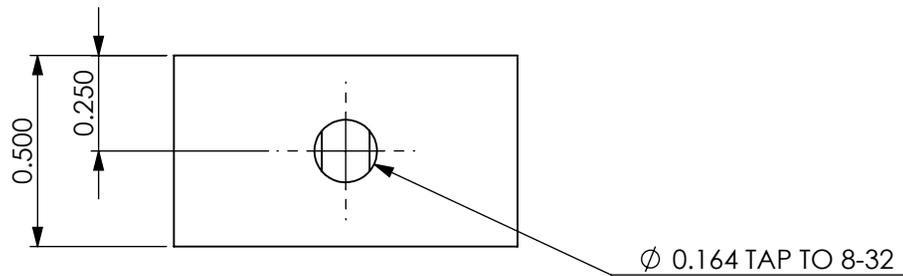
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DIMENSIONS ARE IN INCHES		STAINLESS STEEL		<i>Stretch Armstrong</i>
THIRD ANGLE PROJECTION		Material:		
DEFAULT TOLERANCES:		LOWER GEAR 32		
LINEAR: X. ± .1 X.X ± .01 X.XX ± .001 X.XXX ± .005	ANGULAR: X. ± 2 X.X ± 1 X.XX ± 0 30'	DESCRIPTION:	DATE:	UNIVERSITY OF IDAHO ME DEPARTMENT
		CHECKED BY: AMANDA BOLLAND	DATE: 4/26/2009	Part #: 7-10
		DRAWN BY: AMANDA BOLLAND	DATE: 4/26/2009	QTY: 1
		FILE NAME: 7-10	CAO Application SolidWorks	Scale: 2:1
				SHEET 51 OF 62

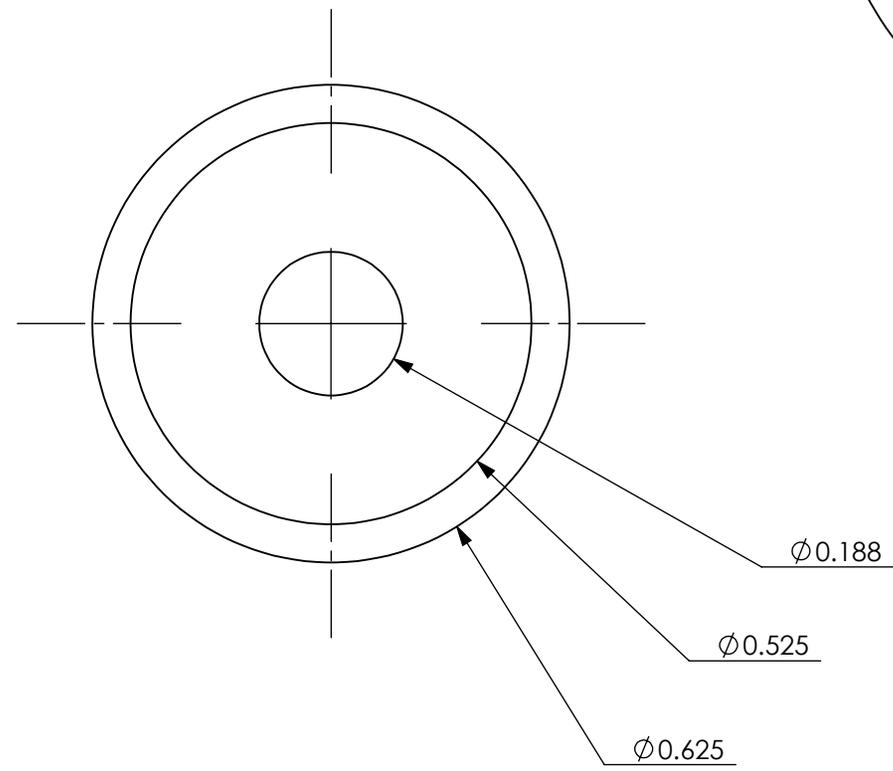
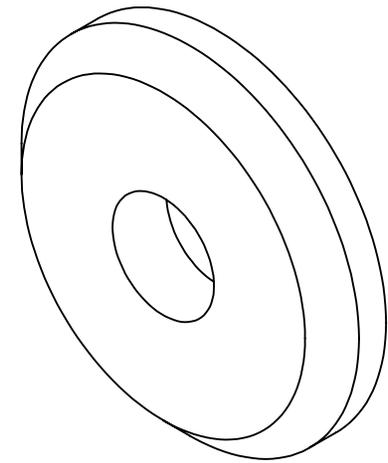
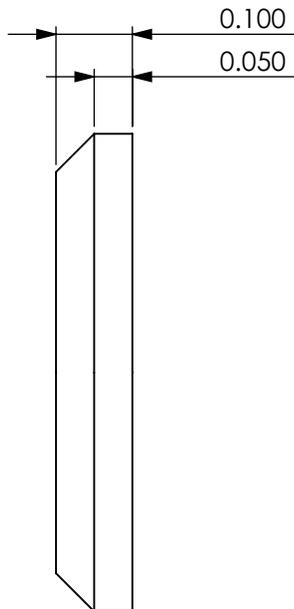


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DIMENSIONS ARE IN INCHES		6061 ALUMINUM		<i>Stretch Armstrong</i>
THIRD ANGLE PROJECTION		Material:		
DEFAULT TOLERANCES:		LOWER SHAFT KEY		
LINEAR: X. ± .1 X.X ± .01 X.XX ± .001 X.XXX ± .005	ANGULAR: X. ± 2 X.X ± 1 X.XX ± 0.30'	DESCRIPTION:	DATE:	UNIVERSITY OF IDAHO ME DEPARTMENT
		CHECKED BY: AMANDA BOLLAND	DATE: 4/26/2009	Part #: 7-12
		FILE NAME: 7-12	CAO Application SolidWorks	QTY: 1
				Scale: 5:1
				SHEET 52 OF 62

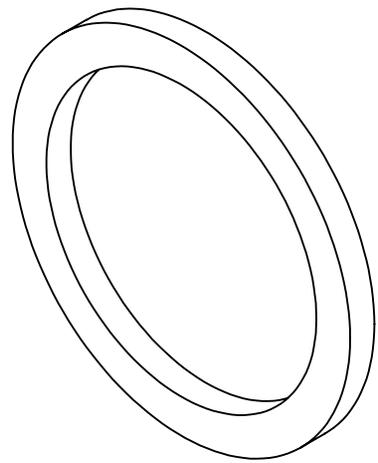
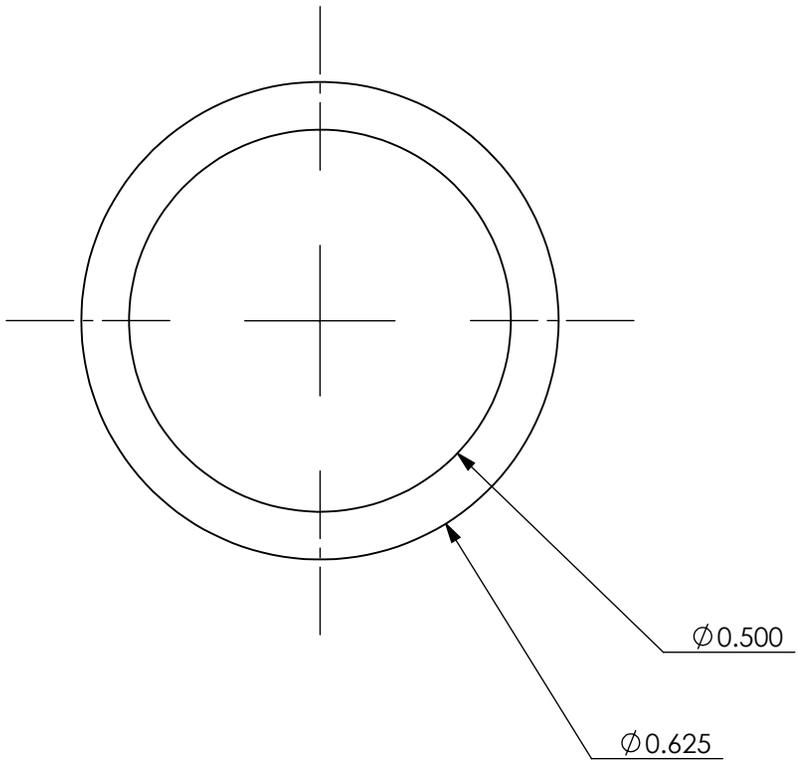
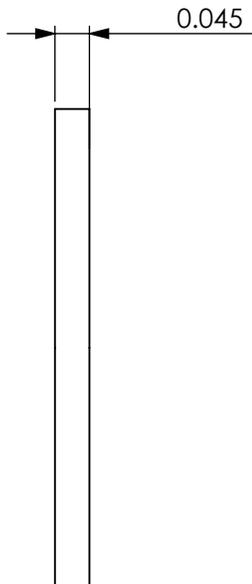


DIMENSIONS ARE IN INCHES		6061 ALUMINUM		<i>Stretch Armstrong</i>	
THIRD ANGLE PROJECTION		Material:			
DEFAULT TOLERANCES:		LOWER SHAFT SLEEVE			
LINEAR: X. ± .1 X.X ± .01 X.XX ± .001 X.XXX ± .005	ANGULAR: X. ± 2 X.X ± 1 X.XX ± 0.30'	DESCRIPTION:		DATE:	UNIVERSITY OF IDAHO ME DEPARTMENT
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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



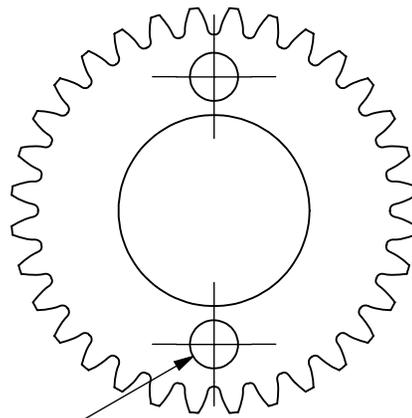
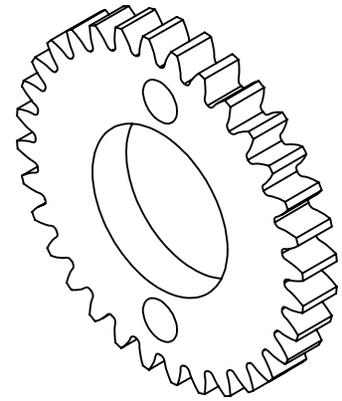
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DIMENSIONS ARE IN INCHES		6061 ALUMINUM		<i>Stretch Armstrong</i>	
THIRD ANGLE PROJECTION		Material:			
DEFAULT TOLERANCES:		SHAFT END CAP			
LINEAR:	ANGULAR:	DESCRIPTION:		UNIVERSITY OF IDAHO ME DEPARTMENT	
X. ± .1	X. ± 2	CHECKED BY:		Part #: 7-14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



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DIMENSIONS ARE IN INCHES		6061 ALUMINUM		<i>Stretch Armstrong</i>	
THIRD ANGLE PROJECTION		Material:			
DEFAULT TOLERANCES:		UPPER SPACER 1			
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:	UNIVERSITY OF IDAHO ME DEPARTMENT
		JUSTIN RUEGSEGGER	4/26/2009	Part #: 7-15	
		FILE NAME: 7-15	CAO Application SolidWorks	DATE:	QTY: 1
		Scale: 4:1		SHEET 55 OF 62	

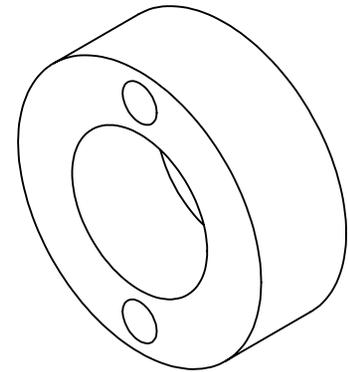
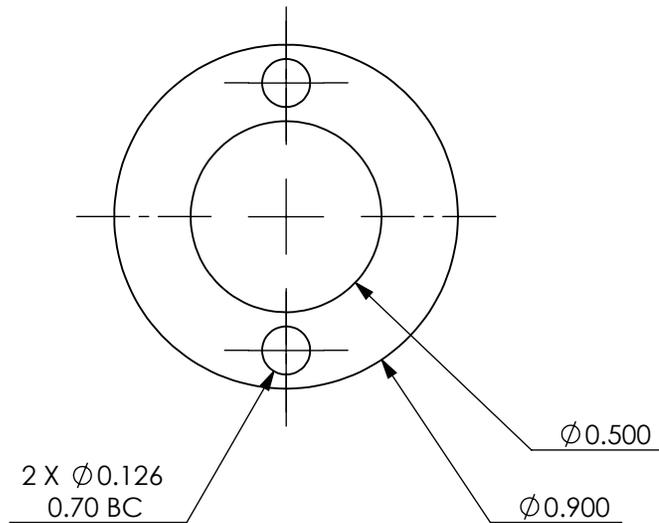
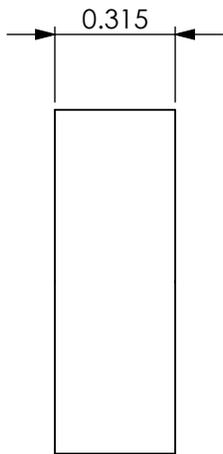


2 X \varnothing 0.126
0.70 BC

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

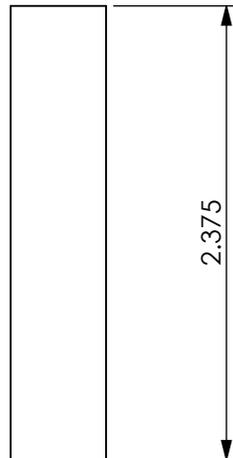
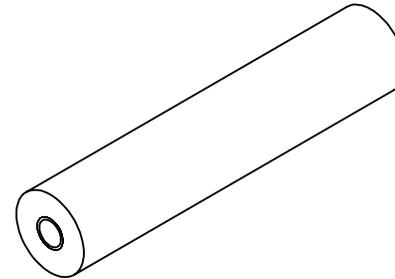
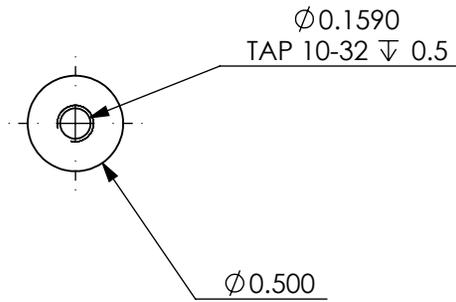
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DIMENSIONS ARE IN INCHES		THIRD ANGLE PROJECTION		STAINLESS STEEL <small>Material:</small>		<i>Stretch Armstrong</i>	
DEFAULT TOLERANCES:		UPPER GEAR 32		DESCRIPTION:			
LINEAR:	ANGULAR:	CHECKED BY:		DATE:		Part #: 7-16	
X. ± .1	X. ± 2	JUSTIN RUEGSEGGER		4/26/2009		QTY: 1	
X.X ± .01	X.X ± 1	DRAWN BY:		DATE:		Scale: 2:1	
X.XX ± .001	X.XX ± 0.30'	FILE NAME: 7-16		CAO Application SolidWorks		SHEET 56 OF 62	



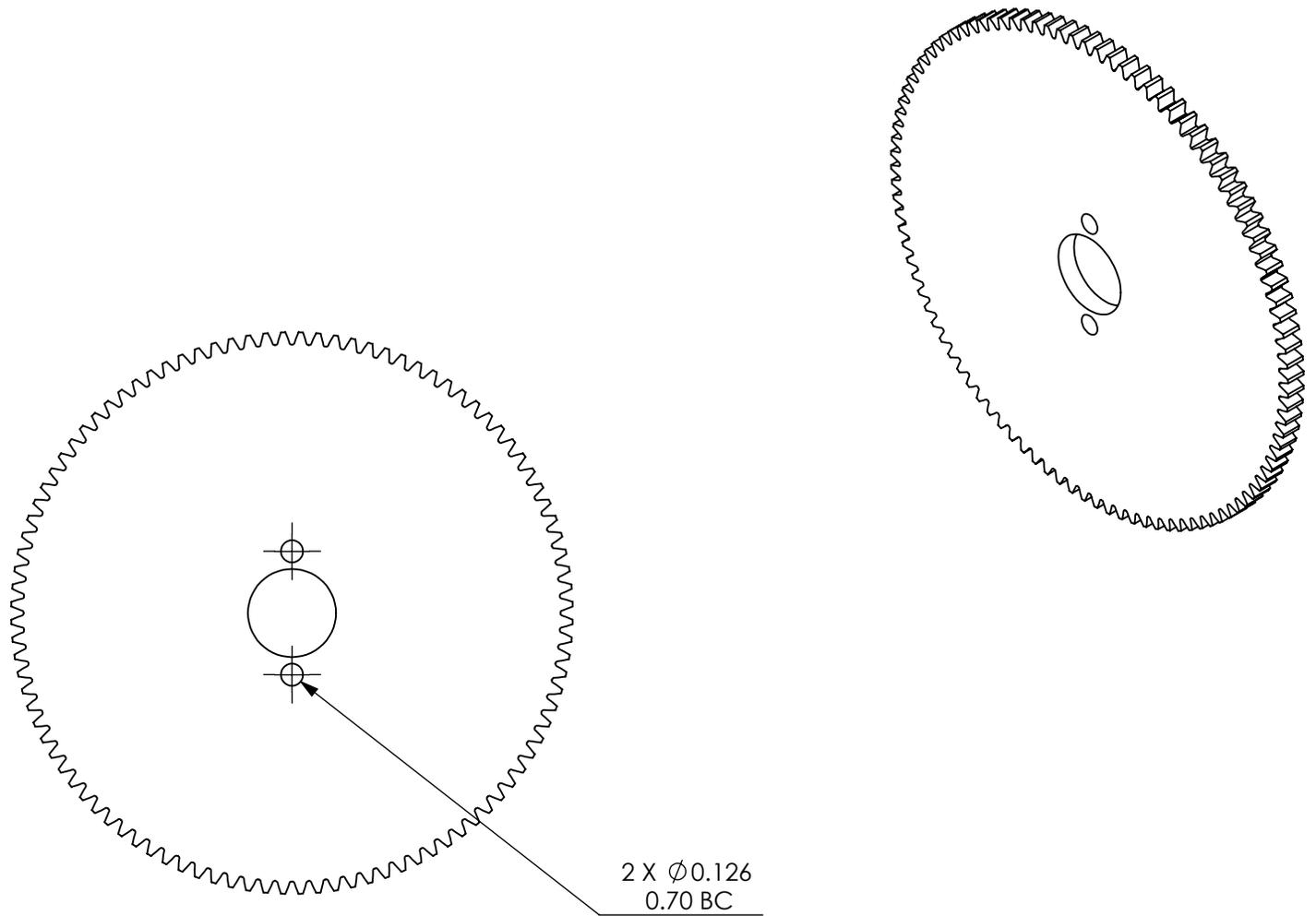
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DIMENSIONS ARE IN INCHES		6061 ALUMINUM		<i>Stretch Armstrong</i>	
THIRD ANGLE PROJECTION		Material:			
DEFAULT TOLERANCES:		UPPER SPACER 2			
LINEAR:	ANGULAR:	DESCRIPTION:		UNIVERSITY OF IDAHO ME DEPARTMENT	
X. ± .1	X. ± 2	CHECKED BY:		Part #: 7/17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



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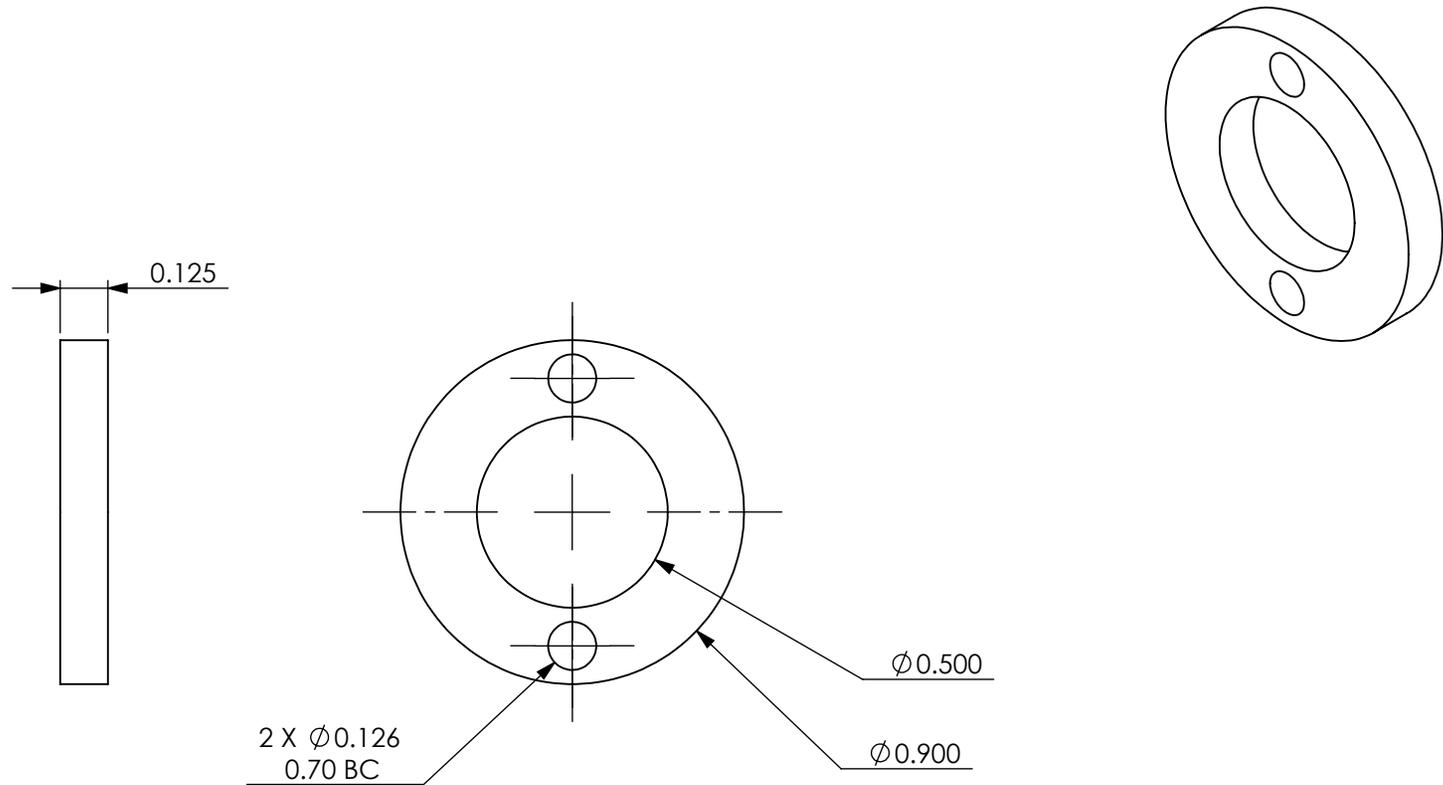
DIMENSIONS ARE IN INCHES		6061 ALUMINUM		<i>Stretch Armstrong</i>
THIRD ANGLE PROJECTION		Material:		
DEFAULT TOLERANCES:		UPPER SHAFT		
LINEAR: X. ± .1 X.X ± .01 X.XX ± .001 X.XXX ± .005	ANGULAR: X. ± 2 X.X ± 1 X.XX ± 0 30'	DESCRIPTION:	DATE:	UNIVERSITY OF IDAHO ME DEPARTMENT
DRAWN BY: JUSTIN RUEGSEGGER		FILE NAME: 7-18	DATE: 4/27/2009	Part #: 7-18
			CAO Application SolidWorks	QTY: 1
				Scale: 1:1
				SHEET 58 OF 62



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

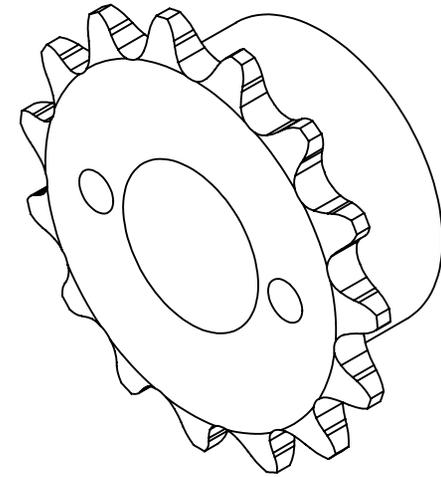
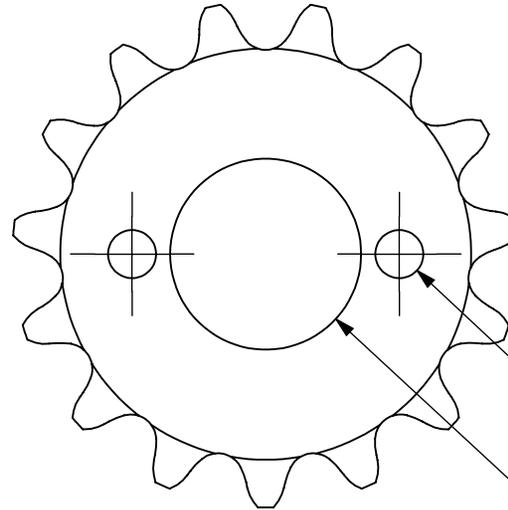
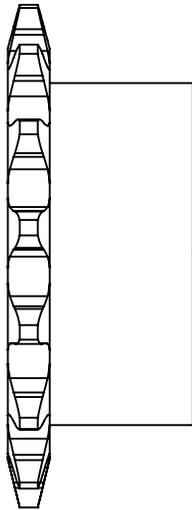
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DIMENSIONS ARE IN INCHES		STAINLESS STEEL		<i>Stretch Armstrong</i>	
THIRD ANGLE PROJECTION		Material:			
DEFAULT TOLERANCES:		UPPER GEAR 100			
LINEAR: X. ± .1 X.X ± .01 X.XX ± .001 X.XXX ± .005	ANGULAR: X. ± 2 X.X ± 1 X.XX ± 0 30'	DESCRIPTION:	DATE:	UNIVERSITY OF IDAHO ME DEPARTMENT	
		CHECKED BY: AMANDA BOLLAND	DATE: 4/26/2009	Part #: 7-19	QTY: 1
		FILE NAME: 7-19	CAO Application SolidWorks	Scale: 1:1	SHEET 59 OF 62



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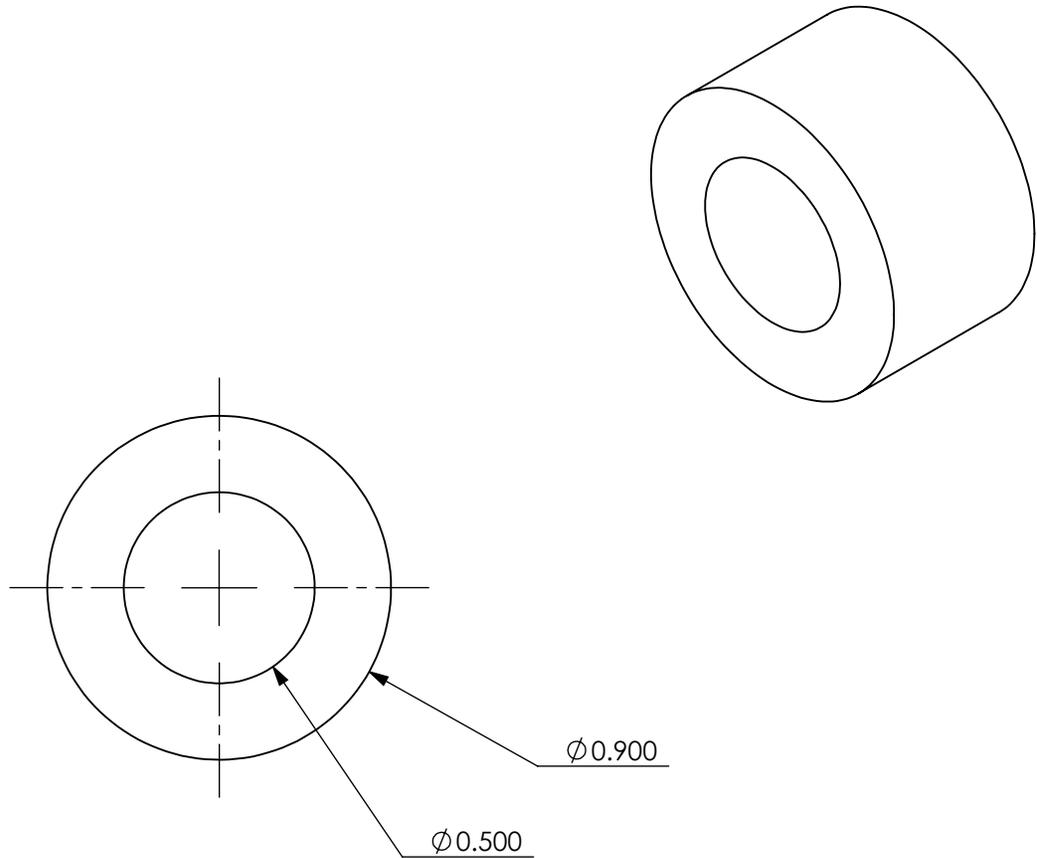
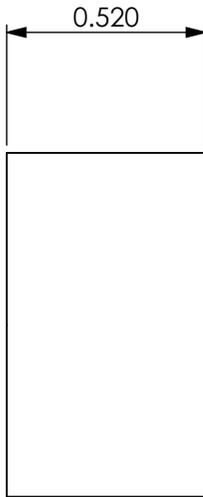
DIMENSIONS ARE IN INCHES		6061 ALUMINUM		<i>Stretch Armstrong</i>	
THIRD ANGLE PROJECTION		Material:			
DEFAULT TOLERANCES:		UPPER SPACER 3			
LINEAR: X. ± .1 X.X ± .01 X.XX ± .001 X.XXX ± .005	ANGULAR: X. ± 2 X.X ± 1 X.XX ± 0.30'	DESCRIPTION:	DATE:	UNIVERSITY OF IDAHO ME DEPARTMENT	
		CHECKED BY: JUSTIN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



NOTE: PART FROM McMASTER # 2737T7

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DIMENSIONS ARE IN INCHES		STEEL Material:		<i>Stretch Armstrong</i>	
THIRD ANGLE PROJECTION					
DEFAULT TOLERANCES:		UPPER SPROCKET		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 #: 7-21
		DRAWN BY: JUSTIN RUEGSEGGER	DATE: 4/26/2009	QTY: 1	
		FILE NAME: 7-21	CAO Application SolidWorks	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			
LINEAR:	ANGULAR:	DESCRIPTION:	CHECKED BY:	DATE:	UNIVERSITY OF IDAHO ME DEPARTMENT
X. ± .1 X.X ± .01 X.XX ± .001 X.XXX ± .005	X. ± 2 X.X ± 1 X.XX ± 0.30'	UPPER SPACER 4	JUSTIN RUEGSEGGER	4/26/2009	
		DRAWN BY:	FILE NAME: 7-22	DATE:	Part #: 7-22
				CAO Application SolidWorks	QTY: 1
					Scale: 2:1
					SHEET 62 OF 62